

Daylight Overdrafts, Payments System Risk, and Public Policy

By David D. VanHoose and Gordon H. Sellon, Jr.

The payments system in the United States has been markedly transformed in recent years by advances in computer and telecommunications technology. For many corporations, financial institutions, government agencies, and individuals, electronic payments have supplanted the more traditional use of checks for large-value transactions.

The increased use of electronic payments has clearly improved the efficiency of financial markets by lowering the cost and increasing the speed of financial transactions. At the same time, however, the growth of electronic payments has subjected the financial system to new types of risks. The Federal Reserve has been especially concerned about the risk

inherent in "daylight overdrafts" on electronic funds transfer systems. Daylight overdrafts are intraday loans by the Federal Reserve to other financial institutions or by one financial institution to another. Because daylight overdrafts are unsecured, they expose the Federal Reserve and other financial institutions to potentially serious financial loss that could threaten the stability of the payments system.

For several years the Federal Reserve has been assessing the risks of daylight overdrafts and has instituted policies to contain these risks. In March 1986, the Federal Reserve implemented a policy to slow the growth of overdrafts. And, in May 1989, the Federal Reserve Board proposed for public comment a new and more comprehensive approach to the overdraft problem. If successful, the Federal Reserve's new proposal will reduce risks caused by daylight overdrafts without impairing the efficiency of the payments system.

This article examines the nature of the

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daylight overdraft problem and discusses how Federal Reserve policies are designed to control overdrafts and reduce payments system risk. The first section of the article documents the growth of electronic payments and daylight overdrafts. The second section discusses the types of risk created by daylight overdrafts, how these risks might be controlled, and the policy tradeoffs between risk reduction and other payments system goals. The final section describes both current Federal Reserve overdraft policy and the Federal Reserve's new proposal to curb overdrafts and reduce payments system risk.

I. ELECTRONIC PAYMENTS: THE SOURCE OF DAYLIGHT OVERDRAFTS

Advances in electronic funds transfer technology have allowed corporations, financial institutions, government agencies, and investors to use electronic payments systems to complete financial transactions quickly and inexpensively. Accompanying the growth in electronic funds transfer, however, has been a significant increase in daylight overdrafts. Overdrafts on the two principal electronic funds transfer systems, Fedwire and CHIPS (the Clearing House Interbank Payment System), have become the main focus of Federal Reserve payments system policy.

The role of electronic payments

The payments system in the United States is currently a mixture of electronic and nonelectronic funds transfer systems. Traditional payments means, such as cash and checks, still account for the vast majority of smaller trans-

actions. In contrast, electronic funds systems, such as the Fedwire and CHIPS systems, are the primary means of making large-dollar payments.

Traditional payment mechanisms account for most of the *volume* of transactions (Table 1). Purchases of goods and services using cash and checks account for well over 90 percent of the volume of transactions. In contrast, wire transfers and other electronic payments systems account for only one-third of 1 percent of the total volume of payments transactions.

Electronic funds transfers, however, account for most of the *value* of transactions in the U.S. payments system (Table 2). Wire transfers, such as those involved in large wholesale financial transactions, account for over 80 percent of the dollar value of transactions. In contrast, all nonelectronic means combined provide only 17 percent of the value of transactions.

Fedwire and CHIPS

The principal wire transfer systems used for electronic payments are Fedwire and CHIPS. Fedwire, an electronic payments system managed by the Federal Reserve, is open to all depository institutions that maintain accounts with the Federal Reserve. CHIPS is a privately owned and operated electronic network linking 141 U.S. depository institutions and U.S. branches of foreign-based institutions. Both systems allow their users to exchange large-dollar payments quickly and with a minimum of paperwork.

The two funds transfer networks process a large amount of electronic payments on a daily basis. For example, in the first six months of 1989 the value of daily electronic payments

TABLE 1
Volume of electronic and nonelectronic payments, 1987

Type of instrument	Number of transactions (\$ millions)	Percent of total transactions	Type of instrument	Number of transactions (\$ millions)	Percent of total payments
Cash	278,600	83.42	Wire transfers	84	0.03
Checks	47,000	14.07	Other	1,020	0.30
Other	7,276	2.17			
Total nonelectronic	332,876	99.66	Total electronic	1,104	0.33

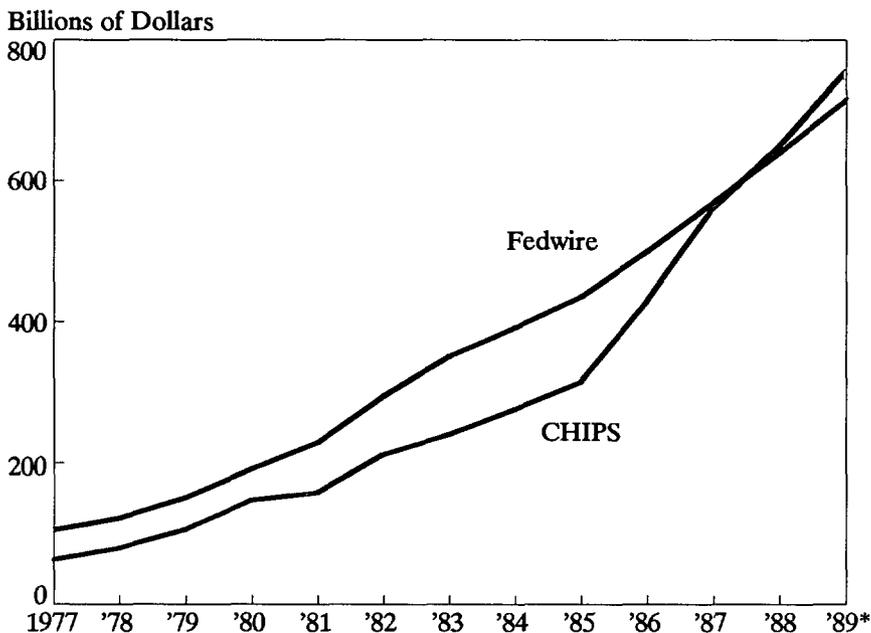
Source: Berger and Humphrey 1989.

TABLE 2
Value of electronic and nonelectronic payments, 1987

Type of instrument	Total dollar value (\$ billions)	Percent of total payments	Type of instrument	Total dollar value (\$ billions)	Percent of total payments
Cash	1,400	0.41	Wire transfers	281,000	82.11
Checks	55,800	6.30	Other	3,601	1.05
Other	434	0.12			
Total nonelectronic	57,634	16.83	Total electronic	284,601	83.16

Source: Berger and Humphrey 1989.

