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This Quarterly Review is published by the Research and Statistics Function of the Federal Reserve Bank of New York. An article by RICHARD G. DAVIS, *senior economic adviser, on the monetary base as an intermediate target for monetary policy begins on page 1. Among the members of the staff who contributed to this issue are* EDWARD J. FRYDL *(on the debate over regulating the Eurocurrency markets, page 11);* DOROTHY B. CHRISTELOW *(on national policies toward foreign direct investment, page 21);* MARCELLE ARAK *and* CHRISTOPHER J. McCURDY *(on interest rate futures, page 33);* PAUL BENNETT *and* ELLEN GREENE *(on the effectiveness of the first-year pay and price standards, page 50).*

An interim report of Treasury and Federal Reserve foreign exchange operations for the period August through October 1979 starts on page 58.

The Monetary Base as an Intermediate Target for Monetary Policy

The potential usefulness for various purposes of the monetary base—roughly member bank reserves and cash in the hands of nonmember banks and the public—has been urged by a number of observers for many years. One set of suggestions has involved proposals that the monetary base be used as a short-term tactical tool in the Federal Reserve's efforts to achieve its longer term money and credit objectives. In its October 6, 1979 announcement of a series of new policy actions, the Federal Reserve indicated that it did in fact intend to place "greater emphasis" on the bank reserves component of the base in day-to-day operations aimed at containing "growth in the monetary aggregates over this year within the ranges previously adopted". A second set of proposals regarding the monetary base, however, conceptually and practically quite distinct from its possible use as a short-term tactical objective, has been to replace the traditional monetary measures with the base in formulating the long-term targets themselves. Interest in the base as a possible replacement for the traditional measures in long-term targeting has become more prominent over the past year or two. This increased interest represents mainly a response to developing problems in interpreting the traditional money supply measures—problems stemming, in turn, from innovations in the use of deposits and deposit substitutes.

In advocating that the monetary base replace the traditional monetary series for long-term targeting purposes, a number of points are often made. One is simply that data on the base become more quickly available and are less subject to error and revision than data on the money supply. The main points are less narrowly technical, however. Thus the claim has been made that the monetary base is about as closely related to aggregate demand as the monetary measures and that it is therefore at least as suitable a target for achieving broader economic objectives. And, it is argued, the recent developments cited above that have tended to loosen the relationship between the traditional money stock concepts and aggregate demand have not had comparably damaging effects on the monetary base. The implication is that for the future, at least, the relationship between the monetary base and aggregate nominal demand is likely to be more stable and predictable than the corresponding relationship involving the various money supply measures. Finally, it has also been argued that the monetary base is much more readily amenable to Federal Reserve control than are the money supply measures and that the base would make a superior target for this reason as well. The purpose of this article is to take a fresh look at the possible value of the monetary base as a long-term target.

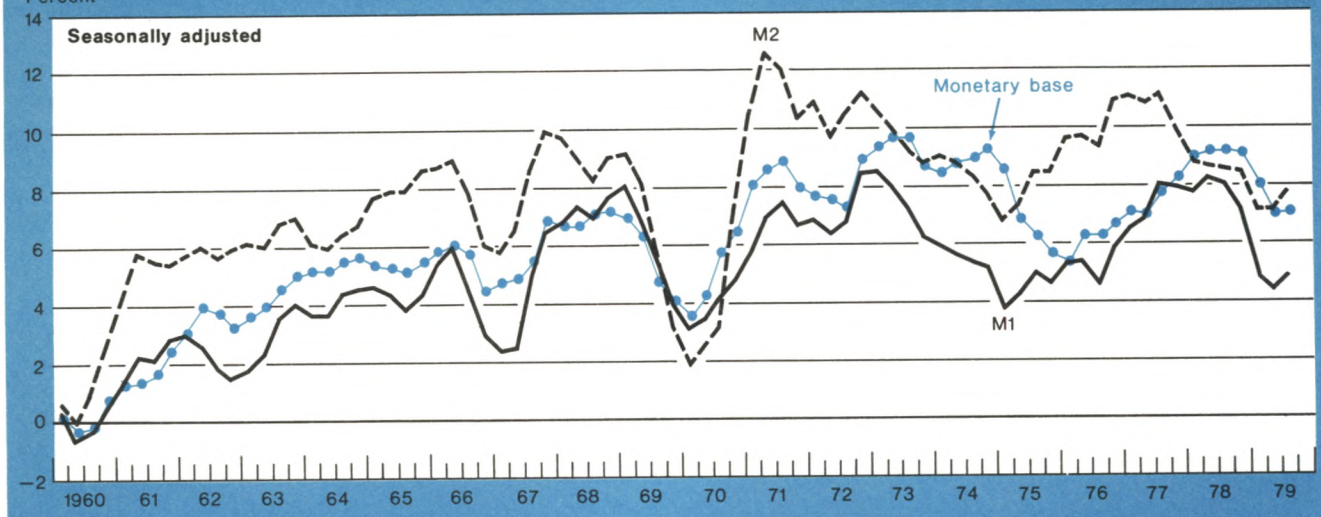
Defining and measuring the monetary base

The monetary base is most conveniently thought of as the sum of three items: (1) member bank reserves (about 28 percent of the total base), consisting of member bank deposits at the Federal Reserve Banks and member bank vault cash, (2) coin and currency in the vaults of nonmember banks (about 2 percent),

Chart 1

Growth of the Monetary Base and the Money Stock

Percentage changes from four quarters earlier

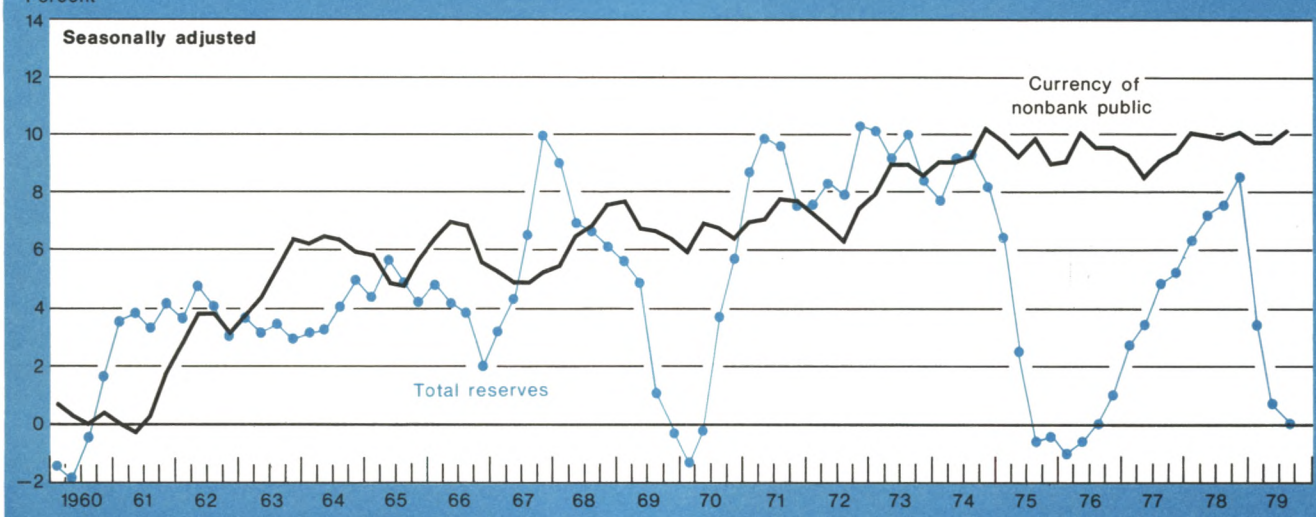


Monetary base data are adjusted for the effects of changes in reserve requirements by the staff of the Board of Governors of the Federal Reserve System.

Chart 2

Growth of Major Components in the Monetary Base

Percentage changes from four quarters earlier



Data on reserves are adjusted for the effects of changes in reserve requirements by the staff of the Board of Governors of the Federal Reserve System.

and (3) currency and coin held by the nonbank public (about 69 percent). The monetary base therefore consists of Federal Reserve liabilities in the form of member bank deposits and Federal Reserve notes, and Treasury liabilities in the form of outstanding Treasury coin and currency. The monetary base can thus be regarded as the consolidated, noninterest-bearing monetary liabilities of the Treasury and the Federal Reserve. As such it can be derived directly from their balance sheets in a manner similar to the derivation of member bank reserves.[1]

Since data on the monetary base are derived primarily from Federal Reserve and Treasury balance-sheet items and from vault cash data received from member banks, estimates of the base become available the day after the end of each banking statement week and are subject to only minor further revisions. These revisions mainly reflect quarterly bench-mark estimates of nonmember bank vault cash and revisions in seasonal adjustment factors. Thus the figures on the base are available more promptly and are substantially less subject to revision and to estimation problems than are the money supply figures.

A somewhat thorny problem which confronts the user of statistics on the monetary base as an analytical tool is just how to adjust for the impact of changes in reserve requirements. Any change in legal reserve requirement ratios—whether levied on deposits or on "nonmonetary" liabilities such as Eurodollar borrowings—obviously affects the amount of money (however defined) and bank credit that can be supported by a given level of reserves or the monetary base. Since the analytical significance of the monetary base for economic behavior lies primarily in the volume of money and credit it can support, the raw figures on the monetary base need to be adjusted somehow for the impact of changes in legal reserve requirement ratios.[2] To the extent that movements in the monetary base are regarded as a measure of the active impact of monetary policy, moreover, it also seems reasonable to adjust for the impact of regulatory reserve requirement changes since such changes obviously do represent policy decisions.

While the need to adjust for reserve requirement changes is clear, there are in practice many ways in which this adjustment can be carried out. The choice among alternatives is not always obvious and depends in part on the analytical purposes for which the data are to be used. The adjusted monetary base data used in this article are those produced by the Federal Reserve Board staff. These data are designed to reflect adjustments only for regulatory changes in legal reserve requirement ratios. The adjustment procedure does *not* correct for changes in effective required reserve ratios that result merely from shifts in the composition of bank liabilities among categories with different reserve requirements. The four-quarter growth rate of the monetary base as adjusted by the Board staff, together with the corresponding growth rates of M_1 and M_2, is shown in Chart 1. The growth rates of the reserve and currency components of the base are compared in Chart 2.

Relationship of monetary base to GNP

As noted at the beginning of this article, a major issue in the possible use of the monetary base as a long-term target is the closeness and stability of its relationship to aggregate demand. The importance of this issue is obvious. Movements in financial measures, whether of money, credit, or the monetary base, have no intrinsic interest. They are of significance only to the extent that they are related to fundamental economic objectives through their influence on aggregate demand.

One procedure for measuring the possible relationship between financial variables and aggregate demand that has become fairly standard over the past decade is simply to regress quarterly changes in demand as measured by nominal gross national product (GNP) on current and lagged changes in the financial measure in question. There are many reasons for treating the results of such regression equations with caution. First, experience shows that the results tend to be sensitive to such details as the time period over which the equations are estimated and the precise form in which the equation is estimated—*e.g.,* with or without fiscal policy variables, whether in percentage change or first-difference form, and so forth. Second, however formulated, there are substantial problems in attempting to assess "causal" significance from these equations—*i.e.,* the extent to which an empirical relationship discovered between nominal GNP and a particular financial measure provides evidence that manipulation

[1] A complication arises from the fact that, in the member bank reserve component, present rules count toward member bank reserves in a given statement week vault cash held two weeks earlier. Hence any definition of the monetary base as the sum of member bank reserves, nonmember bank vault cash, and nonbank holdings of coin and currency must include not *this* week's member bank holdings of vault cash, but vault cash held two statement weeks ago. This is the convention the Board of Governors staff has adopted in its published series on the monetary base and is also the one used in this article. The St. Louis Reserve Bank has chosen, instead, to include the *current* week's member bank vault cash. For most purposes, the resulting differences are not important.

[2] In some analytical frameworks, the monetary base, in representing the noninterest-bearing liabilities of the Government, is treated as part of the net wealth of the private sector. For this purpose, no adjustment for reserve requirement changes is appropriate, but this aspect of the base is ignored in this article as being of only second-order importance.

of the financial measure by the authorities would influence aggregate demand.

Despite these problems, it remains of some interest to see how the relationship of GNP to the adjusted monetary base as estimated in such statistical equations compares with the corresponding relationships derived from equations using the conventional money supply measures. The results of estimating equations using quarterly data on percentage growth in current dollar GNP and current lagged growth of M_1, M_2, the monetary base, and its major components are shown in Table 1. Results are shown both for the full 1961-78 period for which data on the adjusted base are available and for each half of this period. The results suggest that both for the full 1961-78 period and for each half of this period the adjusted monetary base has a weaker relationship to GNP than does either M_1 or M_2. Indeed for the most recent nine-year period, there is *no* statistically significant relationship between growth of GNP and current and lagged growth of the adjusted base.[3] It is also of interest to note that, even for the period as a whole, such relationship between the adjusted base and GNP as does exist is apparently due entirely to the currency component. In the formulation used here, at least, there is *no* statistically significant relationship between GNP and the adjusted reserve component of the monetary base. The apparent dependence of the relationship of the total base to GNP on its currency component is of interest since the volume of coin and currency in circulation is completely demand determined. That is, the banks supply whatever volume the public desires and, in turn, draw on the Federal Reserve to replenish their vaults. Thus it is difficult to see how any statistical relationship between the currency component of the monetary base and GNP could be interpreted as a "casual" relationship running from currency to aggregate demand.

In any case, the results reported in Table 1 certainly provide no reason for preferring the base over the conventional monetary measures.[4] Indeed, by themselves they suggest that the monetary base would have made an inferior intermediate target, relative to these conventional monetary measures, over the eighteen-year period covered by the statistical results.

An alternative statistical "horse race" that can be run between the monetary base and the conventional money supply measures consists of comparing their ability to "forecast" GNP on the basis of statistical relationships estimated from past data. In the particular "race" run here, equations treating GNP growth as a function of current and lagged quarterly growth rates in, alternatively, M_1, M_2, and the adjusted monetary base were estimated on data from 1961 through 1971. Using actual values of the growth rates of these financial measures, "forecasts" of quarterly changes in GNP for the four quarters of 1972 were then made from the equations. The (algebraic) average forecast errors for the four quarters of 1972, are reported in the first line of Table 2 in annual rates. Next, the estimating equations were updated to include 1972 data and similar "forecasts" were then made of GNP growth in the four quarters of 1973—and so on through forecasts of 1978. At the bottom of Table 2, averages of the resulting annual averages of quarterly forecast errors are reported in both algebraic and absolute terms.[5]

The results presented in the table seem to justify the following conclusions: (1) All three measures produce fairly sizable forecast errors on average and in many individual years. (2) For the 1972-78 period covered by the "forecasts", all three measures show a tendency to underforecast the growth rate of nominal GNP. (3) In terms of the absolute values of the forecast errors, the monetary base performs less well on average over the 1972-78 period than either M_1 or M_2 (but the differences are not statistically significant). Overall, these results again fail to point to any superiority of the base over the conventional money supply

[3] The results using the monetary base as adjusted by the Federal Reserve Bank of St. Louis method, which is so constructed as to parallel movements in M_1 and M_2 more closely, are somewhat better than those for the Board-staff series but are still generally inferior to the money stock measures themselves, especially to M_1. The $\bar{R}^2$ for the St. Louis adjusted base measure over the full 1961-78 period is 0.16, well below that for M_1 and M_2. The St. Louis series does about as well as the monetary measures in the first subperiod (with an $\bar{R}^2$ of 0.24), but the $\bar{R}^2$ drops to 0.09 for the 1970's.

[4] Equations similar to those reported in Table 1 were run in which measures of changes in full-employment Federal expenditures and full-employment taxes and man-days lost due to strikes were included along with the various financial measures. The inclusion of fiscal and strike variables improves the explanatory power of all the equations, but the qualitative conclusions regarding the base versus M_1 and M_2 remain the same. The base performs notably worse than

Footnote 4 (continued):

M_1 and M_2 in the full period and both subperiods. Indeed, the base does not make a statistically significant additional contribution, once the impact of the fiscal and strike variables are accounted for, at the 95 percent level according to the "F" test in any of the periods tested.

[5] The procedure used here is essentially the one adopted by Leonall C. Andersen and Denis S. Karnosky in "Some Considerations in the Use of Monetary Aggregates for the Implementation of Monetary Policy", Federal Reserve Bank of St. Louis *Review* (September 1977), pages 2-7. The present procedures differ from theirs with respect to (a) the use of Board-staff data for the adjusted monetary base, (b) the period over which the equations were estimated, (c) the period over which the "forecasts" were computed, (d) the inclusion in the St. Louis paper of strike variables in the equations, and (e) the number of lagged values used in the equations. As in the St. Louis paper, the results shown here were computed after a search for an optimal number of lagged values for the individual financial measures. In the present case, the number of lagged values included is four for each of the three financial measures.

Table 1

Regression Equations Relating GNP Growth to Current and Lagged Growth of Financial Measures

Financial measure	$\bar{R}^{2}$* 1961-I to 1978-IV	$\bar{R}^{2}$* 1961-I to 1969-IV	$\bar{R}^{2}$* 1970-I to 1978-IV	SEE*† 1961-I to 1978-IV	SEE*† 1961-I to 1969-IV	SEE*† 1970-I to 1978-IV
M_1	0.31	0.23	0.19	2.96	2.25	3.64
M_2	0.25	0.27	0.08	3.07	2.19	3.88
Monetary base adjusted	0.08	0.01	−0.06	3.41	2.56	4.16
Total reserves adjusted	−0.02	0.19	−0.11	3.59	2.31	4.26
Currency plus nonmember bank vault cash	0.11	0.13	+0.01	3.35	2.40	4.03

Current and four lagged percentage changes for the financial variables were used in the equations with unconstrained coefficients. All variables are measured as quarterly percentage changes at annual rates using seasonally adjusted data. The monetary base and member bank reserve measures are adjusted for the effect of changes in required reserve ratios by the Federal Reserve Board staff.

* $\bar{R}^2$ is the square of the "coefficient of multiple correlation" (adjusted for "degrees of freedom"). $\bar{R}^2$ measures, on a scale of zero to one, the proportion of the variation in gross national product (GNP) growth that can be accounted for by the regression equation on the basis of variations in the current and lagged growth of the financial measures. The "standard error of estimate" (SEE) is the square root of the average squared error made by the equation in estimating GNP growth rates over the sample period on the basis of the current and lagged growth rates of the financial measure. As is apparent from these definitions, the association of movements in GNP growth rates with current and lagged movements in the growth rates of the financial measures is the closer, the larger is the $\bar{R}^2$ and the smaller is the SEE.

† In percent at annual rates.

Table 2

Errors in Forecasting Quarterly GNP Growth Rates Averaged over Four-quarter Periods

Errors measured in percentage annual rates

Period	Forecast errors from equations using M_1	M_2	Adjusted monetary base
1972	2.2	2.1	3.5
1973	1.7	1.7	0.9
1974	−0.9	−1.3	−2.7
1975	3.0	2.2	2.1
1976	0.9	−0.5	1.7
1977	1.5	1.9	2.9
1978	2.9	4.2	2.9
Average error	1.6	1.5	1.6
Average absolute error	1.9	2.0	2.4
Root mean square error	2.0	2.2	2.5

As described in the text, all forecasts are computed from equations estimating quarterly GNP growth on the basis of current and four-lagged values of growth rates of financial measures based on data from 1961 to the final quarter of the year just prior to the year for which the forecasts are made. The forecasts are made using actual values of the financial data.

Table 3

Fourth-Quarter to Fourth-Quarter Growth Rates in Selected Aggregates

Year	Non-borrowed base*	Total monetary base*	M_1	M_2
1969	3.1	4.1	3.9	3.2
1970	7.6	6.5	4.8	7.2
1971	8.2	8.0	6.6	11.3
1972	8.6	9.0	8.4	11.2
1973	8.0	8.7	6.2	8.8
1974	7.9	9.3	5.1	7.7
1975	6.7	5.7	4.6	8.4
1976	6.7	6.7	5.8	10.9
1977	7.5	8.3	7.9	9.8
1978	9.2	9.1	7.2	8.4

* Adjusted for changes in reserve requirements.

measures in terms of past performance and suggest that, if anything, the base does less well than the conventional measures.[6]

This sort of statistical evidence aside, there are some plausible reasons to think that the monetary base, even after adjustment for changes in reserve requirement ratios, might be less closely related to nominal aggregate demand than the money supply measures. Every development that shifts the "demand for money"—the amount of money balances people wish to hold under given interest rate and GNP conditions—must also shift the demand for the monetary base, since it must affect either the demand for the currency or the reserve component of the base. But there could be some developments that would shift the demand for the base that would *not* affect the demand for money. One such possible source of comparatively greater instability in the demand for the base would be shifts in the public's desired currency-deposit mix. Such shifts could result, for example, from shifts in the *composition* of aggregate demand toward transactions that involve a higher proportion of cash payments relative to checking transactions. Developments of this kind would have no effect on the total demand for the money, but they would shift the demand for the base.[7]

Alterations in bank demands for excess reserves would also be reflected in a shift in the demand for the base but not for money. Member bank excess reserves have for many years been close to frictional minima, so that this cannot have been an important factor influencing the closeness of the base/GNP relationship. But any legislative changes that tended to reduce legally required reserves below the levels desired by the banks themselves could make potential shifts in the demand for "excess" reserves a more significant factor in the future than it has been in recent decades. Finally, shifts in interest rate ceilings or other market factors affecting the demand for reservable, nonmonetary bank liabilities shift the demand for reserves, and thus for the base, without any corresponding destabilizing effects on the demand for the conventional money stock measures.[8]

Does the monetary base offer a way out of current problems with conventional money supply measures?

The most important issues concerning the stability of the relationship of the monetary base to aggregate demand involve not the past, but the present and the immediate future. While some support has been voiced in the past for replacing money supply measures as long-term policy targets with the monetary base, most support for such a move is of quite recent date. The upsurge of interest in the base stems basically from the large number of recent institutional, regulatory, and market innovations affecting the demand for money in its various definitions.

One group of developments has involved the transformation of deposit categories other than demand deposits into the functional equivalent of transactions accounts. Examples include the inauguration of NOW (negotiable order of withdrawal) accounts in some states, the authorization to use savings accounts for automatic transfer account purposes, and telephone transfer procedures for commercial bank savings and thrift accounts. Developments of this kind have had their primary effect on reducing the demand for demand deposits and thus for the narrow M_1 definition of money. To a lesser extent they have involved shifts out of *all* types of commercial bank deposits to thrift institution deposits and, to that extent, they have also had some depressing effect on the demand for M_2. They have probably had little effect, however, on the M_3 definition, which includes both bank and thrift institution deposits.[9]

A second, and related, set of developments has involved the increasing use of close *non*deposit substitutes for "money", instruments not included in *any* of

[6] The root mean square errors for the twenty-eight individual quarterly forecasts are 3.5 percent for M_1, 3.8 percent for M_2, and 4.4 percent for the adjusted monetary base. These root mean square errors are comparable in magnitude and are the same in rank order as the standard errors reported in Table 1. The appearance of a contrast between a substantially worse performance for the base as reported in terms of $\bar{R}^2$s in Table 1 and the only moderately worse performance reported in Table 2 seems to reflect the fact that relatively large differences in $\bar{R}^2$s are associated with relatively modest differences in standard errors and the fact that, in Table 2, annual average forecast errors are reduced to the extent that positive and negative forecast errors within the year offset each other. This results in the smaller root mean square errors reported for all three measures at the bottom of Table 2.

[7] Historically, shifts in the public's demand for currency relative to deposits have on occasion had a dramatic effect on the relationship between the base and aggregate demand. For example, from 1929 to 1933 the monetary base actually rose as the public's demand for currency relative to deposits and the banks' demand for excess reserves swelled; yet aggregate demand along with standard definitions of money fell sharply.

[8] For example, large negotiable certificates of deposit (CDs)—$100,000 or over—fell by roughly $16 billion between January and July 1979, apparently largely reflecting relatively unfavorable cost relationships (especially relative to Eurodollar borrowings, which rose substantially over the same period). While exact figures are not available, it appears that this decline in large CDs may have reduced required reserves by about $1 billion over this period. Over the same period, total reserves declined by about $1.7 billion.

[9] For an analysis of recent developments affecting conventional definitions of the money supply, see "Defining Money for a Changing Financial System", by John Wenninger and Charles M. Sivesind, this *Review* (Spring 1979), pages 1-8.

the conventional monetary definitions. This second set of developments has therefore tended to depress the demand for *all* the conventional measures of money. Most prominent among these developments is the dramatic expansion beginning in late 1978 of money market mutual funds, which usually provide checking privileges. Other examples include the increased use of corporate repurchase agreements, which appear to be close substitutes for demand and/or short-term time deposits, and of United States resident holdings of Eurodollar deposits. The problem with these various developments so far as monetary aggregate targeting is concerned is that they clearly require some adjustment of the published numbers on the conventional monetary measures to arrive at a realistic assessment of what these numbers mean for aggregate demand as interpreted in the light of past relationships.

Now if one knew exactly *to what extent* these various developments had reduced the demand for the various conventional monetary measures—*i.e.*, the extent to which the raw figures on current movements in the aggegates need to be raised to make them comparable to past movements in terms of their broader economic significance—these developments would create no particular problem. A problem is created, however, by the existing uncertainty about the appropriate size of the needed adjustments in the conventional money stock figures. Just to give one example, money market mutual funds rose by $9.6 billion between September 1978 and March 1979. How much of this large rise should be regarded as coming out of M_1? How much out of M_2, or M_3? How much of the increase represents a true shift in the demand for these aggregates under given economic conditions and how much merely reflects the normal substitution out of money into other short-term earning assets that always occurs when market interest rates rise?

While estimates are of course possible, no one can give precise and certain answers to these questions. And, to the extent that uncertainty about the appropriate adjustment exists, problems are created for interpreting the actual movement of the conventional money measures and in setting appropriate targets for them. Moreover, as long as the process of innovation in the use of money substitutes continues, such problems will also continue.

It is in the context of these problems with the monetary aggregates that some have suggested a shift to the monetary base for targeting purposes and for analyzing the thrust of policy. But it seems difficult to make a convincing case for such a recommendation on this basis. The same developments that create problems for the conventional monetary measures also create problems for the monetary base. As is the case with the money supply measures, the stability and predictability of the relationship of the monetary base to aggregate demand depends upon the stability of the demand for the monetary base under "given" economic conditions (which usually means given interest rate and aggregate demand conditions). But the demand for the monetary base is derived from essentially two sources: (1) the public's desire to hold coin and currency and (2) the banks' desire to hold reserves. And, since member bank holdings of excess reserves are essentially zero, the banks' "demand" to hold reserves is for the most part just the level of required reserves they must hold against deposit and nondeposit liabilities. So the demand for reserves is directly related to the public's demand to hold these liabilities.

The implication of this is that the recent developments that have shifted the demand for money by unknown amounts must also have shifted the demand for the base by unknown amounts because they will have shifted the demand for reserves. To be sure, the larger weight of currency in the base relative to its weight in the various money supply measures means that, in a purely arithmetic sense, the affected portion of the base (required reserves) is smaller than the affected portion of the money supply (deposits). But this arithmetic truism would seem to be of little comfort to the user of the monetary base. The impact of the monetary base on the economy will be subject to less uncertainty than the monetary measures as a result of shifts in the demand for deposits only if a dollar of currency is assumed to be just as "important" as a dollar of reserves even though the latter supports multiple dollars of money and credit. This does not seem likely to be true. In short, the monetary base does not seem to offer a way out of the problems created by recent innovations that have affected the demand for the conventional monetary measures.

Indeed, in one respect, the problems created for the base may be more severe than those created for at least the broader money supply measures. For example, if automatic transfer accounts represent in part shifts out of demand deposits, the demand for M_1 will be reduced by an amount that can only be estimated since some of these funds may have come out of ordinary passbook savings accounts or out of some other type of deposit. But the resulting problems for M_1 could be circumvented by working with a broader aggregate, such as M_3, that includes *all* the potentially affected deposit categories.

Similar solutions are not available to get around the problem as it affects the monetary base. Under current law and regulations, required reserve ratios against demand deposits may be as high as 16.25 percent while the required reserve ratio for member bank sav-

ings accounts is only 3 percent and, of course, there are currently no required reserves for accounts at thrift institutions. Thus the shift of unknown magnitude out of demand deposits and into automatic transfer accounts will create a shift, also of unknown magnitude, in the demand for the reserve portion of the monetary base altering its prospective relationship to aggregate demand relative to past relationships.

