

PACS accumulates check clearing costs under four specific activities: processing, adjustments, return items (checks returned unpaid), and fine sort (checks sorted to a specific paying institution). While PACS reported gross expenses for the overall commercial check activity, only intraoffice or local processing expense figures were needed for pricing purposes. Therefore, to obtain the expense data to be used in pricing, the software package was set up to isolate intraoffice expenses by excluding estimated charges for interterritory shipping and for mail room processing of consolidated shipments (checks deposited with one Federal Reserve office, sorted, and shipped to another Federal Reserve office for collection). Also, while PACS reported expenses by service line and activity, pricing was done on the much more detailed product level. To accommodate this, the software package was set up to distribute intraoffice expenses among products, such as nonmachineables (checks that have been damaged or for some reason cannot be put through a sorting machine) and fine-sort.

Basic assumptions in distributing costs included the following:

1. Return Item and Adjustment expenses were allocated to the different products in direct proportion to each product's share of total items processed. This assumed, for example, that the fine-sort items incurred the same level of return item and adjustment charge as other products.
2. Processing expenses were allocated to manual processed items using an estimate of the proportion of processing expenses attributable to this activity. The remaining processing expenses were allocated among other products using their relative share of total equivalent items.
3. Postage expenses were allocated to different products in direct proportion to each product's share of total items processed. The major assumption here is that the proportion of total postage expenses incurred by a specific product is directly related to its relative volume.
4. Total shipping expenses were divided into intra- and interoffice portions by using the ratio budgeted intraoffice shipping expenses divided by the total shipping expense for each office. The intraoffice portion was then allocated among the district priced products--first, by using a City Items Shipping Factor (historical ratio of shipping expenses for city items to volume of city items processed) to determine shipping expenses attributable to city items (items for

SUPPLEMENT TO A REPORT BY THE

Comptroller General

OF THE UNITED STATES

An Examination Of Concerns Expressed About The Federal Reserve's Pricing Of Check Clearing Activities

This supplement contains additional information on how the Federal Reserve prices its services under the Monetary Control Act of 1980. This information concerns allocation of operating and capital cost and various issues related to Federal Reserve operations that affect competition with private financial institutions.



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SECTION 1

PRESENTMENT FEES

Federal Reserve banks do not pay any presentment fees when they present checks to payor institutions. Presentment fees arise in connection with individual commercial banks, sometimes located in different cities, that make special arrangements for exchanging checks drawn on each other. The fees may vary according to the agreements reached between the participating banks.

The prohibition against Federal Reserve payment of presentment fees has long been debated. With the advent of priced Federal Reserve services, the issue has resurfaced. Some correspondent banks currently recommend that the Federal Reserve banks be permitted by law to pay presentment fees according to local custom. The correspondents find it particularly inequitable that, with the adoption of noon presentment, the Federal Reserve is now presenting checks for payment by clearinghouse members after normal morning clearinghouse hours. Before noon presentment the Federal Reserve generally held over until the next day any checks it could not present at the normal morning clearing time.

Correspondent institutions make many special arrangements to present checks after normal hours. These arrangements often involve the payment of presentment fees, but until noon presentment, institutions were able to provide a service that the Federal Reserve did not. While correspondents continue this practice, they now find the Federal Reserve also presenting checks later in the morning, but without paying a fee. Thus, correspondents are sometimes at a competitive disadvantage in seeking check collection business from respondents. If the Federal Reserve banks were to pay these fees, its check clearing costs would increase, which would tend to eliminate the Federal Reserve's advantage.

FEDERAL RESERVE PRECLUDED FROM PAYING PRESENTMENT FEES

We believe that the Federal Reserve Act precludes the Federal Reserve banks from paying presentment fees. Section 342 of Title 12, U.S. Code, which codified section 13 of the Federal Reserve Act, as amended, provides

"Any Federal reserve bank may receive from any of its member banks, or other depository institutions, and from the United States, deposits of current funds in lawful money, national-bank notes, Federal reserve notes, or checks, and

drafts, payable upon presentation or other items, and also, for collection, maturing notes and bills; or, solely for purposes of exchange or of collection may receive from other Federal reserve banks deposits of current funds in lawful money, national-bank notes, or checks upon other Federal reserve banks, and checks and drafts, payable upon presentation within its district or other items, and maturing notes and bills payable within its district; or, solely for the purposes of exchange or of collection, may receive from any nonmember bank or trust company or other depository institution deposits of current funds in lawful money, national-bank notes, Federal reserve notes, checks and drafts payable upon presentation or other items, or maturing notes and bills: Provided, Such nonmember bank or trust company or other depository institution maintains with the Federal reserve bank of its district a balance in such amount as the Board determines taking into account items in transit, services provided by the Federal reserve bank, and other factors as the Board may deem appropriate; Provided further, That nothing in this or any other section of this chapter shall be construed as prohibiting a member or nonmember bank or other depository institution from making reasonable charges, to be determined and regulated by the Board of Governors of the Federal Reserve System, but in no case to exceed 10 cents per \$100 or fraction thereof, based on the total of checks and drafts presented at any one time, for collection or payment of checks and drafts and remission therefore by exchange or otherwise; but no such charges shall be made against the Federal Reserve banks." (Emphasis added.)

The underscored provision of section 342 permits banks to make reasonable charges for the collection or payment of checks and drafts, but prohibits the making of such charges against Federal Reserve banks. This prohibition against charging Federal Reserve banks applies by its terms to nonmember banks as well as to banks that are connected with the Federal Reserve System as members or depositors.

Although section 342 does not use the term "presentment fee," the scope of the prohibition appears sufficiently broad

to prohibit the charging of presentment fees against Federal Reserve banks. This view finds support in the statutory language and its legislative history.

A literal reading of the statute shows that the prohibited charges are for "collection or payment of checks and drafts" and for "remission . . . by exchange or otherwise." Although these terms are not defined in the act or its legislative history, they are commonly understood in the context of assessing fees and charges. Based on this consideration, it appears that a "presentment fee," since it is charged for presentment of checks by a collecting bank for payment, reasonably could be characterized as a type of "collection charge" or "exchange charge" as those terms are commonly understood in the context of banking.

We believe that the legislative history of section 342 supports such an interpretation of the prohibition. The general intent of the prohibition was to establish a nationwide system for collecting checks at "par," or face value, with the participation of the Federal Reserve banks, member banks, and other banks. Previously, many payor banks paid less than the face value of a check presented by a collecting bank. The prohibition itself was an amendment to the so-called Hardwick Amendment, which was originally proposed to permit collection charges for exchange.

Proponents of the prohibition thought that, while the Hardwick Amendment would liberalize the then-current law by permitting reasonable collection charges, the prohibition would prevent any charge being made for collection or payment of checks against Federal Reserve banks. Opponents of the prohibition viewed it as preventing Federal Reserve banks from paying anything on their checks or remittances and as exempting Federal Reserve banks from any exchange altogether.

In addition, there was considerable concern that banks would be required to make payment of checks at par, that is without compensation, regardless of the expense, labor, and risk. With regard to the fixing of a per-check service charge covering the expenses in handling presented checks, the legislative history indicates that recoupment from a Reserve bank of another bank's expenses related to check collection was viewed as an undesirable policy. Such a per-item check charge was described as a charge for the payment of checks and was looked upon with disfavor by proponents of the prohibition.





SECTION 2

CLEARING BALANCES

Chapter 3 of the report states that current Federal Reserve policies regarding clearing balances can have two adverse effects on the competitive position of correspondent institutions in pricing check processing and all other priced services to respondent institutions. One effect is that in some instances Federal Reserve prices can be lower than correspondent prices. Another is that the Federal Reserve's treatment of earnings credits on required clearing balances could tend to subsidize some respondent institutions, encouraging them to conduct business with the Federal Reserve rather than correspondent banks. This section explains how this adverse effect can arise.

In the following discussion we address only the competitive aspects of Federal Reserve clearing balance policies. While we find that correspondents can be disadvantaged in this area, it is important to note that other aspects of correspondent bank pricing could partially compensate or more than compensate for these disadvantages. First, we have not attempted to measure the financial value to correspondents of clearing balances they hold from respondent institutions, although we suggest the value may often be higher than the value that a correspondent attributes to them for pricing purposes. Second, data are not available to indicate whether or to what extent the unit prices quoted by correspondents for check clearing activities include either a markup or a markdown of the correspondents' full operating costs. Both of these matters would need to be taken into account in assessing the overall competitive positions of correspondents and the Federal Reserve.

CLEARING BALANCES FACILITATE TRANSACTIONS AND ARE A FORM OF PRICING FOR SERVICES

A bank depositing checks with the Federal Reserve System must either have an account at its district Reserve bank or designate the account of a correspondent bank that is a Federal Reserve member. This designated account can then be used to handle the depositing bank's transactions. For a bank that has an account with the Federal Reserve the balance that must be maintained is set by the Federal Reserve and is related to the safe handling of paying and receiving transactions. For larger banks, the reserve accounts maintained at the Federal Reserve on deposit liabilities are often large enough to accommodate check clearing transactions. However, other banks must place funds at the Federal Reserve to use the Federal Reserve facilities for check clearing purposes. These funds are known as clearing balances.

Although clearing balances are non-interest bearing deposits, the Federal Reserve now accrues what are called earnings credits that can be used to pay for check clearing services. Earnings credits reflect the interest the Federal Reserve System earns by investing clearing balances in federal debt obligations. To pay for services entirely by earnings credits instead of by a cash fee, many banks establish clearing balances in excess of that required to conduct transactions at a Federal Reserve bank. In commercial banking, it is common for deposit balances to be kept at a level sufficient to generate earnings credits to pay for correspondent bank services rendered.

The first adverse effect upon correspondents can arise because clearing balances placed with correspondents are subject to that correspondent's reserve requirements at the Federal Reserve, which earn no interest. However, as will be explained in a series of examples to follow, this disadvantage does not always occur. Whether it occurs depends on the size and Federal Reserve membership status of the correspondent and on the size, membership status, and level of vault cash of the respondent involved. When the disadvantage occurs, it can cause the cost to a respondent of using a correspondent to be up to 13.6 percent higher than the cost of using the Federal Reserve. The second adverse effect can occur because the Federal Reserve invests clearing balances at a different rate than that provided as earnings credits to respondents. On March 7, 1984, the Federal Reserve Board approved a proposal to eliminate its competitive advantages in these areas. We generally agree with this proposal.

The interest rate selected by a correspondent in accruing the earnings credit (the earnings credit rate) is usually a short-term money market rate. The rate is applied to balances in excess of those the correspondent is required to place in reserve. Regularly, the accrued earnings credit during a period is compared to the total of checking account service charges that have accumulated during that period. This comparison indicates whether the amount of the clearing balance is adequate, insufficient, or excessive in terms of compensation to the check processor for the work done during the period. An alternative method of compensation is for the respondent to pay cash service charges to the processor for account activity. Under this pricing option, correspondents would not be disadvantaged compared to the Federal Reserve. However, many correspondents continue to use the traditional method of compensation by means of clearing balances, probably because the actual value to

the correspondent of lendable deposits is normally higher than the earnings credit rate the correspondent provides.

In our discussion of clearing balances, it should be understood that if they are placed at a Federal Reserve bank, they are in addition to whatever reserve balances a depository institution is required to maintain at the Federal Reserve under Regulation D, Reserve Requirements of Depository Institutions. This is true even though, as will be explained, the placement of clearing balances at a correspondent institution can affect the level of required reserves of both the correspondent and the respondent.

Most Federal Reserve check processing is paid for by cash fees

In June 1983 the Federal Reserve reported that the total of required clearing balances was about \$700 million. Assuming the federal funds rate, which is the rate now used by the Federal Reserve to accrue earnings credits, was 10 percent, these balances would generate \$70 million in earnings credits per year. Federal Reserve officials estimate that for 1983 about \$500 million of required clearing balances relate to check processing, and hence about \$50 million of the earnings credits will be allocated to check processing, with the remainder allocated to other priced services. By contrast, the Federal Reserve estimated it received \$324 million in cash fees in 1983 for check processing. If all institutions used clearing balances rather than cash fees to compensate the Federal Reserve for check processing, the Federal Reserve would require, at a 10 percent earnings credit rate, \$3.25 billion in additional balances. Clearly the bulk of the Federal Reserve's check processing volume is covered by cash fees rather than by clearing balance arrangements.

CLEARING BALANCES INCREASE REQUIRED RESERVES OF CORRESPONDENTS

Clearing balances at a correspondent institution are subject to that institution's reserve requirements at the Federal Reserve. For purposes of calculating the amount of reserves required, clearing balances are included in a category called "transaction accounts." Transaction accounts can be defined as domestic demand deposits and other similar short-term liabilities of the institution. Table 1 shows the level of reserve requirements on transaction accounts, including clearing balances, that were in effect for depository institutions on September 1, 1983.

Table 1

Level of Reserve Requirements on Transaction Balances

<u>Net transaction accounts</u>	<u>Reserve requirement</u>	
	<u>Federal Reserve member bank</u>	<u>Nonmember institution^b</u>
Up to \$26.3 million ^a	3%	1.5%
Increment over \$26.3 million	12%	6%

^aThe first \$2.1 million in an institution's reservable liabilities are, under terms of the Garn-St. Germain Act, subject to special considerations that are not generally pertinent for the purposes of this discussion.

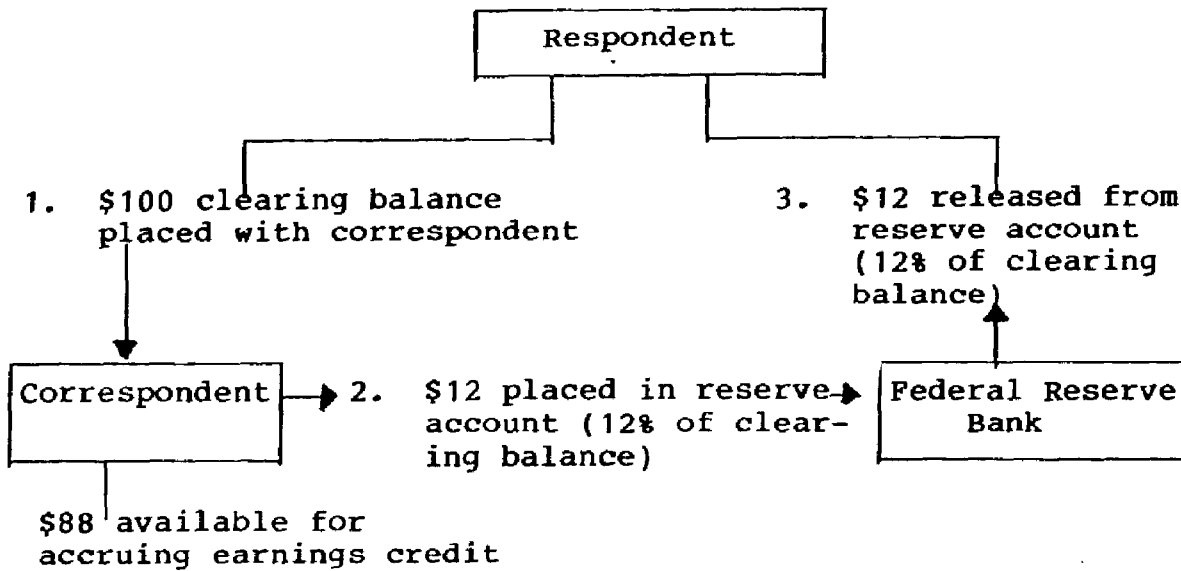
^bUnder a schedule mandated by the Monetary Control Act nonmember institution reserve requirements are in the process of being phased up to equal those of members. Nonmember institutions include nonmember banks, mutual savings banks, savings and loan associations, and credit unions.

Most private sector check processing is done by large banks that are Federal Reserve members. In their case, for every \$100 received in clearing balances, \$12 would be forwarded to their noninterest bearing reserve accounts at the Federal Reserve. Because of this, these banks will usually calculate an earnings credit on only 88 percent of the amount of a respondent's clearing balance.

CLEARING BALANCES MAY DECREASE
REQUIRED RESERVES OF RESPONDENTS

A respondent institution may not be required to reserve fully against the total amount of its transaction accounts. In calculating its reserve requirements, a respondent can first deduct from its total transaction accounts the amount of clearing balances it has on deposit with or, as is commonly said, "due from," its correspondents. This is called the "due from deduction."

The flow chart shows three simultaneous transactions that can occur when a clearing balance is placed with a correspondent. In this example, both the respondent and correspondent are assumed to be Federal Reserve members and to have over \$26.3 million in transaction accounts and are thus both marginally reserving at the 12 percent level.



The significance of these transactions to the respondent is that while earnings credits will accrue on only \$88 of the \$100 it deposited, the respondent receives back \$12 of investable funds from the Federal Reserve because it can deduct that \$100 from its reservable transaction balances (the due from deduction explained on p. 12). The respondent's opportunity cost is based on its net outlay of funds, which in this example is only \$88.

In reviewing the competitive position of a correspondent compared to the Federal Reserve in this example, two more facts are significant:

--A clearing balance placed at the Federal Reserve is not eligible for the due from deduction, so that no funds will be released from the respondent's reserve account if the balance is placed at the Federal Reserve rather than at a correspondent.

--The Federal Reserve will accrue earnings credits on 100 percent of the clearing balance it requires.

If, in our example, the Federal Reserve and a competing correspondent both quoted \$88 in clearing balances as required compensation for check clearing services, neither would have an advantage over the other: The respondent could place \$100 with the correspondent and simultaneously regain \$12 from its reserve account, or it could simply place \$88 with the Federal Reserve as a clearing balance. In either case, the respondent's net outlay of funds in the clearing balance would be the same, and the correspondent would not be at a disadvantage. However, this example is not typical.

CORRESPONDENTS ARE LIABLE TO BE
DISADVANTAGED MOST OF THE TIME WHEN
CLEARING BALANCES ARE USED TO PAY
FOR CHECK CLEARING

Whenever the reserve requirements of a respondent are at a lower marginal rate than the correspondent for a given level of check clearing charges, the correspondent will be at a disadvantage competing with the Federal Reserve. As will be explained in the next example, the maximum disadvantage in any set of circumstances currently makes the correspondent 13.6 percent more expensive than the Federal Reserve. This occurs when the correspondent is reserving at the 12 percent, or highest level, and the respondent is required to maintain no funds in its reserve account. The disadvantage will be explained in this section.

Most major correspondents in the check clearing business are in the highest marginal level of reserve requirements, currently 12 percent. This is because most of them are Federal Reserve members and they have more than \$26.2 million in transaction balances. By contrast, most respondents are subject to lower levels of reserve requirements.

As indicated in table 1, member banks with less than \$26.2 million in transaction balances as of September 1983 and all nonmember institutions, regardless of size, currently have reserve requirements lower than 12 percent. As of December 31, 1983, 2,398 depository institutions of the 40,226 subject to the Monetary Control Act were marginally reserving at 12 percent. As will be explained, correspondents are at a disadvantage in dealing with all institutions reserving at less than 12 percent.

Furthermore, institutions can count their vault cash, that is coin and currency, toward the fulfillment of their reserve requirements. If their vault cash is equal to or greater than their required reserve, these institutions would not need to place any funds at the Federal Reserve. A correspondent experiences the maximum 13.6 percent disadvantage in the case of these institutions, which numbered 764 at the end of 1983.

Three variables from the described example can lower the respondent's required reserve at the Federal Reserve and adversely affect a correspondent. These variables involve respondents that

- meet their reserve requirements without placing any funds at the Federal Reserve, because the amount of cash on hand at the institution equals or exceeds their required reserve;

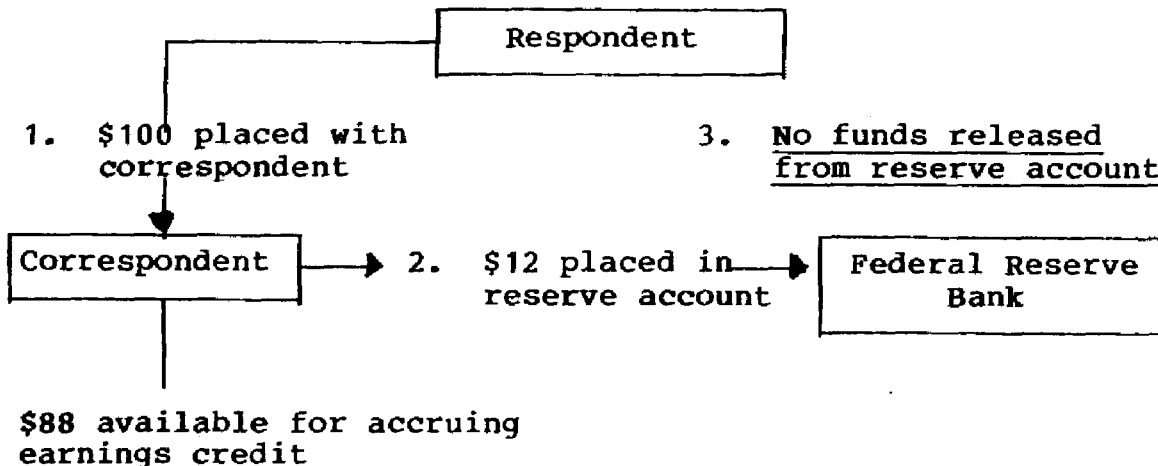
- have transaction accounts of less than \$26.3 million and are thus reserving at a lower marginal percentage than the correspondent; and
- are not members of the Federal Reserve and are thus reserving at a lower marginal percentage than the correspondent.

By modifying our previous example, we shall demonstrate how these variables can affect the competitive situation.

The respondent meeting reserve requirements with vault cash

The first variable that can adversely affect correspondents is the level of a respondent's vault cash, relative to the respondent's required reserves at the Federal Reserve. Regulation D permits institutions to count the amount of their vault cash on hand as applying in whole or in part toward fulfilling reserve requirements. If an institution's vault cash equals or exceeds its required reserve, it does not have to place any funds in its reserve account at the Federal Reserve.

To revise our original example, the flow of funds would be as follows when the respondent, which fulfilled its reserve requirements with vault cash, placed a clearing balance at a correspondent:



Since the respondent has a zero balance in its reserve account, no funds are released to it from the Federal Reserve. In effect, then, it is unable to use the due from deduction of the \$100 placed with the correspondent when calculating its reserve requirements. The result is that the respondent incurs

an opportunity cost on the entire \$100 it placed with the correspondent. The \$100 placed there, which is \$12 more than the \$88 required clearing balance of the Federal Reserve, could make the cost to the respondent of the correspondent's services 13.6 percent higher than the Federal Reserve (\$12 divided by \$88). For that to happen the correspondent would have to pass along the cost of its reserve requirement to the respondent. However, in a competitive environment, an element of cost does not necessarily result in an increase in price. We cannot determine the extent to which this element of correspondents' cost has been translated into increased prices.

The disadvantage to correspondents similarly occurs in pricing services to smaller respondents. If their transaction balances are less than \$26.3 million, these respondents are marginally reserving at 3 percent rather than 12 percent, as shown in table 1. The small respondent placing \$100 at a correspondent will receive only \$3 in released reserves. Its net outlay is then \$97 compared to the \$88 clearing balance required at the Federal Reserve. In this case, the correspondent's price is about 10 percent higher than the Federal Reserve's.

Correspondents are also disadvantaged when pricing services to institutions that are not Federal Reserve members, and are thus reserving at less than the rates for members. The reserve requirement level for nonmembers, currently half that of members, is being phased up over a 7-year period following passage of the Monetary Control Act. From September 3, 1987, and beyond nonmembers will have the same reserve requirements as members. At that point, correspondents will no longer be faced with a disadvantage arising from a nonmember respondent. In the interim, the disadvantage will gradually diminish as nonmember reserve requirements are phased up.

CHANGED FEDERAL RESERVE POSITIONS ON CLEARING BALANCES

In October 1983, the Federal Reserve proposed a change in procedure that should eliminate the current advantage it has over correspondents arising from reserve requirements. It also made a contingent proposal to use an earnings credit rate on clearing balances that would more nearly reflect the Federal Reserve's own investment income from such balances, thus removing a subsidy to respondents. On March 7, 1984, the Federal Reserve Board approved a proposal to accomplish this change. We generally agree with this proposal.

Earnings credit rate to be adjusted

The Federal Reserve proposes to adjust downward the earnings credit rate on clearing balances when the marginal

reserve requirement of a respondent is less than 12 percent. This will have the effect of increasing Federal Reserve prices to some respondents. The arithmetical procedure for making this adjustment has not been specified at this time. We believe that the procedure eventually used should have the effect of completely eliminating the Federal Reserve's advantage over a correspondent competitor whose marginal reserve requirement is 12 percent. Federal Reserve officials have indicated that this is their intention.

Different interest rate may be used for earnings credits

The Federal Reserve is considering a change in the interest rate used to accrue earnings credits on clearing balances. We agree that the contemplated change is desirable. Currently, the interest rate used by the Federal Reserve is the federal funds rate. The federal funds rate is a private sector interest rate; it is the rate charged for overnight loans from one commercial bank to another commercial bank.

The Federal Reserve has indicated that it may adopt as its new earnings credit rate the interest rate in the secondary market for outstanding U.S. Treasury bills that have 3 months remaining to maturity (the 3-month bill rate).

The Federal Reserve has indicated that its proposal to change the earnings credit rate is contingent upon the expected development that actual clearing balance levels in 1984 will be closer to required balance levels than has been true in the past. In June 1983, actual clearing balances were \$200 million more than the Federal Reserve has required. However, since use of the federal funds rate may not reflect actual Federal Reserve revenues, this change could be made without regard to the stated contingency.

Current Federal Reserve policy on earnings credit rates

Earnings credits, which accrue on clearing balances, are considered to be the equivalent of cash fees paid to a correspondent or the Federal Reserve for services. The interest rate used to accrue earnings credits (the earnings credit rate) is important because it will determine the size of the clearing balance necessary to pay for a specified dollar level of priced services.

In June 1983, the Federal Reserve reported that 3,240 depositories maintained approximately \$700 million in required clearing balances. It is reasonable to consider that the clearing balance liability of the Federal Reserve relates at the

margin to investments by the Federal Reserve in short-term government securities. We believe it is logical for the Federal Reserve to use an earnings credit rate on clearing balances that closely reflects the actual return on these investments. We also believe that a short-term market rate is preferable to a composite rate representing the overall yield on the Federal Reserve portfolio, since clearing balances are short-term liabilities of the Federal Reserve and therefore can be considered as funding short-term assets. The 3-month Treasury bill rate would thus seem to meet the above criteria for the Federal Reserve to use in accruing earnings credits on clearing balances.

By contrast, the Federal Reserve's current policy is to accrue earnings credits on clearing balances at the federal funds rate. In the years 1978-82, the federal funds rate has averaged about 1 percent higher than the 3-month bill rate. However, in 1983 the rate difference was less, and in some months the 3-month bill rate was higher than the federal funds rate.

The following example indicates the approximate effect that these different earnings credit rates might have on the amount of clearing balances required in June 1983. If \$70 million per year in priced services were to be paid for by clearing balances, and if the federal funds rate were 10 percent and the 3-month bill rate 9.0 percent,

--use of the federal funds rate for earnings credits would result in required clearing balances of \$700 million (\$70 million divided by 0.10). As noted, this was a recent actual level of the Federal Reserve's total clearing balance requirement for respondent institutions.

--use of the 3-month bill rate for earnings credits would on the other hand increase the required clearing balances to about \$778 million (\$70 million divided by 0.09).

Federal Reserve officials indicated that they had originally considered using an interest rate other than the federal funds rate, including the 3-month bill rate, for calculating clearing balance requirements. They said that the federal funds rate was selected because it seemed to be the one most commonly used by the private sector in pricing correspondent services (they have attempted to model their clearing balance arrangements after customary correspondent banking practice). However, we believe the Federal Reserve's use of the federal funds rate is inconsistent in a larger sense with the practice of the private sector; the Federal Reserve is giving a rate that is usually higher than the rate it will earn from investing the related assets. This would not be customary for correspondents.

For example, the prime rate, the rate charged by commercial banks to their most creditworthy corporate customers, has averaged about 1 percent to 2 percent above the federal funds rate in recent years. Therefore, there is normally an implicit profit margin for a correspondent using the federal funds rate in calculating earnings credits on clearing balances. But when the Federal Reserve uses this rate, there is an implicit loss if Federal Reserve investments yield less than the federal funds rate.

If the Federal Reserve used the 3-month bill rate, it would more nearly at least break even in terms of the interest it will earn on its related investments. We believe this would be an appropriate policy. Further, we think that the earnings credits accrued by using the 3-month bill rate would more accurately reflect actual Federal Reserve revenue derived from the clearing balance. If the Federal Reserve decides to continue to use the federal funds rate, we believe that the difference between the total savings credits given on clearing balances and the total interest earned on them at the 3-month bill rate should be added to the cost base for all priced services.

Potential Federal Reserve subsidy and its effect on respondents

In the previous example, assuming the Federal Reserve were actually earning 9 percent on invested clearing balances and required only \$700 million instead of \$778 million in clearing balances from respondents, its lower clearing balance requirement would represent a subsidy to those respondents of \$7 million per year (\$78 million in balances not required, which could have been invested at 9 percent). If the Federal Reserve changed its policy and required \$778 million in clearing balances, the effect in this example would be an 11 percent price increase to the respondents (\$78 million divided by \$700 million).

While we suggest that the 3-month Treasury bill rate might be used in calculating clearing balance requirements, we cannot estimate how adversely this would affect the Federal Reserve. Many of the respondents with clearing balance arrangements already maintain actual clearing balances well in excess of their respective required clearing balance levels. The respondents receive no earnings credits on excess clearing balances. However, for other respondents maintaining actual balances close to the required levels, the new earnings credit rate could result in additional funds being required for deposit at the Federal Reserve. We also expect that some banks, faced with an earnings credit rate that is lower than the federal funds rate, might simply decide instead to compensate the Federal Reserve by paying cash fees rather than by clearing balances. Either

alternative will increase the actual revenue of the Federal Reserve. A final possibility is that some respondents would decide to deal with a private sector institution instead of the Federal Reserve because of this price increase.

