
The Evolution of the Federal Reserve's Intraday Credit Policies

Stacy Panigay Coleman, of the Board's Division of Reserve Bank Operations and Payment Systems, prepared this article.

One of the Federal Reserve's roles is to provide payment services to depository institutions and to the U.S. Treasury. Many of the nation's transfers of funds—whether they are large-dollar payments for financial market transactions or smaller-value business and consumer payments—settle through depository institutions' accounts held at the Federal Reserve for reserve-maintenance purposes and transaction processing.

In settling these payments, the Federal Reserve Banks post debits and credits to depository institutions' Federal Reserve accounts throughout the business day. If a depository institution has insufficient balances during the day to cover its debits, the institution will run a negative balance or “daylight overdraft” in its Federal Reserve account until sufficient funds are received later in the day. Depository institutions often incur daylight overdrafts in their Federal Reserve accounts because of the mismatch in timing between the settlement of payments owed and the settlement of payments due. Because depository institutions generally hold a relatively small amount of funds overnight in their Federal Reserve accounts in relation to the trillions of dollars of payments processed by the Federal Reserve each day, the Federal Reserve extends intraday credit to ensure the smooth functioning of the U.S. payment system.

Each depository institution is expected to end each business day with a zero or positive balance in its Federal Reserve account. Otherwise, the Federal Reserve could incur significant losses if institutions failed with large overdrafts in their accounts. In addition, the significant payment activity that occurs on private large-dollar payment systems gives rise to credit, liquidity, operational, and legal risks; these risks must be managed by the system. Settlement failures on such private large-dollar systems that lack certain risk controls could create serious disruptions in the financial markets.

To reduce the risks that depository institutions present to the Federal Reserve through their use of

daylight credit and to address the risks that payment systems, in general, present to the banking system and other sectors of the economy, the Federal Reserve Board in 1985 developed a payments system risk (PSR) policy. One of the primary goals of the PSR policy is to control depository institutions' use of Federal Reserve intraday credit, and as the PSR policy has evolved, the Board has adopted specific methods for controlling daylight overdrafts.

One of the first methods for controlling daylight overdrafts was setting a maximum for the daylight overdraft position (net debit cap) that a depository institution could incur in its Federal Reserve account. However, despite the introduction in 1985 of net debit caps, the amount of daylight credit the Federal Reserve was extending to depository institutions continued to grow.

From 1986 to 1993, the value of daylight overdrafts grew at an average annual rate of about 13 percent. In fact, beginning in 1989, daylight overdrafts increased dramatically despite a reduction in net debit caps the year before. Consequently, the Board decided to create an economic incentive for depository institutions to reduce their reliance on Federal Reserve daylight credit by charging them a fee for its use.

In 1994, shortly after the Federal Reserve began charging daylight overdraft fees, peak daylight overdrafts fell almost 40 percent, from approximately \$125 billion to less than \$80 billion. The fee was initially set at an annual rate of 24 basis points in 1994, with planned increases in 1995 and 1996.¹ In 1995, however, the Board decided to raise the rate charged on daylight overdrafts to 36 basis points instead of the 48 basis points that had been planned and to defer additional rate increases because daylight overdrafts had fallen substantially. The Board stated that it would evaluate additional rate increases based on experience at the new fee level.

As part of its obligation to further evaluate fee increases and in recognition that significant changes had occurred in the banking, payments, and regulatory environment since 1995, the Board decided to

1. 57 Fed. Reg. 47084 (October 14, 1992).

conduct a broad review of its daylight credit policies beginning in early 2000. The review included an analysis of trends in payment activity and proposals for changes in the Board's PSR policy. The history of the Board's PSR policy, trends in daylight overdraft and payment activity, and a possible future policy direction are discussed in this article.

HISTORY OF THE BOARD'S INTRADAY CREDIT POLICIES

Initial Studies of Payment System Risk

In the late 1970s, the Federal Reserve began to assess the risks associated with daylight credit extensions in large-dollar payment systems, including Fedwire. During the 1980s, Federal Reserve staff and private-sector groups issued several reports identifying the causes, amounts, and risks of daylight overdrafts, as well as options for controlling them. According to one of the reports, aggregate daily daylight overdrafts in depository institutions' Federal Reserve accounts averaged approximately \$30 billion, and the majority of these overdrafts were attributable to fewer than twenty institutions.² In addition, institutions incurring large overdrafts on Fedwire frequently had large credit exposures on the Clearing House Interbank Payments System (CHIPS), a private, large-dollar payment system operated by the New York Clearing House. (For a brief description of Fedwire and CHIPS, see the box "Large-Value Payment Systems.")

These early studies of payment system risk acknowledged that the risk of large losses resulting from an unexpected bank failure was small but noted that such a failure had the potential for a significant negative effect on financial markets and the payments mechanism. Thus, even a low probability of an extremely costly failure suggested the need for prudent policies to address payment system risk. Consequently, the Federal Reserve began to develop its PSR policies to address both systemic risk and the Federal Reserve Banks' credit risk.

Although federal regulations guarantee the finality of payments over Fedwire, thus eliminating settlement-failure risk for such payments, settlement failures on private large-dollar systems that lack both immediate finality and strong risk controls could create serious disruptions and could even lead to

systemic risk in the financial markets.³ If an institution participating on a private large-dollar payments network were unable or unwilling to settle its net debit position, the institution's creditors on that network might face lower credit positions than expected and then be unable to settle their commitments in that network or other networks. Serious repercussions could spread to other participants in the network, to other depository institutions, and to the nonfinancial economy generally.

During the initial studies of payment system risk, Federal Reserve staff members and others noted that settlement failures in CHIPS could result in systemic risk because, by the early 1980s, CHIPS had not fully implemented certain risk controls to help guarantee settlement.⁴ In addition, CHIPS participants extended very large amounts of intraday credit to each other and often permitted customers in a net credit position to use their expected funds before settlement. Under these circumstances, the default of a large CHIPS participant could have caused the unwinding of that day's net settlement, potentially leaving other participants with very large, sudden shortfalls in funding late in the day. The Federal Reserve was concerned that the failure of a participant on a private large-dollar system could affect the liquidity and solvency of multiple banks and lead to instability in the banking system and possibly the economy in general.

In February 1984, the Board issued a report highlighting a number of conditions that supported the need for payment system risk controls.⁵ The conditions included the potential costs to the private and public sector from the failure of a depository institution in an overdraft position, the lack of existing private-sector incentives to reduce credit exposures, and the potential moral hazard arising from a depository institution's expectation that the Federal Reserve would intervene to prevent settlement failures.

3. Fedwire funds transfers are final and irrevocable when a Federal Reserve Bank credits the receiving institution's account or sends the receiving institution an advice of payment, whichever occurs first (12 C.F.R. 210, Appendix A to Subpart B).

4. Association of Reserve City Bankers, *Report on the Payments System* (Washington, D.C.: ARCB, April 1982) and *Risks in the Electronic Payments Systems* (Washington, D.C.: ARCB, October 1983); Board of Governors of the Federal Reserve System, *Reducing Risk on Large-Dollar Transfer Systems* (Washington, D.C.: Board of Governors, April 1985); Task Force on Controlling Payments System Risk (Report to the Payments System Policy Committee of the Federal Reserve System), *Controlling Risks in the Payments System* (Washington, D.C.: Board of Governors, August 1988).

5. See *Risks on Large-Dollar Transfer Systems*. In 1984, the Board also issued the *Policy Statement on Use of the Federal Reserve's Wire Transfer Network*, which explained that institutions should not use Fedwire to avoid risk-reduction measures on private-sector systems (49 Fed. Reg. 13194 [April 3, 1984]).

2. See Board of Governors of the Federal Reserve System, *Risks on Large-Dollar Transfer Systems* (Washington, D.C.: Board of Governors, February 1984).

Large-Value Payment Systems

Fedwire Funds Transfer System

The Fedwire funds transfer system is a real-time gross settlement system. Transactions are continuously settled on an individual, order-by-order basis without netting. When a depository institution initiates a Fedwire funds transfer, it irrevocably authorizes the Federal Reserve to debit its Federal Reserve account for the amount of the transfer. The Federal Reserve then credits the account of the receiving depository institution. This immediate finality of payment is the major distinguishing characteristic of the Fedwire funds transfer service.

Fedwire Book-Entry Securities System

The Fedwire book-entry securities system is a real-time, delivery-versus-payment (DVP), gross settlement system that allows for the immediate, simultaneous transfer of government securities against payment. A DVP system ensures that the final transfer of one asset occurs if and only if the final transfer of another asset (or other assets) occurs. The Fedwire securities system consists of a safekeeping function and a transfer and settlement function. The safekeeping function involves the electronic storage of securities records in custody accounts; the transfer and settlement function involves the electronic transfer of securities between parties, either free of payment or against payment.

CHIPS

The Clearing House Interbank Payments System is a bank-owned payment system operated by the New York Clearing House that has existed for more than thirty years to clear and settle business-to-business transactions. Since CHIPS was launched in 1970, it has undergone several modifications to reduce the risks it presented to the payment system. For example, in 1981, CHIPS moved from next-day to same-day settlement. In 1984, CHIPS added rules on bilateral limits, and two years later, CHIPS imposed sender net debit caps, thereby limiting the risk that a single participant could present to the system. In 1990, settlement-day finality was guaranteed in case of an insolvency of the system's largest debtor through the imposition of a loss-sharing formula and collateral requirements. Most recently, on January 22, 2001, the Clearing House Interbank Payments Company L.L.C. converted CHIPS from an end-of-day, multi-lateral net settlement system to one that provides final settlement for all payment orders as they are released. Payment instructions submitted to the queue that remain unsettled at the end of the day, known as the residual, are tallied on a multilateral net basis.¹

1. Payments Risk Committee (Intraday Liquidity Management Task Force), "Intraday Liquidity Management in the Evolving Payment System: A Study of the Impact of the Euro, CLS Bank, and CHIPS Finality" (New York, N.Y.: PRC, April 2000); available on line at <http://www.ny.frb.org/prc/intraday.htm>.

