



The Check Is Dead! Long Live the Check! A Check 21 Update

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Check 21 legislation has enabled the check clearing system to transform from paper to electronics, and much more rapidly than some had predicted. As a result of competition with other payment methods, check use has been declining since the mid-1990s, but because of the rapid adoption of electronic payment methods, checks are evolving and are unlikely to disappear anytime soon. Checks are still a convenient way to initiate some payments, and electronic processing has only made them more competitive with all types of electronic payments.

The Check Clearing for the 21st Century Act (Check 21), signed into law in 2003 and effective one year later, was intended to foster innovation in the payments system and enhance its efficiency. Although conceived before September 11, 2001, Check 21 attained new urgency after the terrorist attacks led to the grounding of commercial air travel for several days. During that time, many checks could not be cleared because clearing required that the checks be returned to the paying banks—and timely delivery between regions relied on air transportation. Grounded checks peaked at a value of over \$45 billion, highlighting the risks associated with a national payment system dependent on air transportation.

Check 21 was designed to encourage the use of electronic check clearing but not mandate it. Before Check 21, paying banks were permitted by law to insist that they receive the original paper check (“presentment”) before they transferred funds. Check 21 authorizes a new paper negotiable instrument called a “substitute check,” which contains a printed image of the front and back of an original paper check and is suitable for automated processing. The substitute check is the legal equivalent of the original and must be accepted by any bank that demands presentment of a paper check for payment. By permitting the creation of substitute checks, Check 21 removed a key legal impediment to the replacement, during the collection process, of paper checks with electronic information (“check truncation”).

At first blush, all this may sound odd: If electronic check clearing methods improve efficiency and robustness, why did it take an act of Congress to promote them? From an economic perspective, Check 21 fosters innovation by solving a major coordination problem. In the United States there are thousands of depository institutions that, in the absence of Check 21, would have had to agree simultaneously to implement a change to electronic check clearing. But not every bank has the same incentive to adopt such a change. Some banks, for example, stood to lose interest

on float if the use of electronic clearing methods sped up check processing. Other banks might not have been willing to make changes to their processing operations without the assurance that many other banks would do likewise. The option to use a substitute check permits banks to unilaterally replace the original paper check with an electronic image and process that information electronically for at least a portion of the clearing process, creating substitute checks only for banks that require paper. This allows banks that want to convert to electronic clearing to do so without enlisting the cooperation of others.

While the option to use a substitute check, although costly, is useful in many situations, it has also become a catalyst for the transformation of our paper-based check clearing system to an all-electronic system. As cost reductions and quality improvements at banks using electronic clearing and Check 21 authority are realized, competitive pressure and other incentives should eventually lead almost all banks to adopt electronic check clearing methods.

Even though the check market is still adapting to Check 21, sufficient time has passed to make a preliminary assessment of it. This *Economic Commentary* looks at the resulting changes to paper and electronic check clearing volumes, the benefits to consumers and payments processors, and the impact on costs. This evidence supports the view that, while checks were unlikely to disappear completely from use even without Check 21, the new law has given checks greater flexibility to adapt to the needs of the payments marketplace.

Transition to Electronics

In the 1970s, credit cards made a transition from paper similar to the one the check is now undergoing, beginning with an electronic clearing and settlement system known now as VisaNet (the first major electronic credit card clearing system). Although credit cards are now almost exclusively cleared electronically, the majority of credit card transactions involved the processing of paper vouchers well into



the 1980s, more than a decade later. The check's transition from paper to electronic clearing has been rapid in comparison. According to a 2008 report by Geoffrey Gerdes, the proportion of checks that were truncated (and presented as a substitute check or electronic image) had reached over 40 percent by early 2007, with the number of checks presented electronically having tripled over the previous year, highlighting the dramatic change allowed by Check 21. Electronic presentments (checks received by paying banks) have lagged electronic deposits (checks deposited by collecting banks) because they require more changes to banks' operations than the latter and because of paying banks' ongoing incentives to delay the release of funds to the collecting bank.

Seeing the opportunity to accelerate the consolidation of their paper check processing operations and reduce the use of substitute checks, Federal Reserve Banks began to offer banks that deposit checks electronically discounts to also accept electronic presentments. Other intermediaries have also offered incentives to use electronic processing.

The fact that banks have responded to these incentives, as well as to their own need to reduce costs and modernize their payment operations, reveals that many banks, and probably their customers, prefer electronic methods and have determined that the benefits of switching to electronic processing exceed the costs.

Detailed data from the Federal Reserve Banks, which process a large share of all interbank checks, indicate that paper has been rapidly eliminated from the check processing stream, even as overall check volume has declined (see figure 1). The adoption of Check 21 processing accelerated rapidly after 2006. Image deposits led image receipts throughout that period and, as a result, the number of substitute checks rose sharply at about the same time. However, as more depository institutions accept electronic presentment, there is less need for substitute checks. Substitute checks processed by the Reserve Banks peaked in the first quarter 2008 and have declined ever since. And the number of paper checks presented in their original form through the Reserve Banks has become negligible.