Controllability of the monetary base

One argument that is sometimes made for the monetary base as a long-term target measure is that its growth could be more accurately controlled by open market operations than can the various money supply measures. In part, the argument for the superior controllability of the base rests on the point noted earlier that incoming data on it are substantially less subject to error and subsequent revision than are the money supply figures. More fundamentally, however, the argument for the superior controllability of the base is that the Federal Reserve can use open market operations to offset the so-called "operating" or "market" factors (such as float) that influence bank reserves and the base. Given the ability to offset these factors, the nonborrowed portion of the monetary base—*i.e.,* the total excluding member bank borrowings from the Federal Reserve Banks—can be controlled over any desired time horizon subject only to errors in estimating the behavior of the operating factors. Such errors tend to be self-canceling over more than a few weeks.

While the Federal Reserve can indeed control the nonborrowed portion of the monetary base with reasonable precision over a period of weeks, the dependence of member bank borrowings on the decisions of the banks (subject to the rules of discount window administration) makes the controllability of the *total* monetary base a more complex problem. It is useful in this connection to distinguish between short-run control periods, which can be identified with the roughly one-month periods between Federal Open Market Committee (FOMC) meetings, and long-run control periods, which can be identified with the four-quarter spans over which the long-run monetary aggregate targets are defined.

In the short-run context, a critical point is that member bank excess reserves tend to average close to frictional minima over a period of weeks and to show little systematic sensitivity to interest rate movements. Consequently, movements in the total reserve component of the base tend largely to mirror movements in required reserves. And in the short period of a few weeks between FOMC meetings, required reserve movements tend to be only marginally responsive to the volume of nonborrowed reserves supplied.[10] Thus, with both excess and required reserves largely unresponsive to the behavior of nonborrowed reserves in the short run, the volume of reserves supplied through open market operations in the short run mainly affects the extent to which member banks are forced to meet their reserve requirements through borrowings at the discount window. For example, the larger the volume of nonborrowed reserves supplied through open market operations, the smaller will be the banks' recourse to the discount window in meeting reserve requirements. The effect on *total* reserves, nonborrowed plus borrowings, and on the *total* monetary base appears to be quite small over these short periods. Hence, most of the problems of predicting and influencing required reserves that make short-run control of the money supply so difficult also complicate efforts to achieve short-run control of the total monetary base.

Over an "intermediate" period of several weeks or a few months, it is plausible to believe that the total monetary base or total reserves should be more accurately controllable than measures such as M_1 and M_2. At least this is true to the extent that emphasis in day-to-day and week-to-week open market operations is placed on the volume of nonborrowed reserves or the nonborrowed base rather than on particular levels of interest rates such as the Federal funds rate. The superior controllability of the total base under these conditions is plausible simply because the only source of slippage between *nonborrowed* reserves or (allowing for currency) the nonborrowed base and the *total* base

[10] Under the "lagged reserve accounting" procedures currently in effect, deposits in a given week determine required reserves two statement weeks later. Thus, at the beginning of any statement week, required reserves for the current and following statement week are already determined and by definition completely unresponsive to the level of nonborrowed reserves. Hence, the impact of this week's level of nonborrowed reserves on money market conditions and on public and bank portfolio adjustments can affect required reserves only in the third following week at the earliest. Even if reserve requirements this week were levied on *this* week's deposits, the volume of nonborrowed reserves supplied this week would affect this week's deposits and required reserves only to the extent that bank and public portfolio adjustments respond promptly to the impact of changes in reserve availability and to concomitant changes in money market conditions. If such portfolio adjustments tend to take place only gradually, however, then changes in nonborrowed reserves in the current week might have little effect on required reserves, and hence on total reserves, in the current statement week even in the absence of a lagged reserve accounting system. The exact speed of response of such portfolio adjustments to changes in current reserve availability, and therefore the extent of the actual influence of lagged reserve accounting in slowing the response of deposits and required reserves to changes in nonborrowed reserves is a matter of controversy. Whatever the answer, it does seem clear that portfolio adjustments unfold over time. Thus the full impact of changes in nonborrowed reserves on deposits, required reserves, and total reserves will be felt only over a period of weeks or even months.

is member bank borrowings. But, in the case of measures such as M_1, M_2, or bank credit, there is a second slippage between nonborrowed reserves or the nonborrowed base in the form of potential changes in the "multiplier" relationship between the total base and any one of these money or credit measures. Clearly, unforeseen movements in the multiplier represent an additional source of difficulties in controlling money and credit measures relative to controlling the base.

In any event, from the point of view of influencing ultimate economic objectives, and certainly from the point of view of choosing long-term targets, it is the relative controllability over periods of perhaps six months or longer that is relevant in comparing the base with money and credit measures. Over horizons as long as the four-quarter spans used currently to define long-term targets, problems of controlling both money supply measures and the monetary base are considerably less acute than they are in the short or even intermediate run—at least from a purely technical point of view. Indeed, there seem to be grounds for believing that, over periods as long as a year, problems of achieving targets for any of these measures may be not so much technical as they are the result of substantive policy dilemmas.

But, from a purely technical point of view, the relative controllability of the monetary base versus the money supply measures over a one-year horizon depends significantly on the tactical *modus operandi* of open market operations. To the extent that the tactical approach chosen is one of inducing the desired aggregate growth rates by influencing money market conditions, as measured, for example, by the Federal funds rate, the problems of controlling the base would prove essentially the same as those encountered in attempting to control the money supply measures. And they would be no easier to solve. For all these various aggregate measures, planning to achieve stated targets requires projections of the interest rate path expected to be associated with the desired growth rate of the financial aggregate. In practice, the needed projections must encompass projections of mutually compatible paths for interest rates, the financial aggregates, and aggregate demand. The difficulties of making such projections are substantial. And they do not appear to be significantly less substantial for the monetary base than for money and credit measures.

A different approach to the problem of long-run control would be to attempt to control the monetary base over one-year horizons by setting objectives for the *nonborrowed* base, a measure which should itself be controllable over a one-year period with a very high degree of accuracy for reasons already given. Since the difference between the nonborrowed and total monetary base is simply member bank borrowings, a relatively small proportion of the total,[11] one-year growth rates in the total base do, in fact, tend to show a reasonably tight relationship to corresponding growth of the nonborrowed base (see Table 3). Even so, the slippages have been significant on occasion, reflecting substantial year-to-year variability in member bank borrowings. These variations, in turn, primarily reflect sometimes sizable shifts in the relationships of the discount rate to market interest rates.

On balance, it appears that, from the point of view of longer run control, increased emphasis in day-to-day actions on reserves and reduced emphasis on interest rates, such as was announced by the Federal Reserve on October 6 to enhance control of the long-term money supply targets, would tend to enhance the long-run controllability of the base to an even greater degree. Thus in this respect the new procedures tend also to enhance the relative attractiveness of the total base as a long-term target.

Conclusion

In evaluating the potential merits of the monetary base or any other measure for long-term targeting purposes, a number of considerations should be taken into account. The strongest argument for the base is that it does seem more amenable to control than the conventional money measures, at least beyond the very short run and provided the focus of tactical operations is on nonborrowed reserves rather than on interest rates. But this advantage has to be qualified by the comment that, over periods as long as a year, problems of control for *any* of the major money and base aggregates may not be primarily technical. With respect to its relationship to aggregate demand, the statistical evidence reported here suggests that in the past the base has been at least somewhat less closely related to nominal GNP than has been the case for the conventional money measures. The weight to be given to this sort of evidence needs to be supplemented with more general considerations. Shifting public preferences as between deposits and currency, shifting bank demands for excess reserves, and changing market developments affecting nondeposit liabilities are all potential sources of instability in the relationship of the base to aggregate demand. And such

[11] Excluding exceptional borrowings, such as those to the Franklin National Bank prior to its collapse, quarterly average borrowed reserves in recent years have rarely exceeded $2 billion or about 1.4 percent of the current level of the base of roughly $150 billion.

sources of possible instability tend to count against the base as a possible long-term target.

Finally, there should be no illusion that the base is immune to the problems of interpretation that have recently been created for the conventional money measures by innovations in the use of deposits and deposit substitutes. The new developments do create real problems in setting long-term targets, both for the money measures and for the base. There are probably no completely satisfactory solutions to these problems. But the replacement of all money stock measures in long-term targeting by a single target for the monetary base does not appear to be a particularly attractive option. The development of new money stock measures that take account of the recent financial innovations appears a more promising approach to dealing with the implications of these innovations for formulating long-term policy targets.

Richard G. Davis

The Debate over Regulating the Eurocurrency Markets

The Eurocurrency markets have long been the focus of controversy, and debate over how the markets are functioning has become even more spirited recently. The markets' size, their persistently rapid growth, and their relative freedom from regulation by national monetary authorities are at the root of present concerns. But the debate about the Euromarkets is often confusing, and the arguments made frequently appear diffuse and abstract.

The divergence of views has two dimensions. At one level commentators disagree about what economic and financial problems, if any, are caused by Eurobanking operations. At another level, even among those who identify the same problems, sharp differences exist regarding appropriate remedies. Those parties most directly concerned—depositors, final borrowers, international banks, and monetary authorities of major countries—approach the markets from differing perspectives, and so it is quite natural for them to differ on both their analyses and their prescriptions.

This article seeks to offer some perspective on the Euromarket debate and to indicate current differences in viewpoint about the problems involved. The objective is not to survey comprehensively all responsible opinion in the controversy; nor is it to identify official positions of specific institutions. Rather, the article examines attitudes toward the three broad issues that underlie the debate about the Euromarkets:

- Have the Euromarkets contributed to worldwide inflation by complicating efforts at monetary control for national authorities or by providing a too ready source of financing for expenditures?
- Have the Euromarkets contributed to exchange rate instability?
- How safe are Eurobanking operations?

Inflation and the Euromarkets: monetary control

A number of critics claim that the Euromarkets can undermine or at least complicate national monetary policies in ways that tend to worsen inflation. Basically, that view rests on variations of the argument that the Euromarkets can create money over and above what is created in domestic banking systems. Since this line of thought plunges directly into all the ambiguities surrounding the concept of money, care must be taken in choosing the measure of domestic money to compare with Euromarket liabilities.

It has long been recognized that a shift of deposits from a domestic banking system to the corresponding Euromarket (say from the United States to the Eurodollar market) usually results in a net increase in bank liabilities worldwide. This occurs because reserves held against domestic bank liabilities are not diminished by such a transaction, and there are no reserve requirements on Eurodeposits. Hence, existing reserves support the same amount of domestic liabilities as before the transaction. However, new Euromarket liabilities have been created, and world credit availability has been expanded.

To some critics this observation is true but irrelevant, so long as the monetary authorities seek to reach their ultimate economic objectives by influencing the money supply that best represents money used in transactions (usually M_1). On this reasoning, Euromarket expansion does not create money, because all Eurocurrency liabilities are time deposits although

frequently of very short maturity. Thus, they must be treated exclusively as investments. They can serve the store of value function of money but cannot act as a medium of exchange. For instance, if Eurodollars must be converted into United States demand deposits to be used in purchase of goods, services, or assets, and if a reliable relationship holds between the amount of domestic transactions balances and the level of domestic expenditures, then national monetary authorities could in principle influence those expenditures by controlling the domestic money supply.

Yet this point can also be pushed too hard. First, it is possible that shifts of funds from domestic markets to the Euromarkets increase the velocity of circulation of the domestic money supply, although not necessarily in any predictable way. To the extent this is true, the relation between domestic money and expenditures may be unstable. Like other investments that serve as money substitutes, Eurocurrency deposits allow depositors to economize on their money balances. Consequently, the rate of utilization, or velocity, of the domestic money stock may increase. Any given level of economic activity can then be transacted with less money. That can have inflationary consequences if the increase in velocity is not offset in time by the authorities.

Second, whether Eurocurrencies can play the role of transactions balances is basically a matter of market practice. For example, in the Caribbean offshore Eurodollar market, it is customary for branches of United States banks to transfer overnight Eurodollar deposits into immediately available funds without penalty. Under such conditions, overnight Eurodollars are a very close substitute for transactions balances in checking accounts at United States banks. For sophisticated multinational corporations, it is not a large step from the present situation to doing transactions directly among themselves in Eurodollars or other Eurocurrencies.

The important general point is that accepted concepts of money are being changed by practices in the Euromarkets, and not just domestically. This recognition that financial markets are undergoing rapid structural change underlies much of the official concern about Euromarket growth. Potentially, such change can disrupt traditional relationships between money stock measures and expenditure flows. As a result, monetary authorities may end up either seeking to control an inappropriate money measure or finding it difficult to decide how much weight to give to alternative measures of the money stock.

Nearly all observers would concede that rapid Euromarket growth in an inflationary environment makes life difficult for monetary authorities. But many argue that it is not necessary to slow the growth of the Euromarkets to attain better control over world inflation. Rather, traditional domestic monetary policy operations are seen as sufficient to control the growth of bank liabilities worldwide. Any faster than anticipated expansion of the Euromarkets need only be offset by further domestic monetary restraint. This could be achieved more or less mechanically by incorporating Eurocurrencies into domestic monetary aggregate targets in some appropriate fashion.

There are, however, practical reservations about this prescription. First is the problem of estimating any stable statistical relationship between a monetary aggregate that includes some Eurodeposits and national expenditures. Second is the problem of collecting sufficiently reliable and timely data about changes in Euromarket liabilities to be of use to monetary authorities in their policy operations. Such detailed information is not fully available. In principle, of course, it can be obtained, but the practical difficulties of obtaining comparable, timely information from many different countries poses no small problem.

Another important problem is the distribution of the effects of greater domestic monetary restraint. Governor Wallich of the Federal Reserve Board has raised this point in the context of United States monetary policy.[1] While conceding that theoretically the effects of Eurodollar expansion can be offset by tighter Federal Reserve open market operations acting on the domestic money supply, Wallich argues that this is not a practical alternative since the incidence of tighter monetary policy would fall disproportionately on expenditures financed by United States banks and borrowers not well connected to the Eurodollar market. Direct measures to control the Euromarkets, such as reserve requirements, would in his view spread the burden of tighter monetary policy more equitably among different kinds of borrowers and lenders.

Inflation and international adjustment

Another important charge made against the Euromarkets is that they contribute to inflationary pressures worldwide by increasing credit availability to deficit countries and thereby impeding adjustment of international payments imbalances. Specifically, deficit countries are said to be able to obtain balance-of-payments financing from banks operating in the Eurocurrency markets without having to take actions to reduce their deficits. As a result, worldwide expendi-

[1] Statement by Henry C. Wallich before the Subcommittees on Domestic Monetary Policy and on International Trade, Investment, and Monetary Policy of the House Committee on Banking, Finance, and Urban Affairs, July 12, 1979. See also Governor Wallich's testimony before the Senate Subcommittee on International Finance, December 14, 1979.

tures—in particular, consumption expenditures—are maintained at high levels, putting upward pressure on prices in world markets.

In this view, Eurocurrency loans serve to displace credits that carry with them conditions on national economic policies—most importantly, borrowings from the International Monetary Fund (IMF). On the demand side, borrowing countries are seen as reluctant to submit to Fund involvement in their policies. As a result, they have a marked preference for bank financing of balance-of-payments deficits. On the supply side, banks are seen as wary of exerting leverage against borrowers by withholding new loans since such a step might jeopardize prospects for repayment of earlier loans and because they are naturally reluctant to get involved in domestic political arguments. To the contrary, banks have competed aggressively in recent years in extending new Eurocredits and, at least until very recently, at terms increasingly favorable to borrowers. In any case, individual commercial banks have no mandate for tailoring their lending activities to promote international balance-of-payments adjustment.

At heart, these criticisms apply to international bank lending practices generally. They become specific charges against the Euromarkets only because the bulk of bank lending to sovereign borrowers takes place in those markets (especially the Eurodollar market). However, the Euromarkets do have a natural comparative advantage in handling this business.

First, sovereign borrowers frequently need large amounts of funds at once. The most convenient, and often the only, way to accommodate such large loans is the syndicated bank credit. This financing technique has reached its fullest development in the Euromarkets, and it is not clear whether the technique is readily adaptable to domestic banking markets.

Second, both borrowers and lenders often prefer that loans be syndicated across a network of banks from different countries. In that way, borrowing costs may be minimized while the risk of the transaction is spread as widely as possible.

Third, from the point of view of the commercial banks, there are often tax advantages in Euromarket lending, compared with strictly domestic lending. In some cases, earnings on loans shifted from the Euromarkets to bank head offices would become subject to additional domestic taxes, which would serve at the margin to discourage banks from extending such loans. For example, earnings on loans booked through the overseas branches of New York City-based banks would be subject to state and local taxes if shifted to the home office books.

Consequently, while international lending could in principle be made from domestic offices instead of Euromarket branches, in practice the transition would be uneven. Thus, it is argued, regulation of the Euromarkets could result in less balance-of-payments financing, smaller deficits, and a possible reduction in inflationary spending.

This line of argument is sharply criticized by many bankers as well as officials of a number of deficit countries. To them, the problem is not that financing deficits is too easy. Rather, the problem is that, because of successive oil price shocks, international payments imbalances have become so large and intractable that reasonable stability for the world economy requires adequate financing through the Euromarkets. Moves to restrict growth of the Euromarkets would inevitably raise the cost of funds to borrowers. But countries borrowing to offset the impact of higher oil prices or of a recession in the industrial world are not in a strong enough position to be very sensitive to borrowing costs in the short run. Hence, such restrictive measures would do little to promote adjustment and would simply make recycling a more costly proposition for borrowing countries. In short, those who make this argument say that, without provision of alternative private and official financing sources, measures to restrict Eurolending would disrupt the recycling of oil funds, cause added difficulties for deficit countries, and contribute little or nothing to the reduction of oil price-induced inflation.

Between these two extreme views—the Euromarkets as undermining balance-of-payments discipline and the Euromarkets as essential to the recycling process—is an intermediate one. In that view, the Euromarkets have been a major positive factor in smoothing the impact of balance-of-payments disruptions which could otherwise have led to serious economic hardship for many countries. But access to the Euromarkets has also led certain countries to delay fundamental adjustments in economic policies past the point where adjustments could take place gradually. The results then were abrupt constraints on borrowing capacities and economic dislocation when the magnitude of the payments imbalances became apparent. The proponents of this intermediate view would seek some mechanism to moderate the growth of bank lending in the Euromarkets and correspondingly increase balance-of-payments credits through the IMF. While this general approach has been widely endorsed, specific proposals for striking an appropriate balance between private and official sources of financing have proved difficult to formulate, especially since there is considerable disagreement over what policy conditions should be attached to IMF loans.

Exchange market instability

The coincidence of recurrent exchange market disturbances and rapid Euromarket growth in the past decade has prompted a line of criticism that the Euromarkets serve to amplify, or even generate, foreign currency crises. Few other aspects of the Euromarket controversy have been so confusing as the debate on this point. Often such charges refer to factors that have little to do with the special characteristics of the Euromarkets.

The arguments can commonly be broken down into a number of propositions. First is the claim that the Euromarkets serve as a source of finance for exchange market speculation or hedging activities. Although this proposition has frequently been advanced, it is practically impossible to confirm or deny empirically. Apart from that, however, the proposition has no clear policy implication unless it is assumed that no other source can replace the Euromarkets in financing currency speculation. Yet even a casual analysis of recent economic history suggests that there are many ways to finance speculation and hedging activities, notably through leads and lags in commercial transactions.

Another line of thought starts with the presumption that recent foreign exchange crises are dominated by the problems of the dollar. By facilitating the expansion of worldwide dollar liquidity, the Euromarkets have magnified the exchange rate effects of other factors tending to weaken the United States currency: trade problems, increasing dependence on imported oil, stubborn inflation, the longer term relative economic decline of the United States, and official reserve diversification. This argument, however, comes down to being just another version of the earlier claim that Eurodollar banking operations have complicated the conduct of United States monetary policy in a way that promotes excessive credit creation.

A commonly voiced criticism is that Euromarket operations, by virtue of their technical efficiency, have increased the international mobility of capital. As a result, any factor influencing the exchange market in a particular way may induce destabilizing capital flows and greater swings in rates than would occur without the Euromarkets.

It is difficult to know what to make of this charge. It is certainly true that the Euromarkets are highly efficient. That is one reason they have grown so fast in recent years. It also is true that the Euromarkets have enhanced international capital mobility, both between countries and between currencies. However, to speak of what might have happened in the absence of the Euromarkets is not helpful. After all, the Euromarkets grew to maturity as a response to the various types of barriers that were put in place in the 1960's to impede international capital movements. Since then, these barriers have been widely relaxed. The conclusion must be that the Euromarkets are less important in facilitating capital movements now than they once were.

What the critics seem to be saying is that a world of free capital movements and exchange rate flexibility is inherently difficult to manage, because sudden shifts in market psychology are capable of producing sharp changes in exchange rates. Sometimes those changes cumulate in one direction. However, skeptics feel there is no evidence that marginal adjustments in the growth of the Euromarkets would do anything to make the exchange markets less volatile. In their view, justification for Euromarket regulation must lie elsewhere.

Safety of Eurobanking operations

The last broad area of argument about the Euromarkets covers questions regarding the safety of banking operations. These are questions traditionally raised by bank supervisors about domestic banking but extended to the international context. The most obvious issue is whether banks are adequately assessing the creditworthiness of borrowers to whom they are making loans. After many years of experience, both banks and supervisory authorities have found that the standards of evaluation commonly applied at home can be usefully applied in international lending as well. But, in addition, some characteristics of international banking complicate prudential oversight. Consequently, several issues are seen to deserve special attention. These include maturity mismatching and interest rate risk; "country" or, as it is sometimes referred to, "transfer" risk; capital adequacy and bank earnings; foreign exchange risk; interbank or "name" risk; and the question of who fulfills the role of "lender of last resort" in the Euromarkets.

Maturity mismatching and interest rate risk

Sudden sharp increases in short-term money market rates can result in serious difficulties for banks by driving up the cost of funds used to back longer term loans whose rates are locked in at lower levels for a period of time. Banks are subject to such interest rate risk from the normal banking operations of borrowing short and lending long. However, mismatching of maturities on assets and liabilities becomes a serious problem when some prudent limits are exceeded. The definition of prudence is likely to change in accord with a wide variety of factors, including the variability of market rates. Most of the debate in this area reflects different perceptions of what is prudent banking practice in the present market environment.

The maturity mismatching of Eurobanking operations

is singled out by some observers as an object of concern. The structure of Eurobank liabilities is dominated by short-dated money. Bank of England data indicate that about 40 percent of Eurobank liabilities in London is of one-month maturity or shorter, with half of this at eight days or less. The weighted average maturity of total liabilities in London is probably between three and four months. By comparison, the typical syndicated bank loan in the Euromarkets calls for the interest rate to be adjusted at six-month intervals.

This fact alone, however, says nothing about the safety of present balance-sheet structures, which is a matter of interpretation. Defenders of present practices dismiss concerns about maturity structure as exaggerated, pointing out that no unambiguous trend toward greater mismatching can be seen. Others argue that increased variability of interest rates has compounded the risk of maintaining current maturity structures and that present mismatching practices should be curtailed.

It is important to note that, although the Euromarket portion of bank balance sheets shows maturity mismatching, the risk faced by any given bank depends on the structure of the consolidated balance sheet. While available evidence is inconclusive, the maturity structure of domestic office assets and liabilities, appropriately adjusted for stable demand deposits, may tend to reduce any interest rate risks resulting from Eurocurrency operations.

Country risk

Country risk identifies a set of banking problems dealing with the exposure of Eurobanks to official or private borrowers and lenders from countries other than the banks' home countries. The general focus of concern is whether banks have made an excessive amount of loans to countries that are likely to repudiate debt, to impose controls on outflows of funds, to delay repayments, or to take other actions to jeopardize the capital value of bank assets or the earnings on loans. The specific country borrowers that are sources of concern change with economic and political events. In principle, however, payments difficulties may arise with any borrower, so that the problem is a general one and not confined to any group of countries.

An important aspect of the country risk problem is identifying the appropriate extent of commercial bank involvement in recycling oil funds. This problem can be distinguished from the one cited earlier concerning the Euromarket role in delaying international adjustments in payments imbalances. Few would suggest that oil-importing countries should take restrictive measures to eliminate the balance-of-payments effects of oil price increases in the short run. Since such adjustments must involve longer term changes in energy demands and supplies, financing oil deficits in the short run is appropriate. So debate centers less on whether recycling should occur than on whether it should occur primarily through the Eurobanking system.

It is commonly accepted that the international banking system performed very efficiently as an intermediary of oil funds after the first round of extraordinary petroleum price hikes. Although debt-servicing problems did develop in a number of well-known cases, such as Zaire, Peru, and Turkey, the absence of any general debt problem is cited as a factor supporting the role of commercial bank recycling. In fact, actual losses on international lending have been relatively small.

Commercial banks are probably in a better position to manage their international exposures that they were a few years ago. A number of them have taken steps to upgrade internal information systems and their analyses of economic conditions abroad. Information available to regulatory authorities on the country exposure of bank loans has also been improved in recent years, most notably through country exposure lending survey reports coordinated by the Bank for International Settlements (BIS) that cover banks in major countries. Hence, monetary authorities are seen as having sufficient information to monitor international lending and to detect excessive concentrations of lending before severe problems arise that could threaten the solvency of an individual commercial bank.

Critics of private sector recycling argue that the very success of the commercial banks during the last round masks the severity of the problem. The general extent of the debt problem has not been revealed in widespread debt-servicing problems only because banks have extended further loans or rescheduled old ones to maintain servicing flows. Furthermore, the case of Iran reveals that payments disruptions cannot be easily anticipated.

In essence, critics of recycling through the Euromarkets argue that the sheer size of the prospective problem—estimates of the 1980 OPEC (Organization of Petroleum Exporting Countries) surplus run as high as $80 billion-$100 billion—and the fundamental uncertainty regarding political elements of country risk combine to put the international banking system in an increasingly precarious position. Based on this, they recommend that controls on the Euromarkets to limit the involvement of the banking sector in the recycling process should be combined with expanded official methods of intermediating the flow of oil funds and with incentives to promote direct lending by OPEC countries themselves. To advocates of this approach, the answer to the problem of country risk exposures in the future lies in spreading the risks across a greater

number of institutions and toward the official sector.

The deposit rather than the loan side of bank balance sheets may also raise what amounts to a country risk problem. Recycling of oil funds has resulted in a heavy concentration of bank deposits in the hands of official institutions of OPEC countries. The chief risk in this situation is that one or more oil exporters may for political reasons withdraw their funds from some individual bank or from the banking system of some nation. A popular misconception views such a withdrawal as analogous to a run on a bank by depositors, having all the deflationary effects associated with hoarding. This view, which became prominent again during the threat of Iranian withdrawal of funds from United States banks, is misleading and exaggerates the costs of deposit transfer. The withdrawn funds are not hoarded but are redeposited in other Euromarket banks that are then in a position to supply funds to the institutions suffering the original withdrawals. As a result, the original banks exchange direct deposits for interbank borrowings. This, however, is not without costs; the original institutions may have to pay a premium to raise an extraordinary amount of funds in the interbank market and their profits may fall as a result. So some risk attaches to concentrated deposit holdings by country as well as to concentrated claims positions.

Adequacy of bank earnings and capital

Another prudential concern is the adequacy of returns to banks on international lending and the associated implications for bank capital. This matter has come to the forefront with the easing of terms on syndicated Eurocredits. In the past few years the average maturity of Euroloans has increased and the average spread over LIBOR[2] for loan rates has fallen steadily to levels near the historic lows of late 1973 and early 1974. Furthermore, the markets have been characterized by a narrower range of loan spreads across different borrowers than prevailed in that earlier period of easy terms. This relaxation of lending terms has occurred in step with a strong expansion of Eurocredit volume.

