

Federal Reserve Bank of Cleveland

When Is Checkout Time?

by Paul W. Bauer

"They always say time changes things, but you actually have to change them yourself."

—Andy Warhol (1928–1987),
The Philosophy of Andy Warhol

The death of paper checks has been predicted for many years. Starting in the 1960s, futurists thought that computers and electronic networks would replace paper checks, long the leader in noncash retail payments. Yet in 2000, 42.5 billion paper checks were still being written. What such prognosticators forgot was that economic agents have to have an incentive to change their behavior because there is always some cost for changing it.

Converting large-value payments turned out to be fairly straightforward because they generally occur among financial institutions and large businesses. For some time, the benefits of converting these large-value transactions from paper-based instruments to electronic ones more than offset any transition costs. By 1987, electronic payments, mostly in the form of wire transfers, accounted for 83 percent of the total value exchanged in trade, while paper checks accounted for only 16 percent. Thus for large-value payments, the futurists essentially got it right.

However, for retail payments, which are far more numerous than large-value payments but for much smaller sums on average, the best we can say is that rumors of paper check's demise were premature. What was not understood was how much more challenging it would be to convert retail payments that take place among millions of consumers and thousands of small businesses from paper instruments to electronic ones. This process has only just begun to occur in a significant way within the last 15 years.

Estimates suggest that as recently as 1987, most transactions were conducted with cash (83 percent), while a sizeable chunk was still done by check (almost 15 percent). Electronic payments were practically nonexistent: All forms of electronic payments together totalled less than 0.5 percent of all transactions ("The U.S. Payment System: Efficiency, Risk and the Role of the Federal Reserve," by Allen Berger and David Humphrey, 1990). Thus, while the value exchanged in trade had largely gone electronic by 1987, the vast number of small-value transactions had not.

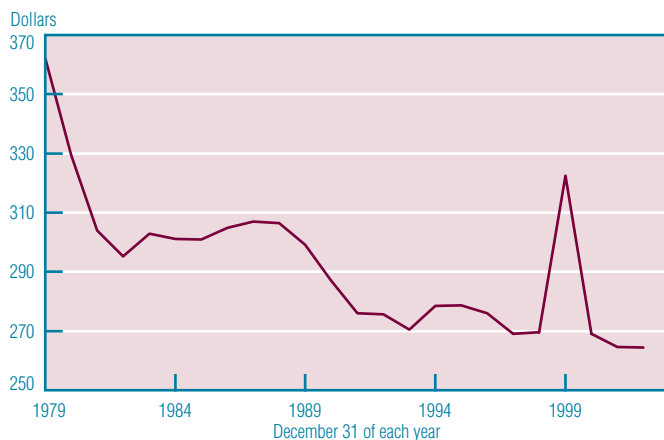
Over the last few years, the cost of providing electronic payment services has fallen, so much so that, in many cases, payment providers can offer consumers incentives to use their electronic instruments while still lowering merchants' overall cost of handling these payments. Consumers are responding. A comparison of the shares of various payment instruments in 1987 with those for 2000 shows that the payments market has changed significantly (the 1987 estimates are from the Berger and Humphrey article cited above, and the 2000 estimates are from a survey conducted by the Federal Reserve in 2001 of depository institutions, electronic payment networks, and card issuers). In 1987, checks were the dominant form of noncash payment, accounting for 85 percent of all the transactions that weren't conducted with cash. By 2000, check's share had taken a dive, falling to 59.5 percent. Retail electronic payments, a blip on the radar in 1987, were starting to take over. In 1987, they accounted for less than 2 percent of all noncash transactions; in little over a decade they had grown to 40.5 percent. (Other forms of noncash retail payments in 1987 were credit cards—then considered nonelectronic—travelers checks, and money orders.)

The death of paper checks has been predicted since the 1960s, but only recently has their use begun to decline. The end may be near, though, as two forces accelerate the trend away from checks: the growing acceptance of electronic payment instruments and the passage of legislation designed to reduce our reliance on paper checks.

