bank depositing a check for collection with a Federal Reserve Bank receives credit for the check in the form of an increase in its re-
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4. For the month of August 1980, float averaged $5,086 million and accounted for approxi-
mately 11 percent of the total reserves supplied to the banking system by the Federal Reserve.

5. See Benjamin Wolkowitz and Peter R. Lloyd-

6. The Federal Reserve has proposed to adopt a combination of these alternatives. See Board of Governors of the Federal Reserve System, Federal Reserve Bank Services Proposed Fee Schedule and Pricing Principles, Document No. R-0224, August 28, 1980 (hereafter cited as the "Proposal").
by Jim Winner

Most checks are deposited in a bank other than the one on which they are drawn. In such instances, the bank in which the check is deposited (or pays off payers) must collect the funds from the bank on which the check is drawn (the payor bank). In the United States, check collection services are provided by both private and public institutions. The private sector collects checks via local clearinghouses, bank correspondence banks, and an extensive network of correspondent banks; the public sector is represented by the Federal Reserve System, which, until this year, provided check collection services, free of charge, to its member banks.

Because the collection of checks requires the use of real resources (for example, personnel, transportation, and computers), the question arises as to whether the extent to which these resources are employed in collecting checks constitutes an efficient use of the nation's scarce resources. The quantity of resources employed in clearing checks depends both on the number of checks written and the speed with which the checks are collected. In addition to being underprovisioned because of interest rate ceilings on demand deposits and encouraged by the pricing practices of the banking industry, the use of checks and similar paper instruments has been suboptimal because of the time value of money, and money has time value—it can be invested in interest-earning assets. Therefore, the private benefit associated with collection speed, which includes the time value of money, exceeds the social benefit, and, left to the market, too many resources will be devoted to the processing of checks.

If interest rates and the sums of money involved are sufficiently large, payees have an incentive to speed check collection and payors have an equal incentive to delay collection. Any interest income gained by payees through speeding the collection of a check is lost in an equivalent amount by payors. Society, therefore, gains nothing in this situation, for the payee and the payor bank, together, is no better off playing this zero-sum game. Therefore, resources used to speed up the game represent a net loss to society. If payees were simply to transfer an equivalent amount of interest income to payors, the resources formerly used to speed check collection would be available to produce other goods, and everyone's real income could be increased. The result of this is that the additional externalities associated with the time value of money are this foregone income.

The socially efficient allocation of resources requires that transactions occur at the efficient but slower speed of collection that is valued by both the payee and payor banks as better off with the Federal Reserve's public sector services. Some of the time value of reserves would remain an inefficient means of payment, Pricing Federal Reserve check collection services on the basis of social costs would simply incorporate the inefficiency of the private sector into the Federal Reserve's public sector services.

Federal Reserve Float

While the private sector redistributes a given amount of reserves among banks, the Federal Reserve can and does create reserves in the Federal Reserve District Banks, thus the amount of reserves thus created is known as Federal Reserve float.

Banks using Federal Reserve check collection services hold their reserve accounts in Federal Reserve District Banks. A payee banks simply would not use the Federal Reserve's service since they would be losing some of the time value of reserves. Under such conditions, even if the full social costs of the Federal Reserve's check collecting services were covered by Federal Reserve pricing, checking would remain an inefficient means of payment. Pricing Federal Reserve check collection services on the basis of social costs would simply incorporate the inefficiency of the private sector into the Federal Reserve's public sector services.
The Pricing of Float and an Efficient Payments Mechanism

by Jim Winner

Most checks are deposited in a bank other than the one on which they are drawn. In such instances, the bank in which the check is deposited (the payee bank) must collect the funds from the bank on which the check is drawn (the payor bank). In the United States, check clearing services are provided by both private and public institutions. The private sector collects checks via local clearinghouses, bank ser-

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vided check collection services, free of charge, to its member banks.

Because the collection of checks re-

quires the use of real resources (for ex-

ample, personnel, transportation, and com-

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ployed in clearing checks constitutes an effi-

cient use of the nation's scarce resources. The quantity of resources employed in

clearing checks depends both on the num-

ber of checks written and the speed with which the checks are collected. In addition to being underpriced, because of interest

rate ceilings on demand deposits and en-

couraged by the pricing practices of the

banking industry, the use of checks and

similar paper instruments has been sub-

3. Regardless of the means of payment—cur-

rent, electronic funds transfer, or check—

if the transfer of money in payment is not instantaneous, the time value of money would impose a negative externality on society.

simplification (for example, hand guns), the mar-

ket tends to yield an inefficient allocation of

resources. Although there are no discernible externalities associated with the production or consumption of payment instruments, there is an externality associated with the speed of check collection.