Market observers differ on the reason for the emergence of a borrowers' market. One view sees the spread as a price that balances the supply of and demand for loanable funds in the Euromarkets. It puts the responsibility for lower spreads on the increased supply of loanable funds in Euromarkets created by deficits in the overall United States balance of payments. As a corollary, the correction for narrowness in spreads lies chiefly in policy measures to reduce the United States deficit rather than in imposition of any controls on Euromarket operations. However, there are serious problems with this view. It is questionable why an increase in the amount of funds supplied to the Euromarkets should affect spreads on loan operations rather than rate levels. In any case, this theory cannot account for the continued erosion of spreads in the first half of 1979 when the United States recorded a sizable surplus on combined current and private capital accounts.

Another view looks to greatly increased competition among lending institutions for international business as the cause of narrower spreads. New entry and aggressive pricing to expand market share by Japanese and European banks are frequently cited as the factors behind easier terms.

Still others maintain that the reduced spreads are an appropriate reflection of lower risk resulting from the generally good repayment record on international loans and therefore pose no problem. This view is strongly disputed, however, by those who are concerned by the easing of credit conditions in the Euromarkets. They feel that it impairs bank earnings, thereby reducing the banks' ability to maintain adequate capitalization ratios. Some market participants have also stressed the need for caution. A number of prominent United States banks announced their reluctance to lend at narrower margins in 1978, and the volume of international credits extended by United States chartered banks and their overseas branches expanded at a much slower rate in 1979 than in earlier years.

These steps are cited by some as indications of market limitations to the erosion of lending terms that make unnecessary formal Euromarket controls. It is also suggested that decreasing spreads exaggerate the change in total costs to borrowers by neglecting the behavior of fees and other charges that may have increased to offset the fall in spreads. Moreover, some expect spreads to widen in response to the market pressure of increased demand stemming from the latest round of oil price hikes.

Critics of present Euromarket pricing practices find little reassurance from these arguments. They point out that spreads remain narrow despite strong demand for credit, and they question whether bank earnings are adequate compensation for whatever increases in risk may be associated with a period of greatly enlarged deficits over the next couple of years. In short, there is virtually no consensus on this issue at the moment.

[2] LIBOR is the widely used acronym for the London interbank offer rate, the rate at which banks operating in the Euromarkets lend funds to each other. In Eurobanking practice, loans to nonbanks are priced as a markup or "spread" over LIBOR.

Foreign exchange risk

Banks assume foreign exchange risk in their operations when the currency composition of their assets does not match that of their liabilities, thereby leaving them vulnerable to losses from unanticipated changes in exchange rates. While this area has remained a background concern in the recent Euromarket debate, it does not claim the prominence as an issue that it had earlier. Monetary authorities have already taken a wide range of measures to address concerns about bank foreign currency exposures. These actions stemmed in large part from the collapse of Germany's Herstatt Bank in 1974, which had a deep effect on official and market attitudes toward Eurobanking operations generally and foreign exchange operations in particular. In the wake of that bank failure, authorities in many countries imposed quantitative restrictions on open currency positions of their commercial banks or required considerably expanded reporting of such open positions. These steps, together with heightened caution on the part of many banks, have muted foreign currency exposure as a major issue.

Interbank positions

Interbank depositing is a prominent feature of the Euromarkets. Using the difference between gross and net measures of the markets according to BIS definitions, about half of gross Euromarket liabilities is accounted for by interbank positions. Despite its size, the interbank market is only infrequently an object of discussion in the Euromarket debate.

In part, this is undoubtedly because interbank positions are neglected as a matter of course in discussions dealing with the inflationary consequences of Euromarket expansion. Most analyses treat interbank Eurodeposits in the same way as interbank domestic deposits, which leads to their exclusion from any "Euro" monetary aggregate. Only a few unconventional critics would treat interbank deposits as ordinary nonbank deposits and argue that their growth leads to growth of spending on goods and services. A second factor dampening concern about interbank positions is a general characterization of them as highly liquid and easily reversible balance-sheet items that arise out of the natural arbitrage operations of an efficient market.

Nevertheless, this extensive network of interbank positions does translate the risks faced by any one bank on its operations into risks faced by all other banks. That this kind of risk—name risk, for short—is a real matter of concern was also demonstrated by the Herstatt failure, which temporarily resulted in a complicated tiering in the structure of interbank rates on the basis of the perceived quality of bank names.

However, questions remain about whether the amount of interbank business has become excessive in recent years. Some would say that the stability over time in the ratio of gross to net measures of the Euromarkets argues that interbank positioning is not aggravating risks in Eurobanking. Others would reply that this stability in the aggregate measures is reassuring only if the structure of interbank positions has not changed in a marked way—that is, only if banks with risky features on the rest of their balance sheet are not becoming relatively more active borrowers of funds in the interbank market.

Even under detailed supervision and reporting requirements it is difficult for monetary authorities to assess the structure of name risk on a timely basis. At the very least, it calls for continuing, frequent international consultation among bank supervisors, a process that has gone forward under the auspices of the BIS.

Lender of last resort provisions

One of the traditional responsibilities of any central bank is to act as lender of last resort—to supply funds to a solvent bank or to the banking system generally in an emergency that threatens a sharp contraction of liquidity. This role normally has been framed with respect to commercial banks in the domestic banking system. But the emergence of the extraterritorial Euromarket created ambiguities about which central bank would be responsible for providing lender-of-last-resort support for overseas operations.

No final resolution of those ambiguities has yet been reached, and it is doubtful that central bankers will ever codify their respective roles or lay down conditions for lender-of-last-resort assistance. It is important that techniques of assistance be free to evolve as institutional arrangements and forms of financial activity in Euromarkets change. Moreover, it could be counterproductive to specify what banking behavior would or would not qualify a bank for emergency assistance.

Important steps have nonetheless been taken to eliminate needless ambiguities and anxieties about central bank preparedness should liquidity problems threaten. Central bankers from major industrial countries, who meet regularly at the BIS, have examined the issues involved and concluded that "means are available for that purpose [*i.e.*, providing temporary liquidity] and will be used if and when necessary". In addition, major central banks have recognized the status of foreign branches as integral parts of banks: for example, the Federal Reserve has declared its readiness to extend to a solvent parent appropriately secured funds when temporary liquidity is needed to relieve strains encountered in foreign as well as domestic markets. Furthermore, central bankers and

other regulators have developed a cooperative framework within which they share views about their prudential and lender-of-last-resort responsibilities.

Although ambiguities do remain, a common understanding of the problem is emerging from the deliberations of responsible authorities. It emphasizes the mutual interests of all central banks, which extend beyond national borders.

Positions and policies

Eurobanking operations are not governed by any systematic regulations achieved through international agreement. This does not mean, however, that they are completely free from regulations. National authorities have occasionally put in place rules or have reached gentlemen's agreements with private market participants that have affected the operations of Eurobanks. By and large, however, such steps have been taken with only national policy considerations in mind and little regard has been given to fashioning rules in a wider international context.

A prerequisite to an international agreement on regulatory action is the achievement of a consensus on the overall role of the Euromarkets. But the variety and technical complexity of the issues in the Euromarket debate make it difficult to move from individual arguments on specific issues to a broader synthesis—what might be called a "position" toward the markets in general. Indeed, a number of thoughtful analysts have admitted (with some candor) to having views on one or more of the issues but having no overall position. However, in the interest of summarizing where the debate now stands, it might be useful to define a few stylized positions that do not necessarily represent anyone's expressed position but do give the flavor of the range of judgments. The list is by no means exhaustive and certainly does not presume to anticipate new ideas that might emerge.

The juggernaut view

At one extreme is the judgment that the Euromarkets are fundamentally out of control, generating excessive credit creation globally and fostering overly competitive lending practices that pose a threat to the stability of the international monetary system. Out of this view come recommendations for internationally coordinated policies to limit directly the growth of Euromarket operations and to impose restraints on the structure of Eurobank balance sheets as well as the types of loans that can be made.

The hybrid banking system view

In this judgment, the essential problem is that the Euromarkets frustrate the intention of monetary authorities who recognize the growing internationalization of banking markets but want to preserve distinct elements of their domestic banking systems. In one sense, this intention represents a clear, but less than wholehearted, break from the official consensus of the 1960's, when separation of a "domestic" banking market from an "international" banking market was an explicit policy goal. The hybrid system arose as capital controls programs of the 1960's were dismantled while most national regulations on domestic operations were kept in place. The Euromarkets remained, by and large, free from those domestic regulations. That freedom created incentives to shift banking operations from domestic markets to the Euromarkets. With monetary policies placing greater emphasis on aggregates management, these shifts in banking operations came to be seen as a growing problem for monetary control.

To those subscribing to this position, the contradictions created by such a hybrid banking system could be remedied in three ways. Regulations could be imposed on the Euromarkets to make them more like domestic banking markets. Or, regulations could be eliminated on domestic banking markets to make them more like Euromarkets. Or, both Euromarkets and domestic banking markets could be changed in a variety of ways to assure a convergence of practice and incentives. In any case, the markets would tend to become unified and could then be treated as such from the point of view of monetary policy. The choice of approach would depend on what is feasible and what is compatible with national laws and customs on bank regulation.

The "take it to the Cooke Committee" view

This position sees the Euromarkets as basically well-functioning markets without need for systematic regulation. The extraterritorial nature of the markets, however, demands an organized framework for ongoing close cooperation among the interested national monetary authorities to coordinate supervisory practices and share information. The Committee on Banking Regulations and Supervisory Practices (the "Cooke Committee", named after its present chairman, a Bank of England official), set up under the auspices of the BIS, is seen as providing a sufficient degree of official involvement. Proponents of this view would support improved reporting requirements and would try to strengthen supervisory practices as warranted to deal with prudential concerns.

The status quo view

Finally, at the other extreme is the position that the Euromarkets have demonstrated not only their efficient functioning as financial markets but also their indis-

pensability as a mechanism for dealing with the problems of recycling surpluses and financing international trade and economic development. In this view, there are no equally suitable alternatives for achieving these ends. Any attempts to tamper with the Euromarkets would run the risk of seriously upsetting the recycling mechanism or even driving much of the business now conducted through the international banking system into nonbank channels that are less regulated and not systematically monitored. According to this judgment, it has not been proved that the Euromarkets pose problems of monetary control but, if further evidence pointed to such problems, they could be adequately handled by traditional monetary policy.

Conclusion

Obviously, this characterization of the range of positions is a strong abstraction. It does not capture all possible positions nor does it serve as the only possible characterization. But it does give a flavor of the range of views that underlie the discussion about what steps, if any, should be taken to control the Euromarkets.

One lesson comes through clearly from the Euromarket debate up to this point: there is little chance that progress can be made in designing specific regulatory measures until there is agreement among the principals involved about the ultimate objectives of Euromarket regulation. So far, that has proved elusive.

Edward J. Frydl

Principal Features of the Euromarkets

The Eurocurrency markets are a global network of banks, bank branches, and other bank affiliates that make loans and accept deposits in currencies other than that of the country in which the business is booked. Euromarket transactions are generally for large amounts, and virtually no retail banking is done. The markets overlap in large part, but are not synonymous, with international banking markets. For example, a sterling loan made by a bank in London to a firm outside the United Kingdom is clearly an international banking transaction but not a Euromarket transaction. A dollar loan made by the same bank to another British resident is a Euromarket transaction but not strictly speaking an international banking transaction.

Size

Estimates of the size of the Eurocurrency markets vary somewhat depending on which bank claims or liabilities are counted and on which countries are covered. A common definition consists of total foreign currency liabilities, including those to domestic residents, reported by banks in Europe, Canada, and Japan plus the external liabilities reported by branches of United States banks in selected offshore financial centers, principally the Bahamas and Cayman Islands. On this measure, gross Eurocurrency liabilities (inclusive of interbank deposits) totaled about $900 billion in mid-1979, based on data collected by the Bank for International Settlements (BIS). Net of interbank deposits among reporting banks, the Eurocurrency markets totaled some $450 billion. However, even this net size estimate includes substantial amounts of liabilities to banks, primarily to those outside the BIS reporting area. Thus, Eurocurrency liabilities to nonbanks were less than $200 billion as of mid-1979.

Growth

The Euromarkets grew rapidly during the 1970's. All the measures of Euromarket size increased at annual rates above 25 percent. By comparison, a broad measure of the United States money supply that includes large negotiable certificates of deposit (CDs) and time deposits grew at an annual rate of about 10 percent between 1970 and mid-1979, as did a broad measure of the German money supply.

Currency composition

By far the largest Eurocurrency market is in United States dollars, accounting for nearly 75 percent of all Eurocurrency deposits. The Euro-German mark market, accounting for about 12 percent of the total, is the next largest. The Euro-Swiss franc market accounts for somewhat less than 5 percent, and other major currencies represent even smaller shares. Recently, however, a Euro-Japanese yen market has begun to grow rapidly, following relaxation of certain official restrictions on the international use of that currency.

Location

London is the center of Euromarket activity, accounting for more than one third of Eurocurrency business. London was a natural focal point for the development of Euromarkets, reflecting the combination of relative freedom from regulation over foreign banking operations, a favorable geographic location, and the considerable financial expertise in the London banking community.

In recent years, the offshore Eurodollar market, centered in Nassau, has become a major rival to London for dollar business because of operating advantages (*e.g.*, the same time zone as New York) and relatively favorable tax features. The offshore Eurodollar market is dominated by United States money center banks, who in fact conduct their business out of their headquarters in New York, Chicago, or California and simply book loans and deposits to their Caribbean branches—which are commonly shell branches rather than ordinary full-service ones.

The major center of the Euro-German mark market is Luxembourg, which stands in relation to Germany much as the Caribbean market does to the United States. Germany itself hosts very little Euromarket activity because of local reserve requirements and other regulations that discourage Eurocurrency business. Other Euromarket centers include Paris, Amsterdam, and Zurich in Europe, Singapore and Hong Kong in the Far East, Bahrain in the Middle East, and Panama in Latin America.

Nature of borrowers

Public borrowers—governments, central banks, nationalized or public-sector corporations and financial institutions—predominate. They have accounted for about 80 percent of all borrowings through syndicated bank credits in recent years.

While borrowers from developed countries still account for the bulk of outstanding Eurobank credits, the pattern of new borrowing has changed noticeably in recent years. In 1979, industrial country borrowers accounted for about one third of new Eurocurrency credits, compared with 70 percent in 1974. Over the same period, the shares of credits going to nonoil developing countries and to communist borrowers both doubled—to 40 percent and 10 percent, respectively. OPEC members (Organization of Petroleum Exporting Countries), which accounted for less than 5 percent of Eurocredits in 1974, took more than 15 percent of total borrowings in 1979.

Nature of depositors

Oil-exporting countries, not surprisingly, have become a principal source of funds to the Euromarkets, but the industrial countries as a group are still the major source of funds. Most of these deposits flow through the interbank network, but direct deposits by nonbanks account for perhaps 20 percent of gross Euromarket liabilities. The developing nations as a group are also an important source (as well as user) of funds. This reflects to a great extent the depositing of part of their official reserves in Eurobanks. The central banks of some industrial countries also place part of their foreign currency reserves in the Euromarkets, although by agreement many do not.

Nature of Eurobank assets

Short-term financing is commonly extended by Eurobanks through lines of credit. Medium-term loans, most commonly of three to five years' maturity, are usually extended on a revolving credit basis, and credits are "rolled over" every three or six months. In addition, large loans are extended through what are called syndicated credits. These syndicates involve the participation of many banks from different countries. Loans are for fixed maturities (usually three to seven years, but occasionally as long as ten years or so), but interest rates are revised every six months in line with changes in market conditions. Some loan agreements have a multicurrency option that allows the borrowers to draw funds in a number of different currencies.

Interest rates are expressed as a markup, or spread, over LIBOR, the London interbank offer rate. It is the rate at which Eurobanks lend funds to one another. Spreads vary according to bank assessments of the creditworthiness of the borrower. On syndicated loans, borrowers also pay additional fees, such as a front-end management fee to the banks putting together the syndicate or a commitment fee on any undrawn portion of a loan.

Nature of deposits

Euromarket liabilities range from overnight and call deposits at the short end of the maturity structure to time deposits of five years or occasionally longer. The bulk of deposits is relatively short dated. About one third of deposits to nonbanks have maturities of eight days or less and nearly 90 percent have maturities of less than six months. In addition, Eurobanks in London have issued some $40 billion of negotiable CDs that can be traded on a secondary market.

National Policies toward Foreign Direct Investment

Throughout the 1970's the United States attracted a growing inflow of foreign direct investment as exchange rate changes and other developments spurred foreign companies to establish facilities here. For instance, between 1973 and the third quarter of 1979, direct investment inflows totaled $29.5 billion, or over three and one-half times the amount that flowed in during the preceding thirteen years. Moreover, the degree of foreign participation in the United States economy is larger than these statistics might suggest since foreign companies finance much of their activities locally rather than with funds brought in from abroad.

The rising foreign direct investment inflows to this country, long accustomed to being the world's largest source of international direct investment outflows, has generally been welcomed, especially in the states and cities where they have been concentrated. Employment opportunities have been increased, both directly and indirectly. Often new technology has been brought in. State and local tax bases have been expanded. At the same time, however, questions have been raised about the appropriate role of public policy in influencing foreign direct investment. The central issue is whether foreigners' direct investment should be subsidized, as it is in some states through tax and other incentives, restricted under some circumstances, or left free to respond to market forces.

In other industrial countries, policies and attitudes toward inward direct investment have been debated throughout the postwar period. The degree of encouragement or discouragement to foreign direct investment has varied considerably both across countries and over time.

This article reviews the evolution of national policies toward inward foreign direct investment. It examines how the larger industrial countries differ in their approaches and how United States policies compare with them. That review is prefaced by a description of recent trends in foreign direct investment and the shortcomings in the data that hinder full analysis of the presence of foreign companies in an economy.

The main conclusion is that, among major industrial countries, national policies toward foreign direct investment appear to be converging although differences in attitudes and approaches have by no means disappeared. All countries restrict foreign direct investment to some extent. Most of them seem to follow the sometimes conflicting principles of encouraging investment in weak sectors of the economy or in industries where domestic investment is inadequate, while resisting increased foreign dominance of any important industry. The growing similarity of policies does not mean, however, that the potential for friction has been eliminated. Difficult questions remain—for example, harmonization of industrial subsidy programs as well as the regulatory treatment of multinational corporations. Their resolution will require a sustained cooperative effort by governments and international agencies.

Recent trends in international direct investment

Direct investment flows

International direct investment has been defined as "investment that is made to acquire a lasting interest in an enterprise operating in an economy other than that of the investor, the investor's purpose being to have an effective voice in the management of the enterprise".[1] That contrasts with what are called portfolio

[1] International Monetary Fund, *Balance of Payments Manual* (fourth edition, 1977).

investments, where investors buy stocks or bonds of a company in order to diversify their assets rather than to exercise control.

Direct investment may take a number of forms. One is the creation of a new wholly owned business enterprise, accompanied by investment in plant and equipment. Well-known examples are Volkswagen's recent establishment of an auto assembly plant in the United States or United States auto manufacturers' establishment of factories in Canada in the 1960's. A second common form is the takeover of an existing domestic company, such as the purchase of controlling interest in Gimbels and Saks Fifth Avenue by the British firm, British-American Tobacco. A third form is the acquisition of a substantial minority interest in a company. The French government-owned firm, Renault, has recently initiated such an investment, leading to an eventual 22.5 percent interest in American Motors. And, finally, there is the joint venture whereby two or more independent investors of differing nationalities collaborate in a specific enterprise. A very recent example is the creation of Sony-Prudential Life Insurance Company to underwrite life insurance in Japan.

There has long been an active interchange of direct investment among the major industrial countries, as well as between those countries and the rest of the world. Chart 1 presents the statistics on international direct investment as reported by the large industrial countries. The data are not strictly comparable since the United Kingdom, Germany, France, Canada, and Italy report as direct investment a varying but narrower range of capital flows than do the United States and Japan.[2] But the broad trends are clear from the figures.

Foreign direct investment flows into the United States have risen much more rapidly in recent years than similar flows into other industrial countries. Meanwhile, outward direct investment of the other six industrial countries has risen much more rapidly than outward investments from the United States. Allowing for their narrower definitions, it is likely that combined outward investment from the other six exceeded the $16.7 billion reached by the United States in 1978. At the same time, foreign investment flows into the United States, at over $6 billion, were rapidly approaching the magnitude of foreign investment flows into the other major industrial countries combined.

These developments have produced important changes in patterns of international net direct investment flows, the difference between outward and inward flows. In the ten years ended in 1967, the United States was the preponderant net investor, investing abroad about ten times as much as foreigners invested here. The only other consistent net investors were the United Kingdom, which made a modest contribution, and Japan, whose contribution was insignificant. The other industrial countries were net recipients of direct investment, receiving nearly three times as much inward investment as they invested abroad. Since that time the investor status of the United States and the other six has been converging gradually. All but France and Italy now report net outward investment. In 1978, the ratio of outflows to inflows for the six as a group was 2.1, only moderately lower than the 2.6 ratio for the United States.

Outstanding foreign direct investments

Because this convergence of direct investment experience is fairly recent, the book value of outstanding investments by foreigners in the United States is still substantially less than in the other six countries. The latest information available (Chart 2) records foreign investments in the United States at $41 billion as compared with over $100 billion recorded as outstanding in the five other large industrial countries for which information is available. Again, the data are not strictly comparable from country to country, so the figures should be viewed as illustrative rather than as precise measurements.

The importance of two-way direct investment among the major industrial countries is also apparent. In the five countries for which full country source information is available, the proportion of total foreign investment coming from other large industrial countries ranges from 53 percent to 94 percent. Adding investments from four smaller industrial countries—the Netherlands, Belgium-Luxembourg, Switzerland, and Sweden—pushes the percentage close to 90 percent or more in all cases. Thus the main source of foreign direct investment in all industrial countries remains other industrial countries. Developing nations, including OPEC (Organization of Petroleum Exporting Countries) members, account for only a minor share.

Foreign-controlled firms in national economies

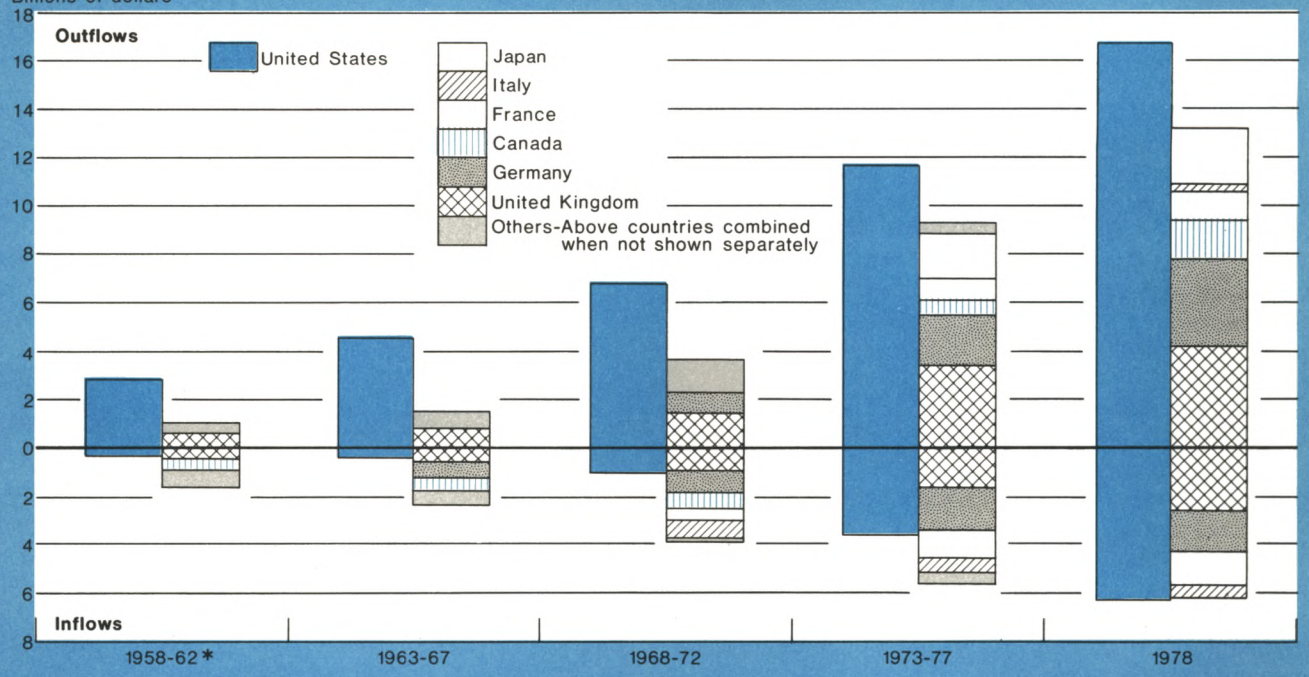
The importance of foreign-controlled firms in the major industrial countries is even greater than the book value of foreign investment outstanding might sug-

[2] The International Monetary Fund (IMF), which collects and publishes balance-of-payments statistics compiled by member countries, has proposed a standard definition. This includes: equity investment, reinvestment of retained earnings, long-term loans, and (except for banks) short-term loan transactions between the affiliate and the foreign parent and other related foreign companies. The United States and Japan have accepted this definition. The United Kingdom has also accepted it but in so doing has found it impossible to provide any statistics at all on direct investment in three especially important industries: oil, banks, and insurance companies. Canada, Germany, France, and Italy report a narrower range of transactions. They omit some or all loans and, in the case of Canada and Italy, retained earnings as well.

Chart 1

International Direct Investment Flows from and to Major Industrial Countries

Average annual rates



*1960-62 only for the United States and France.

Sources: International Monetary Fund, Balance of Payments Yearbook through 1977; country sources for 1978.

gest. The reason is that such firms obtain a major portion of their financing from sources other than the foreign parent. These sources include:

- Borrowing from banks in the host country, in Eurocurrency markets, or at times even from the host government,
- Securities issued in the host country or elsewhere,
- Trade credits from unaffiliated suppliers, and
- Equity positions of host country residents.

In Germany, for example, a recent survey indicates that in 1976 foreign equity and loans from parent companies accounted for only 27 percent of foreign-affiliated firms' total balance-sheet liabilities.[3] And in the United States, the 1974 *Benchmark Survey* of foreign-affiliated firms showed the direct investment position of foreigners to be only 15 percent of those firms' assets.[4]

The most recent information on the importance of foreign-controlled firms in the major industrial countries is assembled in the table on page 26. In the industrial sector, where this influence is generally strongest, foreign-controlled firms accounted for close to 20 percent of total sales or output in Germany, France, and the United Kingdom. The percentage was much higher, nearly 60 percent, in Canada, but only 5 percent in Japan. In the United States, the percentage was also only 5 percent in 1974 but, given the rise in foreign investment since then, is almost certainly higher now.[5]

[3] "The Level of Direct Investment at the End of 1976", *Monthly Report of the Deutsche Bundesbank* (April 1978).

[4] Report of the Secretary of Commerce, *Benchmark Survey, 1974, Foreign Direct Investment in the United States,* Vol. 2 (United States Department of Commerce, April 1976).

[5] A Department of Commerce sample survey of foreign-controlled firms (the BE-15) for 1977, taken to coincide with economic censuses for that year, will eventually permit verification of this impression. A comprehensive survey is planned to cover 1979.

The areas of greatest foreign influence were much the same in most countries: petroleum, chemicals, rubber, transportation equipment, electrical machinery, and other engineering. These are all high-technology industries where the economies of the scale in production and distribution have been conducive to the development of large multinational enterprise.

For other economic sectors, information is incomplete. But the evidence available for Germany, Japan, Canada, and the United States suggests that the foreign influence in other nonfinancial sectors is lower than in industry. In the United States, where concern over foreign investment in farmland has increased recently, preliminary results of a comprehensive Department of Agriculture survey[6] indicate that foreigners own less than ½ percent of United States land classified as agricultural.

Factors contributing to changing investment patterns

The declining comparative importance of the United States as a source of international direct investment, along with its growing host country role, has a number of causes. A rise in the wealth of other industrial countries and their large business firms, relative to the United States, greatly increased their potential for investment throughout the world. During the 1970's, a significant share of that investment was attracted to the United States as numerous factors raised the expected profitability of investing in this country.