CHART 1
Average daily transactions on CHIPS and Fedwire



*1989 data through June.

Source: Board of Governors of the Federal Reserve System.

averaged \$754 billion on CHIPS and \$715 billion on Fedwire. In addition, the size of transactions on the two networks is very large. The average size of a CHIPS transaction is currently about \$5.2 million, while Fedwire payments average about \$3.0 million.

Both payments networks have grown rapidly over the past 12 years. From 1977 to June 1989, CHIPS transactions have increased more than tenfold, from \$65 billion in 1977 to \$754 billion in the first half of 1989 (Chart 1). Over the same period, Fedwire transactions have grown from \$106 billion to \$715 billion.

The two wire-transfer systems tend to

specialize in different types of transactions. On Fedwire the main types of transactions are transfers of federal funds between depository institutions and purchases and sales of government securities. The federal funds transactions arise from intrabank purchases and sales of federal funds as well as third-party payments by corporations and nonbank financial institutions. On the CHIPS network most wire transfers involve foreign exchange trading and Eurodollar transactions.

Federal funds transactions on Fedwire involve the exchange of balances held by depository institutions at Federal Reserve

banks. When a depository institution makes a payment over Fedwire, it requests the Federal Reserve bank to transfer funds from its own account to that of another institution. Upon receiving the wire, the Federal Reserve bank will immediately debit the account of the sending bank and credit the account of the receiving bank. In this way, Fedwire allows institutions to complete financial transactions over great distances in a matter of minutes.

Fedwire is also used to complete book-entry security transactions. Financial institutions and investors establish book-entry security accounts at Federal Reserve banks to facilitate purchases and sales of government securities. When one institution buys a security from another, the Federal Reserve bank deducts the securities from the seller's book-entry account and credits the seller's reserve account. The Federal Reserve bank then credits the book-entry account of the purchaser of the securities and debits the purchaser's reserve account.

Electronic funds transfers on CHIPS occur in a similar manner. For example, an institution belonging to the CHIPS network wishing to complete a Eurodollar or foreign exchange transaction will request that CHIPS remove funds from its account with the network and transfer those funds to the recipient. Like Fedwire, institutions using CHIPS can transfer funds more quickly and inexpensively than by nonelectronic payments methods.

The origin of daylight overdrafts

While electronic payments systems bring important benefits, they have also raised some important policy issues. One issue of concern to the Federal Reserve is the creation of daylight overdrafts. Daylight overdrafts are overdrawals

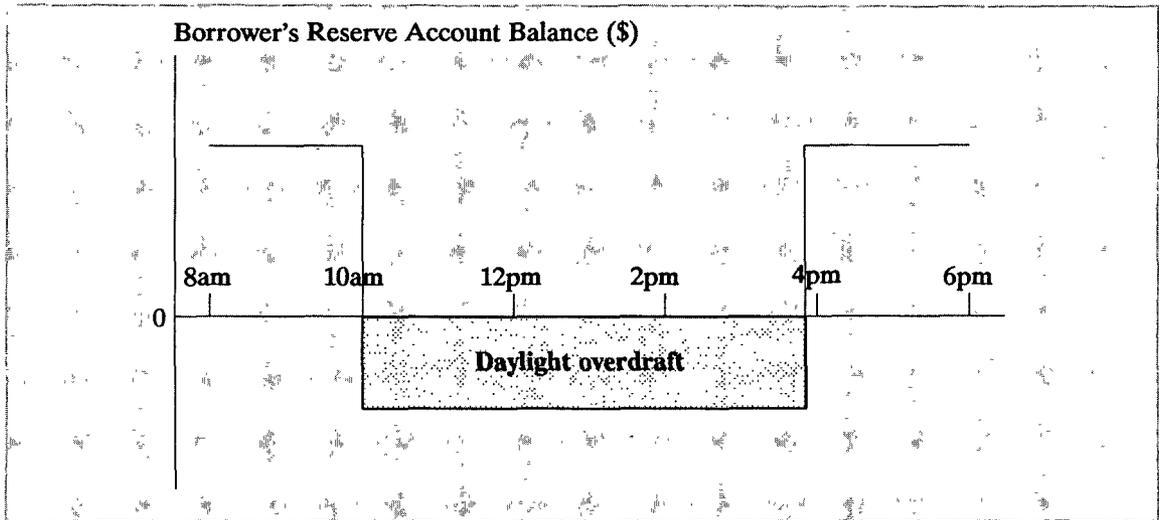
of Federal Reserve or CHIPS accounts that occur prior to final settlement at the end of the day. These overdrafts can be viewed as unsecured loans, either by the Federal Reserve or by CHIPS participants, to other network participants for intervals during the day.

All depository institutions are required to have a positive balance in their reserve account at the Federal Reserve at the close of the business day. During the course of the day, however, the account balance may be negative. This deficiency is called a daylight overdraft. On CHIPS, participants who send and receive payment messages are recorded as being in a net debit or credit position relative to other participants. These net debit positions on CHIPS can be viewed as equivalent to Fedwire overdrafts.

Daylight overdrafts result from both intentional and unintentional mismatching of payments and receipts on the two wire systems. An unintentional daylight overdraft might occur, for example, when an institution, expecting an incoming wire transfer, pays funds out of its account at the Federal Reserve or CHIPS. If the expected inflow of funds is delayed for some reason, the institution may find that it has temporarily overdrawn its account, creating a daylight overdraft.

Unintentional overdrafts may result from poor planning, inadequate communication, or computer problems. Unintentional overdrafts occur fairly regularly on book-entry security transfers on Fedwire because the seller, rather than the purchaser of the securities, generally controls the timing of the funds transfer. For example, while a securities transaction might be agreed upon early in the morning with delivery to be completed by the close of business, the seller typically has considerable

FIGURE 1
Creation of a daylight overdraft



latitude to decide when during the day to complete the transaction. As a result, the buyer may be surprised at the timing of the transfer of funds from its reserve account and so may experience an unintentional overdraft.