SECTION 3



SECTION 3

FEDERAL RESERVE FLOAT

Federal Reserve float occurs when the Federal Reserve, acting as an intermediary in a financial transaction, gives credit for funds at least 1 day sooner than it receives the funds related to that transaction. Most Federal Reserve float arises from its check clearing operation and is called check float. Institutions that deposit checks for collection at the Federal Reserve receive credit in accordance with set availability schedules. However, the Reserve banks are not always able to collect the checks by the time funds are made available to the depositing institution because of transportation delays, equipment breakdown, or volume overloads.

Federal Reserve float also occurs in wire transfers of funds and other financial transactions not involving the processing of paper checks. This is called "noncheck float." Noncheck float will be discussed at the end of this section. Unless otherwise indicated, the term float will be used here to refer to net check float only.

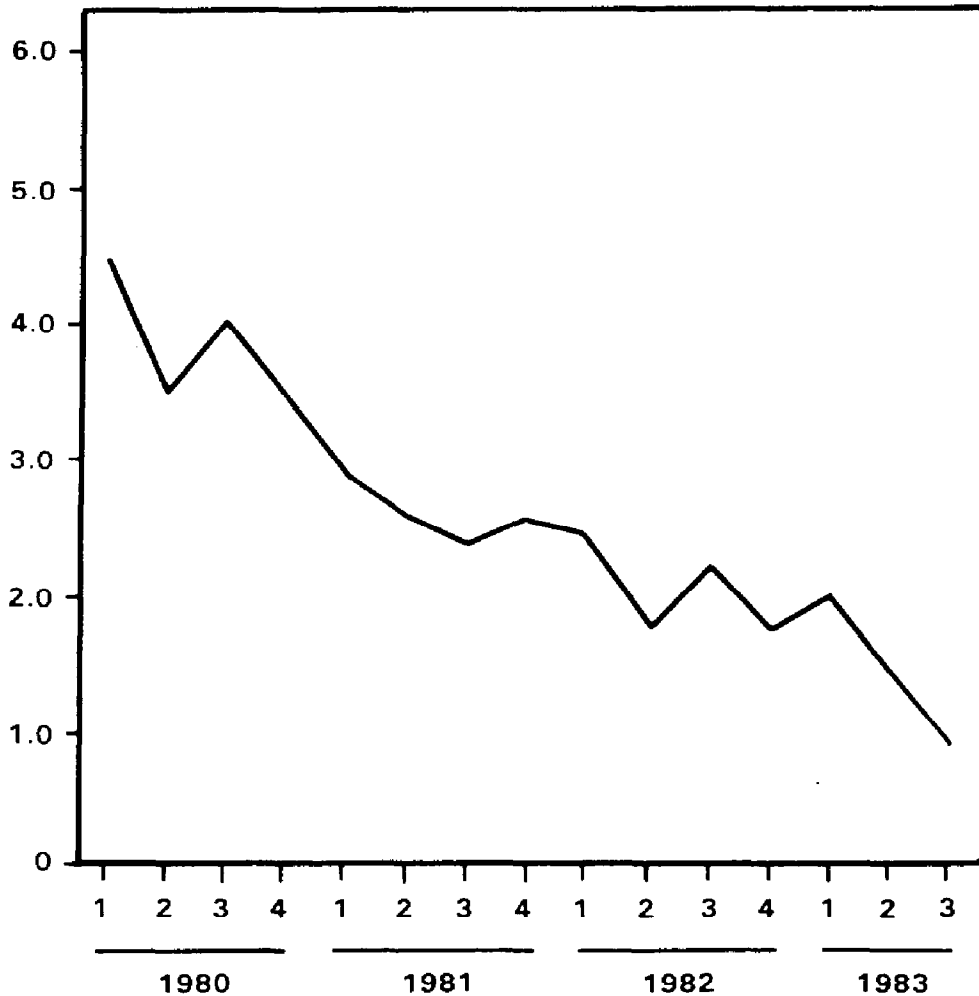
Unpriced float is ultimately a cost to the taxpayers because it prematurely increases depository institutions' balances at the expense of Federal Reserve interest income. When the Federal Reserve credits a depository institution's account before collecting from the paying institution, the overall level of institution balances are increased. The Federal Reserve's current policy for managing the money supply is to keep depository balances within certain predetermined ranges. It is consistent with that policy to assume that an increase in depository balances arising from float will normally be offset by a Federal Reserve sale of securities. (By selling securities, the Federal Reserve reduces depository institution balances, the money supply, and its interest income.) Float costs the Federal Reserve the foregone earnings on the securities it had to sell so that a targeted level of depository balances could be maintained. Since earnings from such securities would ultimately be passed back to the U.S. Treasury, the taxpayers, in essence, pay for float by foregone revenue.

FEDERAL RESERVE FLOAT HAS DECLINED SINCE THE MONETARY CONTROL ACT WAS PASSED

During the past 3 years the Federal Reserve has had considerable success in reducing float. In the first quarter of 1980, float was \$4.5 billion, but by the first quarter of 1983, it had dropped to \$2.0 billion, and by the fourth quarter of 1983 to about \$0.9 billion. For the fourth quarter of 1983 float averaged \$857 million, a reduction that reflects both seasonal factors and, for the first time, the incentive to

reduce float that has occurred with pricing. Figure 1 shows the decline since 1980.

**Average Daily Check Float
by Quarter Since 1980
In Billions of Dollars**



Success in reducing float has increased revenues the Federal Reserve System pays to Treasury, but delay in pricing float at the federal funds rate has been by far the greatest source of subsidy to respondents and cost to the Federal Reserve in the check clearing area. The Federal Reserve has also had a competitive advantage because it has been providing check clearing services at substantially less than cost.

The Federal Reserve program to reduce or price float included the following actions:

<u>Float categories</u>	<u>Pricing programs</u>	<u>Implementation dates</u>
Interterritory	Eliminate float through deferral of credit or pay for float by (1) explicit charge, (2) charge against credits earned on clear-balances, or (3) offsetting float through "as of adjustments" to reserve or clearing accounts.	July 1983
Holdover	From February 24, 1983, to June 30, 1983, include in the 1983 cost base of check services the cost of this float in excess of 1 percent of the dollar value of checks collected by the Federal Reserve daily.	February 24, 1983
	From July 1, 1983, to September 30, 1983, include in the cost base of check service the cost of hold-over float in excess of 0.5 percent of the dollar value of checks collected by the Federal Reserve daily.	July 1, 1983
	Beginning October 1, 1983, include the cost of all holdover float in the cost base of check services.	October 1, 1983
Intraterritory	Include in the cost base of check services.	October 1, 1983
Return item	Defer credit to payor institutions 1 day on interterritory items, and add the cost of the remaining return item float to the cost base of check services.	August 1, 1983 (defer 1 day) October 1, 1983 (pricing of residual)
Midweek closings	Approved change to Regulation J to allow Reserve banks to charge for checks it makes available to an institution that regularly closes on a weekday when its Reserve bank is open.	April 2, 1984
Non-standard holiday	Approved a policy of deferring credit to sending institutions for one day for checks drawn on paying institutions closed on non-standard holidays.	April 2, 1984

THE COST OF UNPRICED FLOAT WAS HIGH

The Monetary Control Act required the Federal Reserve to begin to put into effect a schedule of fees for its priced services no later than September 1, 1981. The Federal Reserve began to price its check services in August 1981. Between that time and September 30, 1983, the revenue lost to the Federal Reserve through unpriced float was about \$512 million, as indicated in table 2. The Monetary Control Act specifies that float must be priced at the federal funds rate.

Table 2

Estimated Cost of Unpriced Federal Reserve Check Float
August 1981 through September 1983^a

<u>Time period</u>	<u>Daily average check float</u>	<u>Average federal funds rate</u>	<u>Cost</u>
	- - - - - (millions) - - - - -		
<u>1981</u>			
3rd quarter ^b	\$2,463	16.71%	\$ 68.5
4th quarter	2,566	13.55	86.9
<u>1982 quarters</u>			
1st quarter	2,478	14.30	88.6
2nd quarter	1,795	14.51	65.1
3rd quarter	1,910	10.98	52.4
4th quarter	2,315	9.23	53.4
<u>1983 quarters</u>			
1st quarter	2,025	8.61	43.6
2nd quarter	1,548	8.81	34.1
3rd quarter	940	9.45	<u>19.2</u>
Unpriced float cost			<u>\$511.8</u>

^aAverage federal funds rate used to compute float cost.

^bIncludes only August and September because the Federal Reserve did not start to price its check service until August 1981.

From August 1981 through September 1983, the value of unpriced float decreased sharply, primarily because of the substantial drop in the federal funds rate,¹ but also because float itself fell, particularly in 1983. The cost of unpriced Federal Reserve float by Reserve bank for the second quarter of 1982 and 1983 is shown in table 3.

¹As the federal funds rate dropped it meant that the cost of unpriced float decreased.

Table 3

Comparison of the Amount of Check Float
2nd Quarter 1982 with 2nd Quarter 1983

Bank	Second Quarter 1982					Second Quarter 1983				
	April	May	June	Daily average float	Cost ^a	April	May	June	Daily average float	Cost ^a
----- (millions) -----										
Boston	\$ 122.0	\$ 66.4	\$ 88.5	\$ 92.3	\$ 3.3	\$ 97.5	\$ 31.8	\$ 40.1	\$ 56.5	\$ 1.2
New York	459.1	233.8	236.0	309.6	11.2	361.0	271.3	304.6	312.3	6.9
Philadelphia	170.8	120.7	113.3	134.9	4.9	140.7	117.0	96.3	118.0	2.6
Cleveland	142.7	118.3	126.4	129.1	4.7	139.5	61.6	83.0	94.7	2.1
Richmond	158.5	131.5	121.3	137.1	5.0	- 221.0	42.5	84.4	- 31.4	- 0.7
Atlanta	302.2	251.7	236.6	263.5	9.6	299.7	230.6	211.6	247.3	5.4
Chicago	332.5	273.6	307.3	304.5	11.0	281.6	282.2	363.6	309.1	6.8
St. Louis	123.5	- 81.8	-118.5	- 25.6	- 0.9	59.1	52.0	48.9	53.3	1.2
Minneapolis	49.3	26.6	61.3	45.7	1.7	50.1	45.1	34.7	43.3	1.0
Kansas city	85.4	89.9	90.6	88.6	3.2	81.0	78.3	69.4	76.2	1.7
Dallas	175.0	215.0	216.3	202.1	7.3	147.1	158.0	98.7	134.6	3.0
San Francisco	138.9	94.3	114.4	115.9	4.2	140.7	134.1	127.1	134.0	3.0
Total	<u>\$2,259.9</u>	<u>\$1,540.1</u>	<u>\$1,593.3</u>	<u>\$1,797.8</u>	<u>\$65.2</u>	<u>\$1,577.0</u>	<u>\$1,504.5</u>	<u>\$1,562.4</u>	<u>\$1,548.0</u>	<u>\$34.1</u>

^aCost for the quarter calculated using a federal funds rate of 14.51 percent for 1982 and 8.81 percent in 1983.

Note: Totals may not add due to rounding.

Source: Federal Reserve Board float management reports.

In 1983, as the pricing of float was phased in, the monthly cost of unpriced float decreased, from about \$16 million in January to an estimated \$5 million in September. The first and largest element in this cost reduction was the pricing of interterritory float on July 1; this type of float alone had cost the Federal Reserve \$8 million in January. The Federal Reserve price changes that went into effect in February 1983 did not include any charges for interterritory float.

CONCERNS EXPRESSED ABOUT FLOAT PRICING

Some depository institutions have been critical of the Federal Reserve's program for pricing float. It is argued that the program

- is unnecessarily difficult to administer,
- gives the Federal Reserve a competitive advantage by hiding some of its processing charges,
- permits the Federal Reserve to continue to give unrealistic funds availability to respondents, and
- excuses the Federal Reserve for its own inefficiencies.

While there may be merit in some of these criticisms, we believe that the Federal Reserve's strategy to price float has been generally reasonable.

Administration of the interterritory float program

The administration of the program for pricing interterritory float involves two steps. The first is identifying the total amount of float, and the other is associating float with the particular deposits. To develop the necessary information on the total amount of interterritory float, the Federal Reserve redesigned part of its accounting system. This process has taken over 2 years and, according to Federal Reserve and private bank officials, problems are still experienced in obtaining accurate data.

In pricing interterritory float, one issue had been whether to add the cost of float to the unit price of all checks processed or to charge float costs back to the depositing institution when float actually occurs on their deposited checks. The Federal Reserve decided on the second method to the extent it was practical to do so, although this is clearly more difficult to administer than unit pricing would have been. Institutions

that are charged for float must in turn decide whether and how to recover this cost. Additional administrative work is involved if an institution decides to charge particular customers for specific amounts of float, as the Federal Reserve is doing.

We believe the Federal Reserve's decision to charge back interterritory float is preferable to increasing unit check prices to cover float costs. This is because float does not occur at random or have equal effects on all depositing banks. For example, institutions in the northern United States are more likely to experience float caused by wintertime transportation delays than are institutions in the south. Also, institutions that deposit checks of a higher average value per check benefit more from float than do those institutions with a lower average value per check. Therefore, benefits from float are not evenly distributed to all institutions.

If float were priced on a per check basis, the southern institutions and those depositing lower than average value checks would be paying for float unrelated to their operations. The other institutions would benefit financially whenever float occurred, and they could in fact have an incentive to create float when possible. We think this could lead to abuses of the payments system. As shown in table 4, the relationship between check volume and float varies considerably among the banks. Two reserve banks--New York and Chicago--had proportionately more float in the second quarter of 1983 than their share of volume, and together they accounted for more than 40 percent of all float. One reason this occurs is that the average value of the checks handled by these two Reserve banks is higher than for most other Reserve banks.

Corporate cash managers could also abuse the payment system if float were priced on a per check basis. For example, a corporation could have checking accounts in banks in New York and Chicago. On one day the corporation could deposit in its New York bank a large check drawn on its account in the Chicago bank. If the New York bank clears this check through the Federal Reserve Bank of Chicago, it should receive credit the next day from the Federal Reserve Bank of New York. If the Federal Reserve Bank of Chicago presents the check for payment on time the corporation can wire transfer funds to its Chicago account to cover payment of the check. However, if the check is not presented on time, float is created at the Federal Reserve Bank of New York and the New York commercial bank has funds available for the corporation to withdraw and invest overnight or until such time as its check is presented in Chicago.

Table 4
Distribution of Check Volume
and Float by Reserve Bank
2nd Quarter 1983

	<u>Percent of volume</u>	<u>Percent of check float</u>
Boston	6.6	3.6
New York	11.9	20.2
Philadelphia	3.5	7.6
Cleveland	6.0	6.1
Richmond	8.8	-2.0
Atlanta	13.0	16.0
Chicago	13.7	20.0
St. Louis	4.7	3.4
Minneapolis	6.0	2.8
Kansas City	6.9	4.9
Dallas	6.2	8.7
San Francisco	<u>12.6</u>	<u>8.6</u>
Total	100.0	100.0

Note: Detail may not add due to rounding.

If a corporation repeats this deposit procedure every day, it will be able to invest the money deposited each time the Federal Reserve's Chicago presentment is not timely. If the full cost of the float created were not charged back to the corporation's banks, we can see no effective way to curtail this practice. Pricing float on a per check basis would invite this type of abuse of the payments system.

Charges for float are
reasonably identifiable

Some Federal Reserve competitors believe respondent institutions can be misled since charges for interterritory float are not included in the Federal Reserve's per check prices. If a respondent elects to pay float charges by fee, there seems to be little doubt that this cost is identifiable. An additional method to offset Federal Reserve float is by what is called "as of adjustments"² to those institutions' deposit balances at the Federal Reserve. These adjustments, explained in the following paragraphs, are made part of the weekly calculation of the institutions' required balance at the Federal Reserve. Competitors' concern seems principally to be that banks using the offsetting "as of adjustments" will not understand what float is actually costing them.

Reserve balance requirements are based upon the average daily closing balance of the institution's reservable liabilities for a 7-day accounting period. Likewise, clearing balance requirements are based upon the accumulated actual amount of priced services provided to a respondent for the same 7 days. When the balance requirement has been calculated, it is the respondent's responsibility to maintain on average its required or target balance level for a succeeding 7-day period. In using the "as of adjustment," the amount of float that has been identified in a previous 7-day period is simply added to the required or target balance for a succeeding 7-day period. For example, if \$7 million in float for 1 day was identified on a respondent's account in one period, then the respondent's required average daily balance in a succeeding 7-day period would be increased by \$1 million (\$1 million per day for 7 days would be equivalent to having use of \$7 million for 1 day).

²A procedure whereby the Federal Reserve adjusts the reserve or clearing balance of depository institutions based on the average daily closing balance for a 7-day accounting period.

We do not believe it is a major problem for a respondent to identify the cost of float because "as of adjustment" statements rendered by the Federal Reserve break out the actual charge for float. The "as of adjustment" procedures are generally used by larger institutions--currently numbering about 330--that sort checks by Federal Reserve district before depositing them with the Federal Reserve for clearing. The other institutions use direct billing for settling float with the Federal Reserve. We think it unlikely in today's competitive, cost-conscious environment that depository institutions will not know what float is costing them.

Float is permissible
but must be priced

A consideration from a competitive point of view is whether it is proper for the Federal Reserve to operate a check clearing system that incurs float even if that float is priced at the federal funds rate. Although the legislative history of the Monetary Control Act indicates congressional concern over levels of float that had reached as high as \$8 billion, the act gives the Federal Reserve discretion regarding how much float should be permitted in the system. By allowing float to exist, the Federal Reserve can guarantee availability schedules. This helps commerce function smoothly because institutions know when they will receive credit for their deposits. Now that float is being priced, depositing institutions can determine for themselves whether the benefits of fixed availability are worth the float costs that arise from the system.

Not all float is caused by
Federal Reserve inefficiency

Interterritory float has been the largest single category of check float, having averaged about \$1 billion in 1982. A substantial part of this float is not caused by any failure or inefficiency on the part of the Federal Reserve. Interterritory float arises when a depositing institution is given premature credit for checks drawn on institutions in Federal Reserve districts other than its own. Such checks clear through the Federal Reserve system in two different ways:

1. The institution deposits presorted checks (presorted by the paying banks' Federal Reserve office) in its own Federal Reserve office, which forwards them to other Federal Reserve offices for processing and collection. This is called a "consolidated shipment."

2. The institution, using its own transportation, sends the checks independently to the collecting Federal Reserve office in the other district. This is called a "direct send."

When an institution uses direct send, it advises its own Federal Reserve office of the transaction, and the Federal Reserve credits the institution's account accordingly. If for any reason the institution fails to deliver the checks to the other Federal Reserve office on time, the institution will create float for its own benefit. The Federal Reserve has nothing to do with causing this float, although in the past it has absorbed the cost of it. In July 1983 interterritory float averaged \$832 million daily. Of this amount, \$268 million, or 32 percent, was caused by direct send.

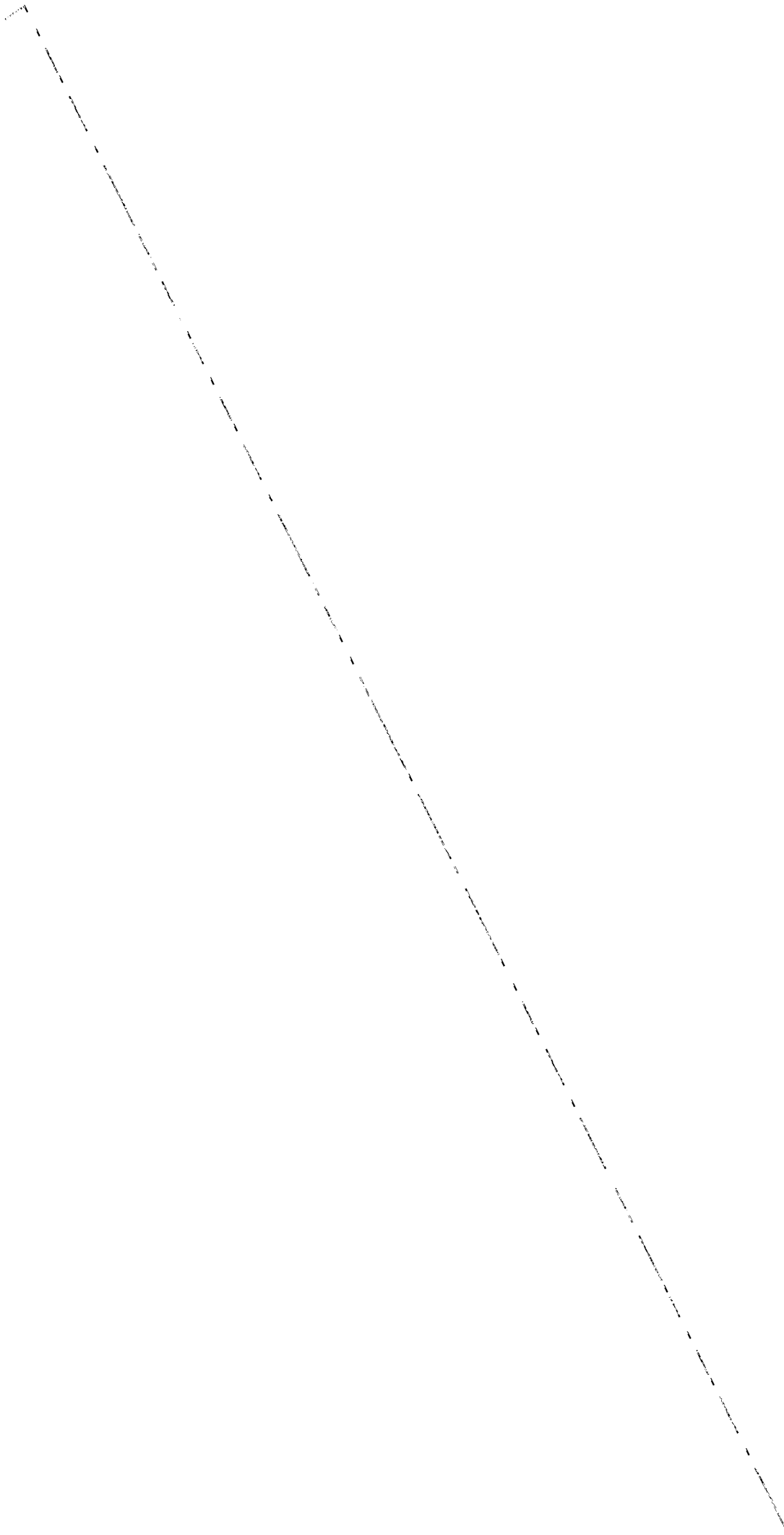
Other cases exist where the Federal Reserve might appear inefficient when it is not. For example, if a large correspondent institution that uses direct send for a high volume of checks is unable to transport them because of bad weather, it can deposit them instead at the local Reserve bank. This can create holdover float at the Federal Reserve, if the volume of additional checks is too great to process, as well as interterritory float, if transportation of consolidated shipments continue to be delayed.

FEDERAL RESERVE PROGRAM FOR NONCHECK FLOAT

Noncheck float occurs when the paying and receiving ends of a financial transaction not involving paper checks are completed on different days. If the Federal Reserve, acting as intermediary, pays out funds to a payee earlier than it receives the related funds from the payor, "debit" float is created. For example, an institution can sell government securities through the Federal Reserve to another institution. The transaction begins with the Federal Reserve crediting the reserve account of the seller. If the Federal Reserve does not charge the reserve account of the buyer on the same day, debit float is created and it is said to be in the noncheck category. The Federal Reserve has in effect advanced funds to the seller.

It also happens that the Federal Reserve can pay funds out later than it receives them. This is called "credit" float. For example, an institution may order the Federal Reserve to wire transfer funds to another institution. The transaction begins with a charge to the payor's reserve account. If the Federal Reserve does not credit the payee's reserve account on the same day, noncheck credit float is created.

Noncheck float arises in Federal Reserve operations in the areas of securities transfers, automated clearinghouses, and wire transfers. According to Federal Reserve officials, total noncheck debit float for 1983 averaged about \$170 million. The total credit float, which arises from wire transfers, averaged about \$55 million. Various plans are being made to eliminate or price all noncheck debit float. The Federal Reserve has not yet determined how it will deal with credit float, but one option is to use the value of credit float to offset wire transfer operating costs. In any case, the pricing of all noncheck float is to be completed by the end of 1984.



SECTION 4

THE FEDERAL RESERVE BANK OF SAN FRANCISCO'S PRICING OF COMMERCIAL CHECK PROCESSING SERVICES

This section addresses the Twelfth District's basis and procedures for capturing costs associated with priced commercial check processing services and for using costs and other data to establish prices for check services. The Twelfth District has a system in place that captures volume, revenue, and cost data and a software package that arranges these data in a form that can be used as the basis for the pricing effort. Actual data are correlated with projections, which are obtained partly from a market survey, to price the District's products. Also, controls are in place, including Board and District reviews, to ensure that data are uniformly applied in establishing prices.

The Federal Reserve System's Twelfth District includes the Federal Reserve Bank of San Francisco and its four branch offices, located in Los Angeles, Seattle, Portland, and Salt Lake City. The area served by the Twelfth District includes about 16 percent of the total national population and encompasses well over one-third of the Nation's total land area. The District's service area--which includes Alaska and Hawaii--covers five different time zones.

Other distinguishing features include the following:

- The District largely does not use the Interterritory Transportation System, which is the system used by the Federal Reserve to transport checks between districts, preferring instead to make its own arrangements to transfer checks to other districts.
- District officials told us that the District is more self-contained than others; only about one-third of total volume and one-fourth of total check revenue is derived from out-of-district depositors.
- While the System as a whole experienced an approximate 12 percent net decrease in check volume during the first year of pricing, the District realized a net 10 percent gain in volume (16 percent decline in checks requiring processing, offset by a 142 percent increase in handling of fine-sorted checks).

--We were told that the District clears no more than 10 percent of the checks in its market and that about 80 percent of checks drawn on California banks are cleared through a private clearinghouse association. The System's share of the nationwide check clearing market is about 35 percent, thus the District's share of its market is considerably below the nationwide average.

--The District dropped out of the local clearinghouse association in 1978 and adopted the Uniform Commercial Code criteria of 2 p.m. as the latest time checks could be presented to payor institutions. The systemwide adoption of a uniform 12 noon presentment deadline was, therefore, not a big local issue, according to District officials.

After passage of the Monetary Control Act the Twelfth District's market increased from approximately 150 member banks to almost 4,000 depository financial institutions, including about 650 banks, 325 savings and loan associations, and 2,900 credit unions. This is because the Monetary Control Act made all banks, savings and loan associations, and credit unions eligible to use the Federal Reserve System's services. Previously the services were only available to member banks. The District has targeted over 1,500 of these institutions as having the greatest potential for utilizing its services and plans to call on virtually all of them during 1983.

Commercial check processing is estimated to account for about 67 percent of the District's total 1983 revenue from priced services. It handles about 7 million checks per day from 225 local depositors and 215 interterritory depositors. Most of the District's revenue comes from large depository institutions.

INPUTS ARE ADJUSTED TO GENERATE
MEANINGFUL PRICING DATA

The District's Price Administration Group has developed a software package that arranges volume and expense inputs to produce meaningful data for pricing purposes. Various calculations and assumptions applied by the program were in accordance with Board directions. As a result, expense data from the System's Planning and Control System (PACS) were transformed into useable pricing information.¹

¹For an explanation of PACS see section 7.

PACS accumulates check clearing costs under four specific activities: processing, adjustments, return items (checks returned unpaid), and fine sort (checks sorted to a specific paying institution). While PACS reported gross expenses for the overall commercial check activity, only intraoffice or local processing expense figures were needed for pricing purposes. Therefore, to obtain the expense data to be used in pricing, the software package was set up to isolate intraoffice expenses by excluding estimated charges for interterritory shipping and for mail room processing of consolidated shipments (checks deposited with one Federal Reserve office, sorted, and shipped to another Federal Reserve office for collection). Also, while PACS reported expenses by service line and activity, pricing was done on the much more detailed product level. To accommodate this, the software package was set up to distribute intraoffice expenses among products, such as nonmachineables (checks that have been damaged or for some reason cannot be put through a sorting machine) and fine-sort.

Basic assumptions in distributing costs included the following:

1. Return Item and Adjustment expenses were allocated to the different products in direct proportion to each product's share of total items processed. This assumed, for example, that the fine-sort items incurred the same level of return item and adjustment charge as other products.
2. Processing expenses were allocated to manual processed items using an estimate of the proportion of processing expenses attributable to this activity. The remaining processing expenses were allocated among other products using their relative share of total equivalent items.
3. Postage expenses were allocated to different products in direct proportion to each product's share of total items processed. The major assumption here is that the proportion of total postage expenses incurred by a specific product is directly related to its relative volume.
4. Total shipping expenses were divided into intra- and interoffice portions by using the ratio budgeted intraoffice shipping expenses divided by the total shipping expense for each office. The intraoffice portion was then allocated among the district priced products--first, by using a City Items Shipping Factor (historical ratio of shipping expenses for city items to volume of city items processed) to determine shipping expenses attributable to city items (items for

institutions located in the same city as a Federal Reserve office), then by distributing the remainder of the shipping charges to other products according to their relative share of items processed.

5. System projects and overhead were allocated to the branch offices in direct proportion to each office's share of the total items processed by the District. These office amounts were, in turn, allocated to the various products according to a dollar ratio of product expenses to total expenses. The major assumption here was that system projects and overhead expenses for each product were directly related to their relative total activity expenses (other than shipping and intraoffice mail room).