1985 Policy Statement

In May 1985 the Board issued the *Policy Statement Regarding Risks on Large-Dollar Wire Transfer Systems*, which incorporated the findings of the earlier reports.⁶ The policy statement introduced four categories of cross-system sender limits, or net debit caps, on daylight overdrafts and credit exposures over all large-dollar networks, including Fedwire and CHIPS. A depository institution could choose one of the four cross-system net debit cap categories or classes by evaluating its creditworthiness, credit policies, and operational controls and procedures, an evaluation referred to as a self-assessment. If the depository institution believed that its policies, controls, and procedures were strong, it could adopt a "high" cap class; weaknesses required the adoption of a lower cap class. Although the choice of a net debit cap class was voluntary, an institution's bank examiners could review the institution's self-

assessment and require a modification to its cap class if the institution's level of daylight overdrafts and credit exposures constituted an unsafe or unsound banking practice.

Along with each cap class, the Board implemented two cap multiples: one for the maximum allowable overdraft or exposure on any day (single-day cap) and one for the maximum allowable average of the peak daily overdrafts or exposures in a two-week period (two-week average cap) (table 1). An institution's cap category, the associated cap multiple, and its reported capital determined, and continue to deter-

1. Multiples for net debit caps, 1985

Cap class	Single-day cap multiple ¹	Two-week average cap multiple ²
High	3.0	2.0
Above average	2.5	1.5
Average	1.5	1.0
Zero	0	0

NOTE. Net debit cap = cap multiple × capital measure (see text note 7).

1. Maximum allowable overdraft on any day.

2. Maximum allowable average of the peak daily overdrafts in a two-week reserve-maintenance period.

6. 50 Fed. Reg. 21120 (May 22, 1985).

mine, the size of the net debit cap. An institution's net debit cap is calculated as follows:

$$\text{Net debit cap} = \text{cap multiple} \times \text{capital measure.}^7$$

For example, an institution with a high net debit cap could incur a single-day daylight overdraft of up to three times its capital without breaching its single-day net debit cap.

The Federal Reserve implemented the higher single-day net debit cap to limit excessive daylight overdrafts on any day and to ensure that institutions developed internal controls that focused on daily exposures. The purpose of the two-week average net debit cap was to reduce the overall levels of overdrafts while allowing for fluctuations in the value of daily payments. Overall, the Board expected that, because of the policy, there would be a reduction in aggregate daylight overdrafts and in the number of depository institutions consistently relying on daylight credit.

In establishing net debit caps, however, the Board acknowledged that some intraday credit would be necessary for the smooth operation of the payment system, especially the U.S. government securities market. U.S. government securities settle through depository institutions' Federal Reserve accounts and, until the Federal Reserve began charging a fee on daylight overdrafts, contributed to significant overdrafts at some banks. Specifically, when a depository institution receives a government security over Fedwire, the institution's Federal Reserve account is automatically charged for the purchase price of the security.⁸ The Board recognized that receivers of government securities generally cannot control the timing of daylight overdrafts associated with these transfers (referred to as securities-related overdrafts). As a result, the Board had concerns that daylight overdraft restrictions might impair the smooth functioning of the U.S. government securities market and, consequently, the Federal Reserve's ability to conduct monetary policy through open market operations. Therefore, the Board exempted such securities-related overdrafts from net debit caps and other quantitative controls to avoid any potential market disruptions.

7. The capital measure used in calculating a depository institution's net debit cap depends upon its chartering authority and home-country supervisor.

8. Transfers of government securities occur electronically among depository institutions over the Fedwire book-entry securities system.

Policy Changes: 1987–90

In 1987, the Board issued an interim policy statement, pending re-evaluation of the Board's payment system risk-reduction program, that expanded on the 1985 statement.⁹ The 1987 policy statement contained several provisions. Net debit caps were to be reduced by 25 percent in two phases: 15 percent in January 1988 and 10 percent in May 1988. Depository institutions were exempted from performing a self-assessment if their board of directors approved a *de minimis* net debit cap, which was set at the lesser of \$500,000 or 20 percent of adjusted primary capital.¹⁰ A \$50 million limit was imposed on individual government securities transfers. Finally, interaffiliate Fedwire funds transfers were permitted provided certain safeguards were observed.

Within a year after the Board reduced net debit caps, daylight overdrafts as a percentage of dollars transferred over Fedwire fell approximately 5.5 percent. Despite this decline, the Board noted that virtually all depository institutions remained generally unconstrained relative to their reduced net debit caps; therefore, it sought to reduce the aggregate level of payment system risk further and to shift a higher proportion of risk to the private sector. Consequently, the Board requested comment on proposed changes to its payment system risk-reduction program in mid-1989.¹¹ Some of these changes included (1) charging a fee for depository institutions' use of Federal Reserve daylight credit, (2) modifying the criteria for measuring daylight overdrafts, (3) including overdrafts caused by government securities transfers when measuring an institution's daylight overdrafts against its cap, and (4) adding an exempt-from-filing cap category.¹² The Board's proposal presumed that CHIPS would revise its rules in the near future to provide greater assurance of settlement-day finality and that other private-sector delivery-versus-payment systems for securities, netting arrangements, and offshore dollar clearing systems would also adopt systemic risk-reducing policies.¹³

9. 52 Fed. Reg. 29255 (August 6, 1987).

10. The *de minimis* cap is intended for depository institutions that incur relatively small overdrafts and thus pose minimal risk to the Federal Reserve.

11. 54 Fed. Reg. 26094 (June 21, 1989).

12. The proposed filing exemption would apply to institutions that create only low-dollar risks for the Reserve Banks and that incur small overdrafts relative to their capital.

13. A delivery-versus-payment system is a mechanism that ensures that the final transfer of one asset occurs if and only if the final transfer of another asset occurs. Assets could include monetary assets, securities, or other financial instruments.

After considering the comments received on its mid-1989 proposal, the Board issued a revised policy statement in May 1990. The revised policy statement did not include daylight overdraft fees or a modified method for measuring daylight overdrafts. Because nearly 75 percent of commenters opposed certain aspects of the pricing and measurement proposals, the Board decided to reevaluate these proposals before incorporating them into the policy.

The 1990 statement incorporated the Board's other proposed changes. First, depository institutions' credit exposures on CHIPS were excluded from the cross-system net debit cap because CHIPS had implemented loss-sharing and collateral agreements to improve settlement-day finality. Second, adjusted primary capital was replaced with "qualifying" (risk-based) capital for purposes of calculating net debit caps. Third, an exempt-from-filing cap equal to the lesser of \$10 million or 20 percent of an institution's capital was incorporated. Fourth, the existing *de minimis* cap multiple was changed to 20 percent of an institution's capital (table 2). Finally, uncollateralized daylight overdrafts caused by government securities transfers were to be included when measuring depository institutions' daylight overdrafts against their net debit caps.¹⁴

The Board ultimately decided to include uncollateralized securities-related daylight overdrafts when determining an institution's compliance with its cap, even though depository institutions could not control the timing of the receipt of government securities transfers. The Board was concerned that intraday securities-related overdrafts, like intraday overdrafts resulting from all other payment activity affecting an

institution's Federal Reserve account balance (funds-related overdrafts), have the potential to become overnight overdrafts.

To protect the Federal Reserve Banks from the very large exposures that resulted from settling government securities transactions, the Board's 1990 policy required collateral from depository institutions with positive net debit caps that frequently exceeded their caps by material amounts solely because of government securities transactions.¹⁵ Furthermore, the Board exempted collateralized securities-related overdrafts from net debit cap limits because it did not want to unduly disrupt the government securities market. The Board recognized that (1) collateralized daylight overdrafts presented less risk to the Federal Reserve Banks, (2) depository institutions could not control the timing of the receipt of government securities, and (3) the government securities market was important for the Federal Reserve's implementation of monetary policy.

Introduction of Daylight Overdraft Fees: 1991-95

In January 1991, the Board again requested comment on assessing fees for daylight overdrafts incurred by depository institutions in their Federal Reserve accounts and on a proposed method for posting debits and credits to these accounts to measure daylight overdrafts for pricing.¹⁶ To facilitate the pricing of daylight overdrafts, the Board's proposed method of measuring them more closely reflected the timing of actual transactions affecting an institution's intraday Federal Reserve account balance.¹⁷ This mea-

14. 55 Fed. Reg. 22087 and 22092 (May 31, 1990). When the Board introduced daylight overdraft fees in 1994, it raised the *de minimis* cap to 40 percent of capital. See 59 Fed. Reg. 54915 (November 2, 1994).

2. Multiples for net debit caps, 1985 and 1990

Cap class	Single day		Two-week average	
	1985	1990	1985	1990
High	3.0	2.25	2.0	1.50
Above average	2.5	1.875	1.5	1.125
Average	1.5	1.125	1.0	.75
De minimis2020
Exempt ¹	\$10 million or .20	...	\$10 million or .20
Zero	0	0	0	0

NOTE. See notes to table 1.

1 The exempt-from-filing cap is equal to the lesser of \$10 million or 20 percent of the institution's capital measure.

... Not applicable.

15. To determine whether an institution exceeded its net debit cap solely because of government securities activity, the Reserve Bank determined what activity in an institution's Federal Reserve account was attributable to funds transfers and other payment transactions and what activity was attributable to government securities transfers. For the purposes of the policy, "frequently" exceeding the cap meant more than three occasions in two consecutive two-week reserve-maintenance periods, and "material amounts" meant amounts in excess of 10 percent of the institution's cap.

