

The Economics of Check Float

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Americans commonly think of themselves as living in a technologically advanced nation. According to standard measures such as computers per capita or Internet usage, the United States ranks at or near the top of the list of developed countries. In some respects, Americans' penchant for technology carries over to the

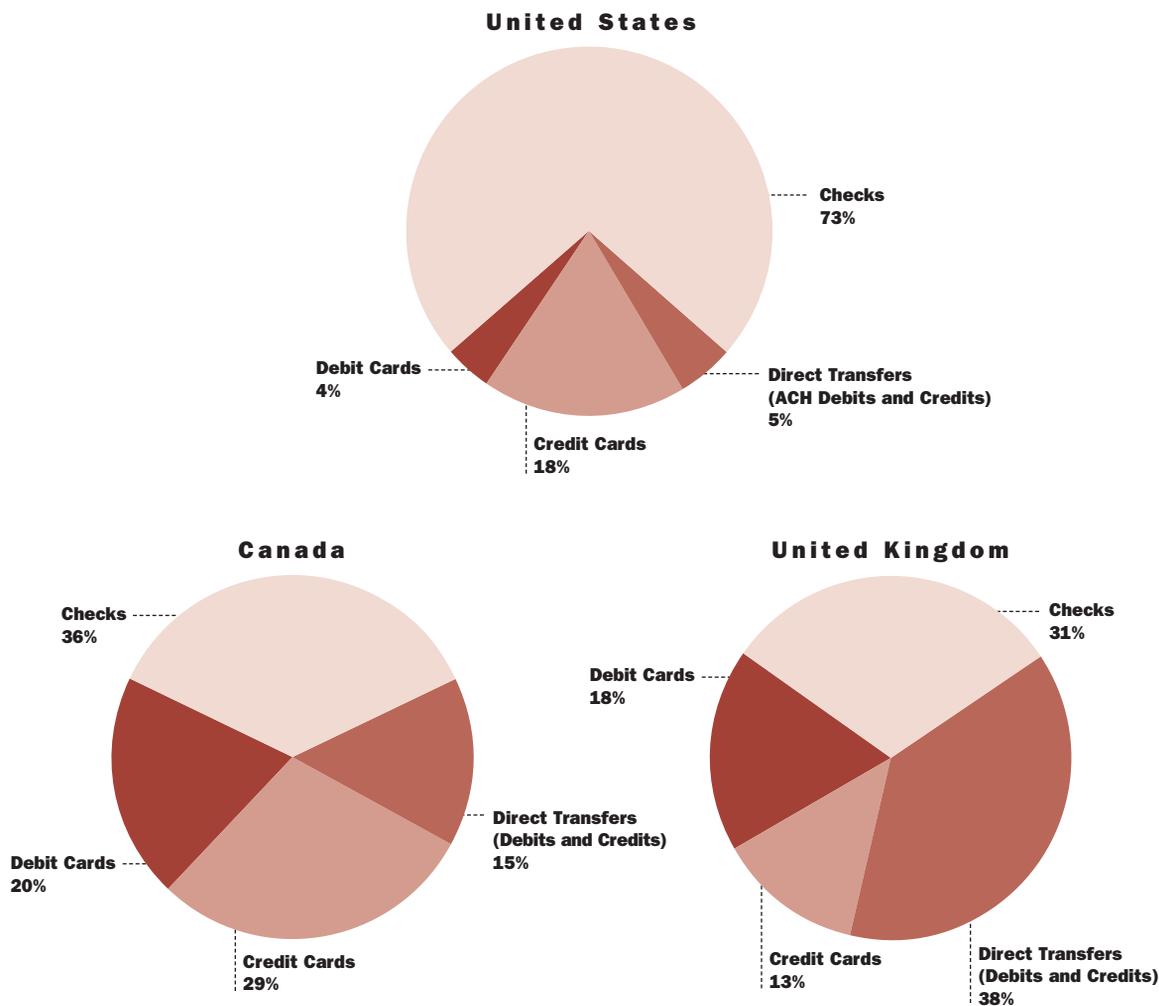
area of payments. For example, the United States ranks near the top among industrialized countries in use of debit and credit cards. What is surprising to many observers, however, is that cash and checks still dominate the overall market for retail payments.

