

# Electronic funds transfer: revolution postponed

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In the early 1970s it was fashionable to speak of the future of electronic funds transfer (EFT) as an inevitability that would be upon us before we knew what was happening. Such terms as "a whole new ballgame" and "the checkless society" entered the vocabularies of bankers and financial writers with little criticism and less resistance. Now, ten years later, it is clear that the prophecies of a revolution in EFT were premature. Checks are still with us and their volume is greater than ever. Nevertheless, just like Peter's repeated, oft-heeded, but finally ignored cry of "wolf!," the glowing promise of EFT appears at last to be coming true.

A key factor contributing to the emergence of EFT is the growing competition between different types of financial institutions in offering third-party payment services. The Board of Governors recently recognized the substitutability between these services by redefining the monetary aggregates to include NOW accounts, ATS accounts, credit union share drafts, and demand deposits at mutual savings banks. In addition, the Depository Institutions Deregulation and Monetary Control Act passed on March 31, 1980, officially recognizes and authorizes, for the first time on a national basis, NOW accounts, ATS accounts, credit union share drafts, and the remote service units used by savings and loan associations.

A major impetus behind the development of this commonality of services has been the dramatic increase in the level of interest rates over the past several years, which has induced consumers to seek profitable alternatives for their noninterest-earning demand deposits and has given financial institutions an incentive to develop substitutes for demand deposits. As a result, commercial

banks must now compete with many types of financial institutions for these funds. The ability of these organizations to compete so readily through alternative payment instruments has been enhanced by developments in the area generally termed electronic funds transfer, or EFT. In large part, the attractiveness of EFT to nonbank financial institutions has been a consequence of the past regulatory environment, which prevented them from competing in offering paper-based payments services, but was less explicit as to limitations on electronic transfers.

Not only has EFT sped the development and acceptance of alternative means of payment, it also has enormous untapped potential for reducing labor costs and facilitating the handling of the rising volume of paper items processed by the banking industry. Check clearing and collection are fairly labor-intensive services and depository institutions, like other firms, must continually aim to reduce or hold the line on costs. Much of the appeal of EFT to depository institutions derives from the potential cost savings that it offers.

In a number of states, thrift institutions have taken the initiative in offering EFT services. They were early to recognize that they can compete with commercial banks for new EFT services, such as direct deposit accounts and preauthorized payments,<sup>1</sup> as well as use EFT to compete for transaction accounts. Both the desire of thrift institutions to compete with commercial banks and the competitive pressure on banks to reduce costs have been important factors in the development of EFT.

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<sup>1</sup>Robert E. Knight, "The Changing Payments Mechanism: Electronic Funds Transfer Arrangements," *Monthly Review*, Federal Reserve Bank of Kansas City (July/August 1974), p. 11.

## Forms of EFT

EFT takes a number of different forms, each involving a different degree of departure from traditional means of payment, different costs, and different advantages and disadvantages to customers and their financial institutions.

*Automated teller machines.* One of the most popular means of transferring funds electronically is through the use of automated teller machines (ATMs), which are utilized by financial institutions either on or off premises to perform several basic teller functions electronically. Services typically include receiving deposits, dispensing funds, transferring funds between accounts, making credit card advances, and receiving payments. The customer usually accesses the machine by inserting a magnetic stripe card and entering on a keyboard a unique identification number known only to the customer.

The popularity of ATMs rests on several fundamental advantages that they offer. In many cases, a bank can substitute an ATM for a more costly full-service "brick and mortar" branch. This is particularly advantageous in those states that place less onerous geographic and other restrictions on ATMs than on full-service branches; however, a number of states treat ATMs just like other branches. The ATM also reduces the need for tellers, lowering not only the salary cost to the bank, but also the cost of employee benefit and pension plans. Consumers like the reduced waiting time and the extended, often 24-hour, access. Although initial start-up costs are high, more intensive use of ATMs will gradually reduce the average transactions (variable) cost. Banks can reduce some of the risk of technical obsolescence by arranging to lease rather than purchase their machines.

