Paul A. Volcker

PRICING POLICY COMMITTEE

Monday, February 5

Monday, February 5, 1979

4:00 p.m. -- Meeting of the Pricing Committee
-- at Board of Governors
-- Dining Room F

MISC 96 (10/77)

FEDERAL RESERVE BANK OF NEW YORK

Date 2/2/79

To Mr. Volcker

Of

From Whitney R. Irwin

The attached table presents this District's "market share" of System item volume for key PACS activities which are part of the pricing exercise. It should be noted that within the securities business, this District's "market share" in terms of value is significantly higher than the rest of the System. In 1978 this Bank handled 76.4 percent and 79.9 percent of marketable and nonmarketable Treasury financing, respectively.

We hope this information provides adequate support for New York's representation on the Subcommittee on Pricing Securities Services. As a practical matter we should chair that Subcommittee. Attached is a copy of Mr. Powers' memo to Mr. Sloane on this matter.

Whitney R. Irwin

AL:ERP:WRI/jeb

Attachments

cc: Messrs. Sloane
Henderson
Powers

SECOND DISTRICT'S "MARKET SHARE" OF SYSTEM VOLUME AMONG SELECT PACS ACTIVITIES (January-September 1978)

Activity	Second District Volume	System Volume	% Volume
Verifying Deposits (Currency)	1,532,711	6,387,504	24.0
Transfer of Reserve Account Balances	4,812,120	21,194,173	22.7
Noncash Collection	1,283,692	3,186,242	40.3
Safekeeping 1/	2,818,183	4,955,489	56.9
Automated Clearing House Operations	7,628	103,850	7.3
Commercial Checks: Processing	1,244,324	10,492,996	11.9
Original Issue Savings Bonds	2,569,486	14,904,738	17.2
Original Issue Marketable Treasury Issues	79,649	383,777	20.8
Servicing-Marketable Treasury Issues	717,868	1,673,340	42.9
Servicing-Government Agency Issues	176,224	363,046	48.5

1/ Includes volume data for Clearing Activity.

Government Securities Activities of this Bank
Compared to System Totals

1. This Bank's inter-district transfers of government and agency securities represent 43% of the System's total of inter-district transfers.

2. This Bank handles on an intra-city basis alone a volume of transfers equal to 70% of the System total.

3. This Bank handles 76.4% of the dollar value of all issues, redemptions and exchanges of Treasury bills, notes and bonds.

4. This Bank handles 79.9% of the dollar value of all issues, redemptions and exchanges of non-marketable securities.

OFFICE CORRESPONDENCE

DATE January 30, 1979

To Mr. Sloane

SUBJECT Securities - Pricing

FROM Edwin R. Powers

E R Powers

In accordance with your suggestion, after the session in your office on Monday regarding pricing of certain services offered by the Federal Reserve System, I called Mr. Brundy, Board of Governors, in an attempt to determine the status of the pricing project for securities.

This morning, Mr. Brundy returned my call and it seems that Mr. Eisenmenger, Senior Vice President at the Boston Fed, is the individual running with the ball. However, he is only now beginning to assemble a subcommittee to focus on pricing as it relates to securities. I mentioned to Mr. Brundy that we in New York were most anxious to have representation on this subcommittee because of our major involvement in the whole spectrum of securities operations. I further mentioned that I would like to have Mr. Thieke, Assistant Vice President, as the New York Fed's member on the subcommittee.

Mr. Brundy, who appears to be working directly for Mr. Eisenmenger, indicated that he will convey my thoughts to Mr. Eisenmenger today. Hopefully, we should be hearing favorably on this recommendation shortly.

ERP/da

cc: Mr. Brathwaite
Mr. Thieke

✓

TO: Board/Presidents Pricing Policy Committee

FROM: Pricing Task Force

SUBJECT: Modifications to PACs for Pricing

DATE: February 5, 1979

In its report dated September 29, 1978, the Pricing Task Force made a number of recommendations related to pricing of check processing and ACH services. The Committee did not act favorably upon certain issues in that report.

However, three recommendations were technical, proposing changes to PACs accounting to reflect more accurately the true costs of the services provided. The three recommendations were:

.. use of the dollar ratio allocation for only those protection costs relevant to minimum building security and use of the direct usage allocation of all other security and protection costs,

.. at the option of each Reserve office, the redistribution of building costs for vault and other high security areas separately from those of the rest of the building,

.. the costs of gross settlement for work processed by the Reserve Banks be recovered by including relevant member bank and interdistrict accounting costs in check collection costs. It is also recommended that net settlement be priced explicitly but not until the next phase of pricing.

The relevant portions of the September 29 report are attached.

The Pricing Task Force urges that the Policy Committee accept these recommendations and forward them to the Conference of First Vice Presidents for implementation. The lead time for implementation of changes to the PACs system is lengthy. If the System is to be able to change for check processing and ACH services by July 1, 1980, based on accurately measured costs, the required changes in the cost accounting system should soon get underway.

Attachment

B. Reallocation of PACS Costs

The following excerpts are typical:

> Alternatives under the full cost guidelines might be: Allocations to non-priced functions. Large portions of overhead and support costs could be attributed to the existence of the Fed to carry out its main function of monetary policy...Minor alterations in cost allocations...(that)...would less arbitrarily match expenditures with services. One example of this is the building cost allocation which includes expenses related to the vault and other security equipment connected with the provision of cash services... Allocations to components of the payments services... processing, transportation and settlement...
>
> (Philadelphia)

> PACS was never intended to support pricing decisions and should be modified to suit the pricing purpose before we can know what revenue would be required for cost recovery. Adjustments to full PACS costs should be made...removing cost elements that are irrelevant to the public clearing house function. In particular, the treatment of buildings...should be modified.
>
> (Cleveland)

> Our preference would be to use PACS data adjusted to eliminate any cost allocations not directly related to the service being priced...For example, our large protection force would not be necessary for a check operation and would not be used by our commercial check competitors.
>
> (Richmond)

Recommendation

It is recommended that PACS instructions be amended to permit the following two changes:

- use of the dollar ratio allocation for only those protection costs relevant to minimum building security and use of the direct usage allocation of all other security and protection costs,

- at the option of each Reserve office, the redistribution of building costs for vault and other high security areas separately from those of the rest of the building.

Discussion

Seven banks suggested reallocation of specific costs away from the check service line so as to improve the cost accounting system. However, lowering check costs would result in higher costs of other services.

The protection activity is one of the largest overhead activities in terms of total expense accounting for 4.3 percent or $29.0 million of total System expenses. Although the PACS manual permits allocations of protection costs on a direct usage basis, the Board of Governors' PACS maintenance and monitoring group has found that only about 15 to 20 percent of these costs are being allocated on a direct usage basis with the remainder allocated on a dollar ratio basis. The 1977-78 review of PACS conducted by the Subcommittee on Accounting Systems, Budgets and Expenditures found that the dollar ratio basis for allocating overhead costs appeared to result in inordinately large allocations to the currency paying and receiving and commercial check activities. That subcommittee recommended that the cost of Federal Reserve currency and other shipping expenses be excluded from the calculation of the dollar ratios used to allocate overhead. This recommendation, which becomes effective January 1, 1979, will reduce the overhead allocation of protection to currency and commercial check activities. Even with this change, the cost of the protection activity could be more accurately allocated if the PACS instructions were modified to put more emphasis on direct usage allocations.

Two different suggestions were made to improve the cost accounting for building costs. Philadelphia suggested that the costs of building activity be segregated between those related to security and those related to other areas, thus reducing costs of check services, particularly in Reserve offices having new buildings. This suggestion was adopted by the Task Force.

Cleveland suggested removing the costs of the public edifice portions of Federal Reserve buildings from check costs as well as substituting local fair market rental value for the present charges for insurance, taxes, and depreciation. This approach recognizes that Reserve offices occupying new buildings have a much greater proportion of their total expenses reflected in taxes on real estate and property depreciation than do Reserve offices occupying old buildings. It also has the advantage of making it unnecessary to include capital costs of buildings in a private sector adjustment factor, which may be added in the future. A disadvantage is that it would necessitate keeping two sets of books. Moreover, at the present time no private sector adjustment factor is included in any other cost. For these reasons the Task Force does not endorse the Cleveland suggestion.

C. Treatment of Settlement Costs

> With the increased incentive for local clearings, banks would begin to make greater use of our settlement services. In fact, city clearing house banks (our greatest potential competition) currently use our settlement facilities, and in some instances,

some of our personnel and space at no cost. We believe that with pricing, we should also charge for settlement and any other services (people, space, etc.) provided to clearing houses. Our concern is that clearing houses established in non-Fed cities could equally demand that we provide facilities and personnel free for their use.

(Boston)

As clearing arrangements evolve outside Federal Reserve channels, the System is likely to be asked to make settlement on its books. Since such settlements should probably be priced, we would recommend that any pricing proposal state that prices for settlement services will be implemented.

(Kansas City)

Recommendation

It is recommended that the costs of gross settlement for work processed by the Reserve banks be recovered by including relevant member bank and interdistrict accounting costs in check collection costs. It is also recommended that net settlement be priced explicitly but not until the next phase of pricing.

Discussion

There are two types of settlement. Gross settlement refers to debiting and crediting a member bank's account each day in detail for all work processed by a Reserve office. Most of this activity is associated with payments mechanism services as the following analysis of entry activity in the Fourth and Sixth Districts shows:

Check entries	42%
ACH entries	3
Fund transfer entries	35
All other entries	20
	100%

The recommended change for gross settlement could be accomplished by redefining the member bank and interdistrict accounting activities as support activities and redistributing their costs to the appropriate output activities on the basis of entry volume. Under this approach the originator of work processed at the Reserve office (e.g., the depositor of a cash letter) would bear the total cost of settlement. This change does, however, require an amendment to the PACS instructions.

Net settlement refers to posting a summary debit or credit to a member bank's account from a zero-balance listing submitted by an outside processor. Some examples of net settlement services are daily settlements for local check clearing arrangements where the Reserve office does not participate in the clearing, and for funds transferred over Bank Wire II.

Net settlement is clearly an integral part of the payments mechanism and therefore should logically be priced. However, because of its association with the wire transfer service, which will not be priced in the first phase, we recommend that net settlement be priced in the next phase of pricing. The price should be based on the cost of advice and entry preparation, member bank and interdistrict accounting, and possibly an allowance for risk.

"Pricing Cash Services"/WRI

PRICING CASH SERVICES

The Cash Services Pricing Task Force considers cash services to consist of two separate elements - processing and transportation services. The Task Force recommends these two elements be priced separately. This Bank agrees with that division but not with the method of pricing the cash processing portion.

Cash Processing Services

What services to price is the core issue. Should the Federal Reserve absorb the cost of providing cash services as part of its mandated responsibility under the Federal Reserve Act to furnish an "elastic currency" or should the banking community pay for some portion of Federal Reserve cash processing services? If so, what portion?

There is a general concensus among the Task Force, the Reserve Banks and the Board's staff that the cost of certain obvious governmental, or central bank, cash functions should not be recovered through pricing. Such functions are:

- .printing of bank notes;
- .transportation of bank notes from the Bureau of Engraving and Printing to Reserve Bank offices;
- .cost of cancelling and cutting unfit currency;
- .cost of currency verification and destruction operations.

The only other area of general agreement is that prices should not encourage "overlapping" deposits or "cross-shipments," i.e., banks depositing and ordering currency of the same denomination within a week or ten days. However, there is considerable difference of opinion as to whether this should be accomplished by pricing the deposit or order side. With a Solomon-like decision the Task Force has decided to price each side equally. Thus, except for the costs mentioned above, they propose equal prices for both ordering and depositing. It is our understanding such prices will be quoted in terms of a per bundle charge.

The Board's legal staff has offered some comment in an attempt to clarify this issue. They have indicated:

> "If the System is obligated to provide a particular service, then by choice the System will absorb the cost of its provision; and if the System is not obligated to provide a particular service, then the System intends to charge a user of that service for its provision."

The Board's Legal Division believes that:

> "...the distinguishing characteristic between an 'obligatory' service and a 'convenience' service may logically and legally lie in the necessity of providing the particular service to member banks. For example, providing member banks with currency, regardless of whether the notes are newly issued or are fit currency previously issued, might be

considered an obligation since the System in the preamble to the Federal Reserve Act is charged with furnishing 'an elastic currency' (38 Stat. 251). However, tailoring such a currency shipment to fit the particular request of a member bank may not necessarily be considered an obligation of the System. Under the policy position set forth in this memorandum, the System would absorb the cost of providing currency, generally, but a member bank could be charged for requesting a 'customized' mix of note denominations other than that ordinarily offered by the Reserve Bank."

Unfortunately, this opinion is sufficiently broad to encompass almost any of the proposed solutions.

This Bank would propose only to charge depositors of currency and to impose three levels of charge:

1) zero charge for deposits of unfit currency;
2) moderate charge for deposits of sorted fit currency sealed in plastic bags, and
3) a full, if not penalty, charge for deposits of unsorted currency.

We share the belief that printing and transportation of new currency, and costs associated with destruction are obligatory central bank functions. Additionally, we believe that an equitable distribution of coin and currency is an obligatory central bank function.* However, we do not interpret equitable distribution to mean distribution to individual financial institutions. We believe equitable distribution means absorption of the costs of distributing to Reserve offices. This clearly was the function of the Sub-Treasuries.

Transportation Services

The Task Force recommendation will have the effect of passing through present transportation costs. Additionally, the System Transportation Service has recommended a system of pricing based on distance, value and weight. This is the normal method of pricing in the armored car industry but will result in higher transportation charges for remote country banks than for nearby banks. We support this recommendation because, in our opinion, to price otherwise would make it difficult, if not impossible, to maintain a viable transportation service. Additionally, charging in a fashion different from that prevalent in the industry could subject us to legitimate and embarrassing criticism.

Continued System provision of transportation services seems justified on two counts: 1) we can control vehicle scheduling and thus our work flows, and 2) we should be able to obtain lower rates for banks.

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* Treasury Department Circular No. 55, Sec. 100.2, states: "The Federal Reserve Banks and branches are authorized and directed to make an equitable and impartial distribution of available supplies of currency and coin in all cases directly to member banks of the Federal Reserve System and to nonmember commercial banks."

There is one unusual circumstance with respect to this District that Mr. Volcker should be aware of. We do not pay for cash transportation services to New York City banks. Rather, we reimburse them based on a fee schedule established in 1972 and unchanged since. When we price our services we obviously will discontinue the reimbursement program. We do not plan to enter into the provision of cash transportation services in New York City.

Whitney R. Irwin
February 1, 1979

Fifth Progress
Report

1/31/79

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TO: Board/Presidents Pricing Policy Committee

FROM: Pricing Task Force

FIFTH PROGRESS REPORT

Since our last progress report, the Pricing Task Force has:

1) Established a Subcommittee on Wire Transfer Pricing, reviewed the report of the Subcommittee, and completed a report on the Subcommittee document (both documents attached). At the meeting scheduled for February 5, 1979, the Task Force will discuss its report and will recommend that the conclusions of the Subcommittee and the Task Force be accepted by the Pricing Policy Committee and forwarded to each District for comment. The Subcommittee on Wire Transfer Pricing consists of: Howard Crumb, Chairman (New York); Richard Anstee (Board); Robert Dietz (San Francisco); Ralph Kimball (Boston); Thomas Ormiston (Cleveland); William Brown (Denver); and Robert Fitzgerald (Detroit).

