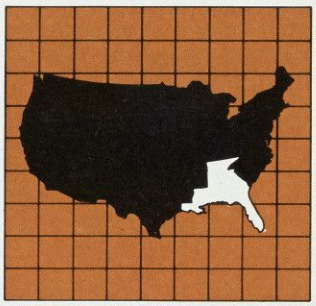
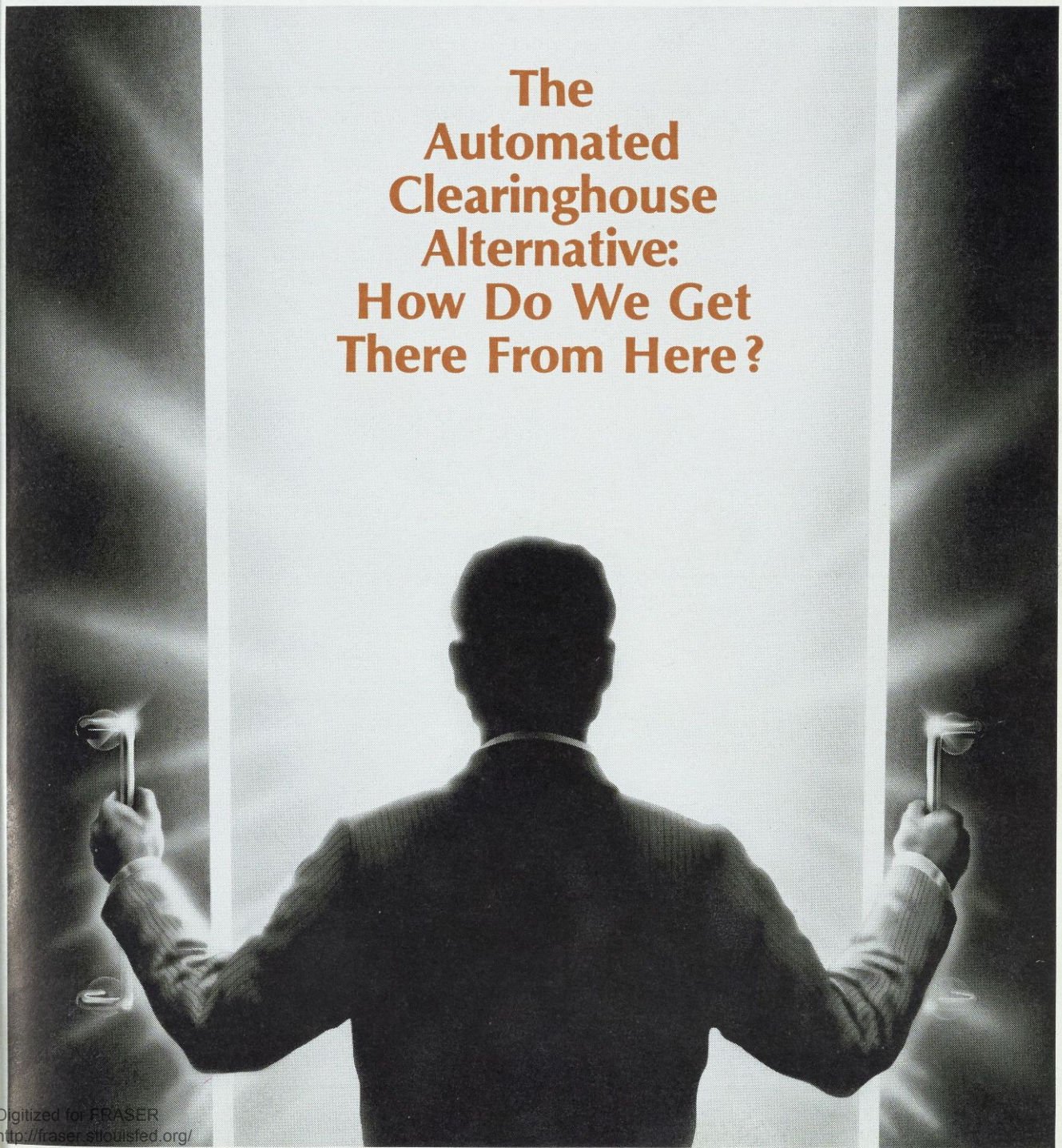
Economic Review



FEDERAL RESERVE BANK OF ATLANTA APRIL 1986

The Automated Clearinghouse Alternative: How Do We Get There From Here?



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Special Issue

This is the second of two special issues focusing on the automated clearinghouse. This system for exchanging funds electronically was once expected to spark a payments revolution that would eliminate checks, offer dramatic savings, and bring new levels of efficiency. Such a revolution has not occurred. The number of paper-based transactions has soared, while the ACH maintains only a tenuous hold on the payments market.

In our March issue, several analysts offered insights into the ACH's disappointing record. This hard look at the problems that have kept the ACH from attaining its potential suggests that electronic funds transfer probably will not overwhelm the financial community in the near future. The authors nonetheless indicate that the development of a responsive ACH infrastructure would lead to steadily increasing use and growing confidence in what it has to offer.

This issue provides both theoretical and practical suggestions for making the ACH an attractive option for depository institutions, corporations, and consumers. While the authors are clearly advocates for the ACH, they are also realists who recognize that mere technology will not make it a success. Innovation that reflects a keen awareness of market needs, managerial leadership, and serious restructuring of the system are essential, in their analysis.

David Whitehead, leader of the Atlanta Fed's financial institutions and payments research team deserves special recognition for conceiving and coordinating the two special issues on the ACH. We also thank Bruce J. Summers, senior vice president and electronic payments product manager at the Federal Reserve Bank of Richmond; Bernell K. Stone of Georgia Institute of Technology; George C. White, founder of White Papers, Inc.; and William R. Moroney, chief executive officer of the National Automated Clearing House Association for their contributions to this issue.