One sign of the growing wealth of other industrial countries and their potential for investing abroad was their sustained stronger output growth. From 1955 to 1975 the yearly rise in real gross national product (GNP) averaged 5 percent in all OECD (Organization for Economic Cooperation and Development) countries[7] other than the United States but only 3 percent in the United States. At the same time the scale of operations of firms outside the United States rose much more rapidly than that of United States firms. In 1958, for example, the average sales of the fifty largest industrial corporations outside the United States, as reported by *Fortune,* was only about 40 percent as large as the average sales of the largest fifty United States industrials. But by 1978 this ratio had risen to about 80 percent.[8] Part of this growth of sales was based on increased exports to the United States, in some cases reaching a level that justified large-scale manufacturing facilities in the United States.[9]

Equally important in fostering changes in direct investment patterns have been shifts in profit incentives during the 1970's. These stem from several sources:

- Exchange rate-related changes in relative labor and capital costs,
- Depressed stock market values in the United States,
- A decline in United States petroleum costs relative to other countries due to United States price controls in this area,
- Foreigners' fears that United States trade policy was becoming more restrictive,
- Rising importance attached to ownership of raw materials in view of international supply and price developments, and
- A spurt in United States growth beginning in 1975 which raised expectations regarding the growth of the United States market.

Exchange rate changes appear to have had a lasting effect on international wage differentials. Measured in dollars, average hourly earnings in United States manufacturing were 36 percent higher than in Germany, 74 percent higher than in Japan, 80 percent higher than in the United Kingdom, and 2.6 times the level in France in 1973. But, by 1978, United States average earnings were only 6 percent higher than in Germany and Japan, whose currencies had appreciated most relative to the dollar, 65 percent higher than in the United Kingdom and 95 percent higher than in France. Because of the close economic ties between Canada and the United States, wage differentials between the two have long been small.[10]

Exchange rate changes also tended to reduce the cost to foreigners of purchasing existing manufacturing facilities in this country. And, in addition, depressed prices in United States stock markets may have en-

[6] Preliminary results from reports of foreign land ownership required by the Agricultural Foreign Investment Disclosure Act of 1978. Under the act, all foreign owners of United States farm, range, and forest land are required to report these holdings to the Department of Agriculture.

[7] OECD has twenty-four country members: eighteen industrial countries in Europe plus Canada, Japan, Australia, New Zealand, Iceland, and the United States.

[8] The fifty-largest lists used in this comparison were derived by eliminating foreign-owned companies operating in the United States and United States companies operating abroad from *Fortune's* 1958 and 1978 lists of the 500 largest United States industrial corporations, ranked according to sales, and its similar lists for industrial companies operating outside the United States.

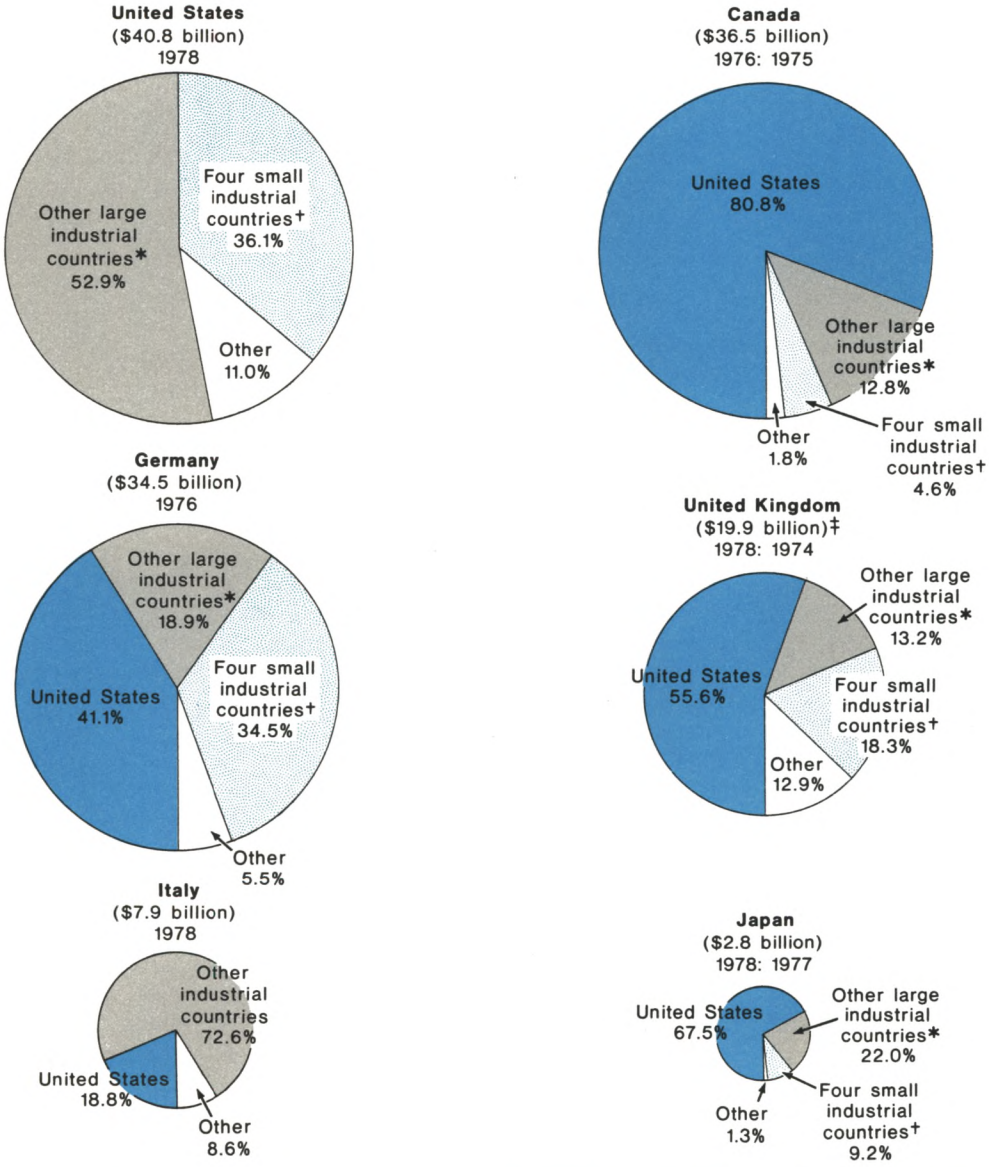
[9] For a more detailed discussion of these developments, see Appendix G of *Foreign Direct Investment in the United States* (United States Department of Commerce, April 1976).

[10] Average hourly earnings in domestic currency as published in *Monthly Bulletin of Statistics*, United Nations, converted to dollars at average exchange rates. United Kingdom data is for male workers only.

Chart 2

Country Sources of Foreign Direct Investment Outstanding in Selected Industrial Countries

In percent



When two dates are given, the first date refers to outstandings (all local currency data converted at end-1978 exchange rates). Second date refers to percentage distributions.

*Other large industrial countries are Canada, Japan, United Kingdom, Germany, France, and Italy.

†Four small industrial countries are the Netherlands, Belgium-Luxembourg, Switzerland, and Sweden.

‡Excludes direct investments in oil, banking, and insurance.

Sources: Latest country data available.

The Relative Importance of Foreign-Controlled Enterprise in Large Industrial Countries

Percentage of total sales or output*

Sector	United States 1974	Canada 1976	Japan 1977	United Kingdom 1975	Germany 1976	France 1977
All business firms	**2**	**35†**	**2†**	‡	**16¶**	‡
Industrial sector§	**5**	**58**	**5**	**19‖**	**19¶**	**23**
Of which:						
Food and kindred products	7	36	2	14	12	**
Chemicals and allied products	12	82	6	25	28	33
Rubber	2	90	20	**	**	30
Electrical machinery	2	68	3	23	25	35
Transportation equipment	††	87	**	26	26	18‡‡
Other nonelectrical machinery	2	67	6	21	18	21
Petroleum exploration, extraction, and refining	18	96§§	49	58§§	87	59
Mining and smelting	6	66‖‖	**	‡	‡	12
Other						
Of which:						
Construction	††	14	**	‡	3	‡
Distribution	2	21	**	‡	13	‡

* United States: gross product; United Kingdom: gross output; Germany: turnover; other countries: sales.

† Nonfinancial corporations only.

‡ Not available.

§ Manufacturing, mining, and petroleum exploration, extraction, and refining.

‖ Manufacturing only. If petroleum extraction were included, foreign operations in North Sea oil would probably raise the importance of foreign-controlled firms in United Kingdom industry as a whole.

¶ Industrial, construction, and distribution.

** Not reported separately.

†† Less than 0.5 percent.

‡‡ Automobiles only.

§§ Processing of petroleum and coal.

‖‖ Includes mineral fuels.

Sources: United States: "Gross Product of U.S. Affiliates of Foreign Companies", *Survey of Current Business* (January 1979); Japan: *Current State of Foreign and Foreign-Affiliated Firms Operating in Japan*—1979 (12th series) for year ended March 1978 (Ministry of International Trade and Industry press release); Germany: "The Level of Direct Investment at the end of 1976", *Monthly Report of Deutsche Bundesbank* (April 1979); France: *L'Implantation Étrangère dans L'Industrie au Ier Janvier 1977* (Ministère de l'Industrie, STISI, July 1979); United Kingdom: Census of Production, 1975, as reported in *Trade and Industry* (July 27, 1979 and March 2, 1979); Canada: *Corporations and Labour Unions Returns Act, Report for 1976, Part I Corporations* (Statistics Canada, March 1979).

couraged foreigners to acquire controlling interest in United States companies. Both of these developments increased the expected profitability of operating in the United States rather than exporting to this country.

As for petroleum costs, prior to 1973 the price of petroleum in the United States had been held above world levels by import quotas. Since then, however, a complicated set of United States price controls has kept average domestic prices somewhat below the world price levels imposed by OPEC policies. Thus in the first half of 1979 the United States wholesale price index for crude petroleum was 2.6 times the 1970 level. But for Japan, which is almost entirely dependent on imports for its oil supply, the wholesale price index for petroleum products and coal (converted to a dollar basis) increased 5.5 times over the same period. These price trends have reduced relative energy costs in the United States.

New restraints on imports into the United States include stricter enforcement of antidumping legislation and negotiated restrictions on exports to the United States. These restrictions have produced some immedi-

ate investment responses from foreign exporters directly affected. For example, a three-year orderly marketing agreement between the United States and Japan in 1977, limiting Japan's exports of color television sets to the United States to 1,750,000 annually, induced five major Japanese companies—Matsushita, Mitsubishi, Sanyo, Sony, and Toshiba—to switch to the United States a part or all of their production for this market. These restrictions may have also created the impression abroad that the United States is moving toward greater protectionism. Consequently, some foreign firms in industries considered possible targets for future restraints may have chosen direct investment rather than exports as a method of expanding their sales in this country.

Foreign interest in raw materials has been especially strong in the case of oil, coal, and forest products. The British and Dutch influences have been strong in oil and coal. The Japanese have lumber interests in the Northwest.

Finally, the spurt in the United States growth rate beginning in 1975 at least temporarily reversed the long-standing relationship between the United States growth rate and that of other industrial countries. United States real GNP growth averaged 5.2 percent between 1975 and 1978, nearly 1 percentage point above the average for other OECD countries. The expectation of expanding markets that accompanied this shift appears to have been especially encouraging to foreign investment in wholesale and retail trade. In the three years ended in 1978, foreign investment outstanding in that sector increased by 83 percent, compared with 40 percent in other sectors.

Host country policies in major industrial countries

The issues

Country policies on foreign direct investment inflows reflect in varying degrees three diverging views—each extensively developed in academic, political, and business forums. The views are (1) that direct investment should be left to respond to market forces, (2) that it should be encouraged by subsidies or other means, or (3) that it should be restricted, possibly severely.

Those commentators who favor leaving foreign direct investment to market forces usually have the same attitude toward other international capital flows and trade. The belief is that allowing owners of capital to maximize its rate of return, without policy barriers or inducements, will maximize the productivity of capital in the world as a whole. In the process, capital will flow from countries where it is more plentiful relative to labor to countries where it is less so, thereby maximizing labor productivity in the world economy. Since international direct investment is often associated with the transfer of new technology, world output is also increased by the investing firm's efforts to maximize returns from technology.

These are the standard free trade arguments, as refined over the past fifty years by a host of leading economists, extended to cover the case of free capital flows. An early contribution to this line of argument was made by R. A .Mundell,[11] who pointed to the role that free capital flows can play in maximizing world income, substituting for trade flows when that trade is restricted. This analysis does not imply that leaving direct investment to market forces necessarily maximizes the income of each country and income group. But countries following this prescription generally believe that their economies will benefit on balance.

Those favoring subsidies or other devices to attract foreign investment do not accept the view outlined above. Instead, they believe that the extra foreign investment generated by the subsidy will increase income for the country offering it by an amount greater than the cost of the subsidy.

In a variation of the infant industry argument, it has been suggested that an import tariff imposed to encourage direct investment could increase income in the tariff-imposing country and the world at large, so long as the foreign investment introduced economies of scale in production. It has also been argued that a country would gain from foreign direct investment because of increased tax revenues from foreign profits (reduced by any tax concessions given), "external" economies as local firms were forced to adopt more efficient methods in order to remain competitive, and increased employment opportunities.[12] However, recent writers have warned that subsidies or tax concessions offered to attract new investment may well prove to be greater than the benefits derived from the investment.[13]

The third view—that foreign direct investment should be restricted—differs fundamentally in its analysis of the costs and benefits of foreign direct investment. It does not deny that foreign direct investment can increase income, raise employment, disseminate new technology, and ease attendant balance-of-payments pressures in the host country. But it holds that all these benefits can be achieved by external borrowing and

[11] R.A. Mundell, "International Trade and Factor Mobility", *American Economic Review* (June 1957). Reprinted in *Readings in International Economics* (R.E. Caves and H.G. Johnson, eds.), 1968.

[12] G.D.A. MacDougall, "The Benefits and Costs of Private Investment from Abroad: A Theoretical Approach", *The Economic Record* (March 1960). Reprinted in *Readings in International Economics*.

[13] For example, J. Bhagwati, "The Theory of Immiserizing Growth: Further Applications" in M.B. Connally and A.K. Swoboda, eds., *International Trade and Money* (University of Toronto Press, 1973).

purchase of foreign technology, provided the host country has or can hire people with the necessary managerial skills. This alternative would avoid some of the economic and social costs associated with foreign direct investment.

Canada's "Gray Report"[14] has presented an extensive analysis of these costs. The report distinguishes two types: (1) the distortions which result from government policies (such as tariffs) in host or home country, which encourage an inefficient use of both domestic and foreign capital, and (2) drawbacks inherent in foreign direct investment itself. Examples of the first type of costs include plants too small to realize economies of scale or "truncated" operations, such as mineral extraction without metal fabrication facilities. Examples of the second type of costs include the possibility that foreign-controlled firms would be less responsive than domestic firms to national policy objectives and that a large-scale foreign presence in a country might have unfortunate effects on domestic cultural institutions.

The notion that multinational companies are less controllable than purely domestic firms is quite widely held throughout the world. It is based in part on the sheer size of the multinationals and the geographic distribution of their production facilities. These factors may allow them to shift output from one country to another, at least in the medium to longer term. Another serious difficulty appears to be that a host country government may see itself as competing with other possibly stronger national governments, which also play host or home to the same multinationals. Each government may attempt to control or manipulate the activities of multinationals to its own advantage, only to find its efforts neutralized or overriden by others.

Country policies[15]

These three views of inward direct investment appear to lead to strikingly different policy prescriptions. But in fact country policies usually encompass strands of all three of them. In the United States, for instance, this is partly because policies affecting direct investment are made by state and local governments, as well as by the Federal Government. And policy positions at the various government levels have sometimes differed. It is also true that each view may be considered pertinent to some industries or regions but not others. Consequently, a country may see no inconsistency in preventing some direct investments, encouraging others, and being neutral to the rest.

The policy of leaving direct investment to free market forces has long been stronger in the United States and Germany than elsewhere. These are the only two large industrial countries that have not subjected incoming investment to a formal review process at any time in the postwar period. Nevertheless, policies that encourage or restrict foreign investment do exist in both countries.

In all countries except Japan, there are inducements to foreign investors to enter areas where investment is especially wanted: depressed geographic areas or new industries or technologies where domestic investment is lagging. This encouragement, in the form of tax concessions and a wide variety of other subsidies, is offered by the central governments in all countries except the United States and Japan and also by local governments in the United States, Germany, France, and Canada.

Such inducements are generally available to both domestic and foreign investors. However, some governments, including numerous state governments in this country, have gone out of their way to bring their offers to the attention of foreign investors, even establishing promotional offices in likely investor countries. Further, many multinational firms contemplating new foreign investment routinely shop host countries for the best subsidy offer tailored to their needs. The size of these offers has escalated in recent years.

As already noted, tariff policy can also have the effect of encouraging direct investment in the protected area. This has been true of Canadian tariffs. The creation of the European Common Market, a unified market with no internal tariffs but surrounded by a common tariff wall, may have had a similar but possibly unintended effect. The recent international rounds of reciprocal tariff reductions have reduced this sort of inducement to foreign direct investment. But other negotiated trade restraints, especially those between Japan and other industrial nations, are apparently encouraging Japanese direct investment in Europe as well as in the United States.

However, all industrial countries also restrict foreign direct investment in differing degrees. All countries bar foreign-owned firms from industries considered to be of strategic national importance. The barriers are sometimes the result of nationalization of certain industries—most commonly the telephone, railroads, and public utilities. But foreign firms are also excluded from other strategic industries, most frequently air

[14] *Foreign Direct Investment in Canada*, report by a working group assisting the Honorable Herb Gray, P.C., M.P., Government of Canada, 1972.

[15] Two good sources of information on host policies of foreign industrial countries are the Price Waterhouse series on *Doing Business in (country)* issued in 1975 and "Policies and Laws in Other Countries", Appendix N of *Foreign Direct Investment in the United States* (United States Department of Commerce, April 1976).

transport, shipping, broadcasting, and defense-related industries. In addition, Canada and Japan limit the permissible percentage of foreign ownership of any given firm in certain other industries considered of special national interest. And France and the United Kingdom sometimes subsidize domestic firms to strengthen their competitive position relative to foreign-owned firms.

At times during the postwar period, all countries except the United States and Germany have also subjected foreign direct investment to a review process, ranging from severely restrictive in Japan to largely formal in Italy. In recent years, Britain, France, and Canada have used the review process as a means of favoring investments which increase employment and introduce new technology. Since 1972 the federal and certain provincial governments in Canada have reduced their dependence on foreign capital by buying out foreign firms.

Since the early 1970's, countries that formerly pursued policies of extreme restriction or encouragement in regard to direct investment have tended to moderate them. Japan, whose very low levels of foreign direct investment attest to the former restrictiveness of its policies, has relaxed them somewhat during the seventies. On the other hand, Canada, which has historically given strong encouragement to foreign direct investment, adopted a more discriminating attitude in the 1970's. For countries occupying a middle ground, there has been a trend toward less emphasis on restrictions and more on encouragement. A closer look at country policies follows.

The ***United States*** government is committed to general policies of noninterference with foreign direct investment as such. What percentage of this investment has received state or local subsidies is unknown. However, the sudden growth of liquid funds in the hands of OPEC countries in 1974 and 1975 aroused public fears of possible OPEC takeovers of United States firms, and this in turn led to minor modifications in Federal Government policy. In 1975, an interagency Committee on Foreign Investment in the United States (CFIUS) was created by executive order and required to (1) analyze trends in foreign investments, (2) conduct advance consultations with foreign governments wishing to make investments in the United States (foreign governments were requested to inform the United States government of any intended direct investment), (3) review investments which might, in its opinion, have major implications for United States national interests, and (4) consider proposals for new legislation or regulations of such investment. However, both the Carter and Ford administrations have been reluctant to interfere with international direct investment flows, and little use has been made of these powers.[16]

The ***German*** government is also basically committed to a policy of nonintervention. But the sudden rise in OPEC financial wealth has prompted some modification of policy. Following several large direct investments from OPEC countries, the authorities established an informal notification system whereby banks and major companies report to them large impending foreign acquisitions. The government has in a few instances quietly encouraged purchase by German investors of the equity interests being offered for sale.

Further, Germany's antitrust policy, probably the most stringent in Europe, has necessarily affected foreign direct investment since those making such investments are ordinarily large multinational firms. The strength of the multinationals in Germany is clear evidence that anticartel policy has not been employed to effect a wholesale embargo. But, over the years, a number of Federal Cartel Office decisions have served to set limits on the expansion of foreign enterprise in Germany.

In ***Italy,*** policy is to encourage direct investment. A law enacted in 1956 requires that all proposed inward direct investments be screened to determine whether or not they are "productive", in the sense of increasing national output. While no investments are barred, only those determined to be productive are assured of unlimited remittance of earnings and capital repatriation. The law provides that other investors may be limited in their transfer of earnings or profits to 8 percent a year and barred from repatriating capital until two years after the original investment. But in fact, under long-standing administrative procedures, no restrictions have been applied, even in periods of heavy external deficit, on either capital repatriation or remittance of earnings.

United Kingdom[17] policy has combined encouragement to foreign investment with concern for its impact on the balance of payments and on the competitive position of domestic firms. Until October 1979, authorities used their extensive powers (under the

[16] CFIUS has reviewed several investment proposals but has found no reason to intervene. It has also reacted negatively to two proposals to expand the government's powers to regulate foreign direct investment: a 1976 proposal by the Federal Energy Administration that foreigners' investment in energy resources be regulated, and a 1978 proposal that foreign investment in farmland be restricted. For further details, see Statement by the Hon. C. Fred Bergsten, Assistant Secretary of the Treasury for International Affairs, before the Subcommittee on Commerce, Consumer, and Monetary Affairs, Committee on Government Operations, House of Representatives, July 30, 1979.

[17] The most comprehensive history of United Kingdom policy in the postwar period is M.D. Steuer and others, *The Impact of Foreign Direct Investment on the United Kingdom* (Department of Trade and Industry, HMSO, 1973).

Exchange Control Act of 1947) to protect the balance of payments by requiring that some portion of foreigners' direct investment be financed by converting foreign currency into sterling. However, the severity of conversion requirements fluctuated with the balance-of-payments situation, the type of investment, and in later years the nationality of the investor. Investment in manufacturing, especially in depressed areas, was treated more leniently than other investments. Occasionally, the government also used its review powers under the Exchange Control Act to obtain assurances from multinationals on crucial policy matters. These included output goals, employment, exports, imports, and British representation on boards of directors. In some cases, when a proposed takeover would have produced an undesired foreign concentration in an industry, approval was delayed and domestic counter-offers encouraged. In 1973, following British entrance into the European Community, all EC residents were permitted to borrow sterling to finance investment in Britain. In 1977, the same privileges were given to all foreigners making direct investment in manufacturing. In October 1979, all remaining financing restrictions were eliminated as part of the overall scrapping of exchange controls.

Foreign direct investments will continue to be affected by various industrial policy measures. Over the years, the government has made loans to foreign firms, either to encourage their investment in the United Kingdom, as in the case of depressed areas of Scotland, Wales, and Northern England, or to discourage their departure, as in the case of a loan to Chrysler-United Kingdom in the years before its sale to Peugeot. The government has subsidized foreign investment in depressed areas on the same basis as domestic investment. But, in a few strategic industries such as computers, it has subsidized domestic firms to strengthen their position in competing with foreign-controlled firms operating in the United Kingdom. These aspects of industrial policy will most likely continue.

In ***France,*** host policies also combine encouragement and restraint. All foreign direct investments are subject to review by the authorities, although those from other EC countries can be blocked only for balance-of-payments reasons. For others, additional criteria used in judging investment desirability include the investment's contribution to increased output, employment, exports, and improved technology.

The government has subsidized foreign investment in depressed areas and growth industries. But it has also resisted foreign domination of any given industry, subsidizing domestically owned firms or joint foreign-domestic ventures in an effort to restrict or to reduce the role played by strong wholly foreign-owned firms. One important recent case has been the government subsidies provided to CII Honeywell Bull (a computer firm formed by the merger of the French Compagnie Internationale pour L'Informatique with the United States-controlled Compagnie Honeywell Bull) to allow it to compete effectively against IBM.[18]

Canada traditionally encouraged foreign direct investment, especially in manufacturing, whose development has tended to lag relative to the United States. However, as foreign-affiliated corporations gained prominence in the Canadian economy there was growing concern about the implications of this development for the government's economic sovereignty. Concern was also prompted by extraterritorial application of the United States antitrust laws and the Trading with the Enemy Act and other similar regulations during the 1960's.[19] These problems generated a series of government reports, the last and most influential being the "Gray Report" of 1972 already mentioned. The report drew attention to the very high levels of foreign ownership and control of Canadian industry. And it concluded that, despite the benefits of foreign investment, the investment had also brought the social and economic costs enumerated earlier.

One immediate consequence was the enactment of the Foreign Investment Review Act in 1973. While foreign entry had previously been restricted in a few industries, the new act required a case-by-case review of proposed new direct investment in all industries. It also specified the broad criteria for acceptance to be considered by the new review agency in making recommendations to the government that the application be accepted or rejected. These criteria included: the effect of investment on output and employment, new technology introduced, compatibility with national objectives, contribution to industry competitiveness, and Canadian participation in ownership and management. The agency has recommended acceptance of 90 percent of all applications received. However, it seems likely that only projects considered to be roughly in line with the published criteria have been submitted to the agency.

At the provincial level, Manitoba, Saskatchewan, and Alberta have enacted legislation to regulate foreign or nonresident ownership of land. And Ontario enacted a land transfer tax, applying to foreigners' purchases of land but exempting purchase of land for commercial or industrial use.

[18] *Business Week* (March 21, 1977), page 48.

[19] Under the act, the United States Treasury applied its licensing authority to transactions between Canadian affiliates of United States companies and governments or nationals of China, North Korea, and Vietnam. Other regulations covered similar transactions with Cuba.

The federal government has also moved to reduce Canada's dependence on foreign capital by establishing the partly government-owned Canada Development Corporation (CDC). The CDC has made equity investments in strategic sectors which might otherwise attract foreign capital—petrochemicals, oil and gas, health care, pipelines, venture capital, and mining. The mining investment takes the form of a 30 percent interest in Texas Gulf Corporation, a United States firm with a major stake in Canadian mining. The government has also purchased from foreigners companies operating in the aerospace and petroleum industries.[20] Moreover, the province of Saskatchewan has taken over foreign firms in the potash and oil industries and Quebec is currently attempting to purchase a foreign asbestos company.

In part as a result of these policies, net foreign investment flows into Canada have declined. On the basis of Canada's narrow definition of direct investment (*i.e.,* excluding retained earnings and short-term financial transactions between parent and affiliate), the direction of net direct investment flows has reversed from inward to outward. However, partial information on broadly defined direct investment flows, provided by United States statistics on United States-Canada bilateral balance of payments, suggests that direct investment flows more broadly defined continue inward but at a substantially reduced rate.[21]

Japan, the only large industrial country to have maintained stringent restrictions on foreign direct investment during much of the postwar period, has moved toward liberalization in the 1970's.[22] The restrictions on inward investment, an integral part of its broader policies for industry and trade, were motivated by a strong drive to catch up with the West, a distrust of foreign ownership and control, and a fear of foreign competition with fledgling domestic industries. However, exceptions were made in the case of petroleum refining and distribution and the rubber industry, where major international companies were permitted to make substantial investments.

The government was also liberal in authorizing the importation of technology. In this way, Japan obtained one of the major benefits often associated with direct investment. During the decade ended in 1978, for example, Japan's payments of patent royalties to foreigners totaled $6.8 billion, nearly three times as much as foreigners' earnings from direct investments in Japan.

Restraints on inward investment have been of two types: (1) designation of the percentage of foreign ownership of any given firm allowable in each industry and (2) a required "validation" of each investment proposal. The validating authorities have in the past required that would-be investors meet certain conditions such as limitations on the scale of output, marketing arrangements, and the number of Japanese directors and senior executives in joint enterprises.

Liberalization got under way in 1967 in response to pressure from other countries. The process was accelerated in the 1970's (possibly in part to forestall retaliatory restrictions on Japanese investment by other countries as Japan became an important outward direct investor). By 1976, liberalization reached the stage where 100 percent foreign ownership of Japanese firms was permissible in most industries. However, foreign investment is limited to 50 percent ownership in mining. And investment in leather and leather products, agriculture, forestry, fisheries, and petroleum is severely restricted.[23]

For industries where 100 percent foreign ownership is permitted, validation is still required but is often fairly automatic. However, validation of takeovers requires the consent of the Japanese firm being taken over. Most are traditionally reluctant to consent to any takeover bid, even from Japanese firms. Thus foreign firms not prepared to organize new companies have been limited to joint ventures with, or acquisitions of strong minority positions in, Japanese firms. A recent example of the latter is Ford's acquisition of a 25 percent interest in Toyo Kogyo, maker of Mazda cars.