2) Established a Subcommittee on Coin and Currency Pricing and reviewed the first report of the Subcommittee. Since the issues involved in pricing cash services are complex, the Task Force will discuss the issues further before presenting recommendations. However, on February 5, the Task Force will discuss with the Pricing Policy Committee some of the many issues involved in pricing cash services and we expect to have by March 15 a completed document with recommendations for consideration by the Policy Committee. The Subcommittee on Coin and Currency Pricing consists of: Peter Viguerie, Chairman (Atlanta); William Conrad (Detroit); John Kerr (Atlanta); Gary Knecht (Dallas); James Stull (Board); and

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P. Viswanathan (Philadelphia).

3) Received a preliminary document from the Subcommittee on Pricing Administration. The Task Force will work actively on pricing administration issues and plans to have a document for your consideration in late spring.

4) Begun organizing a Subcommittee on Safekeeping of Securities and Noncash Items. This Subcommittee will study issues involved with pricing these services, including differences in availability of the services at various Federal Reserve banks and problems in charging for securities used as collateral. The Subcommittee will report to the Task Force with their findings before proceeding to develop prices.

5) Investigated the pricing of securities services (purchase and sale). The Task Force will discuss at the February 5 meeting with the Pricing Policy Committee the problems associated with pricing this service. The Task Force intends to recommend that the service be abandoned rather than priced.

1/31/79

A REPORT OF THE PRICING TASK FORCE

WIRE TRANSFER PRICING

CONTENTS

I. Executive Summary

The Federal Reserve Wire System provides a member bank with the capability to transfer ownership of reserve account balances immediately to another member bank. This service is provided under the terms of Subpart B of Regulation J. Similar services have been offered by the System since 1917. At present, the wire transfer service is highly automated and makes use of the Federal Reserve Communications System.

This report contains the analysis and recommendations of the Pricing Task Force to the Joint Board/Presidents Pricing Policy Committee on the pricing of wire transfer services. The report first defines the services that the System provides for the wire transfer of reserve account balances (Section II). Three alternative price structures are then analyzed in Section III. Section IV considers two alternatives for calculating an adjustment to make prices based up PACS costs comparable to prices in the private sector. In Section V a number of recommendations are provided on ancillary matters related to wire transfer pricing.

RECOMMENDATIONS

The Pricing Task Force recommends:

(1) The eight services shown in Section II should be provided by all Reserve Banks, and prices should be imposed for them. No other service of the wire transfer function currently offered should be priced.

(2) Wire transfer prices should be uniform nationwide for each type of service provided, but the prices should differentiate between

interdistrict and intradistrict transfers (ACH Model). However, some members favored the ACH Model primarily because it would avoid the possible criticism that the System is unfairly subsidizing interstate transfers, the only wire transfer service where private-sector competition currently exists.

(3) Initially, Reserve Banks should not offer immediate advice service on standing order from a receiver. If such a service is offered later, each transfer under the order should bear the immediate advice charge.

(4) Prices should be based on total PACS costs, adjusted upward by 11 per cent to cover imputed financing cost.

(5) Originating institutions should bear all charges for the eight services to be offered initially.

(6) The $1.50 charge now imposed for transfers of a value of $1,000 or less should be dropped after prices are implemented.

(7) PACS reports should be modified to provide additional information on operation costs.

II. Wire Transfer of Funds Services

Four principal activities are performed by the Federal Reserve Banks in providing this service:

(1) Intradistrict Transfer. Receipt of a transfer request (debit) from an on-line bank, and delivery of an advice (credit) to a bank in the same district. (Includes a mail advice for an off-line bank.)

(2) Interdistrict Transfer. Same as Intradistrict Transfer, except that the requesting and receiving banks are located in different districts.

(3) Off-line Transfer Request. Accepting a transfer request from an off-line bank, authenticating, processing and validating the request, and entering it into the automated communications facilities; and

(4) Immediate Advice. Advising an off-line bank by telephone, telegraph, or messenger on the same business day of a funds transfer credit received for its account when requested by the originator or the receiver. Not all Reserve Banks offer immediate advice service on standing order from the receiver.

For the year ending in September 1978, the System recorded the following cost and volume for providing each of the activities:

	Cost ($ million)	Volume (000)
Intradistrict transfer	$ 5.8	8,638
Interdistrict transfer	7.1	8,638
Off-line transfer request	4.9	2,564
Immediate advice	2.1	1,720
	$19.9	

Chart 1 shows schematically how intra- and interdistrict transfers are carried out. Chart II depicts schematically how the four activities described above are combined in providing the eight services to be priced. Th eight services are:

(1) <u>Intradistrict On-line Transfer without Immediate Advice</u>. A member bank directly connected to the Fedwire requests a transfer to another bank in the same district and does not request that the receiver be given an immediate advice.

(2) <u>Intradistrict On-line Transfer with Immediate Advice</u>. Same as (1), except that the Reserve Bank advises the receiver of the transfers immediately upon receipt.

(3) <u>Intradistrict Off-line Transfer without Immediate Advice</u>. A member bank not directly connected to the Fedwire requests (usually by telephone) a transfer to another bank in the same district, and does not request that the receiver be given immediate advice.

(4) <u>Intradistrict Off-line Transfer with Immediate Advice</u>. Same as (3) except that the Reserve Bank advises the receiver of the transfer immediately upon receipt.

Chart 1

BASIC TRANSFER SERVICES
Schematic Approach

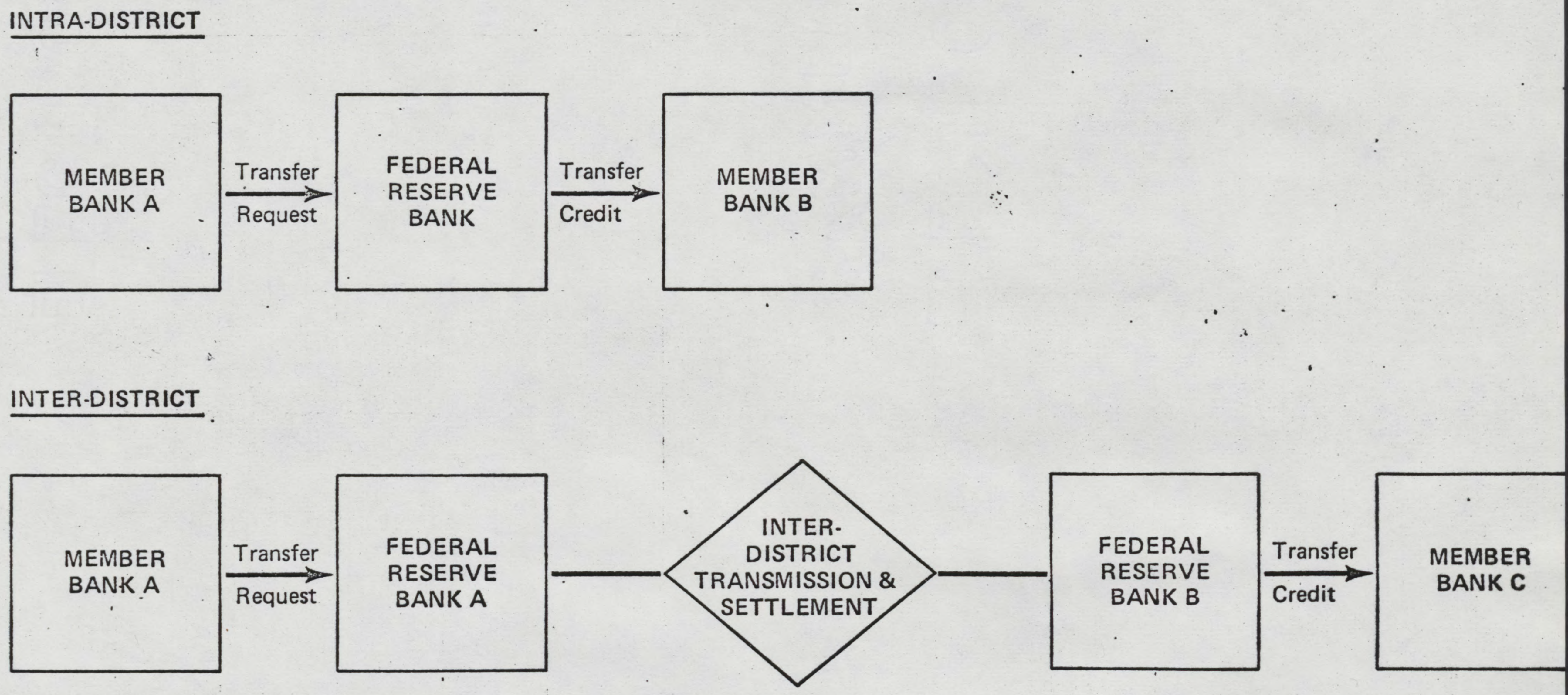
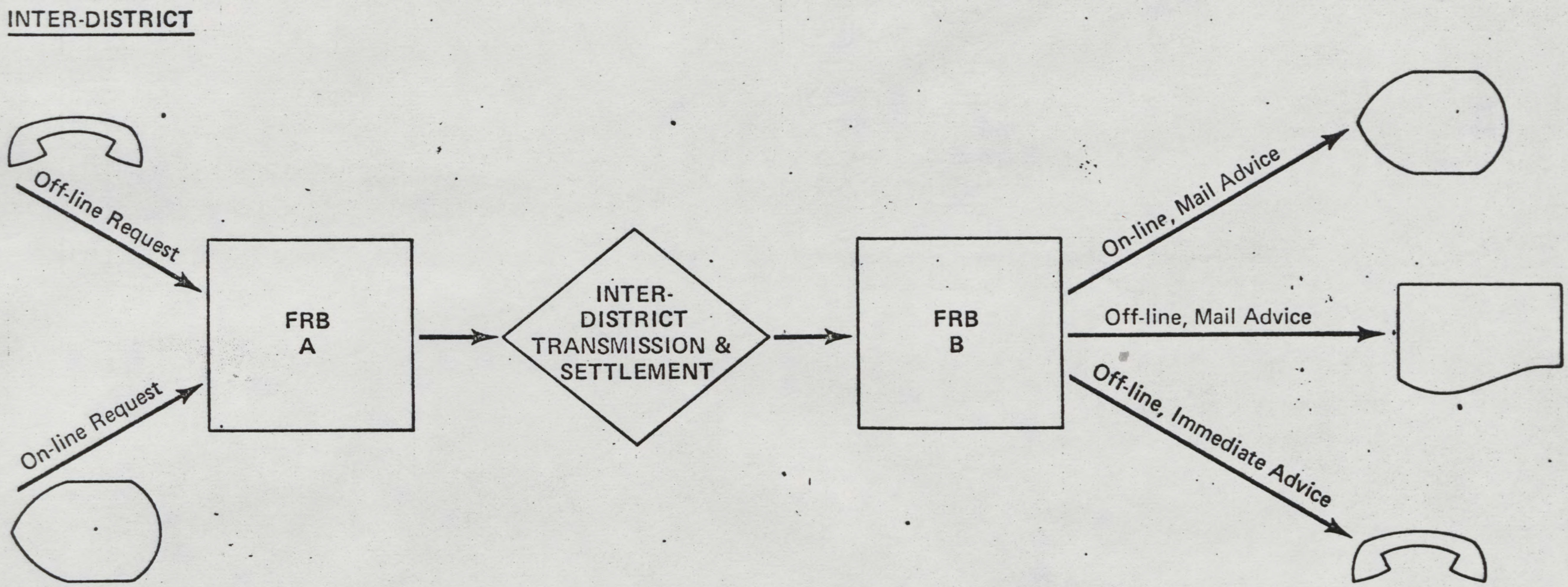


Chart 2

ADDITIONAL TRANSFER SERVICES
Schematic Approach



(5) Interdistrict On-line Transfer without Immediate Advice.

(6) Interdistrict On-line Transfer with Immediate Advice.

(7) Interdistrict Off-line Transfer without Immediate Advice.

(8) Interdistrict Off-line Transfer with Immediate Advice.

Services (5) through (8) are the same as (1) through (4) except that sender and receiver are in different Reserve Districts.

The Task Force recognized that some Reserve Banks provided immediate advice on standing order from the receiver. The Task Force debated at length whether this service should be priced or discontinued. The Task Force agreed that this service should not be offered initially, but that if strong demand for the service developed, a District could provide it at the same price as immediate advice requested by the originator.

Returns and adjustments, as well as service messages on behalf of member banks should be considered part of the overall funds transfer service, just as they are considered part of the check collection service in the Board's proposal for check prices. Therefore, no explicit price should be charged for these services.

III. Alternative Pricing Methods

The Task Force considered three basic methods of pricing wire transfer services. These three basic methods are: (1) a national price structure that is uniform among Districts and between intra- and inter-District transfers; (2) a price structure differentiating between intra- and inter-District transfers but not taking into account cost differences among Districts. This structure is modelled on the structure proposed for automated clearinghouses (ACH); and (3) a District pricing structure based on District costs for intra-District services and on national costs for inter-District services. This structure is modelled on that proposed for check processing.

Each of these alternatives can meet the Task Force's requirement of recovering all PACS costs for the service, including direct, overhead, and System-allocated costs, based on current wire transfer volume. Further, it is assumed that with each of the alternatives, Reserve Bank service levels would initially remain unchanged. Finally, costs were marked up by 11 per cent for comparability with the private sector and rounded up to the nearest multiple of five cents.

For comparative purposes each of the Task Force's three alternative price structures is described in detail below.

A. National Price Structure

The national price structure differs from the pricing approaches proposed for check collection and for automated clearinghouse (ACH) services. The national price structure would be based upon the assumption that the basic funds transfer service provided by the System does not vary either among Districts or between Districts. Thus, the services of intradistrict transfer and interdistrict transfer (services 1-4 and 5-8, respectively, in the preceding section) would be consolidated into a single service. One price, uniform across all Districts, would be established for this single, national service. Uniform national prices would also be established for the additional services of off-line transfer requests and requests for immediate advice. The resulting prices, assuming an 11 per cent private-sector adjustment, are shown in Table 1. All charges would be imposed on the originator of the wire transfer, with the possible exception of standing orders for immediate advice.

Arguments Favoring a National Price Structure

The Subcommittee on Wire Transfer Pricing recommended a national price structure for a number of reasons. First, there are considerable differences in the PACS cost reported for the Districts, with respect to both the basic transfer service and the additional services (Table III). These cost differences may not truly reflect differences in resource cost of providing the services. Moreover, the cost differences do not appear to arise from differences in the level of service provided in the Districts. Instead, these apparent cost differences are thought to arise principally from the cost accounting methods in use. In addition, the levels of excess capacity in the wire transfer facilities vary from District to District. Prices based on PACS average cost cannot reflect varying capacity levels, so

Table 1
National Price Structure

	Intradistrict and Interdistrict			
	On-line		Off-line	
	Without advice	With advice	Without advice	With advice
PACS Cost	.75	1.98	2.65	3.88
Proposed prices	.85	2.20	2.95	4.35

that prices set on that basis would be too high in the short-run and might curtail development of the wire transfer service. In any case, capacity differences are expected to diminish over time. Therefore, member banks in Districts recording higher PACS costs, or where transfer volume is low, would, in effect, pay a penalty for being located in that District.

The second reason that the Subcommittee favored a national price structure was that the basic wire transfer service provides immediate transfer of balances wherever located. In this view there is no justification for distinguishing between transfers within the same District and transfers among Districts. The processing and accounting technology employed is thought to be essentially the same in either case. Distinguishing interdistrict from intradistrict transfers would impose artificial divisions of what is in essence a national market.

