

ECONOMIC COMMENTARY

Federal Reserve Bank of Cleveland

How Much Is Daylight Credit Worth?

by E.J. Stevens

Credit extended for a few hours during the business day, but not overnight, is called daylight credit. Once largely unnoticed, it has acquired significant importance since the Federal Reserve Banks stopped providing free and unlimited daylight overdrafts to financial institutions on demand. The Banks imposed formal restrictions in 1986 and a daylight overdraft fee in 1993, both of which were intended to reduce the subsidy of free credit. Now, as of April 13, the fee has been raised from 10 cents to 15 cents per \$100 average per-minute daily overdraft in excess of 10 percent of a bank's total risk-based capital.¹ This *Economic Commentary* examines how much daylight credit might be worth to the banks that use it and looks at the implications of raising the overdraft fee.

■ More Bang for the Buck

The volume and value of payments made in the United States have been increasing more rapidly than the money balances used to make payments for many years. This rising "productivity" of money used for transactions — or the increased velocity of cash and checkable deposits — reflects technological changes made possible by the computer and telecommunications revolution. Greater speed and precision in tracking bank balances, and better opportunities to adjust balances "same day," have reduced the size of the cushion needed to absorb unexpected delays in receipts and acceleration of payments. The same revolution has made it possible to consolidate multiple transactions into single payments. In retail payments, credit cards allow people

to cover a whole month's transactions with a single payment. In wholesale financial payments, an entire day's transactions between two traders may be netted to a single payment.

Indeed, "just in time" seems an even more apt description of cash management technology than of business inventory control. Over the past 20 years, the inventory of money relative to payments in the United States has declined even more rapidly than the inventory of goods relative to sales. More striking is the decline in banks' own inventories of deposit balances at the Federal Reserve Banks relative to interbank payments (see figure 1).

Of course, technology is not the only reason that banks have been able to keep relatively smaller balances at the Reserve Banks. Reduced reserve requirements have lowered an artificial floor that may have prevented banks from economizing on balances. Perhaps as important was the ready availability of Reserve Bank daylight credit, at least until 1986. Payments could be made against empty accounts as long as balances were restored by the end of the day. Commercial banks typically have been less lenient with their depositors.

A retail customer must make a sufficient deposit to an empty account before funds can be drawn from a teller or automated teller machine. Corporate depositors are more likely to have access to daylight credit for making payments, although screening relative to an explicit credit limit is usually necessary.

The Federal Reserve Banks raised their daylight overdraft fee from 10 cents to 15 cents on April 13. In two years, the Board of Governors will consider whether to raise it further. How high to set the fee depends largely on attitudes toward risk management. A low fee involves questions of moral hazard in central banking; a high fee raises questions about risk myopia in private credit markets.

■ The Time Value of Money

Daylight credit bears no explicit interest. An interest rate is the cost of credit, typically expressed as an annual percent. Market and regulatory conventions have developed for translating between annual rates and rates for maturities of months, weeks, and days, but not for maturities of less than a day.²

Many credit instruments have a maturity of only a single day, including interbank loans (federal funds) and repurchase agreements (RPs). Large banks (defined here as those with more than \$4 billion in assets) have recently been borrowing close to \$150 billion daily at a one-day rate that amounts to about 6 percent annually. Although the rate is for one day, frequently these are described as overnight loans. Many lenders deliver the funds just before the close of the banking day, and many borrowers return the funds the next morning.

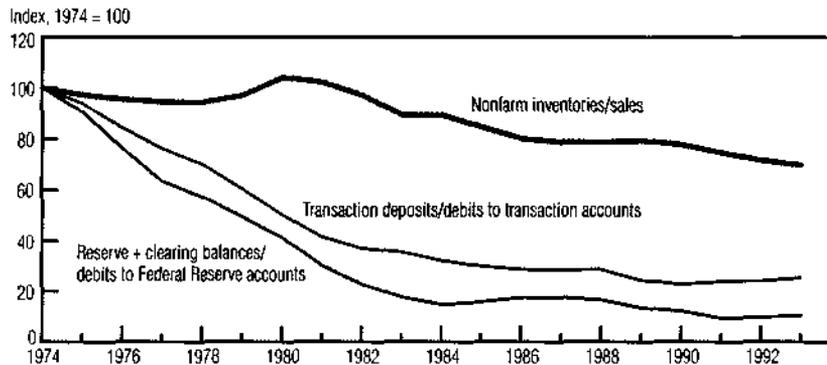
Overnight is the same as one day in a crucial sense. Federal Reserve Banks close their books only once per day. Funds borrowed in overnight markets are deposit balances at the Federal Reserve Banks. Adding funds to an account at the end of a day is just as good for most purposes as adding the same amount at the beginning of a day. It is the size of a bank's *end-of-day* balance that counts in meeting reserve and clearing balance requirements and in avoiding the penalty for an overnight overdraft. In this sense, there is no time value of money within a day. True, the market rate for overnight federal funds does vary over the course of a day, but this variation bears no consistent relation to the time of day. The only exception is that the market closes when delivery becomes impossible — that is, when the Reserve Banks close for the day.