Evidence from other sources suggests that electronic payment instruments are making inroads against paper currency as well. The real value of small-denomination notes in circulation, the type most frequently used in retail transactions, has been falling since the late 1980s (see figure 1). Except for a brief surge just before Y2K, real per capita currency holdings have fallen 27 percent over the last 25 years, even though real per capita personal consumption expenditures have increased 68 percent.

Electronic payment instruments should offer consumers and merchants better features and cost less than paper checks. These benefits will accrue much more quickly than was anticipated just a few years ago. The shift away from paper payments, promised at the dawn of the computer age, seems to be finally gaining momentum. Two forces are working to accelerate the trend. First, electronic payment instruments, such as credit, debit, and point-of-sale (POS) cards, are becoming more and more widely accepted, and network economies are likely to lead consumers and businesses to use and accept these competing instruments more and more often. Second, recent legislation, known as Check 21, helps set the stage for the day when

FIGURE 1 REAL VALUE OF SMALL-DENOMINATION NOTES PER CAPITA (\$1, \$2, \$5, \$10, AND \$20)



SOURCE: Board of Governors of the Federal Reserve System.

more banks will be willing to accept electronic presentment of checks. Because of this and other legal changes, even when consumers do write paper checks, they will be increasingly cleared and settled electronically.

■ Network Economies and Technology

Credit, debit, and POS cards are not new, but their use has exploded over the last few years. Part of the reason appears to be the result of network economies. Network economies occur when the benefits of a good or service to an individual increases as more people use it. The classic example is the fax machine. Fast, small, and efficient fax machines became available in the 1970s, but they did not take off until the late 1980s. As more people owned fax machines, the benefits to existing owners increased because they could communicate with more people. The benefits to carrying credit and debit cards similarly increase as more stores and businesses accept them. Consequently, there is less need to carry cash or checks.

On another front, automatic electronic bill payment of mortgages, car loans, and utility payments by ACH (automated clearing house, an electronic substitute for checks developed in the 1970s) has become more common, but a drawback to their acceptance has been that many consumers do not like losing the control over when their payments are made. Currently, there is a pilot program under way that may eliminate this drawback. It's called the Electronic Billing Information Delivery Service,

or EBIDS. EBIDS allows companies to deliver billing information electronically using the ACH. Consumers receive notice of the bill through their online account with their financial institution, and they can then authorize the payment when it is convenient to them. The sponsors of EBIDS hope that this approach will eventually serve as a model for the universal electronic distribution of consumer bills to the 20,000 financial institutions that use the ACH network.

Switching to an EBIDS-type model offers potential benefits to billers, financial institutions, and consumers, so all parties could have an incentive to incur the transition costs required to make this change. Everyone could benefit from the likely lower costs and increased convenience. Consumers, in addition to retaining control over the timing of their payments, would have access to more of their bills at one location, and consumers' financial institutions would be able to offer enhanced online banking services. Finally, billing companies and their financial institutions should see cost savings in processing payments, in part because they would then be receiving nonrevocable ACH credit payments.

■ Legal Innovations

Two legal innovations are likely to speed the shift away from paper checks. First, beginning in 2002, a change in the regulation that governs the way banks conduct electronic funds transfers—known to bankers as Reg E—allows a variety of consumers' check payments to be converted to electronic items. For example, many consumer bills are paid by mailing

