

Large-Dollar Payment Flows from New York

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

The policy statement treats all transactions going over the funds networks identically, regardless of the economic purposes of the payment or possible differences in the underlying risks associated with individual transactions. Because detailed information has not generally been available on the economic purpose underlying individual transactions, it is difficult to assess the impact of the policy statement on individuals or groups of payments system participants. Indeed, only anecdotal

information and limited quantitative data from a few institutions exist on such a transactional level. In an effort to develop a more comprehensive base for understanding the nature of the transactions underlying the payments networks, the Federal Reserve Bank of New York embarked on a special study in 1985.

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

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

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

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

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

the sampling procedure and the summary analysis that follows were prepared by the Federal Reserve Bank of New York⁴

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

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

(1) Transfers related to securities purchase/

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

redemption financing⁵

- (2) Bank loan transactions
- (3) Federal funds transactions
- (4) Commercial and miscellaneous transactions
- (5) Settlement transactions for other payments systems
- (6) Eurodollar placements and returns
- (7) Dollar transfers related to foreign exchange

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

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

AN OVERVIEW OF FEDWIRE AND CHIPS

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

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

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

RISKS IN THE PAYMENTS SYSTEM

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

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

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

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

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

Structure of the sample and survey

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

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

On the survey day, the 13 banks participating in the

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

Table 1

Sampling Percentages by Payment Size Classification

(In Percent)

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

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

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

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

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

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

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

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

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

Table 2

Combined Fedwire and CHIPS Payments for Participants by Size Classification

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

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

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

^aAbout 350 depository institutions with \$1 billion or more in assets are currently chartered in the United States

Table 3

Survey Response Rates by Payment Size Classification

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

Table 4

Estimated Aggregate Transactions by Survey Category by Wire System

(In Millions of Dollars)

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

Totals may not add due to rounding

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

Summary by transaction type

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

Securities purchase/redemption/finance transactions

Description:

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

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

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

Table 5

Fedwire Securities Purchase/Redemption/Financing Transactions Composite Summary

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

Totals may not add due to rounding

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

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

Timing:

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

Destination:

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

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

Bank loan transactions

Description:

- Loan transactions were low in frequency and value, indicating that much of this business is done directly on the bank's own books.

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

- Customer repayment of loans from third-party lenders represented the most significant type of transaction observed.

Timing:

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

Destination:

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

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

Federal funds transactions

Description:

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

Timing:

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

Destination:

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

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

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

Commercial and miscellaneous transactions

Description:

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

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

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

Timing:

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

Destination:

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

survey.

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

Settlement transactions

Description:

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

Timing:

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

Destination:

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

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

Table 6

Fedwire Sales and Returns of Federal Funds by Time of Day

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

Totals may not add due to rounding

Eurodollar placements/returns

Description:

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

Timing

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

Destination:

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

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

and those for the bank's own foreign offices.

Foreign exchange transactions

Description.

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

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

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

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

- The Japanese yen, with 32 percent of dollar volume, and German mark, with 28 percent, were the dominant currencies. The British pound comprised about 11 percent, the French franc about 7½ percent, the Canadian dollar 5½ percent, and the Swiss franc 4⅔ percent.

Timing:

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

Destination:

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

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