Commercial check service expenses, except mail room costs for handling consolidated shipments and interterritory transportation charges, were used to determine the unit cost for each major product category.

The software package developed by the Price Administration Group used the basic methodology supplied by the Pricing Policy Committee in concurrence with the Subcommittee on the Payments Mechanism (a committee made up of officials from various Federal Reserve offices). The following cost calculations were completed for each office then aggregated to determine the District's cumulative totals: The four commercial check activity expenses, less shipping, postage, and consolidated mail room charges, were added together. Then system projects and overhead expenses were added to arrive at a subtotal to which the private sector adjustment factor was applied (see section 8 for a discussion of this factor). The postage and local shipping expenses were added back to arrive at a total expense figure. The latter was then divided by the appropriate volumes to determine the unit processing cost. The resultant output--cost data by major product category--provided an important basis used for completing subsequent pricing worksheets and for determining repricing proposals.

Prices set on the basis of costs and other factors

Cost recovery is based on the service level rather than individual product levels. According to worksheet instructions provided by the System Pricing Subcommittee, all direct variable and direct fixed costs of processing the projected volume of items are to be identified at the product level. This would then constitute the "floor"--that is, each product would be

For the most part, available source documents supported the input data needed to develop fine-sort cost statistics for San Francisco and Los Angeles. Although specific assumptions and methods of projecting data were not formally documented, volume inputs could be directly traced to data submitted by the branches. With a few exceptions, the 1982 projected expense inputs could be directly tied into the PACS Service Structure Budget dated March 22, 1982. In the few instances where inputs could not be directly tied into PACS, the expense projections had been adjusted to reflect the District's more current volume experience.

We verified software calculations made to determine fine-sort unit costs and noted that they were in accordance with initial Board directed procedures that required a more cost-driven basis for pricing. In the absence of readily available work papers or documents to support the repricing submission in July 1982, we attempted to reconstruct some of the described procedures by (1) calculating the unit cost components for fine-sort (using April 1982 software-generated data) and (2) tying in the calculated unit cost components with the subsequent proposed price components. To determine floor costs, we used the activity expenses (return items, adjustments, processing, and fine-sort) allocated to the fine-sort product and included allocated shipping and postage expenses. The burden costs consisted of system projects, overhead, and the PSAF. Since prices were set on a combined San Francisco/Los Angeles basis, we calculated a combined weighted unit cost component for the San Francisco and Los Angeles offices.

Projected recovery of costs

To obtain a general idea of what level of costs were anticipated to be recovered by the proposed prices, we compared the April 1982 unit cost calculations (which were used as a basis for the repricing effort) with the prices proposed in the July 1982 worksheet submission for five major product categories. Of 10 products we reviewed, all were priced to recover at least production costs--1 to recover production costs; 3 to recover production, system project, and overhead costs; and 6 to recover full costs plus the PSAF.

Actual recovery of costs

According to the Twelfth District's 1983 Business Plan, revenues were expected to exceed full costs, including the PSAF but excluding the cost of float, for the commercial checks service line as a whole. The projected cost recovery target for the commercial check service line for the year was 104 percent. As can be seen in table 5, the District has been successful in maintaining an average monthly cost recovery rate of about 114 percent, due to the change in prices that took effect on

February 24, 1983. Under the new pricing schedule, including holdover float, the District has been able to maintain an average monthly recovery rate of about 120 percent.

Table 5

Operating Cost Recovery Experience, Twelfth District, January through June 1983^a

<u>Month</u>	<u>Revenues</u>	<u>Full costs plus PSAF</u>	<u>Recovery rate</u>	<u>Holdover float</u>	<u>Adjusted recovery rate</u>
<u>Old price schedule</u>					
January	\$2,126,827	\$2,132,549	99.7%	0	99.7%
February	2,167,347	2,321,021	93.4	0	93.4
<u>New price schedule</u>					
March	3,402,161	2,769,908	122.8	133,471	117.2
April	3,162,788	2,509,401	126.0	160,901	118.4
May	3,218,093	2,613,129	123.2	0	123.2
June	3,298,248	2,711,448	121.6	0	121.6

^aInterterritory and most other kinds of float are excluded from costs in this table. For the months April, May, and June, coverage of about \$1 million per month in additional revenues would have been needed to cover float costs, which would have required an increase in price of another 11 percent.

Note: The PSAF amount was allocated to this bank in proportion to the bank's operating expenses to total Federal Reserve operating expenses (less shipping expenses).

On a product level, the average monthly recovery rates ranged from 71 to 157 percent for the second quarter in 1983. Second quarter data available for eight specific check service products showed that revenues realized for four of the products covered more than their associated production costs and the PSAF. The fine-sort product, in particular, stayed consistently well above the targeted goal and maintained a cost recovery rate that ranged from 117 to 164 percent for the first half of 1983.

Positive changes to the District pricing system

Numerous changes have or are currently being made to improve the Federal Reserve's procedures for pricing its services. On a District level, for example, a computer software package has been designed to calculate unit cost by major product categories.

Also, a software program has been developed to extract information directly from the billing system, and another program is being developed that will extract information directly from PACS. This will help to minimize errors of transmissions that can occur as a result of entering data manually.

An earlier GAO study² discussed the need for a Federal Reserve information system that captures data on volume, costs, and revenue for each office and district. The District has since developed an extensive cost/revenue matching report for its commercial check services. Generated monthly, these reports include a profit and loss statement by office, a breakdown of billed volumes and revenues by office, and a 6-month product trend report that shows monthly recovery rates, targeted profit recovery goals, and product unit cost and unit profit data.

The District has also developed a plan to monitor its pricing information system. Bank staff are required to monitor continuously the costs of providing services, revenues generated, volume of work processed, and number and type of accounts handled. Senior management is provided with monthly and quarterly reports that indicate the District's performance. Specifically, actual cost, revenue, and volume data are evaluated for each service as well as for each branch, in view of the targets set forth in the business plan. At quarterly check points, if cost and revenue targets are not being met, contingency measures (such as an adjustment of prices) are taken.

CONCLUSIONS

Based on our limited review of the Twelfth District's pricing methodology, it appears to have established an effective system for determining prices for check processing services. The prices were developed in accordance with Board instructions, and based on the 1983 cost recovery experience through June, prices are to cover identified costs.

²The Federal Reserve Should Move Faster To Eliminate Subsidy Of Check Clearing Operations, (GAO/GGD-82-22, May 7, 1982).



SECTION 5

ITS AND SUPPLEMENTAL TRANSPORTATION: MAJOR COMPONENTS OF THE FEDERAL RESERVE'S TRANSPORTATION NETWORK

Although the Monetary Control Act does not require the Federal Reserve to explicitly price transportation, the Board of Governors established a transportation surcharge in 1981 that is added to the Reserve banks' per item check fees. Using the revenue from these surcharges and associated costs, we analyzed the Federal Reserve's experience with its Interterritory Transportation System (ITS) and its supplemental transportation. Neither the ITS nor supplemental transportation revenue covered costs in 1982 and will not likely cover costs in 1983. However, the Board of Governors raised the surcharge to the point that in 1983 revenue for the year covered about 77 percent of direct costs, not including a private sector adjustment factor markup. For the last quarter of 1983, revenues covered 80 percent of costs, again excluding any consideration of a markup factor. Federal Reserve officials said that ITS costs will be less in 1984 because of new contracts that took affect in December 1983.

The Federal Reserve transportation system is used to transport checks from one Reserve office to another and between Reserve offices and financial institutions. The transportation system includes three separate but interconnecting parts consisting of ITS, supplemental, and local (primarily ground) transportation. All three parts are important links in the Federal Reserve's check processing operation.

ITS is a centrally managed hub and spoke network that connects all Federal Reserve offices except El Paso, Texas; Miami, Florida; Helena, Montana; and all Twelfth District offices. Supplemental transportation also moves checks from district to district but it is designed to serve locations that are not served by ITS or local transportation. Local transportation operates between a Reserve office and financial institutions within that Federal Reserve office's territory.

Because ITS and supplemental transportation are interrelated, our analysis focused on both types. Particularly with respect to revenue and volume data, it was difficult to

determine what happened to one when separated from the other because numerous supplemental routes had been moved into ITS and some routes in ITS had been moved out and placed in the supplemental category.

THE FEDERAL RESERVE MOVED TO
CENTRALLY MANAGED INTERTERRITORY
TRANSPORTATION SYSTEM

In the mid-1970s, the Federal Reserve developed ITS and decided to have it centrally managed by the Federal Reserve Bank of Chicago. The ITS office contracted with a private air courier to be the principal ITS supplier starting in January 1979. However, after awarding the contract, on-time deliveries declined to an unsatisfactory level. According to Federal Reserve officials, the air courier was hauling goods for others, and the Federal Reserve was given low delivery priority. The Federal Reserve and the air courier mutually agreed to terminate the contract, and the Federal Reserve hired other air couriers to deliver checks while the contract for ITS was rebid.

In March and April of 1980, the Federal Reserve issued two requests for proposals for servicing the ITS network. Unlike the first proposal, the new one was divided into different zones with different contracts for each zone. Also, successful bidders on the new contracts had to agree to handle Federal Reserve items exclusively. The ITS office awarded eight, 3-year contracts that could be amended as needed by the Federal Reserve. With the start of pricing in August 1981, the Federal Reserve had in place the ITS network consisting of various predetermined routes and an extensive supplemental system to carry checks nationwide.

ITS reconfigured in 1982

As part of pricing for its commercial check collection services, in August 1981 the Federal Reserve added a per check surcharge of \$0.0064 to interterritory check processing prices. With the advent of pricing, ITS volume declined by 12 percent, and shortly thereafter the Federal Reserve decided to look closely at the ITS operation. A Federal Reserve task force, appointed in January 1982, reviewed the ITS operation and made several recommendations to change it. They proposed to reschedule routes and modify existing contracts to provide a larger network with more flights. The new network was expected to reduce float and enable Reserve banks to provide small institutions with availability schedules that were more comparable to those provided to large institutions. The cost of operating the reconfigured system was expected to approximate the ITS and supplemental transportation expenses combined because some duplicative supplemental routes were to be discontinued and in

many cases made part of ITS. The reconfigured ITS network was an essential component of a planned improvement in Federal Reserve check clearing services that would speed the collection of checks by allowing the System to accept checks for deposit later in one day and also present them for payment up until noon the next day.

In July 1982, air courier contracts were modified with the expectation that the new system, including new prices, availability schedules, deposit deadlines, and later presentment times, would be operational by August 1, 1982. The reconfigured ITS network was begun on schedule. However, new ITS surcharges, availability schedules, deposit deadlines, and noon presentment were delayed until after the public had a chance to comment on the changes. It was not until February 24, 1983, that the new ITS surcharge was implemented. At the same time, the Federal Reserve initiated new availability schedules, new deposit deadlines, and decided on a two-phased approach on moving to noon presentment.¹ Figure 2 shows ITS as it existed in July 1983.

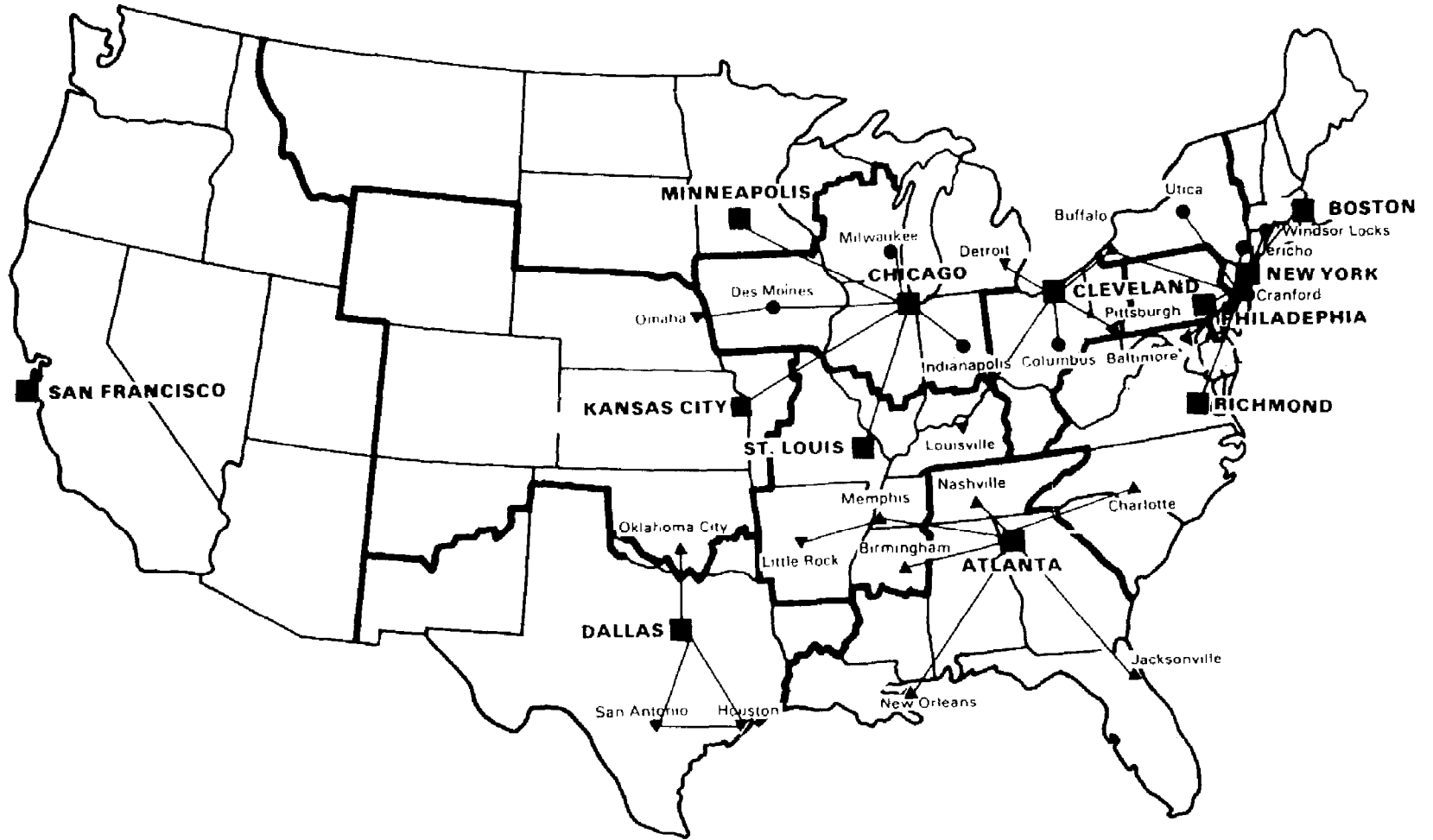
TRANSPORTATION DATA DIFFICULT TO OBTAIN

We had difficulty compiling transportation data because the Federal Reserve has not collected such information for its centralized data base, and Reserve banks either did not keep a full range of data or the data collected were not comparable. Ideally we would liked to have had actual cost, revenue, and volume data by bank for ITS and supplemental transportation and volume data for direct sendings. Federal Reserve officials said that their goal is to match revenue and cost by service line and thus there has not been a pressing need to collect a full range of data by activity, such as transportation.

We attempted to obtain actual cost, revenue, and volume data on both ITS and supplemental transportation for 1981 through July 1983, our purpose being to separate real increases or decreases in cost, revenue, and volume from shifts between ITS and supplemental transportation. Costs were readily available for both types of transportation, but the breakdown between ITS and supplemental revenues had to be estimated by the Federal Reserve because they were not separated before February 1983. Also, the methodology used to account for the revenue had changed several times, making it difficult to obtain comparable data. ITS volume data were readily available for all years, but supplemental volume was not. Data by bank were generally not available nor were data on direct sends.

¹The noon presentment program is discussed in chapter 3 of the report.

The ITS HUB and SPOKE NETWORK ^a



50

LEGEND

- Federal Reserve Bank
- ▼ Federal Reserve Branch Office
- Regional Check Processing Center

^a Does Not Include Connector Flights

COSTS OF INTERTERRITORY TRANSPORTATION
ARE GREATER THAN COMPARABLE REVENUE

ITS and supplemental revenue were \$7.2 million less than costs in 1982, and for 1983 revenues were about \$8.5 million less than costs (the costs do not include a private sector adjustment factor for contracted transportation expenses). ITS volume has increased significantly, from an average of 8.5 million pieces per day in January 1982 to 13.4 million pieces per day on the average for the first 8 months of 1983. Some private couriers believe that the ITS volume increases have been at their expense because of low ITS surcharges. They believe that the ITS surcharge should cover all ITS costs, and the surcharge should be uniform nationwide to insure fair competition.

The Federal Reserve has maintained a centralized check transportation system since the mid-1970s. Until the start of pricing, there was no explicit revenue collected from customers. With the start of pricing, the Federal Reserve decided to apply a surcharge to check prices to help offset the cost of transportation. This in turn would help total revenue cover total costs in accordance with the Monetary Control Act. Initially it made no difference whether prices were identified as transportation surcharges or as processing prices, the effect was the same--revenue was to cover all costs. The Federal Reserve's policy was and still is to match revenue and cost by service line, not by individual categories of expense. This means that if transportation revenue does not cover costs, the difference will have to be made up in some other area within the service line.

Several air couriers who compete with the ITS and supplemental network point out that the Federal Reserve's method of pricing can make a difference to businesses competing with the Federal Reserve. In particular, keeping the surcharges below cost in any market tends to squeeze competitors in that market area.

Federal Reserve officials say that their decisions on accounting for transportation revenues and costs parallels those of the private sector. They established interterritory transportation surcharges to help offset the cost of transportation and to help equalize check processing prices for all institutions using Federal Reserve services, whether the Reserve bank's transportation is used or whether the institution's own transportation is used. Their policy regarding transportation surcharges is similar to that of the private sector because some private businesses separately identify transportation charges and others include it in the per item price.

We agree that the way the Federal Reserve prices its services can pose a problem for private sector courier firms that do not have Federal Reserve contracts. However, the apparent remedy for the situation--requiring the transportation surcharge to exactly cover costs for each market area--would be difficult to administer, is not required under existing law, and would not necessarily be effective. It would be difficult to administer because detailed records would have to be maintained and audited; the various combination of rates, mileage, airport fees, and other factors that contribute to costs are difficult to keep track of; and reports would have to be supplied to the public. This approach is not required under existing law because the Monetary Control Act does not require the Federal Reserve to establish separate charges for the transportation component of its check clearing services. It would not necessarily be effective because under the flexible pricing policy, total Federal Reserve revenues is expected to equal costs by service line rather than by individual products. If the transportation surcharge was increased, Reserve banks could simultaneously reduce other components of check clearing prices to cover costs, leaving the overall price to the consumer as it was before.

Revenues from transportation surcharges did not cover costs for 1983 even though the surcharges were increased on July 1, 1983. Tables 6 and 7 and figure 3 compare cost and revenue for ITS and supplemental transportation from January 1, 1982, through December 1983.

Total ITS and supplemental transportation costs increased sharply in August 1982 because of the reconfigured ITS network. In July 1982 the cost was \$2.1 million, which increased to \$2.7 million in August and \$3.5 million in September. The increased costs in August and September were offset somewhat because of increased revenues but the difference between costs and revenues was considerable, about \$1.8 million for the 2 months. The ITS task force's premise, that the reconfigured ITS would cost no more than the ITS and supplemental costs combined, did not prove true in August 1982 (when the new reconfigured network became operational) nor is it the case in 1983. The ITS and supplemental cost combined was \$2.1 million for July 1982 and \$2.6 million in July 1983, an increase of about \$0.5 million or 24 percent in monthly costs. Although 1983 ITS and supplemental revenue also increased, by July 31 revenue was \$5.4 million less than costs.

Table 6

ITS and Supplemental Cost and Revenue For 1982

Month	ITS			Supplemental			Total		
	Cost	Revenue	Amount cost exceeds revenue	Cost	Revenue	Amount cost exceeds revenue	Cost	Revenue	Amount cost exceeds revenue
(thousands)									
January	\$ 1,433.1	\$ 1,091.0	\$ 342.1	\$ 763.4	\$ 701.0	\$ 62.4	\$ 2,196.5	\$ 1,792.0	\$ 404.5
February	1,426.2	1,032.1	394.1	683.3	672.0	11.3	2,109.5	1,704.1	405.4
March	1,779.7	1,203.3	576.4	787.4	782.0	5.4	2,567.1	1,985.3	581.8
April	1,282.0	1,113.2	168.8	759.3	739.5	19.8	2,041.3	1,852.7	188.6
May	1,272.6	1,037.1	235.5	754.9	714.0	40.9	2,027.5	1,751.1	276.4
June	1,577.5	1,118.3	459.2	886.3	785.6	100.7	2,463.8	1,903.9	559.9
July	1,247.4	1,046.2	201.2	814.9	761.3	53.6	2,062.3	1,807.5	254.8
August	2,106.9	1,723.8	383.1	601.0	546.1	54.9	2,707.9	2,269.9	438.0
September	2,967.4	1,618.8	1,348.6	553.0	520.1	32.9	3,520.4	2,138.9	1,381.5
October	2,401.9	1,700.4	701.5	485.0	494.9	- 9.9	2,886.9	2,195.3	691.6
November	2,935.0	1,664.6	1,270.4	530.1	506.3	23.8	3,465.1	2,170.9	1,294.2
December	2,299.2	1,629.3	669.9	602.5	540.2	62.3	2,901.7	2,169.5	732.2
Total	\$22,728.9	\$15,978.1	\$6,750.8	\$8,221.1	\$7,763.0	\$458.1	\$30,950.0	\$23,741.1	\$7,208.9

Note: Costs are contracted expenses only and do not include a private sector adjustment factor.

Source: Federal Reserve Board

Table 7

ITS and Supplemental Cost and Revenue for 1983

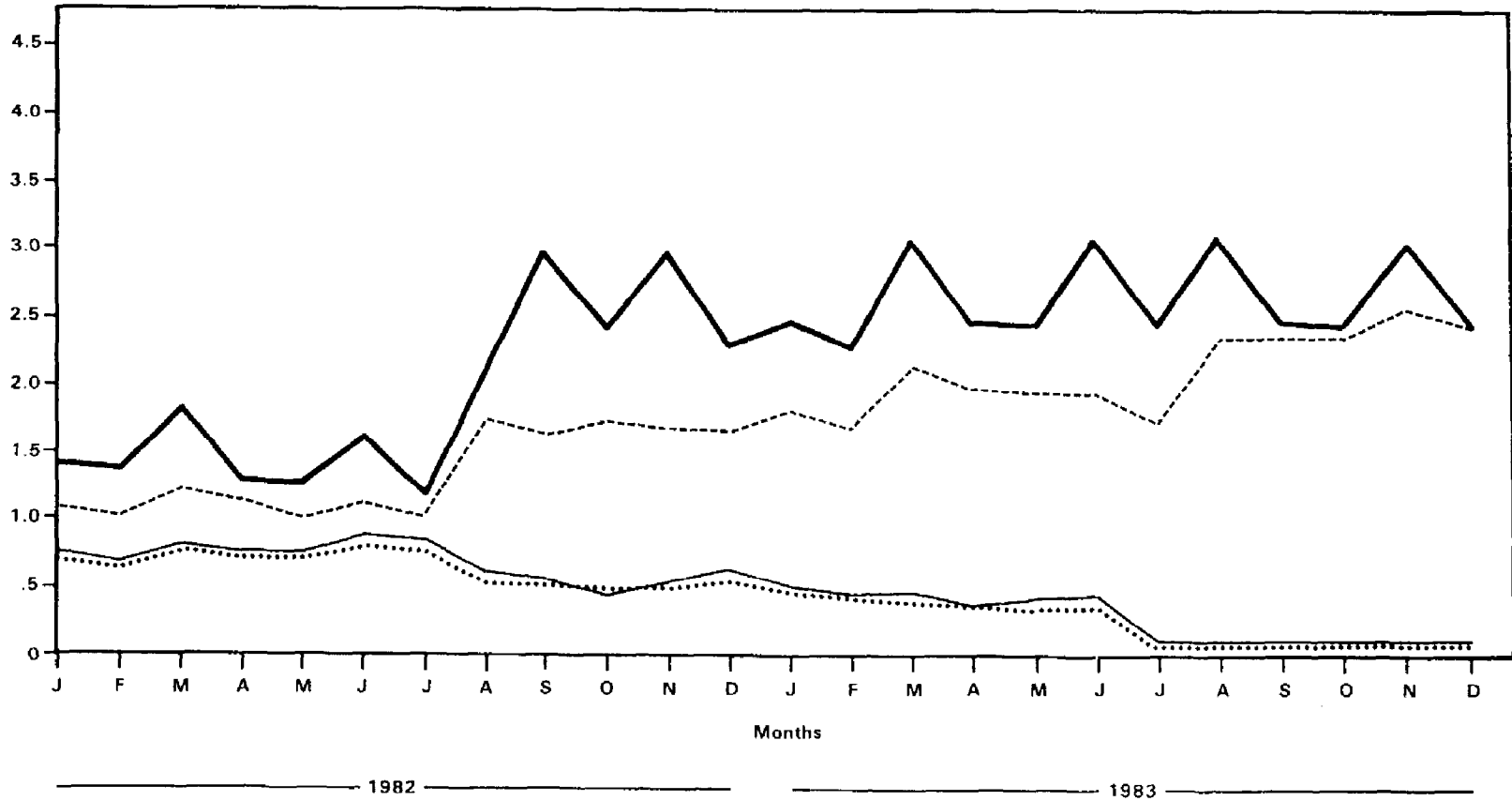
Month	ITS			Supplemental			Total		
	Cost	Revenue	Amount cost exceeds revenue	Cost	Revenue	Amount cost exceeds revenue	Cost	Revenue	Amount cost exceeds revenue
	-(thousands)-								
January	\$ 2,498.9	\$ 1,768.4	\$ 730.5	\$ 502.7	\$ 488.8	\$ 13.9	\$ 3,001.6	\$ 2,257.2	\$ 744.4
February	2,264.4	1,634.4	630.0	464.8	449.6	15.2	2,729.2	2,084.0	645.2
March	3,062.6	2,102.3	960.3	494.9	400.1	94.8	3,557.5	2,502.4	1,055.1
April	2,467.5	1,982.5	485.0	375.8	397.7	- 21.9	2,843.3	2,380.2	463.1
May	2,476.3	1,979.2	497.1	416.0	358.8	57.2	2,892.3	2,338.0	554.3
June	3,048.3	1,945.5	1,102.8	423.5	361.5	62.0	3,471.8	2,307.0	1,164.8
July	2,443.6	1,699.7	743.9	396.2	407.7	- 11.5	2,839.8	2,107.4	732.4
August	3,070.4	2,332.5	737.9	484.3	483.6	0.7	3,554.7	2,816.1	738.6
September	2,367.7	1,859.1	508.6	400.2	443.5	- 43.3	2,767.9	2,302.6	465.3
October	2,492.7	1,889.7	603.0	420.6	473.5	- 52.9	2,913.3	2,363.2	550.1
November	3,124.0	2,264.1	859.9	391.1	446.6	- 55.5	3,515.1	2,710.7	804.4
December	<u>2,846.2</u>	<u>2,204.5</u>	<u>641.7</u>	<u>335.4</u>	<u>404.6</u>	<u>- 69.2</u>	<u>3,181.6</u>	<u>2,609.1</u>	<u>572.5</u>
Total	<u>\$32,162.6</u>	<u>\$23,661.9</u>	<u>\$8,500.7</u>	<u>\$5,105.5</u>	<u>\$5,116.0</u>	<u>\$- 10.5</u>	<u>\$37,268.1</u>	<u>\$28,777.9</u>	<u>\$ 8,490.2</u>

Note: Costs are contracted expenses only and do not include a private sector adjustment factor.

Source: Federal Reserve Board

**ITS and Supplemental Transportation
Monthly Cost and Revenue
1982-1983
In Millions of Dollars**

55



Note: September-December 1983 are FRS estimates

- Legend**
- Supplemental cost
 - Supplemental revenue
 - ITS cost
 - - - ITS revenue

In July 1983 the Federal Reserve increased the transportation surcharge by \$0.001 but even with the increase ITS revenue was still \$8.5 million short of covering costs in 1983. For the fourth quarter of 1983, revenues were \$2.1 million below costs. The ITS and supplemental revenue combined for 1983 was about \$8.5 million less than the combined costs. New ITS contracts awarded for 1984 are \$7.3 million less than the 1983 costs, but even so, assuming revenues and costs remain steady, Federal Reserve revenue from ITS and supplemental transportation will not cover costs next year.

Table 8 shows ITS monthly check volume and the average number of checks moved per day. Table 9 lists supplemental check volume for 1982 and 1983.

Table 8

Number of Checks Carried by ITS^a

<u>1982</u>	<u>Total</u>	<u>Average number of checks moved per day</u>
	----- (millions) -----	
January	170.5	8.5
February	161.3	8.5
March	188.0	8.2
April	173.9	7.9
May	162.0	8.1
June	174.7	7.9
July	163.5	8.2
August	269.3	11.7
September	252.9	12.0
October	265.7	13.3
November	260.1	13.0
December	254.6	11.6
<u>1983</u>		
January	272.1	12.4
February	251.4	13.2
March	323.4	14.1
April	284.7	13.6
May	277.3	12.6
June	333.3	15.1
July	262.1	12.5
August	318.7	13.9
September	252.4	13.3
October	258.8	13.6
November	312.0	13.0
December	287.0	13.7

^aVolume determined by multiplying monthly shipping weight by 325 checks per pound.