Even when a foreign firm proposes a new wholly owned venture in a liberalized industry, the validation procedure has occasionally proved time consuming. In one exceptional and well-publicized case, validation of a proposed investment in a new plant by an American chemical company was delayed for two years, reportedly because of opposition from Japanese competitors.

[20] In October 1979 the government announced its intention to seek private Canadian buyers for the government-owned corporations. In November it announced a plan to reduce its ownership in the Canada Development Corporation. A proposal to give shares in Petrocan to each Canadian is also under consideration. In all cases, there is a proviso that ownership remain in Canadian hands.

[21] United States bilateral payments statistics show net direct investment flows from the United States to Canada were 1975: $2.4 billion, 1976: $1.9 billion, 1977: $1.2 billion, and 1978: $0.8 billion.

[22] For an extended discussion of Japan's policies, see Robert S. Ozaki, *Control of Imports and Foreign Capital in Japan* (Praeger, New York: 1972); and OECD, *Liberalization of International Capital Movements: Japan* (Committee for Invisible Transactions, OECD, Paris, 1968).

[23] The change in attitude toward the petroleum investment may reflect an official desire to reduce the influence of foreign-controlled firms in that sector. In fact, the foreign presence in the petroleum industry has been reduced from nearly two thirds (measured by sales) early in the 1960's to less than half now through government support of domestic firms, increased direct dealings between OPEC suppliers and Japanese companies, and the operations of the government's own National Petroleum Corporation.

Since liberalization got under way, the position of foreign-controlled firms in the Japanese economy has gradually increased but remains quite small. For all industries including services, the sales of foreign firms grew from 1.4 percent of sales made by all firms in Japan in 1967 to 2.2 percent in 1977. In manufacturing, the ratio rose from 2.8 percent to 4.7 percent despite a loss of shares for foreign petroleum companies.

Some unresolved issues

Traditionally, policy discussion has focused on the domestic consequences of inward direct investment. But, in the past few years, greater recognition has been given to international implications and, in particular, the need to construct mutually compatible national policies. This is true of both national inducements to inward investment and restrictions against them. It also applies to the conflicts between home and host country regulation of multinational firms.

National inducements and restrictions have been studied extensively by the OECD and by the United Nations. But concrete progress in harmonizing policy remains modest. As far as inducements to inward investment are concerned, the industrial countries are well aware that competitive escalation of subsidy offers makes them more expensive for everyone and reduces the gain that the successful bidder can hope to realize from the foreign direct investment that it attracts.

In 1976, an OECD Declaration on International Investment and Multinational Enterprise stressed the need to strengthen international cooperation in this field, but stopped short of agreeing to any specific actions or guidelines. Three years later, in October 1979, the OECD Committee on International Investment tackled the problem once again, this time embarking on a three-year study. The study will begin by cataloging investment incentive programs in all countries and the amount of the subsidies given. It will then analyze their effect on recipients and their broader economic effects on home, host, and third countries.

The OECD committee will also study discrimination against increased foreign investment. Governments have been requested to submit descriptions of their activities in this field. The committee apparently hopes for frank statements on such matters as the support given to domestic companies to fend off foreign takeover bids or other foreign attempts to enter or dominate important industries.

The third area of conflict—home and host country regulation of multinational firms—raises the problem of extraterritoriality. As already mentioned in the discussion of Canadian policy, foreigners have been irritated by the occasional attempts of United States agencies to regulate the trade of foreign affiliates of United States companies. Some have also been angered by law suits brought against foreign enterprises in United States courts on the grounds that the actions of those firms had consequences within the United States. A recent case is a suit brought by Westinghouse against an alleged international uranium cartel. The suit was filed against twenty-nine uranium producers, twelve of them foreign. The foreign defendants claim that their price-stabilizing activities had the support of the governments of Canada, South Africa, Australia, Britain, and France. Such episodes have stimulated Australia to enact legislation blocking enforcement of foreign court judgments on companies based in that country. Similar legislation is being considered in the United Kingdom and Canada.[24] However, the United States approach to these problems is by no means unique. The European Economic Community Commission maintains that its rules on competition extend to actions outside the Community if they affect competition within it. And the Supreme Court of the Federal Republic of Germany has supported the right of that country's Federal Cartel Office to require that foreign subsidiaries of German companies notify that Office of its foreign acquisitions.[25]

Although these international conflicts remain unresolved, the desirability of harmonizing national policies in this area is widely recognized. An important reason is the converging patterns of direct investment flows in the major industrial countries. Now that nearly all industrial countries are important as both host to inward investment and home country for outward investment, their policy perspectives are both broader and more similar to one another than in the 1960's. For example, the new sense of urgency animating OECD discussion of inducements to some inward investment and restrictions against others is largely due to a United States interest in those topics. This interest is a new one, stimulated by our recent experience as an important host to inward direct investment. On the other hand, the increasing importance of outward investment for Japan, Germany, and Canada is likely to have modified their approach to conflicts between home and host countries. Thus, there is some prospect that industrial countries will eventually move from study to action in harmonizing policies toward direct investment and the regulation of multinational firms.

[24] *The Economist* (September 5, 1979), pages 79-82.
[25] *Financial Times* (November 29, 1979), page 12.

Dorothy B. Christelow

Interest Rate Futures

On a typical day in 1979, futures contracts representing about $7½ billion in three-month Treasury bills changed hands in the International Monetary Market (IMM) of the Chicago Mercantile Exchange in Chicago. This market and several other new markets for interest rate futures have very quickly become active trading arenas. For example, at the Chicago Board of Trade (CBT), futures contracts representing $820 million of long-term Treasury bonds were traded on a typical day; also, at the CBT, futures contracts representing $540 million of GNMAs (Government National Mortgage Association securities) changed hands on an average day.

Besides these three well-established interest rate futures contracts, several new financial futures contracts have recently received the approval of the Commodity Futures Trading Commission (CFTC) and have begun trading. Futures contracts for intermediate-term Treasury notes commenced trading in the summer of 1979; in the fall, the Comex (Commodity Exchange, Inc.), which had traded many metals contracts, inaugurated a three-month bill futures contract, and the ACE (Amex Commodities Exchange, Inc., an affiliate of the American Stock Exchange) introduced a bond futures contract; in addition, the New York Stock Exchange is intending to start a financial futures unit.

What accounts for the rapid growth of interest rate futures? Who are the most active participants in these markets? Some businesses such as financial institutions and securities dealers use it to hedge or manage interest rate risk. By and large, however, participants are involved for other reasons and help provide much of the markets' liquidity. A large portion of the activity in these markets is speculative—people and institutions betting on which way interest rates will move and how the interest rate in one month will move relative to another. Others are involved in these interest rate futures markets for tax reasons.

Both the enormous size of these futures markets and the nature of the participants are a matter of concern for the regulatory authorities. The Treasury and the Federal Reserve System have become aware of potential problems for the functioning of markets in Government securities; these problems include the possibility of corners or squeezes on certain Treasury issues and the disruption of orderly cash markets for Treasury securities. In addition, the regulatory authorities have become concerned that the substantial numbers of small investors participating in the markets may not be fully aware of the risks involved.

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What is a futures market?

For as long as mankind has traded goods and services, people have made contracts which specify that commodities and money will change hands at some future date, at a price stated in the contract. Such contracts are called "forward" contracts. A forward contract tailored to one's needs offers obvious advantages—one can pick the exact date and the precise commodity desired. On the other hand, there are disadvantages. It may be difficult to locate a buyer or seller with exactly opposite needs. In addition, there is a risk that the other party to the transaction will default.

A *futures* contract is a standardized forward contract that is traded on an exchange. Usually the type and grade of commodity is specified as well as the date for delivery. Once a bargain is struck, the clearinghouse of the futures exchange itself becomes the opposite party to every transaction. Thus, it is the soundness of the exchange's clearinghouse rather than the creditworthiness of the original buyer (or seller) that is of concern to the seller (or buyer) on the other side of the transaction. To ensure its viability, futures exchanges and their clearinghouses set up rules and regulations. These include the requirements that a clearing member firm and its customers put up "margin", that the contracts be marked-to-market daily, and that trading cease if daily price fluctuations move outside certain limits.

Among the oldest futures markets in the United States are those for wheat and corn which date back to the middle of the nineteenth century. Thereafter, futures markets for other farm products and raw materials gradually developed. One of their major purposes was to provide producers and processors with price insurance. Suppose a farmer expects to harvest wheat in July. Nobody knows with certainty what the price will be then; it depends upon the size of the harvest and conditions elsewhere in the world. However, by selling a futures contract for July wheat, the farmer can indirectly guarantee receiving a particular price. This is illustrated in Box 1.

Futures markets for commodities not only provide a forum for hedgers, but they also provide information. This information—about prices expected to prevail on future dates—is printed in the financial section of many daily newspapers. The farmer, for example, can use these futures prices to decide whether to plant corn or wheat. The food processor can gear up to can corn or beans depending upon the expected prices and the prospective consumer demand at those prices.

Box 1

Hedge in Wheat Futures

A farmer planning to harvest wheat in July sells a July wheat futures contract at $2.98 in March.

(1) Suppose the price in July turns out to be . . .	$2.50	$3.00	$3.50
(2) Gain or loss from offsetting futures contract [$2.98 − row (1)]	.48	−.02	−.52
(3) Sales price of wheat in cash market [same as row (1)] . . .	2.50	3.00	3.50
(4) Total earnings per bushel [row (2) + row (3)] . .	2.98	2.98	2.98

Interest rate futures are a relatively new development. In the fall of 1975, the CBT inaugurated a GNMA contract. Shortly thereafter, in early 1976, the IMM introduced a contract for ninety-day Treasury bills, and this was followed in 1977 by the CBT's Treasury bond futures contract. These three contracts—the CBT's original GNMA, the CBT's Treasury bond, and the IMM's three-month Treasury bill contract—have proved to be the most popular and heavily traded financial futures contracts. The amount of contracts outstanding, or open interest, in these markets has expanded significantly since their inception (Chart 1). Moreover, trading volume has also become quite large in relation to the underlying cash market securities. In 1979, daily average trading in the eight ninety-day Treasury bill contracts on the IMM was equivalent to about $7½ billion (at $1 million per contract), not much different from the daily volume of Treasury bills traded in the dealer market for United States Government securites.[1] Some interest rate futures contracts, however, have failed to attract much trading activity. For example, activity in the ninety-day commercial paper contract has remained quite light.[2]

How financial futures markets operate

The financial futures markets operate in the same manner as other futures markets. Their terms and methods are very different from those used in the money and bond markets. One of the most active financial futures markets is that for three-month Treasury bills at the IMM. Through this exchange, a customer could, for example, buy a contract to take delivery of (and pay for) $1 million of three-month Treasury bills on March 20, 1980. In all, there are eight contract delivery months on the IMM, extending at quarterly intervals for about two years into the future.

A customer places his order with a futures commission merchant—a firm registered with the CFTC and permitted to accept orders from the public—which

[1] That market is described in "The Dealer Market for United States Government Securities", by Christopher McCurdy in this Bank's *Quarterly Review* (Winter 1977-78), pages 35-47.

[2] One of the problems with this contract has been that commercial paper issuers have at times tended to sell paper with maturities much shorter than ninety days. Also, because the paper of a large number of companies is deliverable against the contract, this generates substantial uncertainty about which paper will be delivered. In addition, the original technical specifications of the contract engendered some confusion.

sends the order to the trading floor of the exchange. There, a member of the exchange enters the trading pit and announces his intention to purchase the March 1980 contract. Another member who has an order to sell that contract shouts out his offer and, if the two can agree on a price, the trade is consummated. The trading in the pit is by *open outcry,* which is typical of futures exchanges and very unlike the over-the-telephone negotiations in the cash market for Treasury securities.

The contract's price is quoted as the difference between 100 and the discount rate on the bill in question. Thus, a contract fixing a bill rate of 8.50 percent would be quoted at 91.50. This index preserves the normal futures market relationship in which the party obligated to take (make) delivery profits when the price rises (falls). The contract quote is not the price that would actually be paid for the bill at delivery. That price is computed by using the rate of discount in the standard bill price formula.

The clearinghouse interposes itself between the buyer and the seller, so that the buyer's contract is not with the seller but with the clearinghouse. (In the same fashion, the seller's contract is with the clearinghouse and not with the original buyer.)

A key ingredient in the financial viability of the clearinghouse is the margin that the clearing member firms must post on their contracts. For each outright purchase or sale of a three-month Treasury bill contract on the IMM, the firm must post margin of $1,200 per contract, which can be in the form of cash or bank letter of credit. The clearing member firm must, in turn, impose an initial margin of at least $1,500 on the customer. This may be posted in the form of cash, selected securities, or bank letters of credit. Futures firms can and often do require higher than the minimum margins of their customers. Margins formerly were more lenient, at one point down to $800 initial margin, but were raised following the greater volatility that emerged in the financial markets in the wake of the Federal Reserve System's policy actions in October 1979.

For as long as the position is outstanding, the contract will be *marked-to-market* by the clearinghouse at the end of each business day. For example, a clearing member with a long position in the March contract would have its margin account credited with a profit if the price rises, or debited with a loss if it declines. The prices used in the calculations are the *final settlement prices,* which are determined by the exchange by examining the prices attached to the trades transacted at the end of trading each day.

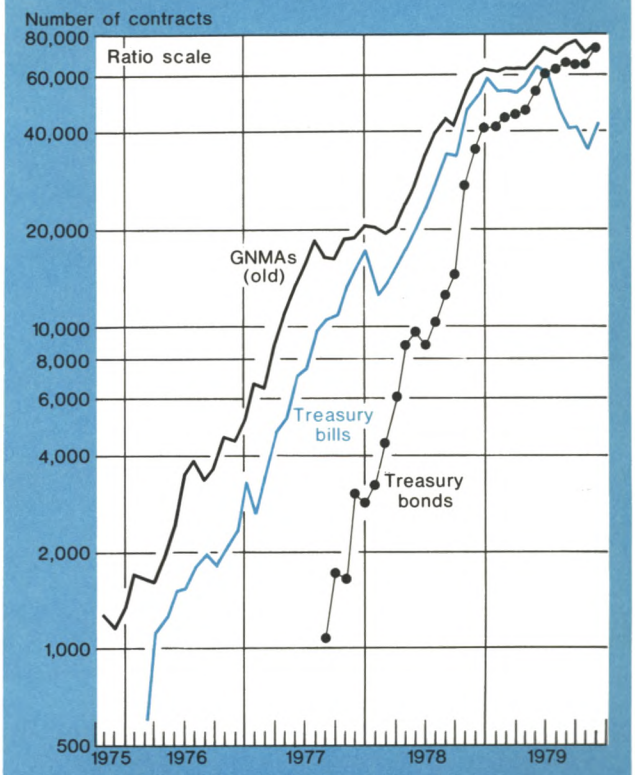
Profits in the margin account may be withdrawn immediately. When losses occur and reduce the firm's margin below $1,200, the firm must pay the difference to the clearinghouse in cash before trading opens the next day. It is permissible for the value of a customer's margin account to fall below the initial $1,500 but, once the margin account falls below the $1,200 maintenance margin, the account must be replenished in full—brought back up to $1,500. Since the value of a 1 basis point change in the futures bill rate is $25 per contract, relatively small changes in interest rates can result in large changes in the value of a margin account.

The exchanges impose rules that prices may not change by more than a certain maximum amount from one day to the next. At the IMM, for example, no bill futures trades may be cleared if the price is more than 50 basis points above or below the final settlement price on the previous day although, if the *daily limit*

Chart 1

Growth of Interest Rate Futures Markets: GNMAs, Treasury Bills, and Treasury Bonds

End-of-month open interest



See Box 2 for specifications.

Sources: International Monetary Market and Chicago Board of Trade.

Box 2

Futures Contracts on Treasury Securities (Currently Trading)

	ACE	COMEX	IMM	Treasury bills IMM	Intermediate-term Treasury coupon securities CBT	IMM	
Deliverable items	$1 million par value of Treasury bills with 90, 91, or 92 days to maturity	$1 million par value of Treasury bills with 90, 91, or 92 days to maturity	$1 million par value of Treasury bills with 90, 91, or 92 days to maturity	$250,000 par value of Treasury bills due in 52 weeks	$100,000 par value of Treasury notes and noncallable bonds with 4 to 6 years to maturity	$100,000 par value of Treasury notes maturing between 3½ years and 4½ years	$100,00 value of sury b with at 20 yea ma
Initial margin* (per contract)	$800	$800	$1,500	$600	$900	$500	$
Maintenance margin* (per contract)	$600	$600	$1,200	$400	$600	$300	$
Daily limits‡	50 basis points	60 basis points	50 basis points	50 basis points	1 point (32/32)	¾ point (48/64)	1 (32
Delivery months (each year)	January, April, July, October	February, May, August, November	March, June, September, December	March, June, September, December	March, June, September, December	February, May, August, November	February, Au Nove
Total open interest (December 31, 1979) .	106	913	36,495	435	715	265	
Date trading began ...	June 26, 1979	October 2, 1979	January 6, 1976	September 11, 1978	June 25, 1979	July 10, 1979	Novembe

Non-Treasury Securities Futures

	CBT (old)	CBT (new)	Govenment National Mortgage Association (modified pass-through mortgage-backed certificates) ACE	COMEX	CBT (30-day)
Deliverable items	Collateralized depository receipt covering $100,000 principal balance of GNMA certificates	$100,000 principal balance of GNMA certificates	$100,000 principal balance of GNMA certificates	$100,000 principal balance of GNMA certificates	$3 million face value of prime commercial paper rated A-1 by Standard & Poor's and P-1 by Moody's
Initial margin* (per contract)	$2,000	$2,000	$2,000	$1,500	$1,500
Maintenance margin* (per contract)	$1,500	$1,500	$1,500	$1,125	$1,200
Daily limits‡	1½ points (48/32)	1½ points (48/32)	¾ point (24/32)§	1 point (64/64)	50/100 point
Delivery months (each year)	March, June, September, December	March, June, September, December	February, May, August, November	January, April July, October‖	March, June, September, December
Total open interest (December 31, 1979) .	88,982	4,478	3,248	64	12
Date trading began ...	October 20, 1975	September 12, 1978	September 12, 1978	November 13, 1979	May 14, 1979

All specifications are as of year-end 1979.

* The speculative margin is shown where margins vary according to whether the contracts cover speculative, hedged, or spread positions.

† For all contracts but those which mature in current month. Then initial margin is increased to $2,500 and maintenance margin is raised to $2,000.

‡ Exchanges frequently have rules allowing expansion of daily limits once they have been in effect for a few days (margins may change also).

§ Limits in suspension as of the year-end.

‖ Principal trading months; rules allow trading for current plus two succeeding months.

restricts trading for a few days, then wider limits may be imposed on subsequent days. Margins are often temporarily increased during such periods.

When the customer wishes to get out of his contract before maturity, he must take an offsetting position. To cancel the contract he bought, he must sell another contract. His order is forwarded to the pit and a sales contract is executed, but not necessarily with the party who sold it to him in the first place. Once again, the clearinghouse interposes itself between the two parties and the latest sale will be offset against the original purchase. The customer's overall position will be canceled, and the funds in the margin account will be returned to him.

The lion's share of all contracts traded are terminated before maturity in this fashion. Only a very small percentage of contracts traded is delivered. In the case of Treasury bills, delivery takes place on the day after trading stops. The customer who has sold the contract (the short) delivers $1 million (par value) of Treasury bills that have ninety, ninety-one, or ninety-two days to maturity, and the customer who bought the contract (the long) pays for the bills with immediately available funds. The price paid for the bills is the settlement price on the last day of trading. (With the daily marking-to-market, almost all losses and gains have been realized before the final delivery takes place.)

Variations in procedures exist on different contracts and exchanges, but they generally adhere to the same principles: open outcry trading, interposition of the clearinghouse, posting of margin, and daily marking-to-market. Box 2 delineates the key specifications on financial futures contracts. Probably the most important difference among contracts is that some allow delivery of a variety of securities. The active Treasury bond contract, for example, permits delivery of bonds from a "market basket" of different bonds, all with maturity (or first call) beyond fifteen years. This has the effect of substantially increasing the deliverable supply of securities but generates some uncertainty among those taking delivery as to which bonds they might receive.

The formal organizational structure of futures trading stands in contrast to the informal nature of forward trading. Dealers in the market for United States Government securities often agree to transact trades that call for forward delivery of Treasury issues. These trades are negotiated in the same fashion as trades for immediate delivery. There is no standardized contract as in the futures market: the two parties must agree to the specific security involved, the exact delivery date, the size of trade, and the price. These terms are set according to the mutual convenience of the two parties. Often, there is no initial margin and no marking-to-market to account for gains and losses. Thus, each participant must size up the creditworthiness of the other. Finally, these agreements, for the most part, are designed to result in delivery. (Some GNMA forward trades among a few firms can be offset through a clearinghouse arrangement.) If either side wishes to cancel the trade, it must go back to the other side and negotiate a termination.

Participants in the interest rate futures markets

Many types of financial institutions participate in the markets for interest rate futures, but private individuals not acting in a business capacity account for the major part of interest rate futures positions in the three most active contracts (Chart 2).

According to a survey by the CFTC of positions outstanding on March 30, 1979, businesses other than the futures industry, commonly called "commercial traders", accounted for only about one quarter of open interest held in the most active contracts (ninety-day Treasury bills on the IMM, and Treasury bonds and the original GNMA contract on the CBT). In an earlier survey, such participants had held about three eighths of those contracts outstanding on November 30, 1977 (Table 1). The involvement of commercial traders is important because they are the only group that can use futures contracts for hedging cash market positions to any meaningful extent. (See next section.)

Moreover, some of the businesses who participate in these futures markets are probably not trying to eliminate risk completely. Consider securities dealers, for example, who have been very active in interest rate futures markets—they held about 7 percent of total GNMA positions and about 18 percent of total bond positions in March 1979. Securities dealers are generally risk takers, trying to benefit from interest rate change, or arbitrageurs, trying to benefit from interest rate disparities, rather than hedgers. But, in meeting customers' needs and making a market in Government securities, they do make use of interest rate futures markets to manage their risk exposure.

Among other business participants, mortgage bankers and savings and loan associations combined held about 7 percent of total positions in GNMAs. Their participation in GNMAs is to be expected in view of their involvement in generating and investing in mortgages. A total of sixty-eight of these firms held positions on March 30, 1979, not much above the number reported in the earlier survey. Few commercial banks have been active in interest rate futures—twenty-four had open positions in bill futures, and fourteen in bond futures on March 30, 1979—accounting for a small fraction of total positions in these markets. Their rela-

Table 1

Futures Markets Participants

November 30, 1977 and March 30, 1979
Average open interest; number of contracts

Type of participant	Government National Mortgage Association contract (old)				Treasury bond contract				Three-month Treasury bill contract			
	1977 amount	1977 as percentage of total	1979 amount	1979 as percentage of total	1977 amount	1977 as percentage of total	1979 amount	1979 as percentage of total	1977 amount	1977 as percentage of total	1979 amount	1979 as percentage of total
Commercial traders *(total)*	*7,226*	*36.5*	*10,899*	*18.3*	*2,025*	*67.2*	*12,393*	*27.4*	*4,950*	*32.8*	*14,992*	*33.6*
Securities dealers	3,395	17.1	4,270	7.2	1,534	50.9	8,226	18.2	2,758	18.3	5,596	12.5
Commercial banks	263	1.3	655	1.1	99	3.3	1,472	3.3	326	2.2	1,581	3.5
Savings and loan associations	494	2.5	2,500	4.2	—	—	394	0.9	56	0.4	136	0.3
Mortgage bankers	1,198	6.1	1,472	2.5	154	5.1	330	0.7	44	0.3	974	2.2
Other	1,875	9.5	2,003	3.4	238	7.9	1,971	4.4	1,767	11.7	6,706	15.0
Noncommercial traders *(total)*	*12,588*	*63.5*	*48,705*	*81.7*	*989*	*32.8*	*32,826*	*72.6*	*10,154*	*67.2*	*29,661*	*66.4*
Futures industry	7,353	37.1	21,113	35.4	477	15.8	12,924	28.6	2,765	18.3	8,434	18.9
Commodity pools	2,862	14.4	11,097	18.6	254	8.4	9,484	21.0	1,520	10.1	5,640	12.6
Individual traders	2,373	12.0	16,495	27.7	258	8.6	10,418	23.0	5,868	38.8	15,586	34.9
Total	**19,814**	**100**	**59,604**	**100**	**3,014**	**100**	**45,219**	**100**	**15,104**	**100**	**44,654**	**100**

Because of rounding, amounts and percentages may not add to totals.
Source: Commodity Futures Trading Commission Surveys. The 1977 survey covered all positions, but the 1979 survey excluded positions of fewer than five contracts.

tively low level of participation may have reflected regulatory restrictions on their involvement in the futures market or some confusion about the regulators' policies.

Futures industry personnel and firms held a significant fraction of the open positions. This group includes many who are speculating on rate movements in general or on the spread relations between rates on successive contracts. Or they might be operating in both the cash and futures markets, arbitraging differences between the two markets.

Individuals and commodity pools—funds which purchase futures contracts—are very important participants in financial futures markets. They held almost half of the open positions in 1979, a substantial increase from their already significant participation in the earlier survey. Indeed, their 1979 share of total positions in financial contracts was certainly higher than that because positions of less than five contracts were not included in the second survey and individuals tend to hold the vast majority of such small positions.[3]

Services provided by interest rates futures markets

It is commonly believed that futures markets provide certain benefits—in the main, an inexpensive way to hedge risk and generate information on expected prices. Interest rate futures markets also provide these benefits.

Several observers have noted that interest rate futures markets are not necessary to provide information on future interest rates or as a hedging mechanism. They point out that one can obtain information

[3] Small positions in the bill futures contracts amounted to about 8,000 contracts at the end of March 1979 and thus would raise the combined share of individuals and commodity pools to a bit more than half of the bill futures market. Comparable calculations cannot be made for the CBT's bond and GMNA contracts because some small positions are posted on a net basis (*i.e.*, long positions are offset against short positions), compared with a gross basis as in the bill contracts.

on future interest rates by comparing yields on outstanding securities which have different maturities. However, the interest rate futures markets do provide future interest rate information in a more convenient form.

It is also true that outstanding securities could be used to hedge market risk. Again, however, the futures market can provide a less cumbersome and expensive hedge. Suppose, for example, that a firm is planning to issue short-term securities three months in the future and is worried about the prospective short-term interest rate. The short sale of a Treasury bill with more than three months to maturity is one way to hedge the risk.[4] In the futures market, the interest rate risk on this prospective issue could be hedged by selling the Treasury bill contract for the month closest to the prospective issue date. If all short rates moved up, the hedger would make a gain on the futures market transaction which would offset the loss on the higher interest rate he would have to offer.

Banks, dealers, and other such financial institutions may find futures markets helpful in achieving a particular maturity structure for their portfolios while having adequate supplies of cash securities on hand. For example, a dealer may need to hold supplies of a six-month bill to be ready for customer orders. However, he may not want the risk exposure on this particular maturity because he thinks its rate is likely to rise. Or, a mortgage banker may wish to hedge the risk on rates between the time of the mortgage loan and the time of its sale as part of a large package of loans. By selling a GNMA futures contract while assembling the mortgage package, the banker can be insured against rate changes. If rates rise, the value of the mortgage portfolio will fall, but that will be offset by the profits on the short sale of the GNMA contract. If, on the other hand, rates fall, the gain on the mortgage portfolio is offset by the loss on the sale of GNMA futures. In this hedge, the banker foregoes the possibility of additional profit (or loss) and is content to profit from the origination and servicing fees associated with assembling the mortgages.