A third reason for a national price structure is that all other firms currently providing such services do so under a national price structure. Finally, a uniform national price would facilitate administration. There would be no need to record the destination of the transfer in order to determine the charge.

Arguments Against a National Price Structure

A national price structure does not reflect the actual cost of providing the service to each user of the service. Thus, banks transferring funds in a high cost District would receive a subsidy, from those in a lower-cost District. A more serious problem arises from the fact that there is an incentive for a District to improve its service to its member banks because those banks only pay a proportionate share of the cost of the improved service. Banks in other Districts would bear a share of the cost of the improved service. This problem could be avoided by maintaining a uniform service level, but doing so would require that service levels be determined nationally, which might stifle innovation and productivity improvement.

Another drawback of a national price structure is that it creates unrealistic incentives for private competitors. In a District where costs are low and volume is high, the System price would be well above cost. Private competitors would tend to enter this market whether or not they were, in fact, able to provide the service as efficiently as the Reserve Bank. In cases where the System price was below cost, private competitors would be discouraged, even if they could perform the service more efficiently than the Reserve Bank.

B. Differentiated National Prices for Intra- and Interdistrict Transfers (ACH Model)

Under this alternative the price for an interdistrict transfer would be computed by applying a surcharge for interdistrict transmission and settlement to a basic national charge. Intradistrict transfers would not incur this surcharge. This pricing structure parallels that proposed for ACHs, in which there is a single price (with the exception of New York) for intradistrict items and a surcharge for interregional items. The resulting prices are shown in Table II.

Table II
National Differentiated Costs and Prices*
(ACH Model)

(11% markup rounded up to nearest nickel)

	Intra-District				Inter-District			
	On-line		Off-line		On-line		Off-line	
	Without advice	With advice	Without advice	With advice	Without advice	With advice	Without advice	With advice
Prices	.75	2.15	2.90	4.25	.95	2.30	3.05	3.95
PACS costs	.68	1.91	2.58	3.81	.82	2.05	2.72	4.40

* Applied in all Districts.

Advantages of the ACH Model

A price structure that is uniform for all districts but which differentiates between intradistrict and interdistrict transfers retains almost all of the advantages of a uniform national price described in the preceding section. In addition, prices are established at a level that would be closer to the actual resources involved in providing the interdistrict transfers. Because the prices of interdistrict transfers exceed those that would be established under a national pricing structure (95¢ vs. 85¢), the implicit System subsidy to interdistrict transfers would be reduced, and private-sector competition would be encouraged.

Arguments Against the ACH Model

The ACH model retains all of the disadvantages of the national price structure, except that incorrect incentives to the private sector are reduced as far as interdistrict transfers are concerned. In addition, a pricing structure differentiating between intra- and interdistrict transfers would be slightly more difficult to administer.

C. District Prices For Intradistrict Transfers (Check Model)

This alternative for pricing wire transfers parallels the structure proposed for check collection. The price charged to the member bank originating a transfer would be based initially on the cost of accepting and processing the transfer at the Reserve Bank that first receives the request . (These costs are shown in Table III.)

Table III
District PACS Costs*

District	Intra-District				Inter-District			
	On-line		Off-line		On-line		Off-line	
	Without advice	With advice	Without advice	With advice	Without advice	With advice	Without advice	With advice
Boston	1.03	3.23	5.07	7.27	1.06	3.26	5.10	7.30
New York	.75	2.40	4.21	5.81	.87	2.52	4.33	5.98
Philadelphia	.66	2.63	2.56	4.53	.81	2.78	2.71	4.68
Cleveland	.43	1.37	2.26	3.20	.66	1.60	2.49	3.43
Richmond	1.26	3.40	3.85	5.99	1.21	3.35	3.80	5.94
Atlanta	.61	1.63	2.50	3.52	.78	1.80	2.67	3.69
Chicago	.53	2.13	2.23	3.83	.72	2.32	2.42	4.02
St. Louis	.67	1.59	1.83	2.75	.82	1.74	1.98	2.90
Minneapolis	.49	1.67	2.38	3.56	.70	1.88	2.59	3.77
Kansas City	.57	2.69	2.94	5.06	.75	2.87	3.12	5.24
Dallas	.65	1.58	1.85	2.78	.80	1.73	2.00	2.93
San Francisco	.59	1.05	1.27	1.73	.76	1.22	1.44	2.90

*Estimated. See Appendix A.

In addition, a uniform inter-District delivery charge of 37¢ would be added in calculating the cost basis for these transfers. Thus, the price for each service varies from District to District as shown in Table IV.

Advantages of the Check Model

Under this alternative prices would most closely reflect the fully allocated cost of providing each service, which is to be the basis for prices under the membership legislation now under Congressional consideration. In addition, the model provides the greatest incentive for the private-sector to compete with the Reserve Banks, while at the same time encouraging efficient resource allocation.

Reserve Banks would have the largest scope for innovations and productivity improvement, not only because there would be no need for a national, uniform determination of service levels, but also because member bank users would press the Reserve Banks for lower costs and improved services. The benefits and costs of both types of improvement would be reflected directly in the prices members would pay.

Arguments Against the Check Model

In considering the national price structure, the Subcommittee pointed out the many drawbacks of using the PACS cost data as a basis for pricing. District prices based on average costs derived from PACS could be quite inequitable, particularly in those Districts where considerable excess capacity exists. In addition, District prices would be considerably more difficult to administer.

Table IV
District Prices
(Check Model)
(11% markup rounded up to nearest nickel)

	Intra-District				Inter-District			
	On-line		Off-line		On-line		Off-line	
	Without advice	With advice	Without advice	With advice	Without advice	With advice	Without advice	With advice
Boston	1.15	3.60	5.65	8.10	1.20	3.65	5.70	8.10
New York	.85	2.70	4.70	6.45	1.00	2.80	4.85	6.65
Philadelphia	.75	2.95	2.85	5.05	.90	3.10	3.05	5.20
Cleveland	.50	1.55	2.55	3.55	.75	1.80	2.80	3.85
Richmond	1.40	3.80	4.30	6.65	1.35	3.75	4.25	6.60
Atlanta	.70	1.80	2.80	3.95	.90	2.00	3.00	4.10
Chicago	.60	2.40	2.50	4.25	.80	2.60	2.70	4.50
St. Louis	.75	1.80	2.05	3.05	.95	1.95	2.20	3.25
Minneapolis	.55	1.85	2.65	3.95	.80	2.10	2.90	4.20
Kansas City	.65	3.00	3.30	5.65	.85	3.20	3.50	5.85
Dallas	.75	1.75	2.05	3.10	.90	1.95	2.25	3.25
San Francisco	.65	1.20	1.45	1.95	.85	1.35	1.60	3.25

100/100 44 56 100 200
intra district 1
inter 2 44.50 2 112

Par .88 56

It has been suggested that differential prices by District could lead to circuitous routing of wire transfers, as banks seek to find the lowest cost method of initiating funds transfers. However, Table III indicates that circuitous routing would be improbable unless correspondent bank charges for initiating a transfer across District boundaries were less than System costs for the same service. For example, if the correspondent bank charged the Bankwire fee to a respondent seeking to enter the Fedwire through the correspondent, such circuitous routing always would be more expensive than for the respondent to use the Fedwire directly.

IV. Derivation of Prices

The wire transfer system is essentially a mature payments service in the sense that no significant research and development expenditures are required. As such, prices established on the basis of current average cost will not seriously impact the develop- of the service. Therefore, the Task Force believes it would be appropriate to apply an 11 per cent markup for imputed costs, similar to the capital costs and taxes that a private business providing the service would have borne. A price established on this basis would be consistent with the stated objectives of prices which are to recover cost, to allow for private sector competition and to increase the efficiency of the payments system. (Appendix B of this report describes the private sector adjustment in greater detail.)

An alternative markup method would be similar to that developed for ACH services. ACH services initially were not to be priced at current costs, but at costs associated with a "mature" volume. In addition to the costs for mature volume, a factor was subsequently included to allow for error in estimating volumes and to cover development costs.

If this method were applied to wire transfer services, prices would be marked up to cover the future development costs of FRCS 80, based on the argument that private-sector firms could price in this way. However, in practice, private-sector firms do not always adjust current prices to cover future developmental costs.

V. Additional Findings and Recommendations

The Task Force finds that, regardless of which of the aforementioned three pricing alternatives is adopted, several complementary changes and/or additions to System policies should be made prior to the implementation of pricing. In general, the following recommendations are designed to facilitate both the administration of wire transfer pricing and the process by which user institutions and the public must adapt to the pricing environment:[1/]

(1) Charges should be assessed for transactions resulting in accounting entries only (i.e., no charges for services),

(2) National pricing should not preclude the Federal Reserve from using prices at some future time to improve the efficiency or effectiveness of wire transfer services,

(3) The Conference of First Vice Presidents should be requested to discontinue the policy of having Reserve Banks automatically advise receiving institutions of third party transfers, allow originators access to immediate advice service, and modify Federal Reserve Bank Operating Circulars to reflect these policy changes.

1/ For further description please see Report of the Subcommittee on Wire Transfer Pricing, pp. 9-13, 19. (attached).

Appendix A

Calculation of Unit Costs

Unit costs used as a basis for the national, differentiated national, and District pricing alternatives are based on unit cost calculations from PACS data, including overhead and System projects costs, and do not include components for profits, taxes, bank accounting functions, or future capital needs. Costs related to securities operations are not included.

The following table gives the basic cost categories and data from which specific costs, and prices, appearing in Sections III and IV of this report are derived. These data are the individual District unit costs for each of the three basic wire transfer services.

		Off-Line	
	Basic	Original	Receipt
Boston	1.03	4.04	2.20
New York	0.75	3.46	1.65
Philadelphia	0.66	1.90	1.97
Cleveland	0.43	1.83	0.94
Richmond	1.26	2.59	2.14
Atlanta	0.61	1.89	1.02
Chicago	0.53	1.70	1.60
St. Louis	0.67	1.16	0.92
Minneapolis	0.49	1.89	1.18
Kansas City	0.57	2.37	2.12
Dallas	0.65	1.20	0.93
San Francisco	0.58	0.68	0.46
System Average	0.68	1.90	1.23

Table I gives the differentiation of District basic service costs in debit (origination) and credit (receipt) categories. District costs of basic service are differentiated on the assumption the 2/3 of processing and other handling costs may be allocated to the debit (originating) functions while 1/3 would be generated in credit (receiving) functions. This assumption is undergoing review and is subject to change. If the assumption should be changed, District costs and prices shown in Tables III and IV will change a few cents.

Table I

Federal Wire System Costs

	Debits		Credits		FRCS Cost	Average Interdistrict Delivery Cost
	Basic Transaction	Off-Line Origination	Basic Transaction	Offline* Immediate Advice		
Boston	.69	4.73	.34	2.54	.14	.23
New York	.50	3.96	.25	1.90		
Philadelphia	.44	2.34	.22	2.19		
Cleveland	.29	2.12	.14	1.08		
Richmond	.84	3.43	.43	2.56		
Atlanta	.41	2.30	.20	1.22		
Chicago	.35	2.05	.18	1.78		
St. Louis	.45	1.61	.22	1.14		
Minneapolis	.33	2.22	.16	1.34		
Kansas City	.38	2.75	.19	2.31		
Dallas	.43	1.63	.22	1.15		
San Francisco	.39	1.07	.19	.65		

* Includes basic transaction cost.

Appendix B

Derivation of Private-Sector Adjustment

Derivation of Private Sector Adjustment

The Federal Reserve System's cost accounting includes depreciation of buildings, furniture, and equipment (at historical cost) but does not include any of the costs which the System implicitly incurs to finance these or other asset acquisitions. To reflect these implicit financing costs as if the Federal Reserve System were a privately owned enterprise, an adjustment factor was developed which has been added to the direct and indirect costs recorded in the Federal Reserve cost accounting system.

In computing the adjustment factor, a determination had to be made of the assets employed in providing services. It was assumed that such assets were financed in a way similar to the way the private sector finances assets. Total System assets to be financed were assumed to include existing net book value of buildings and equipment and other "working capital" assets. Assets solely identified with central bank functions, such as holding Gold Certificates, SDR's, Acceptances and Treasury and agency securities were not included because such assets are not used in providing services. Because there are alternative strategies for dealing with Federal Reserve float that may be more desirable, float was excluded from the computation of working capital assets. Also excluded were Federal Reserve assets associated with the foreign function and any premium on securities derived from not reflecting securities in the portfolio at cost on the balance sheet. Based on the average of six month end balance sheet reports for the twelve Federal Reserve Banks during the first half of 1978, total System assets to be implicitly financed were calculated to be $752 million as shown in Table 1.

The capital structure which was assumed to finance the $752 million in assets included 50% equity and 50% debt.

The return on equity was assumed to be 7% after tax or 13% before tax, given an income-tax rate of 45%. The interest rate on debt was assumed to be 9%.

Not all of the imputed $752 million in assets would be required to provide the services to financial institutions that would be priced. Therefore, a calculation was made to exclude assets supporting such functions as monetary and economic policy, supervision and regulation, and services to the Treasury as fiscal agent. Service charges for these functions are not included in this pricing proposal. Capital assets were allocated to priced services based upon ratio of the cost incurred for such services during the first half of 1978 to the total cost of all System services during that period. Because shipping services are contracted from the private sector, the cost of shipping was subtracted from both the numerator and denominator of the ratio. During the first half of 1978 the cost of services to be priced less shipping expense represented about 54% of total System costs minus shipping expense. A total of $402 million in assets was therefore allocated to the services to be priced.

On an annualized basis, the cost of the imputed debt of $201 million, at a 9 per cent annual rate, would be $18 million. At a 13 per cent annual pre-tax rate of return, the cost of the imputed equity would be $26 million. The $44 million resulted in a markup of 11 per cent on the $402 million of direct and indirect cost of providing the services to be priced. This calculation is illustrated in Table 2. If the System had priced its services during the first two quarters of 1978 to recover direct and indirect cost plus an adjustment of 11% for private sector costs, it would have generated revenues of $223.1 million during this period.

Table 2 also shows the markup for the check collection services which accounts for 58% of the $402.2 million in costs incurred by the Federal Reserve for all operations to be priced. Given a markup of 11%, $128.6 million in revenues would be derived from check collection services at the 1978 volume for the first half of 1978.

TABLE 1

Implicit System Balance Sheet
Underlying Private Sector Adjustment
($ Millions, Based on the Average of Six
Month End Balance Sheets for First Half of 1978)

Bank Premises, Net	$ 384.3	Debt	$376.0
Difference & Suspense Accounts	192.5	Equity	$376.0
Furniture and Equipment, Net	49.0		
Deferred Charges, Other	-43.9		
Other Real Estate	42.2		
Overdrafts	38.2		
Deferred Charges, Leaseholds	1.9		
Total Assets Financed	$ 752.0	Total liabilities	$752.0

TABLE 2

Estimated
Implicit Revenue Statement
Underlying Private Sector Adjustment
Annualized, Based on
First Half 1978
(50% debt; 50% equity)
($ Millions)

	All Operations to be Priced	Allocation* To Check Services
Revenues	$446.2	$257.2
Less		
PACS Cost of Service	402.2	231.8
Debt Service (@ 9%)	18.0	10.4
Equals: Pre-Tax Income	26.0	15.0
Less: Income Tax	12.0	6.8
Equals: Return To Equity (@ 7%)	14.0	8.2
Implied Markup	11%	11%

MEMO: Assets have been allocated to Reserve Bank operations to be priced in the same ratio that the PACS expense of providing those services bears to total expenses. For the first half of 1978 this ratio approximated 54%, and $402 million in assets were allocated to priced operations. In addition, it was assumed that one-half these allocated assets are financed by debt and one-half represent equity.