Table 9

Number of Checks Carried on Federal Reserve
Supplemental Transportation

	<u>Quarters</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
	- - - - (millions of items) - - - -			
1982	381.1	386.6	291.2	233.3
1983	196.7	144.1	142.4	135.8

Source: Federal Reserve Board

The volume of checks carried by ITS increased significantly from a daily average of 8.2 million items per day in July 1982 to 13.7 million items per day in December 1983. Reserve banks experienced a sharp increase in ITS volume between July and August 1982, which coincides with the reconfigured ITS network. However, much of the increase came from Federal Reserve supplemental transportation. Between the third and fourth quarters of 1982, ITS volume increased by 95 million items. For the same period supplemental volume decreased by 58 million items, which means that 37 million items or 39 percent were new business for ITS.

COSTS ARE ALLOCATED TO THOSE
OFFICES USING ITS

Because the Federal Reserve does not have a cost accounting system that matches specific transportation revenues with specific costs, ITS uses an allocation method based on revenue received from ITS surcharges to assign costs to Reserve banks. To illustrate, an office that received \$100,000 out of a total of \$1 million in revenue for a given month would have to pay 1/10 of the cost of ITS for that given month. All costs except overhead of the ITS office were allocated to those reserve offices that used the system.

The Federal Reserve's ITS cost allocation methodology could distort costs for specific offices but not in the aggregate. As an example, to the extent that ITS surcharges are market sensitive priced, resulting in lower surcharges for some offices and higher for others, revenue would be lower or higher for those same offices as would the allocation for costs, but this allocation procedure would not affect the matching of aggregate transportation costs and revenue.

Costs allocated include ground transportation from one office to another office when trucks are used. When air couriers are used it includes ground transportation from the sending reserve office to the airport and ground transportation at the destination point to the receiving reserve office. The allocated costs do not include costs for the ITS office, which is now located in the Federal Reserve Bank of Boston, that amounted to about \$246,000 in 1983. We were told that the ITS office expenses were included as part of the Reserve bank's check processing costs. For 1984, current System plans call for allocating these expenses to each Federal Reserve office.



SECTION 6

COSTS, REVENUE, AND VOLUME FOR FEDERAL RESERVE

CHECK CLEARING SERVICES, 1980-83

The gap between revenues and full costs narrowed significantly during 1983 as a result of price increases that took effect on February 24, 1983, and the pricing of interterritory float that began in July 1983. During the last quarter of 1983 revenues covered 93 percent of all costs, including float and the private sector adjustment factor, that were incurred during the quarter. The Federal Reserve expects that the 7 percent price increase that took effect in December 1983 will eliminate revenue shortfalls in 1984.

VOLUME

Table 10 shows estimated volume of checks processed at each Federal Reserve bank by quarter for the years 1980 through 1983. Because of changes that have occurred in types of processing services provided, only total figures are presented. When pricing began in 1981, the volume of checks handled by the Federal Reserve dropped about 10 percent.¹ The change to later deposit and presentment times and higher fees instituted by the Federal Reserve on February 24, 1983, were followed by about a 1.6 percent increase in total check volume when the second quarter of 1983 is compared with the second quarter of 1982. Later deposit and presentment times enabled many depositors to obtain credit for their deposits at the Federal Reserve at least 1 day earlier, which is likely the reason check volume increased over the comparable period of the previous year.

Although the change in February reversed the declining volume that had been occurring, the overall market share of the Federal Reserve is still thought to be declining slightly because the overall volume of checks written in the country is estimated by the Federal Reserve to be increasing at a rate of about 5 or 6 percent per year. Federal Reserve volume for the entire period is shown in figure 4.

¹The number of checks handled by the Federal Reserve that required it to machine sort checks declined by 17 percent. The decline in this relatively more expensive service was somewhat offset by increases in checks handled that had been presorted by the depository banks. When the Federal Reserve began charging for its services, and charged higher prices for services that required it to sort checks, many banks that used to deposit checks directly in a Federal Reserve bank found it more economical to sort their own checks before depositing them.

Table 10

Federal Reserve System Total Check Volume^a
by Quarters of the Year

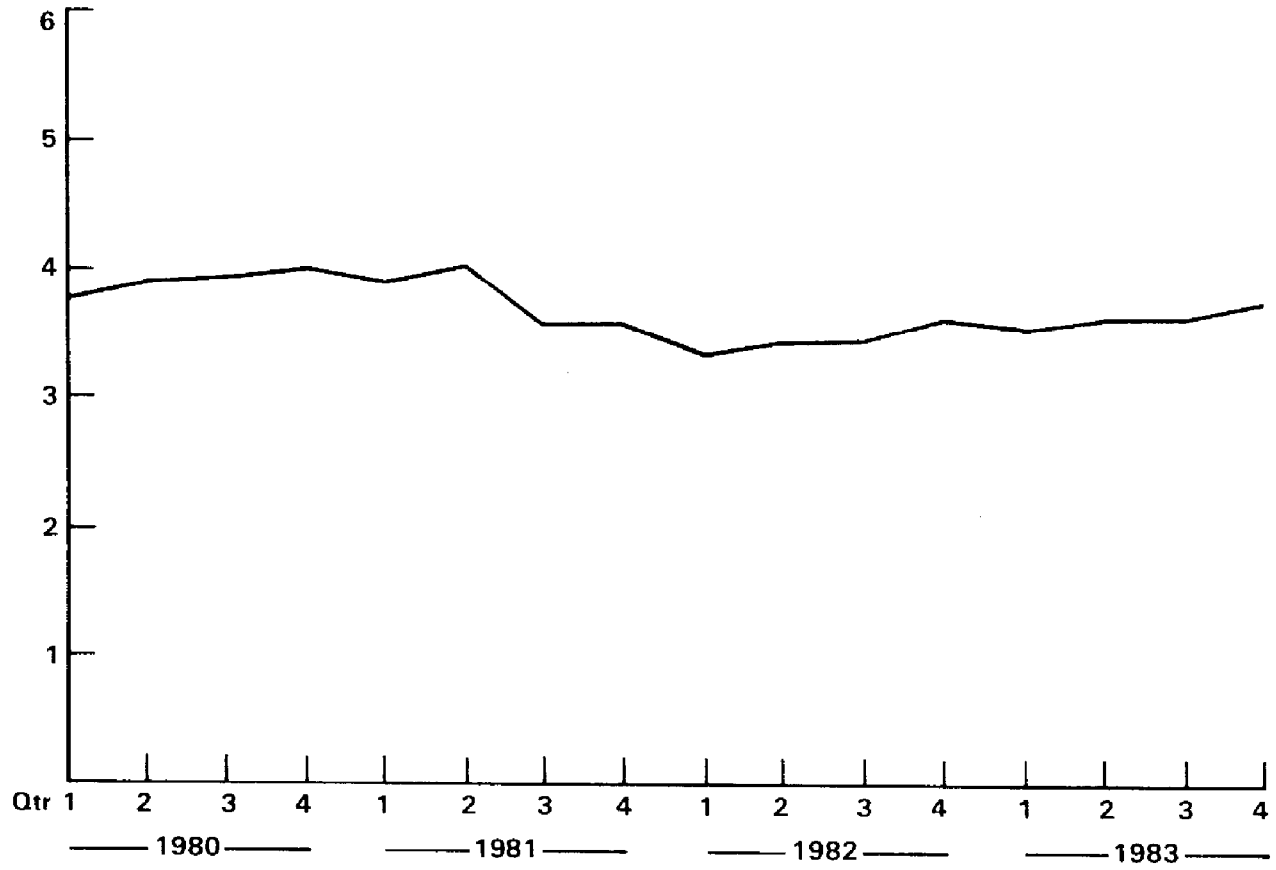
	1980				1981				1982				1983			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	----- (millions of items processed) -----															
Boston	280	288	282	297	287	294	266	258	235	246	237	250	232	240	233	241
New York	451	450	473	467	461	486	447	417	443	440	421	420	406	432	426	422
Philadelphia	167	166	163	169	166	170	121	109	123	124	122	129	119	127	124	133
Cleveland	263	272	262	271	262	271	245	247	213	215	203	211	207	217	212	213
Richmond	350	368	358	378	359	371	316	305	293	307	298	299	290	319	299	302
Atlanta	517	515	501	530	531	540	508	530	434	440	429	460	460	473	462	477
Chicago	537	542	535	562	543	558	516	528	476	503	492	493	493	499	471	479
St. Louis	200	207	203	208	202	211	179	166	170	171	163	167	164	172	171	176
Minneapolis	194	201	204	218	214	230	224	234	186	197	190	208	192	220	219	234
Kansas City	325	334	336	347	338	351	308	303	264	275	269	281	267	253	246	248
Dallas	250	259	261	271	266	276	266	256	211	225	219	232	226	226	217	224
San Francisco	346	357	356	361	364	381	372	354	332	381	381	410	401	459	469	488
Total check volume ^b	<u>3,881</u>	<u>3,960</u>	<u>3,936</u>	<u>4,079</u>	<u>3,994</u>	<u>4,139</u>	<u>3,770</u>	<u>3,709</u>	<u>3,380</u>	<u>3,524</u>	<u>3,424</u>	<u>3,560</u>	<u>3,457</u>	<u>3,637</u>	<u>3,549</u>	<u>3,637</u>

^aAll checks processed including those received for priced services, nonpriced services, and fine-sort (checks sorted in bundles for the paying banks). Volume adjusted downward by 5 percent in 1980 and 1981 because of double counting within other Federal Reserve items. Volume adjusted upward by 6 percent in 1980 and the first and second quarter of 1981, 12 percent for the third quarter of 1981, and 20 percent for the fourth quarter of 1981 because fine-sort items recorded as bundles.

^bTotals may not add due to rounding.

Source: Federal Reserve Board. Adjusted as noted in footnote a.

FRS Commercial Check Volume
1980-1983
In Billions of Items



COSTS AND REVENUE FOR THE SYSTEM AS A WHOLE

Data comparing costs and revenue for check clearing services for the System as a whole are shown in table 11. From the time pricing began on August 1, 1981, through 1982, operating costs were nearly always greater than revenue, and when the PSAF is added to costs, revenue was always less. For the fourth quarter of 1982, about when the Federal Reserve approved policies--to take effect the following year--to raise operating fees, price float, and improve service, the \$74.2 million collected in revenue was \$5.2 million or 6.5 percent less than operating costs. Revenue was 17.3 percent below that needed to cover operating costs plus the PSAF and 44 percent below that needed to cover all costs including the cost of float.

The situation began to change in 1983 as the new policies for priced services were put into effect. By the second quarter of 1983 revenue exceeded operating costs plus the PSAF by 8 percent. Interterritory float pricing, which took effect in July, both raised additional revenue and provided incentive to reduce the level of float. For the fourth quarter of 1983 revenue equaled 93 percent of the expenses incurred in the period. The closing of the revenue gap is shown in figure 5. The Federal Reserve increased prices in December 1983. Despite this increase, revenue in December fell about 8 percent below costs due to an unusually large amount of float that occurred that month. Preliminary figures for the first quarter of 1984 show that revenue is exceeding full costs in the way that had been anticipated when the price increase was approved. Thus it appears that there will be no subsidy of service in 1984.

AVERAGE COST AND REVENUE PER CHECK PROCESSED

The price increase on February 24, 1983, increased revenue per item about 22 percent. This increase, and the decrease in float cost per check that occurred as interest rates dropped and the amount of float declined, is shown in figure 1 in chapter 2 of the report.

COSTS AND REVENUE BY FEDERAL RESERVE BANK

Comparisons of costs and revenues by Reserve bank for the 2nd quarters of 1982 and 1983 are shown in tables 12 and 13. The tables show the sharp decrease in revenue shortfall that occurred during 1983 and also the variation in the revenue gaps that occurred among the Reserve banks. The percentage of revenue shortfall that occurred in the 2nd quarter of 1983 was the largest in Philadelphia (50.5), New York (37.0), Chicago (26.7), and Boston (27.2). The shortfall was the least in Minneapolis (8.4), St. Louis (10.2), and San Francisco (11.7).

Table 11

Cost and Revenue for FRS Priced Commercial Check Service

Period	Operating cost	Operating cost plus PSAF	Operating cost plus PSAF plus float ^a	Revenue ^b	Profit based on operating cost		Profit based on operating cost plus PSAF		Profit based on operating cost plus PSAF plus float	
					Amount	Percent	Amount	Percent	Amount	Percent
----- (thousands) -----										
1981										
August	\$ 25,158	\$ 28,514	\$ 63,479	\$ 23,606	\$- 1,552	- 6.2	\$- 4,908	-17.2	\$- 39,873	-62.8
September	23,985	27,216	60,685	24,228	243	1.0	- 2,988	-11.0	- 36,457	-60.1
4th Quarter	<u>73,254</u>	<u>83,147</u>	<u>170,045</u>	<u>72,079</u>	<u>- 1,175</u>	<u>- 1.6</u>	<u>-11,068</u>	<u>-13.3</u>	<u>- 97,966</u>	<u>-57.6</u>
Total	<u>\$122,397</u>	<u>\$138,877</u>	<u>\$294,209</u>	<u>\$119,913</u>	<u>\$- 2,484</u>	<u>- 2.0</u>	<u>\$-18,964</u>	<u>-13.7</u>	<u>\$-174,296</u>	<u>-59.2</u>
1982 Quarters										
First	\$ 73,836	\$ 83,828	\$172,428	\$ 64,974	\$- 8,862	- 12.0	\$-18,854	-22.5	\$ -107,454	-62.3
Second	73,742	83,726	148,920	72,763	- 979	- 1.3	-10,963	-13.1	- 76,157	-51.1
Third	77,034	87,329	147,929	71,141	- 5,893	- 7.6	-16,188	-18.5	- 76,788	-51.9
Fourth	<u>79,392</u>	<u>89,767</u>	<u>132,067</u>	<u>74,210</u>	<u>- 5,182</u>	<u>- 6.5</u>	<u>-15,557</u>	<u>-17.3</u>	<u>- 57,857</u>	<u>-43.8</u>
Total	<u>\$304,004</u>	<u>\$344,650</u>	<u>\$601,344</u>	<u>\$283,088</u>	<u>\$-20,916</u>	<u>- 6.9</u>	<u>\$-61,562</u>	<u>-17.9</u>	<u>\$-318,256</u>	<u>-52.9</u>
1983 Quarters										
First	\$ 78,462	\$ 88,829	\$132,420	\$ 81,677	\$ 3,215	4.1	\$- 7,152	- 8.1	\$- 50,743	-38.3
Second	78,778	89,200	123,300	96,324	17,546	22.3	7,124	8.0	- 26,976	-21.9
Third	82,481	93,338	112,538	93,851	11,370	13.8	513	0.5	- 18,687	-16.6
Fourth ^c	<u>96,202</u>	<u>106,997</u>	<u>106,997</u>	<u>99,010</u>	<u>2,808</u>	<u>2.9</u>	<u>- 7,987</u>	<u>- 7.5</u>	<u>- 7,987</u>	<u>- 7.5</u>
Total	<u>\$335,923</u>	<u>\$378,364</u>	<u>\$475,255</u>	<u>\$370,862</u>	<u>\$34,939</u>	<u>10.4</u>	<u>\$- 7,502</u>	<u>- 2.0</u>	<u>\$-104,393</u>	<u>-22.0</u>

^aDoes not include interterritory check float compensated for by "as of adjustments" during third and fourth quarters 1983.

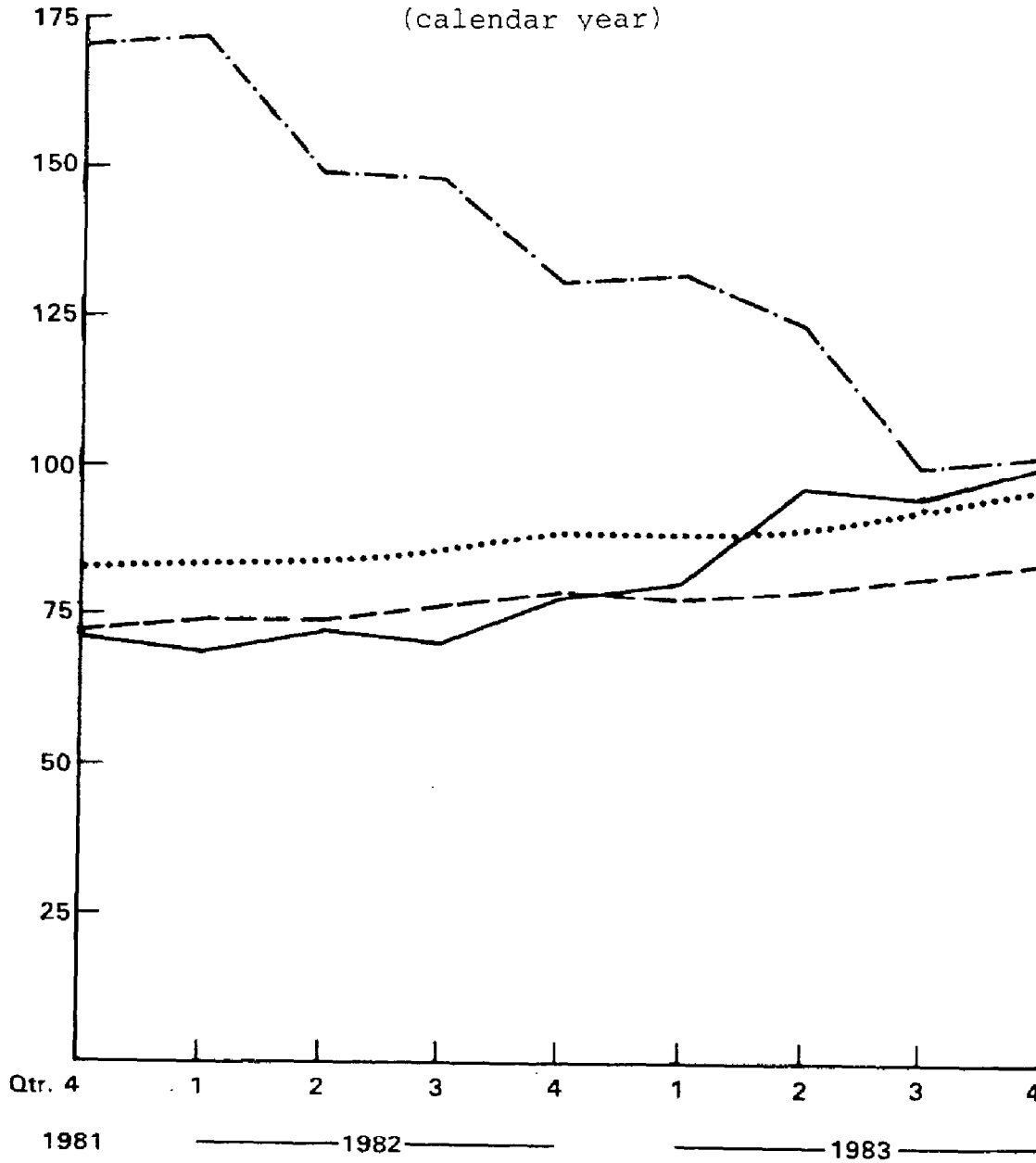
^bDoes not include excess clearing balance revenues because data were not available. See section 2 for additional information on clearing balances.

^cFloat cost excluding "as of adjustments" included in the cost base.

Note: The price increase that took effect in December 1983 did not provide enough additional revenue to cover all costs incurred during the entire fourth quarter. Preliminary data for the first quarter of 1984 show that revenue is exceeding full costs as anticipated when the price increase was approved.

Source: Federal Reserve Board

**FRS Cost and Revenue Comparison
For Commercial Check Service
Fourth Quarter 1981-1983
In Millions of Dollars**



Note: Quarters 3 and 4 are GAO projections (1983)

Legend: Operating Cost - - - -
 Operating Cost & PSAF
 Operating Cost & PSAF & Float - . - .
 Revenue - - - -

Table 12

FRS Cost and Revenue for Priced Commercial Check Service
2nd Quarter 1982

<u>Bank</u>	<u>Operating cost</u>	<u>Revenue^a</u>	<u>Profit based on operating cost</u>	<u>Operating cost plus PSAF</u>	<u>Profit based on operating cost plus PSAF</u>	<u>Operating cost plus PSAF plus float</u>	<u>Profit based on operating cost plus PSAF plus float</u>
----- (thousands) -----							
Boston	\$ 4,940	\$ 4,412	\$- 528	\$ 5,635	\$- 1,223	\$ 8,983	\$- 4,571
New York	10,487	9,139	-1,348	11,972	- 2,833	23,204	-14,065
Philadelphia	3,265	2,672	- 593	3,706	- 1,034	8,600	- 5,928
Cleveland	4,606	4,548	- 58	5,226	- 678	9,909	- 5,361
Richmond	6,063	5,525	- 538	6,872	- 1,347	11,845	- 6,320
Atlanta	8,103	9,219	1,116	9,136	83	18,695	- 9,476
Chicago	10,859	11,822	963	12,349	- 527	23,393	-11,571
St. Louis	3,954	3,962	8	4,474	- 512	3,546	416
Minneapolis	4,136	4,429	293	4,704	- 275	6,363	- 1,934
Kansas City	5,368	5,481	113	6,071	- 590	9,286	- 3,805
Dallas	5,391	4,825	- 566	6,092	- 1,267	13,423	- 8,598
San Francisco	<u>6,568</u>	<u>6,729</u>	<u>161</u>	<u>7,488</u>	<u>- 759</u>	<u>11,691</u>	<u>- 4,962</u>
System Totals ^b	<u>\$73,740</u>	<u>\$72,763</u>	<u>\$- 977</u>	<u>\$83,725</u>	<u>\$-10,962</u>	<u>\$148,938</u>	<u>\$-76,175</u>

^aDoes not include excess clearing balance revenues.

^bTotals may not match quarterly totals in table 11 because of rounding and insignificant changes in FRS data.

Note: We allocated the PSAF in proportion to the operating expenses (less shipping expense) of each bank.

Source: Federal Reserve Board

Table 13
FRS Cost and Revenue for Priced Commercial Check Service
2nd Quarter 1983

<u>Bank</u>	<u>Operating cost</u>	<u>Revenue^a</u>	<u>Profit based on operating cost</u>	<u>Operating cost plus PSAF</u>	<u>Profit based on operating cost plus PSAF</u>	<u>Operating cost plus PSAF plus float</u>	<u>Profit based on operating cost plus PSAF plus float</u>
----- (thousands) -----							
Boston	\$ 5,218	\$ 5,230	\$ 12	\$ 5,940	\$- 710	\$ 7,184	\$- 1,954
New York	11,884	12,823	939	13,475	- 652	20,354	- 7,531
Philadelphia	3,129	3,045	- 84	3,547	- 502	6,146	- 3,101
Cleveland	4,699	6,086	1,387	5,295	791	7,381	- 1,295
Richmond	6,745	8,342	1,597	7,619	723	6,928	1,414
Atlanta	8,445	11,358	2,913	9,521	1,837	14,967	3,609
Chicago	11,637	14,697	3,060	13,234	1,463	20,043	- 5,346
St. Louis	4,089	5,202	1,113	4,619	583	5,794	- 592
Minneapolis	4,985	6,040	1,055	5,638	402	6,592	- 552
Kansas City	5,746	6,963	1,217	6,466	497	8,145	- 1,182
Dallas	5,355	7,020	1,665	6,054	966	9,018	- 1,998
San Francisco	<u>6,879</u>	<u>9,520</u>	<u>2,641</u>	<u>7,828</u>	<u>1,692</u>	<u>10,779</u>	<u>- 1,259</u>
System Totals ^b	<u>\$78,811</u>	<u>\$96,326</u>	<u>\$17,515</u>	<u>\$89,236</u>	<u>\$7,090</u>	<u>\$123,331</u>	<u>\$-27,005</u>

^aDoes not include excess clearing balance revenues.

^bTotals may not match quarterly totals in table 11 because of rounding and insignificant changes in FRS data.

Note: We allocated the PSAF in proportion to the operating expenses (less shipping expense) of each bank.

Source: Federal Reserve Board

SECTION 7



SECTION 7

ANALYSIS OF FEDERAL RESERVE OPERATING COSTS

The Federal Reserve's cost accounting system, known as the Planning and Control System (PACS), provides a detailed framework for accounting for all operating expenses incurred by the Federal Reserve. PACS was established in 1977 as a management tool for measuring productivity and monitoring costs consistently at all Reserve banks. Our review of this system showed that the way expenses are allocated is logical and defensible, but like any cost accounting system there is room for the exercise of discretion in the treatment of certain expenses. However, in our opinion the range of possible disagreements that can be justified is relatively small. Our estimate of the highest amount of such expenses that could be reallocated to check clearing is about \$17 million, which could increase prices no more than about 4 percent.

OUTSIDE FIRM REVIEWING PACS

The Federal Reserve has contracted with Arthur Andersen and Company to determine (1) the reasonableness of PACS, (2) how PACS' cost allocation methodology compares with private sector methodology, and (3) whether PACS is consistently applied across the System. The work of the accounting firm should give further insight into matters discussed in this section and may result in recommendations to change the basis of some of the allocations or procedures used that would more precisely or more consistently identify operating expenses associated with priced services.

HOW PACS WORKS AND SUMMARIES OF EXPENSES FOR 1980-83

PACS constitutes a fully distributed cost allocation system. As such, it accumulates all direct, support, and overhead expenses incurred by each Reserve bank and ultimately distributes those expenses to four output service lines--monetary and economic policy, services to the U.S. Treasury and government agencies, services to financial institutions and the public, and supervision and regulation. These service lines represent the System's basic ongoing responsibilities. Within each of these service lines 22 individual services are identified, and some of these are further subdivided into two or more activities.

For 1983 Federal Reserve operating expenses were \$1.03 billion. These expenses (such as personnel and related costs, which constitute 63 percent of all expenses) are initially assigned to an activity in one of the four output service lines or to an activity in two other service lines--support and overhead. Subsequently, the support and overhead expenses are reallocated to the four output service lines. A summary of the various types of expenses that are assigned to the service lines is shown in table 14.

Table 14

Expenses of the Federal Reserve System
by Object Classification, 1983

	<u>Amount</u>	<u>Percent</u>
	(000 omitted)	
Personnel	\$ 640,808	62.3
Material & supplies	38,845	3.8
Equipment	114,692	11.2
Shipping	97,003	9.4
Travel	16,407	1.6
Communication	15,075	1.5
Building	82,388	8.0
Other	40,492	3.9
Recoveries ^a	-14,643	-1.4
Contra expenses ^b	- 2,602	-0.3
 Total	 <u>\$1,028,465</u>	 100.0

^aMiscellaneous cost offsets, such as rent received from tenants and internal cafeteria receipts, that are neither revenues nor agency reimbursements for fiscal services.

^bExpenses incurred by the Federal Reserve for assets created, such as supplies, but not consumed during the accounting period.

The main support activities are data processing, data communications, data systems support (a software development activity), and building expenses. Expenses initially assigned to a support activity are redistributed monthly to other activities based on some measure of usage, such as square footage occupied for building maintenance costs and central processing unit time used for data processing costs. Any residual support activity costs are redistributed to an overhead account and merged with other overhead costs that are not directly connected with production. The basis for the redistribution of support activities is shown in table 15.

Overhead consists of 26 activities, including system projects and various administrative services. All costs assigned initially to overhead and all residual support costs are allocated monthly to services in the four output service lines. Some of these allocations are based on usage, others on expenses or personnel ratios, and others on judgmental formulas. The basis for allocating all overhead activities for the second quarter of 1983 except system projects is shown in table 16.

Table 15

Method of Allocating Support Activities for 1983

<u>Activity</u>	<u>Redistribution method</u>	<u>Measure of usage for redistribution</u>
Data communications	Standard rates Bulk data Conventional traffic	Character counts Character counts
Data processing	Standard rate(s)	Machine utilization
Data systems support	Standard rates Actual cost Co-located programmers ^a Data processing test time (optional)	Project hours Actual expense Actual expense
Building operations	Standard rates Vault space Nonvault space All space	Square footage Square footage Square footage
	Actual costs High speed currency rooms Computer rooms Special projects over \$100,000 Office equipment maintenance by one office for another	Depreciation expense Depreciation expense Depreciation expense Actual expense
Housekeeping	Standard rate	Square footage
	Actual cost of contract cleaning for exclusive users	Actual cost per square
Printing and duplicating	Standard rate plus actual direct materials	Job hours
Centralized planning	Standard rate(s)	Project hours
District projects	Each project is identified with benefitting activities	Project costs

^aprogrammers that work for more than one activity.

Table 16

Overhead Other than System Projects Allocated to Check Service
2nd Quarter 1983

<u>Overhead</u>	<u>Allocation method</u>	<u>Allocated to check service</u>	<u>Total overhead</u>	<u>Percent of each overhead cost allocated to check service</u>
- - - - (thousands) - - - -				
Administration of Federal Reserve services	Direct usage ^a	\$1,900.6	\$4,562.4	41.7
System administration	Direct usage ^b	727.0	2,490.5	29.2
Legal	Direct usage ^b	252.3	1,611.6	15.7
Depository institution accounting	Direct usage	1,884.2	4,929.7	38.2
Interdistrict accounting	Direct usage	2,213.4	2,717.8	81.4
Medical	Direct usage	212.1	759.1	27.9
Food and canteen	Direct usage	1,507.5	4,336.5	34.8
Protection	Direct usage	859.0	8,698.2	9.9
Motor vehicles	Direct usage ^b	201.1	786.0	25.6
Data systems audit	Direct usage ^b	274.7	1,046.3	26.3
Internal audit	Direct usage ^b	787.4	3,528.5	22.3
External audit support	Direct usage ^b	48.4	218.7	22.1
Recruitment and placement	Personnel ratio	361.4	992.5	36.4
Compensation	Personnel ratio	1,228.6	3,528.7	34.8
Training and education	Personnel ratio	401.9	1,118.5	35.9
Administration and employee relations	Personnel ratio	1,107.8	2,957.9	37.5
Mail	Percent of total expense ratio	470.2	1,614.3	29.1

<u>Overhead</u>	<u>Allocation method</u>	<u>Allocated to check service</u>	<u>Total overhead</u>	<u>Percent of each overhead cost allocated to check service</u>
- - - - (thousands) - - - -				
Budget preparation and control	Percent of total expense ratio	616.7	2,264.0	27.2
Files and record storage	Percent of total expense ratio	544.2	2,081.5	26.1
General ledger and expense accounting	Percent of total expense ratio	1,297.0	4,428.6	29.3
Purchase and supply	Object of expense ratio	1,404.8	3,423.6	41.0
Telephone	Object of expense ratio	268.3	1,365.8	19.6
Telegraph	Object of expense ratio	144.1	766.2	18.8
Bank administration	Predetermined basis ^c	1,257.9	10,715.2	11.7
Library	Predetermined basis ^d	- 0 -	1,090.0	0.0
Residual amount remaining in each support activity	Redistribution ratio basis ^e	<u>-215.3</u>	<u>890.9</u>	<u>24.2 -</u>
Total		<u>\$19,755.3</u>	<u>\$72,923.0</u>	<u>27.1</u>

^adirect usage--direct manhour or standard percentage basis.

