

# ELECTRONIC PAYMENTS IN RETROSPECT

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The "cashless and checkless" society has been a dominant theme in the thinking of bankers for twenty years. Because electronic funds transfer (EFT) represents a breakthrough in the payment process, most discussions of electronic payments have dealt only with expected future developments. In contrast, this article focuses on the lessons of the past. There is now enough experience with EFT to permit a meaningful historical examination of the uses and successes of electronic payments.

## Electronic Payments Overview

Before conducting this examination, it is useful to review the types of electronic payments that are currently in use. The oldest and most mature EFT system is Fedwire, the Federal Reserve's large-dollar funds transfer service. Fedwire is used for time-critical payments, like interbank purchases and sales of overnight funds, real estate closings, and so forth. The average value of a Fedwire payment is about \$2.6 million. The New York Clearing House Association also operates a large-dollar funds transfer system called Clearing House Interbank Payment System (CHIPS). CHIPS is primarily used for dollar denominated, foreign exchange, and international trade payments. The average value of a CHIPS payment is about \$3.0 million.

The remaining EFT systems are principally consumer oriented. They include the automated clearing house (ACH), automated teller machine (ATM), and point-of-sale (POS) systems. The ACH is a value-dated mechanism; that is, payments settle one to two business days after they are originated. ACH payments consist primarily of social security and salary payments, and preauthorized insurance premium debits. The ACH is also used by corporations to concentrate cash balances and is beginning to be used for vendor payments. In contrast to Fed-

wire and CHIPS, the ACH is primarily a small-dollar mechanism. The average value of an ACH payment is about \$3,300, and over 80 percent of all ACH payments have a value of \$1,000 or less.

ATM networks are primarily used for cash withdrawals. The average ATM transaction is very small, about \$40 per transaction. ATM networks process the highest volume of all EFT systems. POS systems permit consumers to pay for purchases through direct debits to their accounts. Like ATM transactions, POS transactions are small-dollar payments, averaging about \$25 per transaction. Some POS systems are on-line, real-time systems that transfer funds to the merchant immediately. Other systems are off-line and use the ACH for clearing. Currently, POS systems are used predominantly by oil companies, grocery chains, and convenience stores. About 66 million transactions were processed in 1987.

Combined, these electronic payment mechanisms account for only 1.2 percent of the nation's total noncash payments.<sup>1</sup> Thus, in terms of market share, EFT has not fulfilled expectations that it would become the widely accepted substitute for paper checks. Further, EFT volume growth rates appear to be declining, with the exception of POS, which is a very young service with many applications considered pilot projects. In particular, as shown on the chart, ACH volume growth has been slowing since 1980. In traditional models of the life cycle of a service, this signals a mature stage that follows the low-growth start-up period and the "take-off" period of accelerating growth. The suggestion of maturity for the ACH comes as a surprise, because the ACH is typically viewed as an infant system on the threshold of accelerating growth and the most likely substitute for the check.

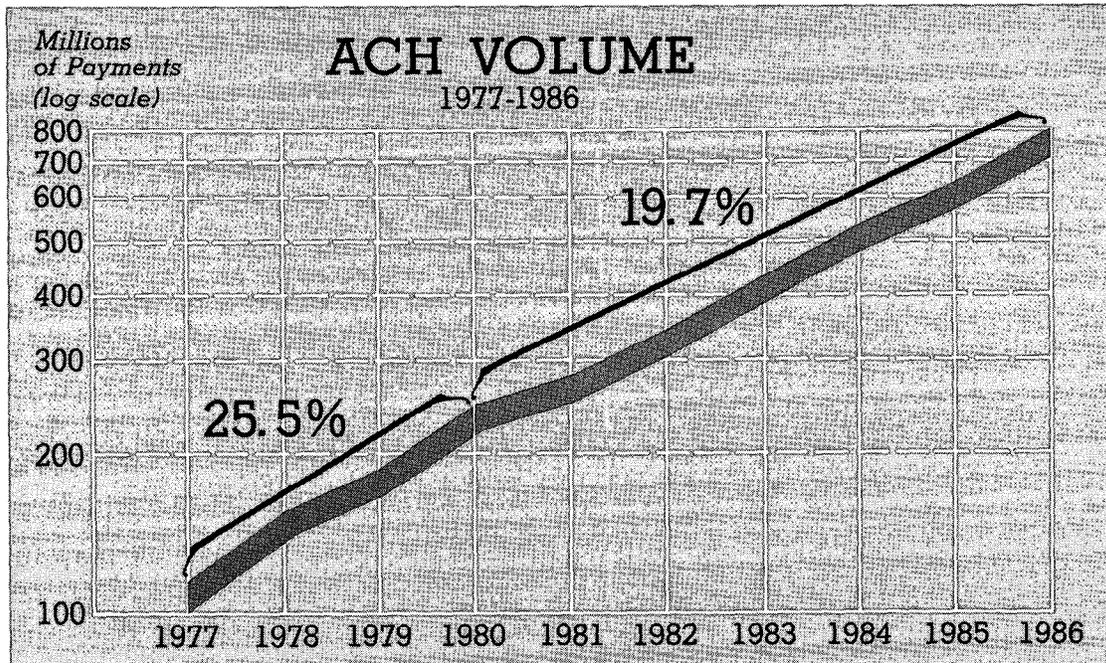
Why has the objective of significantly increasing the efficiency of the payment system by converting from checks to electronic payments not been met?