16. 56 Fed. Reg. 3098 (January 28, 1991).

17. At the time, Fedwire funds and government securities transfers were posted to institutions' Federal Reserve accounts as they were processed during the business day (as they still are today). The net of all automated clearinghouse (ACH) transactions was posted as if the transactions occurred at the opening of business, regardless of whether the net was a debit or credit balance. All other or "non-wire" activity was netted at the end of the business day, and if the net balance was a credit, the credit amount was added to the opening balance. If the net balance was a debit, the debit amount was deducted from the closing balance. Under this method, an institution could use all of its non-wire net credits to offset any Fedwire funds or government securities debits during the day but postpone the need to cover non-wire net debits until the close of the day.

surement method incorporated specific account posting times for different types of transactions and was intended, in large part, to support the assessment of daylight overdraft fees. The Board expected that pricing daylight credit would create an incentive for institutions to reduce overdrafts at Federal Reserve Banks, thereby reducing direct Federal Reserve risk and contributing to economic efficiency.

In October 1992, the Board announced that the Federal Reserve Banks would begin using new criteria for measuring institutions' daylight overdraft levels and charging a fee for the use of daylight credit. The fee was to be phased in and was scheduled as an annual rate of 24 basis points in 1994, 48 basis points in 1995, and 60 basis points in 1996.¹⁸ The Board's goal was to induce behavior that would reduce risk and increase efficiency in the payment system.

During the comment period in 1991, some depository institutions and securities dealers stated that they opposed a fee on securities-related overdrafts that were collateralized. They argued that collateral protected the Federal Reserve against losses and that there are costs associated with pledging collateral. Thus, the combination of pricing and requiring collateral for securities-related overdrafts would be unduly burdensome. In the 1992 policy, the Board stated, however, that allowing collateral to substitute for daylight overdraft fees would not provide a meaningful incentive for depository institutions or their securities-dealer customers to change their settlement practices and reduce daylight overdrafts. The Board also stated that collateral is required for institutions with large government securities overdrafts as an exception that permits them to exceed their net debit caps because of the difficulty of controlling securities-related overdrafts.

In March 1995, the Board decided to raise the daylight overdraft fee to 36 basis points instead of 48 basis points.¹⁹ Because aggregate daylight overdrafts had fallen about 40 percent after the introduction of fees, the Board was concerned that raising the fee to 48 basis points might produce undesirable market effects contrary to the objectives of its risk-control program. The Board, nonetheless, believed

that some increase in the rate charged on daylight overdrafts was needed to provide additional incentives for institutions to reduce daylight overdrafts related to funds transfers and stated that it would consider future fee increases.

Recent Review of the Board's Intraday Credit Policies

In early 2000, the Board recognized that significant changes had occurred in the banking, payments, and regulatory environment in the past few years and, as a result, decided to conduct a broad review of its daylight credit policies. (For a brief description of the issues covered in the policy review, see the box "Components of the Federal Reserve's Policy Statement on Payments System Risk.") During its review, the Board evaluated the effectiveness of the current daylight credit policies and determined that these policies are generally effective in controlling risk to the Federal Reserve and in creating incentives for depository institutions to manage their intraday credit exposures. In addition, the Board determined that the industry understands the current policy and that private-sector participants generally have benefited from the policy's risk controls. The Board also recognized, however, that the policy has imposed costs on the industry and is considered burdensome by some depository institutions.

In conducting its review, the Board evaluated the impact of past policy actions on depository institutions' behavior and on the markets generally. The Board also considered the effects of payment system initiatives on payment activity and the demand for daylight credit. Although the Board believed that the current policy was generally effective, it identified growing liquidity pressures among certain payment system participants. Specifically, the Board learned that a small number of financially healthy institutions regularly found their net debit caps to be constraining, a condition that caused them to delay sending payments and, in some cases, to turn away business.²⁰ Furthermore, recent payment system initiatives, such as CHIPS with intraday finality (new CHIPS), the Continuous Linked Settlement (CLS) bank, and settlement-day finality for Federal Reserve-processed ACH credit transactions, may exacerbate

18. In this article, the rate used to describe the calculation of daylight overdraft fees is expressed on a twenty-four-hour, annualized basis. When daylight overdraft fees are calculated, however, the annual rate is converted to an effective annual rate by multiplying it by the fraction of the day that Fedwire is scheduled to operate. For example, the current effective annual rate is 27 basis points—36 basis points multiplied by 18/24 because Fedwire is scheduled to operate eighteen hours per day.

19. 60 Fed. Reg. 12559 (March 7, 1995).

20. Current net debit cap levels provide sufficient liquidity for the majority of depository institutions: Approximately 97 percent of depository institutions with positive net debit caps use less than 50 percent of their daylight overdraft capacity for their average daily peak overdrafts.

Components of the Federal Reserve's Policy Statement on Payments System Risk

The Policy Statement on Payments System Risk comprises three sections. The first section addresses the risks to the Federal Reserve Banks in extending daylight credit to depository institutions. The second section establishes policies and procedures for private-sector payment systems and was updated in 1998 to integrate several of the Board's policies on payment system risk into a more comprehensive and consistent framework.¹ The 1998 revisions were intended to provide a flexible, risk-based approach to risk management in multilateral settlement arrangements and not to mandate uniform, rigid requirements for all systems. The last section of the policy describes the Board's support of market innovations, such as rollovers or continuing contracts, that reduce daylight overdrafts in Federal Reserve accounts.

The Board's recent review of its PSR policy focused solely on the first section of the policy and included the following topics:

- Daylight overdraft measurement (posting rules)
- Pricing
- U.S.-chartered institutions' capital
- U.S. branches and agencies of foreign banks' capital
- Net debit caps
- Book-entry government securities transactions (collateralization and transfer-size limit)
- Fedwire third-party access
- Interaffiliate transfers²
- Real-time monitoring
- Ex post monitoring

1. 63 Fed. Reg. 34888 (June 26, 1998).

2. As a result of its review, the Board rescinded the third-party access policy (66 Fed. Reg. 19165 [April 13, 2001]) and the interaffiliate transfer policy (66 Fed. Reg. 30198 [June 5, 2001]).

these institutions' liquidity needs at specific times during the day.²¹

As a result of the review, the Board requested comment on an interim policy statement that allowed, subject to Reserve Bank approval, certain depository institutions with self-assessed net debit caps to pledge collateral to access additional daylight overdraft capacity.²² Depository institutions with exempt-from-

21. New CHIPS was implemented on January 22, 2001; CLS is scheduled to begin live operations in mid-2002; and Federal Reserve-processed ACH credit transactions began receiving settlement-day finality on June 25, 2001. Settlement-day finality for ACH credit transactions may exacerbate liquidity pressures for credit originators that must prefund the settlement amount for these transactions.

22. 66 Fed. Reg. 30199 (June 5, 2001). Available on line at <http://www.federalreserve.gov/boarddocs/press/boardacts/2001/20010530/default.htm>.

filing and *de minimis* net debit caps would have to obtain a self-assessed net debit cap to access additional daylight overdraft capacity through pledging collateral.

At the same time, the Board also requested comment on a package of nearer-term proposals pertaining to its daylight credit policies.²³ One proposal was to increase the percentage of capital used in calculating net debit caps for most U.S. branches and agencies of foreign banks to recognize the current supervisory environment and the need for intraday liquidity. Another proposal was to modify the posting time of electronic check presentments (ECP) to depository institutions' Federal Reserve accounts for purposes of measuring daylight overdrafts to remove an impediment to the greater use of ECP. The Board also proposed retaining the current \$50 million government securities transfer limit to support processing efficiencies in the government securities market.

The Board also sought industry feedback on the benefits and drawbacks of several possible longer-term changes to the PSR policy.²⁴ These changes included lowering self-assessed, single-day net debit caps, eliminating the two-week average caps, implementing differential pricing for collateralized and uncollateralized daylight overdrafts, and rejecting payments with settlement-day finality that would cause an institution to exceed its total collateralized and uncollateralized daylight overdraft capacity.

After considering commenters' responses to the nearer-term proposals, the Board modified the PSR policy in December 2001 to reflect an increase in the percentage of capital used in calculating net debit caps for most U.S. branches and agencies of foreign banks (from 10 percent to as much as 35 percent), a modified posting time of 1:00 p.m. local time for electronic check presentments, and adoption of the interim policy statement.²⁵ In addition, in response to its analysis and the industry's comments, the Board decided to retain the \$50 million limit on individual government securities transfers.

The Board's adoption of a policy that allows some depository institutions to pledge collateral to access additional daylight overdraft capacity is a significant change from past policy actions. The Board's analysis of daylight overdraft levels, liquidity pat-

23. 66 Fed. Reg. 30205, 30195, and 30193 (June 5, 2001). Available on line at <http://www.federalreserve.gov/boarddocs/press/boardacts/2001/20010530/default.htm>.

24. 66 Fed. Reg. 30208 (June 5, 2001). Available on line at <http://www.federalreserve.gov/boarddocs/press/boardacts/2001/20010530/default.htm>.

25. 66 Fed. Reg. 64419 (December 13, 2001). Available on line at <http://www.federalreserve.gov/boarddocs/press/boardacts/2001/20011211/default.htm>.

terns, and payment system developments revealed that, although net debit caps provide sufficient liquidity for most institutions, some depository institutions experience liquidity pressures. The Board believes that requiring collateral for additional daylight overdraft capacity will allow the Federal Reserve to protect the public sector from additional risk while providing extra liquidity to the few institutions that might otherwise be unduly constrained. Furthermore, providing extra liquidity to constrained institutions should help prevent liquidity-related market disruptions. The Board stated that the option to pledge collateral for additional daylight overdraft capacity would provide the private sector with the flexibility that it requested to relieve liquidity pressures that have arisen or may arise from new CHIPS, CLS, ACH finality, or other risk-reducing payment system initiatives.