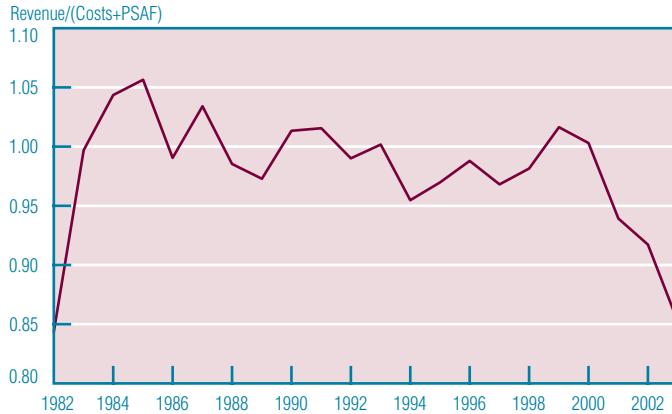
checks to lockboxes, mail handling facilities that accelerate the processing of consumer payments for entities that receive large volumes of consumer payments, such as utilities and credit card companies. Under the new Reg E, with prior notification, these lockboxes can now convert paper checks to electronic items. As more and more lockbox operations adopt this practice, more and more payments that start off as a paper item will be cleared and settled electronically. Another example of a payment originating as a paper instrument but being cleared and settled as an electronic item is a point-of-purchase (POP) transaction. With POP, a consumer writes a check for a purchase and, with his approval, the item is scanned at the register and converted to an ACH item for collection.

A potentially bigger change has just taken effect. The problem of clearing paper checks when all civilian flights were grounded after 9/11 provided the impetus for passing the Check 21 legislation. As of October 28, 2004, this act reduces some of the legal impediments to check truncation, the conversion of a paper check to an electronic debit or image, and should help foster innovation in the payments system, enhancing its efficiency. The law creates a new negotiable instrument called a substitute check, a printed image of the front and back of the original check. Such substitute checks will be the legal equivalent of the original check.

For example, when a customer deposits a check drawn on another bank, his or her bank will be able to truncate the paper check and process that check's information electronically. If the bank on which the check is drawn insists on receiving the paper check, the new, legally binding substitute check could be printed at a correspondent institution near the paying bank. Lawmakers explicitly chose not to force banks to accept electronic images, choosing instead to let the market decide how quickly banks adopt new practices. The law is intended to induce voluntary innovation to promote efficiency, as under the law, banks will not be required to accept checks in electronic form nor will they be forced to create substitute checks.

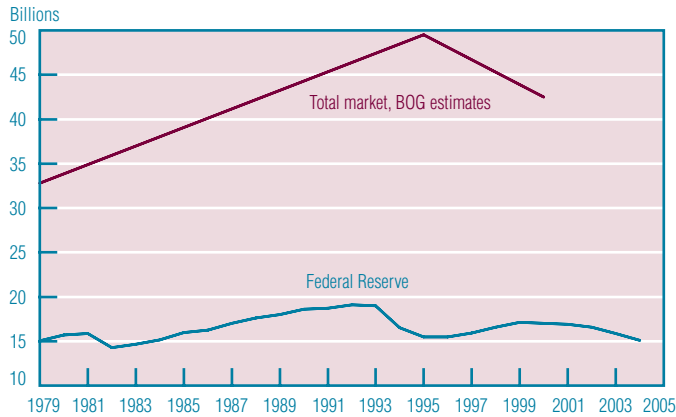
Notice that with both of these legal innovations, even when a payment begins life as a paper check, increasingly the payment will be processed electronically, thus speeding the processing time.

FIGURE 2 CHECK COST RECOVERY RATE



SOURCE: Federal Reserve Bank of Atlanta.

FIGURE 3 CHECK VOLUME



SOURCE: Board of Governors of the Federal Reserve System.

■ Implications for Reserve Banks

The decline in paper checks has important implications for the 12 Reserve Banks of the Federal Reserve System. While the Reserve Banks have been involved in check processing since the system’s founding, not until Congress passed the Monetary Control Act (MCA) of 1980 were the Reserve Banks required to price their services. The act, which was intended, in part, to increase competition and efficiency in the market for correspondent banking services such as check clearing, required Reserve Banks to set fees that, over the long run, recover all the direct and indirect costs actually incurred in providing priced services such as check, ACH, and Fedwire (a large-dollar-value interbank payment mechanism). These costs include interest on items credited prior to actual collection, overhead, and an allocation of imputed costs that takes into account the taxes that would have been paid and the return on capital that

would have been provided had the services been furnished by a private business firm. This means that not only do Reserve Banks have to recover their actual costs across all priced services over time, they must achieve the same degree of profitability that private providers do. Of course, the Federal Reserve has other objectives that it must simultaneously pursue, such as helping to maintain the safety and soundness of the payment system, so it must be careful not to operate in a way that is disruptive to the system.