The social benefit of increasing collection

speed is the reduced risk of loss associ-

ated with accepting a bad check. This reduc-

tion of risk enhances the general acceptabil-

ity of the check and, as a means of transferring both payors and payees to the extent that payment by check, as opposed to currency, is more convenient, the quantity of resources employed in clearing checks is more efficiently employed. However, the amount of a check represents money, and money has time value—it can be invested in interest-earning assets. Therefore, the private benefit associated with collection speed, which includes the time value of money, exceeds the social benefit, and, left to the market, too many resources will be devoted to the processing of checks.

If interest rates and the sums of money involved are sufficiently large, payees have an incentive to speed check collection and payors have an equal incentive to delay collection. Any interest income gained by payees through speeding the collection of a check is lost in an equivalent amount by payors. Society, therefore, is better off if payees and payors work together, is no better off for playing this zero-sum game. Therefore, resources used to speed check collection represent a net loss to society. If payees were simply to transfer an equivalent amount of interest in-

to payees, the resources formerly used in expedited check collection would be available to produce other goods, and everyone's real income could be increased. The total of the marginal social cost associated with the time value of money is this foregone income. From a bank's point of view, the trans-

fer of funds from a payor to a payee repre-

sents an increase in the payee bank's cash re-

serves and an equivalent decrease in the payor bank's cash reserves. Reserves, because they are the basis on which banks expand their earning assets, possess time value for banks. Thus, when checks are deposited in banks, the incentive to waste society's re-

sources in altering the rate at which checks clear is passed from payees and payors to the banking industry.

The efficiency loss to society as a re-

sult of the speed of collection of the payee bank is illustrated in figure 1. The vertical axis (price, P) measures the value of the marginal social cost and marginal social benefit of collection services on the payee bank.2 The marginal social benefit (MSB) curve shows that, as collection speeds increase, the additional social

benefit of increasing collection speed, although positive, decreases. The marginal

social cost (MSC) curve shows that, as collection speeds increase, the additional social cost of increasing collection speed, although positive, increases. The marginal social benefit of increasing collection speed consists of two components: the benefit re-

cieved from increasing the general accept-

ability of checks (MSC), which is valuable to the payee and society; and the marginal time value of reserves (MTR), which is val-

uable to the payor bank but not to society because it is lost in an equivalent amount to the payor bank. For any given speed of collection services, the total marginal social benefit (MSC) exceeds the marginal social cost (MSC) by an amount equal to the time value of re-

serves to the payee banks—an economically inefficient result.

The choice among collection services provided by correspondent banks, bank ser-

vices corporations, and the Federal Reserve System is the discretion of the payee banks. Because payee banks have an incentive to speed collection of checks, private insti-

tutions offering check collection services compete by offering rapid collection of checks. However, the Federal Reserve's systematic checking services represent the marginal cost in the process of check collection. The

Fed's services on the basis of marginal social costs and, if the Federal Reserve's services on the basis of marginal social costs, it would have to provide collection service at speed $S_m$, in order to be competitive. If the Federal Reserve speeds checks at the efficient but slower speed of $S_e$, payee banks simply would not use the Federal Re-

serve's service since they would be losing some of the time value of reserves. Under such conditions, even if the total social costs of the Federal Reserve's checking services were covered by Federal Reserve prices, checking would remain an inefficient means of payment. Payment Federal Reserve check collection services on the basis of social costs would simply incorporate the ineffi-

cency of the private sector into the Federal Reserve's public sector services.

Federal Reserve Float

While the private sector redistributes a

given amount of reserves among banks, the Federal Reserve can and does create reserves, thereby increasing the amount of reserves thus created is known as Federal Reserve float. Banks using Federal Reserve check collection services hold their reserve accounts in Federal Reserve District Banks. A payee
The Pricing of Float and an Efficient Payments Mechanism by Jim Winner

Most checks are deposited in a bank other than the one on which they are drawn. In such instances, the bank in which the check is deposited (the payor bank) must collect the funds from the bank on which the check is drawn (the payee bank). In the United States, check collection services are provided by both private and public institutions. The private sector collects checks via local clearinghouses, bank correspondent banks, and the network of correspondent banks: the public sector is represented by the Federal Reserve System, which, until this year, provided check collection services, free of charge, to its member banks.