TRENDS IN DAYLIGHT OVERDRAFT AND PAYMENT ACTIVITY

During the recent review, Federal Reserve staff members assessed several measures of depository institutions' use of Federal Reserve intraday credit and payment activity to identify possible changes to the policy that could improve its effectiveness. Specifically, they examined Federal Reserve payment activity and related daylight overdrafts, historical and current daylight overdraft levels, the effects of pricing overdrafts, and the distribution of daylight overdrafts.²⁶

Federal Reserve Payment Activity and Related Daylight Overdrafts

The Federal Reserve Banks processed more than \$2.4 trillion in payments per day in 2000, including funds and securities transfers, net settlement transactions, checks, ACH transactions, and cash deposits and withdrawals. If an institution had insufficient balances in its Federal Reserve account to cover any debits, the institution would have incurred daylight overdrafts unless the payment was rejected and not posted to its account. Because depository institutions on average hold relatively small amounts overnight in their Federal Reserve accounts (only \$13 billion in

26. Quarterly data presented in this article extend through the second quarter of 2001. Although third-quarter data for 2001 were available, these data were not included because of anomalies resulting from the events of September 11.

3. Value and volume of payments processed by the Federal Reserve, by type of payment, 2000

Payment type	Value (trillions of dollars)	Volume (millions of payments)
Fedwire funds	379.8	108.3
Government securities	180.1	13.6
Automated clearinghouse	14.0	4,638.0
Check	13.8	17,000.0

2000), many use Federal Reserve daylight credit to cover their intraday debits.

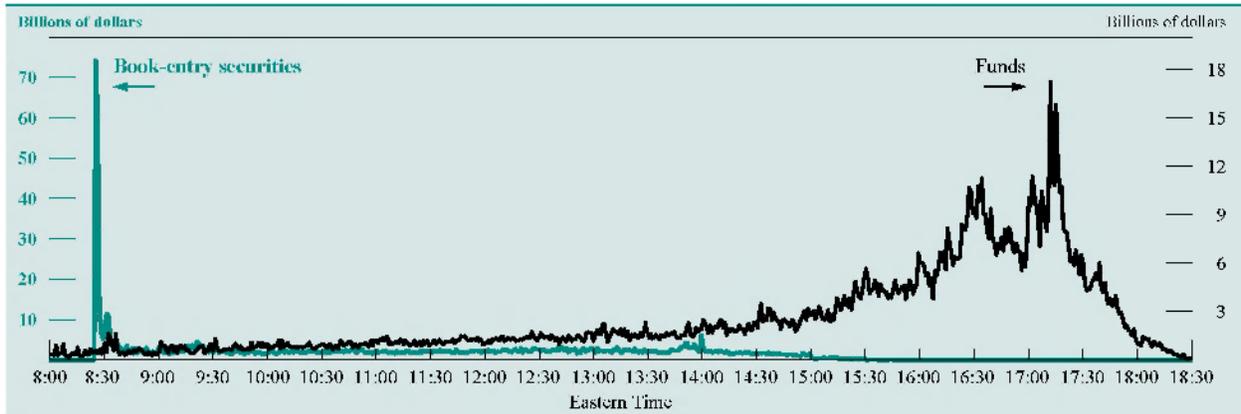
Although the Federal Reserve processes 175 times more checks and ACH transactions by volume than Fedwire funds and securities transfers, Fedwire transfers represent almost 95 percent of the value of transactions posted to institutions' Federal Reserve accounts (table 3). Similarly, Fedwire funds and securities transfers are the major source of institutions' daylight overdrafts. Fedwire funds transfers in 2000 generated about 70 percent of the value of average daylight overdrafts, and government securities transfers represented just under 20 percent. "Other" activity (check, ACH, cash, net settlement, and so on) represented about 10 percent.

The timing and value of payments processed by the Federal Reserve and posted to depository institutions' accounts help to explain the timing and value of daylight overdrafts (charts 1 and 2). The average value of government securities transfer activity peaks when the book-entry securities system opens at 8:30 a.m. Eastern Time (ET); the average value of funds activity peaks around 4:30 p.m., most likely from settlement at the Depository Trust Company (DTC), and again around 5:15 p.m., presumably from institutions funding their end-of-day positions in CHIPS. The Federal Reserve provides settlement services to both of these entities.

According to the PSR posting rules, the debit side of a transaction should post, to the extent possible, at the same time as the credit side—with the exception of check transactions.²⁷ Because of the nature of paper check processing, matching debits and credits on a transaction-by-transaction basis throughout the

27. In developing the PSR posting rules, four general principles were established. First, the posting rules were designed so as not to generate intraday float. Second, they were to permit depository institutions to anticipate precisely when transactions would be posted to their account. Third, they were to be consistent with the legal rights and responsibilities of depository institutions. Under this principle, check debits would not be posted to an institution's account before presentment of the checks. Finally, they were designed so as not to create a competitive advantage for the Federal Reserve Banks or for private-sector service providers.

1. Average value of Fedwire funds and book-entry securities activity, by time of day, August 2001



NOTE. Monthly averages of daily data at one-minute intervals during scheduled Fedwire hours of operation.

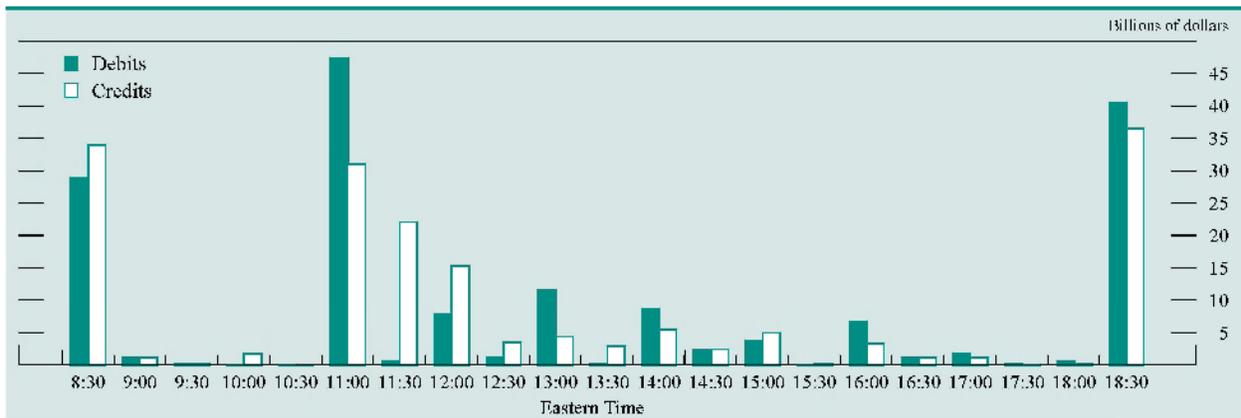
day is not practicable. As a result, debits for checks presented to depository institutions are posted on the next clock hour at least one hour after presentment, beginning at 11:00 a.m. ET. Credits for check deposits are posted either (1) at a single, float-weighted posting time or (2) at multiple times throughout the day, beginning at 11:00 a.m. ET, using a set of fractions that are based upon Reserve Bank check collection experience.²⁸ The earliest float-weighted

posting time, which enables an institution to have full use of its check deposit credits, is 11:45 a.m. ET.

At 11:00 a.m. ET the Federal Reserve Banks debit institutions' accounts for almost \$50 billion, on average, for other payment activity, of which about \$20 billion represents checks. At the same time, they credit institutions' accounts for just over \$30 billion, of which only about \$5 billion represents checks (chart 2). During most of the day, the check posting rules result in a minimal amount of intraday check float; however, they appear to be causing as much as \$15 billion in intraday float between 11:00 a.m. and 11:45 a.m. ET. This float occurs because the Reserve Banks have posted debits to depository institutions' accounts before providing corresponding credits on check transactions to other institutions. These check debits create a spike in daylight overdrafts that lasts approximately forty-five minutes, until the earliest float-weighted posting time of 11:45 a.m. ET (chart 7).

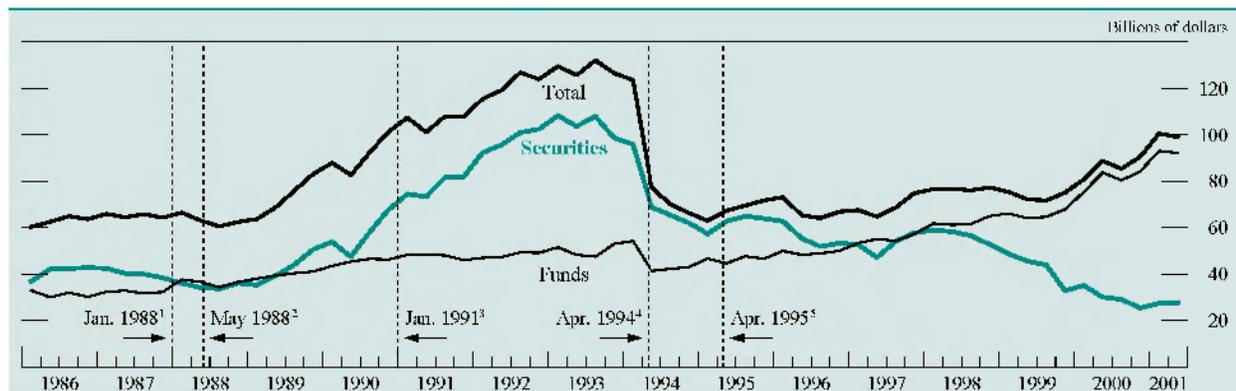
28. Institutions must choose one of two check credit posting options, (1) all credits posted at a single, float-weighted posting time or (2) fractional credits posted throughout the day. The first option allows an institution to receive all of its check credits at a single time for each type of cash letter. This time may not necessarily fall on a clock hour. The second option permits an institution to receive a portion of its available check credits on the clock hours between 11:00 a.m. and 6:00 p.m. ET. The option selected applies to all of an institution's check deposits. Reserve Banks calculate crediting fractions and float-weighted posting times for each time zone based on surveys of the times at which they present checks to depository institutions for collection.