*Telephone bill payment.* Another method of effecting funds transfers electronically is through telephone bill payment. This system was originally set up for users of touch-tone telephones, who can communicate their account numbers and payment amounts directly to the bank's computer. Now, several

depository institutions also offer the service to rotary dial customers, who convey their information to an employee of the institution. The employee, in turn, enters the information into the institution's computer system.

This form of EFT has lower start-up and operating costs and is cheaper and more flexible for the customer than most electronic alternatives. The main drawbacks to date have been the limited availability of touch-tone phones and resistance from billing companies forced to accept payments in a form that may not be compatible with their remittance systems.<sup>2</sup> A study by the American Telephone and Telegraph Company shows that, as of year-end 1979, 38 percent of U.S. residential telephone customers are touch-tone users. Because touch-tone will be available nationwide within five or six years,<sup>3</sup> this is expected to rise to 64 percent by 1984. Therefore, telephone bill payment is likely to become an increasingly attractive EFT alternative. Of course, it is also possible that other technological advances in telecommunications devices will make telephone bill payment obsolete before touch-tone service becomes significantly more widespread.

*Automated clearing houses.* A number of EFT services have been made feasible by the development of the automated clearinghouse (ACH). The ACH is like the traditional clearinghouse in that it is a system for clearing interbank debits and credits. The difference is that with the ACH, the information enters the system in an electronically readable form, such as magnetic tape. In 1980 the Federal Reserve processed approximately 230 million items via the ACH, of which about 70 million are commercial items.

Direct deposit of payroll has proved to be one suitable use of the ACH. Under this plan the employer is authorized by an employee to deposit his or her wages directly into the employee's account at a depository institution. The employer records the payroll in-

<sup>2</sup>Sanford Rose, "Minimizing Losses on EFT," *American Banker*, September 4, 1979.

<sup>3</sup>Jeffrey Kutler, "Banks Get Good News on Touch-Tone Phone Use," *American Banker*, November 15, 1979.

formation on magnetic computer tape and sends it to the company's bank. The bank debits the account of the employer and credits the accounts of any employees who use the same bank as the employer. Payroll information for employees using other banks is combined with information from other employers on a new tape, which is transmitted to the ACH. A computer then sorts the day's transactions for each participating bank, and a tape is created for each payee bank listing the accounts and amounts to be credited. The normal net settlement procedure is followed.

The major advantage of direct deposit to the employee is that he or she need not bother picking up a paycheck and transporting it to a depository institution. Funds are deposited even if the employee is on vacation or absent for other reasons. Although this use of the ACH reduces the amount of checks or paper documents in the system, it does so only to the extent that it eliminates the initial distribution of payroll checks. Most participating employees still make most of their payments by writing checks. Even so, the savings to the employer can be considerable. For example, a recent study showed that two firms that utilized the ACH for their direct deposit program experienced percentage cost reductions of 57 and 77 percent.<sup>4</sup> The major savings were in the costs of clerical and other labor.

Another use of the ACH that reduces paper input is preauthorized debits. The customer authorizes his bank or other financial institution to debit his account automatically for a specified amount on a certain date and to credit another specified account. The ACH process for preauthorized debits is similar to that for direct deposit. Use of this form of EFT is especially suitable for recurring payments of fixed amounts, such as instalment, mortgage, or insurance payments. In the case of transactions involving variable amounts, such as utility payments, consumers have been less

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<sup>4</sup>Myron L. Kwast, "Cost Economies from ACH Use by Nonbank Firms," *Magazine of Bank Administration*, vol. 56 (June 1980), p. 54.

receptive to this system, fearing loss of control over the scheduling of payments and errors on the part of the depository institution and/or the payee.

Another use of the ACH is for check truncation, which is less a service for consumers than a technological improvement in the check-clearing system. Truncation does not reduce the number of paper items in the system but does shorten their flow. Data from physical documents, such as checks, are captured in electronic form upon their entry into the financial system. The data are then processed through the ACH system, and the bank customer receives a computer-generated statement in lieu of cancelled checks.

