International Banking Institutions and the Understatement of the Money Supply

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Last November the Board of Governors of the Federal Reserve System announced a sizable upward revision in the money supply series.[1] This revision largely reflected the correction of what might be called a cash-items bias. This bias stems from the New York City banks' practice of settling virtually all international payments in Clearing House funds (that is, with a one-business-day lag), a steep growth in the volume of such payments flowing through certain subsidiary international banking institutions, and the particular way the demand deposit component of the money supply is defined and affected by these funds transfers. The problem surfaced only recently because the role of the subsidiary international banking institutions—which include subsidiaries of United States banks known as Edge Act corporations and United States branches, agencies, and affiliates of foreign banks—was until the past few years relatively insignificant. However, with the recent sharp growth in foreign payments—especially through the extraordinary expansion (at least up to late 1970) in the Euro-dollar market—and a marked rise in the use of the subsidiary institutions as intermediaries in the transfer of such payments, the latent influence of this phenomenon on the money supply data became apparent.

This article has been prepared primarily to relate the reasons for the rapid rise in the role of the subsidiary international banking specialists and to explain why their transactions contributed to the understatement in the money supply. At first, some background is provided by reviewing rather broadly the origins of the Edge Act corporations and the nature of their operations, as well as the development and activities of the other subsidiary or affiliated international institutions. Then, the method used to correct the money supply data for the cash-items bias is explained. In addition, a new mechanism for handling international payments in New York—called CHIPS—is discussed, along with a description of the payment practices in New York City for international funds transfers. The article concludes by showing how CHIPS will be used to shift international payments to an immediate settlement basis and why this change, which hopefully will be initiated later this year, will eliminate the cash-items bias.

HISTORICAL DEVELOPMENT

EDGE ACT CORPORATIONS.[2] Prior to the enactment of the Federal Reserve Act, United States banks participated in international banking or foreign financing almost exclusively through a network of foreign correspondents.[3] Only a few banks had established overseas branches or subsidi-

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[1] The revision specifically affected demand deposits adjusted, a term that will be defined later. All the generally accepted concepts of the money supply include demand deposits adjusted. Thus, this revision applies not only to M_1, but also to M_2 and M_3 (defined on pages 100-101 of this *Review*).

[2] In this article, the term "Edge Act corporation" or "corporation" will be used to refer to both the Edge Act and Agreement corporations. Today, the distinction between the two has virtually disappeared and only when there is a need to refer to the two separately will the term "Agreement corporation" be used. For more details on Edge Act corporations, see George H. Bossy, "Edge Act and Agreement Corporations in International Banking and Finance", this *Review* (May 1964), pages 84-92, and Allen F. Goodfellow, "International Corporations of American Banks", unpublished Stonier Graduate School of Banking thesis (June 1968).

[3] Smaller or inland banks had (and many still have) access to foreign markets through connections maintained with large, internationally oriented banks, particularly those in New York City.

ary foreign banking or financing corporations through which they could operate abroad independently of their domestic activities; these either were chartered under state laws or were private, unincorporated banks. National banks at the time were not authorized to establish branches either at home or abroad.

In the early years of this century, the growth of foreign trade generated a need for more active participation by United States banks in international banking and investment. The Federal Reserve Act, therefore, included a provision that allowed national banks having capital and surplus of not less than $1 million to establish foreign branches with the approval of the Federal Reserve Board.

Only a limited number of branches were opened under the Federal Reserve Act's original provisions. Apparently, the amount of funds needed to open a foreign office deterred individual banks from establishing foreign branches.[4] As a result, Section 25 of the Federal Reserve Act was amended in 1916 to permit banks to participate jointly in overseas ventures. The change authorized national banks with capital and surplus of $1 million or more to invest up to 10 percent of their capital and surplus in the stock of Federally or state-chartered corporations organized principally to engage in international banking. Thus, national banks either singly or jointly could invest in a subsidiary to operate in foreign banking. No provisions were made for Federal chartering of those corporations and, as a result, only corporations chartered under state laws could operate under Section 25. National banks could invest only in corporations that entered into an agreement with the Federal Reserve Board to restrict their operations to conform with any limitations prescribed by the Board—a restriction that has continued to this day. The corporations that have entered into such agreements are known as "Agreement corporations".

As a result of efforts to provide for national as well as state chartering, the Congress passed the Edge Act in 1919. It added to the Federal Reserve Act Section 25(a), which authorizes the Federal Reserve Board to charter corporations "for the purpose of engaging in international or foreign financial operations . . . either directly or through the agency, ownership, or control of local institutions in foreign countries".