2. Value of all other payment activity, by time of day, August 2001



NOTE. Monthly averages of daily data at thirty-minute intervals. Debit and credit posting times are based on the PSR posting rules.

3. Peak daylight overdrafts, 1986:Q1–2001:Q2



NOTE. Quarterly averages of daily data. For definition of “peak” daylight overdrafts, see box “Measuring Daylight Overdrafts: Peak and Average.”

1. First reduction in net debit caps.
2. Second reduction in net debit caps.

3. Securities-related overdrafts included in net debit caps.

4. Fees introduced at an annual rate of 24 basis points.

5. Fees raised to an annual rate of 36 basis points.

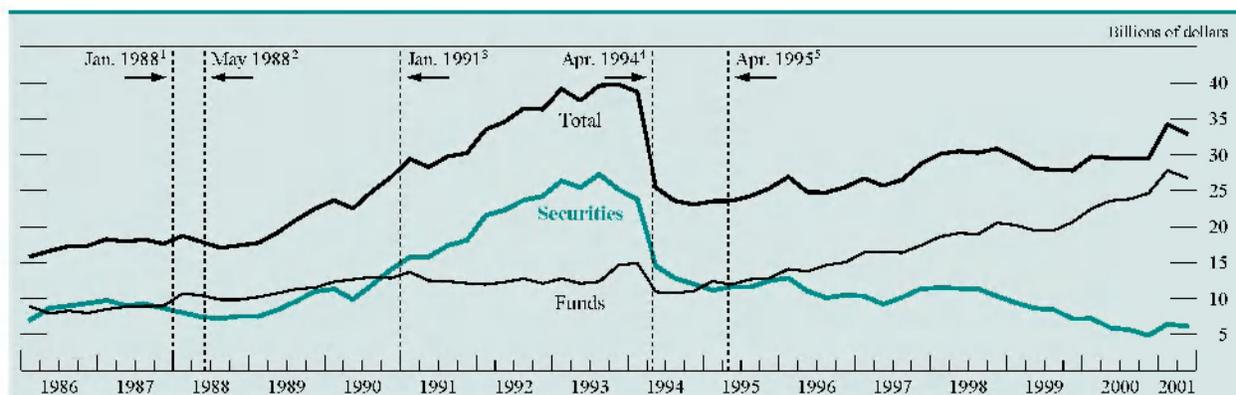
Effects of Fees on Daylight Overdraft Levels

Between the implementation of net debit caps in March 1986 and daylight overdraft pricing in April 1994, peak and average daylight overdrafts in Federal Reserve accounts increased almost continuously (see charts 3 and 4 and the box “Measuring Daylight Overdrafts: Peak and Average”). Between 1986 and 1988, peak and average daylight overdrafts grew just slightly. Between 1989 and 1993, however, daylight overdrafts increased dramatically, despite the 1988 reduction in net debit caps. Also, during the same period, securities-related overdrafts more than doubled, accounting for most of the growth in total daylight overdrafts.

Within one year of the implementation on April 14, 1994, of daylight overdraft fees, total average daylight overdrafts had dropped 40 percent, mostly because of decreases in securities-related overdrafts (chart 4).²⁹ Funds-related overdrafts declined slightly after the implementation of fees; however, they began to rise again even before the 1995 fee increase. Within one year of the increase, average funds-related overdrafts were up more than 15 percent and continued to grow thereafter, while securities-related overdrafts continued to trend down. The

29. One year after the implementation of daylight overdraft fees, securities-related overdrafts had dropped more than 50 percent while funds-related overdrafts had declined about 15 percent.

4. Average daylight overdrafts, 1986:Q1–2001:Q2



NOTE. Quarterly averages of daily data. For definition of “average” daylight overdrafts, see box “Measuring Daylight Overdrafts: Peak and Average.”

1. First reduction in net debit caps.
2. Second reduction in net debit caps.

3. Securities-related overdrafts included in net debit caps.

4. Fees introduced at an annual rate of 24 basis points.

5. Fees raised to an annual rate of 36 basis points.

**Measuring Daylight Overdrafts:
Peak and Average**

To determine an individual depository institution's compliance with certain Federal Reserve Board policies and to assess the aggregate amount of daylight credit it extends to the banking system, the Federal Reserve measures each depository institution's account balance at the end of each minute during the business day. An institution's average daily daylight overdraft is calculated by dividing the sum of its negative Federal Reserve account balances at the end of each minute of the scheduled Fedwire operating day (with positive balances set to zero) by the total number of minutes in the scheduled Fedwire operating day.

Individual Measures

An institution's peak daylight overdraft for a given day is its largest negative end-of-minute balance. Similarly, an institution's average daylight overdraft for a given day is calculated by summing any negative end-of-minute balances incurred during the standard operating day of the Fedwire funds transfer system and dividing this amount by the number of minutes in the standard Fedwire operating day.

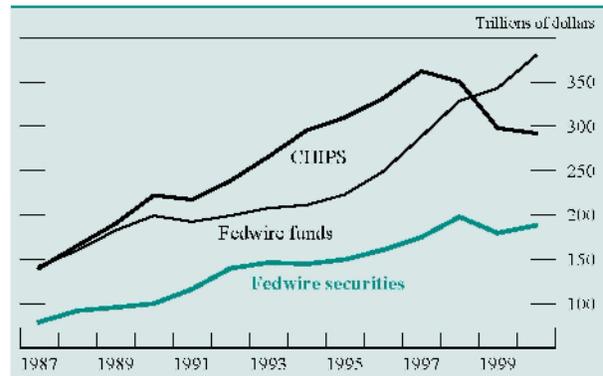
Aggregate Measures

The aggregate average daylight overdraft for a given day is simply the sum of all depository institutions' average daylight overdrafts on that day. The aggregate peak daylight overdraft is determined by adding the account balances of all depository institutions in a negative position for each minute during the day and then selecting the largest negative end-of-minute balance. The composite peak daylight overdraft is determined by adding all institutions' individual peak daylight overdrafts, regardless of whether those peaks occur at the same time. The Board does not generally use the composite peak measure in its analyses.

growth in funds-related overdrafts appears to be directly related to the growth in large-value funds transfers (chart 5).

Even though funds-related overdrafts have grown substantially since 1995, the ratio of the average value of funds-related overdrafts to Fedwire funds transfers has remained relatively constant at approximately 1.5 percent (chart 6). In contrast, the average value of securities-related overdrafts as a percentage of securities transfers has continued to decrease since the implementation of fees, from 2.5 percent to less than 1.0 percent. Furthermore, on an annual average

5. Annual transaction values for CHIPS and for Fedwire funds and book-entry securities, 1987–2000



NOTE. The decrease in CHIPS activity between 1997 and 1998 is likely a result of the decrease in Asian market activity, while the decline between 1998 and 1999 may be due to the introduction of the euro in January 1999.

basis, the aggregate value of funds-related overdrafts has grown approximately 18 percent per year, a rate slightly higher than that of the aggregate value of Fedwire funds activity, which has been about 15 percent per year. The aggregate value of securities-related overdrafts has decreased almost 10 percent per year, in contrast to the 5 percent yearly increase in the aggregate value of book-entry activity.

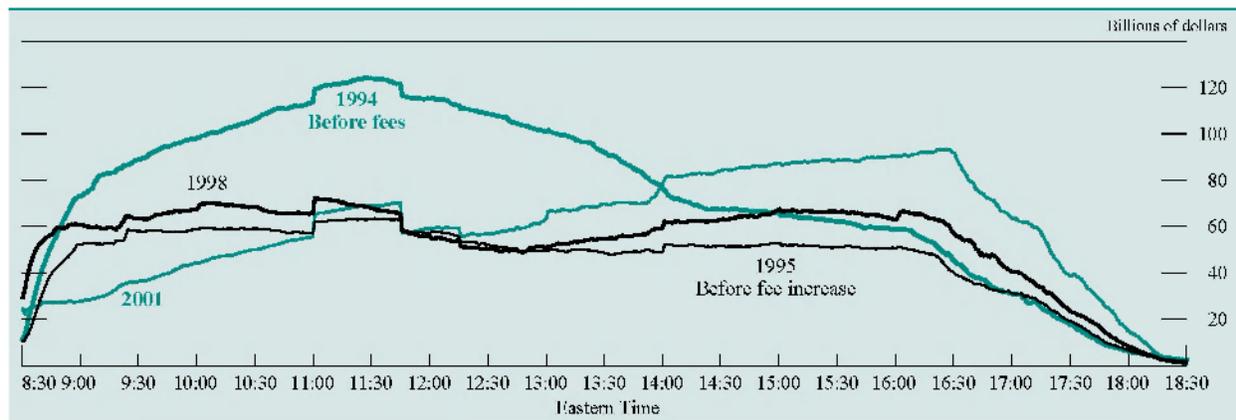
The introduction of daylight overdraft fees likely affected securities-related overdrafts more significantly than funds-related overdrafts for several reasons. First, only a small number of depository institutions (referred to as “clearing banks”) clear government securities, so daylight overdraft fees resulting from government securities transfers were highly concentrated among a few institutions. Second, most clearing banks decided to pass on their daylight overdraft charges to their securities-dealer customers. In doing so, they provided their cus-

6. Average daylight overdrafts as a percentage of Fedwire transfers, 1994:Q2–2001:Q2



NOTE. Quarterly averages of daily data.