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<sup>1</sup> Allen N. Berger, "The Economics of Electronic Funds Transfer," Board of Governors of the Federal Reserve System, October 2, 1985.



The annual rate of growth in total ACH volume processed by both the Federal Reserve and private operators averaged 25.5 percent in the late 1970s, then slowed to 19.7 percent over the next six years.

### Lessons from the EFT Experience

The recent history of EFT reveals four lessons that help explain the successes and failures of electronic payments.

*Lesson 1: EFT Is Not Challenging a Static Check System* It is important to understand the overall payment system and how it affects EFT usage. In particular, it must be recognized that the check system is itself changing. The costs of handling checks are probably falling, service is improving, and consequently the users of checks are probably more, not less, satisfied.

Congress has recently passed legislation that requires further improvements in the check system. The Competitive Equality Banking Act of 1987 mandates improved funds availability for depositors of checks. The process leading to this legislation has already resulted in major efforts on the part of the industry, including the Federal Reserve and depository institutions, to improve the check return item process.

Improvements in the check system will challenge electronic payment substitutes to provide better and more efficient service to encourage a market-based conversion from the check. Over the long run, however, improved funds availability will encourage

greater use of EFT because, as described below, the writers of checks stand to lose some of the "benefits" of check float.

*Lesson 2: Reduction in Check Float Is a Prerequisite to EFT Growth* The savings from using EFT in place of checks promise to be significant. For example, a recent study has shown that the cost of ACH direct deposits made by the U. S. government is significantly less than the cost of making the same payments by check. But, the loss of the float benefit to the U. S. government from using the ACH for salary and benefit payments more than offsets the real resource savings (lower cost) of using ACH.<sup>2</sup>

Total check collection float has declined in recent years, especially since the Monetary Control Act of 1980 required the Federal Reserve to eliminate or price all float in its payment operations. Daily average Federal Reserve check collection float has been reduced from a peak of approximately \$6.0 billion in 1979 to about \$700 million to \$800 million today. This reduction is not sufficient in-and-of-itself to change behavioral patterns, however, because an estimated \$183 billion in check processing and mail

<sup>2</sup> William C. Dudley, *A Comparison of Direct Deposit and Check Payment Costs*, Staff Studies 141, Board of Governors of the Federal Reserve System, November 1984.

float still exists in the rest of the check system.<sup>3</sup> The Federal Reserve has examined the possibility of shifting the cost of at least part of the float arising in the check collection process to the payor bank, that is, the institution (and by extension the individual check writer) benefiting from check float. According to the Uniform Commercial Code (UCC) and its interpretation by the courts, however, collecting institutions, including Federal Reserve Banks, are providing services to the collecting party and have no right to assess charges to the payor. Thus, sound economic arguments notwithstanding, the current legal framework apparently does not permit a redistribution of float cost to the party making the decision to use checks. Absent a change in the legal environment, there will continue to be a strong disincentive for converting to EFT due to the float benefit from writing checks.

*Lesson 3: Consumer Habits Favor the Use of Checks* Few users are actively seeking new payment services to substitute for the check. Individuals are not; for them the paper check very tangibly represents earning power and wealth. For individuals and businesses, checks also satisfy the need to control and account for transactions in a manner that is consistent with traditional accounting and bookkeeping practices.

Some business and governmental entities, however, have actively sought out new payment methods. The great reliance now placed on funds transfer systems to support money market activity is a prominent example. Only "immediate" wire transfer systems have the speed and automation to support the increasingly active pace of trading, especially in national and international markets. In addition, EFT is being encouraged for corporate payments as an extension of efforts to automate manufacturing and inventory management. The automation of corporate bill paying is being "pulled along" as part of the much larger movement toward total automation. This external momentum appears to be great enough for companies to seek ways to negotiate the loss of float benefits that currently exist in the check system. Thus, use of new payment methods appears to depend in part on the acceptance by corporations and individuals of new technology in the overall management of their affairs.

*Lesson 4: Complexity and Lack of Standards Inhibit the Use of EFT* Several specialized electronic payment networks have been developed to meet the re-

quirements of particular market segments. A certain amount of specialization, following the natural differences in business requirements for various electronic payment applications, makes sense. For example, wire transfer systems that serve the money markets, such as Fedwire and CHIPS, meet very different needs than do ATM and POS systems that provide alternatives to using cash and checks for purchases of relatively small value. The current specialization among EFT networks based on differences in business requirements has not created undue complexity for depository institutions or end users. On the contrary, a concern with complexity has arisen as a result of the lack of specialization.