By the second quarter of 2009 (the most recent full quarter for which data are available), the authors' calculations indicate that paper deposits had declined to fewer than 4 percent of checks processed at the Reserve Banks, and image deposits had exceeded 96 percent. Paper presentments had declined to about 20 percent of all presentments for the same period, and image presentments had reached about 80 percent.

Not all of the credit for the paper-to-electronic transition goes to Check 21. One method of check replacement that has accelerated the decline in the number of checks paid, but not the number of checks written, is check conversion. This process allows merchants and billers to turn their customers' checks into automated clearinghouse (ACH) payments, a type of electronic funds transfer. While some checks are converted when they are tendered at the point-of-sale or in the back offices of merchants, most are converted

after being mailed to "lockboxes," servicers designed to process paper bill payments as rapidly and efficiently as possible. The number of checks converted to ACH payments has grown rapidly, and by the last national assessment in 2006 they had reached nearly 10 percent of all checks. More recently, lockboxes have begun to image some checks using Check 21 authority, primarily corporate checks and exceptions that have been more difficult to convert to ACH payments than consumer checks.

Qualitative Benefits

Most of the steps required to process checks take place far out of sight of check users, who mainly care that the right amount is deposited to (or deducted from) their accounts in a timely manner. Yet Check 21's substitute checks are an innovation that cannot help but be noticed since check writers do not receive their original checks back. However, a consumer survey in a recent GAO report found consumers had few complaints about substitute checks and were satisfied with their paper-based image statements. Most of those surveyed also appreciated the added convenience of online access to electronic images, which has been made possible because of image processing and online banking.

A clear goal of Check 21 was to improve the overall efficiency of the nation's payments system. Encouraging depository institutions to switch from a paper-based infrastructure to an electronic one was seen as an important way to improve the robustness of the system. As a result of Check 21, the Reserve Banks were able to begin scaling back the specialized air courier flights they used to transport checks between Reserve Bank offices. These air courier arrangements have now been eliminated.

Check 21 has also allowed the Reserve Banks to speed up the consolidation of their check processing offices, which they had begun when it was clear that the volume of checks was on the decline. One significant benefit consolidation provides to depositors is that it will make funds from check deposits available to them more quickly. Under Regulation CC, which implements the 1987 Expedited Funds Availability Act, checks that are exchanged between banks within the same Fed processing region are classified as local, and funds on deposited checks must be made available within two business days. Checks exchanged across Fed regions are classified as nonlocal, and banks normally have up to five days to make funds available. Because of consolidation, nonlocal checks will disappear by the first quarter of 2010, when all Fed processing of paper checks will occur at just one office (the Cleveland Federal Reserve Bank).

Cost Savings?

While it is fairly easy to document the qualitative benefits to consumers and to market resiliency, determining the cost savings from Check 21 is more difficult. A major obstacle is that detailed cost data from all parties involved in a check transaction are not available.

Indirect evidence of cost savings is that depository institutions have voluntarily moved from paper to electronics—in

fact, much more rapidly than had originally been anticipated. That depository institutions chose to switch indicates that they at least anticipate their costs will be lower over time.

More directly, we can look at Reserve Banks' check collection costs, which are mostly based on the costs of clearing and settling checks for banks. Clearance and settlement costs, however, comprise less than 15 percent of all the costs incurred by payors, payees, and any intermediaries associated with checks (printing, distributing, writing, and cashing), according to a 1996 study by Kirstin Wells. And Reserve Banks clear only about a third of the nation's checks. Even so, their costs should be informative because the processes at Reserve Banks and commercial providers are broadly similar. Reserve Banks must price their payment services to ensure cost recovery (explicit costs plus adjustments to account for other factors that would affect a private-sector firm), and thus face competitive pressure to control costs.

Comparing costs over the period since the implementation of Check 21 is tricky because the electronic channel was being constructed as the paper one was being downsized. One source of cost savings has come from operating fewer processing offices. Reserve Banks had planned some consolidation before the passage of Check 21, but the ability to truncate original checks and print substitute checks, if necessary, allowed the process to be accelerated. Reserve Banks operated 45 paper check processing offices before Check 21, but as mentioned, soon there will be only one.

Eliminating air transportation, as mentioned above, yielded further cost savings. Any remaining original paper checks are now shipped by the U.S. Post Office or other mail carriers.

Despite these documentable cost savings, real average costs per item trended up initially after the implementation of Check 21 (see figure 2). These average costs already exclude easily identifiable short-term transition costs, so why did they increase? First, a key factor could be that there are

scale economies (normally defined as falling average costs as output increases) in the provision of check processing. But for checks, overall output is falling, so scale economies would lead to an increase in average cost. Second, the average costs reflect paper and images being processed concurrently, with many images still resulting in expensive substitute checks. So some of the rising average cost comes from paper processing costs that will be eliminated in the future. This may already be happening, as unit costs have fallen more than 25 percent from their peak at the end of 2006.