7. Total daylight overdrafts, by time of day, selected years, 1994–2001



NOTE. Data are from a monthly sample of daily averages at one-minute intervals during scheduled Fedwire hours of operation.

tomers with an economic incentive to modify their behavior. Finally, the Board's \$50 million limit on the size of individual government securities transactions prompted the industry to change its delivery guidelines, which, before the limit, required dealers to deliver trade obligations in full. By building the necessary securities inventory to deliver trade obligations in full, securities dealers incurred large daylight overdrafts with their clearing banks.

Because government securities dealers tended to rely heavily on intraday credit to conduct their transactions, the daylight overdraft fee provided a strong incentive for dealers to send securities earlier in the day. In addition, the limit required dealers' counterparties to accept (and pay for) partial deliveries of very large orders in \$50 million increments. In particular, after the Federal Reserve implemented daylight overdraft fees, securities dealers modified their market practices by arranging financing and delivering securities used as collateral for repurchase agreements (repos) as early in the morning as possible.³⁰ Because a significant portion of securities transfers is related to daily repo activity, securities-related overdrafts decreased substantially. In sum, fees provided a strong incentive for securities dealers to adopt practices that reduced the use of intraday credit and thus reduced exposures and risks to the Federal Reserve; without fees they had little incentive to change repo settlement practices.

Fees also had a notable effect on the intraday pattern and composition of overdrafts. Daylight over-

draft data by time of day show the considerable shift in the timing and the decrease in the aggregate value of securities-related overdrafts. Before daylight overdraft fees, the peak daylight overdraft for the banking industry was approximately \$125 billion. This peak occurred between 11:00 a.m. and 12:00 p.m. ET (chart 7) and was mainly a result of securities-related overdrafts (chart 8). Today, however, funds daylight overdrafts represent the majority of the total, and the peak of approximately \$90 billion now occurs around 4:30 p.m. ET (chart 9). The timing and size of the peak in funds daylight overdrafts may be due, in part, to the large growth in settlement volumes at DTC, as settlement usually occurs around 4:30 p.m. ET on the books of the Federal Reserve Bank of New York.

Since the Board raised the daylight overdraft fee in 1995, total average daylight overdrafts have grown more than 35 percent. This change results from a decrease in book-entry-related overdrafts of almost 50 percent and an increase in funds-related overdrafts of 110 percent. More than one-third of the growth in total average daylight overdrafts has occurred since early 2000.

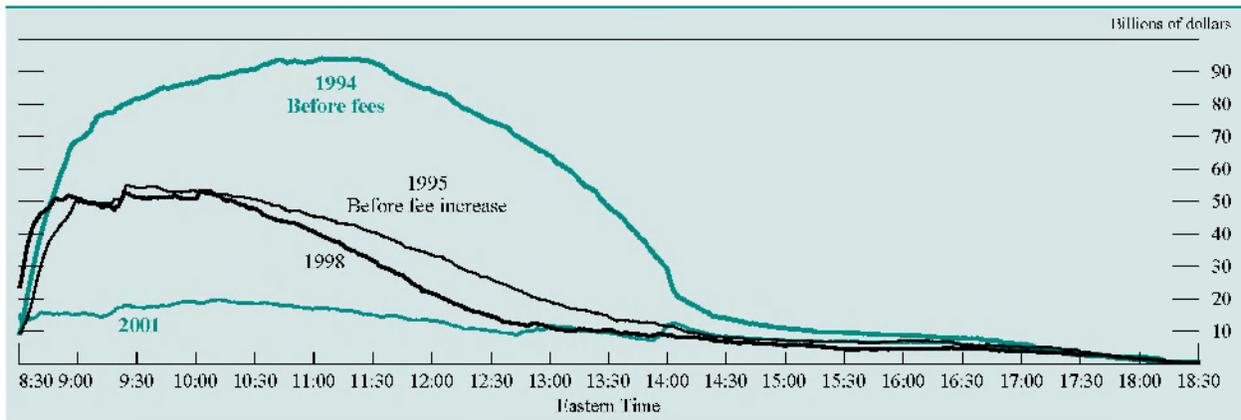
Growth in financial market activity may account for the recent increase in overdrafts. The expansion of the global economy, the tremendous growth in transaction levels in both domestic and cross-border markets, and the emergence of electronic trading vehicles in recent years greatly increased securities-related payments.³¹

Because the Depository Trust & Clearing Corporation (DTCC) clears and settles almost all trades

30. For more information, see Heidi Willmann Richards, "Daylight Overdraft Fees and the Federal Reserve's Payment System Risk Policy," *Federal Reserve Bulletin*, vol. 81 (December 1995), pp. 1065–77.

31. Securities Industry Association, "Institutional Transaction Processing Committee White Paper" (December 1, 1999).

8. Book-entry daylight overdrafts, by time of day, selected years, 1994–2001



NOTE. Data are from a monthly sample of daily averages at one-minute intervals during scheduled Fedwire hours of operation.

of equities, corporate bonds, and municipal debt, changes in trading activity can have a significant effect on the value of settlement payments made over Fedwire by DTCC's members.³² For example, DTCC's clearing corporations processed 11.1 million transactions per day on average in 2000, a 76 percent increase over 1999 levels (table 4), while between 1999 and 2000, the daily average volume of trades on Nasdaq and on the New York Stock Exchange grew approximately 62 percent and 28 percent respectively.³³ The average daily value of trans-

actions processed by DTCC's subsidiaries grew to \$421 billion in 2000, up from \$280 billion in 1999 (table 4). This increase in transactions may help to explain the tremendous growth in Fedwire funds transfers and funds-related daylight overdrafts in 2000.

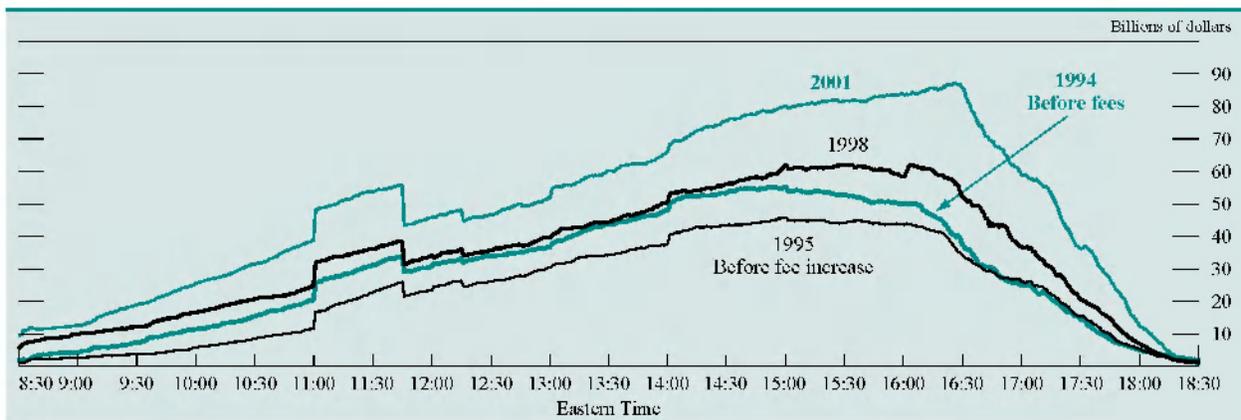
4. Value and volume of transactions processed by DTCC: average, peak, and percent change, 1999–2000

Item	1999	2000	Change (percent)
<i>DTCC transaction processing</i>			
Value (billions of dollars)			
Average ¹	280	421	50.4
Peak ²	498	722	45.0
Volume (millions of transactions)			
Average ¹	6.3	11.1	76.2
Peak ²	9.3	18.1	94.6

- 1. Annual average of daily figures.
- 2. Maximum daily value reached during the year.
- 3. Maximum daily volume reached during the year.

SOURCE: Depository Trust & Clearing Corporation, *Annual Report*, 2000.

9. Funds daylight overdrafts, by time of day, selected years, 1994–2001



NOTE. Data are from a monthly sample of daily averages at one-minute intervals during scheduled Fedwire hours of operation.

32. The Depository Trust & Clearing Corporation oversees two principal subsidiaries, the Depository Trust Company and the National Securities Clearing Corporation, which provide the primary infrastructure for the clearance and settlement of the vast majority of equity, corporate debt, and municipal bond transactions in the United States.

33. See the Depository Trust & Clearing Corporation, *Annual Report*, 2000 (www.dtcc.com/2000annual/ns/clearance.htm) and The Nasdaq Stock Market, Inc. (<http://www.marketdata.nasdaq.com/asp/Sec1Summary.asp>).

5. Number and percentage of Federal Reserve account holders incurring overdrafts, 1994–2000

Year	Number of account holders	Account holders incurring overdrafts	
		Number	Percent of total
1994	11,289	8,059	71
1995	10,755	7,768	72
1996	10,023	7,522	75
1997	9,808	7,241	74
1998	9,569	7,033	73
1999	9,299	6,902	74
2000	9,025	6,747	75

Distribution of Depository Institutions with Daylight Overdrafts

The Board expected that its PSR policy would reduce aggregate daylight overdrafts and the number of depository institutions relying on intraday credit. Available information seems to suggest that depository institutions have not met either of these expectations relative to funds daylight overdrafts during the past several years (table 5 and charts 3 and 4). As mentioned previously, funds-related overdrafts have continued to grow since 1995. In addition, since 1994 the percentage of Federal Reserve account holders that use daylight credit has not decreased significantly and, in fact, increased slightly after pricing was implemented in 1994 and again when the fee was raised in 1995 (table 5).