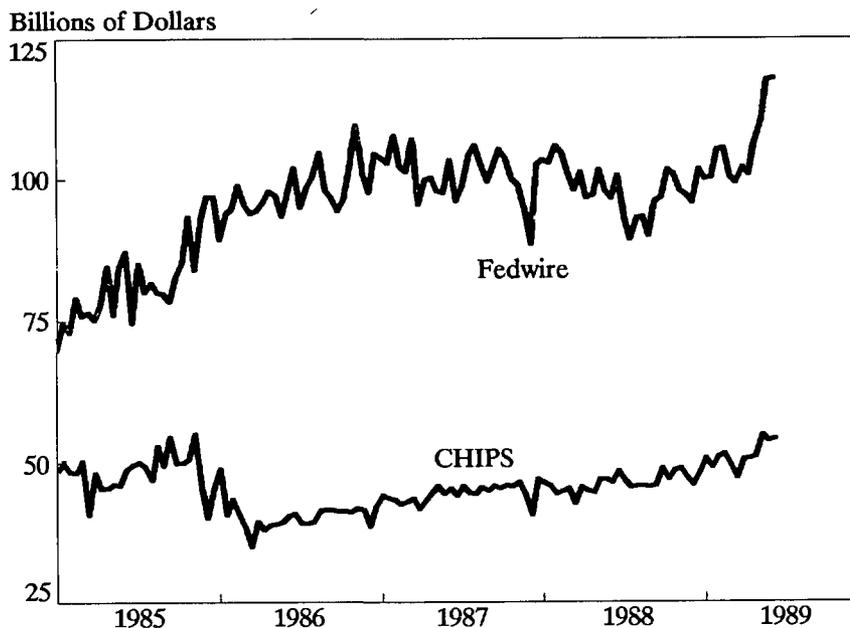
Daylight overdrafts can also be intentional. For example, many depository institutions borrow federal funds from other institutions in order to maintain a positive end-of-day balance in their reserve account. During the day, however, depository institutions may deliberately incur a negative balance in their reserve account. Figure 1 shows how an intentional overdraft may arise. At the beginning of the business day, an institution has a positive balance in its reserve account because it borrowed federal funds the previous evening. At 10:00 a.m., this institution returns the borrowed funds. Between 10:00 a.m. and 4:00 p.m. the institution may negotiate a new overnight loan that begins at 4:00 p.m. Although this institution has a positive balance in its reserve account

at the beginning and close of the day, during the day its balance at the Federal Reserve bank is negative. That is, the institution has intentionally created a daylight overdraft of its Federal Reserve account.

Overdrafts of CHIPS accounts occur along somewhat similar lines, although the types of transfers that produce CHIPS overdrafts relate to foreign exchange and Eurodollar transactions. As on Fedwire, CHIPS overdrafts can be intentional or unintentional in nature.

Whether intentional or not, daylight overdrafts occur in large part because they are costless to the institutions creating them. That is, unlike other types of short-term credit extensions, such as Federal Reserve discount window borrowing or other overnight loans, no interest is charged on daylight overdrafts on Fedwire or CHIPS. Because daylight overdrafts are free, institutions using the payments system have little incentive to control their growth.

CHART 2
Fedwire and CHIPS overdrafts



Note: For individual institutions, overdrafts are measured as biweekly averages of their daily peak overdrafts. Aggregate overdrafts are the sum of these individual biweekly averages.

Source: Board of Governors of the Federal Reserve System.

Dimensions of daylight overdrafts

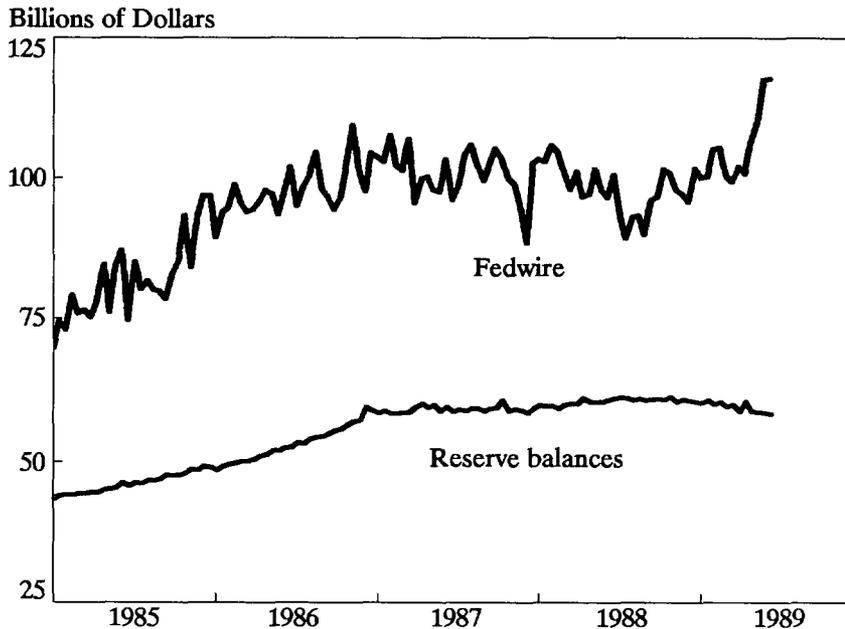
While the value of CHIPS transactions currently exceeds Fedwire transactions, the value of daylight overdrafts is much greater on Fedwire (Chart 2). In June 1989, for example, total Fedwire overdrafts reached a daily average peak of \$118 billion, compared with a CHIPS peak overdraft total of \$53 billion. The higher level of Fedwire overdrafts reflects the rapid growth of Fedwire overdrafts in the past five years (Chart 2). While Fedwire overdrafts increased \$48 billion over this period, CHIPS

overdrafts increased only \$5 billion.

The high level of Fedwire overdrafts is due both to large funds overdrafts and to sizable book-entry overdrafts. In June 1989, daily peak Fedwire funds overdrafts averaged \$76 billion, while book-entry overdrafts averaged \$69 billion.

Daylight overdrafts are extremely large relative to reserve balances. As shown in Chart 3, peak Fedwire overdrafts consistently exceed end-of-day reserve balances. Indeed, in June 1989, peak Fedwire overdrafts were approximately twice as large as reserve balances.

CHART 3
Fedwire overdrafts compared with reserve balances



Note: Overdrafts are defined in Chart 2. Reserve balances are average end-of-day balances measured over a two-week reserve maintenance period.

Source: Board of Governors of the Federal Reserve System.