No market conventions have developed for converting annual interest rates into maturities of hours, minutes, and seconds because daylight credit has no comparable time value. It does not provide end-of-day, overnight balances. Where there have been market fees for intraday credit, they have been risk premiums. Lacking time value, the banking system has had no reason to reward extra intraday money balances. However, as long as lending involves credit risk, lenders cannot give away money even for short intervals without some compensation for bearing risk.

For the most part, Reserve Banks have extended daylight credit in the process of providing Fedwire funds and securities transfer services to depository institutions. Two examples illustrate this.

1. A bank wishes to pay \$500 million to another bank, perhaps to repay an overnight federal funds loan. A staff member of the sending bank enters the relevant bank ID numbers, dollar amount, and descriptive details into a computer terminal and then executes the on-line transaction. Almost simultaneously (for a sending bank in sound condition), the computer of its Federal Reserve Bank transfers \$500 million from the sending bank's account to that of the receiving bank. Unlike a check or

FIGURE 1 RATIOS OF INVENTORIES TO TRANSACTIONS



SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; and Board of Governors of the Federal Reserve System.

automated clearinghouse payment, this Fedwire payment is legally final when received, meaning that the receiving bank has immediate, irrevocable possession of the funds whether or not the sending bank had a sufficient balance to cover the payment. If the sending bank had a zero balance at the moment the payment was executed, then the Federal Reserve Bank extended \$500 million in daylight credit, which the sending bank is obligated to repay before the close of the day.

2. A bank is, or is the banker for, a government securities dealer. Dealers finance the bulk of their securities inventories in the RP market. Effectively, they borrow overnight to finance their positions, using the securities in their position as collateral. Agents with large cash positions who seek an overnight rate of return purchase the securities with an agreement to sell them back the next day at a profit. At the opening of the next day's business, they return the securities to the borrower via the Fed's securities wire. This simultaneously takes payment from the borrower's account, which thereby may generate a daylight overdraft.

How High a Fee?

The original decision to impose a fee for using Federal Reserve Bank daylight credit did not specify how high the fee might ultimately be set. The Board of Governors initially announced a plan to charge 10 cents until April 1995, then 20 cents until April 1996, and 25 cents thereafter. However, the Board reserved the right to move faster or slower. Clearly, the unanswered question was how to know when the fee was high enough. One criterion might be to use the volume of daylight overdrafts as an indicator of Reserve Banks' risk exposure. However, this only begs the question of how much risk the Reserve Banks should accept.

An alternative approach is to ask what fee private institutions would set in a competitive market. If free daylight credit subsidized banks in a position to use it, then it would make sense to raise the fee at least until daylight overdraft volume began to decline. At that point, the marginal cost of alternatives could be assumed to equal the price of the Reserve Banks' daylight credit service. The presumption then would be that the Banks were supplying an efficient volume of daylight credit — assuming no deviation of marginal private and social costs (discussed below).

To a bank, the value of the daylight overdraft subsidy must be worth, at most, what it would cost to eliminate. The initial 10 cent fee resulted rather quickly in a 40 percent decline in daylight overdraft volume. A prime reason was that, to avoid fees passed through by their banks, government securities dealers shifted a significant volume of both transactions (whether RP or outright purchase and sale) and transaction settlements to earlier hours of the day. This reduced overdrafts by bringing funds to their banks earlier. However, no significant change has been noted in patterns of daylight overdrafts associated with other banking practices, notably federal funds market transactions, which are thought to be the proximate source of a substantial portion of the remaining overdrawn positions each day.

With the incentive of a higher fee, what kinds of changes might banks initiate to reduce daylight overdrafts? Individual banks, regularly in overdraft, could either replace persistent overnight borrowing with longer-term financing or shift to continuing contracts with regular suppliers. This would eliminate large payments for return of funds on many days, at the potential cost of an interest-rate spread of term funds or of other rates that exceed the overnight funds rate.

Perhaps more difficult to organize would be changes in market conventions, since they would require the explicit or implicit agreement of many participants. Also, they necessarily would involve earlier delivery or delayed return of funds for some banks. This would inevitably invite contention about who "should" give up the benefit of daylight credit. For example, a higher fee might induce borrowing banks to hold overnight funds longer, extending possession toward a full 24 hours. The incidence of fees would be on lending banks to the extent they were unable to pass the cost along to others.