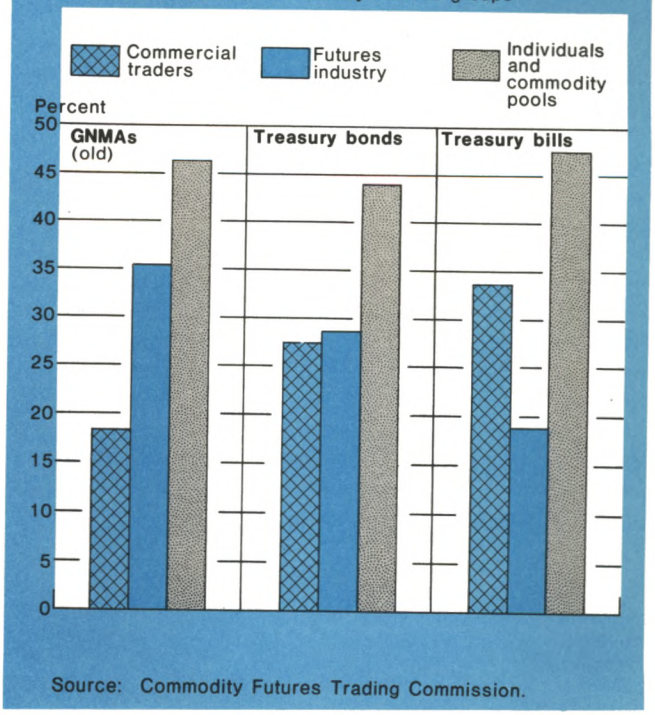
Not every financial transaction has an exact hedge in the futures market. When the cash asset is different from the security specified in the futures contract, the transaction is called a "cross hedge" and provides much less protection than an exact hedge. For example, a securities dealer might find it profitable to buy some certificates of deposit (CDs) and finance them for one month. To protect against a decline (increase) in the price (rates) of CDs over the interval, the dealer might sell Treasury bill futures contracts, assuming the movements in bill rates and CD rates will be similar over the interval. So long as the rates move in the same *direction* the dealer will be protected at least to some degree against adverse price movements. It is conceivable, however, that the rates could move in opposite directions. Thus, a cross hedge is really a speculation on the relationship between the particular cash market security held in position and the particular futures contract involved. In a cross hedge, the participants cannot deliver the cash security against the contract, so there is no threat of delivery that can be used to drive the prices on the two securities back into line as the expiration date approaches.

In contrast to financial businesses, nonfinancial businesses and private individuals are less likely to find a useful hedge in the interest rate futures market. Consider the typical nonfinancial business which is planning to issue securities to finance some capital

Chart 2

Futures Markets Participants, March 30, 1979

Shares of open interest held by various groups



Source: Commodity Futures Trading Commission.

[4] The prospective issuer could borrow a six-month Treasury bill and sell it immediately; three months hence he would buy a bill with the same maturity date to return. If interest rates for that future time interval rise, the security would be purchased more cheaply three months hence than is currently expected. The gain on this transaction would then offset the loss connected with issuing securities at the higher interest rate.

purchase or inventory. If the rate of inflation accelerates, the firm will typically be able to sell its output at higher prices. Thus, its nominal profit and return from the investment will typically also rise.[5] This means that a rise in inflationary expectations, which is reflected in the nominal rate of interest, will tend to affect profits in the same direction as it does financing costs. Thus, to some extent, the firm is automatically hedged against inflation-induced changes in the interest rate.

A similar intrinsic hedge may be available to investors on any new funds they plan to invest. Presumably they want to be sure that their investment produces a certain real income or purchasing power in the future. If interest rates move down because anticipated inflation has fallen, then the return on any funds invested at the lower rate will be able to buy the same quantity of goods and services that they would have in the circumstance where inflation and interest rates were higher. (The real return on *past* savings, however, will move in the opposite direction as inflation.)

Thus, to the extent that interest rate changes reflect revisions in inflationary expectations, many businesses and persons will not be in a very risky position with regard to saving or investment plans. If, as some contend, the variation in interest rates is largely connected with inflationary expectations, these groups would typically not obtain a very useful hedge in the interest rate futures market.

Speculation

While some participants use futures markets to hedge risk, others use them to speculate on price movements. Speculators like the high leverage obtainable and the low capital required for trades in futures markets relative to trades in cash markets. Speculation on interest rates could be accomplished in the cash markets but would typically involve greater costs than in futures markets. For example, suppose one thinks that the three-month interest rate in the June-September period will be higher than the implicit forward rate for that time interval. The short sale of a September bill in March and its repurchase in June can produce a profit if those high rates materialize. The costs involved in these transactions include the dollar value of the bid-ask spread as well as the charges for borrowing a security. In addition, one must have sufficient capital to put up collateral equivalent in value to the securities borrowed or the credit standing to borrow the securities under a reverse repurchase agreement.

In futures markets, one does not pay for or receive money for the commodity in advance. The cost of trading in the futures market is the foregone interest on the margin deposit (if in the form of cash) plus the commission fees. Assuming a $70 commission, this would amount to about $125 on a three-month bill futures contract at current interest rates, if the contract were held for three months. A change in the discount rate on the futures contract of 5 basis points would therefore recompense the speculator for his costs (Table 2).

Besides speculating on the level of rates, some futures market participants may be speculating on the relationship among interest rates. Such speculation can take the form of a "spread" trade whereby the participant buys one contract and sells another, hoping that the rate on the contract bought will fall by more than (or rise by less than) the rate on the contract sold. Also, if participants believe that the slope of the yield curve will change in a predictable way when the level of the yield curve changes, a spread transaction (which involves a lower margin) can be a less expensive way to speculate on the level of rates.

Frequently, traders will take positions in futures contracts that are related to positions in cash market securities. A trader might think that the rate in the futures market is out of line with cash Treasury bills. If he feels the futures rate is low relative to the rates

Table 2

Change in Discount Rate on a Three-Month Treasury Bill Futures Contract Necessary to Cover Cost of a Futures Market Transaction

In basis points

Holding period	Commission (in dollars) $30	$50	$70
One month	2.0	2.8	3.6
Three months	3.4	4.2	5.0
Six months	5.7	6.5	7.3
Twelve months	10.2	11.0	11.8

$$\text{Basis point change} = \frac{C + \frac{h(.01i)m}{12}}{25}$$

where h is the number of months the contract is held, i is the rate of interest obtainable over the period h, m is the cash margin, and C is the commission on the futures trade. The numbers shown are based upon i = 15 percent and m = $1,500.

[5] The firm does not, however, tend to earn nominal profits in proportion to prices because the tax structure collects more in real terms during inflation. See M. Arak, "Can the Performance of the Stock Market Be Explained by Inflation Coupled with our Tax System?" (Federal Reserve Bank of New York Research Paper).

on outstanding bills, he might sell the futures contract and buy the bills in the cash market. He could then carry the bill in position until the two rates move back to their more normal relationship. Then the bills would be sold and the short bill futures contract offset. These types of trades are often called "arbitrages" by participants in the cash market although they are not arbitrages in the strict sense in which a security is bought in one market and at the same time sold in another, thereby locking in an assured return. In fact, most arbitraging activity generally reflects speculation on the relationship between cash and futures rates.

Use of futures markets to reduce tax liability

Individuals and institutions have also used interest rate futures markets to reduce their taxes. One means was through spread transactions.

Until November 1978, spread transactions in the Treasury bill futures market were a popular means of postponing taxes. An individual would buy one contract and sell another, both for the next calendar year. For example, in 1976, the participant might have bought the March 1977 contract and sold the September 1977 contract. An important assumption was that interest rates on all contracts would tend to move together so that the net risk was relatively small. At some point before the end of 1976, whichever position had produced a loss would be closed out. (In the above example, the short position or the sale of the September 1977 contract was the item that showed a loss during the latter part of 1976.) That loss could then be deducted from other income for 1976, reducing the 1976 tax bill. The contract for March 1977, on which the gain had accrued, was not closed out until 1977 when it no longer affected the 1976 tax liability.[6]

What made Treasury bill futures particularly attractive for such spreads was the belief of many taxpayers that, just like actual Treasury bills, they were not capital assets. In contrast, it was clear that other types of futures contracts, not held exclusively for business purposes, were capital assets.[7] If Treasury bill futures were not capital assets, then losses on them could be fully subtracted from other ordinary income (providing that *net* ordinary income did not become negative). Capital losses, in contrast, could be subtracted from ordinary income to a very limited extent.[8]

[6] After the September 1977 contract was offset, another contract for 1977 would be sold to maintain a balanced position. In our example, the June 1977 contract would be sold to counterbalance the March 1977 contract that was still being held. Then sometime in early 1977, these two contracts would be closed out.

[7] *E.g.*, Faroll v. Jarecki, 231 F.2d 281 (7th Cir. 1956).

[8] Capital losses can be offset against capital gains with no limitation, but the excess of loss over gains that may be deducted from ordinary income in a single year is currently limited to $3,000.

This attraction of the Treasury bill futures market for tax postponement was eliminated in November 1978 when the IRS declared that a futures contract for Treasury bills is a capital asset if neither held primarily for sale to customers in the ordinary course of business nor purchased as a hedge.[9] Further, the IRS, amplifying on an earlier ruling,[10] stated that the maintenance of a "spread" position, in transactions involving futures contracts for Treasury bills, may not result in allowance of deductions where no real economic loss is incurred.

A way that individuals can reduce taxes through the futures market is by indirectly converting part of the interest income on Treasury bills into long-term capital gains. Suppose that the discount rate on a bill is expected to fall as it matures. Since the market usually regards longer dated bills as less liquid (or as having more interest rate risk), an investor would typically expect that a bill maturing in, say, March 1981 would offer a higher annual discount rate in June 1980 than it would in February 1981. Similarly, the interest rate on futures contracts would tend to fall as they approach expiration (their price would rise). Pursuant to the November 1978 IRS ruling, the price increase in a Treasury bill futures contract should, in nonbusiness circumstances, be treated as a capital gain for an investor. In contrast, since a Treasury bill itself is not a capital asset, all the price appreciation on it—from date of purchase to date of sale—would be treated as ordinary income for tax purposes.

An investor would clearly prefer to have the price appreciation treated as a long-term gain rather than as ordinary income, since the long-term capital gains tax rate is only 40 percent of that for ordinary income. If a long position in a bill futures contract were held for more than six months, the profit would be a long-term capital gain. (Gains and losses on short positions in futures are always treated as short-term regardless of the holding period.) Consequently, some investors who might normally purchase 52-week bills would have an incentive to purchase distant futures contracts and, as those contracts matured, sell them off to take their capital gains. They could then invest their funds in three-month bills. These activities would tend to raise the discount rate on the 52-week bill. It would also tend to reduce the required discount rate on distant futures contracts. Thus, the discount rates on futures contracts would be pushed below the implicit forward discount rate on cash bills.

There are, of course, limits on the size of the wedge that can be driven between the forward rate on

[9] Rev. Rul. 78-414, 1978-2 C.B. 213.

[10] Rev. Rul. 77-185, 1977-1 C.B. 48.

cash securities and the rate on futures contracts. Financial businesses cannot treat profits in bill futures as capital gains. For them, the futures contract has no tax advantage over a cash bill. When the wedge produced by investors exceeds the cost of arbitrage, these financial businesses will buy long-term bills and sell futures contracts to profit from the disparities in rates.

Relationship between the cash and futures markets

For many commodities, the spot price and the futures price are very closely related. Part of the explanation is that, if a commodity is storable, it can be bought today, stored, and sold at a future date. If the futures price were to exceed the spot price by more than the costs involved, arbitrageurs would buy the commodity in the spot market—raising the spot price—and would sell it in the futures market, lowering the futures price. These activities would reduce the disparity between the future price and the current price.

The relationship between cash and futures markets for bills is somewhat different from that for other commodities. A three-month Treasury bill cannot be stored for more than three months; it matures. However, a longer term bill could be "stored" until it has three months left to run. It is the cash market for that *longer term bill* which bears a relationship to the futures market that is typical of agricultural and industrial commodities. In the case of note and bond contracts, the deliverable item exists throughout the life of the contract.

For example, consider what cash market securities correspond to the IMM's June 1980 three-month Treasury bill contract. This contract calls for delivery of bills which have ninety-one days to run on June 19, 1980. Treasury bills having this maturity date will be sold by the Treasury in two auctions—as six-month bills on March 17, 1980 and as three-month bills on June 16, 1980. During the first three months of its life, the six-month bill issued on March 20, 1980 is the commodity that could be "stored" for delivery on the futures contract.

The funds used to purchase the six-month bill when it is initially issued could have been invested in three-month bills which mature on the contract expiration date. One measure of the interest cost involved in storage is therefore the foregone interest on the shorter bill —this is the "opportunity cost" of the decision to invest in the longer bill which is deliverable on the futures contract. It is common to subtract that opportunity cost from the bill price to get the "forward" price and the corresponding "forward" rate; this rate can then be compared with the discount rate on the futures contract.

Because in the past only three-month and six-month bills matured on Thursdays, only bills originally issued as three-month or six-month bills could be delivered on a ninety-day bill futures contract.[11] In fact, at any date, there was only one bill issue in existence that could be delivered on an IMM bill futures contract. That particular bill had between three and six months to maturity and could be delivered on the closest three-month bill futures contract. For longer bill futures contracts, there was usually no exact correspondence. There is no cash bill in existence today that could be delivered on the September 1980, December 1980, March 1981, and subsequent contracts traded on the IMM. However, there are bills which have a maturity date that may be quite close. For example, the 52-week bill maturing on September 16, 1980 will have eighty-nine days to run on June 19, 1980, while the June futures contract calls for bills which have ninety to ninety-two days to run on that date. By comparing the rate on this 52-week bill with the rate on the 52-week bill which matures twelve weeks earlier, a forward rate which covers an interval close to that of the futures contract bill can be calculated. Through this method, a rough forward rate in the period nine months prior to the contract's expiration can be obtained.

How does the rate on a three-month Treasury bill futures contract compare with the implicit forward rate in the cash market? The futures rate on the June 1979 contract and the "forward" rate on the corresponding cash bill (which matured September 21, 1979) moved very similarly in the last ninety-one days before the futures contract expired (Chart 3). Typically, the spread between the two rates was less than 25 basis points, with the forward rate somewhat higher than the futures rate. On most other futures contracts for three-month Treasury bills as well, the futures and forward rates were fairly close in the last ninety-one days or so before expiration.

When the contract's expiration date was far in the future, however, the link between its rate and the comparable forward rate was much weaker. In fact, spreads between forward and futures rates have at times been over 100 basis points in the three to nine months before the contract expired. Generally, in recent contracts, futures rates have been substantially below forward rates, and the spread between the two appears to have been wider than it was in earlier contracts.

Within three months of the expiration of the futures contract, futures and forward rates appear to be kept in reasonable alignment by investors and arbitrageurs. An investor, for example, can on the one hand hold a

[11] Now that the Treasury has begun to issue 52-week bills maturing on Thursdays, there will be some occasions on which bills issued as 52-week bills will be deliverable against the three-month bill contracts.

six-month bill, or, on the other hand, hold a three-month bill plus the futures contract for the month in which the three-month cash bill matures. If the six-month bill is yielding more than the other combination, investors will tend to prefer six-month bills. And their demand will tend to reduce its discount rate, bringing the forward rate down toward the futures rate. Similarly, if investors find the three-month cash bill plus the futures contract more profitable, their buying pressure on the futures contract will tend to reduce its discount rate, bringing it down closer to the forward rate.

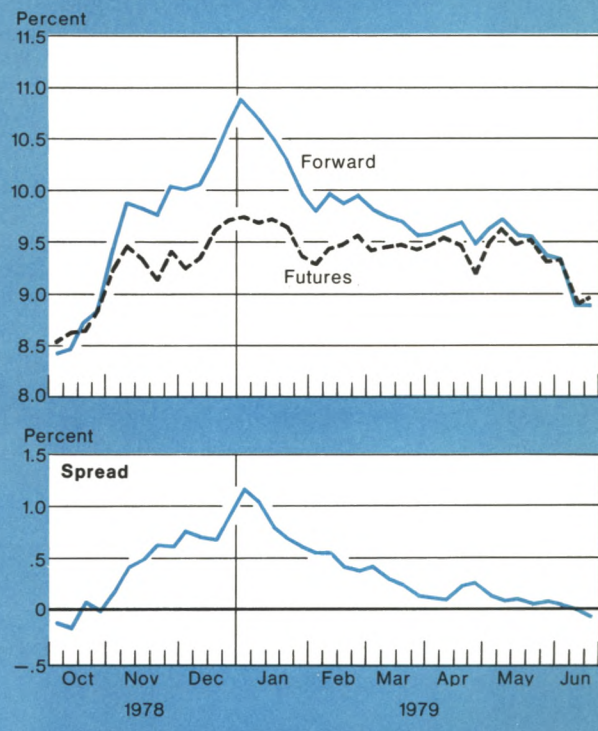
Another group of market participants who help keep rates in line are arbitrageurs. If they observe that the six-month bill provides a forward rate which is high relative to the futures rate, they could buy six-month bills and sell them under a repurchase agreement for three months;[12] at the same time, they would sell a futures contract. They would then have no net investment position: the bill returned to them in three months corresponds to the commitment to sell in the futures market. But they would earn a profit equal to the futures price minus the six-month bill price, the transaction cost, and the financing cost. As arbitrageurs conduct these activities, they put upward pressure on the six-month bill's price by buying it and put downward pressure on the futures price by selling the futures contract. These activities of the arbitrageur usually tend to keep the forward and futures rates within certain bounds.

On contracts other than the nearest, however, there is no deliverable bill as yet outstanding—that is, no security exists that can be purchased, stored, and delivered against the contract. Consequently, arbitrageurs cannot lock in a profit by taking exactly offsetting positions in the two markets. If there is an order flow in the futures market that is persistent, sizable, and at variance with the prevailing view in the cash market, it is possible for speculators to drive a wedge between the rates on futures contracts and the implicit forward rates in the cash market.

One notable example occurred in the spring of 1979. Apparently, many small speculators purchased bill futures contracts due in mid-1980, in the belief that short-term interest rates had reached a cyclical peak and would begin to fall sometime within a year or so. From the end of April to the end of June, their holdings rose from about 25 percent to 35 percent of the total open interest and their net long positions expanded sharply. As a result of this buying pressure and purchases by those trying to get out of large

Chart 3

Discount Rate on the June 1979 Treasury Bill Futures Contract (IMM) and the Forward Rate in the Cash Market



Spread equals forward rate minus futures rate.

short positions, rates dropped sharply, with the March 1980 and June 1980 contract rates falling by nearly 1¾ percentage points from mid-May to the end of June. Rates also fell on contracts with shorter maturities—those due in the latter half of 1979.

Many other participants were net short, and some of these were firms that felt they were arbitraging between the cash and futures market, holding in this case long positions in the cash bill market against short positions in futures contracts. One of the several cash futures operations they engaged in was a long position in bills in the six-month area *(i.e.,* due in November for the most part) versus a short in the September contract (calling for delivery of the bill to mature on December 20 which had not been auctioned yet). As the rates on futures contracts fell, those with short positions faced sizable margin calls. To the extent that they then bought futures contracts to offset their short positions and also sold their cash bills, they greatly enlarged the wedge that was being driven be-

[12] A repurchase agreement specifies that the seller will rebuy at a prespecified date and price.

tween the rates in these two markets in late May and early June (Chart 4).

The widening wedge between the forward and futures rates made arbitrage involving futures contract sales even more profitable. But, after the shock of seeing large losses mount on short positions and show up in quarterly income statements, financial businesses were reluctant to expand their short positions. The futures and forward rates did not come back into alignment until late in the summer when interest rates started rising again.

Pros and cons of interest rate futures markets

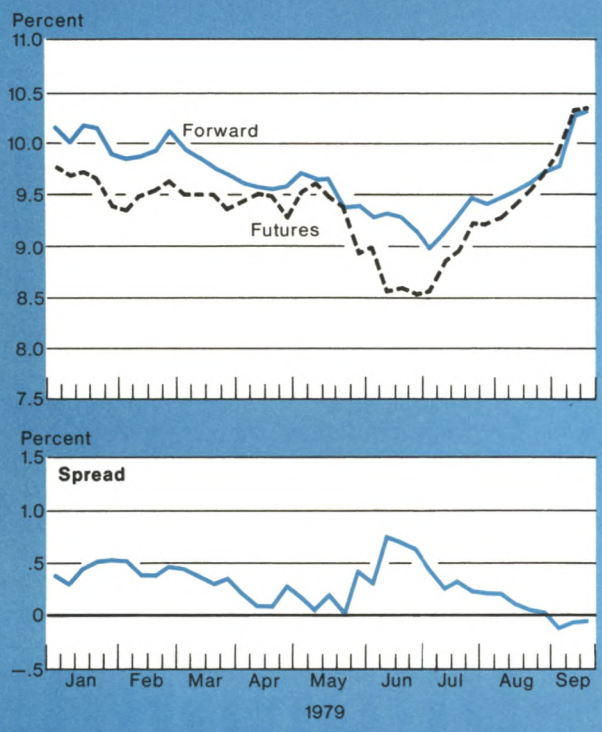
Many observers of the new financial futures markets argue that these markets permit investors to obtain flexibility in ownership of securities at a very low cost. Someone who expects to have funds to invest in the period from mid-June to mid-September 1980, for example, can lock in an interest rate by purchasing a June Treasury bill futures contract. (For those who plan to purchase or issue other securities such as commercial paper or CDs, the links between the movements of rates in the bill futures market and the rates that obtain on these other instruments can be weak.)

By transferring the interest rate risk to those most willing to assume it, interest rate futures may increase the commitment of funds for some future time intervals. This could reduce the premium attached to funds committed for that future interval relative to funds committed for the nearer term. For example, the yield on 52-week and nine-month bills might fall. The resulting greater liquidity represents a gain to investors, while the lower interest rate on Government debt reduces the taxes necessary to service that debt.

While the provision of hedging facilities is a desirable aspect of interest rate futures markets, much of the activity appears to be speculative, and this has created some concern. One such concern is that speculation in the futures markets might push the prices of certain Treasury bills out of line with the

Chart 4

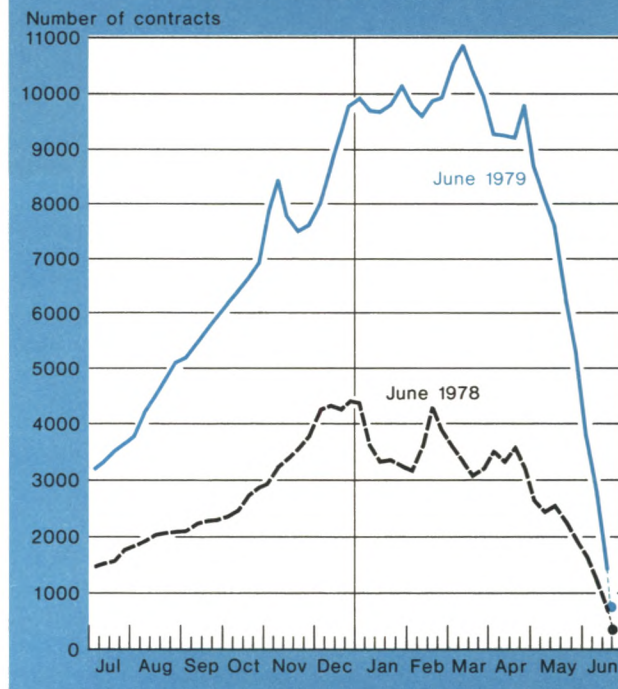
Discount Rate on the September 1979 Treasury Bill Futures Contract (IMM) and the Forward Rate in the Cash Market



Spread equals forward rate minus futures rate.

Chart 5

Open Interest in Treasury Bill Futures Contracts for June 1978 and June 1979



Weekly averages, week ending each Wednesday.
Total open interest as of last trading day is indicated by dots.

Source: International Monetary Market.

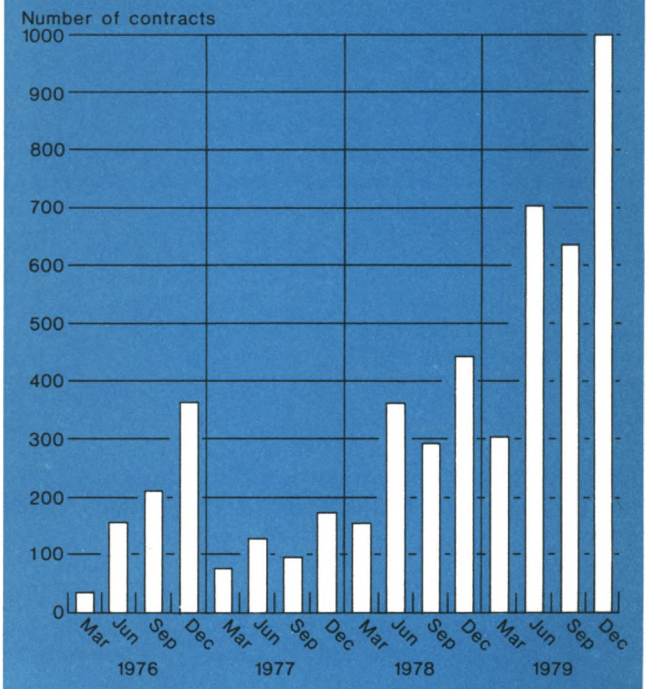
prices of other securities. Because speculation is very inexpensive, entry into the futures market could be much more massive than entry into the cash market. Heavy demand in the futures market could be transmitted to the cash market by arbitrageurs. According to some analysts, the bill deliverable on the June 1979 contract was influenced by activities in the futures market. The June contract specified delivery on the Treasury bill due September 20 and only that bill. While the Treasury had sold $5.9 billion of bills with that maturity date, the Federal Reserve, foreign official accounts, and small investors held about one half. Thus, it appeared likely that the available trading supplies would amount to about $2 billion to $2½ billion.

However, open interest in the June 1979 contract stood at about 4,300 contracts, the equivalent of about $4.3 billion of bills at the end of May (Chart 5). This substantially exceeded the prospective trading supplies. During the spring, dealers reported that trading supplies in the September 20 bill were very thin and that it traded at a rate that was out of line with other bills. For example, it averaged about 4 basis points below the rate on the bill that was due a week earlier. Since investors usually require a higher rate when extending the maturity of their bill holdings, the 4 basis point difference provides a rough lower limit on the pressure that was exerted on the June contract and its spillover on the cash market.

Some observers argued that some investors were desirous of taking delivery because they thought there would be further declines in interest rates. Others pointed out that some people who had booked gains on long positions wanted to qualify for long-term capital gains. In any event, about a week before the contract expiration there was news of large increases in the money supply and industrial production which the market interpreted as indicating that a recession was not imminent and that interest rates would not fall immediately. This view probably contributed toward reducing pressure on the contract, and it was liquidated in an orderly fashion. Deliveries turned out to be a then record high of $706 million of bills due September 20, 1979, about a third of the available trading supplies of that bill. Deliveries on the September contract were somewhat lower, although still sizable (Chart 6), and deliveries on the December contract amounted to $1 billion.[13] Over the last month before delivery, the rate on the bill deliverable on the December contract averaged 8 basis points below the rate on the bill due one week earlier. As a result of these events, the question arises whether supplies of the deliverable bill are sufficient to prevent pricing dislocations.

Chart 6

Deliveries on Three-Month Bill Futures Contracts



Source: International Monetary Market.

In contrast to bill futures, other futures contracts, notably in notes and bonds, have adopted a market basket approach to deliverable supplies. By allowing a variety of issues to be delivered, the contracts greatly reduce the possibility of a squeeze. If, for example, the September 13 bill had also been deliverable against the June contract, then traders would have had no incentive to deliver the September 20 bill at a rate that was below that on the September 13 bill. The mere availability of the other bill would therefore have provided a floor for the rate on the September 20 bill.

This analysis of bill futures has led some to suggest that, instead of a single deliverable issue, the deliverable security should be any one of a "basket" of Treasury bills with different maturity dates. However, others see disadvantages with the "basket" approach. In any event, the CFTC has authorized the new exchanges such as the ACE and the Comex to trade

[13] A part of the large amount of deliveries on the three 1979 contracts may reflect investors' preference for ordinary income losses instead of capital losses, a transformation that can be achieved by taking delivery on a contract on which one has booked a loss. See Arak, "Taxes, Treasury Bills, and Treasury Bill Futures".

futures which involve bills maturing in a different week of the quarter than the IMM bill contracts. If these markets grow and become more active, there should be less likelihood of pressure on the one particular March, June, September, or December bill whose futures contract is traded on the IMM.