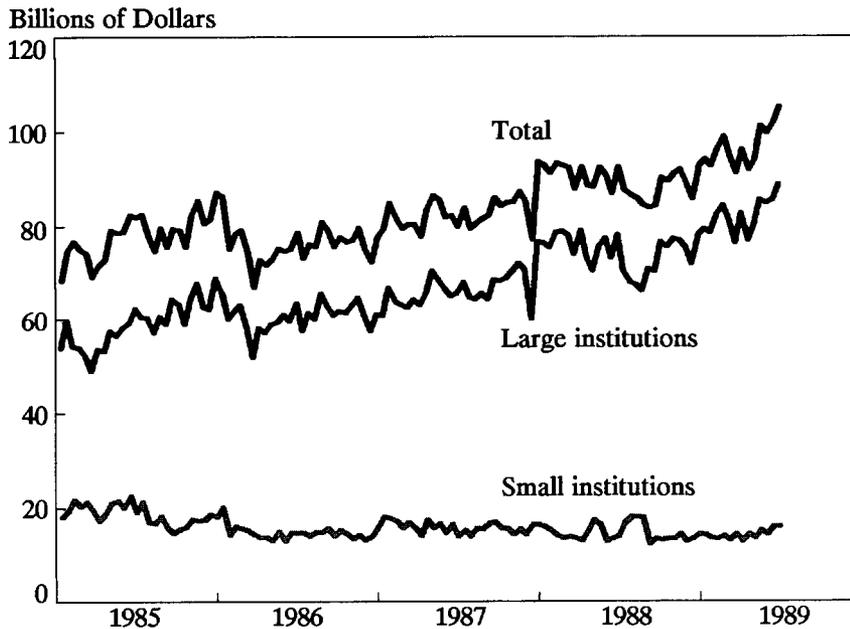
Daylight overdrafts are also widespread. On a given day, as many as 1,100 depository institutions may experience an overdraft on Fedwire or CHIPS. And, over the course of a three-month period, as many as 5,000 institutions may incur an overdraft.

While many institutions experience overdrafts, most overdrafts are concentrated in large institutions. Chart 4 shows cross-system CHIPS and Fedwire funds overdrafts broken down by size of institution. Large institutions, which comprise U.S. banks with over \$10 billion in assets and U.S. agencies and branches of

foreign banks, account for 84 percent of cross-system overdrafts.

Book-entry overdrafts are even more highly concentrated in a small number of large institutions. Four large banks dominate book-entry securities transfers. These four institutions clear most of the transactions in the government securities markets and account for two-thirds of all book-entry overdrafts (Chart 5). Moreover, the ten largest book-entry overdrafters account for 80 percent of the overdrafts.

CHART 4
Funds overdrafts by size of institution



Note: Overdrafts are cross-system overdrafts on Fedwire and CHIPS. Cross-system funds overdrafts are the combined overdrafts on the two wire systems at a given time of day. This measure differs from the measure of peak overdrafts used in Charts 2 and 3. For more details see Belton (1987). Large institutions include U.S. banks with more than \$10 billion in assets and U.S. agencies and branches of foreign banks. Small institutions include banks under \$10 billion in assets and nonbank financial institutions.

Source: Board of Governors of the Federal Reserve System.

II. DAYLIGHT OVERDRAFTS AND PAYMENTS SYSTEM RISK

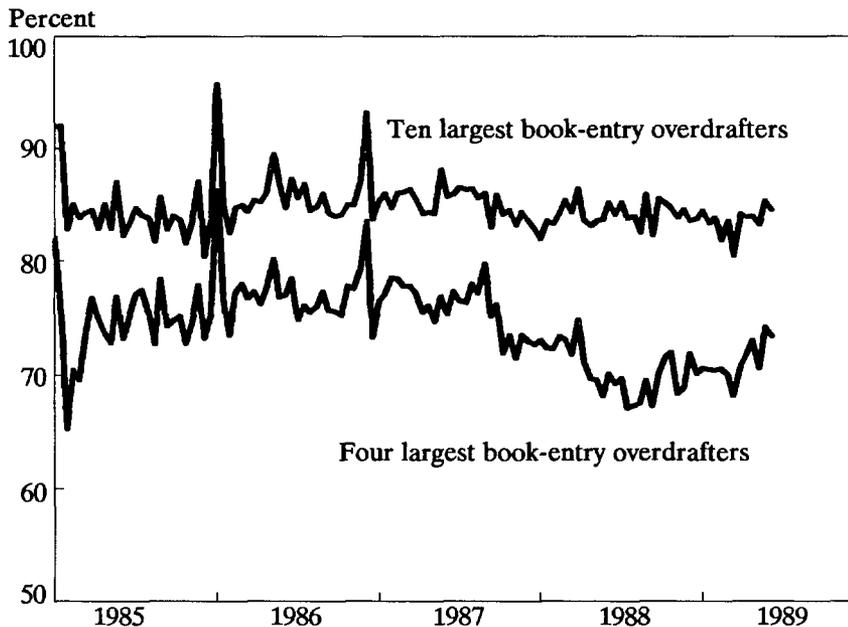
The growth in daylight overdrafts on Fedwire and CHIPS has exposed the Federal Reserve and network participants to significant amounts of credit risk. While policies can be implemented to control overdrafts and their risks to the payments system, risk reduction must be balanced against other objectives of

payments system policy.

Risks caused by daylight overdrafts

Daylight overdrafts are a public policy issue because the risk of default on these intraday loans exposes both the Federal Reserve and CHIPS participants to potentially serious financial loss. This risk exposure arises because daylight overdrafts, unlike most loans, are

CHART 5
Concentration of book-entry overdrafts



Source: Board of Governors of the Federal Reserve System.

unsecured. The lender of intraday funds has no security or collateral in the event of a default by an overdrafter. In addition, daylight overdrafts tend to be much larger than traditional loans.

Daylight overdrafts result in different types of risk exposure on Fedwire and CHIPS. These different risks stem from the way in which payment settlement occurs on the two systems.¹

An important characteristic of the operation of Fedwire is settlement finality. All transfers of funds over Fedwire are final. That

is, institutions that receive funds on this system during the day are legally entitled to these funds, no matter what time of day they are received and irrespective of the ability of the sending institution to cover its payments later in the day. In the event of failure by a sending institution, the Federal Reserve guarantees the payment. Thus, on Fedwire, settlement finality means that the Federal Reserve, rather than network users, bears the risk caused by daylight overdrafts.

In contrast to Fedwire, CHIPS currently lacks settlement finality. On CHIPS, settlement of net debit and credit positions occurs at the end of the day. At that time, institutions with

¹ For a more detailed discussion of payments system risk, see Gilbert 1989.

a net debit position relative to other institutions make payment to those institutions. Unlike Fedwire, however, there is no guarantee that this payment will be made. Thus, CHIPS participants are directly exposed to the credit risks caused by daylight overdrafts.