Debt	$201.0 Million
Equity	201.0 Million
Total	$402.0 Million

* Based on ratio of check collection PACS costs to PACS costs for all operations to be priced.

QUESTIONS AND ANSWERS ON PRICING

POLICY DECISIONS ON PRICING

1. Is the proposal to charge for Federal Reserve services tied to the membership problem?

Yes. If actions are not taken to relieve the burden of Federal Reserve membership, the Federal Reserve will not proceed to implement any pricing schedule.

2. Why is the Federal Reserve proposing to charge for its payments services?

The Federal Reserve is considering charging for its payments services as part of its comprehensive plan to enhance competitive equity among depository institutions and encourage competition to improve both the effectiveness and cost of the payments mechanism.

Service charges are expected to encourage more efficient use of payments facilities and to provide incentives for innovations that reduce costs. For example, pricing of check collection services will provide an incentive for banks to do more check processing themselves and to set up additional local clearing arrangements. Therefore, the opportunities for the private sector to compete with and improve upon Federal Reserve services would be enhanced. Moreover, service charges will provide the System with additional revenues to <u>minimize</u> the impact of the membership plan on the Treasury.

3. When will charging for Federal Reserve services be made effective:

The exact date when charges will be effective depends on implementation of a plan to resolve the problem of attrition of membership in the Federal Reserve. In no case will charges be levied before July 1, 1979.

Report of the

Subcommittee on

Wire Transfer Pricing

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P. A. V.

ANSWERED........

ATTENDED TO........

Submitted by:

Subcommittee on Wire Transfer Pricing

Members		Coordinators	
Howard Crumb, Chairman	New York	James Grieb	Boston
Richard Anstee	Board	Richard Epps	Philadelphia
William Brown	Denver	Robert Van Valkenburg	Cleveland
Robert Dietz	San Francisco	William Glover	Richmond
Robert Fitzgerald	Detroit	Ronald Robinson	Atlanta
Thomas Ormiston	Cleveland	Jerry Stojetz	Chicago
Ralph Kimball	Boston	Martha Perine	St. Louis
Ann Li, Secretary	New York	Charles Shromoff	Minneapolis
		Richard Ingram	Dallas
		Donald Carson	San Francisco

January 15, 1979

Revised

Table of Contents

C0059S901

I. Executive Summary

The Subcommittee believes that the Federal Reserve System should adopt a pricing structure based on three broad categories of wire transfer of funds services:

1. Processing the basic transaction through the automated communications facilities including immediate settlement and the provision of an immediate advice to the on-line bank and a mail advice to the off-line user;

2. Accepting a transfer request from an off-line bank, authenticating, processing and validating the request, and entering it into the automated communications facilities; and

3. Advising an off-line bank by telephone, telegraph, or messenger on the same business day of a funds transfer credit received for its account when requested by the originator.

Limiting pricing at this time to these three service categories, in the Subcommittee's view, is the optimal means for encouraging efficient usage of the Federal Reserve Communications System (Fedwire or FRCS) while providing Reserve Bank management with a pricing program for wire transfers of funds that is relatively simple and inexpensive to administer. It also encourages standardization and equity among Districts offering Fedwire services.

The Subcommittee's proposed prices are based on unit cost calculations from PACS data including overhead and System projects costs and the current Fedwire volume. The prices suggested by the Subcommittee have been based on PACS data only and do not include any component for profits, taxes, or future capital needs. The Subcommittee's position that prices for each of the three categories of wire transfer services should be the same nationwide is based on its concern that a District pricing structure utilizing District costs would lead to substantial price differences between Districts and regions that would be detrimental to the stability, flexibility, growth, and efficiency of Fedwire as one part of the national payments mechanism.

Only the originator of a wire transfer of funds request would be billed, on a per transaction basis, for those wire transfer services resulting in accounting entries to facilitate the administration of the pricing structure. Additionally, the Subcommittee has taken the position that development of separate nationwide prices for third party transfers, transfers of certain low dollar values, transfers made at certain times during the business day and fees based on other factors, such as on a volume basis, should be deferred and subject to consideration after the recommended pricing schedule is implemented and its effects are clearly understood.

The Subcommittee proposes the elimination of the present $1.50 charge for transfers below $1,000.00 in value. This charge, now imposed by Reserve Banks for inter-District transfers and by some Reserve Banks for intra-District transfers, will likely be unnecessary upon implementation of the proposed price schedule for off-line banks, which could price their transfers above the $1.50 level. Further the $1.50 charge could be viewed as being arbitrary.

In developing a pricing structure for Fedwire transfer services, the Subcommittee estimated the most-likely consequences of a changeover to pricing. The basic transfer services of the FRCS, under the proposed pricing structure, would closely resemble the priority transfer services of other transfer networks and would be competitive with private transfer networks. At this time, the Subcommittee has concluded that its proposed fee schedule may not cause a significant change in either the number of users or the distribution of transaction volume between Fedwire and other networks because of the unique service offered by the wire transfer application which operates within the jurisdiction of Subpart B, Regulation J.

In the proposed pricing structure, transaction prices are linked directly to the cost of providing the specific services. This structure will accommodate any broader access to the Fedwire involving nonmembers or other financial institutions as may be indicated in the future. The Subcommittee feels that the proposed price structure is sufficiently flexible so that additional service demands on the FRCS can be met and that revenues from new or additional activities could be adjusted to cover the cost of modification or the addition of new facilities.

The full, PACS-based unit costs of the three services are calculated as follows:

Service	Unit Cost
Basic transaction charge to all users	$ 0.75
Extra charge for:	
Accepting and processing requests from off-line users	$ 1.90
Immediate advice to receiving users	$ 1.23

These unit costs would be combined into a four category pricing structure as follows:

Service Requested	Transfer Originator On-Line	Transfer Originator Off-Line
No immediate advice	$ 0.75	$ 2.65
With immediate advice	$ 1.98	$ 3.88

The Subcommittee acknowledges that the proposed pricing structure could generate increased demands for on-line services. However, the Subcommittee is of the opinion that such demands will not be large enough to cause problems in the capacity of existing computer equipment (except New York and Chicago). This view is based on the fact that financial institutions will need to make some ten or more transfers per day to make on-line operations cost effective, in light of terminal equipment, message preparation, personnel, control procedures, and other costs of on-line users.

Having addressed the range of issues related to wire transfer pricing pursuant to its assignment, the Subcommittee recommends that the Pricing Task Force:

1. Adopt the Subcommittee's methods with respect to the derivation and implementation of a three service/four category price model for wire transfer pricing.

2. Request the Conference of First Vice Presidents to eliminate the $1.50 charge on wire transfers of a dollar value of $1,000 or less during implementation of pricing.

3. Request the Conference of First Vice Presidents to discontinue the policy of having Reserve Banks automatically advise receiving institutions of third party transfers, allow originators access to immediate advice service, and modify Federal Reserve Bank Operating Circulars to reflect these policy changes.

4. Include the additional environmental statistics in future PACS reports as described in Appendix E of this report to facilitate the calculation of unit costs.

5. Disband the Subcommittee.

II. The FedWire and the Subcommittee Assignment

The Federal Reserve Communications System (FRCS) frequently referred to as the "Fedwire" provides authorized users[1] (e.g. member banks) with a unique national payment mechanism service by which they are able to transfer reserve account balances on a same day basis to any other authorized user in the country. These transfers of funds may be made for the benefit of the users themselves or the benefit of third (or fourth) parties (customers).

All Federal Reserve Banks offer two levels of wire transfer service to member banks, although some Districts provide supplementary services. The basic service is the electronic transfer of reserve account balances from one member bank to that of another. The second service, initiated at the request of the bank originating the transfer, involves the immediate notification to the recipient member bank by the Reserve Bank receiving the message.

These two services are provided to member banks that are either "on-line" -- have terminals installed on their premises directly connected to the District computer switch, or to banks that are "off-line" -- do not possess terminals and must conduct transactions with the local Federal Reserve Office by telephone. Transfer requests initiated by on-line banks from their terminals do not create costs for the System other than those concerned with the use of the computer and communication facilities[2] and certain mandatory control procedures. On-line banks also receive automatic notification of all incoming transactions on their terminals, thus these banks receive the equivalent of "immediate advice" with all transactions, whether or not requested by the originator, and at no additional cost to the Reserve System.

1/ Authorized wire transfer users are designated in Federal Reserve Regulation J as those who maintain deposit accounts, including member banks, Edge Act and Agreement corporations, foreign governments, certain international organizations, and the U.S. Government. Operating hours for Federal Reserve wire transfer departments are designated by Federal Reserve Operating Circulars and are from 8 a.m. or 9 a.m. to 3 p.m. each day for inter-District transfers. All transfers are in Federal funds and settlement occurs at the end of the operating day.

2/ The Federal Reserve incurs costs for all communications circuits while on-line users pay for terminals and other communication related equipment on their premises.

Requests for transfer of funds by an off-line bank must be received, authenticated, transcribed, prepared for transmission, verified, validated, and transmitted by Reserve Bank personnel. In addition, a Reserve Bank receiving a transfer request requiring immediate advice and destined for an off-line member bank must notify the member bank by telephone that the transaction has been received and credited to its account. Although the bulk (85%) of all transactions involve on-line banks, most of the System personnel, telephone, building, and housekeeping expense (nearly 90 percent) associated with the wire transfer function arise from services provided to off-line banks.

Some Reserve Banks presently provide supplemental services to their members. These Reserve Banks routinely advise their off-line members of all incoming third-party transfers, whether or not such advice has been requested by the originator. Other Banks provide immediate advice to off-line banks for all incoming transfers. All Reserve Offices respond to requests (servicing) involving previously sent transactions, adjustments, reversals, and other inquires initiated by all users.

The Fedwire has been in operation since 1917 as a private leased wire capability connecting the 12 Reserve Banks, the Board of Governors, and the Treasury. Today, in addition, it connects the 25 Reserve Bank branches, numerous RCPCs, more than 450 member banks, and several government agencies in addition to the offices previously mentioned. The original purpose of the FRCS was to provide a means for the inter-District transfer of member bank reserve account balances on a timely basis. Although a substantial proportion of the transfers handled today are intra-District in nature, the FRCS is still the principal means by which funds are transferred between Districts. Unlike the Automated Clearing House network, which subsequently used the FRCS to link several separate local ACH operations, the FRCS has always operated as a national service. Indeed, it is unlikely that the District switches, which enable intra-District transfers to be made, would ever have been developed without the impetus given by the development of national facilities. Further, the plans under consideration for future capabilities will tend to make less clear the identification of inter-District costs. The Subcommittee thus views the wire transfer function as essentially a national service, and the FRCS as a single integral unit, rather than as a series of local services and facilities tied into a national network.

In its charge to the Subcommittee, the Pricing Task Force included certain basic principles which should be applied in the formation of prices for all System services. The Subcommittee has incorporated these principles in developing its proposed price schedules. Foremost among these principles is the recovery of all PACS costs, including direct, overhead, and System allocated costs. Furthermore, it is assumed that Reserve Bank service levels will initially remain unchanged. The prices suggested by the Subcommittee have been based on PACS data only and do not include any component for profits, taxes, or future capital needs.

III. Major Issues and Subcommittee Positions

The Subcommittee considered the following issue positions in developing a pricing structure for Federal Reserve wire transfer services. These positions, the rationale and concerns form the basis for the Subcommittee's pricing structure. Additional supporting data and descriptions have been included in various appendices as noted.

A. POSITION: THERE ARE THREE BASIC WIRE TRANSFER OF FUNDS SERVICES THAT SHOULD BE PRICED INITIALLY:

1. Processing the basic transaction through the automated communications facilities including immediate settlement and the provision of an immediate advice to the on-line bank and a mail advice to the off-line user.

2. Accepting a transfer request from an off-line bank, authenticating, processing and validating the request and entering it into the automated communications facilities; and

3. Advising an off-line bank by telephone, telegraph or messenger on the same business day of a funds transfer credit received for its account when requested by the originators.

Once entered into the automated Federal Reserve Communications System, each transfer of funds message receives the same processing, settlement and accounting treatment. This includes management of the automated system, exception handling, balancing, and control, but excludes operations associated with processing and entering a transfer request into the system and those associated with expediting advice of a transfer credit received.

Some member banks have terminals and/or computers on their premises connected directly to the communications computer in their Federal Reserve District. These on-line banks prepare and enter their fund transfer requests directly into the communications system and receive fund transfer advices addressed to them on their own in-house terminals.

Other member banks rely on telephone, telegraph, and messenger services to originate wire transfer requests and to receive immediate advice of wire transfer credits for their account. These off-line banks rely on Federal Reserve resources to authenticate, process, and validate their transfer requests, to enter them into the Fedwire and to provide immediate advice of credits received for their account.

Inasmuch as these three types of fund transfer services can be readily differentiated and involve different combinations of capital and labor at Federal Reserve facilties, separate prices, based on costs, are justified. The Subcommittee calculates the full, PACS-based unit costs of these three services as follows:

Service	Unit Cost
Basic charge to all users	$ 0.75
Extra charge for:	
Accepting and processing requests from off-line users	$ 1.90
Immediate advice to receiving user	$ 1.23

These unit costs could be combined into a four category pricing structure as follows:

Service Requested	Transfer Originator On-Line	Transfer Originator Off-Line
No immediate advice	$ 0.75	$ 2.65
With immediate advice	$ 1.98	$ 3.88

The assumptions and methodology used to calculate these unit costs are shown in Appendix A.

Relatively high base costs and presumably the eventual charges, for an advice -- greater than the cost of an on-line transfer and nearly two-thirds the cost of an off-line transfer -- should have the effect of discouraging the routine, almost casual use of "immediate advice requested" initiating banks currently utilize when processing transfers through Federal Reserve facilities. As labor intensive activities, advices are not only internally costly and burdensome but represent a poor use of Federal Reserve resources.

B. POSITION: PRICES FOR WIRE TRANSFER SERVICES SHOULD BE UNIFORM THROUGHOUT THE SYSTEM (I.E., "NATIONAL" PRICING).

The wire transfer of funds through Federal Reserve facilities involves a processing and accounting technology that is essentially the same whether the transfer is between banks in the same city or between banks in different Federal Reserve Districts that are geographically remote from one another. Federal Reserve wire transfer facilities in each District have been specifically linked together to provide users with a national mechanism for the wire transfer of funds. A national price serves to reinforce the System's commitment in providing a national transfer service.1/

While District pricing might more accurately capture capital cost and volume differences among Reserve Banks as well as differences in operational efficiencies, District pricing would tend to inequitably penalize those banks in Districts where transfer volume was low and Federal Reserve capital was newest or most underutilized. In these Districts, unit transactions costs, and thus prices, would be highest. A national price eliminates any inequities that would tend to arise based on geography or locale of users. (See Appendix B for details.)

To the extent that District pricing would establish a range of prices nationwide, District pricing could encourage banks to transfer funds indirectly through correspondents in low price Districts, generating flows of funds that could impair the efficiency and effectiveness of the national payments mechanism. A national price eliminates the incentive for banks to transfer funds circuitously to reduce their costs.

Another significant argument for the national pricing structure is that the variances in District costs dictate that if District prices are broken down further into separate prices for intra-District and inter-District transfers, some Districts could be charging more for intra-District items than for inter-District items. This might be difficult to justify. Further it could shift demand for Federal Reserve wire transfer services.