The popularity of cash is perhaps to be expected. Despite advances in communications technology, cash remains an economical means of payment for small transactions and continues to be used widely throughout the world. Among developed countries, however, only the United States remains dependent on the use of checks. In 1997 (the last year for which statistics are available), American consumers and businesses wrote an estimated 66 billion checks. This figure amounts to roughly 250 checks per capita annually, or one check per business day per U.S. resident. The aggregate value of these checks is estimated at \$77.8 trillion, \$1,177 per check on average. And despite the rapidly expanding use of electronic payment media, the market share of checks remains quite high at 73 percent, measured as a percentage of noncash retail transaction volume.¹ Chart 1 shows that comparable market shares for Canada and the United Kingdom, two countries which formerly saw wide use of checks, amount to only 36 and 31 percent, respectively.²

Certainly the market for retail payments is an evolving one, and recent years have seen dramatic increases in the use of electronic modes of payment. However, the extent to which electronic forms of payment have substituted for checks is less than what is often supposed. Chart 2 plots U.S. per capita usage of checks, payment cards, and direct bank transfers over the period from 1988 to 1997. Comparable figures for Canada are also plotted. Both countries have seen strong growth in the use of noncheck forms of payment.³ Growth in the use of direct transfers has been very similar in both countries while growth in the use of payment cards (particularly debit cards) has been somewhat faster in Canada than in the United States. In Canada this growth has involved extensive substitution away from check payments, so check usage per capita is actually falling. By contrast, per capita check usage in the United States has actually trended upward slightly over the same period.

The resource costs of maintaining a check-based retail payment system are considerable. Wells (1996, 5) estimates that the cost of a check payment averages about \$1.60 (in 1993 dollars) more than the cost of a payment made electronically via the Fed's

CHART 1 Percent of Total Retail Cashless Payments



Source: Bank for International Settlements, 1998

Automated Clearinghouse (ACH) system, when the costs to all parties are taken into account. While ACH transactions are admittedly imperfect substitutes for checks, it is instructive to contemplate the potential resource savings of moving away from the use of checks to an electronic instrument with the cost characteristics of the ACH. Multiplying the \$1.60 figure by 66 billion checks, an estimate of the savings from moving all check payments to such an electronic payment instrument would be about \$100 billion annually. Even if check usage in the United States were to fall only to the same levels as in the United Kingdom or Canada, the resulting annual savings would still be approximately \$60 billion.⁴

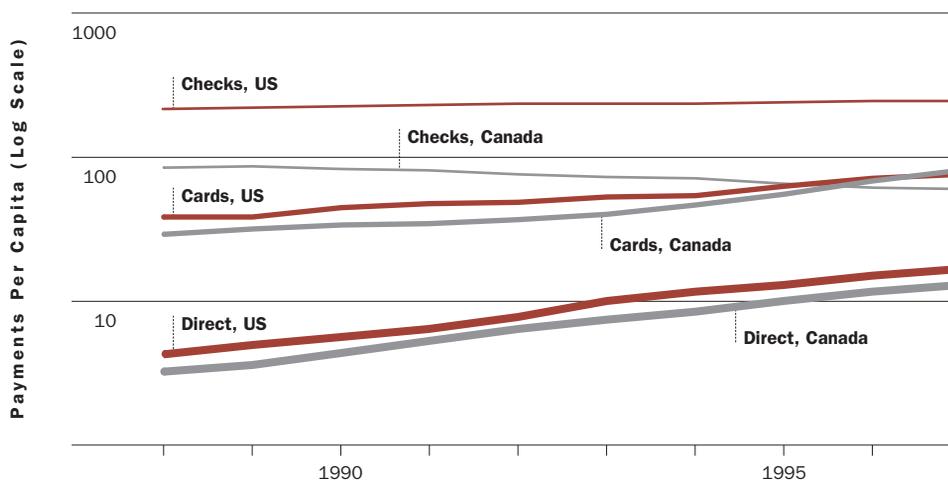
The Check Float Hypothesis

Why do Americans continue to use such an expensive means of payment? According to an influential study by Humphrey and

Berger (1990), one reason is the existence of check float. Check float can be defined as the income earned by the writer of the check between the time a check is received as payment and the time it is settled. Until the check clears and settles, the writer of the check can earn interest on the funds in the account on which the check is written. Given a large enough check amount or a long enough delay in clearing and settlement, the presence of float could lead payors to prefer checks over less costly means of payment that clear on a more timely basis. Using 1987 data, Humphrey and Berger estimate that the average amount of float earned per check more than compensates for the cost advantage of ACH.

On the basis of these results, Humphrey and Berger argue that the continued use of checks constitutes an inefficient outcome or market failure in the following sense. Other things being equal, an increase (or decrease) in settlement times means

CHART 2 Retail Payment Usage in the United States and Canada, 1988–97



Note: Payment cards include credit and debit cards. Direct bank transfers include automated clearinghouse credit and debit transfers (United States), bill payments at ATMs (Canada), and direct debits (Canada).