^bResidual allocated on dollar ratio basis.

^cPredetermined basis--equally to each service line and dollar ratio to each service within the service line.

^dpredetermined basis--100 percent to monetary and economic policy service line and percent of total expense ratio to each service within the service line.

^eRedistribution ratio basis--the same ratios that are used initially to redistribute support costs to output services.

System projects are allocated to service lines based on benefit formulas approved by the various committees of the Federal Reserve System that authorize the projects. The allocation of system projects to check clearing activities for the second quarter of 1983 is shown in table 17.

The activities to which support expenses can be assigned can be output activities, overhead activities, or other support activities. This means that there are three ways that a support activity, such as building expenses or centrally managed data processing expenses, can eventually be associated with an output activity such as check clearing. One is by assignment to check clearing. This occurs when the space occupied by check clearing personnel, for example, is assigned to check clearing. A second way occurs when overhead activities, such as files and record storage, are allocated to check clearing. The space and other support activities assigned to files and storage can be assumed to be associated with check clearing in the same proportion as the proportion of files and storage assigned to check clearing. The third way is even more circuitous. When space is assigned to another support activity, such as centrally managed data processing services, portions of the data processing (and hence a proportionate share of the space assigned to data processing services) will then be assigned to check clearing and to overhead items, such as accounting, a portion of which in turn is assigned to check clearing.

Because of the three ways that support activities can be associated with output activities, there is no easy way of determining from PACS the total percentage of a support activity, such as space or data processing, that is associated with check clearing. Thus, PACS data show that 12 percent of the space is assigned to check clearing, but when account is taken of the space occupied by support and overhead activities associated with check clearing, 22 percent of all space is associated with check clearing. Similarly, although PACS shows that 17 percent of centrally managed data processing expenses are assigned to check clearing, the proportion of data processing expenses associated with check clearing is more than that when account is taken of the data processing components of the support and overhead expenses assigned to check clearing.

The portion of Reserve bank costs relating to priced services are all captured in one service line--Services to Financial Institutions and the Public. The service line constitutes an estimated 66 percent of total system expenses in 1983, a decline from 70 percent in 1980. The relative decline since 1980 of this service line and the relative increase that has occurred in Monetary and Economic Policy and Supervision and Regulation is shown in table 18.

Table 17

System Projects Allocated to Check Service
2nd Quarter 1983

<u>System project</u>	<u>Allocated to check service</u>	<u>Total cost of project</u>	<u>Percent of each project cost allocated to check service</u>
	- - - - (thousands)-	- - - -	
Electronic Funds Transfer Program	\$ -0-	\$ 125.0	-0-
Currency Equipment Development Program	-0-	312.2	-0-
Future Communications Capability Plan (FRCS-80)	73.1	1,340.4	5.4
Standard Federal Reserve Check Processing Software	109.6	112.0	97.9
Standard Securities Appli- cation (SHARE)	a	400.3	-0-
Review of Federal Reserve Regulations	-0-	20.1	-0-
Standard Application; Bulk Data (FRCS-80)	-0-	443.8	-0-
Standard Application, Wire Transfer Transmissions (FRCS-80)	-0-	506.4	-0-
Long Range Automation Program	8.2	67.1	12.2
Financial Entity Data Base System	19.3	338.8	5.7
Environmental Transition to Long Range Automation	381.4	3,148.3	12.1
Standard Application; Administration Messages	107.7	296.4	36.3
Standard Application; Banking Statistics	-0-	294.2	-0-
Standard Application, ACH 84	-0-	122.4	-0-
ACH 76 Software Project	-0-	447.8	-0-
Monetary Control Act of 1980	-0-	1,550.1	-0-
Standard Application; Accounting System	455.6	1,855.4	24.6
System Long Range Automation Program	54.9	458.1	12.0
Systemwide Contingency Backup Project (Phase III)	5.9	57.0	10.4
Transition to Contemporaneous ^a	-0-	<u>585.5</u>	<u>-0-</u>
Total	<u>\$1,215.7</u>	<u>\$12,481.3</u>	<u>9.7</u>

^aA type of program under development related to bank reserve require-
ments.

Table 18

Amount of Expenses by Service Line

<u>Service line</u>	<u>1980</u>		<u>1981</u>		<u>1982</u>		<u>1983</u>	
	<u>Amount</u>	<u>Percent of total expenses</u>	<u>Amount</u>	<u>Percent of total expenses</u>	<u>Amount</u>	<u>Percent of total expenses</u>	<u>Amount</u>	<u>Percent of total expenses</u>
	----- (millions) -----							
Monetary and economic policy	\$ 59.6	7.5	\$ 81.2	9.2	\$ 93.0	9.6	\$ 100.4	9.8
Services to the U.S. Treasury and government agencies	92.5	11.7	93.4	10.5	115.1	11.8	120.3	11.7
Services to financial institutions and the public	554.7 ^a	70.0	611.7 ^a	69.0	646.2 ^a	66.4	675.9	65.7
Supervision and regulation	<u>86.1</u>	10.9	<u>99.9</u>	11.3	<u>119.3</u>	12.3	<u>131.8</u>	12.8
Total	<u>\$792.9</u>	100.0 ^b	<u>\$886.2</u>	100.0	<u>\$973.6</u>	100.0 ^b	<u>\$1028.4</u>	100.0

^aFor comparability, cost of the Federal Reserve note issue excluded from the 1980, 1981, and 1982 amounts.

^bPercentage does not add to 100 due to rounding.

Source: Federal Reserve Board

PACS does not separately identify priced and nonpriced expenses, although the service of primary concern in this study --check clearing--is almost all identified with the PACS commercial check service. Priced services account for about 65 percent of the Financial Institutions and the Public Service line. (See table 19.) Check clearing is by far the largest category of priced services, accounting for about 73 percent of the cost of all priced services. PACS does not capture costs by priced product within service lines--such as various city and Regional Check Processing Center products within the commercial check service category. As described in section 4, these cost estimates are prepared by each bank based on control totals from PACS.

Table 19

Priced and Non-Priced Elements of the
Financial Institution and the Public Service Line
2nd Quarter 1983

<u>Priced service</u>	<u>Cost</u>	<u>Percent of service line</u>
	- -(thousands)- -	
Transfer of funds and net settlement	\$ 13,001	7.8
Automated Clearinghouse (ACH) ^a	1,308	0.8
Commercial check	78,811	47.1
Securities safekeeping	5,687	3.4
Noncash collection	2,660	1.6
Cash transportation	6,476	3.9
Coin wrapping	<u>297</u>	<u>0.2</u>
Subtotal	108,240	64.7
Non-priced elements	<u>59,126</u>	<u>35.3</u>
Total	<u>\$167,366</u>	100.0

^aFigures do not include the full cost for automated clearinghouse (ACH). Sixty percent of ACH costs are not included because FRS is following a phased approach to full ACH costing.

Source: Federal Reserve Board

Costs for check clearing and other services for the second quarter of 1983 by Reserve bank are shown in table 20. The table also shows the percentage increase in each service that occurred since the second quarter of 1980, the year that the Monetary Control Act was passed. The relatively large increase in Monetary and Economic Policy and Supervision in most banks is once again evident in this table.

Table 20

Cost by Service Line for the 2nd Quarter 1983
and the Percentage Change From the 2nd Quarter 1980^a

Federal Reserve Bank	Monetary and Economic Policy		U.S. Treasury and Government Agencies		Financial Institutions and the Public			
	Amount	Percent change	Amount	Percent change	Check	Other	Check	Other ^b
----- (thousand) -----								
New York	\$ 6,989	79	\$ 6,722	20	\$11,790	\$19,847	14	31
Chicago	2,151	144	3,704	22	11,676	9,905	17	29
San Francisco	2,705	80	3,609	22	7,109	10,748	29	68
Atlanta	1,638	118	2,118	16	8,443	7,124	9	37
Richmond	1,133	63	1,915	23	6,755	6,844	9	10
Kansas City	1,419	171	1,611	12	5,769	4,973	12	23
Boston	1,492	108	1,651	34	5,222	5,510	22	- 2
Dallas	1,409	210	1,596	52	5,386	5,120	16	62
Cleveland	1,157	161	2,036	17	4,788	5,065	9	14
St. Louis	1,546	210	1,596	39	4,166	4,534	1	33
Philadelphia	1,418	133	1,710	43	3,285	4,887	2	36
Minneapolis	1,298	174	1,135	79	5,064	3,357	60	22
Total	<u>\$24,355</u>	113	<u>\$29,403</u>	25	<u>\$79,453</u>	<u>\$87,914</u>	16	30

^aThe 1980 data do not include recoveries, such as charges to commercial clearinghouses for services provided.

^bFor comparability, we have excluded the cost of the Federal Reserve note issue from the 1980 cost when determining the percent change.

NOTE: The increase in the Consumer Price Index from 1980 (average annual) to 2nd quarter 1983 was 20.2 percent.

Source: Second quarter 1980 and 1983 PACS reports.

<u>Supervision and Regulation</u>		<u>Total</u>		<u>Support and overhead</u>	
<u>Amount</u>	<u>Percent change</u>	<u>Amount</u>	<u>Percent change^b</u>	<u>Amount</u>	<u>Percentage of Reserve bank total cost</u>
\$ 6,453	22	\$ 51,801	29	\$ 25,757	49.7
4,408	66	31,844	32	15,614	49.0
4,066	72	28,237	50	14,628	51.8
2,419	71	21,742	29	10,350	47.6
2,257	36	18,904	16	9,852	52.1
2,569	44	16,341	26	7,493	45.9
1,737	24	15,612	18	8,803	56.4
2,083	91	15,594	47	7,838	50.3
1,912	42	14,958	21	7,686	51.4
1,527	51	13,369	31	7,291	54.5
1,626	33	12,926	31	7,510	58.1
<u>1,816</u>	<u>114</u>	<u>12,670</u>	<u>61</u>	<u>6,373</u>	<u>50.3</u>
<u>\$32,873</u>	<u>48</u>	<u>\$253,998</u>	<u>31</u>	<u>\$129,195</u>	<u>50.9</u>

Since 1980 there has been an increase in resources devoted to data processing and certain administration expenses in addition to those directly assigned to Monetary Policy and Supervision and Regulation. This is evident in table 21, which shows the change in costs and in personnel associated with each PACS activity. From the second quarter of 1980 to the second quarter of 1983 Federal Reserve employment declined 3 percent to a total of about 22,853 on a full-time equivalent basis. The largest reduction (976 people) occurred in check clearing but 19 other activities also experienced a reduction in personnel. However, sharp increases in personnel occurred in economic policy determination, data processing, administration of laws and regulation related to banking, and administration. The shift in personnel is summarized in table 22.

THE AMOUNT AND PERCENTAGE OF SUPPORT
AND OVERHEAD ALLOCATED TO CHECK
CLEARING HAS DECLINED

Of the \$1.03 billion in Federal Reserve operating expenses for 1983, PACS distributed an estimated 49 percent to check clearing and other output service activities. The remaining 51 percent, which included certain data processing, building, and other support and overhead activities, was allocated on the basis of actual usage and judgmental rules to those same output service categories. Overall, for 1983 PACS directly and indirectly distributed \$322 million, or 31 percent, of total system expenditures to check clearing. There is, however, a substantial difference in the proportion of direct and indirect expenses associated with check clearing: An estimated 38 percent of all directly identified expenses but only 24 percent of all support and overhead activities were allocated to check clearing in 1983. Although comparisons with previous years are inexact because of changes in accounting procedures, the share of indirect expenses allocated to check clearing has fallen significantly since pricing was authorized. Indirect expenses allocated to check clearing in 1983 are actually almost 10 percent less than the amount so allocated in 1980, although there has been a 25 percent increase in total support and overhead expenses during that period of time. (See tables 23 and 24.)

Table 21

Changes in Allocation of Total FRS Activity Costs and Personnel by
Service, Between 2nd Quarter 1980 and 2nd Quarter 1983^a

<u>Service</u>	<u>Change in activity cost</u>		<u>Change in personnel</u>	
	<u>Amount</u> (000)	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
<u>Monetary and Economic Policy</u>				
Economic policy determination	\$ 5,652	98.0	206	42.9
Open market trading	<u>566</u>	<u>51.7</u>	<u>13</u>	<u>11.8</u>
Total	\$ 6,218	90.6	219	37.1
<u>U.S. Treasury and Government Agencies</u>				
Savings bonds	\$ 139	2.5	- 153	-19.7
Other Treasury issues	237	5.9	- 58	-11.8
Government agency issues	182	27.2	- 3	- 3.5
Other Treasury and government agency service	605	50.5	18	12.9
Treasury and government agency coupons	138	32.7	- 1	- 1.3
Food coupons	523	47.8	19	9.5
Government accounts	<u>788</u>	<u>39.0</u>	<u>31</u>	<u>14.0</u>
Total	\$ 2,612	17.5	- 147	- 7.4
<u>Financial Institutions and the public</u>				
Currency	\$ 4,197	27.3	70	4.9
Coin	- 285	- 4.8	- 89	-27.6
Electronic funds transfer	6,405	86.0	26	6.0
Commercial checks	10,248	21.3	- 976	-16.8
Other checks	432	17.9	- 52	-16.7
Securities	662	18.8	- 126	-38.0
Loans to depositor institutions and others	538	48.3	30	25.6
Non-cash collection	- 257	-13.2	- 60	-28.3
Public programs	680	14.0	- 51	-13.1
Other	<u>- 142</u>	<u>- 3.6</u>	<u>9</u>	<u>4.2</u>
Total	\$22,478	23.7	-1,219	-12.7

Supervision and Regulation

Supervision of district financial Institutions	\$ 3,651			
Administration of laws and regulations relating to banking	4,618	109.5	223	49.7
Banking and financial market structure studies	<u>461</u>	<u>75.3</u>	<u>31</u>	<u>64.6</u>
Total	\$ 8,730	65.1	319	20.8

Support Services

Data processing	\$ 17,713	46.2	417	19.2
Occupancy service	6,221	27.3	- 93	- 6.6
Printing and supplies	457	19.5	- 23	- 8.4
Centralized planning service	- 706	-39.9	-118	-57.3
District projects	<u>299</u>	<u>7.3</u>	<u>8</u>	<u>6.8</u>
Total	\$ [23,984] ^b	34.6	191	4.6

Overhead

Administration	\$ 4,054	29.6	291	55.3
System projects	6,239	100.0	- 55	-18.6
Mail	- 206	-11.3	-131	-41.2
Legal	368	29.6	10	10.1
General book and budget and expense control	5,646	64.9	60	7.2
Files and record storage	101	5.1	- 29	-17.1
Personnel	1,241	10.0	-145	-12.8
Purchasing	624	22.3	- 6	- 2.2
Protection	1,349	18.4	- 70	- 5.4
Motor vehicles	251	46.9	5	9.8
Library	322	41.9	2	2.4
Telephone and telegraph operations	637	42.6	3	2.0
Audit	<u>1,246</u>	<u>35.1</u>	<u>- 2</u>	<u>- 0.5</u>
Total	\$ 21,872	34.9	- 67	- 1.2

Total of all services	\$ <u>61,910^b</u>	<u>32.4</u>	<u>-704</u>	<u>- 3.0</u>
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^aThe 1980 dollar amounts did not include recoveries, such as charges to commercial clearinghouses for services provided.

^bThe total amount of all services does not include support service's expenses because it has been allocated to other service lines.

NOTE: The increase in the Consumer Price Index from 1980 (average annual) to 2nd quarter 1983 was 20.2 percent.

Table 22

Change in the Average Number of People for Selected
Activities Between 2nd Quarter 1980
and 2nd Quarter 1983

	<u>Direct check service</u>	<u>Other output services</u>	<u>Support</u>	<u>Overhead^a</u>	<u>System projects</u>	<u>Total</u>
1980	5,817	7,892	4,188	5,364	296	23,557
1983	4,841	8,040	4,379	5,352	241	22,853
Change						
Amount	-976	148	191	-12	-55	-704
Percent	-16.8	1.9	4.6	- 0.2	-18.6	-3.0

^aExcludes system projects.

Table 23

Federal Reserve Expenses for Check and
Noncheck Activities, 1980 and 1983 (estimate)^a

Check	Direct	Indirect			Subtotal	Total	Activity costs as defined by the Federal Reserve (direct cost and allocated portion of support costs)
		Portion of support costs allocated	System projects	Other			
----- (millions of dollars) -----							
1980	145.2	51.4	2.0	81.2	134.6	279.8	196.6
1983 (est) ^c	195.0	39.3	4.9	79.0	123.2	318.2	234.3
Change	49.8	-12.1	2.9	-2.2	-11.4	38.4	37.7
Percent change	34.3	-23.5	145.0	-2.7	-8.5	13.7	19.2
<u>Noncheck</u>							
1980	235.0	98.3	29.4	150.5	278.2	513.2	333.3
1983 (est) ^c	312.3	141.9	45.0	206.6	393.5	705.8	454.2
Change	77.3	43.6	15.6	56.1	115.3	192.6	120.9
Percent change	32.9	44.4	53.1	37.3	41.4	37.5	36.3
<u>Total</u>							
1980	380.0	150.0	31.4	232.0	413.4	793.4	530.0
1983 (est) ^c	506.9	181.2	49.9	286.0	517.1	1024.0	688.1
Change	126.9	31.2	18.5	54.0	103.7	230.6	158.1
Percent change	33.4	20.8	58.9	23.3	25.1	29.1	29.8

^aThe 1980 data do not include recoveries, such as charges to commercial clearinghouses for services provided.

^bIncludes support cost not initially allocated to output activities.

^c1983 estimate based on 2nd quarter 1983 data multiplied by 4.

Source: Federal Reserve Board

Table 24

Check Processing Expenses as a Percentage of Federal Reserve
Expense Categories, 1980 and 1983 (estimate)

Check	Direct	Indirect Overhead			Subtotal	Total	Activity costs as defined by the Federal Reserve (direct cost and allocated portion of support costs)
		Portion of support cost allocated	System projects	Other			
1980	38.2	34.3	6.4	35.0	32.6	35.3	37.1
1983 (est) ^a	38.5	21.7	9.8	27.6	23.8	31.1	34.0

^a1983 estimate based on 2nd quarter 1983 data multiplied by 4.

^bIncludes support cost not initially allocated to output activities.

Source: Federal Reserve Board

On the assumption that direct expenses are those most accurately identified, we concentrated on the reasonableness of the percentages of indirect expenses allocated to check clearing. We examined the accounting procedures used by the Federal Reserve System, the guidelines used to enforce those procedures, and the consistency of PACS data at the different Reserve banks. An independent audit of the extent to which actual transactions are being accounted for in accordance with the accounting rules was outside the scope of our work. Before proceeding, it should be recalled that some decrease in the relative share of support and overhead items assigned to check clearing should be expected based on the decline in personnel assigned to check clearing and on the relative emphasis given to monetary and economic policy and to supervision since 1980.

Some of the decrease in indirect expenses allocated to check clearing has also resulted from changes in accounting procedures. Some expenses, such as payments to outside firms for data processing services, are now assigned according to actual usage whereas more general ratios, based on total expenses or personnel, had been used before. This pattern is noticeable in the revision to PACS that was put into effect in 1983. Reversing trends of the past 2 years, this revision increased somewhat the share of direct expenses and decreased the share of indirect expenses. In principle, we believe allocation rules based on usage are preferable to more general ratios. Thus, there is no inherent problem with the changes in accounting procedures adopted by the Federal Reserve.

THE FEDERAL RESERVE HAS TAKEN
STEPS TO ENFORCE ACCOUNTING
SYSTEM RULES

The Federal Reserve has taken steps to ensure uniformity in interpreting and using PACS data for pricing purposes. In addition to the Board's published pricing policies and detailed instructions contained in the systemwide PACS and Financial Accounting manuals, the Reserve banks receive standardized pricing worksheets and instructions that explain how to recalculate and report proposed price changes. Also, the Board publishes instructions on how to prepare uniform monthly cost, revenue, and volume reports.

Based on our review of Federal Reserve manuals and supplementing instructions and the methods used to allocate overhead and support costs, as shown in tables 15 and 16 and our review of a specific pricing exercise at the Federal Reserve Bank of San Francisco, we believe the Federal Reserve Board has established policies for Reserve banks that provide an adequate basis to allocate expenses and to arrive at cost, revenue, and volume for priced products. These data have been used in the Twelfth District, as explained in section 4, as the foundation for estimating future product cost, price, and volume.

The means used by the Board of Governors and its staff, working in cooperation with the Reserve banks, to try to assure adherence to PACS accounting rules and their application include the following:

- The Pricing Policy Committee (PPC) reviews proposed changes to Reserve bank fee schedules and service arrangements to insure compliance with the Board's pricing principles.
- The PPC reviews monthly summary reports of Reserve banks cost, revenue, and volume to monitor banks' performance in matching cost and revenue.
- Board review teams make on-site Reserve bank visits to review, among other things, accuracy of PACS accounting and reporting and compliance with pricing guidance.

The Federal Reserve Bank of San Francisco also has in place the following additional controls:

- periodic internal audit reviews of, among other things, expenditures, department operations, PACS compliance, and adherence to pricing guidelines;
- designation of a PACS coordinator at each bank to ensure that costs are properly categorized and redistributed;
- designation of a District Committee on Product, Price, and Promotion to establish pricing strategies and policies and to coordinate the districts' pricing efforts; and
- organizational centralization of all pricing matters under one group at San Francisco with a separate subgroup responsible for developing fee schedules and for preparing management information reports, such as cost/revenue matching reports submitted to both local management and the Board.

We identified and reviewed the following Twelfth District reports on its activities:

Board sponsored reviews

	<u>Report date</u>
PACS review--Portland	11/24/80
PACS review--San Francisco	04/14/81
PACS review--Los Angeles	06/16/82
Pricing operations review--San Francisco	10/15/82

Twelfth District internal auditor reviews

Audit of Accounting	05/15/81
Audit of Financial Services Group (including Price Administration)	06/06/82
Audit of Financial Planning and Control (including PACS compliance)	03/25/83
Survey of Financial Services (including Price Administration)	a

^aFormal report not issued; work was performed in April 1983. The products of this survey included workpaper summaries describing the Financial Services and Price Administration groups' operations and an audit program to be followed in conducting a full review of these groups later in 1983.

In each case, the audit report stated that management had either taken or agreed to take corrective action to resolve weaknesses noted. One report, for example, commented on a need for better documentation of support cost redistributions, but indicated that management's decision to centralize PACS oversight responsibility should enhance controls and improve documentation. We confirmed that management had centralized PACS oversight responsibility and, for two support activities and one overhead activity we selected, confirmed that documentation was on file to show the basis for cost redistributions and allocations.

DATA FOR INDIVIDUAL RESERVE BANKS
DO NOT SHOW UNREASONABLE VARIATION

To look for patterns of bank expenses for check clearing activities that seemed out of balance compared to the work performed, we compared the percentage of system volume with the percentage of system expenses incurred at each of the Reserve banks. Table 25 shows the relevant percentages for all banks ranked by their total expenses as of the second quarter of 1983. The Federal Reserve Banks of New York and Chicago are banks with a larger percentage of the check volume that incurred a proportionately higher share of the system check clearing costs. The generally higher costs of operating a business in New York and Chicago and the large number of small banks served by the Federal Reserve Bank of Chicago would seem to explain the pattern more than would the explanation of systematic under-reporting of expenses in other cities. (See table 26 for a listing of operating costs per item and other characteristics of the Reserve banks.) We noted that the Federal Reserve Bank of Atlanta has undertaken substantial efforts to reduce expenses since pricing began (noted in our 1982 report on check processing), and the Federal Reserve Bank of San Francisco has substantially increased its check processing volume almost entirely in the fine-sort category for which Federal Reserve costs are relatively low.

Table 25
Comparison of Check Volume, Production Costs, and Overhead Costs
for Federal Reserve Banks
2nd Quarter 1983

<u>Bank</u>	<u>Percent of total cost</u>	<u>Ranking</u>	<u>Percent of total volume</u>	<u>Ranking</u>	<u>Percent of check clearing expenses</u>			
					<u>Production cost^a</u>	<u>Ranking</u>	<u>Overhead cost</u>	<u>Ranking</u>
New York	20.4	1	11.9	4	15.5	1	12.9	2
Chicago	12.5	2	13.7	1	14.6	2	15.1	1
San Francisco	11.1	3	12.6	3	8.3	5	10.7	3
Atlanta	8.6	4	13.0	2	10.8	3	10.0	4
Richmond	7.4	5	8.8	5	8.9	4	7.5	5
Kansas City	6.4	6	6.9	6	7.5	6	6.7	7
Boston	6.2	7	6.6	7	6.4	8	7.1	6
Dallas	6.1	8	6.2	8	6.8	7	6.7	8
Cleveland	5.9	9	6.0	9	6.2	10	5.5	11
St. Louis	5.3	10	4.7	11	4.9	11	6.3	9
Philadelphia	5.1	11	3.5	12	3.7	12	5.3	12
Minneapolis	5.0	12	6.0	10	6.4	9	6.2	10
Total	<u>100.0</u>		<u>100.0</u>		<u>100.0</u>		<u>100.0</u>	

^aProduction cost does not include district projects.

Table 26

FRS Bank Operations Comparison
2nd Quarter 1980 and 2nd Quarter 1983

Reserve Bank ^b	Percent change in total bank expense	Percent change in bank check expense	Percent change in check volume	Number of endpoints ^c 1983	Percent profit based on operating cost 1983 ^d	Operating cost per item 1983 ^e	Bank commercial check activity cost as a percent of total bank activity cost		Bank commercial check overhead as a percent of total bank overhead	
	80-83	80-83	80-83		1980	1983	1980	1983		
New York	29.0	14.1	- 4.0	840	7.9	\$0.0275	26.9	24.1	23.1	19.0
Chicago	31.5	17.0	- 8.0	3,471	26.3	0.0233	43.8	39.5	36.8	30.6
San Francisco	50.5	29.0	28.6	1,504	38.4	0.0150	30.9	27.0	26.3	21.9
Atlanta	28.5	9.2	- 8.3	2,413	34.5	0.0178	47.4	44.1	41.8	28.5
Richmond	16.0	9.2	-13.3	1,239	23.7	0.0212	40.5	40.0	32.6	24.8
Kansas City	26.4	12.1	-24.2	2,883	21.2	0.0227	42.0	39.0	36.4	27.3
Boston	18.0	22.2	-17.0	653	0.2	0.0217	32.4	34.2	30.8	26.9
Dallas	47.3	16.0	-12.7	2,095	31.1	0.0237	45.0	38.5	42.4	26.8
Cleveland	20.7	9.0	-20.2	971	29.5	0.0217	36.1	36.2	34.4	23.2
St. Louis	31.5	1.4	-17.0	1,973	27.2	0.0238	42.2	35.2	37.1	25.0
Philadelphia	31.5	2.1	-23.5	405	-2.7	0.0246	34.2	25.6	29.3	24.2
Minneapolis	61.0	60.0	9.4	1,893	21.2	0.0227	44.1	46.4	36.7	28.6
Federal Reserve System	31.2	16.0	- 8.7	20,340	22.2	0.0217	37.2	34.0	32.3	25.0

^aThe 1980 data do not include recoveries, such as charges to commercial clearinghouses for services provided.

^bBanks ranked by total expense, with New York being largest, using second quarter 1983 data.

^cAn endpoint is a location of a payor bank where checks are sent by Federal Reserve banks for collection.

^dCost includes support, overhead, and system projects.

^eCalculated by GAO on the basis of data provided by the Federal Reserve.

Source: Federal Reserve Board

WE BELIEVE THE EFFECT OF JUDGMENT
FACTORS ON PRICES IS RELATIVELY SMALL

Although PACS provides a logical framework for allocating costs, there is room for judgment in the system and reasonable persons can disagree about how certain costs should be allocated. We therefore identified those procedures for allocating indirect support or overhead expenses by reviewing the amounts allocated to check clearing and comparing the data with possible benefits check clearing received. Our analysis included expenses of the Board of Governors. At the time none of the expenses of the Board of Governors were allocated to check clearing or other priced services.

Our analysis centered on eight support and overhead categories plus the expenses of the Board of Governors because of the potential effect these expenses could have to the prices charged by the Federal Reserve. We examined key features of the allocation procedures used in each category. Our comments on these procedures are contained in the following paragraphs.

Detailed cost studies of the type needed to make recommendations for exactly how the categories we examined should be allocated were outside the scope of our work. Based on our analysis of the allocation procedures we have, however, for the sake of argument, illustrated the effect on the Federal Reserve's cost base and prices if procedures that were reasonable but less favorable to Federal Reserve check clearing activities were used to allocate the expenses in each of the categories we examined. The expense categories we selected, our judgment about the changes in allocation that might result from applying a different set of assumptions, and the basis for our estimates are contained in table 27.