Since 2000, Reserve Banks have struggled to try to meet this standard of profitability (see figure 2). If check processing were a small sideline, its decline would require a minor institutional change, but check accounts for about 40 percent of employment at Reserve Banks, if one counts not only direct check employees but also the support staff they require. In February 2003 the Reserve Banks announced that

check processing at 13 of their 45 sites would be discontinued and that check-adjustment functions (resolving any check-processing errors) would be consolidated at 12 sites, down from 43. Nine more closings were announced last August and scheduled to take effect in 2005 and 2006, and more may be required if current check volume trends continue.

The volume of checks processed by Reserve Banks, which last peaked in 1999 (see figure 3), will certainly decline further, but how much, how fast, and when are not easy to predict. A first approximation is to assume that the Reserve Banks’ volume will decline at roughly the same rate as the overall market. Determining this rate is somewhat tricky, because hard data on overall check volume is sparse. In 1979 the Federal Reserve conducted a survey that estimated the overall check volume, but the next survey for this purpose was not released until 2001. In the intervening years, the Board of Governors estimated check volumes using a combination of discussions with check printers and other industry experts and later by looking at movements in real personal consumption expenditures. For 1995, for example, the estimate was 63 billion items. When the 2001 survey found only 42.5 billion items for 2000, it came as quite a surprise. Geoffrey Gerdes and Jack Walton, II, found evidence that the decline had likely begun during the late 1990s. Using data originally collected for 1995 for a report to the Congress on funds availability and check fraud, they estimated there were 49.5 billion check items for that year (*Federal Reserve Bulletin*, August 2002). Thus, overall check volume had fallen about 3 percent per year on average from 1995 to 2000 (see figure 3). We will have much more current information when the Federal Reserve releases its next survey of retail payments late in 2004.

But how valid is the assumption that Reserve Bank volume will decline at the same rate as the overall market? Until the declines actually started, many believed that Reserve Banks would not be too affected by the eventual fall in overall check volume, at least in the short run, and that they might even benefit initially: As overall volume declined, the Reserve Banks might continue to gain volume and market share as other providers left the interbank check market.

However, the smaller overall market estimate first found in the 2001 survey makes it nearly impossible that the Reserve Banks' volume will increase. Instead of the Reserve Banks having 35 percent of the interbank market for check clearing in 1995, as had been supposed, they actually had 44 percent. By 2001 their market share had risen to 56 percent. The higher market share is significant because the Reserve Banks do not have a very good chance of attracting the remaining 44 percent. Most importantly, roughly 29 percent of all checks are "on-us" items, meaning that the person writing the check and the person cashing the check bank with the same institution, so that these items do not require outside processing. Also, a significant number of checks are cleared by direct presentment (for example, two banks running a shuttle van to exchange checks periodically). Commercial banks have been merging, so there will be more "on-us" items and direct presentment will become more attractive. Consequently, it is likely that Reserve Bank volume will decline more quickly than the overall market.

In addition to boosting productivity, new technology can sometimes cause some painful adjustments to existing firms and their employees, but the Monetary Control Act is working as legislators intended. They wanted the Reserve Banks to compete on an equal basis with private providers so that technology and consumer preferences would determine the outcomes in payment markets. The act gives Reserve Banks a clear yardstick to measure their performance and profitability. If they are failing to meet this yardstick, the market is telling them they need to do things differently. Reserve Banks have been adapting rapidly, consistent with their other goal of ensuring the safety and soundness of the payments system, and are likely to continue to be a major payments player, albeit likely one with fewer employees.

So, "When is checkout time?" Rather than dying out completely, checks, like old soldiers, are more likely to fade away, as fewer checks get written and as those that do are increasingly settled electronically.

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