A 1979 study estimates a net savings to the banking system of 5.15 cents per check truncated, due to reduced postage and statement preparation costs.<sup>5</sup> According to the study, approximately half of the roughly 40 billion checks written each year could be truncated with a potential annual savings of more than \$1 billion. These checks must be stored, however, and the storage and retrieval costs could be high.<sup>6</sup>

*Point of sale terminals.* A more radical departure of EFT from traditional modes of payment is the use of point of sale (POS) terminals. POS is a highly advanced form of EFT that exists today only in several localized pilot programs. The terminals are located in merchants' shops, and enable a customer to complete an immediate transfer of funds to the merchant, bypassing traditional forms of payment. When a customer makes a purchase, he or she requests a transfer of funds by inserting a magnetically coded card, sometimes called a debit card, into the terminal and entering his or her personal identification number. The sales clerk enters the amount of

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<sup>5</sup>Dr. Allen H. Lipis, "Cost Savings in Truncation," *Check Safekeeping, A Proposal For Inter-Bank Check Truncation*, American Bankers Association, 1979, p. 4.

<sup>6</sup>Although 42 banks are participating in a check safekeeping pilot program established by the American Bankers Association, the limited scope of the program has precluded reliable estimates of storage and retrieval costs under a broadly adopted truncation program.

the transaction, and the terminal requests the customer's depository institution to authorize a transfer. The customer's funds are verified and, if they are sufficient, the transfer is authorized and the proper amount is immediately credited to the merchant's account. If the customer's depository institution is different from the merchant's, a central switching center is used to route and direct the electronic message. Printed copies of the transaction are generated for the merchant, the customer, and the depository institutions.

Merchants favor the general concept of POS as a means of reducing default risk and facilitating the extension of credit. Several merchants, especially grocers, have contributed time and effort to various trials of POS systems. A recent study indicates that a bank employing POS terminals may significantly increase its share of the deposit market.<sup>7</sup> However, the true effectiveness and profitability of this EFT alternative cannot be measured on a small scale. To realize all the potential benefits of POS, the system would have to include all merchants and depository institutions and have a minimum number of central switches. This suggests the simultaneous development of a nationwide on-line system, entailing a staggering front-end investment in equipment. Before such a development could be undertaken, a myriad of regulatory and policy issues would have to be settled.

An effective POS network will most likely evolve in stages. It may begin with credit card authorization services, such as have been successfully implemented by Wells Fargo Bank (San Francisco), First National State Bank of New Jersey (Newark), Maryland National Bank (Baltimore), Bay Banks (Boston), and the largest banks in Chicago.<sup>8</sup> Retailers favor card authorization networks that connect the banks and the retailer directly because they reduce cashier time. Instead of scanning a stolen card

list or making a phone call, the cashier can receive bank authorization simply by entering the credit card number into the electronic cash register. The use of electronic cash registers greatly enhances the benefits to be derived from implementation of the system. In addition, Visa offers an interchange rate which makes it economically attractive for retailers to ask for direct interconnection for bank card authorization, as J. C. Penney did in 1979. Thus, through step-by-step implementation of equipment and services, a pure POS system may soon evolve which will automatically debit the customer's account and credit the merchant's account at the time of purchase.<sup>9</sup>

#### Issues

*Profitability and pricing.* Among the key considerations of financial institutions in deciding whether to implement an EFT system are profitability and pricing of the service. The various EFT alternatives generally have high start-up costs and long payback periods. Experience has shown that the earliest versions of a new type of equipment, such as the ATM, may become technically obsolete before they are fully depreciated. Promotional costs are high because customers must not only be made aware that the service exists, but in addition they must be trained in its use. EFT is profitable only with a high transaction volume, and it may take months or even years to generate that volume.

Pricing of EFT services must assure profitability—at least in the long run—while enabling the depository institution to remain competitive in the short run. This is a task that will require increasing precision as the number of potential competitors grows and the services offered by commercial banks and thrift institutions become more and more similar. Although the payment of explicit interest on demand deposits has been prohibited since 1933, competition has led commercial banks to price their demand deposit services below

<sup>7</sup>Gary G. Gilbert and David A. Walker, "The Influence of EFTs on Changes in Bank Market Shares," *Journal of Retail Banking*, vol. 1 (December 1979), p. 30.