The complexity of the EFT process has become an issue in the case of the ACH, which has become a general purpose system supporting both corporate and consumer transfers. Corporations actively involved in both corporate and consumer transactions have become concerned that the ACH is overly complex as a result of its being modified to support many different types of applications. For example, a recent survey of corporate cash managers found that over two-thirds of these knowledgeable individuals find the diversity of applications for which the ACH is used to be so daunting that they can no longer readily differentiate among them.<sup>4</sup>

## Prescriptions for the Future

These four lessons suggest the elements of a plan for managing the future of electronic payments. Four prescriptions are offered.

*Prescription 1: Revise Expectations for EFT to Reflect Institutional and Market Realities* Market share should be accorded less importance as a measure of success and expectations for the conversion to EFT should be revised downward.<sup>5</sup> Typically, the measure of success for electronic payments is related to the one-for-one displacement of checks by electronic transfers. It is unreasonable, however, to expect a large-scale conversion from checks to electronic transfers when institutional and behavioral factors create a bias in favor of existing payment methods. Float incentives that favor checks, as well as consumer habits, should be recognized as having an important influence on the overall rate of acceptance of electronic payments.

<sup>4</sup> Steven F. Maier and Larry A. Marks, "Applications and Models: Cash Managers' Use of ACH," *Journal of Cash Management*, September/October 1986, pp. 46-48.

<sup>5</sup> Jimmie R. Monhollon and Bruce J. Summers, "The Role of the Federal Reserve in the Electronic Payments Evolution," *Journal of Cash Management*, May/June 1987, pp. 23-26.

<sup>3</sup> William C. Dudley, "The Tug-of-War Over Float," *Morgan Guaranty Survey*, December 1983, pp. 11-14.

As an alternative to market share, a more specific measure of the contribution of EFT to the payment process should be adopted. EFT applications that offer enhanced service or greater efficiency should be *individually* catalogued and assessed, taking into account any institutional disincentives that must be overcome. Viewed in this light, the cumulative evidence of experiences, such as ACH direct deposit, corporate cash concentration, and money market transactions, paints a more positive picture of EFT as a successful contributor to the payment process.

*Prescription 2: Stress Institutional Change to Encourage EFT* Institutional changes that eliminate artificial barriers are a necessary prerequisite to the broad-based acceptance of EFT. In particular, laws and regulations should be examined to determine if changes can be made to permit charging float costs to check writers. Because check writers control how payments are initiated, charging them at least part of the cost of check float would reduce what is probably the single most significant institutional barrier to use of EFT.

*Prescription 3: Simplify EFT* If marketplace complaints about complexity are a gauge, then "immediate" wire transfer systems appear to be doing their job reasonably well. Further, the original ACH structure used for retail applications also appears to meet basic user requirements. Today's concern is centered around the support provided in the ACH for new corporate trade payments.

The ACH currently supports a wide range of payment applications, including salary and preauthorized debit transactions that require little explanatory information and vendor payments that must frequently support extensive amounts of information relating to the underlying transaction. The ACH design should be fundamentally reviewed to determine if the complexity that arises by combining widely differing payments in one system can be reduced.

Efforts to simplify the ACH should take into account the possibility that the new corporate trade payment applications might best be supported in a system separate from that designed and used for simpler consumer and commercial transactions. Separation of payment systems may be a way to simplify services for different categories of users. Such separation might take the form of an entirely distinct set of formats and operating rules for highly specialized types of payments. It is also possible that sophisticated corporate trade payment applications may be handled only by a subset of depository in-

stitutions, rather than becoming a "universal service" like ACH.

*Prescription 4: Stress Proven EFT Applications* If one accepts the prescriptions for promoting payment system efficiency centering around revised expectations for EFT combined with major institutional and structural changes, then clearly much work is required. The process of effecting institutional change could take years. In the meantime, how should investment in EFT be managed to maximize economic returns?

A shift in emphasis away from "exotic" ACH applications to proven uses would permit a continued commitment to EFT that is consistent with sound business strategy. For example, based on Federal Reserve estimates, there is still a very large untapped market for preauthorized payments and direct deposit ACH services, which represented the original reason for developing the ACH. It is estimated that only 10 to 12 percent of all insurance premiums and 6 to 8 percent of all payrolls are made using the ACH. The objective of increasing the efficiency of the payment system by converting from checks to EFT can still best be met by focusing EFT marketing efforts on proven applications whose full potential remains untapped.

## Conclusion

When measured using the traditional concept of market share, growth in electronic payments has resulted in unfulfilled expectations. Yet, the recent history of EFT shows that institutional conditions are largely responsible for preventing a broad-based conversion from the check. In addition to institutional disincentives, EFT growth has been hurt in the 1980s because of a shift in marketing focus away from traditional payment markets to exotic new markets. Further, by mixing simple ACH applications with sophisticated corporate trade applications in one system, the EFT process has become more complex.

The objective of encouraging a more efficient payment system can best be met by relying on the market process. The future of EFT depends on institutional changes to provide market-based economic incentives for using better payment techniques, especially changes in how float costs are borne. For now, investment in and promotion of EFT should be refocused on proven markets that offer the greatest potential for volume growth with the least complexity.

This approach will result in more realistic expectations for EFT growth and a more orderly evolution to electronic payments.