Source: Bank for International Settlements (1993, 1998)

that interest income is simply transferred from a payor to a payee (or vice versa). Hence, the net or societal benefit of float is zero. On the other hand, because people expend real resources (for example, make use of checks as opposed to less costly means of payment) in order to appropriate the value of float for themselves, float can carry a societal cost. This argument was restated by Lacker (1997), who argues that the inefficiency associated with the continued use of checks results from a divergence between private and societal benefits. Under the current system for clearing and settling checks, Lacker argues, costly attempts to manipulate check clearing and settlement times may have a positive value to private parties (that is, float may accrue to payor or payee) but have essentially zero value to society as a whole.

Other reasons have been offered to explain the continued dominance of the use of checks. Mester (2000) reviews some of these other explanations. One possible reason lies in the large fixed cost necessary to implement an electronic payment instrument on a wide scale. Given the sunk costs of much of the check infrastructure, a high fixed cost for the electronic means of payment might delay its

adoption for a long time.⁵ Another potential explanation is the presence of “network effects” in the use of different payment instruments. It may be, for example, that no other means of remote payment is as widely accepted as the check, and this convenience accounts for its continued use. A final set of reasons points to the characteristics of check payments that differentiate them from current electronic methods. These include such characteristics as flexibility of payment initiation, legal standing, user familiarity, and the automatic presence of a receipt (in the form of a canceled check). It may be that people simply prefer the bundle of characteristics offered by the check to other means of payment.

Given that there is relatively little hard data on check usage, it has been impossible to sort out the validity of the competing explanations for the continued widespread use of checks. The check float hypothesis, therefore, does not suggest that check use would fall to zero without check float but only that float continues to offer a key motive for the continued use of checks. Since the publication of Humphrey and Berger’s (1990) initial study, a number of research papers have explored the role of

1. Measured as a percentage of the value of noncash retail transactions, the market share of checks is even higher at 87 percent.
2. All figures in the paragraph above are from the Bank for International Settlements (1998, 1999).
3. See Weiner (1999) for an extensive survey of electronic payments in the United States.
4. These figures represent very approximate calculations and should be interpreted with caution. A more detailed estimate by Humphrey, Pulley, and Vesala (2000) puts the cost savings from elimination of checks at about \$91 billion.
5. Such costs are unlikely to be unique to the United States, however. The discussion below explains how the current system for check clearing within the United States lessens incentives to undertake investments in electronic payment systems.

checks in the U.S. payment system. While some of these studies disagree with Humphrey and Berger's conclusions, the issue of check float remains central to their analyses. Below, the discussion reviews a number of these studies and their treatments of the float issue, using an analytical framework developed by McAndrews and Roberds (1999). In addition, many papers have discussed proposals for accelerating the movement away from the current, primarily check-based retail payment system to a more electronics-based payment system. Some of these proposals are analyzed in the discussion below, with particular emphasis on their effects on check float.

While the framework of this discussion does not allow identification of any single "best" path to increased efficiency in the U.S. retail payment system, it does illustrate some of the trade-offs that proposals for reform must encounter.

How Does Check Float Arise?

There are several key features of the U.S. check payment system that contribute to the cre-

ation of float. Essentially, these features define certain property rights of the people and institutions involved in the check payment process. A brief description of these will be helpful before proceeding further.

The first feature is that the check payment system is, like the U.S. banking system, highly decentralized. There are approximately 10,000 banks and savings institutions, as well as 10,000 credit unions (henceforth collectively called banks), in the United States. Thus, it is likely that if person A (let's call her Andrea, the "payor") pays person B (Bob, the "payee") by check, then Andrea will pay by a check drawn on a different bank from Bob's bank. If Andrea and Bob had accounts at the same bank, then the check could be settled as an "on-us" item. That is, the bank would simply debit Andrea's account and credit Bob's account in the amount of the check.