While it does not have direct credit exposure on CHIPS, the Federal Reserve is concerned about the problem of systemic risk. Systemic risk refers to the possibility that default by one institution on a private wire system could lead to additional defaults by other institutions, threatening the stability of the entire payments system. For example, on CHIPS, systemic risk could arise because the failure of a sender of funds to settle with a receiver of funds could cause the receiver to default on its obligations to other institutions. If so, a chain reaction of defaults could arise from a single default. The Federal Reserve in its role as lender of last resort could contain this problem, but a number of institutions could suffer large losses, and the efficiency of the large-dollar payments system could be damaged.²

Reducing payments system risks

The Federal Reserve has examined two policy options to contain the risks caused by daylight overdrafts. One option is to reduce overdrafts by placing quantitative limits, or "caps," on the levels of daylight overdrafts. A second approach is to price overdrafts, that is, to charge interest on overdrafts. Both options could reduce overdrafts and their associated risks by causing behavioral and institutional changes in payments system practices.

² For a discussion, see Humphrey 1986 and Evanoff 1988.

Overdraft caps. Caps on daylight overdrafts would place an upper limit on the amount of intraday credit available to individual institutions either on an individual wire-transfer system or across systems. Institutions exceeding their overdraft caps would be penalized by limiting their ability to conduct additional transactions on the wire systems.

If overdraft caps were binding, institutions would be expected to undertake changes in their payments system practices to reduce their overdrafts. One response to caps might be to adopt a system of "netting" transactions. Currently, if two institutions owe each other money they make two separate payments on Fedwire or CHIPS. If these institutions netted these transactions and transferred only the difference between the two obligations, overdrafts would be reduced.

A second response to caps might be to use more federal funds "rollovers" and continuing contracts. Under these arrangements, overnight federal funds loans between the same borrower and lender would be automatically renewed each morning, reducing the daily repayment of funds that currently causes large daylight overdrafts. Other institutional changes, such as improved computer software for monitoring and matching credit and debit transfers, as well as better communications facilities linking senders and receivers of funds, might also be induced by caps.

Caps offer two advantages. First, caps can be imposed differentially across institutions or across types of overdrafts. For instance, depository institutions that are regarded by the Federal Reserve as greater credit risks on the Fedwire system could, in principle, be subjected to more stringent quantity restrictions than other institutions. Likewise, if Fedwire

funds overdrafts were regarded either as a greater problem or as a more controllable problem than book-entry overdrafts, lower caps could be imposed on federal funds overdrafts. Second, a policy of overdraft caps places an upper limit on the exposure of the payments system to combined private, systemic, and Federal Reserve risks arising from daylight overdrafts.

Two criticisms have been leveled at the use of caps to control daylight overdrafts. The first stems from the practical problem of where to set the caps. If caps are set too high, they may not be binding and may not lead to a sufficient reduction in overdrafts. If caps are too low, institutions may be forced to make changes in payments system practices that are not cost effective.

Caps have also been criticized for their inflexibility. If caps are binding, institutions must reduce the quantity of their overdrafts regardless of whether the costs of overdraft reduction exceed the benefits of risk reduction. Rather than directly reducing overdrafts through caps, it may be more efficient to alter the incentive structure of the payments system that gives rise to overdrafts. By changing the incentives to create overdrafts, payments system participants might voluntarily restrict the magnitudes of their overdrafts along lines that are most cost effective for the individual institutions.

Pricing daylight overdrafts. An alternative to caps is the explicit pricing of daylight overdrafts. Under this strategy, the Federal Reserve would charge interest on Fedwire overdrafts. Depository institutions would choose either to pay this price for the same quantity of overdrafts or to reduce the amounts of overdrafts via changes in payments system practices so as

to avoid the interest charges on the overdrafts.³

Pricing goes to the heart of the overdraft problem. Currently, institutions have limited incentives to control overdrafts because overdrafts are free. Pricing overdrafts forces institutions to balance the cost of overdraft reduction against the cost of incurring overdrafts. Thus, some institutions would reduce or eliminate overdrafts because they would find it cheaper to cut overdrafts than to pay for them. Other institutions would continue to create overdrafts because the price of overdrafts would be lower than the cost of institutional changes to reduce them.

While pricing overdrafts would give institutions more flexibility in managing overdrafts than would the use of overdraft caps, a number of practical and conceptual problems remain. Like the setting of caps, the choice of a price for overdrafts would be complex. Too low a price for Fedwire overdrafts would provide too little incentive for institutions to reduce overdrafts. Too high a price for Fedwire overdrafts could cause payments to shift to CHIPS or other private payments systems. While this shift would reduce the Federal Reserve's overdraft risk exposure, private credit risk and systemic risk on CHIPS would tend to increase.⁴

³ More detailed analyses of the pricing of daylight overdrafts are contained in Evanoff 1988 and Mengle, Humphrey, and Summers 1987.

⁴ Another potential complication of pricing is the creation of a market for intraday credit. The development of an intraday credit market might improve credit allocation by letting the market price payments system risk. However, the development of an intraday market could lead to increased volatility of short-term interest rates and could complicate monetary policy. For a discussion of these issues, see Angell 1989 and VanHoose 1988. The likelihood of a market for

Issues in implementing an overdraft policy

In designing a policy to contain the risks of daylight overdrafts, there is a clear tradeoff between reducing payments system risk and promoting payments system liquidity.⁵ The obvious advantage of unhindered overdrafts is the resulting increase in the speed at which payments can be sent or received. The use of caps or pricing would necessarily slow payments processing because institutions would be induced to match or synchronize electronic funds flows. Depository institutions and their customers would bear the costs stemming from the reduced speed of payments flows. Thus, the setting of caps or prices on overdrafts must balance the gains from reducing payments system risks against the costs of reduced payments system liquidity.

Overdraft policy must also recognize the interconnection of risks on the various wire-transfer systems. Dealing with the overdraft problem on one network alone may not reduce the overall risks to the payments system. For example, caps or pricing policies exclusive to Fedwire might reduce the Federal Reserve direct credit risk. However, if payments activities are shifted to CHIPS or other networks, private credit risk and systemic risk may increase. Thus, to be effective, a policy to reduce overdrafts must be comprehensive across payments systems.