Our purpose in preparing this illustration is not to suggest that the Federal Reserve System should adopt allocation procedures for support and overhead activities and for expenses of the Board of Governors that, as a matter of policy, are unfavorable to check clearing. The goal of the Federal Reserve should be to use allocation procedures that are as soundly based and as objective as possible. The illustration is thus intended to illustrate the effect of shifts in allocation procedures that could result when the area of judgment is reduced due to refining the objective basis used for making allocation decisions.

Given the scope of our work, the estimates in our illustrations are judgmental. The assumptions for individual items we made are not necessarily the most unfavorable that could be made that would qualify as being reasonable. However, we believe that taken together the effect on prices in the illustration is at the upper end of any that would result from a comprehensive review of support and overhead expenses and of expenses of the Board of Governors because we used assumptions that were not favorable to the Federal Reserve.

Table 27

GAO's Judgmental Estimate of Increased Support and Overhead Cost Allocations
for 1983 that Could Result from Application of Allocation Procedures Less Favorable
to the Federal Reserve System's Check Clearing Services

<u>Category</u>	<u>Amount (annual basis)^a</u> (000)	<u>Percent now assigned to check clearing</u>	<u>Reason for concern</u>	<u>Other possible basis</u>	<u>Increase in amount that would be allocated to check clearing</u> - - - (000) - - -	<u>Percent to check clearing under revised allocation method</u>
Centrally managed data processing support costs	\$ 92,684	16.8 ^b	Possible understatement.	More detailed analysis of cost factors.	\$6,968 ^c	24.3
Bank administration: Supplemental and special retirement contributions	10,647	11.7	Equal allocation to service line is inappropriate.	Distribute according to percent of personnel expenses.	1,171	22.7
Executive salaries and other ^d	29,504	11.7	Too much may be included as executive expenses.	Distribute portion by usage or check clearings' percent of total system production expenses (34%).	2,193 ^e	19.1
Mail	6,457	29.1	Expense ratio excludes shipping.	Include effect of a portion of shipping expense.	107 ^f	30.8
Budget preparation and control	9,056	27.2	Expense ratio excludes shipping.	Include effect of a portion of shipping expense.	140 ^f	28.7

Files and record storage	8,326	26.1	Expense ratio excludes shipping.	Include effect of a portion of shipping expense.	124 ^f	27.6
General ledger and expense accounting	17,714	29.3	Expense ratio excludes shipping.	Include effect of a portion of shipping expense.	295 ^f	31.0
System projects	49,925	9.7	Benefit assignment to check clearing may be somewhat understated.	Allocate some expenses for administration of the MCA and bulk data transmission and include a larger share of expenses for communications and automation.	1,850 ^g	13.4
Board of Governors	63,896	0 ^h	Activities understate indirect support to check clearing operations.	Increase allocation of indirect support for check clearing activities.	4,380 ⁱ	6.9
Internal audit	14,114	22.3	Possible disincentive to audit check clearing.	Check clearing's percent of expenses or other measure that does not vary with activity.	0 ^j	0
Total	\$302,323				\$17,228	
	=====				=====	

^aData obtained by multiplying 2nd quarter 1983 data by four except for the Board of Governor's expenses which came from the 1982 Federal Reserve Annual Report.

^bIn addition, centrally managed data processing support costs are ultimately associated with check clearing because some data processing costs are assigned to other support and overhead activities that in turn are redistributed to check clearing.

^cIt is possible that a detailed study would justify a decrease in check clearing's expenses for this category.

^dEstimate. Does not include district projects.

^eEstimate is based on assumption that one third of the executive and other expense portion of bank administration is distributed by check clearing's percent of total system production expenses to reflect tighter definition of executive expenses.

^fIn our discussions with Federal Reserve officials, they agreed that although most shipping is captured directly, some amount greater than zero should be reflected in this overhead allocation. Our estimate assumes that one third of the full impact of including all shipping expenses is counted in allocating this item.

^gWe believe that because of the long-term benefit of system projects to check clearing, the amount of system project expense allocated to check clearing may be somewhat understated although the precise percentage is difficult to determine. To obtain this estimate we doubled the percentage allocation to check clearing from 7 percent to 14 percent for system projects associated with communications, automation, data transmission, and administration of the MCA. These are the projects most likely over the long-run to benefit the competitive position of the Federal Reserve's check clearing activities.

^hThe Federal Reserve Board is considering allocating \$1.9 million of the Board of Governor's expenses to all priced services. Since check clearing is about 72.8 percent of total priced services, about \$1.4 million or 2.2 percent of the Board of Governor's expenses would be allocated to check clearing.

ⁱThe percent of check clearing expense to total bank system expense for 1982 (about 31.5 percent) was used as the basis for allocating that part of the Board of Governor's expenses to check clearing that can reasonably be related to support for reserve bank operations. The percentage of the relevant categories of Board expenses that resulted from this allocation was then used to allocate the remainder of Board expenses indirectly related to check clearing except for the Offices of the Board and the Secretary where we used the same method as presently used by the Federal Reserve System to allocate bank administration expense. For some of the Board expenses, i.e., Division of Consumer and Community Affairs, Division of International Finance, and the Division of Supervision and Regulation, we did not allocate any expenses to check clearing.

^jNo change made in assumption because controls over assignment of internal audit resources seem adequate.

Data processing expenses

One area we examined is the allocation of costs for centrally managed data processing services. The cost of central data processing services, which are in addition to the expenses for reader-sorter machines and other data processing equipment devoted exclusively to check clearing, have been growing rapidly and now comprise almost \$93 million annually or about 9 percent of total Federal Reserve operating expenses.

The Federal Reserve assigns its centrally managed data processing expenses on the basis of standard rates, which are charged equally to all users. The rates are based primarily on the share of central processing unit and other resources devoted to particular activities. The procedure the Federal Reserve uses is a fairly common practice in industry and government. It is considered an adequate, but not best, cost accounting approach by GAO. GAO's guidelines are incorporated by reference in Office of Management and Budget Circular A-121 as the basis for accounting for ADP costs in federal agencies. A more desirable approach would be to set up a system of billings that more accurately reflect the costs associated with the measured use of each computer service. Setting up a more accurate system for allocating shared central data processing operations can be complicated. Some operations use more storage or processing time and place more peak-load demands on the system than do others. A resource usage measurement system and differential rate setting are usually needed to more accurately bill the costs of services (priority/nonpriority, peak period/nonpeak period).

At the present time about \$15.5 million in the centrally managed ADP expenses are allocated to check clearing. This represents 17 percent of all centrally managed data processing costs and about 33 percent of the portion of data processing expenses that are distributed to output activities rather than to support and overhead activities. The largest single allocation of data processing expenses is made to support category "data system support." These expenses in turn are allocated heavily to system projects that primarily benefit activities other than check clearing.

Without performing a detailed examination of how the Federal Reserve's centrally managed data processing facilities are used, we cannot know for sure how a more complex set of charges would affect the expenses distributed to check clearing. Check clearing is an activity that places demands on the system during evening and nighttime (nonpeak) hours, as well as during the normal daytime (peak) hours. For illustration purposes we could assume that a system of charges might result in a 50 percent increase in data processing expenses assigned by PACS directly to check clearing. This increased direct allocation--which Federal Reserve officials believe is higher than would result from revising the cost allocation system for data processing--would

decrease the allocation of data processing costs to all other activities--including the support and overhead activities that are subsequently redistributed to check clearing as indirect expenses. The net increase in check clearing expenses from this change would therefore be less than the increased direct allocation. The increase we have assumed would therefore result in a net increase in expenses to the Federal Reserve of \$7 million.

Bank administration

The Federal Reserve distributes about \$40 million in bank administration expenses equally to each of its four major service lines, and then within the service line the expenses are allocated on a percentage of total expenses. This procedure allocates only about 12 percent of these expenses to check clearing. The justification for the current arrangement is that the activities of bank presidents and other senior executive officials involve extensive concern with economic policy and regulatory matters that may not correlate very directly to operating budgets.

One problem with the Federal Reserve's procedures is that the category includes a large item that is clearly not an executive expense. Almost \$11 million are expenses associated with benefits of retired Federal Reserve employees. The costs of these benefits paid to persons who worked in all of the Federal Reserve System's activities would appear to be more appropriately distributed on the basis of a ratio such as salary or personnel expenses. We estimate that reassessment of the retirement benefits on the basis of salaries and wages would increase check clearing expenses by about \$1.2 million.

It is also questionable whether all of the approximately \$29 million that remains in bank administration after retirement benefits are subtracted can properly be described as being devoted to wide-ranging policy activities of the banks rather than to particular output activities, such as check clearing. Federal Reserve officials were unable to explain adequately why averages of 30 persons and \$2.5 million per bank would be involved in activities that dealt almost exclusively with general policy matters. We were told by Federal Reserve officials that the number of persons associated with reserve bank presidents, first vice presidents, and bank boards of directors, the functions that are most obviously of an executive character, average less than 30 per bank. We do not know what changes in allocation might result from a more detailed examination of all expenses now assigned to bank administration. In our illustration of the effect of alternative assumptions, we assumed that closer examination of bank administration expenses (exclusive of the retirement item) would reduce by one-third the amount of such expenses that are of a strictly executive nature. We then assumed that the items not of an executive character would be distributed to check clearing in the same proportion as check

clearing's share of total production expenses (34 percent). This assumption would increase expenses by \$2.2 million.

Exclusion of shipping expenses from expense ratio calculations

The Federal Reserve now allocates among all of its activities about \$12 million per year by expense ratios in the four overhead categories of mail, budget preparation and control, files and record storage, and general ledger and expense accounting.¹ In calculating these ratios, however, the Federal Reserve excludes contracted shipping expenses, which accounts for a much greater share of check clearing expenses than for the system as a whole. Although most administrative costs for shipping contracts are assigned directly to the benefiting service, shipping does place some demands on these overhead services and some allowance could be made for it in allocating overhead expenses. Thus a case can be made for taking account of shipping expenses to some extent, although it would appear reasonable to include only a proportion of shipping expenses. We do not know what proportion of shipping expenses would be most appropriate to include. In our example to illustrate the effect of judgment factors we assumed that one-third of contracted shipping expenses would be included in the expense ratio. The estimated increase of about \$700,000 to check clearing in these categories results from this assumed change in the allocation rules.

System projects

In 1983 the Federal Reserve has spent about \$56 million on various system projects. System projects are special projects of a developmental nature that usually are undertaken by one bank or a group of banks and whose costs are then redistributed to all banks. Most of the projects have major data processing and software development components. Federal Reserve officials have assigned 9.7 percent of system projects to check clearing on the basis of the system's best judgment of the distribution of benefits from the various projects. The projects and costs allocated to check clearing are listed in table 27.

The projects in which the basis for allocating costs are the most subject to question are for the most part those concerned with improvements in the Federal Reserve's data communication and data processing capabilities. In three of the major projects--future communications capability plan, environmental transition to long-range automation, and the system long-range

¹The expense ratio is formed by taking check clearing expenses as the numerator and total expenses for all activities as the denominator. Expenses for contracted shipping are excluded from the numerator and denominator of the ratio.

automation program--the costs are divided equally among each of the four service lines and then, within service lines, to the individual activities on an expense ratio basis.² This procedure results in allocating a relatively high proportion of the costs to central bank activities that are not priced. The judgment issue is thus whether the portion of these expenses being allocated to check clearing is too small.

The allocation procedures used by the Federal Reserve were developed through a deliberative committee process that tried to take the ultimate benefits of the projects into account. In December 1981 Arthur Andersen and Company reviewed the allocation procedures that had been proposed and concluded that they followed reasonable accounting concepts. Among the principles considered by Arthur Andersen were that if system changes enhance the capability of the system to support priced services or provide benefits in terms of lower future costs for priced services, then the allocation of development costs should take this into account. Thus, although there clearly are judgment factors involved in the allocation rules used by the Federal Reserve, it is also the case that these rules were adopted after consideration was given to the relevant issues.

Still, questions can be asked about whether the allocation rules give adequate weight to the benefits that system projects give to the ability of the Federal Reserve to compete with private sector institutions. A case could no doubt be made that the cumulative effect of these projects is to create an environment that enables the Federal Reserve to improve its check clearing and other priced services more easily and cheaply than it could if it did not have the research and development capability that is represented by the system projects already in place. Without going more deeply into the specific nature of each project we do not, however, have a basis for developing a different methodology for allocating these system projects.

A similar problem exists with the system project concerned with implementation of the Monetary Control Act of 1980. The cost of this project, which was completed in 1983, was all charged to central bank functions. However, part of the activities undertaken in 1983 were concerned with developing the procedures necessary to track float in such a way as to be able to price it. Even though float is an important matter for monetary policy, a case could have been made to allocate a portion of these expenses to check clearing.

Although on the basis of the work we performed we have no firm basis for allocating additional system projects to check

²For the future communications capability plan, allocations to the service line that includes check clearing is weighted toward electronic funds transfer activities.

clearing, we believe that this also is an area in which allocation rules could be developed that would result in an increase in expenses allocated to check clearing: Some of the projects have little or no expense allocated to check clearing but the project description indicates that check clearing will benefit from the work. Therefore, in constructing an example of the effect of changes in judgment factors on the prices of check clearing services we wanted to include an amount for system projects. Our estimate of \$1.8 million in additional system project expenses for 1983 is a judgmental, order of magnitude one. To obtain this estimate we doubled the allocation of expenses to check clearing from system projects associated with communications, automation, data transmission, and administration of the Monetary Control Act of 1980. This estimate raises to 13 percent the share of these project expenses assigned to check clearing. If the allocation to check clearing is increased, allocations to other activities--no doubt including other priced services--would have to be correspondingly decreased.

Expenses of the Board of Governors

On October 3, 1983, the Board of Governors approved for public comment a proposal that would allocate a portion of the Board of Governors' expenses to the cost base to be recovered from check clearing prices and other priced services. We believe a share of Board expenses should be recovered from service pricing, but the proposed \$1.9 million allocation (of which about \$1.4 million is attributable to check clearing) of a total of \$64 million may be low because it includes a relatively limited allocation of expenses that indirectly support reserve bank check clearing activities. The expenses for the Board of Governors should not, however, be assigned to check clearing on the basis of check clearing's percentage of total system expenses because of the extensive involvement of the Board of Governors in economic policy and regulatory matters that have little to do with check clearing. Our illustration assumes that reexamination of Board expenses could result in an increase allocation of as much as \$3 million more than that proposed by the Federal Reserve. We arrived at this estimate by estimating the percent of the activities of each organizational unit of the Board that could be associated with check clearing.

Internal audit

For 1983 the Federal Reserve expenses for internal audit are estimated to be about \$14 million, of which \$3.2 million or 22 percent are allocated to check clearing on the basis of actual audits performed, the procedure we generally support for the allocation audit expenses. In this particular instance, however, allocating audit expenses on a direct usage basis could possibly be subject to the challenge that it creates the appearance of an inappropriate disincentive to audit check clearing

activities since there would be a direct effect on the check clearing cost base. Procedures for developing the internal audit plans at each Reserve bank involve reviews by that banks' board of directors and by the Board of Governor's staff. In our opinion these reviews should be sufficient to reduce the incentive to allow the effect on price to influence decisions about what to audit. In constructing our illustration about the effect of other assumptions, we decided not to make an alternative assumption about the allocation of audit expenses.

Net effect on prices of the alternative assumptions we made is relatively small

Our illustration of the effect on the allocation of selected support and overhead activities (including the Board of Governors) of assumptions less favorable to the Federal Reserve's check clearing activities is shown in table 27. In this example, the effect is an increased allocation of support and overhead expenses of about \$17 million. This increase in expenses could result in price increases of 4 percent.³ As stated above, we caution that this estimate is only for illustration. This illustration is much higher than would be appropriate if analysis of the largest item on the table--centrally managed data processing expenses--resulted in a reduction of expenses allocated to check clearing. The study of PACS that a private accounting firm is now undertaking for the Federal Reserve Board should provide insight into appropriate changes that should be made to some of these support and overhead allocation rules, although it does not address the technical matters that would be involved in examination of centrally managed data processing expenses.

³When account is taken of the effect this increase would have on the Private Sector Adjustment Factor, the increase translates to a price increase of 5 percent.

SECTION 8



SECTION 8

SUPPLEMENTAL INFORMATION ABOUT THE PRIVATE SECTOR ADJUSTMENT FACTOR

The pricing principles contained in the Monetary Control Act provide that over the long-run the Federal Reserve prices should be established on a basis that includes "an allocation of imputed costs which takes into account the taxes that would have to be paid and the return on capital that would have been provided had the services been furnished by a private business firm." The Federal Reserve calls this allocation of imputed costs the private sector adjustment factor (PSAF). Because the Federal Reserve calculates the PSAF to cover all of its priced services, it is not practical to discuss the PSAF in terms of check clearing only. However check clearing accounts for over 70 percent of priced services expenses, therefore discussing the PSAF in terms of all priced services is not a problem.

To supplement the report's discussion of the PSAF this section first presents information about how the Federal Reserve calculates the PSAF. We then consider the PSAF in light of prototype balance sheets and income statements for the priced services of the Federal Reserve. These statements are summary statements constructed as if the priced services were a separate reporting entity in and of itself, which it is not, and as if the Federal Reserve were operating as a private business. These prototype statements are formatted to provide certain indicators of financial condition and characteristics needed for comparison purposes and for rate of return calculations and are not intended to reflect the actual Federal Reserve's financial statement presentations. The statements include additional assets and liabilities (principally those additional assets and liabilities associated with float and clearing balances) that are associated with priced services but not now taken into account in the PSAF calculation.

Some critics of the Federal Reserve System have suggested that the PSAF should be based upon the financial characteristics of data processing firms because they, unlike bank holding company characteristics, reflect more accurately the services that the Federal Reserve System provides to its customers. In this section we summarize the characteristics of six data processing firms that have been suggested by the private sector critics as models and show why we do not believe it is appropriate to modify the PSAF based upon the data processing firm model. We also show how we constructed a range for evaluating the aftertax rate of return on equity that we believe is appropriate for the PSAF.

Because capital can be viewed in different ways and because different financial structures exist among firms, this section contains a variety of financial ratios. Looking at

several indicators of financial condition and characteristics helps to compensate for difficulties that arise in using published financial data to compare firms, particularly firms doing different types of business. The range of practices permitted under generally accepted accounting principles with respect to such matters as depreciation, recognition of income and costs, or provision for taxes is such that it is difficult to know how valid any one measure of comparability may be. Rate of return calculations are typically quite sensitive to relatively small changes in net income. Financial analysts generally counsel against basing investment decisions on one reported measure of a firm's value, and we believe the same caution is applicable to the PSAF.

THE FEDERAL RESERVE'S
PROPOSED 1984 PSAF

The Federal Reserve in the past has expressed the PSAF as a formula. It is

$$\text{PSAF} = \frac{(\text{asset base}) \times (\text{average pretax return on capital})}{\text{priced service expenses}}$$

However, expressing the PSAF as a percentage of priced service expenses is not particularly meaningful because such a ratio can take on any value depending on the capital intensity of a firm, i.e., the ratio of long-term assets to current expenses. The key component, as discussed in chapter 4 of the report, is the numerator, which is the amount of imputed income taxes and return on capital the Federal Reserve should recover out of revenues. The PSAF includes several minor items, such as an allowance for sales taxes, that would have to be paid if the Federal Reserve were a private sector institution.

The Federal Reserve proposes a 1984 PSAF recovery of \$56.2 million, of which \$4.9 million accounts for sales taxes. Thus \$51.3 million represents a return on total assets. This return on total assets is computed from an asset base of \$27.1 million current assets and \$270.9 million long-term assets. Before 1984, the Federal Reserve apportioned all its long-term assets between priced and non-priced services on the basis of the ratio of operating expenses for priced services to total operating expenses. For 1984, however, the Federal Reserve proposes to apportion its long-term assets by direct determination (based on the assets actually used in the production of priced services as recorded in PACS).

The Federal Reserve assumes its short-term assets are financed with short-term debt and its long-term assets with a combination of long-term debt and equity (see table 28). The proportions of long-term debt and equity to long-term assets is determined by the average of such for 25 large bank holding companies. Converting all financing to a percentage of total assets, short-term debt is 9.1 percent, long-term debt is 26.5 percent, and equity 64.4 percent.

Table 28

Prototype Balance Sheet for Federal Reserve
Priced Services for the Year Ending
December 31, 1984^a
(millions)

<u>Current Assets^b</u>	
Receivables, net adjustments, supplies, and deferred charges	\$27.1
<u>Long-term Assets^b (net of depreciation)</u>	
Bank premises	\$183.2
Equipment and furniture	<u>87.7</u>
Total long-term assets	\$270.9
Total assets	<u>\$298.0</u>
<u>Current Liabilities^b</u>	
Short-term debt ^c	\$27.1
<u>Long-term Liabilities^b</u>	
Long-term debt ^c	<u>79.1</u>
Total liabilities	\$106.2
<u>Equity</u>	<u>191.8</u>
Total liabilities and equity	<u>\$298.0</u>

Financial Ratios

	<u>Value</u>
Equity as percent of total assets	64.4 ⁸
Equity and long-term debt as percent of total assets	90.9
Total capital ^d as percent of total assets	90.9
Total capital ^d as percent of long-term assets	100.0
Equity as percent of total capital ^d	70.8
Equity as percent of equity plus long-term debt	70.8
Long-term debt as percent of equity	41.2
Total assets as percent of revenues	56.8
Long-term assets as percent of revenues	51.7
Equity as percent of revenues	36.6
Equity and long-term debt as percent of revenues	51.7
Total capital ^d as percent of revenues	51.7

^aThis is a summary statement constructed as if priced services were a separate reporting entity in and of itself which it is not, and as if the Federal Reserve were operating as a private business. It is formatted to provide certain indicators of financial condition and characteristics needed for comparison purposes and for rate of return calculations and is not intended to reflect the actual Federal Reserve's financial statement presentation.

^bCurrent assets and liabilities are those which are due or are expected to be used within 1 year. Long-term assets and liabilities have a life expectancy which is greater than 1 year.

^cShort-term debt is due within 1 year. Long-term debt is due at some period of time greater than 1 year.

^dTotal capital, as defined in Forbes, is the sum of equity, long-term debt, deferred taxes, and accumulated investment tax credits. Because the Federal Reserve has no deferred taxes or accumulated investment tax credits, its total capital equals long-term assets.

A weighted average pretax return on assets is also derived from the average costs of short-term and long-term debt and return on equity of the 25 bank holding companies. The average pretax costs of short-term and long-term debt to the bank holding companies were 9.48 percent and 10.1 percent, respectively. The aftertax return on equity was 13.7 percent, as shown in table 29. To calculate a pretax weighted average return on total assets, the return on equity needs to be converted to a pretax return. This is done by using the average tax rate of the bank holding companies, which is based on the ratio of current taxes to total taxable income adjusted for tax free holdings, and excluding deferred taxes of the bank holding companies. The average tax rate is 35.8 percent and the pretax return on equity is therefore 21.3 percent. The returns on debt and equity weighted by their proportion of the capital structure yield an average pretax return on total assets of 17.2 percent.

Table 29

Rates of Return and Profit Margins Derived from
the Federal Reserve's 1984 Priced Services
Prototype Financial Statements

	<u>Pretax</u>	<u>Aftertax</u>
<u>Rates of return</u>		
Return on equity	21.3%	13.7%
Return on equity plus long-term debt	18.0	12.6
Return on total capital	18.0	12.6
Return on total assets	17.2	12.3
<u>Profit margins</u>		
Earnings after interest expenses as percent of revenues	7.8	5.0
Earnings before interest expenses as a percent of revenues	9.8	7.0

Note: Data used for this table came from tables 28 and 29.

From the pretax return on total assets the Federal Reserve then calculates the amount of additional revenue required to cover the taxes plus return on assets. Multiplying the asset base of \$298 million by 17.2 percent yields a PSAF recovery of \$51.3 million, as shown in table 30.

Table 30

Prototype Income Statement for Federal Reserve
Priced Services for the Year Ending December 31, 1984^a
(millions)

<u>Revenues</u>		
Operating revenue ^b	\$472.9	
Revenue derived from PSAF ^b	<u>51.3</u>	
Total revenue		\$524.2
 <u>Expenses</u>		
Basic operating expenses	\$387.3	
Transportation	78.8	
Sales tax	4.9	
Board of Governors expenses	<u>1.9</u>	
Total expenses		<u>-472.9</u>
Operating profit before interest expense		51.3
 <u>Interest expenses</u>		
On short-term debt (27.1 x .0948) ^c	2.6	
On long-term debt (79.1 x .1001) ^c	<u>7.9</u>	
Total interest expense		<u>- 10.5</u>
Before tax profit		40.8
Taxes (35.8%)		<u>- 14.6</u>
Net profit		<u><u>\$26.2</u></u>

^aThis is a summary statement constructed as if priced services were a separate reporting entity in and of itself which it is not, and as if the Federal Reserve were operating as a private business. It is formatted to provide certain indicators of financial condition and characteristics needed for comparison purposes and for rate of return calculations and is not intended to reflect the actual Federal Reserve's financial statement presentation.

^bOperating revenue includes sales taxes. Revenue derived from the PSAF excludes sales taxes.

^cInterest rate estimated by GAO.

One measure of return on capital we show in these and subsequent tables is income after interest payments as a percentage of stockholder's equity (with stockholder's equity considered equivalent to net worth). We have also showed two other measures of the rate of return that take different views of capital. One is net income plus interest payments on long-term debt as a percentage of equity plus long-term debt. This is close to the measure of capital used in the Federal Reserve's PSAF, differing from it only by the exclusion of short-term debt. The other, which the text refers to as return on total capital, also uses net income plus interest payments on long-term debt as the numerator but adds deferred taxes and unused investment tax credits to the denominator.¹ Although these additional tax related items are not raised in capital markets, they nevertheless represent longer term sources of funds available to the firm. For the Federal Reserve, this total capital concept is the same as equity plus long-term debt, but the difference in definition is important when comparisons are made with firms in other industries. We have also compared net income with tangible assets (inventory, plant, equipment, capitalized leases, capitalized software, and unamortized acquisition costs of acquired firms) and with total assets. In addition, we have calculated profit margins--income both before and after interest payments--as a percentage of total revenue and have compared assets and capital with revenues. Finally, we have computed ratios of debt and equity, where equity is shown both with and without deferred taxes and accumulated investment credits.

RESTATEMENT OF PRICED SERVICE'S PROTOTYPE
FINANCIAL STATEMENTS TO TAKE ACCOUNT OF
ADDITIONAL FEDERAL RESERVE ASSETS AND
LIABILITIES

As explained in chapter 4, we believe that a reconstructed statement of Federal Reserve assets, income, and expenses associated with priced services that includes float and clearing balances would be helpful in assessing the PSAF. To this end, we have constructed two sets of prototype financial statements from the priced services prototype balance sheet and income statement (see tables 31, 32, and 33). Additions to the balance sheet made in these two reconstructed sets of prototype statements are associated with float and clearing balances. Federal Reserve credits a depositing institution for checks (or other cash items) deposited with it before the funds are collected from the paying institutions. Float is described more fully in section 3. In balance sheet terms, float is the difference

¹This is the definition of total capital reported in Forbes, January 2, 1984, from which some of the information used later in this appendix has been drawn.

between cash items in the process of collection (an asset) and deferred availability cash items (a liability).

In reconstructing the balance sheet, we have included \$6.8 billion as an asset for cash items in the process of collection. This is approximately the total amount of such items that existed on October 31, 1983. Although most of this item is associated with check clearing and other priced services, it also includes other items. Despite the fact that there is considerable variation in the number, we believe it represents a reasonable estimate for the purpose of evaluating the PSAF. Two liabilities are associated with cash items in the process of collection. One liability entry is a \$450 million balance that represents the amount of float the Federal Reserve is estimating for 1984 that will not be financed by "as of" adjustments. This balance, the difference between cash items in process of collection and deferred availability cash items, can be viewed as the portion of balances financial institutions maintain at the Federal Reserve that exists because of lags in deducting paid checks from the reserve or clearing balances of paying banks. The second and largest liability entry is for deferred availability cash items. This is estimated at \$6.35 billion--the difference between \$6.8 billion and the \$450 million in float.

Clearing balances, special balances some financial institutions established with the Federal Reserve to facilitate transactions and compensate the Federal Reserve for services, are discussed more fully in section 2. The Federal Reserve is estimating that it will have \$1 billion in such balances in 1984 of which \$800 million will be required and \$200 million will be excess. We have associated a \$1 billion asset with clearing balances because they are invested in government securities.²

²We have not included any reference to required reserves which for many banks are of sufficient magnitude to meet the transaction balance requirements for check clearing and other priced services.

If the Federal Reserve were considered to be more like a data processing firm than a bank, the Federal Reserve balance sheet would have to include an amount for cash and liquid assets. For data processing firms this amount can exceed 10 percent of annual revenue. We have not included such an item on the Federal Reserve's reconstructed balance sheet because it could be assumed that a portion of the clearing balance funds that are invested in government securities instead could represent cash.