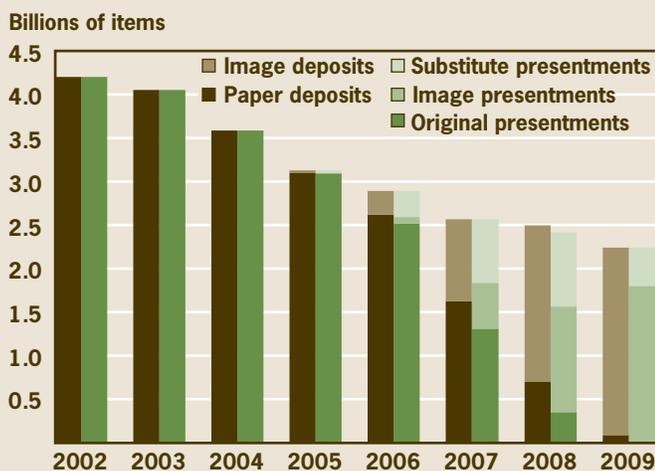
If we could filter out these effects, it is likely we would find substantial scale economies in image processing—just as with other electronic payments. As paper comprises less and less of the processing stream, average check costs will continue to decline as they have in recent quarters and should begin to come close those of ACH. In the long run, the difference in costs between the two should shrink. To fully achieve potential cost reductions, paper must be eliminated from the check processing stream, an outcome that may ultimately require additional incentives to achieve.

Going Forward

The reasons people and businesses select one payment instrument over another are imperfectly understood, but one thing is clear: All else equal, Check 21 makes checks more competitive with other payment options because checks retain the properties that have made them popular in the past, while gaining the advantages of clearing electronically like credit and debit cards and ACH. It is possible that, in the future, checks may find a niche solely because accepting a check does not require as much start-up infrastructure as card acceptance does, and yet the electronic nature of check clearing will allow users and payments providers to interface with other electronic information, infrastructure, and devices, allowing them to use checks in innovative ways.

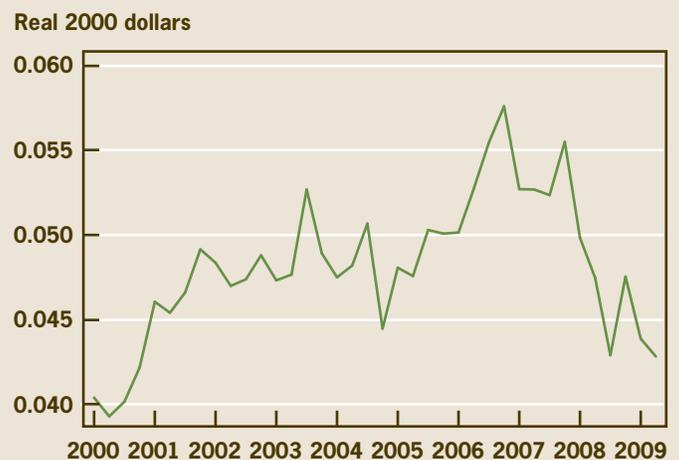
Note that Check 21 has allowed innovation not just at financial institutions and Reserve Banks. To save time and money, many individuals and businesses have entered into agreements with

1. Check Deposits and Receipts at Reserve Banks by Type



Note: The data are for the second quarter of each year.
Source: Federal Reserve Retail Payments Office.

2. Average Check Processing Costs



Source: Board of Governors of the Federal Reserve System and authors' calculations.

their banks to image the checks they receive and send the data to their banks electronically. In this new environment, the distinction between checks and other noncash payments such as cards and ACH is blurring.

Looking ahead, while payment innovations will continue to whittle away at check's overall share in total payments, check volume will likely stabilize, with billions of checks being written well into the future. Also, the market for payment services will continue to evolve. Competition among payment instruments will allow cost savings, product innovation, and quality improvements under ordinary market conditions, and the transition of checks to a more robust electronic clearing mechanism should promote market resiliency during more unusual times, reducing risks from a variety of threats from terrorists to natural disasters.

Recommended Reading

"Market Failure and Resource Use: Economic Incentives to Use Different Payment Instruments," by David Humphrey and Allen Berger. 1990. In *The U.S. Payments System: Efficiency, Risk, and the Role of the Federal Reserve*, edited by David Humphrey. Boston, Kluwer Academic Publishers.

"Recent Payment Trends in the United States," by Geoffrey R. Gerdes. 2008. Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*. October, A75–A106.

"Check 21 Act," by the United States Government Accountability Office, 2008. Report to Congressional Committees, GAO-09-08, October.

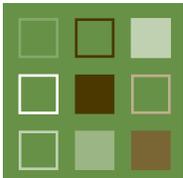
"September 11 and the Payments System," by the Board of Governors of the Federal Reserve System. 2001. 88th Annual Report, 174–5. www.federalreserve.gov/boarddocs/rptcongress/annual01/default.htm.

"Are Checks Overused?" by Kirstin E. Wells. 1996. Federal Reserve Bank of Minneapolis. *Quarterly Review* 20(4), 2–12.

"Why are (Some) Consumers (Finally) Writing Fewer Checks?: The Role of Payment Characteristics," by Scott D. Schuh and Joanna Stavins. 2009. Federal Reserve Bank of Boston, working paper no. 09-1.

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