The rapid expansion in foreign trade and United States investment abroad during World War I and the immediate postwar period produced a sharp growth in the number of foreign subsidiaries. Between 1919 and 1929, eighteen corporations were organized, of which fifteen were Agreement corporations and three were Edge Act corporations. On the whole, their operations were not successful. By the early thirties, only two corporations remained in operation.

Interest in Edge Act corporations remained minimal until the midfifties. Only five new corporations were organized over the intervening twenty-five years. This situation reflected the adverse effect on foreign trade and credit flows of first the Great Depression, later World War II, and subsequently the continuation of exchange controls abroad. The gradual restoration of more normal trade flows, the relaxation of exchange restrictions, the great surge of United States investment abroad, and the emergence of the dollar as the principal reserve currency and the major currency employed in the financing of world trade generated a strong revival of interest by United States banks in international banking. As part of this development, thirty-five Edge Act corporations were organized in the decade following 1955. The increase has been even greater over the past few years, since more and more banks began to use such corporations as a vehicle for tapping the Euro-dollar market. On December 31, 1970, there were approximately forty corporations in active operation in New York City and about thirty in other United States cities.

The corporations' operations are governed by the Federal Reserve Board's Regulation K. The early versions of Regulation K were largely restatements of Section 25(a) of the Federal Reserve Act. The provisions of each of these various versions of Regulation K were rather vague, and questions were raised from time to time concerning the limitations of the corporations' operations in the United States. Also, there was a lack of any clear guidance concerning their authority to acquire stock in foreign nonbank corporations and to engage in investment banking. As a result, the Board revised Regulation K in 1957 to establish a sharp distinction between commercial banks and investment banking corporations. Corporations that elected to operate as commercial banks were permitted to receive deposits and to create acceptances. They were prohibited from issuing bonds and debentures and could acquire stock only in companies engaged in banking. The investment banking corporations could not receive deposits or create acceptances, and had to operate solely on funds provided by the parent bank and on retained earnings. In addition, they could not invest in companies engaged in banking.

The 1957 revision of Regulation K added detailed provisions pertaining to activities allowable in the United

[4] United States Congress, Senate, Committee on Banking and Currency, *Amendments to the Federal Reserve Act: Hearings on S. 5078 and H.R. 13391*, 64th Cong., 1st sess., 1916, pages 24-25.

States. It permitted the banking corporations to accept deposits from foreign nationals, firms, and institutions that are "incidental to or are for the purpose of carrying out transactions abroad". In addition, deposits related to foreign trade and credit could be accepted from domestic importers and exporters.[5]

Regulation K was amended again in 1963. The most significant change eliminated the distinction between banking and financing corporations. Thereafter, any Edge Act corporation could engage in "both banking and financing operations that are of an international character".

Despite the 1963 change in Regulation K, less than twenty-five of the seventy corporations reported deposit liabilities as of the end of 1970. One of the reasons why many corporations do not accept deposits is that by regulation the holding of such liabilities limits a corporation's loans to, or investments in, any one borrower to 10 percent of the corporation's capital and surplus. If it remains exclusively a financing corporation, the comparable limitation is 50 percent. Another reason why so few corporations accept deposits is to avoid competition with their parent banks. This latter consideration is a factor particularly when a parent bank and its subsidiary corporation are geographically close to each other and the deposit and other services that would be provided by a banking corporation are available through the parent bank's foreign department.

SUBSIDIARIES OF FOREIGN BANKS.[6] Foreign banks have had offices or representatives in New York and, to a much lesser extent, in other major United States cities before the start of the 1900's. They established such offices for many of the same reasons that United States banks opened Edge Act subsidiaries, and their growth and stagnation followed the Edge Act's cycle fairly closely. Their primary motive for opening offices was, and still is, to assist their depositors or clients in making foreign payments or investments. With their own agent in New York and other cities, they can service their customers' as well as their own needs in the United States more efficiently and expeditiously than the large money market banks.

Until 1961, in New York, foreign banks generally could establish only agencies.[7] Agencies are empowered to transact all the usual activities of a commercial bank, such as making loans and investments, collecting payments, and transferring funds, but may not accept deposits. This restriction arose out of the traditional limitations that exist in most states against allowing banks chartered in other jurisdictions to open within their respective boundaries a banking office that accepts deposits from local residents or firms. Nevertheless, the agencies are permitted to maintain for the account of others credit balances arising out of the exercise of their powers.[8]

Closely akin to the agencies are the foreign investment companies, which all along have been few in number. They have slightly broader powers than the agencies. Also, they tend to finance higher risk borrowers and may invest in equities. They may establish branches outside New York State which receive deposits. Within New York their offices can maintain credit balances only except that, with the approval of the New York State Banking Board, they may hold deposits of the United States Government. Furthermore, they may receive funds from anywhere for the purpose of transmittal between the United States and a foreign country.