Finally, to many of the regulators, the size of the required margin deposit is a key issue. Larger margins would help insure the exchanges against possible defaults as well as discourage excessive speculation with little capital. Moreover, they might make participants more aware of the possibilities of loss inherent in trading in interest rate futures. In early October 1979, the minimum initial margin on Treasury bill futures contracts at the IMM was only $800, and a 32 basis point move in the rate on one of those contracts could have wiped out the entire margin. Now that margin is $1,500, which gives better protection to the exchange and the contract.

Concluding remarks

Interest rate futures markets have generated much new activity within a very short time; they have also generated some apprehension on the part of those concerned with orderly marketing and trading of the United States Government debt. Thus far, neither the extreme enthusiasm nor the worst worries appear to be justified.

Interest rate futures markets can provide inexpensive hedging facilities and flexibility in investment. But, to date, participation by financial institutions that might have such a need has not been large. Rather, it appears that participants have so far been primarily interested in either speculating on interest rates or reducing tax liabilities. These participants have been encouraged by fairly low margins. Until recently, the exchanges had shown a penchant for reducing these margins, but in October 1979 when interest rates fluctuated widely following the Federal Reserve System's adoption of new operating procedures, several exchanges raised margins substantially.

Most of the time, the financial futures markets have operated fairly smoothly. In general, there has been no greater volatility in the prices of bills which are deliverable on futures contracts than in the prices of other bills. And despite the huge run-up in open interest in some of the bill futures contracts, actual deliveries have not been large enough to disrupt the operation of the cash market. However, on several bill futures contracts, the price of the deliverable bill was pushed slightly out of line with prices on other issues with adjacent maturities. The CFTC, the Treasury, the Federal Reserve, and market participants themselves will have to continue to observe futures market activities to assure that significant problems are not building up.

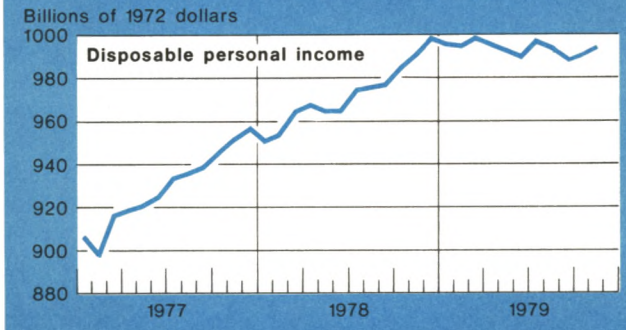
Interest rate futures markets have already provided an arena for some institutions to manage interest rate risk. And, as these markets mature, their economic usefulness may come to be more widely appreciated.

Marcelle Arak and Christopher J. McCurdy

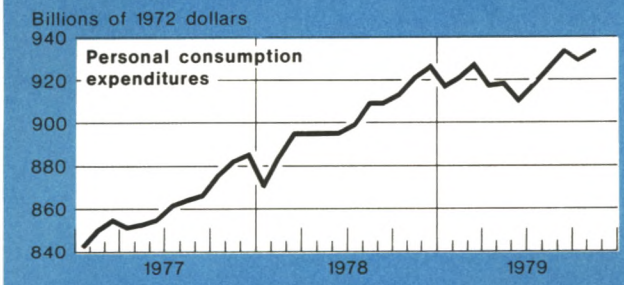
The business situation
Current developments

Chart 1

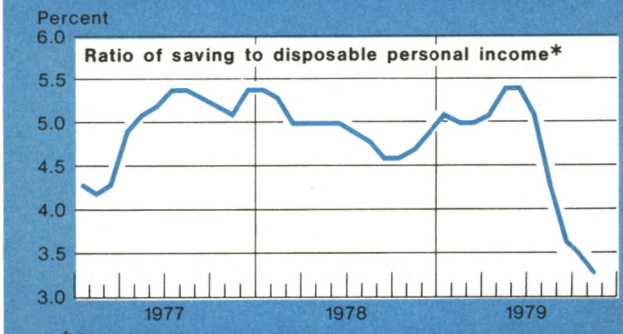
Income growth slowed in late 1979 . . .



. . . but consumer spending continued to rise . . .



. . . as consumers sharply reduced their rate of saving.



*Centered three-month moving average.

Source: United States Department of Commerce, Bureau of Economic Analysis.

The economy ended 1979 with an unexpected display of strength. Despite a weakening in automobile sales and production and in housing, consumer spending advanced quite strongly, and employment posted surprising gains. At the same time, the sudden heightening of world political tensions at the year-end raised the possibility of new upward forces spreading from a defense buildup. Nevertheless, the weakness in the automobile industry and in housing, the sharp fall in the savings rate, and the stubborn persistence of inflation pose uncertainties over the prospects of further gains in business activity.

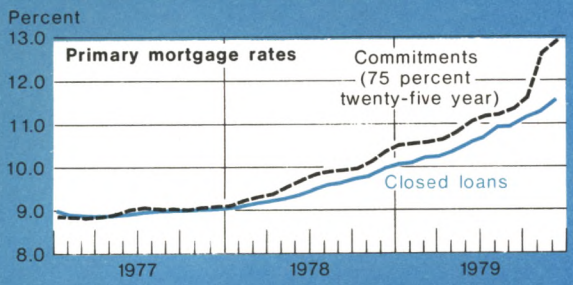
Consumer spending provided most of the strength to the economy during the final quarter of 1979. Purchases of apparel, general merchandise, and services paced the gain. In contrast, sales of new domestic cars fell sharply to an annual rate of 7.2 million units, 1.3 million units below the sales rate posted in the third quarter.

With the drop in new car sales, stocks of unsold models mounted quickly, and United States automakers closed the year with a heavy inventory of cars. In response to the inventory imbalance, automakers curtailed production and laid off nearly 200,000 workers. Outside the automotive sector, however, there was little evidence of imbalances. Indeed, because businesses have generally followed cautious inventory policies, the surge in year-end sales depleted stocks of some products so that isolated shortages were reported.

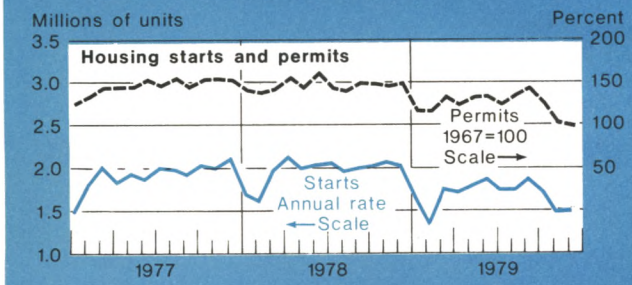
In spite of the major employment layoffs in the automobile industry, employment continued to expand in the final quarter. In fact, although the automobile layoffs increased over the course of the quarter, the monthly gain in payroll employment accelerated and, in December, amounted to more than 300,000 persons.

Chart 2

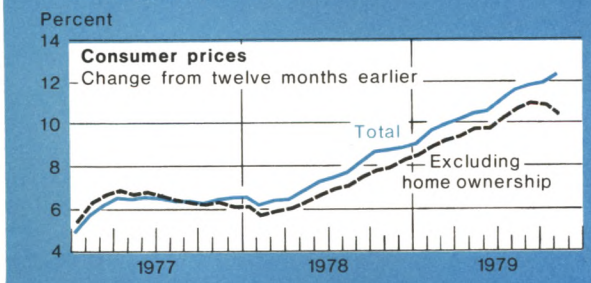
Tightening mortgage markets . . .



. . . have contributed to the weakening in home-building activity . . .



. . . and added to the rise in the consumer price index.



Sources: Federal Home Loan Bank Board; United States Department of Commerce, Bureau of the Census; United States Department of Labor, Bureau of Labor Statistics.

The overall rate of joblessness stayed within the narrow 5½ to 6 percent range of the past eighteen months and ended the year at 5.9 percent. At the same time, the ratio of employment to population rose to a record high in the final quarter.

The growth of employment bolstered earnings, but the gain in income was outstripped by inflation, which eroded the purchasing power of households' incomes. Consumers kept up their spending by continuing to borrow and by reducing savings, and the overall rate of savings declined sharply further (Chart 1). A key question in the outlook, of course, is whether consumers can continue to borrow so much and save so little. In the last inflationary outburst, in 1974, the savings rate held up in part because of the widespread expectation that double-digit inflation would soon disappear. This time around, in contrast, the fear that inflation is unlikely to diminish soon appears to be pushing consumers to spend ahead of their incomes notwithstanding the growing strains on family budgets.

While consumer spending rose, business spending on fixed capital weakened in the final quarter of 1979. Shipments of nondefense capital goods dropped sharply, led by a decline in truck and automobile deliveries. Other near-term barometers of capital spending, however, are mixed—new orders have risen, while contracts for commercial and industrial buildings have declined. Looking to 1980 as a whole, the November-December Commerce Department survey of planned plant and equipment spending points to an advance of 10.9 percent. This would represent a marked slowing from the spending gain of 14.7 percent posted in 1979. After allowing for the effect of rising prices, the planned increase suggests only very modest real growth.

Residential fixed investment also weakened in the closing months of 1979, as mortgage credit became less available and available only at substantially higher interest rates. Housing starts, as well as permits to build in the future, declined sharply in the closing months of the year (Chart 2), and sales of new and existing homes slumped. New single-family house sales in November actually posted their sharpest decline in almost a decade.

In the face of weakening demand, signs of a softening in housing prices began to appear. Indeed, several broad measures of house prices recorded actual declines in November. A sustained weakening in home prices could, of course, affect the economic outlook. In the inflationary environment of the 1970's, housing had emerged as a primary hedge against ever-rising prices and the rapid run-up of home prices served to buttress inflationary expectations. In the process, consumers tapped their ballooning housing equity—through stepped-up borrowing and home sales—to finance increased expenditures. To the extent that future increases in real estate values become less certain, an important base of inflationary expectations and consumer spending would be eroded.

Some continued weakening in housing activity seems likely as a result of the tightened mortgage market. Interest rates on mortgage loan closings have

risen to record levels, and rates on new mortgage commitments have increased even more sharply. In December, the rate on a 25-year mortgage with a 25 percent downpayment was close to 13 percent—up about 2½ percentage points since the start of the year and more than 1 percentage point in just the last two months. At the same time, deposit flows at thrift institutions have slowed markedly. Part of this slowing could be offset if the newly introduced 2½-year savings certificate proves successful in attracting funds to thrift institutions (see article beginning on page 54). The temporary Federal suspension of state usury mortgage rate ceilings could also cushion the prospective decline in housing to some extent.

The rise in mortgage rates added substantially to the upward spiral in the consumer price index in the closing months of 1979. The rise in the homeownership component of the index accelerated markedly, not just because of rising mortgage costs but also because of continuing increases in the housing prices that are used in the construction of the index. (These are Federal Housing Administration market price data which tend to measure the lower priced segment of the housing market. They differ from other measures of housing prices—Census Bureau and National Association of Realtors—not used in the index, which appear to be much broader and have recently shown declines.) Over the first eleven months of 1979, the consumer price index rose at an annual rate of 13 percent. Excluding the homeownership component, however, the rise in consumer prices slowed late in the year (bottom panel of Chart 2). From December 1978 through November 1979, consumer prices other than homeownership costs rose at an annual rate of 10.4 percent.

Measuring changes in consumer prices is a difficult undertaking. Last year's run-up in mortgage rates and house prices appears to have led to an overstatement in homeownership costs. Only current prices of houses and current mortgage interest rates enter the consumer price index. In a period of rapid inflation the index also tends to exaggerate underlying price changes because it measures the cost of purchasing a fixed market basket of items whose composition does not change. Consumers do change their spending habits and tend to cut back on items whose prices rise particularly rapidly. Recent reductions of energy consumption by households are the most striking example. The deflator of personal consumption expenditures, an alternative measure of consumer buying power used in the construction of national income accounts and now published monthly, avoids both these problems of the consumer price index. The deflator uses a measure of current homeownership costs which is more difficult to construct and which takes account of changes in consumer spending patterns. In the first eleven months of 1979 this measure showed a consumer price inflation of 10 percent at an annual rate, or 3 percentage points below the consumer price index.

The consumer price index is the nation's most prominent barometer of price change. As such, its overestimate of the rise in the cost of living can create actual upward price pressures. It tends indirectly to raise inflation by reinforcing expectations of high rates of price advance and strengthens workers' demands for large catch-up wage increases. At the same time, the exaggerated increase in the index directly aggravates inflation by raising the wages of more than 8½ million workers who are covered by cost-of-living adjustments.

Regardless of the problems of measurement, price pressures remain intense. Despite evidence of a weakening in some components of aggregate demand, inflation continues to pose the greatest threat to prosperity in the 1980's. Prospects for any quick reduction of inflation are limited not just by the jump in world oil prices but also by the legacy of inflation in the past decade. Over these years expectations of virulent inflation have become increasingly entrenched. The apparent softening in home prices is one straw in the wind pointing to the possibility of dampening these expectations. More concretely, the monetary actions of late 1979 which were designed to slow the growth of the monetary aggregates will act to reduce the underlying rate of inflation in the 1980's. Maintaining judicious monetary discipline is a prerequisite for a return to sustained price stability.

Effectiveness of the first-year pay and price standards

In October 1978 the Administration introduced a voluntary program of pay and price standards as part of a larger initiative against inflation. Even though the program was aimed at restraining inflation, the rate of increase in the consumer price index accelerated from 8.4 percent in the year prior to the standards to 12.2 percent in the program's first year. This sharp jump, however, largely reflects an acceleration in prices outside the pay and price guidelines. Indeed, looking at the sources of inflation and the pattern of pay hikes during the past year suggests that the program has had some effect in restraining inflation.

The interdependence of wages and prices plays a crucial role in the inflation process. In general, labor compensation accounts for the largest part of the cost of producing goods and services, while prices determine the purchasing power of wages. Accordingly, the guidelines set a standard of 7 percent maximum annual increases in labor compensation, and maximum annual price increases averaging roughly 5.75 percent. The ceiling on average price rises was set below the pay standard to reflect a long-run trend in labor productivity increases.[1] In addition, alternative rules were devised for situations in which compliance with the basic price standard would not have been feasible.

Prices and the price standard

The impact of the price standard needs to be gauged in light of the flexibility of the program.[2] Essentially, each company was asked to limit increases in its average selling price of goods to 0.5 percent below its own average rate of price increase during 1976 and 1977. Alternatives to the basic price deceleration standard were specified for cases where companies experienced large, uncontrollable cost increases (*e.g.*, for energy and raw materials costs), where producers could not effectively control the price of their output (*e.g.*, raw food prices), or where controlling a price would have been inconsistent with the overall objective of reducing inflation (*e.g.*, interest rates).[3] In these instances, directly limiting price increases would have been an unrealistic or counterproductive strategy, and other standards were designed to place some limit on how much a company's final selling price could exceed its costs.

In short, compliance with the price guidelines did not always require companies to reduce their rates of price increase. Indeed, depending on the sources of the price increases, the rate of inflation could rise without firms necessarily being out of compliance. In fact, the acceleration of the consumer price index during the first year of the program largely resulted from extraordinary increases in the costs of energy and home buying which were effectively outside the direct influence of the price standard. In response to OPEC (Organization of Petroleum Exporting Countries) price increases, consumer energy prices jumped 35 percent. Due to the run-up of house prices and higher mortgage interest rates, the costs of purchasing a home rose 18 percent. Food prices, also outside the standard, posted

[1] For a discussion of recent productivity trends, see Paul Bennett, "American Productivity Growth: Perspectives on the Slowdown", this *Quarterly Review* (Autumn 1979), pages 25-31.

[2] The first-year standards are discussed in detail in Council on Wage and Price Stability, *Pay and Price Standards: A Compendium* (June 1979).

[3] The link between higher interest rates and lower rates of inflation is discussed in a talk by Peter Fousek, entitled "Monetary Restraint, Interest Rates, and Inflation", this *Quarterly Review* (Autumn 1979), pages 11-12.

a 10 percent increase in the first year of the program. This substantial rate of increase was down only slightly from the exceptionally large food price rise in the previous year.

Aside from the price run-ups for energy, home buying, and food, which combined represent about half of the consumer price index, consumer price increases were more moderate. The prices of items such as rent and most manufactured goods and services—which were more directly under the influence of the first-year price standard—advanced at about a 7 percent rate during the first year of the program, only slightly more than in the year before (Chart 1). The small acceleration in these prices is not surprising since higher energy costs raise production and distribution costs. Despite this slight price acceleration, there is little evidence that many companies flagrantly violated the price standard.

Pay and the pay standard

Since labor compensation is by far the largest single cost of production for most companies, moderation in pay increases can play a key role in any effort to restrain inflation. Compliance with the first-year pay standard basically required that average increases in compensation be held to no more than 7 percent annually. Legally mandated labor costs, such as employer contributions to social security, were exempt from the pay standard, as were increased costs associated with maintaining existing health and pension plans without improvements in benefits. Because of these exemptions, the most visible impact of the pay standard should be on money wages, excluding fringe benefits.

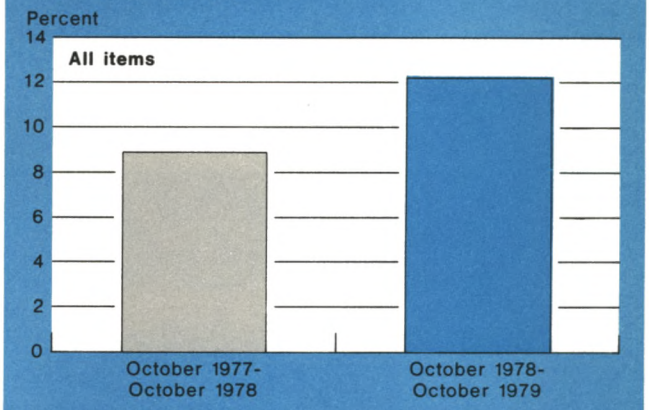
Average wage increases slowed slightly during the first year of the pay standard. According to the employment cost index, private nonfarm hourly wages rose 7.7 percent in the year ended September 1979, compared with an 8.0 percent increase in the previous year. Similarly, average hourly earnings (adjusted for overtime and interindustry shifts in employment) also show a moderation in wage gains. Compensation per man-hour, which is a broader pay measure including fringe benefits and payroll taxes in addition to wages, shows a slight acceleration in the past year. Part of this acceleration reflects higher social security contributions.[4]

The overall moderation in pay reflects a wage slowdown in the nonunion sector, which represents three fourths of the work force. Nonunion wages rose 7.3 percent in the first year of the program, compared with 8.0 percent in the preceding year. In contrast to

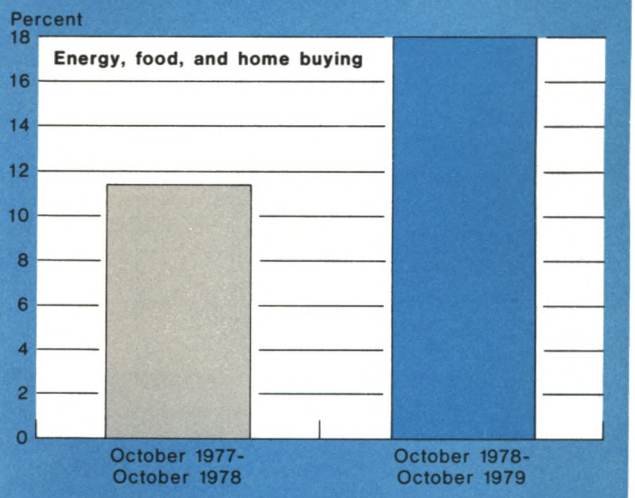
Chart 1

Consumer Prices

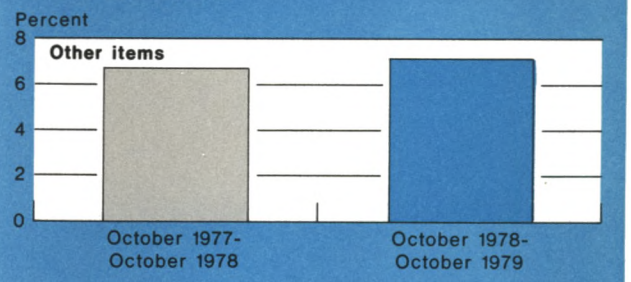
During the first year of the pay and price guidelines, the consumer price index jumped sharply . . .



. . . largely reflecting increases in prices outside the influence of the program . . .



. . . other price increases were more moderate.



Source: United States Bureau of Labor Statistics.

[4] All these pay measures are published by the Bureau of Labor Statistics.

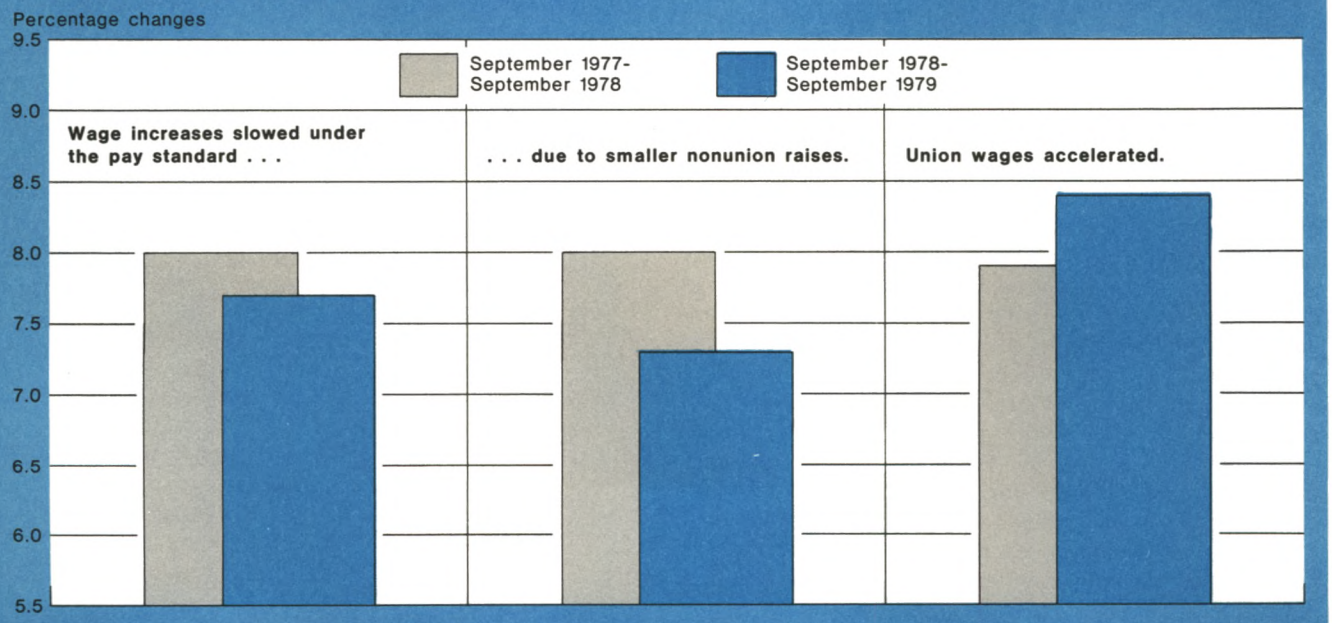
the nonunion sector, union workers' wages accelerated, rising 8.4 percent following a 7.9 percent increase in the year before (Chart 2).

The slowdown of nonunion wages is unexpected, given economic developments in the past year. An important factor affecting nonunion pay is the demand for labor relative to the supply. When there are many job openings relative to the number of individuals seeking work, employers generally offer larger pay increases to attract and maintain adequate work forces. During the year following the announcement of the pay standard, the labor market was fairly tight, as employment continued to grow and the unemployment rate held steady. Yet, despite the continued growth of demand for labor relative to supply, nonunion wage increases slowed. It therefore seems likely that nonunion wages were restrained by the pay standard.

Further support for the view that the pay standard restrained nonunion wage gains comes from private surveys of compensation plans and practices for white-

Chart 2

Employment Cost Index



Source: United States Bureau of Labor Statistics.

Average White-Collar Salary Increases*

In percent

Compensation survey	1978 actual increase	1979 planned increase†	1979 actual increase	Number of companies surveyed
Sibson & Co., Inc., Princeton, New Jersey	8.1	8.3	7.7	459
Compensation Resources, Franklin Park, New Jersey	8.2	8.4	7.6-7.7	524
Hewitt Associates, Lincolnshire, Illinois	8.3-8.5	8.6-8.7	7.8-8.0	414
American Compensation Association, Scottsdale, Arizona	8.4-8.5	8.6	7.8-8.2	1,100

* Increases vary from one survey firm to another because of the different companies in their samples and minor definitional differences. Most companies use calendar-year budget periods.
† As of September 1978 (prior to pay standard).

collar employees (table). White-collar workers make up over half of the nonunion work force. These surveys show that in September 1978, just before the announcement of the pay standard, firms planned to raise white-collar pay scales in 1979 by more than the increases granted for 1978. Under the program, however, actual 1979 salary increases on average turned out to be between ½ and 1 percentage point less than originally planned.[5] These actual 1979 pay increases were smaller than the 1978 increases. Responses to additional questions in several of the surveys indicated that a majority of firms were paying close attention to the pay standard and that a large proportion had reduced their salary budgets to comply.[6]

In contrast to the nonunion sector, union wages accelerated during the first year of the program. As a result, judging the effectiveness of the guideline is more difficult. The acceleration of union wage increases reflects, to a degree, factors outside the control of the voluntary pay standard. Sizable cost-of-living adjustments (COLAs) were received by many workers whose contracts were not even scheduled for renegotiation, whereas the pay standard applied only to new contracts. The unusually large number of collective bargaining agreements scheduled for negotiation in 1979 also raised average union wage increases. Typically, multiyear labor contracts "front load" wage increases; that is, a large proportion of the contracted wage increase is paid at the start of the contract term. One reason for the larger average union pay raises during the first year of the program is that more workers received front-loaded wage increases in 1979 than in 1978.

Due to the design of the pay standard, even those union wage settlements which were very high could technically be in compliance with the program. In fact, virtually all the major contracts reviewed by the Council on Wage and Price Stability were found to comply. The apparent inconsistency of high wage agreements with a program of pay restraint reflects alternative methods of measuring the COLA. While the pay standard assumed a 6 percent annual rate of inflation in the calculation of the COLAs, most new contracts were negotiated under the assumption that 8 or 9 percent rates of inflation would prevail over the next few years. Indeed, the three-year contracts in the trucking, rubber, electrical equipment, and auto industries provided for large compensation increases, ranging from 30 to 40 percent, well over the 22.5 percent allowed under the standard.[7] Yet each of these three-year contracts assumed a 9 percent annual rate of inflation. Because over two thirds of the wage increases will be generated by COLAs, the official 6 percent inflation assumption reduces the computed costs of these contracts by 6 or 7 percentage points, bringing them closer to technical compliance levels. Further reducing official cost estimates of the contracts was the standard's exemption of certain costs associated with health and pension benefits.

Conclusion

Despite the spurt in consumer prices, the pay and price standards can be credited with some success in their first year. The pay standard appears to have restrained wage increases for a majority of workers. Potentially, this has made the price standard more feasible for firms with large labor costs. Prices have certainly accelerated in some sectors during the past year, but these extraordinary increases largely reflect developments outside the domain of the program.

The voluntary standards were never expected to succeed single-handedly in reducing the inflation rate. Rather, they were aimed at helping fiscal and monetary policy restrain inflation. Without moderation of underlying demand pressures, the long-run effects of voluntary guidelines would be negligible. To the extent that the standards reduce the upward momentum of wages and prices and lower inflationary expectations, fiscal and monetary restraint can have a greater impact on inflation, and adverse effects on unemployment and real economic growth will be reduced.

The greatest challenge for the program in the coming year is to set attainable standards that resolve the pay imbalances which arose in the first year, while still acting as an effective constraint on overall pay and price increases. Union workers on average received relatively large pay hikes. This sets a precedent for other unions in upcoming negotiations and for nonunion workers to get catch-up raises. In the context of the overall effort to achieve price stability, the standards will play a demanding but potentially very useful role.

[5] In the past, average planned and subsequent actual pay hikes had been about equal.

[6] Two surveys directly asked whether companies had reduced salary increases in response to the pay standard; affirmative responses were given by 63 percent of the companies in the Sibson survey and 48 percent in the Hewitt Associates survey.