<sup>8</sup>"A Decade of Development Lies Ahead, Experts Say," *ABA Banking Journal*, vol. 72 (June 1980), p. 100.

<sup>9</sup>*Ibid.*

cost as a means of paying implicit interest on these deposits. In order to compete effectively, thrift institutions have also priced their demand deposit substitutes, such as NOW accounts and share drafts, below cost. It has been suggested that the profit potential of EFT services has been diminished by the industry's failure to utilize an analytical and rational procedure in costing and pricing.<sup>10</sup>

Banks have been encouraged to underprice their demand deposit services by the direct subsidy of such services that the Federal Reserve has long provided in the form of "free" check clearing services. However, as mandated by the Monetary Control Act of 1980, free clearing will end in 1981 and Federal Reserve check clearing will become available to all depository institutions at a price reflecting all direct and indirect costs of providing it. The increase in depository institutions' operating costs resulting from removal of the subsidy will give them added incentive to adopt explicit pricing of checking account activity. This, in turn, should make EFT services relatively more attractive to consumers.

*Customer acceptance.* Customer attitudes toward EFT services are clearly crucial to a depository institution's pricing and service policies. The utility of EFT to the consumer consists largely of the added convenience that it offers. For instance, ATMs have become popular because they eliminate the customer's need to wait in long teller lines and may effectively extend banking hours. Consumers have been willing to take the time to learn to use ATMs and incur some loss of funds control in return for the option of added convenience, usually with no additional service charge.

However, other forms of EFT such as check truncation do not offer such obvious customer benefits. In fact, customers may consider check truncation undesirable because it eliminates one service valued by many consumers, the returned endorsed

check as a receipt and a record of payment. Until some of the cost savings attributable to truncation are passed along to customers, acceptance is likely to be disappointing.

To be sure, truncation has had some success. Almost all credit union share drafts are truncated, and the savings and loan industry is experimenting with truncation for its NOWs. Several savings and loan associations in New Jersey have been successful in marketing truncation to their customers. In order to overcome customer resistance to the nonreturn of the NOWs, they supply depositors with NOW books that provide a carbon copy of each item written. Acceptance has been good, as evidenced by a customer attrition rate of less than 5 percent since the program began in January 1980.<sup>11</sup>

It is said that many consumers will refuse to use POS and preauthorized payments because of the loss of control over payments that these types of EFT entail. This can be extremely important in cases involving a dispute with the merchant over defective goods or failure to deliver. Even absent such disputes, consumers value the ability to control the timing of various payments and, in cases where they are unable to satisfy all their obligations on a timely basis, to determine the order in which payments are made.

Another obstacle to acceptance of EFT is the loss of float associated with the immediate debiting of accounts. Although some EFT users stand to gain from the acceleration of payments on accounts receivable, surprisingly strong objections have been raised by those who would lose by the elimination of float. However, this advantage of the existing payments system will largely vanish when, as mandated by the Monetary Control Act, the Federal Reserve begins to charge for float and this is reflected in the pricing of checking account services.

Consumers in states with liberal branching laws, like California, have been slower to accept EFT services, especially ATMs, because

<sup>10</sup>Stephen J. Kohn and Charles W. Scott, "Effective Pricing of EFTS," *Bankers Magazine*, vol. 163 (January/February 1980), p. 42.

<sup>11</sup>"New Jersey S&Ls Truncating NOW Records," *American Banker*, August 13, 1980.

the additional convenience they provide is less than it would be in unit banking or limited branching states.<sup>12</sup> Only continued

#### EFT Act

The Electronic Fund Transfer Act, Title XX of the Financial Institutions Regulatory and Interest Rate Control Act of 1978, was passed by the Congress on November 10, 1978. The act encompasses transactions involving POS terminals and ATMs, direct deposits or withdrawals, and telephone-initiated transfers. Both financial and nonfinancial entities that offer EFT services to the public are covered by the act. Major aspects of EFT covered by the act are:

- Consumer liability for unauthorized transfers, including liability limits and disclosure of loss to the financial institution.
- Issuance of access devices, such as debit cards, by financial institutions.
- Initial disclosure to the consumer of terms and conditions of the EFT agreement.
- Disclosure of subsequent changes in terms and error resolution notice.
- Applicability of state law and administrative enforcement procedures.