Table 31

Prototype Balance Sheet (Including Float and Clearing
Balances) of Federal Reserve Priced Services
for the Year Ending December 31, 1984
for Deriving the PSAF^a
(millions)

<u>Current Assets^b</u>		
Investments in government securities arising from investment of clearing balances	\$1,000.0	
Cash items in process of collection	6,800.0	
Other short-term assets (inventories, accounts receivable, prepaid expenses)	<u>27.1</u>	
Total current assets		\$7,827.1
<u>Long-term assets^b (net of depreciation)</u>		
Bank premises	183.2	
Equipment and furniture	87.7	
Capitalized leases	<u>25.0</u>	
Total long-term assets		<u>295.9</u>
Total assets		<u>\$8,123.0</u>
<u>Current Liabilities^c</u>		
Clearing balances (800 required, 200 excess)	\$ 1,000.0	
Deferred availability cash items ^d	6,350.0	
Balances arising from uncollected items ^d	450.0	
Other short-term liabilities (accounts payable, deferred taxes, etc.)	<u>27.1</u>	
Total current liabilities		\$7,827.1
<u>Long-term Liabilities^c</u>		
Leases	25.0	
Other long-term debt	<u>61.4</u>	
Total long-term liabilities		<u>86.4</u>
Total liabilities		7,913.5
<u>Equity</u>		<u>209.5</u>
Total liabilities and equity		<u>\$8,123.0</u>

Financial Ratios

	<u>Value</u>
Equity as percent of total assets	2.6%
Equity and long-term debt as percent of total assets	3.6
Total capital ^e as percent of total assets	3.6
Total capital ^e as percent of long-term assets	100.0
Equity as percent of total capital ^e	70.8
Equity as percent of equity plus long-term debt	70.8
Long-term debt as percent of equity	41.2
Total assets as percent of revenues	1,234.5
Long-term assets as percent of revenues	45.0
Equity as percent of revenues	31.8
Equity and long-term debt as percent of revenues	45.0
Total capital ^e as percent of revenues	45.0

^aThis is a summary statement constructed as if priced services were a separate reporting entity in and of itself which it is not, and as if the Federal Reserve were operating as a private business. It is formatted to provide certain indicators of financial condition and characteristics needed for comparison purposes and for rate of return calculations and is not intended to reflect the actual Federal Reserve's financial statement presentation.

^bCurrent assets and liabilities are those which are due or are expected to be used within 1 year. Long-term assets and liabilities have a life expectancy which is greater than 1 year.

^cShort-term debt is due within 1 year. Long-term debt is due at some period of time greater than 1 year.

^dFor a discussion of this item see pages 7 and 8 of this section.

^eTotal capital, as defined in Forbes is the sum of equity, long-term debt, and deferred taxes and accumulated investment tax credits. Because the Federal Reserve has no deferred taxes or accumulated investment tax credits, its total capital equals long-term assets.

Table 32

Prototype Income Statement (Including Float and Clearing
Balances) of Federal Reserve Priced Services for the
Year Ending December 31, 1984 for Deriving the PSAF^a
(millions)

<u>Revenues</u>		
Operating revenues ^b	\$ 470.4	
Float charges at federal funds rate (450 x 0.0924) ^c	41.6	
Earnings on cash and liquid investments (1,000 x 0.0947) ^c	94.7	
Revenue derived from PSAF ^b	<u>51.3</u>	
Total revenues		\$658.0
<u>Expenses</u>		
Basic operating expenses less lease financing cost (25 x 0.10) ^d	384.8	
Transportation	78.8	
Sales tax	4.9	
Board of Governors expenses	<u>1.9</u>	
Total expenses		<u>-470.4</u>
Operating profit before interest expense		187.6
<u>Interest expenses</u>		
Credits on required clearing balances ^e (800 x 0.0924) ^d	73.9	
Lease financing cost (25 x 0.10) ^d	2.5	
Other long-term debt (61.4 x 0.1001) ^f	6.1	
Short-term debt (27.1 x 0.0948) ^d	<u>2.6</u>	
Total interest expenses		<u>-85.1</u>
Before tax profit		102.5
Taxes (35.8%)		<u>-36.7</u>
Net profit		\$65.8

^aThis is a summary statement constructed as if priced services were a separate reporting entity in and of itself which it is not, and as if the Federal Reserve were operating as a private business. It is formatted to provide certain indicators of financial condition and characteristics needed for comparison purposes and for rate of return calculations and is not intended to reflect the actual Federal Reserve's financial statement presentation.

^bOperating revenue includes sales taxes. Revenue derived from the PSAF excludes sales taxes.

^cFigures obtained from the Federal Reserve.

^dInterest rate obtained from Federal Reserve.

^eFor a discussion of clearing balances see section 2.

^fInterest rate estimated by GAO.

Table 33

Rates of Return and Profit Margins Derived
from 1984 Priced Services Prototype Financial
Statements (Including Float and Clearing Balances)
for the Federal Reserve

	<u>Pretax</u>	<u>Aftertax</u>
<u>Rates of return</u>		
Return on equity	48.9%	31.4%
Return on equity plus long-term debt	37.5	25.1
Return on total capital	37.5	25.1
Return on total assets	2.3	1.9
<u>Profit margins</u>		
Earnings after interest expenses as a percent of revenues	15.6	10.0
Earnings before interest expenses as a percent of revenues	28.5	22.9

Note: Data used for this table came from tables 31 and 32.

Including both float and clearing balances increases the total assets associated with priced services to over \$8 billion. (See table 31 for the reconstructed prototype balance sheet that includes float and clearing balances.) Such assets should be included because if the Federal Reserve were a private firm they would have to be financed. This increase in assets without any provision for increased equity results in a substantial change in the relationship between equity and total assets. The amount of equity in this arrangement falls to about 2.6 percent of total assets. We have not, however, assumed an increase in equity because it is not obvious that additional equity is appropriate. The assets and liabilities that have been added are virtually riskless, and we see no compelling reason to assume they would be financed with equity.

The reconstructed prototype income statement (shown in table 32) shows an operating profit of \$187.6 million, a before tax profit of \$102.5 million, and an aftertax profit of \$65.8 million. The main difference in the income statement and the one in table 29 is the inclusion of interest income from clearing balances in net income. This raises the aftertax return on equity 17.7 percentage points to 31.4 percent (see table 33). However, with the inclusion of additional assets, the aftertax

return on total assets is reduced by more than 10 full percentage points to 1.9 percent. This means that with the inclusion of clearing balances and float, the Federal Reserve is a more highly leveraged concern that is able to increase its return on equity while its overall return on total assets decreases.

In tables 34 and 35 we have constructed a second set of statements for priced services of the Federal Reserve that in our opinion more fairly presents the inclusion of float and clearing balances for purposes of considering the PSAF. Although we believe the assumptions we have made are reasonable, we recognize that other assumptions could be made that would lead to slightly different results. In these statements float is viewed on a net basis--the excess of cash items in process of collection over deferred availability items, i.e., float, is an asset that needs to be financed. If the Federal Reserve were not to finance float explicitly, it would be financed implicitly by taxpayers. In this version we also assume that the Federal Reserve would have to place in reserve 12 percent of its clearing balances, as a bank would be required to do. This reserve could not earn interest on all of its clearing balances, and we assume the Federal Reserve would therefore not give earnings credit on its entire required clearing balances. This has the effect of lowering both interest income and interest expenses, with interest income declining proportionately more than interest expenses. To remove the appearance of any conflict between the Federal Reserve's role in providing priced services and in conducting monetary policy, we have also removed the effect of interest rate spreads between the federal funds rate and the Treasury bill rate that can increase or decrease the net earnings of the Federal Reserve's operation.³ A shortcoming of this adjustment is that there is no accurate way to estimate what a private sector institution would earn on clearing balances, and therefore we have made no change to take this into account. Rates of return and profit margins for the adjusted statements are shown in table 36. The aftertax return on equity on this adjusted statement is 17.4 percent. The aftertax return on total assets is 8.8 percent. The PSAF for this set of statements is \$72.8 million--\$16.6 million more than the \$56.2 million proposed by the Federal Reserve.

³Interest rate spreads are possible because the Federal Reserve invests balances in Treasury bills through Open Market Committee purchases. Typically the federal funds rate exceeds the Treasury bill rate by as much as 1 percent although in the last half of 1984 the Treasury bill rate has been higher.

Table 34

Adjusted Prototype Balance Sheet for Federal Reserve Priced Services
(Including Float and Clearing Balances) for Deriving PSAF
for the Year Ending December 31, 1984^d
(millions)

<u>Current Assets^b</u>		
Investments in government securities arising from investment of clearing balances	\$880.0	
Clearing balance reserve ^c	120.0	
Float not financed by "as of" adjustments ^c	450.0	
Inventories, accounts receivable and prepaid expenses	<u>27.1</u>	
Total current assets		\$1,477.1
<u>Long-term assets^b (net of depreciation)</u>		
Bank premises	183.2	
Equipment and furniture	87.7	
Capitalized leases	<u>25.0</u>	
Total long-term assets		<u>295.9</u>
Total assets		<u>\$1,773.0</u>
<u>Current Liabilities^d</u>		
Clearing balances (800 required, 200 excess)	1,000.0	
Balances arising from uncollected items	450.0	
Accounts payable, deferred taxes and other liabilities	<u>27.1</u>	
Total current liabilities		1,477.1
<u>Long-term Liabilities^d</u>		
Leases	25.0	
Other long-term debt	<u>61.4</u>	
Total long-term liabilities		<u>86.4</u>
Total liabilities		1,563.5
<u>Equity</u>		209.5
Total liabilities and equity		<u>\$1,773.0</u>

Financial Ratios

	<u>Value</u>
Equity as percent of total assets	11.8
Equity and long-term debt as percent of total assets	16.7
Total capital ^e as percent of total assets	16.7
Total capital ^e as percent of long-term assets	100.0
Equity as percent of total capital ^e	70.8
Equity as percent of equity plus long-term debt	70.8
Long-term debt as percent of equity	41.2
Total assets as percent of revenues	274.2
Long-term assets as percent of revenues	45.8
Equity as percent of revenues	32.4
Equity and long-term debt as percent of revenues	45.8
Total capital ^e as percent of revenues	45.8

^aThis is a summary statement constructed as if priced services were a separate reporting entity in and of itself which it is not, and as if the Federal Reserve were operating as a private business. It is formatted to provide certain indicators of financial condition and characteristics needed for comparison purposes and for rate of return calculations and is not intended to reflect the actual Federal Reserve's financial statement presentation.

^bCurrent assets and liabilities are those which are due or are expected to be used within 1 year. Long-term assets and liabilities have a life expectancy which is greater than 1 year.

^cFor a discussion of clearing balances and float see sections 2 and 3.

^dShort-term debt is due within 1 year. Long-term debt is due at some period of time greater than 1 year.

^eTotal capital, as defined in Forbes, is the sum of equity, long-term debt, deferred taxes, and accumulated investment tax credits. Because the Federal Reserve has no deferred taxes or accumulated investment tax credits, its total capital equals long-term assets.

Table 35

Adjusted Prototype Income Statement (Including Float
and Clearing Balances) of Federal Reserve Priced
Services for the Year Ending December 31, 1984
for Deriving the PSAF^a
(millions)

<u>Revenues</u>		
Operating revenues ^b	\$ 470.4	
Float charges at federal funds rate (450 x .0924) ^c	41.6	
Earnings on cash and liquid investments (880 x .0947) ^c	83.3	
Revenue derived from PSAF ^b	<u>51.3</u>	
Total revenues		\$646.6
<u>Expenses</u>		
Basic operating expenses, less lease financing cost (25 x 0.10) ^d	384.8	
Transportation	78.8	
Sales tax	4.9	
Board of Governors Expenses	<u>1.9</u>	
Total expenses		- 470.4
Operating profit before interest expense		176.2
<u>Interest expenses</u>		
Float (450 x 0.0947) ^c	41.6	
Credits on required clearing balances (800 x 0.0947 x 0.88) ^c	66.7	
Lease financing cost (25 x 0.10) ^d	2.5	
Other long-term debt (61.4 x 0.1001) ^c	6.1	
Short-term debt (27.1 x .0948) ^c	<u>2.6</u>	
Total interest expenses		- 119.5
Before tax profit		56.7
Taxes (35.8%)		- 20.3
Net profit		<u>\$ 36.4</u>

^aThis is a summary statement constructed as if priced services were a separate reporting entity in and of itself which it is not, and as if the Federal Reserve were operating as a private business. It is formatted to provide certain indicators of financial condition and characteristics needed for comparison purposes and for rate of return calculations and is not intended to reflect the actual Federal Reserve's financial statement presentation.

^bOperating revenue includes sales taxes. Revenue derived from the PSAF excludes sales taxes.

^cFigures obtained from the Federal Reserve.

^dFigures are GAO estimates.

Table 36

Rates of Return and Profit Margins Derived from the
Federal Reserve's 1984 Adjusted Prototype
Priced Services Financial Statements

	<u>Pretax</u>	<u>Aftertax^a</u>
<u>Rates of return</u>		
Return on equity	27.1%	17.4%
Return on equity plus long-term debt	22.1	15.2
Return on total capital	22.1	15.2
Return on total assets	9.9	8.8
<u>Profit margins</u>		
Earnings after interest expenses as a percent of revenues	8.8	5.6
Earnings before interest (long- term debt, capitalized leases, and short term borrowing) as a percent of revenues	27.3	24.1

^aTax rate is 35.8 percent. See table 35.

Note: Data used for this table came from tables 34 and 35.

As can be seen, the rates of return calculated for the Federal Reserve are sensitive to which return is being measured and what assumptions are made about its asset base, i.e., whether or not it includes clearing balances and float or whether reserves are required for clearing balances or not. Thus, without clearing balances or float, the Federal Reserve's aftertax returns range from 12.3 percent to 13.7 percent depending on whether one is measuring the return on total assets or equity. With clearing balances but no clearing balance reserves the same returns range from 2.0 percent to 33.7 percent. A summary table showing the aftertax returns on equity and total assets is provided in table 37. In this table we have included returns based on some reconstructions not shown in this section.

Table 37

Aftertax Returns on Equity and Total Assets Derived
from Various Federal Reserve 1984 Prototype
Priced Services Financial Statements

	<u>Aftertax return on</u>	
	<u>equity</u>	<u>total assets</u>
	- - - -(percent)- - - -	
Federal Reserve 1984 PSAF proposal	13.7	12.3
Reconstructed Federal Reserve	31.4	1.9
Adjusted reconstructed Federal Reserve with effect of reserves applied to both clearing balances and earnings credits, and other adjustments	18.4	8.8
Adjusted reconstructed Federal Reserve with effect of reserves applied to both clearing balances, earnings credits and no excess clearing balances	12.8	9.3
Adjusted reconstructed Federal Reserve with effect of reserves applied to clearing balances but not to earnings credits and no excess clear- ing balances	9.7	9.5

NOTE: The purpose of this table is to show what happens to the aftertax return on equity and total assets of the Federal Reserve under various assumptions. The first set of numbers is based on the Federal Reserve's proposed 1984 PSAF (see table 30). The second set is based on our taking account of clearing balances and cash items in process of collection in the Federal Reserve's balance sheet (see table 33). The third set is based on our taking into account of clearing balances and float (cash items in process of collection less deferred availability cash items) in the Federal Reserves balance sheet (see table 36). The fourth set is based on the third set except that it assumes that there are no excess clearing balances and that the Federal Reserve must hold reserves against its clearing balances, as a bank has to, and that it pays earnings credits to banks on their clearing balances less the amount of reserves. The fifth set is based on the fourth set except that it assumes that the Federal Reserve pays earning credits on all clearing balances.

COMPARISON OF FEDERAL RESERVE PRICED SERVICE
DATA WITH SIX DATA PROCESSING FIRMS AND
BANK HOLDING COMPANIES

It has been suggested by critics that the Federal Reserve should pattern itself after data processing firms and base its returns on debt and equity and tax rate on their experience. Six data processing firms have been named by the critics as the ones the Federal Reserve should pattern itself after.⁴ In tables 38, 39, and 40, we present 1982 consolidated balance sheets, income statements, and rates of return for the six companies. Comparing 1982 financial statements of these companies with Federal Reserve 1984 prototype statements is not exactly comparable but the data for the six private firms were the latest available.

Our analysis of reported financial information for data processing firms does not lead us to conclude that the Federal Reserve should increase its PSAF. Our analysis does, however, show the difficulty of calculating the PSAF on the basis of simple comparisons with other firms. As table 41 shows, many comparisons can be made. Given the judgmental character of published financial data and the inherent difficulties of comparing firms within and between industries, disagreement about which comparisons are most appropriate are always possible.

The simplest way to estimate what the PSAF would be if the Federal Reserve were to be viewed as a data processing firm is to assume that the Federal Reserve had the same profit margin as a percentage of revenue as the data processing firms. For the data processing firms, pretax earnings before interest expenses on both long-term debt and short-term debt constituted 14.9 percent of revenues. The Federal Reserve's comparable profit margin without float and clearing balances is closer to 10 percent. Applying a 14.9 percent factor to the Federal Reserve's revenues results in a PSAF of \$87.1 million if float and clearing balances are excluded or \$107.9 if they are included. The increase in the PSAF that would be required by this calculation is from \$32 to \$36 million greater than the PSAF assumed by the Federal Reserve (depending upon the treatment of clearing balances and float). The maximum increase in the PSAF that would appear justified using the data processing model is less than the amount proposed by some of the Federal Reserve's critics. It translates into price increases of about 6 percent.

⁴The six companies are National Data Corporation, SEI Corporation, Anacomp, Electronic Data Systems Corporation, Systematics, Inc., and Automatic Data Processing, Inc.

Table 38

Prototype Consolidated 1982 Balance Sheet of
Six Data Processing Companies^a
(thousands)

<u>Assets</u>		
Current		
Cash and liquid investment	\$ 155,722	
Other	<u>344,051</u>	\$ 499,773
Total current assets		
Long-term assets	1,039,226	
Less accumulated depreciation	<u>258,674</u>	
Total long-term assets		780,552
Total assets		<u>\$1,280,325</u>
 <u>Liabilities</u>		
Current liabilities	\$256,401	
Long-term debt	204,868	
Deferred taxes, tax credits and revenues	<u>69,242</u>	
Total liabilities		\$530,511
 <u>Equity</u>		 <u>749,814</u>
Total liabilities and equity		<u>\$1,280,325</u>

Financial Ratios

	<u>Value</u>
Equity as percent of total assets	58.6%
Equity and long-term debt as percent of total assets	74.6
Total capital ^b as percent of total assets	80.0
Total capital ^b as percent of long-term assets	131.2
Equity as percent of total capital ^a	73.2
Equity as percent of equity plus long-term debt	78.5
Long-term debt as percent of equity	27.3
Total assets as percent of revenues	74.9
Long-term assets as percent of revenues ^b	44.4
Equity as percent of revenues	44.8
Equity and long-term debt as percent of revenues	62.7
Total capital as percent of revenues	59.9

^aThis statement is for illustrative purposes only. The statement is not representative of a reporting entity because all six companies are individual reporting entities. Their statements are not necessarily representative of the format of this statement.

^bTotal capital, as defined in Forbes, is the sum of equity, long-term debt, and deferred taxes and accumulated investment tax credits.

Table 39

Prototype Consolidated 1982 Income Statement
of Six Data Processing Companies^a
(thousands)

<u>Revenues^b</u>		\$1,523,663.5
<u>Expenses</u>		
Operating expenses	\$907,797.3	
Other expenses	<u>388,978.4</u>	
Total expenses		- <u>\$1,296,775.7</u>
Income from operations before interest expenses and taxes		226,887.8
Interest expenses		- <u>11,926.5</u>
Income before taxes		214,961.3
Provision for income taxes		
Current	\$71,661.7	
Deferred	<u>20,898.1</u>	
Total provision for income taxes		\$- <u>92,514.8</u>
Net income		<u>\$122,446.5</u>

^aThis statement is for illustrative purposes only. The statement is not representative of a reporting entity because all six companies are individual reporting entities. Their statements are not necessarily representative of the format of this statement.

^bInterest income is \$17,006,200.

Table 40

1982 Rates of Return and Profit Margins
for Consolidated Data Processing Companies

	<u>Pretax</u>	<u>Aftertax</u>
<u>Rates of return^{a, b}</u>		
Return on equity	31.5%	21.0%
Return on equity plus long-term debt	26.5	18.2
Return on total capital	24.9	17.0
Return on total assets ^a	19.9	13.6
<u>Profit margins^b</u>		
Earnings after interest expenses as a percent of revenues	14.1	9.4
Earnings before interest expenses as a percent of revenues	14.9	10.2

^aAssets used in ratio are average assets for the year.

^bAftertax return and earnings exclude deferred income taxes.

Table 41

Financial Ratios

<u>Item</u>	<u>Federal Reserve^a</u>		<u>Six data processing firms</u>
	<u>1^b</u>	<u>2^c</u>	
<u>Aftertax rates of return</u>			
Return on equity	13.7	17.4	21.0
Return on equity plus long-term debt	12.6	15.2	18.2
Return on total capital	12.6	15.2	17.0
Return on total assets	12.3	8.8	13.6
<u>Pretax rates of return</u>			
Return on equity	21.3	27.1	31.5
Return on equity plus long-term debt	18.0	22.1	26.5
Return on total capital	18.0	22.1	24.9
Return on total assets	17.2	9.9	19.9
<u>Other ratios</u>			
Equity/equity plus long-term debt	70.8	70.8	78.5
Equity/total capital	70.8	70.8	73.2
Capital/total assets	90.9	16.7	80.0
Equity/total assets	64.4	11.8	58.6
Long-term debt/equity	41.2	41.2	27.3
Long-term assets/revenues	51.7	45.8	44.4
Capital/revenues	51.7	45.8	59.9
Equity/revenues	36.6	32.4	44.8
Assets/revenues	56.8	274.2	74.9
<u>Profit margins</u>			
Net profit margin	5.0	5.6	9.6
Operating profit margin before taxes and interest payments	9.8	27.3	14.9

^aData derived from 1984 prototype priced services financial statements shown in this section.

^bWithout float and clearing balances.

^cWith float, clearing balances, and clearing balance reserves.

Note: Data from the Federal Reserve and the six data processing companies are not exactly comparable because 1984 Federal Reserve prototype data was used to compare with 1982 data from the data processing firms which was the latest available.

Because no firms in the market are exactly like the Federal Reserve, we appreciate the appeal of using data processing firms as a model for the Federal Reserve's PSAF. Data processing firms process financial and accounting data for their clients and utilize equipment similar to that employed by the Federal Reserve. For reasons cited below, however, we do not believe that the Federal Reserve should be required to adopt this model.

Developing the PSAF strictly from a data processing firm model results in a higher PSAF for two reasons. One is that the amount of capital (defined here to include equity long-term debt, deferred taxes, and accumulated investment tax credits) ⁵ for the data processing firms is higher, in relation to revenue, than for the Federal Reserve. The other reason, which is of greater importance, is that the rate of return on capital is higher for data processing firms.

Looking first at the amount of capital, the reason for the higher capital is not a difference in long-term assets in relation to revenues.⁶ The difference instead lies in the capital associated with the financing of short-term assets. Increasing the estimate of capital for the Federal Reserve based upon financing considerations unrelated to longer term assets seems to us to be particularly questionable because Federal Reserve operations are very different from data processing firms in this area. For example, in contrast to data processing firms, Federal Reserve priced services involve float and clearing balances, which are much more like banking activities. Also as a bank--and especially as a central bank--the Federal Reserve can collect funds owed it promptly from balances on deposit without carrying a significant volume of accounts receivable, which means it does not have to finance a large amount of short-term assets.

The most important reason that the data processing model leads to a higher PSAF is that data processing firms show higher rates of return on the book value of equity and of total capital. The reason we do not believe that the high rates of return shown for data processing firms are appropriate is discussed in the next section.

⁵This is the definition of total capital used in the Forbes magazine.

⁶The Federal Reserve's long-term assets as a percent of revenues are equal to or greater than those of data processing firms. Different depreciation schedules, lease arrangements, and the presence in data processing firms of unamortized software expenses and unamortized cost of acquired firms may, however, make this comparison somewhat misleading.

CALCULATIONS USING BANK HOLDING
COMPANY RATES OF RETURN APPEARS
TO GIVE REASONABLE RESULTS FOR PSAF

We believe that rates of return used in calculating the PSAF should represent rates appropriate for successful firms in order to foster competition. This section explains why we believe that basing the PSAF rates of return on those experienced by bank holding companies provides reasonable results, although the range of possible returns that result would allow for a higher rate of return than that used by the Federal Reserve.

The aftertax rates of return on equity and a broader measure of total capital implied by alternative assumptions for the 1984 PSAF are compared in table 42 with rates for selected groups of firms in 1983. Comparison of the rates of return on equity with the return on a broader measure of capital indicates the extent to which a firm is able to use funds generated by borrowing or by deferred taxes or tax credits to increase its return on equity. Because of the difficulty of using reported financial data to make comparisons among firms, the information in table 42 should be considered only as indicative of general relationships.

The 13.7 percent aftertax rate of return on equity proposed by the Federal Reserve is shown to be slightly higher than the 1983 median aftertax rates of return for banks generally (13.2 percent) and for the samples of largest bank holding companies that the Federal Reserve has used in calculating the PSAF (13.0 percent). The Federal Reserve's rate is also above the median of the 1,008 largest public corporations in the U.S. economy that cover a variety of industries. The Federal Reserve's proposed rate of return on equity is also more than 3 percentage points above the median rates for two major regulated segments of the economy: American Telephone and Telegraph (on a predi-vestiture basis) and natural gas distribution utilities. The Federal Reserve's rate of return is less than that for electric utilities although this comparison may be less appropriate because of the way that new construction is accounted for.

We have included rates of return for regulated utilities on the table because we feel that they also have some features in common with the Federal Reserve System. Rates of return on public utilities represent stable firms whose relatively riskless rate of return are established by federal, state, or local regulatory procedures. Another reason to consider utility rates of return is that the market value of utility stocks is approximately the same as the book values of those stocks. By basing its estimate of capital on the book value of its assets, the Federal Reserve is implicitly making the assumption that the market and book values of its operational service activities are the same. Because the Federal Reserve is not operating in a

Table 42

After Tax Returns on Equity and Total Capital:
the Federal Reserve's 1984 proposed PSAF Compared
to Actual Rates for 1983 for Selected
Private Sector Firms and Industries^a

	<u>Aftertax return on equity</u>	<u>Aftertax return on total capital^b</u>
FRS proposed 1984 PSAF	13.7	12.6
<u>Banks</u>	13.2	11.3
New York banks	14.6	11.4
Regional banks	12.9	11.3
Federal Reserve original 12 bank holding company sample	13.4	10.8
Sample of 25 largest bank holding companies	13.0	10.0
<u>Office services (7 firms)</u>	18.3	14.0
<u>Six data processing firms</u>	21.5	17.4
Regulated industries		
AT&T ^c	10.2	6.5
Electric utilities ^d	14.9	7.9
Natural gas distributors	10.6	6.9
<u>1008 firms in all industries</u>	12.6	8.6

Sources: Forbes, January 2, 1984, for all firms and industries except for six data processing companies, which are calculated by GAO from published financial statements. Federal Reserve rates of return were calculated by GAO from Federal Reserve data. The 1008 firms in all industries include all public companies with sales above \$450 million.

^aExcept for the six data processing firms rates of return are actually for a 12 month period that corresponds as closely as possible to calendar year 1983. Returns for the six data processing firms are for a period that corresponds as closely as possible to 1982. Except for the six data processing firms the rates of return are the median for the group. The percentage for the six data processing firms is calculated by consolidating the financial statements for the six firms. Except for the Federal Reserve and the six data processing firms, rates of return are based on data at the beginning of the period. The measures for the Federal Reserve and for the six data processing firms are the average for the period, which results in a somewhat lower rate of return if capital is increasing.

^bTotal capital as defined by Forbes includes equity, long-term debt (excluding debt maturing during the year) and accumulated deferred taxes and investment tax credits. This differs from the Federal Reserve's definition of capital in that it excludes short-term debt. The Federal Reserve implicitly assumes that it has no accumulated deferred taxes and investment tax credit.

^cData are on a predivestiture basis, i.e., before AT&T was broken up into separate companies.

^dForbes (p. 93) provides a note of caution in interpreting rates of return for electric utilities. Because of the way utilities are regulated, high rates of return can signify a high degree of noncash earnings and a possibly burdensome capital spending program.

regulated market, its rate of return could appropriately be above that of utilities to reflect market risk.

The Federal Reserve's rate of return on total capital as defined in table 42, implied by the proposed PSAF for 1984 is higher than that experienced in 1982 by banks, utilities, and firms generally. This is because the Federal Reserve's proposal assumes much less leverage⁷ from borrowing and deferred taxes than that which occurs in the other firms. Thus the Federal Reserve's return on the measure of total capital used in the table is more than 45 percent higher than that of all reporting firms and it is about 77 percent higher than that of regulated utilities. This comparison suggests the importance of considering more than one financial ratio when assessing the reasonableness of the PSAF.

As shown in table 42, the aftertax rate of return on equity and capital used by the Federal Reserve in calculating its PSAF is a rate of return less than for data processing or office service firms (a category that includes several data processing firms). Were the PSAF for 1984 set to equal the 21.5 percent 1982 aftertax rate of return for six data processing firms, the PSAF would have to increase by about \$27 million, an amount that would increase prices about 5 percent.

In our opinion it is not appropriate on the basis of available evidence to expect the Federal Reserve's aftertax rate of return on equity or capital to be comparable to that reported by data processing firms. Aside from problems inherent in using reported financial data for comparing the economic condition of different firms, data processing firms have been experiencing very rapid growth. Rapid growth is not characteristic of most of the Federal Reserve's operations. A rate of return on equity measured on a book value basis associated with rapidly growing firms does not seem to be appropriate for the services provided by the Federal Reserve. The growth expectation associated with data processing firms is evident in the fact that the market value of the stock of data processing firms is substantially greater than book value. One firm suggested as a model by Federal Reserve critics trades at nearly three times book value and another almost nine times book value; the price/earnings ratios of these firms accordingly are very high (i.e., earnings per share are a relatively low percent of the current market price of a share of stock).

High rates of return are often associated with enterprises that are considered to represent a financial risk to investors either because the firms might fail or because their earnings are extremely volatile. There seems to be no apparent reason why the Federal Reserve's check clearing activities should be

⁷Leverage is the amplification in the return on equity when an investment is financed partly with borrowed money.

considered so risky that the System should be expected to have rates of return on a risk adjusted basis substantially in excess of those obtained by banks, utilities, or firms generally throughout the economy.