An eight category pricing structure, (see Appendix B) which would further differentiate prices for on-line and off-line transfers by their intra-District or inter-District nature, was rejected as being administratively complex and providing little

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1/ The development of a "national" wire transfer payments mechanism is effectively a public interest objective whose benefits are shared by the nation as a whole, not just by specific bank users of the wire. The approach is also used by Bank Wire II with its initial pricing scheme and by S.W.I.F.T. in its world-wide network.

differentiation between on-line and off-line prices relative to the four category structure. Additionally, a pricing structure divided by intra-District and inter-District transactions, would tend to be inconsistent with the System's structure of an integrated "national" wire transfer mechanism.

Further, the operating philosophy of FRCS-80, now in the active development stage, will fundamentally alter the operation of Fedwire and make the definition of inter-District and intra-District costs extremely difficult. The new capability will utilize much less centralization than at present with the inter-District transfers passing through Culpeper switching center. Under study is a distributed packet switched mechanism connecting each Reserve Bank with three others and offering a facility to enable each Reserve Bank or Branch to communicate with any other. FRCS-80 will provide the Federal Reserve with greater operational utility and security and will make the current differentiations between intra- and inter-District costs obsolete, impractical and difficult to uniquely identify.

Given the Federal Reserve's inexperience with pricing for its payments services, a national price should provide for administrative efficiency and be easier to administer than a District price system. A national pricing methodology appears justifiable in a practical sense as well, in that Systemwide cost and volume data tend to compensate possible discrepancies in District data.

Additionally, it is noted that two other wire transfer systems, BankWire II and S.W.I.F.T. use national and worldwide pricing structures respectively, without regard to regional transaction differentials or geographical location. (See Appendix D for further detail.)

C. <u>POSITION: ONLY THE ORIGINATOR OF THE TRANSFER SHOULD BE CHARGED</u>.

The Subcommittee considers charging the originator for Fedwire transfers as the optimal way to price wire transfer services because:

1. Wire transfer requests can only be originated by qualified insititutions maintaining deposit accounts at Federal Reserve Offices as outlined in Subpart B of Regulation J;

2. It is administratively easier to charge originating institutions. The System avoids having to split billing between originators of transfers and recipients of advices; and

3. Charging originators would tend to encourage more efficient Fedwire use and would serve to reduce the burden of collecting fees.

Reserve Banks would be expected to advise receiving banks of transfers only on instruction from the originating bank who would be billed for that service. For administrative consistency, the Federal Reserve should end its policy of allowing Reserve Banks to automatically advise receiving institutions of third party transfers and should modify Federal Reserve Operating Circulars to reflect this change in policy. Reserve Banks would provide immediate (telephonic) advice only when requested by the sending institution, or perhaps, on the basis of ad hoc arrangements with the receiving institution. However, in either instance, it is conceived that no automatic telephonic advices could be consummated without prior instruction.

In arriving at its position in favor of charging only the originating institution for wire transfer services, the Subcommittee determined that significant differences in service levels exist at the Reserve Banks. This is particularly evident in the area of wire transfer delivery services where often immediate telephonic advices are provided under ad hoc arrangements (e.g. standing instructions).

The Subcommittee recognizes that, with respect to ad hoc arrangements, the simultaneous implementation of the principles of charging only the originator and including a supplemental charge for immediate advice service may present inconsistencies, pursuant to arrangements between Reserve Banks and receiving institutions. However, the Subcommittee believes that these inconsistencies should be resolved by the Reserve Banks by either discontinuing ad hoc arrangements not included in the Subcommittee's proposed price structure, or in offering additional services free of charge and absorbing related operational costs.

D. POSITION: CHARGES SHOULD BE ASSESSED FOR TRANSACTIONS RESULTING IN ACCOUNTING ENTRIES ONLY (I.E., NO CHARGES FOR SERVICING).

Wire transfer service prices would be imposed on transactions resulting in accounting entries only. No monthly maintenance fees would be assessed users, nor would there be any flat rate charges for new users or minimum volume requirements under which fees would be imposed. As is the case with check pricing, the System would not charge for adjustments, misdirected transfers, or rectifying incorrect information. The cost of adjustments would be factored into on-line and off-line charges.

Banks might be required to purchase or rent terminals to become on-line users to the Fedwire. However, it is not envisioned that the System would charge on-line users for differentiation in geographical location or utilization of Federal Reserve services if the on-line equipment is temporarily unserviceable. This pricing policy would effectively extend the System's current operating practice with respect to on-line banks and would serve to encourage off-line banks to become on-line users.

Structuring a wire transfer pricing system in which users are charged only for clearly identifiable services serves to encourage greater use of the wire and facilitates administration and control.

E. <u>POSITION: NATIONAL PRICING SHOULD NOT PRECLUDE THE FEDERAL RESERVE FROM USING PRICES AT SOME FUTURE TIME TO IMPROVE THE EFFICIENCY OR EFFECTIVENESS OF WIRE TRANSFER SERVICES</u>.

The establishment of a peak load pricing system, the granting of volume discounts, and establishing a separate scale of prices for third party transfers are among the possibilities that should be considered when the System gains experience in implementing pricing and can fully evaluate the impact of pricing demand for on Federal Reserve payments services.

1. Peak load pricing could be used to direct financial institutions toward more rational, efficient use of the nation's payments system resources. Wire transfer prices could be structured on the basis of time of transmission in a way that could induce banks to transmit transfer requests evenly throughout the day. Peak load pricing could help eliminate the "bunching" of transfer requests that occurs daily between 1:30 p.m. and 3:00 p.m. (Eastern time).

2. Volume discounts could encourage increased use of the wire and act as an inducement for banks to become on-line users. Since current capacity in most Reserve Districts is underutilized, (except during peak periods) increased volume could significantly reduce unit costs, and thus prices, for all wire transfer users.

3. A separate pricing schedule for third party transfers could serve to protect the System against overutilization and misuse of its resources, ensuring that the wire transfer mechanism remains primarily a bank-to-bank transfer mechanism.

Although the justification for implementing innovations such as these might be valid now, the System lacks the practical experience, data and cost differentiation technology to implement such sophisticated procedures. In addition, the impacts of pricing on market relationships and flows of funds are not yet known. Moreover, changes in the banking environment caused by pricing may alter the need for or direction of future pricing efforts.

The proposed three service/four category price schedule, with its substantial differential between on-line and off-line transfers, explicitly discourages off-line processing and encourages banks to buy or lease computer or terminal equipment for on-line hookups to District switches.

F. POSITION: NO PENALTY CHARGES SHOULD BE IMPOSED ON SMALL DOLLAR VALUE TRANSACTIONS.1/

All Federal Reserve Banks currently impose a penalty charge for processing small dollar value transfers through the wire.2/

The penalty charge has been justified as:

a. Conserving capacity. Reserve Banks that have wire transfer capacity problems maintain that the penalty charge serves to preserve their resources and protect their operational efficiency by discouraging banks from transferring small dollar value transactions;

b. Preserving the wire for its intended use. It has been argued that small dollar value wire transfers are essentially third party transfers and represent a misuse of the wire more appropriately transferred by check or transfer networks. The Federal Reserve's wire facilities represent a bank-to-bank reserve account transfer mechanism and presently is not considered an electronic substitute for third party payments; and

c. Establishing discipline among the authorized users of the wire. Many commercial banks see small dollar value transfers as a costly and burdensome service to customers. The Federal Reserve's penalty charge could be viewed as a device that can be used by banks to discourage private customers from requesting wire transfers when check transfers or use of other transfer networks could suffice.

1/ This position does not reflect the unanimous view of the Subcommittee or its coordinators. In voting to eliminate the $1.50 charge, the New York, Chicago, Cleveland, and Minneapolis Reserve Banks voted against elimination of the charge. They argued for its retention as a device to protect the wire from being utilized beyond its current capacity, particularly in those Districts where Fedwire capacity is a problem and as a possible means to control low value future demand.

2/ The Federal Reserve Loose Leaf service requires a charge of $1.50 on inter-District and inter-territory transactions of $1,000 or less. Some Reserve Banks employ the charge on all transactions of $1,000 or less. Many Reserve Banks waive the charge on intra-territory transactions of $1,000 or less and Chicago waives the charge for its on-line constituency.

The proposed pricing structure eliminates the current penalty charges on small dollar value transactions on the following grounds:

a. A penalty charge is inherently arbitrary. The direct and indirect costs to the Federal Reserve of processing a $1,000 transfer are exactly the same as for a multimillion dollar transfer. Thus, a penalty charge cannot be justified on cost grounds. The choice of any dollar value cut-off and the amount of any penalty is essentially a subjective one and hence not readily justifiable;

b. Since little is known of demand for wire transfer services, Reserve Banks have no way of knowing at what penalty rate or cutoff point banks would begin to shift their small dollar value payments from wire transfer to check or other transfer networks. Too low a penalty charge would present little disincentive and too high a penalty charge could lead in a shift to other alternatives;

c. Wire transfers of $1,000 or less represent only 7 percent of the System's total transactions volume and do not appear to be significant enough to treat as a separate class of transactions. Furthermore, the wire transfer network, taken as a whole, is underutilized. Capacity is not a problem for most Federal Reserve Banks;1/ and

d. The Subcommittee, notwithstanding the significant variances in application of the $1.50 charge by individual Reserve Districts, finds no substantive indication that the charge has actually discouraged small dollar transfers.

Not only can the wire efficiently handle increased transfer volume, but increased volume may reduce unit costs, in those cases where the System's capital resources are not operating up to capacity. A penalty charge, which would effectively seek to reduce volume, could delay development of lower unit costs by holding down the growth of wire transfer usage. A further consideration is that small banks might not have sufficient large dollar value transactions volume alone to justify the cost of on-line operations.

1/ The Federal Reserve Banks of New York, and Chicago suffer from capacity problems. Assuming these Banks imposed a penalty on small dollar value transactions to protect their resources, commercial banks in those Districts could justifiably maintain that they were being discriminated against by reason of geography or locale; that all banks were not being treated the same by the Federal Reserve nationwide.

G. POSITION: THERE WILL BE NO SUBSTANTIVE LEGAL IMPEDIMENTS TO ESTABLISHING THE THREE SERVICE/FOUR CATEGORY PRICING STRUCTURE RECOMMENDED BY THE SUBCOMMITTEE

The Subcommittee has not addressed itself to legal issues inherent in wire transfer pricing but recognizes that there may be several relevant legal matters that could determine the nature of the System's pricing structure. Among them are:

1. Whether Reserve Banks, as corporate entities, can impose a common charge for payments services without violating laws regarding prices; and

2. Whether Reserve Banks would be liable (and if so, for how much) for advices requested by transferees but not processed by Federal Reserve personnel.

It is assumed that issues such as these will be examined and resolved satisfactorily before pricing is implemented and that the resolution will not impair the wire transfer pricing structure envisioned by the Subcommittee.

IV. Implications

The Subcommittee considered a variety of implications in pricing for three Federal Reserve wire transfer services using a four category price structure as well as other multi-price structures. This section addresses a range of implications if the four price structure is adopted and implemented. Appendices C and D further describe several points in greater detail.

Basic concerns and questions are:

- What will be the effect on volume with the introduction of pricing?
- Will some Districts feel negative effects more than others?
- How will shifts in volume be evidenced?
- Will any shifts be confined to changes in member bank requirement of telephonic advices (since these will cost more) without affecting overall volume?
- What will the impact of pricing be on the membership situation?
- Would additional wire transfer services be offered in some Districts with the introduction of pricing?
- Would some Districts have to cut back on services?
- What would be the effect on private sector wire transfer systems?

To answer these and other questions, the Subcommittee investigated a variety of areas: (1) comparison of the fee structures of competitive networks; (2) analysis of potential changes in the wire service user community due to legislation; and (3) the potential for a sudden increase in demand for on-line services due to a significant price differential between on-line and off-line transfers.

The Subcommittee finds that in making a comparison between Fedwire and other networks such as BankWire II and S.W.I.F.T.1/ the full range of competing services must be considered together with the fees charged by the other networks. The Subcommittee's three service/four category price structure compares favorably with other networks when the full range of services is considered, particularly in light of the unique nature of the same day settlement offered by the Federal Reserve. (See Appendix D.)

In addition, the Subcommittee's calculations of the full, PACS based unit cost for basic wire transfer service, although not strictly comparable to similar correspondent bank services, appear to be somewhat below and therefore competitive with correspondent prices, according to one recent survey.

Highly reliable service and competitive price are two conditions mitigating against a large and sudden shift in Fedwire volume upon implementation of the Subcommittee's pricing structure. A related factor reducing the likelihood of a volume shift with pricing is that statements of activity, inquiries, and a range of ancillary services (e.g. priority delivery, acknowledgement, inquiry, statement) inherent in Fedwire service are included in the fee structure whereas other networks charge for these services.

After arriving at the proposed three service/four category price structure, the Subcommittee conducted a series of sensitivity studies to determine when generated revenues would exceed expenses under a variety of scenarios and assumptions (see Appendix C). Four sets of basic variables were used. These included potential changes in Fedwire transaction volume ranging from -10 percent to +25 percent, possible changes in the transaction volume originated by off-line institutions ranging from 20 percent to 5 percent, utilization of immediate advice service from 40 percent to 1 percent, and possible changes in expenses ranging from -10 percent

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1/ The Society for Worldwide Interbank Financial Telecommunications (S.W.I.F.T.) currently deals only with international transfer instructions and does not effectively compete with Fedwire, since the latter transfers funds and is national in scope.

to +10 percent. These variables were then applied to unit costs (see Appendix A) to determine potential revenue which was subsequently compared with adjusted expenses. The results are presented below:

SUMMARY OF POSSIBLE SCENARIOS WITH
PROJECTED REVENUE RELATED TO ADJUSTED EXPENSES

	Current	Possible	Extremes Least Revenue	Extremes Most Revenue
Percent change-Transfer volume	0	+15	-10	+25
Percent of volume originated and received by off-line constituency	15	13	5	20
Percent immediate advice to total volume	40	6	1	40
Percent change in expenses	0	+5	+10	-10
Projected revenue as percentage of total adjusted expenses	133	102	61	195

The Subcommittee believes the fees (without consideration for taxes, profits, and capital expenses) will cover costs and will require each Reserve Office to reduce or consolidate expenses now experienced if a decline in requests for immediate advice service occurs with implementation of pricing. The Subcommittee recognized the greatest revenues would be generated when volume and off-line requests are highest (e.g. more messages generated by Reserve Bank personnel), a high demand for immediate advice service, and a reduction of expenses -- all highly unlikely, but possible. On the other hand, history does support a possible 15 percent increase in volume, some reduction in the percent of messages generated by Reserve Bank personnel, a reduction in immediate advice usage because of pricing and the 5 percent expense increase budgeted for 1979. The current scenario is highly unlikely because of the high demand for immediate advice.

The Subcommittee believes that from current available knowledge there will be few significant changes in the number and locations of FRCS user institutions or in the distribution of transfer volumes between the FRCS and other wire transfer networks. This is not to say, however, that the introduction of pricing will not change current patterns of Fedwire usage. The Subcommittee believes the proposed pricing schedule will most likely reduce the incentive for costly and indiscriminate use of immediate advices by Fedwire users by making use of such services more costly. The Subcommittee also believes the introduction of pricing in this way will, when combined with such additional measures as may be found necessary by individual Districts to facilitate the implementation of pricing, obviate the need for the present $1.50 charge for transfers of $1,000 or less. This would be particularly so in the case of off-line banks who would be charged at least $2.65 for any transfer request with the implementation of the proposed pricing structure.