Basically, a consumer's liability for an unauthorized transfer is limited to the lesser of \$50 or the amount of unauthorized transfers that occurs before the financial institution is notified, provided that the consumer notifies the institution within two business days of his learning of the loss or theft.

Sections regarding consumer liability and the issuance of access devices have been in effect since February 8, 1979, and the remaining sections became effective May 10, 1980. The regulation does not apply to check guarantee or authorization services, wire transfers, certain securities or commodities transfers, automatic transfers from savings to demand deposit accounts, trust accounts, and certain telephone-initiated transfers that have not been preauthorized.

experience with EFT and a broader awareness of the other types of convenience and cost advantages it offers are likely to overcome such resistance.

*Security.* A major policy concern related to EFT is security. At the individual level, the consumer is concerned with proper user identification to prevent illegal manipulation of funds. The Electronic Fund Transfer Act (see box), passed in 1978, sets forth consumers' rights and obligations with respect to EFT. Security has been maintained at the ATMs through the use of a Personal Identification Number, which is generally mailed to the consumer from a separate office after he receives a terminal access card.

Legislators and regulators, however, are concerned with fraud on a much larger scale. Of major concern is the security of the data base of the central switch, which contains personal and financial information on thousands of persons. Maximum security is vital to prevent invasion of privacy or fraud on a truly massive scale.

*Sharing of terminals.* Other regulatory issues involve the structure of EFT. Often, several institutions share an EFT terminal, such as an ATM, to offer customers additional convenience at minimal cost. In Michigan and some other states, shared terminals are not treated as branches under state law, giving them a distinct advantage over terminals operated exclusively for the customers of one institution. Sharing provides a way for smaller institutions to offer electronic services that might otherwise be unable to do so because of cost constraints. Sharing is procompetitive in so far as it encourages competition from firms that would have been excluded from the market. On the other hand, any type of cooperative arrangement between institutions in the sale of services increases the probability of collusive behavior. The availability of sharing may also discourage innovative activity and independent market entry.<sup>13</sup>

<sup>12</sup>Bill Orr, "California, a Foot-Dragger in ATMs, Comes to Life," *ABA Banking Journal*, vol. 71 (September 1979), p. 139.

<sup>13</sup>Robert A. Eisenbeis and Benjamin Wolkowitz, "Sharing and Access Issues," *Bankers Magazine*, vol. 162 (March/April 1979), p. 48.

Ideally, the situation should be evaluated in each banking market by weighing the competitive effects against the public benefits to be derived. In practice, sharing has been left to the states to regulate. As of midyear 1979, 20 states had passed legislation requiring sharing in some form. A proposed joint venture involving most of the commercial banks in Nebraska, however, has been objected to by the U.S. Department of Justice.<sup>14</sup> Justice has yet to challenge an individual state's mandatory sharing law, although it has stated its general opposition to mandated sharing on competitive grounds.

*Ownership.* Another regulatory concern involves ownership of a nationwide EFT system. Currently, there exist several national and international electronic communications networks. Among them are:<sup>15</sup>

- 1) ACH (Automated Clearinghouse)—Automated clearinghouses operate in 32 locations nationwide. Payments between ACHs are governed by rules published by the National Automated Clearing House Association (NACHA). The Federal Reserve operates 31 of these ACHs.
- 2) Bank Wire—A cooperative communications network owned by about 200 subscribing banks, this system supports a computerized message switching center for domestic funds transfer through correspondents. Bank Wire plans to offer same-day availability through its own net settlement service via access to the Federal Reserve System by the third quarter of 1981.
- 3) Fed Wire—Connects all Federal Reserve offices for the transfer of reserve funds, U.S. Treasury instruments, research and economic data, and other messages. The

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<sup>14</sup>W. L. Hood, "History of Illinois Banking Legislation," (unpublished manuscript in Continental Illinois National Bank library, March 1978), p. 69.