Because the collection of checks requires the use of real resources (for example, personnel, transportation, and computers), the question arises as to whether the extent to which these resources are employed in collecting checks constitutes an efficient use of the nation's scarce resources. The quantity of resources employed in clearing checks depends both on the number of checks written and the speed with which the checks are collected. In addition to being underpriced because of interest rate ceilings on demand deposits and encouraged by the pricing practices of the banking industry, the use of checks and similar paper instruments has been sub-

FIGURE 1 Inefficiency Due to Time Value of Reserves to Payee Banks

From a bank’s point of view, the transfer of funds from a payor to a payee represents an increase in the payee bank’s cash reserves. The marginal social cost (MSC) of check collection is the reduced risk of loss associated with the time value of money, which is lost in an equivalent amount to the payee bank but not to society. For any given speed of collection, the total marginal private benefit (MPB) curve shows that, as collection speed increases, the additional social benefit of increasing collection speed, although positive, decreases. The marginal private benefit of increasing collection speed consists of two components: the benefit received from increasing the general availability of checks (MSCB), which is available to the payee and society; and the marginal time value of reserves (MTR), which is available to the payor bank. Therefore, if the Federal Reserve cleared checks instantaneously, the time value of money would simply incorporate the inefficiency of the private sector into the Federal Reserve’s public sector services. Banks using Federal Reserve check collection services on the basis of social costs would simply incorporate the inefficiency of the private sector into the Federal Reserve's public sector services.

Federal Reserve Float

While the private sector redistributes a given amount of reserves among banks, the Federal Reserve can and does create reserves in the Federal Reserve float. That is, the amount of reserves thus created is known as Federal Reserve float.

banks simply would not use the Federal Reserve's service since they would be losing some of the time value of reserves. Under such conditions, even if the full social costs of the Federal Reserve's check collecting services were covered by Federal Reserve pricing, checking would remain an inefficient means of payment. Pricing Federal Reserve check collection services on the basis of social costs would simply incorporate the inefficiency of the private sector into the Federal Reserve's public sector services.

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lected. For a variety of reasons, the check may not be collected in the scheduled time, and for a period of time both banks will have credit for the reserves represented by the amount of the check. The float gen-
erated by this "double counting" constitutes one source of total bank reserves supplied by the Federal Reserve System. 6 Payor banks benefit from float, since they can invest these funds in interest-bearing assets. Congress reasoned that float constituted an "interest-free" loan to the banking industry, because the same amount of float as total bank reserves could be supplied to the banking system if float were reduced and Federal Reserve holdings of U.S. government securities increased by equivalent amounts.

The government would then receive interest on the additional holdings of securities through the annual transfer of Federal Re-
serve surplus revenues to the Treasury. Re-
flecting this reasoning, the Depository In-
stitutions Deregulation and Monetary Con-
trol Act requires that the Federal Reserve charge banks for float. Regardless of the merits of this reasoning, the Federal Re-
serve is currently considering means of im-
plementing the law. 5

**Pricing Float and Efficiency**

The Federal Reserve could avoid charging for float by eliminating it, either by lengthening its availability schedule and/or increasing the speed at which it collects checks. 4 Lengthening the avail-
bility schedule would induce payee banks to shift to private-sector collection services that are willing to use real-time speed collection; increasing the speed at which the Federal Reserve processes checks would increase its own costs. Either alter-
native would increase the social cost of pro-
cessing checks and result in an effi-
ciency loss to the economy.

The Federal Reserve could increase the efficiency of payment by check through a policy of charging for float? One means of reducing costs imposed by negative exter-
nalities is to tax any private gain associated with the externality. Private interests, recog-
nizing that any gain is to be taxed, would not incur costs to capture the private benefit of the externality. Because there are no eco-
nomic costs associated with producing float, charging for float as a private cost of revenues to the Treasury would allow the general tax burden to be decreased by the amount of the float revenues. 4 Thus, charging for float represents a tax on the time value of reserves that, properly instituted, could increase the efficiency of the payments mechanism.