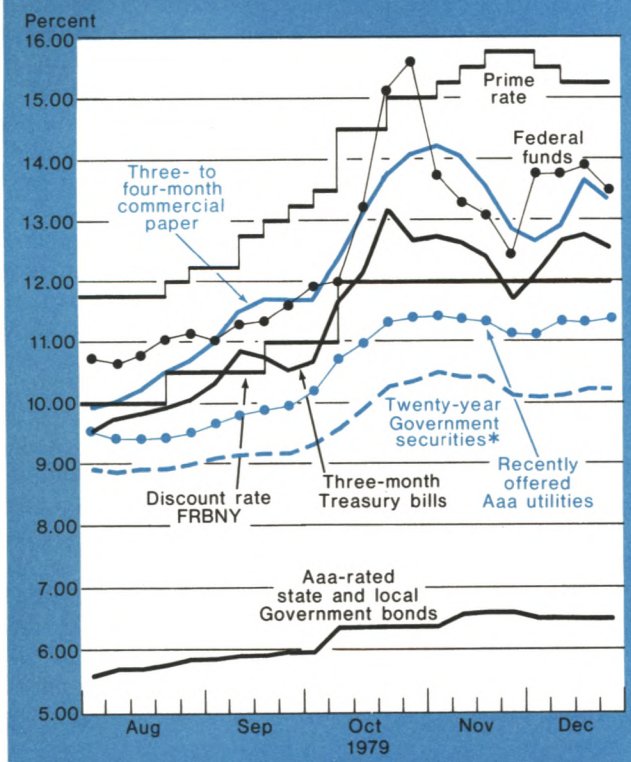
[7] The contracts in these four industries covered nearly 40 percent of all workers with new contracts negotiated in 1979.

Paul Bennett and Ellen Greene

The financial markets Current developments

Chart 1

Short-term rates changed direction several times during the fourth quarter, reflecting unsettled conditions in the money markets.



*This yield is adjusted to twenty-year maturities and excludes bonds with special estate tax privileges.

Sources: Federal Reserve Bank of New York, Board of Governors of the Federal Reserve System, and Moody's Investors Service, Inc.

The financial markets went through a period of turbulent adjustment during the fourth quarter, as market participants reacted to the Federal Reserve's October 6, 1979 policy package, shifting views of the economy's prospective performance, and a series of unsettling developments in the Middle East. On October 6, the Board of Governors of the Federal Reserve System unanimously approved an increase in the discount rate to a record 12 percent, and imposed an 8 percent marginal reserve requirement on the managed liabilities of member banks and certain other institutions. On the same day, the Federal Open Market Committee (FOMC) announced that open market operations would be conducted with greater emphasis on measures of bank reserves to slow monetary growth and achieve the 1979 targets for the monetary aggregates, while permitting the Federal funds rate to vary within a broad range. The markets' adjustment to the greater variability in short-term interest rates which followed the System's actions was complicated by large revisions to the October money supply data as well as unexpected and often conflicting signals of the underlying strength in the economy. In this uncertain environment, it was not surprising to see interest rates change direction several times during the course of the fourth quarter (Chart 1).

Short-term interest rates moved sharply upward immediately following the October 6 policy actions and showed considerable variability, as market participants adjusted to the greater volatility in the Federal funds rate. For years, the financial markets had viewed the Federal funds rate as a clear yardstick of the Federal Reserve's policy intent. Now the markets had to find their own levels. In the five-day period following the Federal Reserve's policy actions, the Federal funds rate increased to an average level of 13.0 percent from 11.9 percent in the preceding five-day period. At the same

time, the spread between the high and low daily rates during the course of a week increased from 84 basis points in the five-day period prior to the October 6 policy actions to 182 basis points in the week following these actions. The spreads between the high and low daily rates within a week remained quite large for the next few weeks, but began to narrow again by mid-November as the financial markets adapted to the new operating procedures.

The stock market, like the money market, was very unsettled for several days following the October 6 policy actions. Stock prices plunged amid often heavy trading, reaching the lowest levels since June 1979. By late October, the stock market began to stabilize and prices gradually moved upward, attaining by mid-December the pre-October levels.

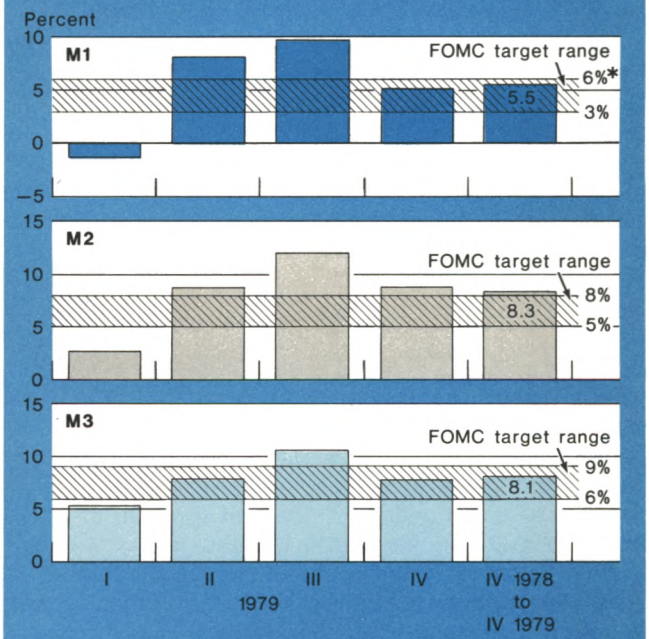
Following the sharp increases in short-term interest rates after the October 6 policy actions, rates declined considerably from late October to late November, although not totally reversing the initial upward swing. Most strikingly, the Federal funds rate—for which the FOMC specified a broad range of 11½ to 15½ percent—declined to about 13 percent from rates near the top of the range. In part, this reversal was due to a substantial reduction of monetary growth, which became apparent in late October, from the very rapid pace prevailing on average over the previous six-month period. The slower monetary growth was accentuated by large revisions to the weekly data. With monetary growth showing evidence of slowing, it appeared that monetary policy would not need to become more restrictive amid signs of slowing economic activity and moderating credit demands.

In late November and early December, the financial markets' assessment of the outlook for rates shifted once again. Not only did the incoming data suggest continuing rapid inflation, but retail sales and employment showed unexpected strength. Meanwhile, the dollar suffered from bouts of severe weakness in the foreign exchange markets, and the prices of commodities, particularly of precious metals, began to spiral rapidly upward once again. The financial markets were further unsettled by developments in Iran during this period. Upward pressure on short-term rates resumed, and the Federal funds rate increased to about 13¾ percent by late December. In the final two weeks of the year, the market seemed to ignore the rather strong increase in personal income and began to stabilize, partly because of evidence of some weakening in the housing market.

Long-term rates and rates in the Treasury bill futures market generally mirrored the pattern in short-term rates, although the swings in the long-term rates over this period were not nearly so large. Rapid inflation continued to be the predominant concern in the long-term markets. Unlike the initial reaction to the November 1978 policy initiatives, long-term sectors moved higher immediately following the Federal Reserve's October actions, suggesting that the market was skeptical whether these policy moves would be adequate to break the inflationary spiral. The market for three-month Treasury bill futures—while moving up and down with developments affecting the cash market—continued to suggest a market expectation of gradually declining short-term rates through mid-1981. The yield on the September 1981 contract fluctuated in a range from 8.35 percent to 9.40 percent while, on the December 1979 contract, rates ranged from 10.19 percent to 12.51 percent.

Chart 2

Growth of the monetary aggregates slowed in the fourth quarter. For the year, the Federal Reserve attained M1 and M3 growth consistent with the annual targets.



Data reflect January benchmark revisions.

*The annual target for M1 was originally set at 1½ to 4½ percent, based on the assumption that growth of ATS and NOW accounts would reduce M1 growth 3 percentage points. Since the actual reduction was only about 1½ percentage points, the equivalent adjusted target for M1 is 3 to 6 percent.

Source: Board of Governors of the Federal Reserve System.

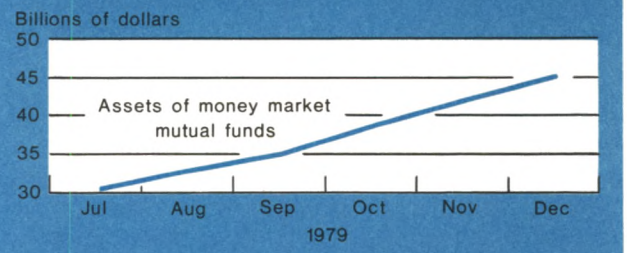
In the second and third quarters of 1979, any prospects for an immediate decline in short-term interest rates had been dimmed by very rapid growth of the monetary aggregates, the pace of inflation, and the strength of the economy. In the fourth quarter, however, growth of the monetary aggregates slowed considerably. M_1 growth, which had averaged almost 9.0 percent in the second and third quarters, slowed to 5.1 percent in the fourth quarter. Moreover, growth of time deposits at banks and thrift institutions also slowed in the fourth quarter, resulting in more moderate expansion of the broader aggregates as well. At the October FOMC meeting, the Committee established an objective of 4.5 percent for M_1 growth for the final three months of 1979 and 7.5 percent for M_2 and M_3 growth. The FOMC was willing to accept somewhat slower growth than this to counterbalance the excessive rates of expansion in the second and third quarters. As a result of attaining monetary growth below these objectives during the October-December period, the Federal Reserve also achieved its objectives for M_1 and M_3 over the period from the fourth quarter of 1978 to the fourth quarter of 1979, while M_2 growth was slightly above the upper end of its range (Chart 2).

Throughout 1979, the broader aggregates were bolstered by substantial flows of funds into six-month savings certificates. In October, largely because of the widespread attention given the rapid increase in short-term rates following the Federal Reserve's October 6 policy actions, the public's holdings of six-month certificates at banks and thrift institutions increased a record $31.7 billion, compared with an average monthly gain of $12.2 billion over the previous three months. This large sum, however, did not represent a substantial amount of additional funds for these institutions. Savings deposits and small time deposits other than six-month certificates were converted into high-yielding six-month certificates, leading to slower growth of small time and savings deposits even while six-month certificates expanded rapidly (Chart 3).

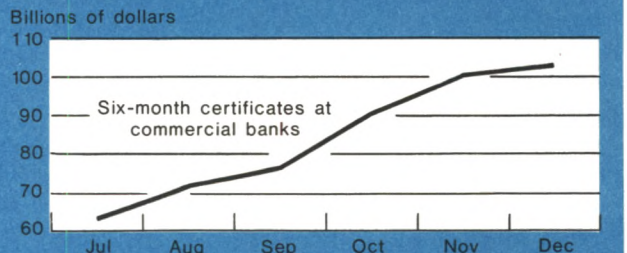
The sharp reduction of deposit growth at thrift institutions during the fourth quarter—along with the greater reliance of thrift institutions on the high-cost six-month certificates as a source of funds—made mortgage money very tight. Moreover, in many states the cost to thrift institutions of acquiring additional funds at market rates exceeded usury ceilings. This made it unprofitable to lend even if thrift institutions could acquire high-cost funds. As a result of these financial developments, housing starts slowed sharply in the fourth quarter, and a large drop in building permits suggested future weakness in the housing market as well. Near the end of December, however, the Congress enacted legislation suspending state ceil-

Chart 3

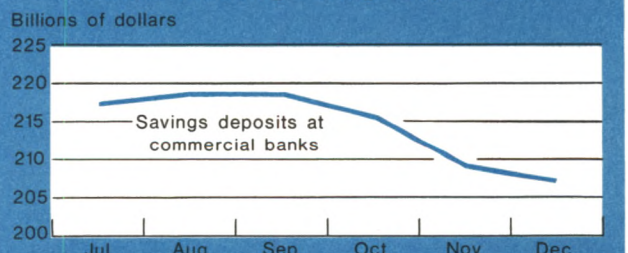
With short-term interest rates at record levels, the public placed funds in money market mutual funds . . .



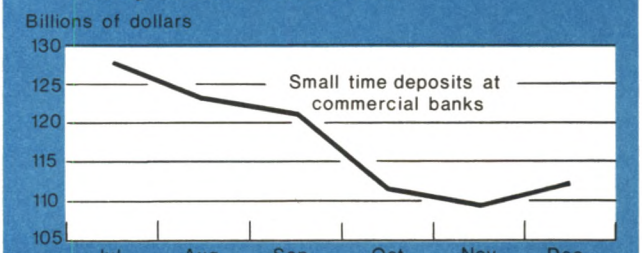
. . . and in money market certificates . . .



. . . while reducing savings deposits . . .



. . . and small time deposits other than money market certificates.



Sources: Donoghue's Money Fund Report (Holliston, Massachusetts) and the Board of Governors of the Federal Reserve System.

ings for mortgage rates during the first quarter of 1980. This action will attract some additional funds into the mortgage markets, although at very high rates of interest.

The mortgage market will be further bolstered in 1980 by a new type of money market certificate authorized beginning January 1980, but it remains to be seen whether this 2½-year certificate will be as popular as the six-month certificates. For the new certificate, thrift institutions are permitted to offer a yield 50 basis points below the yield on Treasury securities with two and one-half years to maturity, while commercial banks are limited to a rate 75 basis points less than the yield on these Treasury securities. The ceiling rate will be set once a month based on data announced by the Treasury during the last three business days of the month. There is no minimum deposit required by law, although individual institutions may set minimum denominations. Other changes in Regulation Q included an increase of 25 basis points on the ceiling rate for time deposits with maturities of ninety days to one year. With the new ceilings, banks may pay 5¾ percent and thrift institutions 6.0 percent

While the Federal Reserve was successful in attaining the 1979 targets for M_1 and M_3, bank credit increased at an annual rate of about 12 percent in 1979, a rate well above the 7½ to 10½ percent range associated with the monetary targets. In the fourth quarter, however, growth of bank credit slowed as business loans, both at banks in New York and outside New York, weakened dramatically immediately following the Federal Reserve's October 6 policy initiatives. The 8.0 percent marginal reserve requirement on managed liabilities typically used by commercial banks to finance loans contributed to upward pressure on the prime rate during October and part of November. In late November, however, as a result of the weaker demand for business loans, as well as some easing in the cost of funds to banks, the prime rate edged down from the record level of 15¾ percent.

Despite the weakening in loan demand and the marginal reserve requirement on managed liabilities, banks increased by $6.2 billion the outstanding level of large negotiable certificates of deposit (CDs) from September to December. With deposit growth slowing dramatically in the fourth quarter—in part due to the very rapid growth of money market mutual funds in October and November—banks were under pressure to bid for CDs as well as other sources of managed funds just to maintain their overall liability base. Assets of money market mutual funds increased over $10 billion in the final three months of 1979 to a level of $45 billion, over 11 percent of M_1 and 4.5 percent of M_2. To the extent that banks are issuing CDs to recover funds lost to money market mutual funds—which in turn are substantial holders of CDs—it appears that money market mutual funds provide an effective mechanism to avoid the effects of Regulation Q. That is, money market mutual funds draw small time and savings deposits as well as some demand deposits away from the banking system by offering market rates of interest and then, in effect, sell the funds back to the banking system in the CD market at market rates of interest. Viewed in this light, it appears that Regulation Q will become less meaningful over time, as small investors become more sophisticated and other means to avoid the effects of Regulation Q are developed.

The Congress is currently considering legislation that would phase out Regulation Q over an extended period of time. Other legislation likely to be considered during 1980 includes a bill dealing with the problem of the Federal Reserve's declining membership and some permanent legislation authorizing ATS (automatic transfer service) accounts, credit union share drafts, and nationwide NOW (negotiable order of withdrawal) accounts. In the final days of 1979, the Congress extended for ninety days the ability of commercial banks to offer ATS accounts and credit unions to offer share draft accounts. Last April, a United States Court of Appeals had ruled these and certain other financial services illegal under current laws but gave the Congress until the end of 1979 to pass legislation legalizing these accounts.

Membership legislation, in contrast to ATS accounts and share drafts, raises many difficult issues. On the one hand, member banks view the income foregone by holding reserves as a costly tax—a tax some banks are willing to leave the System to avoid. The Federal Reserve, on the other hand, needs a broad reserve base to conduct monetary policy effectively. At the same time, the interest earned on the System's holdings of securities—holdings funded in part by the reserve balances of member banks—is an important source of revenue for the Treasury. This makes it difficult to solve the membership problem simply by paying market rates of interest on reserves, and also raises the question of whether the Federal Reserve should charge for the services it currently renders free to member banks if it pays any interest at all on reserves. Alternatively, if parity of sorts between member and nonmember institutions is attained by requiring nonmembers to hold some reserves, the question arises whether nonmembers should have access to Federal Reserve services, and how these services should be priced. All these conflicting considerations must be balanced in some sense to attain equitable legislation.

August-October 1979 Interim Report
(This report was released to the Congress and to the press on December 4, 1979.)

Treasury and Federal Reserve Foreign Exchange Operations

Coming into the August-October period under review, exchange market participants were concerned over the outlook for the dollar, as progress toward reducing the United States trade deficit stalled and inflationary pressures in this country intensified further. United States exports continued to expand smartly, but import growth also remained strong, reflecting the unexpected rebound in domestic economic activity as well as the upsurge in international oil prices which added massively to our oil import bill. The rise in oil prices was also aggravating United States inflation at a time of considerable talk of an impending recession in this country. Market participants thus increasingly questioned the credibility of the United States authorities' stated policy emphasis on the need to combat inflation, to curb oil imports, and to foster a strong dollar and stability in the exchange markets.

In this regard the markets focused on relative monetary conditions here and abroad. Interest rates in other major industrial countries had moved higher through 1979 in response to growing credit demands and accelerating inflation. The German economy in particular had built up a head of steam, and the Bundesbank had acted to slow the growth of money and credit. As German interest rates rose, the authorities of other European countries whose currencies were linked directly or indirectly to the German mark also moved to increase domestic interest rates. For those countries where economic activity remained sluggish, the decision to tighten monetary policies was especially difficult. But the authorities stressed the need to raise domestic interest rates at least in line with the increase in domestic inflation rates rather than risk an erosion of the external values of their currencies that would aggravate domestic inflationary pressures. In the United States, strong growth of the monetary aggregates had resumed in the late spring and early summer and the Federal Reserve also acted to raise the Federal funds rate. Nevertheless, interest rates here did not advance by as much as interest rates in most other industrial countries, and differentials in favor of dollar placements narrowed accordingly. Moreover, many market participants had become increasingly concerned that United States interest rates had not risen sufficiently to take account of the surge of inflation and of inflationary expectations in this country.

By early August, heavy intervention by the United States authorities in the early summer had blunted the selling pressures on the dollar and was reflected, in part, by an increase in the Federal Reserve's outstanding swap drawings to $2,053.3 million equivalent of marks and $31.7 million equivalent of Swiss francs as of end-July. Moreover, President Carter's appointment of G. William Miller as Secretary of the Treasury and Paul A. Volcker as Chairman of the Federal Reserve had been welcomed in the markets as indicating the Government's resolve to deal with inflation and the dollar problem. Against this background the exchange markets turned quieter during most of August. Even so, confidence in the dollar remained tenuous, and a substantial reflux of funds into dollar-denominated assets

A report by Scott E. Pardee. Mr. Pardee is Senior Vice President in the Foreign Department of the Federal Reserve Bank of New York and Manager of Foreign Operations for the System Open Market Account.

did not materialize. The United States authorities sharply reduced their intervention, operating in the exchange markets on only three occasions and selling a total of $448.1 million equivalent of marks. At the same time the Federal Reserve was able to purchase through transactions with correspondents enough marks and Swiss francs to make small net repayments on previous swap drawings with the Bundesbank and to liquidate drawings with the Swiss National Bank.

By late summer, market sentiment had deteriorated. Although market interest rates in the United States continued to firm, interest rates elsewhere also advanced further, particularly in Germany. Moreover, even though the dollar had not recovered to earlier levels, some central banks began to support their currencies by selling dollars and other currencies. Many in the market interpreted reports of official dollar sales as indicating an unwillingness to let the dollar rise should it come into demand and, more broadly, as a breakdown in central bank cooperation. With the latest price indicators for the United States still rising at double-digit annual rates, the dollar was left vulnerable to selling pressure. Thus, by early September, the dollar came on offer once again against the German mark and other European currencies. The demand for marks also swelled on expectations of a near-term revaluation of the mark against other currencies within the European Monetary System (EMS). Intervention to maintain the exchange rate limits within the EMS mounted rapidly, and the participating central banks sold increasingly large amounts of marks. Nevertheless, the demand for marks was so strong that it pulled up EMS currencies as a group against the dollar.

As the decline in the dollar gathered momentum, the United States authorities intervened forcefully once again, selling substantial amounts of marks almost every day during September. In view of the continuing excessive growth of the monetary aggregates, the Federal Reserve raised the Federal funds rate further and hiked the discount rate ½ percentage point to a record 11 percent on September 18. But, in the atmosphere of concern over United States resolve to combat inflation, market participants reacted more to the fact that the discount rate increase was approved by a split 4-3 vote of the Board of Governors than to the tightening in monetary policy. Consequently, selling pressure continued as commercial leads and lags shifted against the dollar, corporations intensified efforts to hedge exposures before the quarter end, and some asset holders moved to diversify their portfolios. In this environment the formal realignment of EMS currencies over the September 22-23 weekend relieved the tension among the participating currencies but not the broader pressures against the dollar.

Meanwhile, speculative excesses began to show up in a number of other financial and commodity markets in the United States and abroad. Concern over international price stability heightened, as spot oil prices advanced once again and as OPEC (Organization of Petroleum Exporting Countries) members began to raise their contract prices above the range agreed last June. The price of gold soared to as high as $447 per ounce in early October. This explosion in commodity prices was widely interpreted not just as a shift out of the dollar but as a shift out of currencies generally into tangible assets. In the exchange markets, the Japanese yen in particular declined in response to the oil situation and to Japan's sudden shift into current account deficit. Otherwise the brunt of the speculative pressures fell on the dollar as the world's major trading and reserve currency. In this atmosphere, market participants, the financial press, and politicians here and abroad were calling generally for improved monetary policy coordination among major industrial countries and, in particular, for the United States to take more effective action to bring United States inflation under control.

By Tuesday, October 2, the dollar had declined by 4 percent against the German mark and by 1 to 5 per-

Table 1
Federal Reserve Reciprocal Currency Arrangements
In millions of dollars

Institution	Amount of facility October 31, 1979
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:	
Swiss francs-dollars	600
Other authorized European currencies-dollars	1,250
Total	$30,100

*Increased by $340 million, effective August 17, 1979.

Table 2

Federal Reserve System Drawings and Repayments under Reciprocal Currency Arrangements

In millions of dollars equivalent; drawings (+) or repayments (−)

Transactions with	System swap commitments July 31, 1979	August through October 31, 1979	System swap commitments October 31, 1979
German Federal Bank ..	2,053.3	+1,844.1 − 492.1*	3,443.9
Swiss National Bank ...	31.7	+ 44.2 − 76.0	-0-
Total	2,085.1	+1,888.3 − 568.0*	3,443.9

Because of rounding, figures may not add to totals.

Data are on a transaction-date basis.

* Repayments exclude revaluation adjustments from swap renewals, which amounted to $38.6 million for drawings on the German Federal Bank renewed during the period.

Table 3

Drawings and Repayments by Foreign Central Banks and the Bank for International Settlements under Reciprocal Currency Arrangements

In millions of dollars; drawings (+) or repayments (−)

Banks drawing on Federal Reserve System	Outstanding July 31, 1979	August 1 through October 31, 1979	Outstanding October 31, 1979
*Bank for International Settlements (against German marks)	-0-	+39.0 −39.0	-0-

Data are on a value-date basis.

* BIS drawings and repayments of dollars against European currencies other than Swiss francs to meet temporary cash requirements.

Table 4

United States Treasury Drawings and Repayments under Swap Arrangement with the German Federal Bank

In millions of dollars equivalent; drawings (+) or repayments (−)

Amount of commitments July 31, 1979	August 1 through October 31, 1979	Amount of commitments October 31, 1979
-0-	+337.7 −337.7	-0-

Data are on a value-date basis.

Table 6

Net Profits (+) and Losses (−) on United States Treasury and Federal Reserve Current Foreign Exchange Operations

In millions of dollars

Period	Federal Reserve	United States Treasury Exchange Stabilization Fund	United States Treasury General Account
August 1 through October 31, 1979	−12.6	+ 56.5	+ 16.2
Valuation profits and losses on outstanding assets and liabilities as of October 31, 1979 ..	+ 1.2	−358.8	−123.9

Data are on a value-date basis.

Table 5

United States Treasury Securities, Foreign Currency Denominated

In millions of dollars equivalent; issues (+) or redemptions (−)

Issues	Amount of commitments July 31, 1979	August through October 31, 1979	Amount of commitments October 31, 1979
Public series:			
Switzerland	1,203.0	-0-	1,203.0
Germany	2,946.7	-0-	2,946.7
Total	4,149.7	-0-	4,149.7

Data are on a value-date basis.

cent against other European currencies, compared with early-August levels. In their intervention during September and early October, the United States authorities sold a further $3,720.9 million equivalent of marks shared about evenly between the Federal Reserve and the Treasury. The Federal Reserve financed most of its mark intervention by drawing an additional $1,762.2 million equivalent under the swap line with the Bundesbank, bringing total drawings to $3,746.0 million after allowing for further repayments and revaluation adjustments from swap renewals. The remainder of the System's mark sales and all the Treasury's intervention was financed out of balances. The Treasury's $337.7 million equivalent drawing and repayment on the swap line with the Bundesbank reflected temporary financing, while Treasury holdings of German government securities were being liquidated. The Federal Reserve also resumed intervention in Swiss francs, selling $44.2 million equivalent drawn on the swap line with the Swiss National Bank.

By that time, however, the exchange markets were alive with rumors of a new support package for the dollar. Market participants followed closely the news reports surrounding the Hamburg meeting between United States and German officials and the annual meetings of the International Monetary Fund and World Bank in Belgrade, Yugoslavia, in the first week of October. When it was learned in the market that Chairman Volcker had left Belgrade early to return to Washington, dollar rates rallied on expectations of dramatic new policy action, and the Trading Desk had no further need to intervene. On Saturday, October 6, the Federal Reserve announced a series of complementary actions to assure better control over the expansion of money and credit, to help curb speculation in financial, foreign exchange, and commodity markets, and thereby to dampen inflationary forces. The actions included a 1 percentage point increase in the discount rate to 12 percent and the imposition of an 8 percent marginal reserve requirement on increases in managed liabilities. In addition, the System announced that it would place greater emphasis on the supply of bank reserves in its open market procedures and less emphasis on the Federal funds rate in seeking to reach its monetary aggregates objective.

In the days following these measures, interest rates in the Eurodollar and domestic markets moved up sharply. Although there was considerable uncertainty at first, the exchange markets reacted positively on balance both to the announced Federal Reserve actions and to the subsequent rise in dollar interest rates. Through the remainder of October the dollar traded more firmly despite the continued advance of interest rates abroad, the lack of improvement in the latest United States trade and inflation figures, the escalation in international oil prices, and growing uncertainties over the political situation in Iran. Compared with early-October lows, the dollar was up 2 percent to 5 percent on balance against the European currencies by the month end. Against the Japanese yen and Canadian dollar the dollar rose 5 percent and 2 percent, respectively, during the period under review.

With the dollar on much better footing following the October 6 measures, the United States authorities did not intervene as a seller of foreign currencies through the rest of the month. Rather, the improvement in the dollar enabled the Federal Reserve to step up repayment of swap debt through purchases of foreign currencies from correspondents. As a result, by the month end the Federal Reserve had repaid $314.3 million equivalent of swap drawings on the Bundesbank, reducing the total to $3,443.9 million, and had arranged acquisition of a sufficient amount of Swiss francs to liquidate outstanding drawings in that currency.

During the period under review, the System realized net losses of $12.6 million on its exchange market operations. The Exchange Stabilization Fund (ESF) realized net profits of $56.5 million, while the Treasury's General Account realized net profits of $16.2 million. Valuation losses were $358.8 million for the ESF and $123.9 million for the General Account, while the System had valuation profits of $1.2 million. Also in August the Federal Reserve's reciprocal swap arrangement with the Bank of Mexico was increased by $340 million to $700 million.

FEDERAL RESERVE READINGS ON INFLATION

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