After World War II, the rapid expansion of foreign branches of United States banks with the privilege of accepting deposits from local residents in the host countries created increasing resentment from the banking and other interests in some foreign countries. In time, such ill feelings led to threats from these countries to disenfranchise the United States banks' branches unless their own banks were given full freedom to operate in the United States. As a result, New York State—which has the largest concentration of banks operating abroad—removed its restrictions with a reciprocity proviso. That is, banks chartered in

[5] A further change in the regulation was the inclusion of the Agreement corporations within its scope. Prior to 1957, the provisions of Regulation K were made applicable to the Agreement corporations through the individual agreements executed by the Board with such corporations.

[6] In this discussion, the references will be typically limited to the developments in New York. For a comprehensive discussion of foreign banking operations in the United States, see United States Congress, Joint Economic Committee, "Economic Policies and Practices Paper No. 9, Foreign Banking in the United States", by Jack Zwick (Washington, D.C., 1966).

[7] These institutions are known as "foreign agencies". It should be noted that the term does not refer to the branches of United States banks that operate abroad and that the activities of the latter are irrelevant to the problem discussed in this article.

Before 1961, five wholly owned subsidiaries of Canadian banks were chartered in New York primarily to permit them to engage in trust activities, a power not available to an agency. While technically these banks could accept deposits locally, there was and still is an agreement with the New York State Banking Department that they restrict their operations in New York largely to trust work.

[8] Credit balances are virtually the same as demand deposits except for certain legal and technical differences.

foreign countries could open offices in New York and have full banking privileges provided similar treatment was accorded a New York-chartered bank. Thereafter, some foreign agencies converted to full-banking offices in order to provide wider services and to make their operations more profitable. Largely as a result of these conversions, the number of foreign agencies in New York City decreased from thirty-six at the end of 1960 to about twenty-five in December 1970.

The full-service banking offices with the privilege of accepting deposits can be in the form of a New York branch of a foreign bank that is chartered and operating abroad or a wholly owned New York subsidiary of a foreign bank. Initially, most of the conversions of foreign agencies or the establishment of new offices were in the form of branches of foreign banks. However, the trend now appears to be for foreign banks to establish wholly owned subsidiaries with unrestricted banking privileges. One reason for this development is that a wholly owned subsidiary is organized under a full charter granted by the New York State Banking Department in perpetuity. By contrast, a foreign branch's authority to engage in banking stems from a license issued by the New York State Banking Department which must be renewed each year, although after ten consecutive years of operations the Superintendent of Banking may allow a license to remain in force until it is surrendered or revoked. Another factor that makes a wholly owned subsidiary more attractive than a branch is that, organized as the former, its deposits can be insured by the Federal Deposit Insurance Corporation, whereas a branch's deposits are ineligible for such insurance. Also, if a group of foreign banks wishes to invest jointly in a full-service banking office, they can achieve this only through organizing a new banking firm in which they are the sole or major stockholders. In any event, the operations of either a branch or a wholly owned subsidiary do not differ appreciably from each other. In turn, their activities duplicate those of domestic commercial banks except that in terms of their relative size they have a higher concentration of foreign transactions. At the close of 1970, nineteen foreign banks were operating thirty-eight branches in New York City. At the same time, there were fourteen wholly owned subsidiaries of foreign banks chartered to do business in New York, but five of these must restrict their local operations to trust activities.

PRESENT OPERATIONS

The basic operations of the Edge Act corporations have changed radically from the pre-1930 period. At that time, the corporations were concerned almost exclusively with operating overseas branches.[9] Today, many and particularly those with a parent bank outside New York City typically perform all of the functions usually associated with a commercial bank's international department.[10] Within the restrictions that their operations must be limited to international trade and foreign customers, they accept deposits, make loans, and provide many of the other services offered by commercial banks. Such services among others include remitting funds, serving as a collection or paying agent for various purposes, and engaging in foreign exchange transactions. However, one activity that should be mentioned in particular is to serve as an agent in the clearing and collection of Euro-dollars. In fact, some of the corporations organized in the late 1960's were created largely, if not exclusively, to facilitate the tapping of the Euro-dollar market by the parent institutions. Furthermore, it is apparent that the transfers of Euro-dollars for their parent banks and other clients accounted for much of the large growth in the dollar volume of the Edge Act corporations' flows of funds in recent years.[11]

The activities of the various types of subsidiaries of foreign banks operating in the United States that function as international bankers parallel closely those of the Edge Act corporations.[12] The only important difference is that the licensed branches and state-chartered subsidiaries (but not the agencies, investment banks, or those offices limited to trust work) are free to accept deposits from local sources. They, too, enable the parent banks to transact at

[9] In the midtwenties the corporations actually operated more foreign branches than did United States commercial banks. By comparison, the corporations now have only a handful of overseas branches, while most of the foreign banking offices of United States banks are direct subsidiaries of their parent banks.