Ultimately, a high fee could induce banks to shift payments to alternative payment networks. The existing CHIPS (Clearing House Interbank Payments System) network and the once-proposed CASHwire are examples of networks that could provide substitutes for Fedwire in transfer-

ring same-day funds between banks. They differ from Fedwire in that they are net settlement systems: Only the cumulative amount of a bank's network payments and receipts over the course of a day would be posted to its Reserve Bank account at a prearranged settlement time. As long as a bank's network counterparties were willing to accept its payments before it accumulated offsetting receipts, private network credit could replace Reserve Banks' daylight credit, with little need to change the time pattern of funds market activity.

■ Where to Stop?

One point at which to stop raising Reserve Banks' fee for daylight credit would be the level at which Fedwire's share of interbank payments began to slip, as existing and new same-day net settlement systems threatened to allow private banks to replace the central bank in supplying daylight credit. But why stop at the margin, if a higher fee would allow private markets to take over the creation and allocation of daylight credit almost entirely?³

The choice lies somewhere between a low fee that removes pure subsidy but preempts much of the daylight credit that could be provided by private networks, and a high fee that removes all traces of subsidy but eliminates much of the daylight credit that could be provided by the central bank. Which direction to go depends largely on attitudes toward risk management, involving questions of moral hazard in central banking and externalities in private credit markets.

Moral hazard arises when the central bank relieves banks and their customers of the need to prudently monitor risks in accepting payments from other banks. Fedwire creates this hazard by making payments final upon receipt, without regard to whether the paying bank has sufficient funds to cover the payment — that is, by providing daylight credit on demand. Recognizing this hazard, Reserve Banks rely on bank supervision for the prudential monitoring that Fedwire finality makes unnecessary among their customer banks. An argument against creating this moral hazard may

be that government supervisory institutions lack the motivation and multiple independent perspectives that can be brought to the risk-monitoring effort by many competing banks and customers operating through private networks and markets. The implication is that, while payments are uniformly safe to receive when backed by the infinite resources of the central bank, more payment-related risk exists than under a private regime.

Another position, consistent with choosing a low Reserve Bank fee for daylight credit, emphasizes a potential disparity between the private and social costs of credit. Private banks and their customers will underestimate the true risk their credit produces for society if they cannot perceive "systemic" consequences of bilateral credit extensions — that financial interdependencies can produce falling dominoes.

It is true, by definition, that the risk protections built into private net settlement systems cannot be as absolute as a finality guarantee by a central bank with authority to create money. The question is whether we rely too heavily on that guarantee, forgoing the benefits of counterparty risk assessments. What is debatable in making a choice between more and less private daylight credit is the relation between systemic risk and moral hazard. That is, counterparties to payments may turn a blind eye to systemic risk because of a genuine risk myopia, or because heretofore, the Reserve Banks have largely accepted the moral hazard of a liberal supply of daylight credit.

■ Conclusion

Daylight credit is worth what it would cost to do without it. For banks to forgo the daylight credit provided by the Federal Reserve might involve nothing more than switching transactions to private interbank networks. The necessity of controlling risk in private net settlement networks has commanded increasing attention over the past decade. In the United States, the Reserve Banks now enter into settlement arrangements only with large-value private payment networks that can demonstrate robust risk-control measures. More broadly, the Bank for International Settlements has

produced a series of risk assessment studies and recommendations for its member central banks. These emphasize the need for explicit central bank control of payment system risks, focusing on the potential vulnerabilities of national clearing and settlement systems, particularly for transactions in global markets.⁴

Neither risk myopia nor moral hazard should go uncorrected. Therefore, it seems prudent for the Reserve Banks to continue raising the fee for daylight credit. The higher the fee, the more feasible it is to rely on private counterparties to share with bank supervisors the responsibility for risk management in the payments system.

■ Footnotes

1. Originally, in 1993, this increase was tentatively set at 10 cents. Fees of less than \$25 per day are waived. See "Policy Statement on Payments System Risk: Daylight Overdraft Pricing." Board of Governors of the Federal Reserve System, Docket No. 0806, March 2, 1995.

2. A difficult case in point has been the Board of Governors' attempt to define a convention for expressing the interest rate on savings accounts as an average periodic rate. See Board of Governors of the Federal Reserve System's Regulation DD, Truth in Savings, 12 C.F.R. Part 230 (1995).

3. For information about the public/private mix in other developed countries, see Bank for International Settlements, *Payment Systems in the Group of Ten Countries*, Basle, December 1993.

4. See Bank for International Settlements, *Report on Netting Schemes*, February 1989; *Report of the Committee on Interbank Netting Schemes of the Central Banks of the Group of Ten Countries*, November 1990; *Central Bank Payment and Settlement Services with Respect to Cross-Border and Multi-Currency Transactions*, September 1993.

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