Charging payors for float and payees for the actual cost of collection would pre-
serve competition between public and pri-
ate rate collection services. However, the Fed-
eral Reserve could promote economic effi-
ciency by removing the allocational effi-
ciency of the payments mechanism. Such a "float tax" would have to be de-
sign in a manner that would reduce or elimin-
ate private incentives to incur costs in an effort to capture the time value of re-
sources. An effective way to do this would be to grant immediate availability for all checks deposited with the Federal Reserve for col-
lection, but to charge payor banks for the resultant float. Granting immediate avail-
ability would eliminate the incentive of payee banks to speed check collection, and charging payor banks for float would impose a private cost on delaying collection. Payor banks could not avoid the float tax by shift-
ing to private-sector collection services, be-
cause the choice of collection services is at the discretion of payee banks, and, all other things equal, payee banks would choose the system that grants the fastest availability of reserves.

Payors and their banks would bear the float tax, which would encourage both to seek relatively cheaper means of payment. For example, payors and their banks would likely be encouraged to accept payment by the electronic transfer of funds among banks—a service provided by automated clearinghouses. In addition, remote disbursement and other costly practices adopted to increase float would become unprofitable, thus reducing their use and increasing the allocational effi-
ciency of the payments mechanism.

Conclusions

The Federal Reserve System is under-
standably reluctant to accept the price and market share consequences of charging for float. However, a well-
designed payor float tax, subject to mone-
tary policy constraints, would have desirable consequences on the efficiency of the pay-
ments mechanism. The problems, difficulties and costs involved in charging for float should be weighed against the other gains that would occur in the payments mechanism as a result of such a policy.

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check in the form of an increase in its re-
serve account.

The length of time between the payee bank depositing a check and the Federal Reserve Bank receiving credit for the reserves represented by the check is called float. Float is the time that elapses between the Federal Reserve Bank receiving credit for the reserves represented by the checks deposited for collection by the payee bank. 

For a variety of reasons, the check may not be collected in the scheduled time, and for a period of time both banks will have credit for the reserves represented by the amount of the check. The float generated by this "double counting" constitutes one source of total bank reserves supplied by the Federal Reserve System. Payor banks benefit from float, since they can invest these funds in interest-bearing assets. Congress reasoned that float constituted an "interest-free" loan to the banking industry, because the same amount of total bank reserves could be supplied to the banking system by the Federal Reserve. The government would then receive interest on these float reserves. An effective way to do this would be to grant immediate availability for all checks deposited with the Federal Reserve for collection, but to charge payor banks for the reserve costs associated with float. Granting immediate availability would eliminate the incentive of payee banks to speed check collection, and charging payor banks for float would impose a private cost on delaying collection. Payor banks could not avoid the float tax by shifting to private-sector collection services, because the choice of collection services is at the discretion of payee banks, and, all other things equal, payee banks would choose the system that grants the fastest availability of reserves.

Payors and their banks would bear the float tax, which would remove their incentive to seek relatively cheaper means of payment. For example, payors and their banks would find it profitable to encourage payees to accept payment by the electronic transfer of funds among banks—a service provided by automated clearinghouses. In addition, remote disbursement and other costly practices adopted to increase float would become unprofitable, thus reducing their use. Reducing the availability of float to the economy would eliminate the incentive of payee banks to speed check collection, and charging payor banks for float would impose a private cost on delaying collection. Payor banks could not avoid the float tax by shifting to private-sector collection services, because the choice of collection services is at the discretion of payee banks, and, all other things equal, payee banks would choose the system that grants the fastest availability of reserves.

The Federal Reserve could avoid the inefficiency of the payments mechanism by reducing the incentive to use float. Private interests, recognizing that any gain is to be taxed, would not incur costs to capture the private benefit of float. The Federal Reserve could shift to private-sector collection services, which might respond by clearing checks at a competitive speed, thus reducing their costs and causing the adverse effects on monetary policy.

The Federal Reserve could promote economic efficiency by reducing the availability of float and increasing the allocational efficiency of the payments mechanism. Such a "float tax" would have to be designed in a manner that would reduce or eliminate private incentives to incur costs in an effort to capture the time value of re-
serve. An effective way to do this would be to grant immediate availability for all checks deposited with the Federal Reserve for collection, but to charge payor banks for the reserve costs associated with float. Giving immediate availability would eliminate the incentive of payee banks to speed check collection, and charging payor banks for float would impose a private cost on delaying collection. Payor banks could not avoid the float tax by shifting to private-sector collection services, because the choice of collection services is at the discretion of payee banks, and other things equal, payee banks would choose the system that grants the fastest availability of reserves.

For the month of August 1980, float averaged $5,006 million and accounted for approximately 11 percent of the total reserves supplied to the banking system by the Federal Reserve. 4


7. See Wolkowitz and Lloyd-Davies, "Reducing Federal Reserve Float."