Possibly the most compelling indication that depository institutions have attempted to control their use of Federal Reserve daylight credit is the relatively constant relationship between the average value of funds daylight overdrafts and the value of Fedwire funds transfers since 1994, as described previously and shown in chart 6. Another compelling indication of lower daylight overdraft risk is the ratio of daylight overdrafts to risk-based capital. The

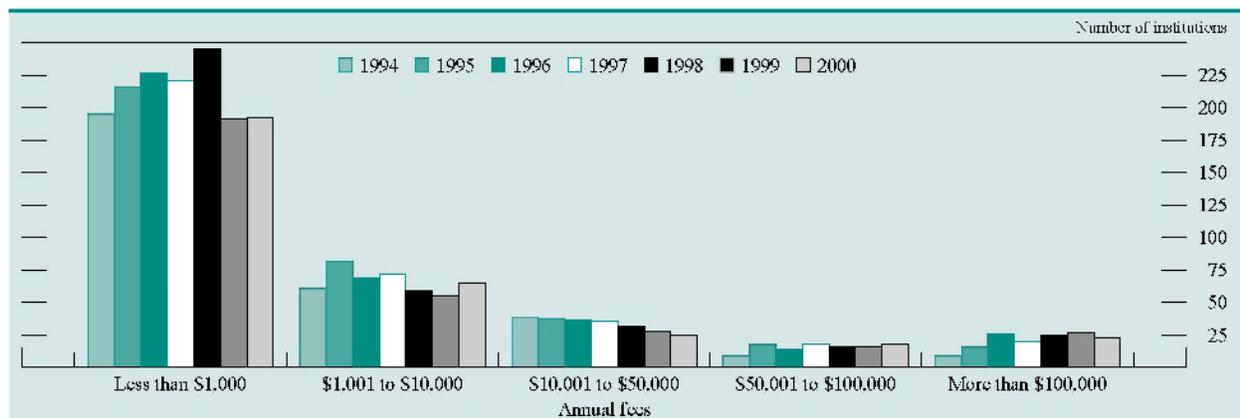
vast majority of daylight overdrafts, approximately 98 percent, have constituted less than 50 percent of the overdrafting institution's risk-based capital or equivalent since 1994. In the mid-1980s when the PSR policy was first adopted, about two-thirds of total daylight overdrafts were attributable to about twenty depository institutions that were continually incurring overdrafts, which were often equal to two or three times their capital. Today, however, less than 1 percent of total daylight overdrafts are attributable to institutions that incur overdrafts exceeding their capital measures. Funds daylight overdrafts may now be at a level that cannot be reduced further without imposing more costs on depository institutions.

Although thousands of institutions use daylight credit throughout the year to support their payment activity (table 5), very few pay daylight overdraft fees. Since the Federal Reserve began pricing daylight overdrafts in 1994, on average only about 350 depository institutions have paid fees in a given year. Most of these institutions pay less than \$1,000 per year, and the distribution of those that pay more has not changed substantially since 1994 (chart 10). Aggregate fees paid by depository institutions dropped 20 percent between 1998 and 1999, likely as a result of a few large institutions' efforts to

6. Daylight overdraft fees paid by depository institutions, 1994–2000

Year	Amount (millions of dollars)
1994	13.0
1995	24.5
1996	28.2
1997	28.8
1998	32.8
1999	26.2
2000	25.2

10. Distribution of depository institutions that pay daylight overdraft fees, by annual fee amount, 1994–2000



reduce their average daylight overdrafts and related fees and depository institutions' consolidation of multiple charters and their corresponding Federal Reserve accounts under interstate branch banking (table 6).³⁴

POSSIBLE FUTURE POLICY DIRECTION

During the review of the PSR policy, Federal Reserve staff explored several options for changes that might improve the policy's effectiveness. The policy options considered were varied and comprised those issued for comment in June 2001 and a few others—including requiring all or a portion of an institution's daylight credit use to be collateralized, a requirement of the payment system policies of many foreign central banks.³⁵ The Board may want to evaluate not only the policy options described in the request for comment but also other options in light of the liquidity issues that resulted from operational difficulties caused by the events of September 11, 2001.

Effect of September 11 Events on Payment Activity and Federal Reserve Credit Extensions

For several days after the terrorist attacks on the World Trade Center, problems with telecommunications and connections among financial market participants and payment systems (connectivity) hindered some institutions' ability to initiate or to act upon payment instructions, creating marketwide liquidity dislocations. In particular, some institutions were unable to meet their daily payment obligations, including covering their daylight overdraft positions, through their normal channels.³⁶ To inject funds into the financial system in the days following the

attack, the Federal Reserve used primarily short-term open market operations and the discount window.³⁷ In fact, Federal Reserve open market operations, discount window lending, overnight overdrafts, and float increased dramatically in the days immediately after September 11 as depository institutions sought liquidity.

Although the Federal Reserve provided billions of dollars to depository institutions to alleviate liquidity concerns, connectivity problems and the closure of key markets made it difficult for some institutions to exchange payments and lend or borrow funds. As a result, payments could not flow effectively through the banking system, and many depository institutions incurred larger-than-usual daylight overdrafts. Between September 11 and September 21, peak and average daylight overdrafts that depository institutions incurred were approximately 36 percent and 32 percent higher, respectively, than levels in August 2001 (table 7). Daylight overdrafts peaked at \$150 billion on September 14, their highest level ever and more than 60 percent higher than usual, despite Federal Reserve opening account balances of slightly more than \$120 billion.

As further evidence of institutions' connectivity and associated liquidity difficulties, the aggregate number of transfers processed over the Fedwire funds and securities transfer systems declined on September 11 and remained low for the rest of the week. In addition, the aggregate value of payments transferred over Fedwire on September 11 was \$1.8 trillion, almost \$1 trillion less than the average for August 2001 (table 8). Although the aggregate value of payments over the Fedwire funds transfer system quickly returned to August 2001 levels and actually reached higher-than-average values for several days, the value of activity on the securities transfer system remained low into the week of September 17.

Because of connectivity problems, depository institutions were unable to gain access to some of their usual sources of funding, causing delays in payments and settlements. As a result, funds built up at a few depository institutions that could not send

34. In January 1998, the Federal Reserve implemented a new account structure to support the account management and information needs of depository institutions in an interstate branching environment. Under the new account structure, the Federal Reserve provides separately chartered institutions with one master account and the option of establishing subaccounts that can be used to segregate transaction information according to certain criteria, such as type of transaction.

35. The policy options identified in the Board's request for comment on a possible longer-term policy direction (lowering self-assessed, single-day net debit caps, eliminating the two-week average caps, implementing differential pricing for collateralized and uncollateralized daylight overdrafts, and rejecting payments with settlement-day finality that would cause an institution to exceed its total collateralized and uncollateralized daylight overdraft capacity) will require additional analysis before final action can be taken.

36. The Federal Reserve waived daylight overdraft fees for the period of Tuesday, September 11, through Friday, September 21, for all account holders.

37. To further facilitate the functioning of financial markets and provide liquidity in dollars to foreign institutions, the Federal Reserve entered into swap arrangements with the European Central Bank (ECB), the Bank of Canada, and the Bank of England. The Federal Reserve and the ECB swap arrangement allowed the ECB to draw up to \$50 billion in exchange for an equivalent amount of euro deposits. The Federal Reserve and the Bank of Canada agreed to a temporary augmentation of their existing swap facility to facilitate the functioning of financial markets and provide liquidity in U.S. dollars. Under the terms of the augmented facility, the Bank of Canada was able to draw up to \$10 billion in exchange for Canadian dollars. The terms of the facility with the Bank of England allowed it to draw up to \$30 billion in exchange for sterling.

7. Depository institutions' peak and average daylight overdrafts for September 10–21, 2001, compared with August 2001

Billions of dollars

Date	Total		Funds		Securities	
	Peak	Average	Peak	Average	Peak	Average
August 2001 ¹	92.9	32.8	85.7	25.3	31.9	7.5
2001—Sept. 10	98.7	37.0	87.0	29.4	27.1	7.6
Sept. 11	113.7	45.0	103.9	32.8	31.2	12.2
Sept. 12	113.9	36.7	90.3	27.7	37.2	9.0
Sept. 13	120.5	41.2	104.4	34.0	24.1	7.2
Sept. 14	150.1	54.6	116.1	45.3	36.9	9.3
Sept. 17	121.7	34.3	115.3	31.9	22.4	2.4
Sept. 18	125.0	38.1	115.5	33.3	16.0	4.8
Sept. 19	130.5	46.2	117.6	37.0	27.5	9.2
Sept. 20	127.6	44.7	116.5	35.0	42.3	9.7
Sept. 21	132.6	49.7	126.9	40.7	42.5	9.0

NOTE. For definition of "peak" and "average" daylight overdrafts, see box "Measuring Daylight Overdrafts: Peak and Average."

1. Monthly averages of daily data.

out funds. Consequently, many institutions that did not receive expected funds had to cover their positions through Federal Reserve open market operations, overnight overdrafts, or discount window loans. Overnight overdrafts increased from an average of \$9 million in August 2001 to more than \$4 billion on September 12. Discount window loans rose from around \$200 million to about \$45 billion on September 12; later, when markets began to function better, Federal Reserve open market operations increased from \$25 billion to nearly \$100 billion.