Since on-us checks remain the exception within the United States, the allocation of property rights within the check payment system is largely determined by the rules for interbank check settlement.⁶ There are a number of ways in which banks can clear and settle checks among themselves. After Bob

deposits Andrea's check at his bank (bank B or the "depository bank," sometimes referred to in the literature as the collecting bank), bank B can return the check to Andrea's bank (bank A or the "paying bank") by mailing the check directly to bank A or by sending it through a third party (a private clearinghouse, a correspondent bank, or the Federal Reserve System). No matter how the check is cleared, however, in the vast majority of cases, Andrea's check has to physically return to bank A before the bank must make good on the check. This step is necessary because the body of law that provides much of the legal framework for check payments, the Uniform Commercial Code (UCC), allows a bank the right to inspect a check before paying it. This "right to physical inspection" is the second key feature of the check payment system. In practice, it means that checks must (usually) be transported to the banks on which they are drawn before they will be settled. This process, as illustrated in Chart 3, in turn means that check clearing can often be subject to travel delays.⁷

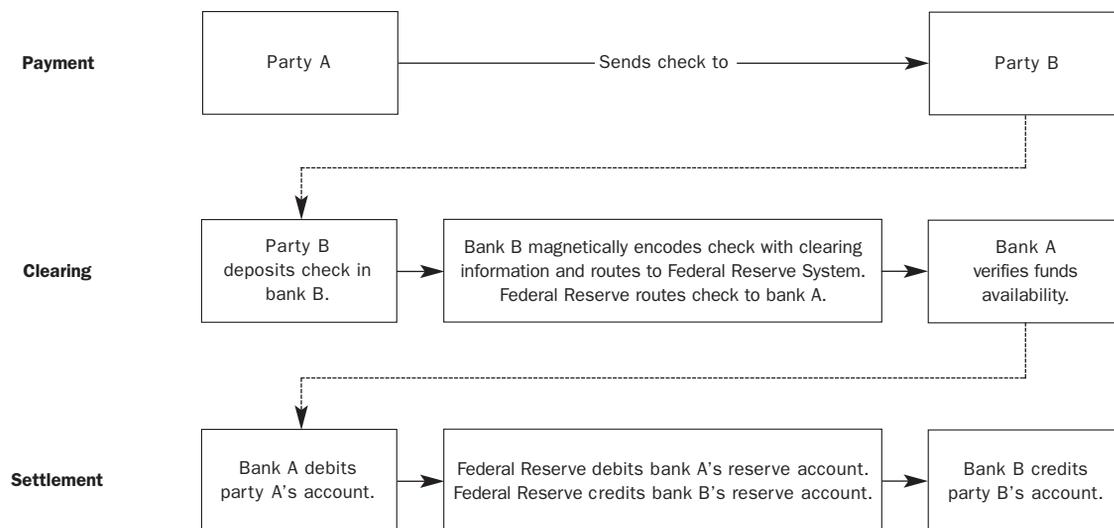
A third key feature of the check payment system is the allocation of the costs of check collection. Currently, a depository bank (bank B in the example) bears the bulk of the costs associated with clearing the check. In other words, a paying bank (bank A) is under no legal obligation to share a depository bank's costs of collecting checks drawn by the paying bank's depositors.

A final key feature of the check payment system is the legal requirement that checks presented for payment be paid at par, or full value. In the context of the example, bank A would have to pay bank B the full amount of Andrea's check to Bob. In practice, such payments are made by transfer of banks' account balances at the Federal Reserve. Note that the requirement to pay at par does not vary with the amount of time it takes to present a given check. As Emmons (1996) notes, this feature of the check payment system implicitly defines a zero interest rate for check funds in the process of collection. Thus, the greater the difference is between the market interest rate and this implicit rate, the greater the incentive to "capture" check float will be.

The example illustrates how the key features of the check payment system could interact so as to influence the choice of payment medium. If bank A and bank B are in the same city, then most likely Andrea's check will be settled within the same day. If, however, Andrea's bank is in a remote location, then several days can pass before bank B can return Andrea's check to bank A. Since bank A pays the same amount on Andrea's check no matter when it shows up, Andrea gains a day's interest and Bob loses a day's interest for every additional day the

Among developed countries, only the United States remains dependent on the use of checks. In 1997, American consumers and businesses wrote an estimated 66 billion checks.

CHART 3 Check Clearing through the Federal Reserve System



Note: Checks are also cleared through the same institution (“on-us”) or through private third parties such as clearinghouses and correspondent banks.

check is delayed. (Check clearing may also be delayed if Bob has a busy day and does not deposit the check as soon as he receives it.)