[10] Prior to 1966, some corporations were organized to function as holding companies to acquire stock in foreign banks, since before that date the parent banks were not permitted to have a direct investment in an overseas bank.
They also engage (particularly those that were formerly designated as financing corporations) in a variety of international financing activities, e.g., investing in the stock of foreign nonbank concerns, underwriting foreign capital issues, participating in term loans, and acquiring debentures.

[11] The corporations generally do not acquire Euro-dollars for their own account; their role primarily is to serve as a clearing agent in the transfers of the funds.

[12] Many of the branches, affiliates, and subsidiaries are principally engaged in domestic banking. They have an ethnic appeal and draw much of their funds from former or current citizens of their home countries, who are in the United States. In addition, their loans are typically made to local borrowers. Only about fifteen of the full-service banking offices can be considered active in international banking. Also, while all agencies perforce engage in international banking, there are approximately ten agencies that have a volume of business of any meaningful size.

close range their international banking requirements in the United States and those of their customers. In addition, the opening of new offices in recent years and the expansion of activity of existing foreign branches and subsidiaries also reflected to some extent the growth of the Euro-dollar market.

While specific details are not available, it is evident that only part of the recent rise in activity by the Edge Act corporations and the other major specialized international banking institutions was associated with the servicing of the needs of the parent institutions and the latter's own customers. On the contrary, the greater part of the increase seems to reflect their ability to attract their own clients to a much greater extent than in the past. This means that they have drawn a sizable amount of business away from the giant United States banks that traditionally have handled the bulk of the international transactions in this country. A number of factors account for this development. The growing volume of foreign payments plus the scarcity of trained staff during periods of labor shortages in recent years led to a sharp increase in back-office problems at large United States banks, such as a substantial rise in the number of errors committed in transferring funds.[13] The subsidiary institutions were attractive to many United States and foreign firms making international payments since they could claim that, with their more limited operations, they were able to give the client more personal attention. It also has been reported that part of the competitive success of the subsidiary institutions can be attributed to effective price competition. In the recent period of tight money and labor shortages, the commercial banks tightened the terms under which they cleared funds for their foreign depositors. The subsidiary international institutions, however, are believed to have maintained more liberal service charges. But, whatever the reasons, the extent of the subsidiaries' success in building up the volume of their activity will become apparent in a later section which discusses the size of the understatement in the money supply that stemmed from the cash-items bias.

As a result of these various developments, many of the subsidiary international institutions have become giant money-moving machines. Typically, the accounts they service in the international area are highly interest sensitive and do not wish to leave balances unnecessarily in nonearning demand deposits. Thus, large sums are deposited each day with these institutions only to be transferred out immediately. For the discussion that follows, it is important to recognize two things concerning these transfers. One is that the subsidiary institutions, not being members of the New York Clearing House, generally redeposit with a local bank that is a member all checks received from depositors and other clients.[14] The other is that the international customers of the subsidiary institutions generally effect transfers of funds by having the latter issue their own checks. Such checks, which are known as officers' checks, are drawn against the balances which the subsidiary institutions maintain with their local clearing banks.

PAYMENT PRACTICES FOR INTERNATIONAL TRANSFERS IN NEW YORK

Traditionally, the transfer of funds in New York City involving two local banks, either as principals or as agents for their depositors, has been in what is called Clearing House funds. In such transfers, the collection of checks is not effected until the first business day after a check is presented for payment, and thus the proceeds of a deposit are not available to a depositor's bank until the next business day. As banks and their customers have become more sophisticated and especially as the cost of money has risen over the past two decades, more and more transfers of large sums are being made in immediately available funds.[15] International payments, however, have continued to be made largely in Clearing House funds.

In view of this convention and the huge volume of international payments flowing daily through the accounts of the New York City banks (representing those for their own clients as well as those that arise out of serving as correspondents or clearing agents for the subsidiary international institutions), a large "float" of uncollected checks is generated each day. This float has normally been reflected in the balance sheets as an increase on the asset

[13] Unlike domestic transactions where the depositor typically draws his own check to effect a payment, in an international transaction an overseas or local customer sends a coded cable, telegram, or telephone message to his bank instructing it to make payment or receive funds. The bank then must prepare a check, draft, or payment advice, and it must fill in the names of the payee and payor and the dollar amount of the transfer. Thus, there is a greater opportunity for mistakes to arise in such transactions.