The Subcommittee further believes that the proposed price structure could have a positive impact on the evolving configuration of the FRCS by encouraging financial institutions now off-line to request on-line connection to Fedwire due to the proposed differential in fees for these two broad types of transfers. The Subcommittee, however, does not believe that such a trend toward on-line service will be of a magnitude to cause unduly burdensome problems in terms of available computer capability or software in any District over the long term. The Subcommittee considers that any short term problems which may develop in Districts as to hardware or software availability may be properly resolved by transitional measures.

Finally, with respect to current Congressional deliberations on such issues as System membership, access to System payments services, and pricing, the Subcommittee feels that the proposed pricing schedule will accommodate additional demands on the FRCS and that revenue from new or additional activity and/or services may be adjusted to cover the costs of modification of FRCS facilities.

V. Conclusions and Recommendations

The Subcommittee believes that the positions described in this report represent a balanced and practical approach to the derivation and eventual implementation of Federal Reserve System pricing for wire transfer services in the public interest.

However, the Subcommittee acknowledges that specific operational problems of a transitional nature, unique to individual Reserve Banks, may arise as wire transfer pricing is implemented. The Subcommittee is of the view that interim policies may be developed by Reserve Banks and the appropriate System coordinating bodies to resolve such problems in a timely manner within the overall context of the Subcommittee's positions described in this report.

Having addressed the range of issues related to wire transfer pricing pursuant to its assignment, the Subcommittee recommends that the Pricing Task Force:

1. Adopt the Subcommittee's methods with respect to the derivation and implementation of a three service/four category price model for wire transfer pricing.

2. Request the Conference of First Vice Presidents to eliminate the $1.50 charge on wire transfers of a dollar value of $1,000 or less during implementation of pricing.

3. Request the Conference of First Vice Presidents to discontinue the policy of having Reserve Banks automatically advise receiving institutions of third party transfers, allow originators access to immediate advice service, and modify Federal Reserve Bank Operating Circulars to reflect these policy changes.

4. Include the additional environmental statistics in future PACS reports as described in Appendix E of this report to facilitate the calculation of unit costs.

5. Disband the Subcommittee.

APPENDIX A

CALCULATION OF UNIT COSTS AND SUGGESTED PRICES

Development of Total Costs

The total costs of providing the wire transfer of funds service are derived from the cost accounting (PACS) data by adding total costs (including District project costs) in the Transfer of Reserve Account Balances activity to the costs of System projects and overhead related to this activity. The period October 1977 through September 1978 is used as the most recent twelve-month period for which data are available. A full year's data are needed in order to include the effect of seasonal variation.

System project and overhead costs are accumulated in the Electronic Funds Transfer (EFTS) service for reporting purposes in PACS and are allocated between the two activities in this service: Transfer of Reserve Account Balances and Automated Clearing House (ACH). Expenses related to System project 9902 covering the development of ACH software are deducted from System project costs prior to making the allocations since they are significant and are not related to provision of the Transfer of Reserve Account Balances service. The allocation of System projects and overhead expenses are made to the Transfer of Reserve Account Balances on the basis of the ratio of its total activity costs to the total activity costs in the EFTS service (Transfer of Reserve Account Balances plus ACH).

The total System costs of the Transfer of Reserve Account Balances activity for the twelve-month period October 1977 through September 1978 are as follows:

Total activity costs	$14,807,570
System projects	96,182
Overhead	5,011,497
Total costs	$19,915,249

Expenses of $1,006,481 related to System project 9902 covering the development of ACH software were deducted from total System projects expenses in the EFTS service prior to making the above allocations of System projects.

Derivation of Volume

The volume of total transfers processed as reported in PACS for each Federal Reserve Office is the sum of the number of intra-Office transfers originated plus the number of inter-Office transfers originated plus the number of inter-Office transfers received. Since each Reserve Office receives and delivers each of the foregoing traffic types (i.e., each transfer requires a debit and a credit on the books of the Reserve Office), the volume is appropriate for use in measuring performance among Reserve Offices.

However, since intra-Office transfers are only counted once and inter-Office transfers are counted twice (once by the originating Office and once by the receiving Office), the PACS volume data cannot be used to calculate unit costs that will be used to derive prices for the funds transfer service.

The Communications and Record Center at Culpeper maintains a data base containing each message originated and received by each Reserve Office. This data base was used to accumulate funds transfers originated and received by Reserve Offices to provide volume data for calculating the unit cost of funds transfers originated. For the period October 1977 through September 1978, the following breakdown of funds transfer volume was accumulated from the Culpeper data (in number of messages originated):

Intra-Office	7,164,581
Inter-Office intra-District	1,397,085
Inter-District	8,713,642
Total	17,275,308

Adjusting the Culpeper volume data to the PACS reporting concept of counting intra-Office volume plus twice inter-Office volume (inter-Office intra-District plus inter-District) gives 27,386,035 messages as compared to the 27,596,961 messages reported in PACS. The difference of less than one percent can be attributed to differences in counting subtype codes of fund transfer messages among the Reserve Offices for PACS reporting purposes.

In allocating costs among traffic types to develop unit costs that could be used to derive prices for the funds transfer service, it is important to distinguish between traffic originated and received by a member bank that has a computer or a terminal on-line to a District switch and traffic originated and received by a member bank that is off-line. The on-line bank's traffic is entered into and received from the communications system by member bank personnel whereas off-line banks require a significant proportion of Reserve Bank personnel and telephone resources to originate and receive funds transfers. The PACS environmental statistic measuring the ratio of on-line transfers originated to total transfers originated was used to estimate volume originated on-line and off-line. For the period October 1977 through September 1978, 85.16 percent of the funds transfers originated were originated by on-line member banks. Applying this percentage to the Culpeper volume data gives the following breakdown of funds transfer volume (in number of messages originated):

On-line banks	14,711,652
Off-line banks	2,563,656
Total	17,275,308

For the System in total, the number of funds transfers originated is equal to the number received by definition. In deriving unit costs, it was necessary to obtain the number of fund transfers that were received off-line and given immediate advice. District management responsible for the funds transfer operation supplied the percentage of fund transfers received for off-line banks that was given immediate telephone advice during the October 1977 through September 1978 period. The percentages supplied by each District are shown below:

TABLE 1

PERCENTAGE OF FUNDS TRANSFERS RECEIVED FOR OFF-LINE BANKS GIVEN IMMEDIATE ADVICE

Federal Reserve District	Percent
Boston	42.3
New York	75.0
Philadelphia	50.0
Cleveland	95.5
Richmond	60.0
Atlanta	100.0
Chicago	53.0
St. Louis	75.0
Minneapolis	50.0
Kansas City	55.0
Dallas	66.0
San Francisco	80.0
System	67.1

Thus, the volume of off-line traffic given immediate advice is estimated to be 1,720,213 in the October 1977 through September 1978 period.

Calculation of Unit Costs

It has been determined that it would be desirable to charge the originator of a funds transfer and to price three wire transfer of funds services: (1) the basic transaction cost to all users including immediate settlement and the provision of an immediate advice to the on-line bank and a mail advice to the off-line user; (2) the additional cost of receipt, authentication, processing, preparation, and validation for a transfer request from an off-line originator; and, (3) the additional cost of giving same day advice to an off-line bank of a funds transfer credit received for its account when requested by the originator. Total costs are allocated to these cost elements as follows:

- Personnel costs, communications costs less the costs of operating the Federal Reserve communications system (FRCS) inter-District operations including the Culpeper switch, building and housekeeping costs are allocated by District management responsible for the funds transfer operation on the basis of internal operating data. The allocations for each District are shown in Table 2;

- FRCS costs are entirely allocated to the basic transaction costs to all users;
- All other activity costs and District projects are allocated by District management responsible for the funds transfer operation on the basis of internal operating data. The allocations for each District are shown in Table 3; and
- System project and overhead costs are allocated on the basis of the total activity costs in each cost element to total activity costs.

TABLE 2

ALLOCATION OF PERSONNEL, COMMUNICATIONS (LESS FRCS) BUILDING AND HOUSEKEEPING COSTS

Federal Reserve District	Originated and Received On-Line	Originated Off-Line	Received Off-Line
Boston	10.00%	75.00%	15.00%
New York	15.00	63.00	22.00
Philadelphia	10.00	60.00	30.00
Cleveland	8.00	64.00	28.00
Richmond	10.00	60.00	30.00
Atlanta	15.00	57.00	28.00
Chicago	7.00	63.00	30.00
St. Louis	7.00	60.00	33.00
Minneapolis	8.00	70.00	22.00
Kansas City	10.00	60.00	30.00
Dallas	10.00	60.00	30.00
San Francisco	25.00	44.00	31.00
System	10.77	62.52	26.71

TABLE 3

ALLOCATION OF ALL OTHER EXPENSES

Federal Reserve District	Basic Transaction	Additional Costs Off-Line Origination	Additional Costs Off-Line Receipt
Boston	85.20	10.40	4.40
New York	89.60	7.30	3.10
Philadelphia	93.00	4.50	2.50
Cleveland	89.40	7.40	3.20
Richmond	85.20	10.40	4.40
Atlanta	90.00	5.00	5.00
Chicago	85.20	10.40	4.40
St. Louis	95.00	2.50	2.50
Minneapolis	85.20	10.40	4.40
Kansas City	92.50	5.00	2.50
Dallas	90.00	7.00	3.00
San Francisco	90.00	7.00	3.00
System	88.68	7.72	3.60

The cost allocations for the period October 1977 through September 1978 are shown in Table 4.

TABLE 4

CALCULATION OF UNIT COSTS
(October 1977 through September 1978)

Expenses	Total	Basic Transaction	Additional Costs Off-line Origination	Additional Costs Off-line Receipt
1. Personnel, communications (less FRCS), building and housekeeping expenses	$ 4,713,401	$ 507,633	$ 2,946,818	$ 1,258,950
2. FRCS expenses	1,254,854	1,254,854	-	-
3. All other expenses	8,839,315	7,838,705	682,395	318,215
4. Total activity expenses	14,807,570	9,601,192	3,629,213	1,577,165
5. System projects and overhead	5,107,679	3,311,819	1,251,892	543,968
6. Total costs to be recovered	$19,915,249	$12,913,011	$ 4,881,105	$ 2,121,133
Volume				
7. Total fund transfers	17,275,308	17,275,308	2,563,656	1,720,213
Allocations Used				
8. Line 1 - Est. from Table 2	100.00%	10.77%	62.52%	26.71%
9. Line 3 - Est. from volume ratio and Table 3	100.00	88.68	7.72	3.60
10. Line 5 - Est. from dollar ratio line 4	100.00	64.84	24.51	10.65
Unit Costs				
11. Unit cost per transaction		$ 0.7475	$ 1.9040	$ 1.2330

Derivation of Estimated Prices

The unit costs calculated in Table 4 for fund transfers are converted into estimated prices under the following assumptions:

- The basic unit cost of processing a funds transfer through the communications system is equal to the unit cost shown and should be included in the charge for each funds transfer message originated.
- The additional unit cost of originating a funds transfer by a bank that is not on-line to the communications system is equal to the unit cost shown and should be added to the basic transaction cost for each off-line funds transfer message originated off-line.
- The additional unit cost of processing a funds transfer requiring immediate advice to the receiving bank is equal to the unit cost shown and should be added to the cost of the bank originating the funds transfer.

Therefore, the price needed to recover all costs of the funds transfer service is as follows:

Service	Unit Costs
Basic charge to all users	$0.75
Extra charge for:	
Accepting and processing requests from off-line users	$1.90
Immediate advice to receiver	$1.23

These unit costs can also be combined as follows:

Service Requested	Transfer Originator On-line	Transfer Originator Off-line
No immediate advice	$0.75	$2.65
With immediate advice	1.98	3.88

APPENDIX B

ALTERNATIVE PRICING SCENARIOS

Some alternatives to the recommended pricing methodology were explored. These alternative scenarios are summarized below:

Single National Price. A single national price based on recovering total expenses from all originators of fund transfers would be about $1.15 per transfer originated. This approach would, however, discriminate against the on-line banks who are incurring a portion of the cost of originating and receiving funds transfers for off-line banks.

National Price Differentiating between Intra-District and Inter-District Traffic. In addition to differentiating between on-line and off-line originators and transfers sent with and without immediate advice to the receiving bank, a price differentiation can be made between those fund transfers between two member banks in the same Federal Reserve District and those that move across District lines. This would be equivalent to charging the FRCS costs only to inter-District transfers ($0.1440 per transfer) rather than to all transfers ($0.0726 per transfer) as provided in the recommended methodology. The price schedule would be:

Transfer Originated	Intra-District	Inter-District
By on-line bank:		
without advice	.6749	.8189
with advice	1.9079	2.0519
By off-line bank:		
without advice	2.5789	2.7229
with advice	3.8119	3.9559

This approach would, however, be unnecessarily complicated and would discriminate between member banks located in Districts with several branches and those located in one-office Districts. It does not appear to be justified by the relatively small difference in cost between inter-District and intra-District transfers.

Additional Charge for Transfers of $1,000 or Less. There is currently an arbitrary charge of $1.50 imposed on fund transfers of $1,000 and under to discourage the use of the Federal Reserve Communications System for small dollar amounts. According to an analysis of Culpeper traffic for the month of September 1978 these small dollar transfers accounted for 7.34 percent of total funds transfer volume originated. If this percentage is typical of the twelve-month period October 1977 through September 1978, the volume of such transfers would have been about 1,270,000 messages yielding a revenue of $1,905,000. Nevertheless, the continuation of this special charge with the implementation of pricing would be unnecessary in view of the other charges contemplated which are based on actual costs.

Single Price Per District. A single price per District based on recovering total District expenses from all originators of fund transfers within the District would result in the following price schedule:

Boston	$1.77	Chicago	$1.09
New York	1.08	St. Louis	1.20
Philadelphia	.98	Minneapolis	1.46
Cleveland	1.02	Kansas City	1.23
Richmond	1.97	Dallas	1.02
Atlanta	1.01	San Francisco	.84

This approach has the disadvantage of reflecting the usual cost differences among Reserve Districts in the price of what is deemed to be essentially a national service. In addition, it reflects the impact of such special factors as significant District project expenses incurred in the base period to install a new computer switch in Richmond which benefits all Districts. Finally, it is influenced by significant variation among Districts in the ratio of fund transfers received to total transfers originated, which varies from 86 percent in Cleveland to 111 percent in San Francisco, again emphasizing the national character of the service where transfers originated are equal to transfers received.

APPENDIX C

SENSITIVITY ANALYSIS

Introd.ction

A sensitivity analysis was conducted to determine when generated revenues would exceed expenses under various sets of demand assumptions for wire transfer services. Demand characteristics were identified and include:

(1) the volume for wire transfer transactions;

(2) the percent of volume generated by off-line banks; and

(3) the request for immediate advice to the recipient by telephone.

Exhaustive combinations of these characteristics, together with the three service/ four category price schedule presented in Appendix A, were simulated to generate total annual revenues. These revenues were then combined with varying expense patterns to calculate net revenue in terms of (a) net dollar levels and (b) ratios of total revenue to total costs. These data appear in columns 8 and 9 in the tables included at the end of this Appendix.

Assumptions

For the purposes of this analysis, a given set of assumptions were analyzed. These include:

(1) Possible changes in volume most likely to occur between -10% and +25%. Four percentages were identified: -10, 0, +15, and +25.