Here, it may be useful to briefly contrast the clearing and settlement process for checks with that of more automated forms of payment, such as payment cards and ACH transactions. The crucial difference is that clearing and settlement for these types of payments is completely electronic (and therefore to a large extent automatic), making, in turn, the timing of these processes very predictable. For example, credit card transactions generally are cleared and settled within a day. In the case of ACH transactions, the timing of settlement is flexible, but it is also precisely controllable by the payor and payee. The predictability of the clearing and settlement process reduces the scope for people to undertake actions in order to manipulate float since such actions would immediately be observable to the other parties involved in the transaction. Hence, float is generally not an issue for these types of transactions.⁶

The payoff from the float on any single check is usually inconsequential. When aggregated over a

large number of checks, however, float can have significant effects. Suppose, for example, that Andrea owns a business (say, Andrea.com) that must pay many suppliers such as Bob. If Andrea has a choice between paying her suppliers electronically and paying them by check, she may prefer to pay them by check so as to have access to the float. This approach is less efficient than electronic payment from a societal point of view since extra costs are incurred by the suppliers (or by the suppliers’ banks) in collecting Andrea’s checks. Since these extra costs are borne by the suppliers and their banks, they are of no immediate concern to Andrea.

In the meantime, Andrea’s suppliers may have noticed that they are disadvantaged by this arrangement. If they do a significant amount of business with Andrea.com, they may end up negotiating more favorable payment terms. On the other hand, if they only occasionally do business with Andrea’s company, such negotiations may not be practicable. Instead, the suppliers may, with the help of their banks, make use of “accelerated presentment” techniques that speed the processing of

6. About 30 percent of checks written in the United States are on-us, according to Bank for International Settlements (1998) estimates. Rules for interbank check settlement are governed by articles 3 and 4 of the Uniform Commercial Code and by Federal Reserve Regulations J and CC.

7. According to Humphrey and Pulley (1998a, b), the right to physical inspection of a check before payment was originally designed to guard against fraud. Nowadays, such inspection is rarely carried out except in the case of large-value checks.

8. See the U.S. General Accounting Office (1997) for detailed descriptions of the clearing and settlement processes for most types of retail payments.

checks.⁹ While accelerated presentment may improve the situation from the standpoint of the creditors, it further diminishes economic efficiency by incurring a societal cost for an activity (the capture of float) that has little societal benefit.¹⁰

Does Check Float Really Matter?

The foregoing discussion illustrates why check float could cause people to prefer checks over other, less costly means of payment. But does check float have this effect in the real world? It turns out that there are some plausible reasons to suspect that it may not.

Wells (1996) observes that since the appearance of the Humphrey and Berger study, reductions in check-processing times have vastly reduced the value of float for the average checkwriter. Wells calculates the value of float on an average check in 1993 to be about nine cents. For business checks, the amount of float is apt to be higher, averaging about twenty-one cents by Wells's estimate. Since this benefit is less than the difference in cost (to a payor) between a payment by check and a payment using the ACH, Wells argues that in most cases, float cannot explain why checks are the preferred means of payment.

Wells's estimates of float value are for hypothetical "average" checks, which are assumed to clear in one business day (as the vast majority of checks in fact do). But for some payments, particularly those with higher value or those with longer clearing times, the potential value of float might actually be large enough to overcome the cost differential between checks and electronic payment media. Wells argues that the terms of such payments are often negotiable between payor and payee, however. If payment by check is costlier than electronic alternatives, then both sides have an incentive to share the benefits of using the less costly payment medium. Hence checks probably would not be used in these situations, at least on the basis of float-cost considerations.

An earlier paper (McAndrews and Roberds 1999) argues that such negotiation may not be necessary to "even out" the effects of float. The study analyzes two model economies, one in which certain people's payments are subject to float and one in which there is no float. In the first economy, some people are nominally wealthier because they enjoy float—that is, they can collect an extra day's interest on their checks before they clear. However, this income effect is undone by a price effect, as the float beneficiaries bid up the prices of the goods they would like to purchase.¹¹ In general equilibrium (taking movements of all prices into account), float

ends up having no impact. Such a neat cancellation is unlikely in the real world, but one would still expect price effects to undercut the real value of any income effects associated with float transfers. This dynamic would again work to diminish the value of float and lessen the attractiveness of checks as a payment medium.

A Coasian View

While the preceding arguments illustrate why float may be an unlikely explanation for the continued use of checks, they do not conclusively prove the case. Within the payment industry, the business of playing the float "game" (maximizing the float on one's own checks while minimizing the float on others' checks) is still seen as alive and well (see, for example, Humphrey and Pulley 1998b).¹²

In understanding how check float could still be contributing to check use, the Coase theorem offers a useful perspective. The Coase theorem states that efficient outcomes can always be obtained through bargaining among private parties, given an unambiguous initial assignment of property rights and sufficient flexibility to bargain away the initial assignment of rights.¹³ Given the apparent inefficiency of check payment (at least in terms of costs), its persistence thus requires an explanation of why bargaining among private parties (payor, payee, and their banks) has not produced an efficient outcome (greater use of electronics). McAndrews and Roberds offer two such explanations, both of which focus on check float.