A final issue in implementing an overdraft policy is to design a policy that targets those

institutions most responsible for the overdraft problem. As shown in the previous section, large institutions cause most overdrafts on Fedwire or CHIPS. An overdraft policy that places unnecessary costs, red tape, and reporting burdens on smaller institutions is more likely to impede than enhance the liquidity and efficiency of the payments system.

III. FEDERAL RESERVE POLICIES TO CONTROL PAYMENTS SYSTEM RISKS

In recent years the Federal Reserve has developed methods to reduce its risk exposure on Fedwire and contain private and systemic credit risks on private payments systems like CHIPS. Given the difficult tradeoffs in balancing risk reduction against other payments system goals, the Federal Reserve has chosen to implement its payments system risk policies gradually. The current overdraft policy has been moderately successful in slowing the growth of some types of daylight overdrafts. The Federal Reserve's new policy proposal is more comprehensive and aims to significantly reduce daylight overdrafts.

Current overdraft policy

The Federal Reserve's current overdraft policy has several significant features.⁶ One characteristic is the method for controlling over-

intraday credit developing is discussed in Simmons 1987 and Stevens 1989.

⁵ Additional discussion of this and other policy issues is contained in Lindsey 1988.

⁶ A more detailed description of current policy is contained in Belton and others 1987.

drafts. The current program relies on caps rather than pricing to limit daylight overdrafts. In addition, coverage under the existing program includes funds transactions on Fedwire and CHIPS but does not extend to Fedwire book-entry security overdrafts. Finally, the cap program covers all institutions using CHIPS and Fedwire and does not attempt to target those institutions most responsible for the majority of overdrafts.

Types of caps. Currently, institutions are subject to three types of caps on the amount of credit extended to them in the form of daylight overdrafts. One cap limits overdrafts with other individual participants on private networks like CHIPS. The second cap limits total overdrafts on private networks. The third type of cap controls an institution's combined overdrafts across payments networks including Fedwire and private networks.⁷

The *bilateral net credit limit* is a cap on daylight overdrafts that controls an institution's peak credit exposure to another participant on a private network like CHIPS. On CHIPS, each participant must assess the creditworthiness of any counterparty in a transaction that generates a daylight overdraft. Based on this evaluation, each institution sets an upper limit on the value of payments that it is willing to receive from another participant. Payments that exceed this bilateral net credit limit are automatically rejected by the CHIPS network. CHIPS par-

ticipants have significant leeway in setting these caps and, indeed, are able to change these limits during the day.

The second type of cap, the *network sender net debit cap*, limits the total amount of overdrafts that an institution can incur on a network. On CHIPS this cap is currently 5 percent of the sum of the net bilateral credit limits set for a given participant by all other CHIPS participants. If an institution attempts to make a payment that would cause its total CHIPS overdrafts to exceed the sender net debit cap, this payment is automatically rejected by the network. Unlike the bilateral limits, the sender net debit caps cannot be altered during the day but may be changed from one day to the next.

The third type of cap, the *cross-system sender net debit cap*, limits the total overdrafts an institution can incur across payments networks. This cap is set according to Federal Reserve guidelines and requires a self-assessment by each institution of its creditworthiness and operational controls. Based on this assessment, each institution is assigned a cap on its combined daily peak overdrafts on Fedwire and CHIPS and a second cap on its combined average daily overdrafts during a two-week reserve maintenance period. Each of these caps is expressed as a multiple of an institution's primary capital so that institutions with more capital have higher overdraft caps.⁸ Under the cross-system cap program, overdrafts on one payments network reduce the ability of an institution to overdraft on another network. Currently, cross-system overdrafts are

⁷ CHIPS uses Fedwire for net settlement purposes. That is, after netting of debits and credits by CHIPS participants, a participant with a net debit position sends payment to another participant via Fedwire. The Federal Reserve requires any private payments network like CHIPS that uses Fedwire for net settlement to adhere to the Federal Reserve's overdraft cap policy.

⁸ Further discussion of these caps can be found in Belton and others 1987.

monitored only at the end of the day, and institutions that exceed the cross-system caps are counseled by the Federal Reserve.⁹

The current overdraft cap policy has been implemented in stages over the past five years. Bilateral credit limits on CHIPS were introduced in October 1984, and CHIPS sender net debit caps were implemented in October 1985. The cross-system caps became effective in March 1986. The cross-system caps were subsequently reduced 15 percent in January 1988 and another 10 percent in May 1988.

Limitations of current overdraft policy.

Two limitations of the current overdraft policy are related to its coverage. In one sense, the policy is too narrow because it does not attempt to control the sizable amount of daylight overdrafts on book-entry security transactions. In another sense, current policy is too broad because it applies to all payments system participants regardless of the different risks they may create.

Book-entry securities overdrafts are not included in current overdraft policy because of concerns about the liquidity and efficiency of the government securities market. Over the past several years, significant operational changes have occurred in the book-entry securities market, including the transfer of all government securities from definitive to book-entry form. To prevent possible disruptions to trading in the government securities market, the Federal Reserve decided to postpone control of book-

entry overdrafts until these institutional changes were completed.¹⁰

Even though most daylight overdrafts are caused by larger institutions, the Federal Reserve's current overdraft policy applies to all payments system participants. Broad coverage of the program is certainly helpful in communicating the Federal Reserve's concern about payments system risk to all participants. However, the administrative costs of the program may be very burdensome for smaller institutions that contribute little to the overdraft problem.

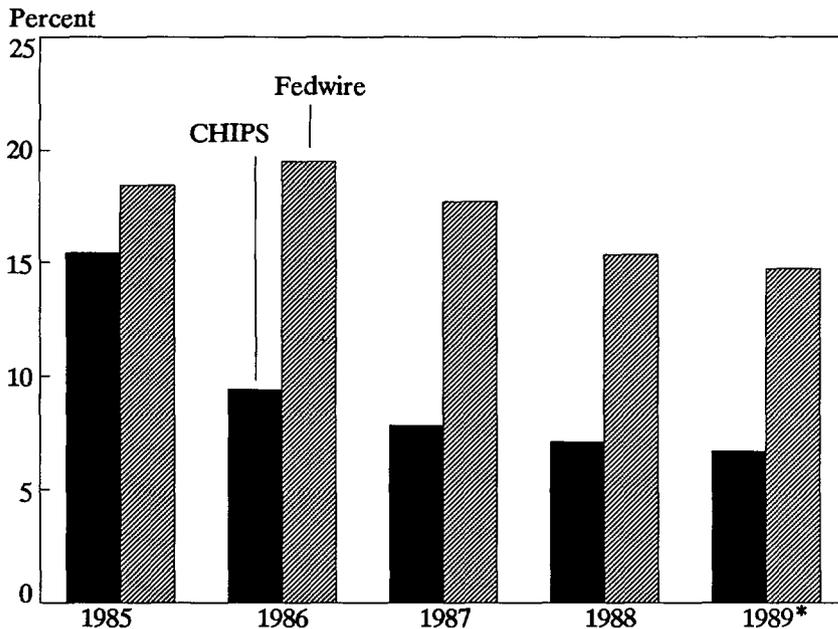
To partially address these concerns, beginning in 1987 the Federal Reserve permitted institutions with small and infrequent overdrafts to avoid some of the administrative costs. Under the *de minimus cap*, these institutions can incur Fedwire overdrafts up to the lesser of 20 percent of their capital or \$500,000 without completing the self-evaluation process.