If it could be demonstrated that the assets of the Federal Reserve were so highly undervalued that they could earn higher returns elsewhere, a case could be made that the rates of return on book value equity used in calculating the PSAF should be increased to reflect the higher earnings that could be achieved through other use of the assets. It would, however, seem preferable to find ways of selling or redeploying undervalued assets rather than raising Federal Reserve prices to a point where it might lose a share of the market that would be economical for it to serve with a somewhat reduced capital base.

For the various reasons cited, we believe that the 13.0 percent rate of return on equity for the largest bank holding companies provides an appropriate benchmark for the Federal Reserve to use in setting its PSAF. We recognize, however, that by citing bank holding company rates of return, an argument for a higher rate of return can be made because the market is now valuing bank holding company stocks at less than their book value. We therefore consider the information based on book values of bank holding companies to represent the lower end of an acceptable range for calculating rates of return relevant to the PSAF.⁸

As just noted, stock market information provides some evidence that the 13.7 percent aftertax rate of return proposed by the Federal Reserve may be somewhat on the low side to serve as a target rate for a bank holding company that the market determines is earning an appropriate risk-adjusted return. Toward the end of 1982 market prices of the stocks of the 25 bank holding companies were about 85 percent of the bank values of those stocks. If the assumption is made that the Federal Reserve should seek that return that the market provides to banks when the book value and market values of stock are equal, a relatively crude measure of a target rate of return can be calculated by dividing the aftertax rate of return on equity by the ratio of stock price to book value. The target rate so calculated based on the median value for 25 bank holding companies for 1982 data is 15.4 percent. (See table 43.)

⁸A purely judgmental argument can be made that to foster competition the Federal Reserve should base its PSAF rate of return on a rate higher than an average rate--e.g., a rate higher than 75 percent of the firms rather than 50 percent.

Table 43

Aftertax Rates of Returns and Ratios of Price to Book Value
for Twenty-five Bank Holding Companies

	Aftertax return on equity		Aftertax return on total capital		Ratio of price to book value		Adjusted aftertax ^a return on equity	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Citicorp	17.1	2	9.1	18	0.9	4	19.0	6
Bank America	7.7	20	7.7	20	0.7	6	11.0	20
Chase Manhattan	13.2	11	10.8	11	0.6	7	22.0	2
Manufacturers Hanover	14.0	9	9.8	15	0.6	7	23.3	1
J.P. Morgan	15.2	8	14.1	3	1.0	3	15.2	14
Chemical New York	13.9	10	11.9	8	0.7	6	19.9	4
Continental Illinois	6.8	21	6.5	22	0.5	7	13.6	17
First Interstate Bancorp	12.7	13	10.5	12	1.0	3	12.7	19
Bankers Trust	15.8	6	13.2	5	1.9	4	17.6	8
Security Pacific	16.3	4	11.7	9	1.1	2	14.8	15
First Chicago	11.6	16	9.9	14	0.7	6	16.6	9
Crocker National	5.3	22	5.4	23	0.5	7	10.6	21
Wells Fargo	12.5	14	9.4	17	0.8	5	15.6	11
Interfirst Corp.	def ^b	23	def ^b	24	0.8	5	def ^b	23
Mellon National Corp.	13.0	12	12.1	7	0.8	5	16.3	10
Marine Midland Banks	10.7	17	8.4	19	0.5	7	21.4	3
Irving Bank Corp.	12.3	15	9.6	16	0.7	6	17.6	8
Bank of Boston	15.7	7	12.9	6	0.8	5	19.6	5
Texas Commerce Bankshares	20.1	1	18.1	1	1.5	1	13.4	18
Norwest Bancorporation	10.4	18	6.9	21	1.0	3	10.4	22
Republic Bank Corp.	16.8	3	13.6	4	1.1	2	15.3	13
First Bank System, Inc.	13.9	10	11.4	10	0.9	4	15.4	12
First City Bancorporation	9.9	19	9.6	16	0.7	6	14.1	16
Bank of New York	16.2	5	15.2	2	0.9	4	18.0	7
NBD Bancorp.	10.7	17	10.0	13	0.7	6	15.3	13
Mean	13.0		10.8		0.8		16.2	
Standard Deviation	3.5		3.0		0.2		3.5	
Median	13.0		10.0		0.8		15.4	

Source: Forbes, January 2, 1984

^aCalculated by GAO by dividing the aftertax return on equity by the ratio of price to book value.

^bDeficit.

We believe the higher rate of return on equity that results from adjusting book value rates of return to "undo" the market discount represents the upper end of the range within which the rate used by the Federal Reserve in calculating its PSAF should fall. One problem with using this higher rate, however, is that it is not clear why the market is discounting the earnings of the large bank holding companies. If this discounting reflects effects of inflation and of problem domestic and international loans, it could be argued that it would be inappropriate to apply this discount to finances associated strictly with operational activities such as the Federal Reserve's priced services.

ADJUSTMENT OF THE RATE OF RETURN
TO ACCOUNT FOR ANTICIPATED ECONOMIC
CONDITIONS IS NOT NECESSARY

The 13.0 percent to 15.4 percent range for the aftertax rate of return on equity that we estimated is based upon recent past performance of the 25 largest bank holding companies, and it takes no account of the rates that such companies could reasonably expect to receive in the forthcoming period for which the PSAF is applicable. However, as noted in chapter 4 of the report, if the Federal Reserve is to adjust past rates of return to better approximate a return appropriate for a forthcoming period as the Nation's central bank, it must do this in such a way as to avoid predicting interest rates or future economic conditions. In keeping with this limitation, it also would not be appropriate for the Federal Reserve to forecast the future profitability of the banking industry when calculating the PSAF.

To gain insight into how important it might be for the Federal Reserve to take anticipated economic conditions into consideration when setting the PSAF, we compared bank rates of return with Treasury securities and with inflation for the 6 years 1978 through 1983, inclusive.⁹ We selected Treasury yields because these are market determined, riskless yields for a time horizon that approximates that being considered in setting the PSAF. We wanted to see if the relationship between bank earnings and other economic indicators was such that a current observation on market rates of inflation could be used in setting the rate of return for the PSAF calculation. Information on 1 year Treasury securities, inflation, and bank rates of return are contained in table 44.

Our analysis suggests that using current information about yields on Treasury securities and inflation would make little difference in the amount of the PSAF. Furthermore attempting to take this information into consideration introduces new judgment factors that detract seriously from the credibility of the adjusted estimate.

⁹The data for 1983 are based upon the first 9 or 10 months of the year.

Table 44

Bank Rates of Return, Treasury Security Yields, and
Inflation: 1978 Through 1983

<u>Year</u>	<u>1 year Treasury security</u>	<u>GNP deflator</u>	<u>Bank after- tax rate of return on equity^a</u>	<u>"Real" bank aftertax rate of return on equity^b</u>	<u>Excess of bank aftertax rate of return on equity over the yield on 1 year Treasury securities</u>
78	8.34	7.4	13.2	5.3	4.9
79	10.67	8.6	14.8	5.7	4.1
80	12.05	9.3	15.2	5.4	3.2
81	14.78	9.4	14.1	4.3	-0.7
82	12.27	6.0	13.7	7.3	1.4
83	9.48 ^c	3.9 ^d	13.2	9.0	3.7
Average	11.27	7.4	14.0	6.2	2.8

^aThe 1 year Treasury security yield for October 1983 was 9.81.

^b"Real" means adjusted for effects of inflation.

^cAverage for first 10 months.

^dAverage for 1st 3 quarters.

Sources: Federal Reserve Bulletins for January 1981, 1982, and selected issues through November 1983, Economic Report of the President, February 1983; Forbes Annual Reports on American Industry contained in January issues for years 1979 through 1984.

Our analysis of the relationship between bank holding company rates of return and yields on 1-year Treasury securities illustrates the difficulties of using current market information to make adjustments in the PSAF. Over the 6-year period, the average rate of return on equity for banks (a sample larger than the 25 used by the Federal Reserve) has exceeded the average yield on 1-year Treasury securities by 24 percent. Applying this percentage to the 9.8 percent 1-year Treasury rate prevailing at the end of October 1983 results in an expected aftertax rate of return on equity of 12.2 percent.¹⁰ This aftertax rate of return on equity is not a great deal lower than the 13.0 percent median rate for 1983 of the 25 largest bank holding companies or the 13.7 percent rate suggested by the Federal Reserve. If the Federal Reserve adopted a 12.2 percent rate, the resulting reduction in prices would be less than 1 percent.

The relationship between Treasury yields and aftertax rates of return on equity has not, however, been constant over the 5-year period. The rate of return on equity exceeded the yield on Treasury securities by more than the average in all but the years 1981 and 1982. In 1980 and 1981 Treasury yields were close to the aftertax rate of return experienced by bank holding companies. If 1981 and 1982 were eliminated, the average amount by which aftertax bank holding company rates of return exceeded Treasury yields was almost 4 percentage points in the 4 "normal" years. When added to the 9.8 percent yield prevailing in October 1983, this yields a rate of 13.8 percent--a rate almost identical to that selected by the Federal Reserve. A decision whether to count or eliminate 1981 and 1982, however, introduces an element of judgment that seriously undermines this approach as a useful alternative to basing the PSAF on past rates of return.

A similar judgment factor arises in considering what length to maturity should be used in selecting a Treasury security for use in the PSAF calculation. The rate would be a little lower

¹⁰The aftertax rate of return that would result from using Treasury rates would be slightly more (12.6 percent) if bank rates of return are compared with 1-year Treasury yields that occurred in the last quarter of the preceding year (i.e., with the yields that existed at the beginning of the year). This comparison would give more of a before-the-fact outlook to the PSAF adjustment.

if the 6-months bill rate were used and would be a little higher--as high as 14 percent--if 2-year security rates were used.¹¹

If the PSAF were to be calculated with an aftertax return on equity that reflects the degree to which the average aftertax return on equity of large bank holding companies over the past 6 years has exceeded the average rate of inflation, as defined by GNP deflator, over the same time period, a 9.7 percent aftertax return on equity would be justified. Such a rate is obtained by noting that over the time period in question the "real" bank holding company aftertax rate of return on equity has averaged 6.2 percent (see table 44) and the current rate of inflation is 3.3 percent. This gives a nominal, i.e., unadjusted for inflation, aftertax return on equity of 9.7 percent.¹² In using such a rate, however, judgments would have to be made about whether inflation is a better guide than Treasury rates in setting the PSAF and whether inflation in this quarter is a reliable indicator for the rate of inflation expected over the next year.

We believe comparisons with Treasury security yields and inflation helps to give additional insight into the reasonableness of the PSAF. We conclude, however, that even if the limitations imposed by the Federal Reserve's central bank status could be overcome, the judgment problems inherent in incorporating information relevant to anticipated economic conditions make it virtually impossible for the Federal Reserve to improve the credibility of its PSAF by incorporating such information.

The relative stability of a bank holding company aftertax rates of return on equity over the past 6 years suggests that the judgment errors inherent in using past rate of return data are not likely to be severe. By monitoring holding company performance on a quarterly basis, the Federal Reserve can also determine whether problems with the rate of return it has used are serious enough to merit correction before a fiscal year draws to a close.

¹¹Although there is more of an element of market risk inherent in a 2-year security than a 1-year one, using the 2-year security would include in the PSAF time horizon the time required for recommending and adopting a specific PSAF proposal. Use of futures contracts could accomplish the same purpose.

¹²A similar result occurs if the rates of return for bank holding companies are compared instead with inflation in the last quarter of the preceding year (i.e., with what the rate of inflation was at the beginning of the year.)



Table 45

Cost and Revenue For FRS Priced Services

Period	Operating cost ^a	Operating cost plus PSAFA ^a	Operating cost plus PSAF plus float ^a	Revenue ^b	Profit based on operating cost	Profit based on operating cost plus PSAF	Profit based on operating cost plus PSAF plus float
-(thousands)-							
1982							
July	\$ 35,184	\$ 39,721	\$ 59,201	\$ 32,723	\$- 2,461	\$- 6,998	\$ - 26,478
August	35,725	40,327	56,817	33,946	- 1,779	- 6,381	- 22,871
September	35,583	40,185	65,844	33,456	- 2,127	- 6,729	- 32,388
October	35,358	39,797	54,946	32,899	- 2,459	- 6,898	- 22,047
November	34,874	39,372	62,106	33,795	- 1,079	- 5,577	- 28,311
December	38,173	43,089	68,993	36,127	- 2,046	- 6,962	- 32,866
Total	<u>\$214,897</u>	<u>\$242,491</u>	<u>\$367,907</u>	<u>\$202,946</u>	<u>\$-11,951</u>	<u>\$- 39,545</u>	<u>\$ -164,961</u>
1983							
January	\$ 34,953	\$ 39,448	\$ 63,369	\$ 33,099	\$- 1,854	\$- 6,349	\$ - 30,270
February	34,408	38,892	57,499	31,830	- 2,578	- 7,062	- 25,669
March	37,840	42,729	57,647	44,592	6,752	1,863	- 13,055
April	35,073	39,623	50,714	41,072	5,999	1,449	- 9,642
May	35,831	40,502	53,829	42,502	6,671	2,000	- 11,327
June	37,299	\$ 42,104	55,546	44,189	6,890	2,085	- 11,357
Total	<u>\$215,404</u>	<u>\$243,298</u>	<u>\$ 338,604</u>	<u>\$237,284</u>	<u>\$ 21,880</u>	<u>\$- 6,014</u>	<u>\$ -101,320</u>
July	\$ 35,425	\$ 40,071	\$ 51,465	\$ 40,609	\$ 5,184	\$ 538	\$ - 10,856
August	37,731	42,591	49,575	44,724	6,993	2,133	- 4,851
September	37,205	41,780	48,468	41,257	4,052	- 523	- 7,211
October	38,847	43,192	45,085	42,497	3,650	- 695	- 2,588
November	41,727	46,170	49,532	42,864	1,137	- 3,306	- 6,668
December	44,122	48,790	50,647	46,161	2,039	- 2,629	- 4,486
Total	<u>\$235,057</u>	<u>\$262,594</u>	<u>\$294,772</u>	<u>\$258,112</u>	<u>\$ 23,055</u>	<u>\$- 4,482</u>	<u>\$ - 36,660</u>

^aFigures do not include the full cost of ACH. Eighty percent of 1982 ACH costs and sixty percent of 1983 ACH costs are not included in the cost data because FRS is using a phased approach to full ACH costing.

^bSlightly overstated because FRS has a revenue ceiling on some cash transportation routes through 1983. Figures include revenue that would have been received from cash transportation had their been no ceiling in 1982 and 1983. Does not include excess clearing balance revenues.

Source: Federal Reserve Board

Table 46

Allocation of Selected FRS Costs and Personnel by Service
2nd Quarter 1983

<u>Service</u>	<u>Total activity cost</u>	<u>Data processing cost</u>	<u>Equipment cost</u>	<u>Building operation cost</u>	<u>Average number of personnel</u>	<u>Building operation expense per person^a</u>	<u>Percent related to priced check service</u>
	- - - - - (thousands) - - - - -						
<u>Monetary and Economic Policy</u>							
Economic Policy Determination	\$11,420	\$ 1,847	\$ 274	\$ 596	686	\$ 51.4	
Open Market Trading	<u>1,661</u>	<u>84</u>	<u>67</u>	<u>162</u>	<u>123</u>	77.8	
Total	13,081	1,931	341	758	809		
<u>U.S. Treasury and Government Agencies</u>							
Savings Bonds	5,663	117	185	525	623	49.8	
Other Treasury Issues	4,262	148	110	381	434	51.9	
Government Agency Issues	850	36	19	92	82	66.3	
Other Treasury and Government Agency Service	1,803	284	51	153	157	57.6	
Treasury and Government Agency Coupons	560	2	8	45	77	34.5	
Food Coupons	1,616	11	38	190	218	51.5	
Government Accounts	<u>2,807</u>	<u>408</u>	<u>71</u>	<u>176</u>	<u>253</u>	41.1	
Total	17,561	1,006	482	1,562	1,844		
<u>Financial Institutions and the Public</u>							
Currency	19,589	183	2,302	2,024	1,510	79.2	
Coin	5,672	34	131	1,065	234	269.0	
Electronic Funds Transfer	13,849	2,112	835	306	461	39.2	
Commercial Checks	58,473	3,887	5,819	3,045	4,841	37.2	100.0
Other Checks	2,843	279	367	215	259	49.1	
Securities	4,174	545	170	250	206	71.7	
Loans to Depositor Institutions and Others	1,651	138	28	137	147	55.1	
Non-Cash Collection	1,687	47	53	106	152	41.2	
Public Programs	5,546	75	92	710	339	123.8	
Other	<u>3,842</u>	<u>309</u>	<u>118</u>	<u>2,536</u>	<u>223</u>	672.1	
Total	117,326	7,609	9,915	10,394	8,372		

Supervision and Regulation

Supervisor of District Financial Institutions	12,230	39	133	503	1,105	26.9	
Administration of Laws and Regulation Relating to Banking and Financial Market Structures System	8,834	1,031	225	450	672	39.6	
	<u>1,073</u>	<u>97</u>	<u>33</u>	<u>59</u>	<u>79</u>	<u>44.1</u>	
Total	22,137	1,167	391	1,012	1,856		
<u>Support Services</u>							
Data Processing	56,086	6,497	14,659	2,365	2,591	54.0	9.6
Occupancy Service	28,979	7	126	-0-	1,322	-0-	11.9
Printing and Supplies	2,797	28	498	396	252	92.8	13.1
Centralized Planning Service	1,063	58	27	116	88	77.9	17.7
District Projects	<u>4,410</u>	<u>145</u>	<u>125</u>	<u>81</u>	<u>126</u>	<u>38.0</u>	<u>11.9</u>
Total	[93,335]	6,735	15,435	2,958	4,379		
<u>Overhead</u>							
Administration	17,768	270	180	1,305	817	94.4	21.9
System Projects	12,481	1,164	445	149	241	36.5	9.8
Mail	1,614	^c	48	332	187	104.9	29.1
Legal	1,612	1	36	204	109	110.6	15.6
General Book and Budget and Expense Control	14,340	3,430	195	607	892	40.2	42.2
Files and Record Storage	2,082	3	57	962	141	403.3	26.1
Personnel	13,693	527	166	2,603	985	156.2	35.2
Purchasing	3,423	39	35	1,351	269	296.8	40.0
Protection	8,698	5	76	576	1,234	27.6	9.9
Motor Vehicles	786	-0-	175	56	56	59.1	25.6
Library	1,090	6	16	270	86	185.6	0.0
Telephone and Telegraph Operations	2,132	32	188	121	153	46.7	19.3
Audit	<u>4,794</u>	<u>128</u>	<u>42</u>	<u>324</u>	<u>423</u>	<u>45.3</u>	<u>23.2</u>
Total	84,513	5,605	1,659	8,860	5,593		
Total of all services	<u>\$254,618^b</u>	<u>\$24,053</u>	<u>\$28,223</u>	<u>\$25,544</u>	<u>\$22,853</u>		100

^aAn index number with the system average set equal to 100.

^bTotal does not include support services because it has been allocated to other service lines.

^cLess than \$500.

Source: Federal Reserve Board

Table 47

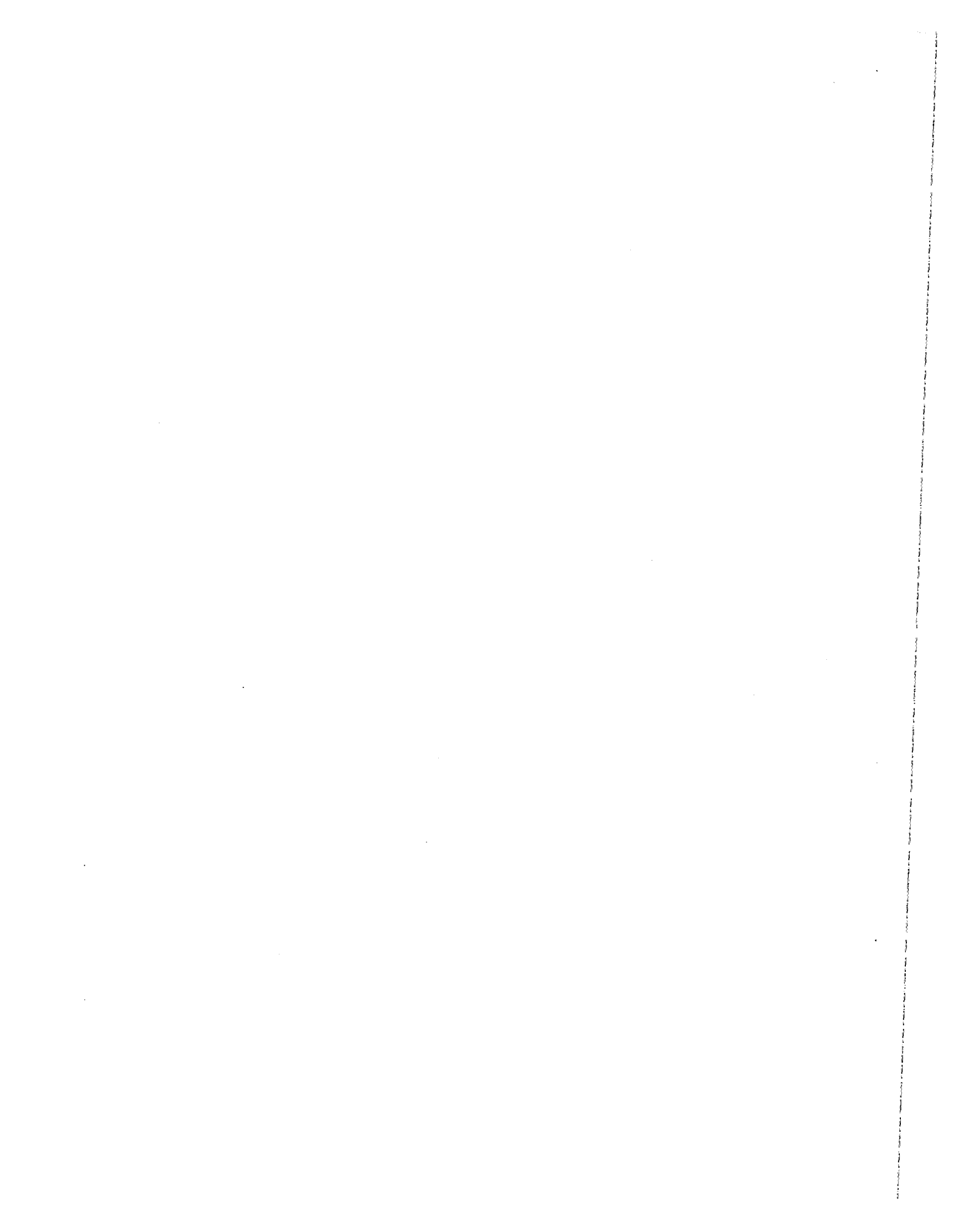
Comparison of Net Usable Square Feet, Building Expense
and Personnel for Check Service
2nd Quarter 1983

<u>Office</u>	<u>Check services</u>			<u>Square feet per person</u>	<u>Building expense per person</u>	<u>Building expense per square foot</u>
	<u>Square feet</u>	<u>Building expense^a</u>	<u>Personnel</u>			
Boston	35,839	\$170,241	208.69	172	\$ 816	\$4.75
Lewiston	5,110	27,557	16.92	302	1,629	5.39
Windsor Locks	24,892	97,473	102.37	243	952	3.92
New York	63,387	334,518	277.92	228	1,204	5.28
Buffalo	7,512	32,684	48.84	154	669	4.35
Jericho	38,525	116,316	96.24	400	1,209	3.02
Cranford	34,813	145,061	121.89	286	1,190	4.17
Utica	47,235	86,671	64.97	727	1,334	1.83
Philadelphia	36,717	166,639	190.49	193	875	4.54
Cleveland	15,157	41,833	96.05	158	436	2.76
Cincinnati	15,978	36,911	77.89	205	474	2.31
Pittsburgh	10,902	37,056	63.56	172	583	3.40
Columbus	9,750	25,611	39.89	244	642	2.63
Richmond	18,314	48,114	95.02	193	506	2.63
Baltimore	30,866	126,205	143.96	214	877	4.09
Charlotte	17,187	40,186	112.77	152	356	2.34
Columbia	17,955	34,481	48.50	370	711	1.92
Charleston	8,670	26,325	41.06	211	641	3.04
Culpeper	-0-	-0-	-0-	-0-	-0-	-0-
Atlanta	16,107	55,217	121.87	132	453	3.43
Birmingham	10,801	22,604	54.13	200	418	2.09
Jacksonville	15,708	33,582	115.67	136	290	2.14
Nashville	7,829	19,023	60.62	129	314	2.43
New Orleans	11,433	27,122	68.50	167	396	2.37
Miami	33,723	82,870	104.11	324	796	2.46

Chicago	60,337	204,028	451.01	134	452	3.38
Detroit	15,213	44,725	108.99	140	410	2.94
Des Moines	6,665	22,354	89.41	75	250	3.35
Indianapolis	13,019	39,486	68.25	191	579	3.02
Milwaukee	10,350	30,833	79.38	130	388	2.98
St. Louis	24,651	76,171	124.96	197	610	3.09
Little Rock	5,427	11,886	36.05	151	330	2.19
Louisville	7,608	19,401	35.83	212	541	2.55
Memphis	9,373	26,950	31.36	299	859	2.88
Minneapolis	37,683	191,395	353.31	107	542	5.08
Helena	3,607	8,253	22.31	162	370	2.29
Kansas City	19,761	62,484	97.31	203	642	3.16
Denver	19,670	53,228	144.05	137	370	2.71
Oklahoma City	9,669	24,580	66.46	145	370	2.54
Omaha	6,017	17,988	48.53	124	371	2.99
Dallas	39,801	115,611	199.89	199	578	2.90
Houston	14,559	39,125	73.35	198	533	2.69
San Antonio	7,444	16,228	49.99	149	325	2.18
El Paso	4,354	12,714	19.84	219	641	2.92
San Francisco	28,487	77,716	107.52	265	723	2.73
Los Angeles	19,031	55,380	139.90	136	396	2.91
Portland	9,047	23,164	35.76	253	648	2.56
Salt Lake City	7,768	15,381	40.55	192	379	1.98
Seattle	<u>10,869</u>	<u>21,169</u>	<u>44.60</u>	<u>244</u>	<u>475</u>	<u>1.95</u>
Total	<u>924,820</u>	<u>\$3,044,550</u>	<u>4,840.54</u>	<u>191</u>	<u>\$629</u>	<u>\$3.29</u>

Source: Federal Reserve Board

^aDoes not include housekeeping, security, and financing costs.



SECTION 10



SECTION 10

INSTITUTIONS AND INDIVIDUALS CONTACTED THAT
PROVIDED INFORMATION OR DATA FOR THE REVIEW

Air Continental Inc., Elyria, OH.
American Bankers Association, Washington, DC.
Bank of America, National Trust and Savings Association,
San Francisco, CA.
Benjamin Franklin Savings and Loan Association,
Houston, TX.
Charls Walker Associates Inc., Washington, DC.
Chemical Bank, New York, NY.
Chicago Clearing House Association, Chicago, IL.
Columbus Air Transport, Inc., Columbus, OH.
Direct Couriers of America, Inc., Dallas, TX.
Dixie Airways, Nashville, TN.
Farmers and Mechanics National Bank, Frederick, MD.
Farmers and Merchants State Bank, Fredericksburg, VA.
Federal Armored Service, Inc., Wyoming, MI.
Federal Home Loan Bank Board, Washington, DC.
Federal Reserve Bank of Chicago, Chicago, IL.
Federal Reserve Bank of New York, New York, NY.
Federal Reserve Bank of New York, Cranford Office, Cranford, NJ.
Federal Reserve Bank of Richmond, Richmond, VA.
Federal Reserve Bank of Richmond, Baltimore Branch,
Baltimore, MD.
Federal Reserve Bank of San Francisco, San Francisco, CA.
Federal Reserve Board, Washington, DC.
First American Bank, N. A., Washington, DC.
First Manhattan Consulting Group, New York, NY.
First and Merchants National Bank, Richmond, VA.
First National State Bank of New Jersey, Newark, NJ.
First Tennessee Bank, N. A., Memphis, TN.
First Wisconsin National Bank of Milwaukee,
Milwaukee, WI.
Hagerstown Trust Company, Hagerstown, MD.
Haywood, Charles F., ABA Consultant, University of
Kentucky, Lexington, KY.
Independent Bankers Association of America, Washington, DC.
Johnson, Robert W., Consultant, Purdue University,
West Lafayette, IN.
Lisco State Bank, Lisco, NE.
Mellon Bank, N. A., Pittsburgh, PA.
National Association of Mutual Savings Banks, Washington, DC.
National Savings and Loan League, Washington, DC.

P.D.Q. Executive Air Service, Pontiac, MI.
Republicbank Dallas, National Association, Dallas, TX.
Santomero, Anthony M., Consultant, The Wharton School,
University of Pennsylvania, Philadelphia, PA.
Savings Banks Trust Company, New York, NY.
Southwest National Bank, Wichita, KS.
The Chase Manhattan Bank, N. A., New York, NY.
The Citizens National Bank, Charles City, IA.
The Exchange National Bank of Chicago, Chicago, IL.
The First National Bank of Atlanta, Atlanta, GA.
The First National Bank of Boston, Boston, MA.
The First National Bank of Chicago, Chicago, IL.
The National Bank of Fredericksburg, Fredericksburg, VA.
The Philadelphia National Bank, Philadelphia, PA.
United States League of Savings Associations, Washington, DC.
United Virginia Bank, Richmond, VA.
White, George C., Consultant, New York, NY.
Wykoff, Frank C., Consultant, Pomona College, Claremont, CA.



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