The first explanation involves transaction costs and "unpriced float." While bargaining over the terms of payment may make sense for larger or recurring transactions, such bargaining would be too costly in the case of smaller-value or one-shot transactions (and therefore in practice in many transactions involving consumers or small businesses). In the latter case, payees may be willing to simply accept the nominal value of a payment regardless of float considerations. This willingness creates an incentive for payors to try to capture the benefits of float by delaying the clearing of their checks. If only some people are successful at this game, inefficiency results because "winners" overconsume while "losers" underconsume the goods for which float is not priced (if everyone were successful, then prices would adjust in such a way as to eliminate the net benefit of float).¹⁴ Since Wells's (1996) calculations imply that the aggregate amount of check float is relatively small, "unpriced float" cannot by itself carry large societal costs.

Unpriced float, or the threat of being on the losing end of the float game, can also lead to another

type of societal cost, however. This second cost involves the notion of “reliance investments.” Suppose a firm knows that it will receive many relatively small or nonrecurring payments from various customers and it is probably impractical to bargain over float for these payments, given that the firm cannot always identify such customers in advance. In such cases, the firm’s best option may be to undertake a reliance investment (an investment anticipating or “relying” on an initial assignment of property rights) in a technology that allows the firm to accelerate presentment of its customers’ checks.¹⁵ Once the firm has invested in the technology (say, a lockbox service), the firm can quickly process checks at a low incremental cost, which lowers its incentives to employ electronic forms of payment. On the other hand, only by undertaking such investments can the firm fully exercise its property right to prompt payment at par. If the firm does not make the investment, it may end up subsidizing customers with access to float. Inefficiency results because all parties would be better off if they could first negotiate terms of payment and thereby avoid the expense of the reliance investment.

It seems likely that it is the decentralized nature of the U.S. banking system that ultimately allows these inefficiencies to persist. If the U.S. banking system were dominated by a few large institutions, it would be relatively easy for these banks to negotiate a set of rules that would automatically determine the allocation of float in interbank check clearing. Such “Coasian bargaining” becomes more difficult, however, when large numbers of institutions are involved.

To summarize, it is plausible that Humphrey and Berger’s (1990) hypothesis concerning check float can withstand both the weight of Wells’s (1996)

numerical evidence and the application of Coasian logic. Certainly payoffs from playing the float game have diminished since 1987. However, as long as some people believe that they are winners at the game, others will have an incentive to undertake investments so as to avoid being the losers. Once these investments have been made, incentives to switch to lower-cost forms of payment are weakened.

Proposals for Change

How should the United States change the check payment system so as to encourage a more rapid transition from a paper-based to a more efficient and cost-effective electronics-based retail payment system? While there have been many proposed answers to this question, these proposals fall into two broad categories. In the language of Coasian analysis, the first category of proposals would leave the property rights of participants in the check payment system largely unchanged but would seek to make lower-cost reliance investments available to payees and their banks. The second category of proposals would substantially alter the current allocation of property rights with the idea that the resulting modification in incentives would increase the appeal of electronic payments.

The first set of proposals seeks to make greater use of electronic technology in the check collection process, particularly through electronic check presentment (ECP). The term *ECP* is used to describe a collection process whereby the settlement of a check is triggered using information from an electronic file instead of from the paper check itself. Promoting greater use of ECP is an important facet of Federal Reserve System policy in the retail payment area and has also been endorsed by several payment industry groups.¹⁶

9. One such technique is to make use of so-called lockbox operations. These operations are designed to reduce the processing time associated with mailed check payments.
10. Accelerated presentment provides some social benefit by reducing the scope for check fraud. Calculations by Lacker (1997, 15), however, suggest that the marginal benefit associated with fraud reduction is quite small in comparison with the marginal gain from the capture of float. Hence the discussion ignores this potential benefit.
11. In the model, all of the people who enjoy float are identical, so the “income effect” is the same for each.
12. Some support for this view can be obtained by a simple search of the Internet for the term “float management,” which yields more than 200 hits. A search for the more euphemistic but essentially synonymous “controlled disbursement” turns up over 600 hits. The fact that many float management services remain economically viable suggests that the issue of float is far from dead.
13. The theorem is attributed to Coase (1960), who, however, never wrote down a formal statement or proof. Various attempts to formalize the theorem are described in Medema and Zerbo (forthcoming).
14. In practice, most of the winners at this game are likely to be firms since households generally lack the necessary resources to be able to systematically manage float. Humphrey and Pulley (1998a) report that 90 percent of the benefits of float accrue to businesses.
15. For a general discussion of the concept of reliance investments, see Kaplow and Shavell (1999).
16. For Federal Reserve policy, see, for example, Committee on the Federal Reserve in the Payments Mechanism (1998), Greenspan (2000), and Ferguson (2000).