[14] Some of the institutions maintaining balances with the Federal Reserve Bank of New York clear checks through the latter's facilities. Nevertheless, the bulk of their clearings is through the local commercial banks.

[15] Such funds are also referred to as Federal funds. In this context, however, the term does not refer to the overnight borrowing and lending of reserve balances at a given interest rate.

side in "cash items in the process of collection". On the liability side, the offsetting credits may appear in one of the different deposit accounts or in the Euro-dollar account, depending of course on who deposits the check or the purpose of the transfer.

Recently, the major New York City banks established a new system for effecting payments for foreign accounts, which is called the Clearing House Interbank Payment System (CHIPS). It was developed to enable the banks to minimize the difficulties they were encountering in processing their international payments. (Part of the problem stemmed from the need for the paying banks to deliver by messenger the checks payable to a local bank.) CHIPS is an electronic, message-switching network which links the foreign departments of the eight largest New York banks to a central computer. A bank that is requested to make an international payment to a depositor at one of the other city banks now arranges for the transfer by entering a message on its terminal connection to the computer. The message is routed automatically to the payee bank's terminal, while the computer records internally the details of the transfer. At the end of the day all the transfers are cumulated. The resulting amounts for "due to" and "due from" each bank in the network are reported to the banks involved. Nevertheless, settlement for a given day's transaction is still not effected until the next business day. Therefore, the practice of settling international payments in Clearing House funds has been retained at least for the time being.

However, with the introduction of CHIPS there was a change made in the method used by city banks in recording the transfers for foreign accounts. Formerly, to make an international payment, a bank would issue an officers' check, which is included in its demand deposit liabilities on its financial statement, and it would charge the deposit account of the payor or some other liability account. The payee bank, as noted earlier, would increase cash items and credit a deposit or other liability account. Now, however, through CHIPS, since the paying bank does not issue an officers' check but has direct liabilities to other banks, it increases instead the balance-sheet item "due to banks". Thus, the payee bank under CHIPS receives no cash items, and the transfers are reflected on its books by increases in "due from banks".[16]

[16] The city banks agreed that at the end of each day the reciprocal "due to's" and "due from's" bank by bank would be offset against each other and only the sum of the net "due to" and net "due from" by individual banks would be reflected in their balance sheets.

At this date, the subsidiary international institutions are not participants in CHIPS. Thus, payments going from a major city bank to these intermediaries still require that officers' checks be issued whenever an intermediary does not have a deposit account with the paying bank. Consequently, when the intermediaries redeposit the checks with their city correspondents, the items continue to appear in bank balance sheets as increases in cash items. Furthermore, when the subsidiary international institutions make payments for their clients, as noted earlier, they draw their own checks, and these payments also continue to show up on the major city banks' books as increases in cash items. For these reasons, while CHIPS has resulted in a marked reduction in the amount of cash items reported each day by New York City banks, it has not led (at least as yet) to a reduction in the cash items that contribute to the cash-items bias discussed in the next section.

EFFECT OF TRANSFERS ON THE MONEY SUPPLY STATISTICS

Prior to the revision announced in November 1970, the United States money supply was understated whenever one of the subsidiary international institutions served as an intermediary in the transfer of funds for a parent bank or any client, an officers' check was issued, and a payment was made in Clearing House funds. Again, since Euro-dollars, foreign exchange, and most other international transfers in New York are in Clearing House funds, a sizable portion of all payments flowing through subsidiaries resulted in an understatement of the money supply. Before this phenomenon can be explained, it will be worthwhile to review the definition of demand deposits adjusted which, as noted earlier, are a component of each generally accepted concept of the money supply.

Demand deposits adjusted consist primarily of gross demand deposits at all commercial banks less both United States Government demand deposits and balances due to domestic commercial banks. (They also include the deposits of various foreign accounts at the Federal Reserve Banks.) Moreover, cash items in the process of collection and Federal Reserve float are deducted from gross demand deposits in order to correct for the duplicate counting of deposits that arises with our collection system. That is, because there is generally a time lag between the date a check is deposited with one bank for collection and the date that it is presented to the issuer's bank for payment, there is always some volume of deposits that appears simultaneously on two banks' balance sheets and thus is double counted in gross demand deposits. This double counting is reflected to a large extent in cash items and

Federal Reserve float. Therefore, the subtraction of these two items from gross demand deposits avoids an overstatement of private demand deposits—the funds in checking accounts available to the public for spending. It should also be noted that the commercial banks' deposit liabilities to the international subsidiary institutions are recorded as "balances due to domestic commercial banks".