<sup>15</sup>"What's Ahead for the Wire Services?," *ABA Banking Journal*, vol. 72 (February 1980), pp. 9-97, 105.

current Culpeper Switch is to be replaced by a more reliable, efficient, and flexible communications system which utilizes several independent switches instead of the current central switch.

- 4) SWIFT (Society for Worldwide Interbank Financial Telecommunications)—Organized as a nonprofit organization in 1973 by a group of 239 founding banks in 11 countries, today it connects more than 700 of the world's largest banks in 26 countries via a message switching center for international funds transfer.
- 5) CHIPS (Clearing House Interbank Payments System)—Clearinghouse created by 12 New York banks for domestic and international funds transfer. Over 100 institutions, including domestic and foreign banks and Edge Act corporations, are participating in the CHIPS telecommunications network. Same-day settlement with access to the Federal Reserve System is scheduled to begin October 1, 1981.

Some or all of these networks are certain to be part of whatever nationwide EFT system finally evolves. Just how the Federal Reserve will fit into that system is not fully defined at this time, but it is likely to play a key role because of the unique capacity of the Federal Reserve to effect settlement between any number of institutions. Important factors operating to enhance the role of the Federal Reserve are the suitability of the ACH network—in contrast to other existing wire transfer systems—for processing a large volume of small transactions, the Board's announced intention to price ACH services below current costs to stimulate additional volume, and the system's proven reliability and quality of service. Private EFT systems, whether operated by depository institutions or by others, can easily avail themselves of the Federal Reserve's services through any institution that maintains a direct account relationship with the Federal Reserve.

*Geographic restrictions.* The development and geographical spread of EFT services are also influenced by market factors such as state banking law. It has been pointed out that banks in branching states may use ATMs as a cheaper alternative to “brick and mortar” branches. In addition, some states which prohibit branching permit banks to erect limited-service EFT facilities, effectively enlarging the banks’ service areas. This established tendency of the states to allow the establishment of EFT facilities at locations that would be prohibited to the traditional banking office or branch provides expansion-minded financial institutions with an additional incentive to implement EFT services.

**Conclusions**

Commercial banks, by not passing the true cost of checking accounts along to the consumer, have made it difficult for institu-

tions offering EFT services to compete profitably for transaction accounts. This has helped to postpone the long-predicted emergence of EFT as the primary means of payment. With the Federal Reserve pricing its check clearing services and the relaxing and gradual phase-out of interest rate ceilings on deposits, it is anticipated that checking accounts offered by commercial banks will be priced to reflect their true costs. This will make competing means of payment more attractive to consumers. Increased competition from comparable thrift EFT services will encourage competitive pricing and provide additional incentive for all depository institutions to convert to EFT. Although depository institutions’ profits may suffer with the introduction of EFT, over the longer term transaction volume should eventually justify the high start-up costs. The public will benefit through increased availability of services, added convenience, and more competitive pricing.

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**ECONOMIC PERSPECTIVES—Index for 1980**

<b>Agriculture</b>	<b>Issue</b>	<b>Pages</b>
Problems facing agricultural banks .....	March/April	19-23
<b>Banking, credit, and finance</b>		
Bank funds management comes of age .....	March/April	3-10
Bank funds management comes of age— a balance sheet analysis .....	May/June	13-18
Sinking float .....	May/June	19-23
Utilizing the bank holding company .....	July/August	3-6
The credit restraint program in perspective .....	July/August	7-14
The history of potential competition in bank mergers and acquisitions .....	July/August	15-23
The Depository Institutions Deregulation and Monetary Control Act of 1980 .....	September/October	3-23
Electronic funds transfer: revolution postponed .....	November/December	16-23
<b>Economic conditions</b>		
Review and outlook: 1979-80 .....	January/February	3-31
Cyclical downturn in housing .....	May/June	3-12
Capital spending—the national need .....	November/December	3-6
<b>International finance and trade</b>		
The impact of freer trade—the Tokyo Round and the Seventh District .....	November/December	7-15
<b>Money and money supply</b>		
Monetary aggregates redefined .....	March/April	11-18