Evaluating the success of current overdraft policy. The current overdraft policy has generally been viewed as moderately successful. As shown earlier, Fedwire and CHIPS overdrafts have continued to increase in the five years that the policy has been in effect. The growth of overdrafts on both systems has been slowed, however. Given the continued rapid rise in the value of Fedwire and CHIPS transactions over this period, the slower growth of overdrafts has led to a sizable reduction in the

⁹ Troubled institutions are subject to greater restrictions on Fedwire under current overdraft policy. These institutions are monitored on a real time basis, may be required to post collateral for their overdrafts, and may have payments rejected if overdrafts exceed the value of their collateral.

¹⁰ While book-entry securities are not included under the caps program, beginning in January 1988 the Federal Reserve imposed a \$50 million limit on the size of a securities transfer on Fedwire. Thus, an institution can make as many transfers as it wishes but each transfer is subject to the \$50 million limit.

CHART 6
Overdrafts as a percent of payments



* 1989 data through June.

Source: Board of Governors of the Federal Reserve System.

amount of overdrafts as a percentage of payments system transactions.

The current policy appears to have had a relatively greater impact on CHIPS overdrafts than on Fedwire overdrafts. CHIPS overdrafts as a percentage of total CHIPS transactions have fallen substantially from 15.4 percent in 1985, when both CHIPS caps became effective, to 6.7 percent in the first half of 1989 (Chart 6). Fedwire funds overdrafts as a percentage of Fedwire funds transactions have declined by a smaller amount, from 19.5 percent in 1986, when Fedwire caps were introduced, to 14.7 percent in the first half of 1989. These reduc-

tions suggest that the Federal Reserve's current overdraft policy may have been successful in containing the risks of daylight overdrafts but has not been able to significantly reduce these risks.

New overdraft policy proposal

In a further effort to control daylight overdrafts and their risks to the payments system, the Federal Reserve recently proposed significant extensions and modifications of its payments system risk policy. The new program has two features. First, the system of overdraft caps

will be revised. Second, daylight overdrafts on Fedwire will be priced. In addition, under both the caps and pricing programs, greater effort will be made to target the programs at those institutions most responsible for the overdraft problem.¹¹

Changes in overdraft caps. A key change in the cap program is the proposed extension of caps to include overdrafts of book-entry securities. As shown earlier, book-entry overdrafts account for a large part of total Fedwire overdrafts and represent a significant part of the Federal Reserve's risk exposure. Under the new proposal, the Federal Reserve's cross-system net debit caps will apply to the sum of Fedwire funds and book-entry overdrafts.¹²

Inclusion of book-entry overdrafts under the cap program will have its primary impact on those large institutions most responsible for book-entry overdrafts. However, these institutions may not be able to reduce book-entry overdrafts without disrupting the smooth functioning of the government securities market. If they are unable to reduce book-entry overdrafts below cap limits, under the proposed program these institutions will have to provide collateral

to cover the Federal Reserve's risk exposure.¹³

Another major change in the overdraft program will occur when CHIPS introduces settlement finality. This development, scheduled for 1990-91, will make CHIPS participants financially responsible for the payments obligations of all other participants. Under this plan CHIPS participants will post collateral to be used in the event of default by system participants. With settlement finality on CHIPS, the problem of systemic risk on CHIPS should be substantially reduced. In this environment the Federal Reserve proposes the elimination of CHIPS overdrafts from the calculation of the cross-system net debit caps.

Differential treatment of large and small overdrafters will also be an important element of the revised overdraft caps program. Currently, the caps program applies to all institutions, irrespective of their contribution to the overdraft problem. In the new proposal, small overdrafters will be exempt from filing for cross-system net debit caps if their peak overdrafts rarely exceed the lesser of \$10 million or 20 percent of capital.¹⁴ Although this element of the plan will make many small overdrafters exempt from filing for Fedwire caps, these institutions will still have to monitor their

¹¹ This section focuses on the highlights of the new program. For more details, see the proposed changes to the Federal Reserve Board's Large Dollar Payment System Risk Policy and the accompanying policy statements (Board of Governors 1989a-e).

¹² Under the current program, cross-system caps are based on an institution's primary capital, defined as primary capital less intangible assets. Under the proposed policy, caps will be based on risk-adjusted capital as defined under the new international risk-based capital standard adopted in the United States and other countries.

¹³ If an institution's total Fedwire overdrafts, including both funds and book-entry, exceed cap levels by material amounts solely because of book-entry overdrafts, the institution will be required to collateralize its total Fedwire overdrafts.

¹⁴ The de minimus cap will also be altered under the new program. The new de minimus cap will eliminate the overdraft frequency and dollar-limit tests but will continue to require the 20 percent of capital limit.

overdrafts so as not to exceed the allowable limits.¹⁵

Pricing of daylight overdrafts. Under the proposed program, the Federal Reserve will price Fedwire overdrafts. Institutions using Fedwire will be charged a fixed interest rate of 25 basis points on average daily federal funds and book-entry overdrafts in excess of a deductible. This charge is to be phased in over three years. In addition, to accommodate pricing of overdrafts, the Federal Reserve proposal changes the way in which overdrafts are measured. These changes are described in the accompanying box.

Whereas caps are based on peak overdrafts so as to control the maximum risk exposure of payments system participants, the pricing of overdrafts is designed to induce institutions to monitor and contain actual overdrafts. Thus, institutions will be subject to pricing even if they are below their cap limits.