It will be recalled that the subsidiary institutions typically use a New York correspondent bank to clear the checks which they receive for collection, and that any receipt of checks by the correspondents from these institutions results in an increase in the correspondents' cash items (a deduction from gross deposits in arriving at demand deposits adjusted for the banking system). However, no similar expansion occurs in private nonbank deposits, since the offsetting increase appears in balances due to domestic commercial banks which, as just mentioned, are not part of demand deposits adjusted. Thus, to the extent that the subsidiary international institutions deposit Clearing House checks with their correspondents for collection, there is a reduction in the computed money supply.[17] A detailed illustration of this effect is presented in the appendix.

The daily amount of officers' checks issued by the subsidiary international institutions closely approximates the size of each day's cash-items bias. The understatement, therefore, can be corrected by adding these totals to demand deposits adjusted. In effect, this is what was done by the Federal Reserve Board in the November 1970 money supply revision.

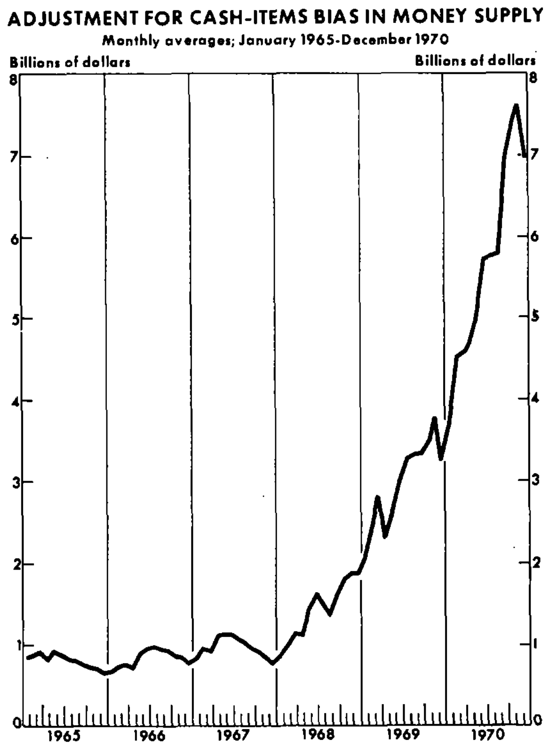
The Edge Act corporations have always been required to report to the Federal Reserve System their daily deposit levels. Thus, back data were available to correct the money supply series for past periods and, of course, data are available currently to provide a corrected money supply total. However, the corporations' demand deposits include not only the officers' checks outstanding, which contribute to the cash-items bias, but also a moderate amount of funds regularly kept with the corporations and not part of the daily turnover. The amount of these balances is perhaps no more than $400 million at the present time. The adjustment, therefore, not only corrects for the bias stemming from the daily transfers flowing through Edge Act corporations but also adds moderately to the balances included in the money supply. But this latter change does not conflict with the accepted definition of the money supply. Such funds have all the attributes of the demand deposits held by foreign accounts with commercial banks, and the latter have been included in the series ever since the United States has had a rigorous definition of the money supply.

The correction for the bias contributed by the transfer activities of the subsidiary international institutions, other than the Edge Act corporations, is not so straightforward. All along, their "true" deposit liabilities—except the credit balances of the foreign agencies and investment companies—have been included in the money supply series. However, adequate and complete data needed to correct for their contribution to the cash-items bias are not available from any regular report such as the deposit reports filed by the Edge Act corporations. Thus, to obtain a satisfactory adjustment total, these institutions have been asked since October 1970 to report daily the amount of their deposits with commercial banks of checks that are available in Clearing House funds. These totals should match rather closely their officers' checks outstanding and thus are believed to provide an adequate correction for their contribution to the cash-items bias. The adjustment for past periods was derived indirectly from other data. As part of the adjustment, the foreign agencies' credit balances were also added to the money supply data. In recent months, these deposits have averaged above $600 million.

The correction of the money supply data for the cash-items bias in terms of monthly averages from January 1965 through December 1970 is shown in the chart. Unfortunately, the totals include the basic demand deposits held by the Edge Act corporations, which cannot be separated readily. At most, however, this addition, as just noted, is no more than $400 million for the recent periods and even less in earlier years.[18] As the chart indicates, prior to 1968 the amount of the total correction for cash-items bias was relatively inconsequential. However, by late 1970 it had grown to over $7.0 billion.