(2) The percentages identified for volume generated by off-line banks were: 20%, 15%, 13%, 10%, and 5%.

(3) The percentage demands for immediate advice by telephone to total volume were: 40%, 6%, 3%, and 1%.

(4) Changes in expenses compared to total expenses were: -10%, 0%, +5%, and +10%.

Analysis

Based on foregoing assumptions four selected scenarios were analyzed and the results are presented in summary form below. The following summary based on the foregoing assumptions, groups the variables within four scenarios: current, possible, least revenue, and most revenue categories. From these, projections of total revenue were derived from each set of basic assumptions and compared to current adjusted expenses. The Subcommittee also developed a series of computer simulations to determine the potential revenues for each of the three services were used as a basis in the four categories as follows:

Advice Provided to Receiver	Originator On-line	Originator Off-line
Next day by mail	$0.75	$2.65
Same day by telephone	$1.98	$3.88

Total volume was 17,275,308 transfers and total expenses were $19,915,249 as described in Appendix A. These variables, while adjusted, served as a base for developing Tables 20, 26, 51, and 61 following which show the results in terms of the current, possible, least revenue, and most revenue scenarios. Selected other tables have been included for comparative purposes.

SUMMARY OF POSSIBLE SCENARIOS WITH
PROJECTED REVENUE RELATED TO ADJUSTED EXPENSES

	Current	Possible	Least Revenue	Most Revenue
Percent change-Transfer volume	0	+15	-10	+25
Percent of volume originated and received by off-line constituency	15	13	5	20
Percent immediate advice to total volume	40	6	1	40
Percent change in expenses	0	+5	+10	-10
Projected revenue as percentage of total adjusted expenses	133	102	61	195
Net Revenue (million of dollars)	+6.5	+0.4	-8.6	+17.1
Details from Tables numbered (following)	26	51	20	61

The "current" scenario does not change transfer volume or expenses. The approximate current System average for off-line usage as reported in PACS is 15 percent and the use of immediate advice service is 40 percent based on type code 12 transfers reported from the Culpeper statistical data base. With these conditions stable revenues generated would exceed expenses by 33 percent.

In the "possible" scenario, transfer volume increased 15 percent based on the Subcommittee's estimation of annual increases over the past several years. Off-line volume generated is 13 percent in anticipation of a continuing trend toward greater usage of on-line service. Immediate advices are assumed to decline to six percent because of the charge for such service. Expenses are constant to reflect savings from the reduction in cost to process immediate advices, the reallocation of resources for on-line usage and increased productivity measures being investigated throughout all Reserve Offices. As a result revenues would be over expenses by two percent, a margin too narrow to adjust at this time in the opinion of the Subcommittee.

In the "least revenue" case, volume declines 10 percent. The off-line volume generated reduces to 5 percent reflecting a significant increase in on-line transactions. Also there is a change in the immediate advice service which declines to one percent. Expenses increased 10 percent with the decline in volume.

In the "most revenue" case, volume increases 25 percent. Off-line volume generated is 20 percent, representing significant requests from new users at low volumes. The immediate advice service is 40 percent. Expenses decrease 10 percent, because of new simplified procedures.

Immediate Advice Analysis

With respect to the category of immediate advice, the following explanation gives the Subcommittee's rationale for the assumption that the percent immediate advice to total volume could decrease from the current 40 percent level with the implementation of pricing.

The operating standards (SIR No. 7.3) governing the origination of fund transfers over the Federal Reserve Communications System specify that those transfers requiring immediate advice to the receiving bank should be designated by using type code 12 with the message address. All other transfers not requiring immediate advice should use type codes 10 or 15. Analysis of funds transfer traffic in the Culpeper data base indicates that these type codes are currently being used more often than is necessary. For example, for the period October 1977 through September 1978, the breakdown of fund transfers originated was as follows (in number of messages):

Without advice (type codes 10 and 15)	10,115,519
With immediate advice (type code 12)	7,159,789
Total	17,275,308

This would indicate that 41.5 percent of the fund transfers originated required immediate advice to the receiving bank. However, on-line banks automatically receive immediate advice and only the 14.84 percent of the total funds transfers originated to off-line banks require special instructions as to whether or not immediate advice is required.

If the provision of an immediate advice is subject to an extra charge when pricing is implemented, it has to be assumed that those transfers sent to on-line banks which automatically receive all traffic will not be coded to receive immediate advice. Assuming that funds transfers originated in the October 1977 through September 1978 period that were coded to receive an immediate advice were normally distributed between on-line and off-line banks, they would be distributed as shown in the first column below:

Type Originated	Actual	Adjusted for Pricing
Total	17,275,308	17,275,308
without advice	10,115,519	16,212,877
with advice	7,159,789	1,062,431
By on-line banks	14,711,652	14,711,652
without advice	8,614,376	13,806,886
with advice	6,097,276	904,866
By off-line banks	2,563,656	2,563,656
without advice	1,501,143	2,405,991
with advice	1,062,513	157,665

The second column above is adjusted for the implementation of pricing assuming that the 41.5 percent of fund transfers currently coded to receive immediate advice is a fair representation of the need for immediate advice, but that it would be used only on the 14.84 percent of total transfer traffic sent to off-line banks. In other words, it is assumed that the proportion of total funds traffic requiring immediate advice will drop from the current 41.5 percent of total traffic to 6.15 percent of total traffic after pricing is implemented (41.45 x 14.84).

Findings

The Subcommittee believes the proposed fee structure, absent an upward adjustment for profit, cost of capital, and taxes, will cover costs and the recovery of PACS costs is largely dependent on the System's ability to reduce costs as the demand by institutions requesting immediate advice services declines in the future. However, the data in the "possible" scenario also indicate that, with a likely volume increase of 15 percent, based on annual increases over the past several years, and a relatively small decline in the number of off-line transfer request, PACS costs are recoverable; even in the case of a 34 percent decline in the number of immediate advice requests as a percent of total volume.

SUMMARY STATISTICS ON ANNUAL NET REVENUE
FOR FEDERAL RESERVE SYSTEM

NUMBER OF NET REVENUE OUTCOMES: 1280
AVERAGE NET REVENUE: $1,065,199
SAMPLE STANDARD DEVIATION: $4,799,745
MINIMUM VALUE: $-8,577,665
MAXIMUM VALUE: $17,101,963
NUMBER OF NET REVENUE OUTCOMES OVER $0: 699

TABLE 20

RESULTANT ANNUAL PROFIT OR LOSS ARISING FROM
COMBINATIONS OF:
(1) CHANGE IN VOLUME OF -10 PERCENT
(2) ON-OFF SPLIT OF 95-5 PERCENT
(3) CHANGE IN TOTAL EXPENSES OF 10 PERCENT

% ON-LINE WITHOUT ADVICE	% ON-LINE WITH ADVICE	ON-LINE REVENUE	% OFF-LINE WITHOUT ADVICE	% OFF-LINE WITH ADVICE	OFF-LINE REVENUE	TOTAL REVENUE	NET PROFIT OR LOSS	TOTAL REVENUE AS A PERCENT OF ADJUSTED EXPENSE
.99	.01	11,259,467	.99	.01	2,069,642	13,329,109	-8,577,665	60.8
.99	.01	11,259,467	.97	.03	2,088,766	13,348,233	-8,558,541	60.9
.99	.01	11,259,467	.94	.06	2,117,452	13,376,919	-8,529,855	61.1
.99	.01	11,259,467	.60	.40	2,442,556	13,702,023	-8,204,751	62.5
.97	.03	11,622,819	.99	.01	2,069,642	13,692,461	-8,214,313	62.5
.97	.03	11,622,819	.97	.03	2,088,766	13,711,585	-8,195,189	62.6
.97	.03	11,622,819	.94	.06	2,117,452	13,740,270	-8,166,504	62.7
.97	.03	11,622,819	.60	.40	2,442,556	14,065,374	-7,841,400	64.2
.94	.06	12,167,846	.99	.01	2,069,642	14,237,488	-7,669,286	65.0
.94	.06	12,167,846	.97	.03	2,088,766	14,256,612	-7,650,162	65.1
.94	.06	12,167,846	.94	.06	2,117,452	14,285,298	-7,621,476	65.2
.94	.06	12,167,846	.60	.40	2,442,556	14,610,402	-7,296,372	66.7
.60	.40	18,344,822	.99	.01	2,069,642	20,414,465	-1,492,309	93.2
.60	.40	18,344,822	.97	.03	2,088,766	20,433,588	-1,473,185	93.3
.60	.40	18,344,822	.94	.06	2,117,452	20,462,274	-1,444,500	93.4
.60	.40	18,344,822	.60	.40	2,442,556	20,787,378	-1,119,396	94.9

ASSUMPTIONS
(A) CHANGE IN VOLUME: -10 PERCENT
(B) ADJUSTED VOLUME: 15,547,777
(C) ON-OFF SPLIT: 95-5 PERCENT
(D) ON-LINE VOLUME: 14,770,388
(E) OFF-LINE VOLUME 777,389
(F) CHANGE IN EXPENSES: 10 PERCENT
(G) ADJUSTED EXPENSES: 21,906,774

GIVEN
TOTAL VOLUME: 17,275,308
TOTAL EXPENSES: 19,915,249
P1, ON-LINE PRICE WITHOUT ADVICE: 0.75
P2, ON-LINE PRICE WITH ADVICE: 1.98
P3, OFF-LINE PRICE WITHOUT ADVICE: 2.65
P4, OFF-LINE PRICE WITH ADVICE: 3.88

TABLE 26

RESULTANT ANNUAL PROFIT OR LOSS ARISING FROM
COMBINATIONS OF:
(1) CHANGE IN VOLUME OF 0 PERCENT
(2) ON-OFF SPLIT OF 85-15 PERCENT
(3) CHANGE IN TOTAL EXPENSES OF 0 PERCENT

% ON-LINE WITHOUT ADVICE	% ON-LINE WITH ADVICE	ON-LINE REVENUE	% OFF-LINE WITHOUT ADVICE	% OFF-LINE WITH ADVICE	OFF-LINE REVENUE	TOTAL REVENUE	NET PROFIT OR LOSS	TOTAL REVENUE AS A PERCENT OF ADJUSTED EXPENSE
.99	.01	11,193,622	.99	.01	6,898,808	18,092,430	-1,822,819	90.8
.99	.01	11,193,622	.97	.03	6,962,554	18,156,176	-1,759,073	91.2
.99	.01	11,193,622	.94	.06	7,058,173	18,251,795	-1,663,454	91.6
.99	.01	11,193,622	.60	.40	8,141,853	19,335,475	-579,774	97.1
.97	.03	11,554,849	.99	.01	6,898,808	18,453,657	-1,461,592	92.7
.97	.03	11,554,849	.97	.03	6,962,554	18,517,403	-1,397,846	93.0
.97	.03	11,554,849	.94	.06	7,058,173	18,613,021	-1,302,228	93.5
.97	.03	11,554,849	.60	.40	8,141,853	19,696,702	-218,547	98.9
.94	.06	12,096,689	.99	.01	6,898,808	18,995,497	-919,752	95.4
.94	.06	12,096,689	.97	.03	6,962,554	19,059,243	-856,006	95.7
.94	.06	12,096,689	.94	.06	7,058,173	19,154,862	-760,387	96.2
.94	.06	12,096,689	.60	.40	8,141,853	20,238,542	323,293	101.6
.60	.40	18,237,543	.99	.01	6,898,808	25,136,351	5,221,102	126.2
.60	.40	18,237,543	.97	.03	6,962,554	25,200,096	5,284,847	126.5
.60	.40	18,237,543	.94	.06	7,058,173	25,295,715	5,380,466	127.0
.60	.40	18,237,543	.60	.40	8,141,853	26,379,395	6,464,146	132.5

ASSUMPTIONS
(A) CHANGE IN VOLUME: 0 PERCENT
(B) ADJUSTED VOLUME: 17,275,308
(C) ON-OFF SPLIT: 85-15 PERCENT
(D) ON-LINE VOLUME: 14,684,012
(E) OFF-LINE VOLUME 2,591,296
(F) CHANGE IN EXPENSES: 0 PERCENT
(G) ADJUSTED EXPENSES: 19,915,249

GIVEN
TOTAL VOLUME: 17,275,308
TOTAL EXPENSES: 19,915,249
P1, ON-LINE PRICE WITHOUT ADVICE: 0.75
P2, ON-LINE PRICE WITH ADVICE: 1.98
P3, OFF-LINE PRICE WITHOUT ADVICE: 2.65
P4, OFF-LINE PRICE WITH ADVICE: 3.88

TABLE 51

RESULTANT ANNUAL PROFIT OR LOSS ARISING FROM
COMBINATIONS OF:
(1) CHANGE IN VOLUME OF 15 PERCENT
(2) ON-OFF SPLIT OF 87-13 PERCENT
(3) CHANGE IN TOTAL EXPENSES OF 5 PERCENT

% ON-LINE WITHOUT ADVICE	% ON-LINE WITH ADVICE	ON-LINE REVENUE	% OFF-LINE WITHOUT ADVICE	% OFF-LINE WITH ADVICE	OFF-LINE REVENUE	TOTAL REVENUE	NET PROFIT OR LOSS	TOTAL REVENUE AS A PERCENT OF ADJUSTED EXPENSE
.99	.01	13,175,552	.99	.01	6,875,812	20,051,364	-859,648	95.9
.99	.01	13,175,552	.97	.03	6,939,345	20,114,897	-796,114	96.2
.99	.01	13,175,552	.94	.06	7,034,645	20,210,197	-700,814	96.6
.99	.01	13,175,552	.60	.40	8,114,713	21,290,265	379,253	101.8
.97	.03	13,600,737	.99	.01	6,875,812	20,476,549	-434,463	97.9
.97	.03	13,600,737	.97	.03	6,939,345	20,540,082	-370,929	98.2
.97	.03	13,600,737	.94	.06	7,034,645	20,635,382	-275,629	98.7
.97	.03	13,600,737	.60	.40	8,114,713	21,715,450	804,439	103.8
.94	.06	14,238,514	.99	.01	6,875,812	21,114,326	203,315	101.0
.94	.06	14,238,514	.97	.03	6,939,345	21,177,860	266,848	101.3
.94	.06	14,238,514	.94	.06	7,034,645	21,273,160	362,148	101.7
.94	.06	14,238,514	.60	.40	8,114,713	22,353,228	1,442,216	106.9
.60	.40	21,466,661	.99	.01	6,875,812	28,342,472	7,431,461	135.5
.60	.40	21,466,661	.97	.03	6,939,345	28,406,006	7,494,994	135.8
.60	.40	21,466,661	.94	.06	7,034,645	28,501,306	7,590,294	136.3
.60	.40	21,466,661	.60	.40	8,114,713	29,581,374	8,670,362	141.5

ASSUMPTIONS
(A) CHANGE IN VOLUME: 15 PERCENT
(B) ADJUSTED VOLUME: 19,866,604
(C) ON-OFF SPLIT: 87-13 PERCENT
(D) ON-LINE VOLUME: 17,283,946
(E) OFF-LINE VOLUME 2,582,659
(F) CHANGE IN EXPENSES: 5 PERCENT
(G) ADJUSTED EXPENSES: 20,911,011

GIVEN
TOTAL VOLUME: 17,275,308
TOTAL EXPENSES: 19,915,249
P1, ON-LINE PRICE WITHOUT ADVICE: 0.75
P2, ON-LINE PRICE WITH ADVICE: 1.98
P3, OFF-LINE PRICE WITHOUT ADVICE: 2.65
P4, OFF-LINE PRICE WITH ADVICE: 3.88