Stavins (1997) conducts a detailed analysis of the potential costs and benefits of a particular type of ECP in which each check is “truncated” at the bank where it is first deposited (each deposited check is immediately converted to electronic form and does not physically go any further). Truncation of a check avoids the costs of physically transporting the check to the paying bank. Stavins finds that a small cost savings (2.59 cents per check) could be obtained if the current check collection system were to be replaced with a system of ECP with truncation.¹⁷

While this result may be seen as encouraging for the use of ECP technology, there exist at least two factors that may serve to limit the potential social benefit of

ECP. The first is that, under the current allocation of rights in the check payment system, banks retain the right to insist on physical presentment, so any participation in an ECP program is purely voluntary. The banking industry as a whole might experience lower processing costs if ECP were universally adopted, but unilateral adoption of ECP by an individual

bank could deny that bank’s customers the benefits of float without any offsetting compensation. For this reason as well as others, the pace of voluntary adoption of ECP has been quite slow.¹⁸

Even if universal ECP proves achievable within a fairly short period of time (say, within the next ten years), its net social benefit would still be suspect precisely for the reasons described in the original Humphrey and Berger (1990) study. As Lacker (1997, 19–21) argues, seen from a pure cost perspective the “electronification” of the check through universal ECP would represent nothing more than a large-scale investment in an accelerated presentment technology. Expressed another way, the universal conversion of check clearing to ECP would, according to this view, amount to the costly construction of another electronic payment system that would compete with already existing systems (such as ACH and payment card technologies). However, if the perspective is that checks offer features that provide some benefit beyond what is available through purely electronic forms of payment—for example, flexibility and familiarity—investment in ECP could perhaps be justified to the extent that participants in the U.S. economy

place a high enough valuation on such features of check payment.

The second set of reform proposals would substantially reallocate property rights within the check payment system. One such reallocation, discussed by Humphrey and Pulley (1998a, b) and Lacker (1997), follows the design of the check clearing system in Canada. There, the dollar amount of inter-bank settlement of a check is generally backdated to the day the check is deposited, thereby eliminating any float advantage accruing to the paying bank or its customers. While such a system would almost certainly lower incentives to capture float, its implementation could be considerably more difficult in the United States than in Canada because of the more complex and decentralized nature of the U.S. banking and legal systems.

Lacker (1997, 18) discusses a related proposal. Under this proposal, par settlement would not be required until five days after a check is deposited. Checks presented before this date would be discounted at a prespecified rate of interest, lessening incentives to undertake accelerated presentment. As with the previous proposal, the underlying idea would be to lessen incentives to capture check float by bringing the implicit interest rate on check funds in the process of collection into alignment with market interest rates.¹⁹

Humphrey and Pulley (1998a, b) consider another type of property rights reallocation, which would have the effect of compelling greater use of ECP technology. Under this second type of reallocation, the UCC would be altered so that paying banks would either (a) cede the right to physically inspect checks before payment and agree to pay checks presented via ECP or (b) retain the right to inspection (most likely in the case of large-value checks) but agree to compensate collecting banks for the ensuing float costs. This approach would allow banks to retain the right to physical inspection in the cases in which it most mattered (where serious fraud is suspected) but would also give banks an incentive to minimize float costs when losses from fraud would be unlikely or immaterial.

Another method for reallocating property rights in check payments would be to introduce truncation technologies that automatically convert a check into another form of payment. Several industry groups are beginning to implement such technologies, which convert checks into electronic “debits” that are cleared either through the ACH or through ATM networks.²⁰ These technologies are seen as most applicable to point-of-sale (POS) transactions between merchants and consumers. In this type of transaction, a consumer writes a check and hands it to the merchant, who scans in the necessary infor-

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mation from the check. The check is then returned to the consumer. Precisely speaking, such technologies do not reallocate property rights within the realm of check payments because a POS-truncated check payment no longer represents a check in a legal sense. However, the result is much the same since these technologies in effect offer consumers an easy way to cede their bank's right to physical presentment of their check without sacrificing the convenience or familiarity of writing a check.