[17] Another way of explaining this bias is to recognize that the checks drawn by the intermediary institutions on their balances with the city banks to make payments for their customers appear as cash items on the books of the payee banks. In effect, such cash items are drawn against nonmoney supply accounts. Thus, by including them in the deductions from gross deposits to arrive at demand deposits adjusted, there is an overcorrection for the double counting of deposits included in the money supply.

[18] The money supply data were corrected back to January 1959. However, adjustments for the months prior to January 1965 largely represent the basic deposits held by Edge Act corporations, which were added to the money supply statistics. For a description of the method used to estimate the adjustment for past periods, see "Revisions of the Money Stock", *Federal Reserve Bulletin* (December 1970), pages 892-93.



FUTURE DEVELOPMENTS

The settlement of international transactions in Clearing House funds has contributed to a number of problems in addition to the cash-items bias. Thus, for some time, a movement has been under way to shift these payments to a Federal funds settlement basis. CHIPS makes this goal feasible. However, before it can be attained, it will be necessary to have most of the major participants in international payments (at least in New York) linked to the CHIPS network. It will be essential that messages to transmit payment orders or to receive funds be delivered expeditiously. Any gap would disrupt the smooth flow of all payments, which is an absolute requisite for Federal funds settlement. In addition, since some large banks outside New York also have rather sizable international payments, they too would have to participate in Federal funds settlement for their foreign transfers. However, they cannot be tied into CHIPS, and they will have to arrange to use the Federal Reserve's or some other wire transfer facility.

At present, the capacity of the CHIPS computer is not large enough to accommodate all the New York institutions. To the extent possible, the larger subsidiary institutions will be tied to the network in the near future, and to implement Federal funds settlement other arrangements will be made temporarily for those New York banking firms that will not have a direct line to the computer. (It is expected that in time the Clearing House will acquire a larger computer which could accommodate all of the New York international banking institutions.) In addition, the Federal Reserve has put into operation a new message-switching system. This system should be able to handle the increased message traffic to and from outside New York that would be generated by Federal funds settlement for foreign transactions. And, while there are still some other problems that remain to be resolved, immediate payment for international transactions could be a reality later in the year.

With Federal funds settlement adopted, the cash-items bias would be eliminated and there no longer would be any need to correct the money supply data for any understatement in demand deposits adjusted arising out of foreign payments. Settlement in Federal funds would, of course, eliminate the large float and associated set of entries that now appear on the books of the subsidiary international institutions and commercial banks. With the international transfers coming in and going out in "good funds", i.e., Federal funds, there would no longer be cash items and officers' checks generated by the daily turnover of foreign payments through the subsidiary international institutions.

APPENDIX

To explain the cash-items bias more specifically, a typical set of bookkeeping entries associated with a transfer of funds through a subsidiary international institution is presented in the table. In the illustration, it is assumed that a foreign bank gains dollars and lends the funds in the Euro-dollar market to a United States bank. Typically, a United States bank acquires Euro-dollars by having one of its overseas branches borrow the funds and transfer the proceeds to its account. Thus, it is the overseas branch that has the liability to the foreign bank (the lender), while the parent bank has a liability to its overseas branch. Such liabilities are part of "other liabilities" on bank statements and are not included in the United States money supply.

It should be emphasized that, although the table refers to a specific type of transfer, essentially it is reasonably representative of any other type of international transfer

ILLUSTRATION OF "T-ACCOUNT" ENTRIES FOR A TRANSFER OF EURO-DOLLARS CLEARED THROUGH A SUBSIDIARY INTERNATIONAL INSTITUTION AND ITS EFFECT ON THE MONEY SUPPLY DATA BEFORE ADJUSTMENT FOR CASH-ITEMS BIAS