TABLE 54

RESULTANT ANNUAL PROFIT OR LOSS ARISING FROM
COMBINATIONS OF:
(1) CHANGE IN VOLUME OF 15 PERCENT
(2) ON-OFF SPLIT OF 90-10 PERCENT
(3) CHANGE IN TOTAL EXPENSES OF 0 PERCENT

% ON-LINE WITHOUT ADVICE	% ON-LINE WITH ADVICE	ON-LINE REVENUE	% OFF-LINE WITHOUT ADVICE	% OFF-LINE WITH ADVICE	OFF-LINE REVENUE	TOTAL REVENUE	NET PROFIT OR LOSS	TOTAL REVENUE AS A PERCENT OF ADJUSTED EXPENSE
.99	.01	13,629,881	.99	.01	5.289.086	18,918,967	-996,282	95.0
.99	.01	13,629,881	.97	.03	5.337.958	18,967,839	-947,410	95.2
.99	.01	13,629,881	.94	.06	5.411.266	19,041,147	-874,102	95.6
.99	.01	13,629,881	.60	.40	6.242.087	19,871,968	-43,281	99.8
.97	.03	14,069,728	.99	.01	5.289.086	19,358,814	-556,435	97.2
.97	.03	14,069,728	.97	.03	5.337.958	19,407,686	-507,563	97.5
.97	.03	14,069,728	.94	.06	5.411.266	19,480,993	-434,256	97.8
.97	.03	14,069,728	.60	.40	6.242.087	20,311,815	396,566	102.0
.94	.06	14,729,498	.99	.01	5.289.086	20,018,584	103,335	100.5
.94	.06	14,729,498	.97	.03	5.337.958	20,067,456	152,207	100.8
.94	.06	14,729,498	.94	.06	5.411.266	20,140,763	225,514	101.1
.94	.06	14,729,498	.60	.40	6.242.087	20,971,585	1,056,336	105.3
.60	.40	22,206,890	.99	.01	5.289.086	27,495,976	7,580,727	138.1
.60	.40	22,206,890	.97	.03	5.337.958	27,544,848	7,629,599	138.3
.60	.40	22,206,890	.94	.06	5.411.266	27,618,156	7,702,907	138.7
.60	.40	22,206,890	.60	.40	6.242.087	28,448,977	8,533,728	142.9

ASSUMPTIONS
(A) CHANGE IN VOLUME: 15 PERCENT
(B) ADJUSTED VOLUME: 19,866,604
(C) ON-OFF SPLIT: 90-10 PERCENT
(D) ON-LINE VOLUME: 17,879,944
(E) OFF-LINE VOLUME 1,986,660
(F) CHANGE IN EXPENSES: 0 PERCENT
(G) ADJUSTED EXPENSES: 19,915,249

GIVEN
TOTAL VOLUME: 17,275,308
TOTAL EXPENSES: 19,915,249
P1, ON-LINE PRICE WITHOUT ADVICE: 0.75
P2, ON-LINE PRICE WITH ADVICE: 1.98
P3, OFF-LINE PRICE WITHOUT ADVICE: 2.65
P4, OFF-LINE PRICE WITH ADVICE: 3.88

TABLE 58

RESULTANT ANNUAL PROFIT OR LOSS ARISING FROM
COMBINATIONS OF:
(1) CHANGE IN VOLUME OF 15 PERCENT
(2) ON-OFF SPLIT OF 95-5 PERCENT
(3) CHANGE IN TOTAL EXPENSES OF 0 PERCENT

% ON-LINE WITHOUT ADVICE	% ON-LINE WITH ADVICE	ON-LINE REVENUE	% OFF-LINE WITHOUT ADVICE	% OFF-LINE WITH ADVICE	OFF-LINE REVENUE	TOTAL REVENUE	NET PROFIT OR LOSS	TOTAL REVENUE AS A PERCENT OF ADJUSTED EXPENSE
.99	.01	14,387,097	.99	.01	2.644.543	17,031,640	-2,883,609	85.5
.99	.01	14,387,097	.97	.03	2.668.979	17,056,076	-2,859,173	85.6
.99	.01	14,387,097	.94	.06	2.705.633	17,092,730	-2,822,519	85.8
.99	.01	14,387,097	.60	.40	3.121.044	17,508,140	-2,407,109	87.9
.97	.03	14,851,379	.99	.01	2.644.543	17,495,922	-2,419,327	87.9
.97	.03	14,851,379	.97	.03	2.668.979	17,520,358	-2,394,891	88.0
.97	.03	14,851,379	.94	.06	2.705.633	17,557,012	-2,358,237	88.2
.97	.03	14,851,379	.60	.40	3.121.044	17,972,423	-1,942,826	90.2
.94	.06	15,547,803	.99	.01	2.644.543	18,192,346	-1,722,903	91.3
.94	.06	15,547,803	.97	.03	2,668,979	18,216,782	-1,698,467	91.5
.94	.06	15,547,803	.94	.06	2.705.633	18,253,436	-1,661,813	91.7
.94	.06	15,547,803	.60	.40	3.121.044	18,668,847	-1,246,402	93.7
.60	.40	23,440,606	.99	.01	2.644.543	26,085,149	6,169,900	131.0
.60	.40	23,440,606	.97	.03	2.668.979	26,109,585	6,194,336	131.1
.60	.40	23,440,606	.94	.06	2.705.633	26,146,239	6,230,990	131.3
.60	.40	23,440,606	.60	.40	3.121.044	26,561,650	6,646,401	133.4

ASSUMPTIONS
(A) CHANGE IN VOLUME: 15 PERCENT
(B) ADJUSTED VOLUME: 19,866,604
(C) ON-OFF SPLIT: 95-5 PERCENT
(D) ON-LINE VOLUME: 18,873,274
(E) OFF-LINE VOLUME 993,330
(F) CHANGE IN EXPENSES: 0 PERCENT
(G) ADJUSTED EXPENSES: 19,915,249

GIVEN
TOTAL VOLUME: 17,275,308
TOTAL EXPENSES: 19,915,249
P1, ON-LINE PRICE WITHOUT ADVICE: 0.75
P2, ON-LINE PRICE WITH ADVICE: 1.98
P3, OFF-LINE PRICE WITHOUT ADVICE: 2.65
P4, OFF-LINE PRICE WITH ADVICE: 3.88

TABLE 61

RESULTANT ANNUAL PROFIT OR LOSS ARISING FROM
COMBINATIONS OF:
(1) CHANGE IN VOLUME OF 25 PERCENT
(2) ON-OFF SPLIT OF 80-20 PERCENT
(3) CHANGE IN TOTAL EXPENSES OF -10 PERCENT

% ON-LINE WITHOUT ADVICE	% ON-LINE WITH ADVICE	ON-LINE REVENUE	% OFF-LINE WITHOUT ADVICE	% OFF-LINE WITH ADVICE	OFF-LINE REVENUE	TOTAL REVENUE	NET PROFIT OR LOSS	TOTAL REVENUE AS A PERCENT OF ADJUSTED EXPENSE
.99	.01	13,168,967	.99	.01	11.498.013	24,666,980	6,743,256	137.6
.99	.01	13,168,967	.97	.03	11.604.256	24,773,224	6,849,499	138.2
.99	.01	13,168,967	.94	.06	11.763.621	24,932,588	7,008,864	139.1
.99	.01	13,168,967	.60	.40	13.569.754	26,738,722	8,814,998	149.2
.97	.03	13,593,940	.99	.01	11.498.013	25,091,953	7,168,229	140.0
.97	.03	13,593,940	.97	.03	11.604.256	25,198,196	7,274,472	140.6
.97	.03	13,593,940	.94	.06	11.763.621	25,357,561	7,433,837	141.5
.97	.03	13,593,940	.60	.40	13.569.754	27,163,694	9,239,970	151.6
.94	.06	14,231,399	.99	.01	11.498.013	25,729,412	7,805,688	143.5
.94	.06	14,231,399	.97	.03	11.604.256	25,835,655	7,911,931	144.1
.94	.06	14,231,399	.94	.06	11.763.621	25,995,020	8,071,296	145.0
.94	.06	14,231,399	.60	.40	13.569.754	27,801,153	9,877,429	155.1
.60	.40	21,455,933	.99	.01	11.498.013	32,953,946	15,030,222	183.9
.60	.40	21,455,933	.97	.03	11.604.256	33,060,189	15,136,465	184.4
.60	.40	21,455,933	.94	.06	11.763.621	33,219,554	15,295,829	185.3
.60	.40	21,455,933	.60	.40	13.569.754	35,025,687	17,101,963	195.4

ASSUMPTIONS
(A) CHANGE IN VOLUME: 25 PERCENT
(B) ADJUSTED VOLUME: 21,594,135
(C) ON-OFF SPLIT: 80-20 PERCENT
(D) ON-LINE VOLUME: 17,275,308
(E) OFF-LINE VOLUME 4,318,827
(F) CHANGE IN EXPENSES: -10 PERCENT
(G) ADJUSTED EXPENSES: 17,923,724

GIVEN
TOTAL VOLUME: 17,275,308
TOTAL EXPENSES: 19,915,249
P1, ON-LINE PRICE WITHOUT ADVICE: 0.75
P2, ON-LINE PRICE WITH ADVICE: 1.98
P3, OFF-LINE PRICE WITHOUT ADVICE: 2.65
P4, OFF-LINE PRICE WITH ADVICE: 3.88

APPENDIX D

ENVIRONMENTAL IMPACT

As part of its effort in establishing a pricing schedule for Federal Reserve Wire Transfer services, the Subcommittee considered the potential impact of implementing the pricing schedule suggested in the Final Report. The areas investigated included: (1) comparison of the fee structures with other transfer networks, such as BankWire and S.W.I.F.T. to determine the likelihood of volume or users shifts due to cost or service benefits; (2) analysis of potential changes in user community as a result of pending legislation or a more open policy of access; and (3) the likelihood of a significant demand for on-line services because of price differential between on-line and off-line transfers.

The chart below shows the current fee structure of the BankWire and the S.W.I.F.T. system and the proposed fees for Fedwire.

COMPARISON OF WIRE TRANSFER FEES

Service	Fedwire	BankWire II	S.W.I.F.T.
Basic transaction	75¢*	60¢	40¢
Service to off-line constituency			
a) Telephone Orders	$1.90	N.A.	N.A.
b) Immediate Advice	$1.23	N.A.	N.A.
Other services to on-line constituency			
a) Acknowledgement	**	15 ¢	20 ¢
b) Priority	**	15 ¢	20 ¢
c) Statement	N.C.	60 ¢	20 ¢
d) Undelivered traffic	N.A.	60 ¢	N.A.

* Does not include costs for taxes, profits or capital investment.
** Included in basic transaction.
N.A. - Service Not Available
N.C. - No Charge

Other factors must be included in addition to transaction charges in order to make a fair comparison. For example, only the FRCS provides immediate settlement for its transactions. Settlement for BankWire or S.W.I.F.T transactions must be arranged independently. The constituency served by the FRCS is very large, some 5700 institutions at present whereas the BankWire services only 180 large institutions and S.W.I.F.T. 60 U.S. organizations. There are no membership fees or capital investments required to utilize the FRCS as there are in the other networks. The most important difference, however, and the fact that makes direct comparison of fees misleading, is the size of the constituency served by the various networks. The fact that the Federal Reserve must, by law, provide the wire transfer service to small, occasional users in remote locations as well as to large money center banks, means that the per transaction price of Federal Reserve operation will always be higher than that of a network interconnecting only high volume on-line users.

The establishment of a fee schedule for Federal Reserve wire transfer of funds is not expected to significantly change the distribution of transaction volume between BankWire and the FRCS. (S.W.I.F.T. deals only with international transactions and, therefore, would not derive any increase in transaction volume from Fedwire actions, since the latter is national in scope.) The need to purchase terminal equipment, the limited membership of BankWire and the lack of an immediate settlement may continue to dissuade banks from using BankWire, regardless of the transaction fee. Furthermore, the basic transaction in the FRCS is delivered within minutes of origination by an on-line bank and most closely resembles the BankWire priority transaction (75¢) and the S.W.I.F.T. high-priority message (80¢). The proposed fee of \$.75 is competitive with these prices considering that statements of activity, inquiries, etc., are handled at no cost in the FRCS, whereas the other networks charge for these items. Given these conditions, the Subcommittee concludes that the proposed fee schedule most likely will not cause a significant change in either the number of users or the distribution of transaction volume between the FRCS and other networks.

The connection between pricing for services and legislation needed to resolve the membership problem is clear. It is also clear that if legislation is passed similar to that proposed late in the 95th Congress, the Federal Reserve may see a significant impact on its membership and in the type of services demanded. However, the Subcommittee feels that the pricing structure proposed is sufficiently encompassing that additional demands of the FRCS could be met and that the revenue from new or additional activity could be adjusted to adequately cover the cost of modification or addition of the FRCS facilities. The structure will also accommodate any tendencies to "open" access to the FRCS to agents of members or other financial institutions, since the cost per transaction is linked directly to the cost of providing the necessary services. Major changes in the wire transfer area are not expected since Fed funds traders are already using the FRCS facilities today (via correspondent relationships) and the number of transactions and dollar amount are expected to remain fairly constant.

The proposed price schedule could have significant impact on the configuration of the FRCS in terms of encouraging medium size banks who are now off-line to request a terminal or on-line connection to the FRCS due to the differential in fees for off-line and on-line transfers. A trend in this direction would have a favorable impact on the Federal Reserve providing the computer systems installed can accommodate the added demand for on-line service. It is the Subcommittee's opinion, however, that the trend toward on-line service will not be of a magnitude that will cause problems in terms of the available computer equipment. This opinion is based on the observation that it will still take a fairly large volume of transfers (10 or more per day) to make it cost-effective for a member to come on-line since the trade-off against transaction fees must include not only terminal equipment, but labor intensive preparation, operation was control procedures which are not necessary in a telephone based operation. An informal survey suggests that Reserve Banks are already planning to be in a position to accommodate members with volumes in this category in the near future. Consequently, the impact of a differential pricing schedule between on-line and off-line will be favorable to the Federal Reserve (less labor intensive operations, better security and control) and can be accommodated within existing and planned communications facilities.

As a matter of interest, the Subcommittee noted that as an additional point of comparison, Western Union commercial funds transfer fees are $4.50 for a transfer value up to $200 and vary to $15 for a transfer up to $5,000. Additional fees are charged at a rate of $4.45 for each $500 (or fraction thereof) in excess of $5,000. Western Union's fees are nationwide.

APPENDIX E

ADDITIONAL DATA NEEDED TO ADMINISTER RECOMMENDED PRICING METHODOLOGY

As explained in Appendix A, the volume data reported in PACS for the Transfer of Reserve Account Balances are appropriate for use in measuring performance among Reserve Offices but cannot be used to administer the pricing methodology proposed for the funds transfer service. Therefore, if the pricing methodology proposed is approved, the following additional environmental statistics should be incorporated into the regular PACS reports in order to provide all of the necessary data in a single report:

- Number of fund transfers originated
    - By on-line banks without advice
    - By on-line banks with immediate advice
    - By off-line banks without advice
    - By off-line banks with immediate advice
- Number of fund transfers received
    - By on-line banks without advice
    - By on-line banks with immediate advice
    - By off-line banks without advice
    - By off-line banks with immediate advice

Only those fund transfers with type codes 10, 12, and 15 that generate accounting entries should be included in the above volume data.