The Federal Reserve moved quickly after September 11 to ensure financial market liquidity through record lending at the discount window and the injection of funds through open market operations. Nevertheless, the Federal Reserve, in conjunction with financial market participants, is evaluating its policies and procedures regarding the payment system. In particular, as part of this evaluation, the Federal

Reserve may want to reassess whether a full- or partial-collateralization policy for intraday credit could better facilitate the Federal Reserve Banks' actions during a crisis and protect the Banks from risk.

Evaluation of a Full- or Partial-Collateralization Policy

In assessing the effectiveness of certain options considered during the PSR policy review, Federal Reserve staff evaluated the options against the objective of attaining an efficient balance among the benefits and the costs and risks associated with the provision of Federal Reserve intraday credit. The comprehensive costs and risks to the private sector of managing Federal Reserve account balances were also considered. To assess whether a full- or partial-collateralization policy would more efficiently balance the costs and benefits associated with daylight credit than other policy options, Federal Reserve staff attempted to quantify those costs and benefits. Specifically, values were obtained for the amount of daylight credit that each depository institution used and the amount of collateral that each institution had pledged to the Federal Reserve. Although the majority of depository institutions' daylight overdrafts are not explicitly collateralized, some of the Federal Reserve's intraday credit exposure is effectively secured by collateral already pledged.³⁸

38. Depository institutions desiring to access the discount window must sign an agreement in the Federal Reserve's Operating Circular No. 10, which secures both intraday and overnight overdrafts with collateral pledged to the Federal Reserve. After executing the appropriate borrowing documents, many institutions will immediately pledge collateral to the Federal Reserve to facilitate future requests for discount window loans.

8. Daily transaction values and volumes of Fedwire funds and book-entry securities transfers for September 10–21, 2001, compared with August 2001

Date	Funds		Securities	
	Value (billions of dollars)	Volume (number of transactions)	Value (billions of dollars)	Volume (number of transactions)
August 2001 ¹	1,601	428,750	1,028	53,639
2001—Sept. 10 ...	1,591	436,312	951	44,423
Sept. 11 ...	1,216	249,472	563	23,221
Sept. 12 ...	1,696	332,433	406	18,679
Sept. 13 ...	1,952	376,937	681	26,046
Sept. 14 ...	2,009	423,256	712	22,864
Sept. 17 ...	2,312	462,522	1,024	170,658
Sept. 18 ...	1,978	419,126	805	51,058
Sept. 19 ...	1,836	401,420	688	47,308
Sept. 20 ...	1,921	433,771	808	71,534
Sept. 21 ...	1,832	442,293	715	42,164

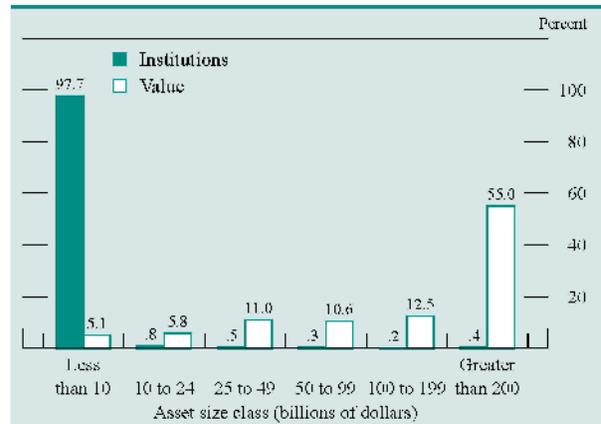
1. Monthly averages of daily data.

Federal Reserve staff then estimated the Federal Reserve's credit exposure and collateral coverage by comparing, institution by institution, the dollar amount of credit used by institutions to the value of collateral they held at the Federal Reserve, mainly for discount window purposes.³⁹ Of about 8,500 depository institutions that currently hold Federal Reserve accounts, more than 5,300 incurred daylight overdrafts at least once during the third quarter of 2001, and almost 2,000 had collateral pledged to the Federal Reserve. Although less than half of the depository institutions that incur daylight overdrafts have pledged collateral to the Federal Reserve, these institutions incur the vast majority of total average daylight overdrafts (more than 90 percent) and have sufficient collateral to cover most of their overdrafts. In fact, in covering their respective daylight overdrafts with collateral, these institutions effectively have collateralized 94 percent of the aggregate value of total average daylight overdrafts and 70 percent of the aggregate value of total peak daylight overdrafts. These institutions however, are able to cover only 30 percent of their aggregate net debit caps with collateral, likely because depository institutions rarely use more than 50 percent of their single-day net debit caps for their peak daylight overdrafts.

Although more than 5,300 depository institutions incurred daylight overdrafts in the third quarter of 2001, the majority of the value was concentrated at a small number of very large institutions. The largest users of daylight credit are depository institutions with assets greater than \$200 billion (chart 11). In addition, these large depository institutions generally have self-assessed net debit caps, which provide substantially more intraday credit than the exempt-from-filing and *de minimis* net debit cap categories (chart 12). To qualify for a self-assessed net debit cap, however, depository institutions must implement risk-management controls that are proportional to the nature and magnitude of the risks they present. Likely as part of their risk-management controls, institutions that frequently use large amounts of daylight credit tend to have collateral at the Federal Reserve in the event operational problems or the lack of liquidity in the market late in the day causes their daylight overdrafts to become overnight overdrafts. These institutions would presumably rather request a discount window loan than pay the overnight overdraft penalty rate (equal to the federal funds rate plus 400 basis points).

39. Daylight overdraft levels are daily averages based on data from the third quarter of 2001, excluding September 11–21, and collateral values are based on September 10, 2001, data. As a result, coverage rates are approximations only.

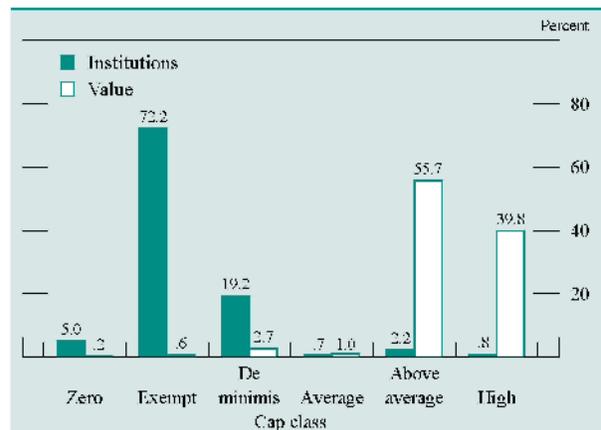
11. Distribution of depository institutions with daylight overdrafts and the value of daylight overdrafts incurred, by asset size class, 2001:Q2



NOTE. Quarterly averages of daily data.

In considering a policy that would require full or partial collateralization of daylight credit use, the most relevant issue is likely whether individual institutions can effectively cover their net debit caps or peak daylight overdrafts with their balance sheet assets that are eligible as collateral at the Federal Reserve. Because many depository institutions do not have collateral pledged to the Federal Reserve, staff compared each depository institution's net debit cap and peak daylight overdraft with its eligible balance sheet assets. The composition of institutional assets used in the comparison of eligible assets to net debit caps and peak daylight overdrafts was restricted to be consistent with those assets typically included for consideration as discount window loan collateral. In addition, the estimated asset values were reduced

12. Distribution of depository institutions with daylight overdrafts and the value of daylight overdrafts incurred, by cap class, 2001:Q2



NOTE. Quarterly averages of daily data.

(referred to as a “haircut”) as described in the “Federal Reserve Bank Discount and PSR Collateral Margins Table.”⁴⁰ The asset data used most likely overestimate the amount of assets that would be available to collateralize institutions’ peak daylight overdrafts because no method was readily available to determine which assets, excluding government securities, were already pledged elsewhere.

In its analysis, the staff found that only a small percentage of Federal Reserve account holders have insufficient eligible balance sheet assets to meet a policy requiring the collateralization of their net debit cap or peak daylight credit use. Some of these institutions, however, are those that incur the largest daylight overdrafts. Under a full-collateralization policy, these institutions could find the level of their access to daylight credit dramatically reduced or could incur additional costs to acquire assets for collateral purposes.

Although Federal Reserve staff concluded that a full- or partial-collateralization policy could significantly reduce and possibly eliminate credit risk to the Federal Reserve, such a policy could be costly for those institutions that do not already have collateral pledged to the Federal Reserve or do not have sufficient eligible assets. In addition, the effects on depository institutions’ other counterparties are unknown. Assessing the true effect of any reduction in credit risk to the Federal Reserve is also difficult because Reserve Banks already require institutions in deteriorating financial condition to pledge collateral to cover potential daylight overdrafts.

rating financial condition to pledge collateral to cover potential daylight overdrafts.

Federal Reserve staff assessed many of the costs to depository institutions of a full- or partial-collateralization policy, including the opportunity costs to depository institutions that would have to acquire additional assets or shift assets away from other uses to secure their daylight overdrafts; however, the events of September 11 may provide new perspectives on some additional benefits of such a policy. For example, requiring the full or partial collateralization of an institution’s daylight overdrafts could facilitate the Federal Reserve Banks’ lending through the discount window. Because collateral and the appropriate lending agreements would likely be in place, depository institutions and the Reserve Banks should be able to complete discount window loans more easily in the event of a severe market disruption that creates liquidity dislocations.

CONCLUSION

Although the research and analyses conducted during the Board’s review of its daylight credit policies provided much information, there are many issues that warrant further study. The events of September 11 have changed the way the financial industry, including bankers and regulators, views operational contingency plans and could likely shape the future direction of the PSR policy. Because the payment system is dynamic, the Board must continually assess whether the policy is efficiently balancing the costs and benefits associated with daylight credit. □

40. Available on line at <http://www.ny.frb.org/bankinfo/dwindow/dscentmrgn.pdf>.