Day	Description of transaction	New York depositor's bank		Subsidiary international institution		Subsidiary's New York clearing bank		Borrower of Euro-dollars	
		Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
1	Foreign bank acquires dollars and deposits funds with its SII		OC + PDD −	CI +	PDD +				
	SII deposits funds with its CB			CI − DFB +		CI +	DTB +		
	Foreign bank lends Euro-dollars to overseas branch of United States bank				OC + PDD −			CI +	DTOB +
2	Initial transfer clears	RES −	OC −			CI − RES +			
	Euro-dollar transfer of Day 1 by SII clears			DFB −	OC −	RES −	DTB −	CI − RES +	
	Euro-dollar borrowing of Day 1 is repaid by overseas branch			CI +	PDD +				DTOB − OC +
	SII deposits repayment with CB			CI − DFB +		CI +	DTB +		
	Foreign bank lends Euro-dollars again				OC + PDD −			CI +	DTOB +
3	Repayment of Day-1 Euro-dollar borrowing clears					CI − RES +		RES −	OC −
	Euro-dollar transfer of Day 2 by SII clears			DFB −	OC −	RES −	DTB −	CI − RES +	
	Euro-dollar borrowing of Day 2 is repaid by overseas branch			CI +	PDD +				DTOB − OC +
	SII deposits repayment with CB			CI − DFB +		CI +	DTB +		
	Foreign bank lends Euro-dollars again				OC + PDD −			CI +	DTOB +
Net change in accounts		RES −	PDD −	DFB +	OC +	CI +	DTB +	CI + RES +	DTOB + OC +
Effect on the money supply data BEFORE adjustment for cash-items bias*		0	−	Not applicable		−	0	− 0	0 +

* The signs indicate the effect on the money supply of the "net change in accounts". In arriving at the net understatement as opposed to contraction of the money supply, the reduction indicated by the minus entry for the "New York depositor's bank" should not be included. This reduction represents the usual contraction that arises when funds are shifted from an account included in the money supply to a Euro-dollar borrowing by a United States bank. Euro-dollar borrowings are not part of the money supply.

SII — Subsidiary international institution.
OC — Officers' checks (included in demand deposits).
PDD — Private demand deposits.
CI — Cash items in the process of collection.
CB — Clearing bank.
DFB — Due from domestic commercial banks.
DTB — Due to domestic commercial banks.
DTOB — Due to own foreign branches (Euro-dollar borrowing).
RES — Reserves.

through one of the subsidiary institutions. For the purpose of depicting the cash-items bias, the key elements are all the entries for "Subsidiary's New York clearing bank" or those on the asset side of the bank that ultimately receives the funds; these elements would not change in illustrations of any of the many other possible types of flows of international funds through the subsidiary institutions. The only changes would be mainly in the types of liability accounts and possibly the institutions represented in the illustrations for the other columns.

It should also be noted that the table assumes a daily turnover of Euro-dollars and shows the transactions through three days of daily roll-overs to demonstrate the effects of a full cycle of transactions. Thereafter, if the turnover continues, the entries are exact duplicates of those that appear on the third day. In any event, no matter which day is examined, as long as funds are passing through a subsidiary international institution, there is an understatement of the money supply until the check associated with each transaction clears. That is, the effect on the money supply statistics starts with Day 1, and if no new lending (or transfer) occurs on Day 2, the money supply data would be restored to their "normal" level the second day. Since the table assumes relendings on Days 2 and 3, the understatement continues through the third day. Of course, in actuality, an individual Euro-dollar transaction does not have to be recycled each day; in fact, only a moderate amount of each day's transactions is on an overnight basis. Therefore, the table, in effect, depicts in a microcosm the influence of Euro-dollar transfers over time and not necessarily only over three successive days. More importantly, the transfers on the third day are representative of the myriad of payments that flow in each day through the subsidiary international institutions.

The net changes in the accounts are summarized in the lower portion of the table, along with their effect on the money supply series. By adding up the pluses and minuses on the last line of the table, it will be apparent that transfers of funds through the intermediaries results in an understatement of the money supply. It should be noticed, however, that the net changes in the accounts at the subsidiary international institutions are not included in determining the effect on the money supply totals. Prior to the November 1970 adjustment, the deposit balances held by those institutions were not included or reflected in the United States money supply totals. As explained above, by including their deposit liabilities and certain items for the other subsidiary institutions, the cash-items bias is offset and the understatement eliminated.

The sum of the pluses and minuses in the lower part of the table suggests that the understatement in the money supply is twice the size of the transfer of funds through the subsidiary international institutions. However, in the example used, it was assumed that funds moved from a money supply account (PDD) to Euro-dollars (DTOB), an item not included in the money supply. As long as deposit funds are placed in the Euro-dollar market and turned over to a United States bank, there is a reduction in demand deposits adjusted. Thus, the net minus associated with the decline in deposits at the "New York depositor's bank" is not included as an understatement of the money supply. In fact, this particular type of transfer was used purposely to demonstrate that a distinction can be made between those changes that represent a decline in the money supply due to a shift of funds from a private demand deposit to a nonmoney supply account and those that represent an understatement because of the transfer of funds through an international subsidiary. If the transfer had been made directly to the Euro-dollar borrower—that is, if the depositor in the first bank were the lender of the Euro-dollars and he did not use an intermediary—no cash-items bias or understatement would arise but the acceptable or "recognized" decline in the money supply would take place.