All of these changes in the allocation of property rights could be (to varying extents) subject to the same criticism as simple voluntary adoption of ECP, namely, that they could result in large investments in payment technologies that would largely replicate existing systems. In addition, reallocation of property rights would almost certainly be disadvantageous to some beneficiaries of float under the current system. That is, some parties paying by check and enjoying a float benefit would lose while payees would gain. Even if the resulting system were superior to the present one in terms of economic efficiency, the accompanying distribution of gains and losses could make a reallocation of property rights difficult to implement.

Nonetheless, a precedent does exist for the reallocation of property rights within the check payment system. Prior to the 1920s, it was not customary for banks to pay checks at full value unless they were presented directly (that is, in person and not through the mail) or presented through a clearinghouse or correspondent. Instead, paying banks would often deduct a presentment fee before payment. The traditional view of the pre-1920s check payment system is that it led to circuitous and inefficient routing of checks in an attempt to avoid such fees.²¹

Nonpar payment of "remotely presented" checks largely came to an end with the Federal Reserve's entry into the business of check clearing. The Fed enforced par clearing among the member banks in the Federal Reserve System and used a variety of methods to encourage nonmember banks to clear at par. As documented by Gilbert (2000), the changeover to par clearing allowed banks to clear checks more quickly and to reduce cash balances necessary for settlement. Lacker, Walker, and Weinberg (1999) argue that while the Fed's entry may not have increased the overall economic efficiency of the check collection system, it almost certainly shifted property rights within the system.²² As paying banks lost the right to deduct presentment fees, costs were shifted away from collecting banks and toward paying banks. The ultimate effect of various proposed changes of property rights within the check collection system would constitute a further reallocation of costs in much the same direction.

Conclusion

The U.S. retail payment system is in many ways a remarkable structure, handling more than 90 billion noncash transactions each year with a low rate of error and fraud. However, by continuing to rely on checks for the bulk of such payments, the United States may be paying as much as \$60 billion to \$100 billion more than it needs to for payment services.

One reason people continue to use checks is that the current allocation of property rights within the check payment system allows some payors to benefit from delays in check clearing times. Although the incentives to capture check float are less now than at other times, the opportunity costs associated

17. Implementation of another version of ECP has been under way for some time under the auspices of the Electronic Check Clearing House Organization (ECCHO). Begun in 1990, this version of ECP uses an approach called "Electronic with Paper to Follow." In other words, the paper check is still returned to the paying bank, and it is the delivery of the paper check, in most instances, that constitutes presentment and triggers settlement of the check. The delivery of the check information electronically allows paying banks to deduct funds from its customers' accounts prior to the arrival of the paper check, which "increases banks' investable funds," (ECCHO 2000, 4). In contrast to the proposal analyzed by Stavins (1997), this system reduces the risks of check fraud and of payment being released against accounts with insufficient funds but does not offer payees the inducement of earlier funds availability.
18. A recent Government Accounting Office report (U.S. General Accounting Office 1998) indicates that, in addition to loss of float, adoption of ECP has been hindered by the following factors: loss of canceled checks, diversion of banks' computer resources to Y2K problems, and banks' concerns about increased vulnerability to fraud.
19. If prices of goods bought with checks remained the same, this proposal could be seen as transferring income to check writers and therefore encouraging check use. In practice, one would expect that payees would discount checks and that nominal prices would adjust upwards, canceling this effect.
20. See, for example, Marjanovic (1998, 1999, 2000).
21. See Gilbert (2000) for a detailed analysis of the traditional view.
22. In particular, they note that no cost data has been produced showing that average (systemwide) check-processing costs fell after the introduction of par clearing. Hence it is possible that the main effect of the changeover to par clearing was simply to reallocate rents.

with “playing the float game” likely still form a significant component of the overall costs of the retail payment system.

Market forces have already led to considerable substitution of electronic forms of retail payment for checks over the last decade. However, the pace of substitution has been noticeably slower in the United States than in other countries, suggesting that some intervention may be necessary to encourage greater use of electronics. Proposals to this effect have focused on either voluntary adoption of check electrification technologies or on

reassignments of property rights within the check payment system. While both types of proposals hold some promise, they are also subject to the criticism that they could result in duplicative and potentially inefficient investment. In addition, some proposals could redistribute rents across payment system participants in a way that would make the proposals difficult to implement politically. Over the near future, policymakers will need to confront the issue of whether these drawbacks outweigh the potential benefits of a faster transition to a more efficient payment system.

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