The major virtue of a pricing policy is an expected reduction in overdrafts. The interest rate of 25 basis points is thought to be the minimum amount necessary to encourage institutions to undertake more widespread netting, rollover, and continuing contract arrangements that would reduce overdrafts.¹⁶ However, since the price applies only to Fedwire overdrafts, some institutions will have an incentive to shift

transactions and overdrafts from Fedwire to CHIPS.¹⁷

Like the caps program, the pricing of daylight overdrafts attempts to target those institutions most responsible for overdrafts. Under the Federal Reserve's proposal, only average daily overdrafts in excess of 10 percent of an institution's capital will be subject to pricing. With this deductible, institutions that do not make a significant contribution to the overdraft problem will be able to incur small overdrafts without penalty. The deductible will also provide a margin of error for those institutions whose overdrafts may be involuntary and largely beyond their control.

Projected impact of the new policy

The Federal Reserve's new payments system risk proposal is expected to reduce daylight overdrafts and payments system risks significantly. At the same time, the plan is intended to affect a smaller number of institutions than current policy.

The expected reduction in daylight overdrafts is likely to occur primarily through a decline in Fedwire funds overdrafts. Here, the implementation of pricing may give institutions considerable incentive to alter their payments system practices. For example, it is estimated that increased use of netting of federal funds transactions could reduce Fedwire funds overdrafts by as much as 85 percent.¹⁸ While some reduction in book-entry overdrafts is anticipated as a result of the introduction of caps and pricing,

¹⁵ Treatment of U.S. agencies and branches of foreign banks will be changed under the new proposal. For details, see Board of Governors 1989c.

¹⁶ This price is also considered to be low enough to prevent the volatility in short-term market interest rates that might result from the creation of a market for intraday credit.

¹⁷ For a discussion of how institutions might react to pricing, see Humphrey 1989.

¹⁸ For a discussion, see Humphrey 1989, p. 33.

Measuring daylight overdrafts

Current policy

Currently, daylight overdrafts are measured in a way intended to minimize possible disruptive effects of the policy. For example, all nonwire transactions of an institution are netted at the end of the day. For automated clearing house (ACH) transactions, the net debit or credit position is added at the end of the day to the institution's opening reserve balance on that day. For checks, a net credit is added at the end of the day to the opening balance while a net debit is added to the end-of-day balance. These procedures permit an institution to have maximum latitude in reducing daylight overdrafts by using all of its nonwire net credits to offset any wire debits during the day while postponing the need to cover some nonwire debits until the end of the day. Overdraft caps are applied to the amount of overdrafts measured net of these adjustments.

One problem with the current policy is that a significant amount of intraday float is created as some institutions receive credit for nonwire transactions while other institutions are not simultaneously debited. This intraday float amounts to an extension of free credit by the

Federal Reserve. Maintaining this free credit extension is not consistent with a policy of pricing daylight overdrafts. A second problem with current policy is that effective intraday monitoring of overdrafts by individual institutions can be very difficult because balances are calculated after the fact.

Proposed policy

Under the Federal Reserve's proposed overdraft policy, intraday float from nonwire transactions will be eliminated as net credits or debits of all commercial ACH transactions, checks, and other nonwire transactions will be posted to the institution's account at the end of the day after the close of Fedwire. This proposed change will prohibit institutions from using nonwire credits to offset wire transfer debits during the day. As a result, institutions may have to adjust their payments practices and some institutions may experience an increase in overdrafts. At the same time, however, these changes will make the monitoring of overdrafts easier to the extent that institutions will have more accurate knowledge of their reserve balances during the day.

ing, the gains may be limited by the high cost of institutional change in the government securities market.¹⁹

¹⁹ In addition to these costs, there are currently few alternatives to using the Federal Reserve's book-entry system for certain types of transactions. Thus, pricing of Fedwire overdrafts is unlikely to lead to substantial shifting of securities transactions away from Fedwire.

CHIPS overdrafts are likely to increase under the Federal Reserve's new policy as institutions move payments from Fedwire to CHIPS. However, the introduction of settlement finality on CHIPS should limit any increase in CHIPS overdrafts as those participants financially responsible for settlement take actions to reduce their risk exposure.

The Federal Reserve's credit risk should be reduced under the new policy, while private credit risks may rise. The Federal Reserve's payments system risk will likely fall as a result of the anticipated decline in Fedwire funds overdrafts and the collateralization of most large book-entry overdrafts. Private credit risk may rise, however, to the extent that overdrafts move from Fedwire to CHIPS and to the extent that collateral for book-entry overdrafts is not available to creditors of payments system participants. At the same time, systemic risk on CHIPS should be lowered with the introduction of settlement finality.

The direct impact of the proposed daylight overdraft program is likely to be felt by a smaller number of institutions. For example, during a test period in February 1988, the Federal Reserve estimated that as a result of the new exemptions under the caps program only about 440 of 5,040 depository institutions would be subject to overdraft caps. The excluded 4,600 institutions created only 1.5 percent of total overdrafts. Thus, if these estimates are accurate, the administrative burdens of the program could be sharply reduced with little increase in risk to the Federal Reserve.

Pricing of daylight overdrafts may affect an even smaller number of institutions. For example, during a test period in 1988, the Federal Reserve estimated that only 219 of 5,040 overdrafting institutions would be subject to pricing. The remaining 4,821 institutions would be exempt from pricing because their overdrafts fell below the 10-percent-deductible level.²⁰

IV. SUMMARY

With the rapid growth of electronic funds transfers, daylight overdrafts have become an important policy issue. The Federal Reserve System has undertaken a major effort to investigate ways of controlling daylight overdrafts and reducing their risk to the payments system.

Current Federal Reserve policy has successfully used quantitative limits, or caps, to limit the growth of overdrafts. At the same time, the current policy has not attempted to control book-entry securities overdrafts and has not targeted the large institutions responsible for most of the overdrafts.

The Federal Reserve's new policy proposal uses both overdrafts caps and pricing of overdrafts to reduce overdrafts and payments system risk. The proposed policy goes beyond current procedures by including book-entry overdrafts as well as funds overdrafts. In addition, the proposal attempts to target those institutions most responsible for the overdraft problem.

²⁰ It should be emphasized that these estimates are preliminary. Currently the Federal Reserve System is in the process of providing more detailed estimates of the potential impact of the program on each institution using Fedwire. For many institutions, the proposed redefinition of overdrafts and the associated changes in posting rules described earlier will be a significant factor in determining the impact of the program.

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