I hope you find these new perspectives on the ACH interesting and provocative.

Sheila L. Tschinkel

Sheila L. Tschinkel

Senior Vice President and
Director of Research

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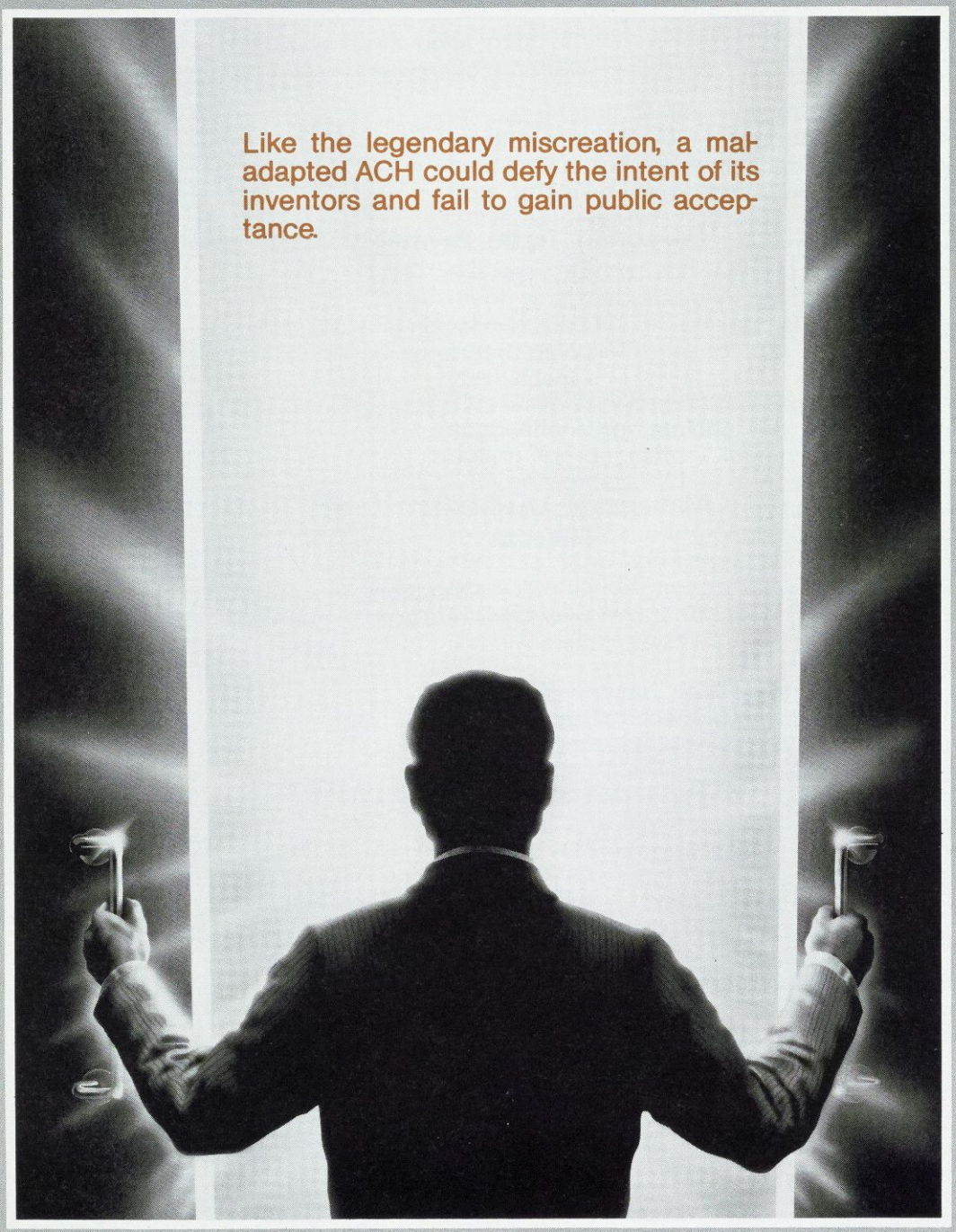
Dr. Frankenstein and the ACH

Bruce J. Summers



Like all great tales, the story of Frankenstein endures because it is based on a broad truth that finds application in a range of human endeavors. There is an interesting and illustrative connection between the work of Dr. Frankenstein and that of bankers, or at least of payment system specialists. The basic moral from the Frankenstein story is that a creative new venture, no matter how well-intentioned, can produce frustrating and undesired consequences unless it receives proper guidance. The automated clearinghouse (ACH) is a creative breakthrough in making payments, but we run the risk of failing to fulfill its promise, and possibly of losing some of its original benefits, unless it is given proper guidance at this critical stage in its evolution.

Perhaps it would help to take a moment and recount the famous gothic novel *Frankenstein*, published in 1817 by Mary Shelley. The Dr. Frankenstein in Shelley's book is not the Hollywood character familiar to most of us. Rather, Frankenstein was a brilliant, if somewhat obsessed, scientist who used his energy to enter into new realms of "natural philosophy." With his gifts he created something entirely new and potentially wonderful, but also so awesome that the public found it difficult to accept. Dr. Frankenstein had a fatal flaw—he refused to take responsibility for his creation by devoting time to guide it along an appropriate path. Further, he did little to help the public understand and appreciate its value.

Dr. Frankenstein's grand experiment led to his unfortunate ruin. The poor creature he created was given life but little else. In particular, it received no support from its creator and was left to find its own place in the world. It was unable to do this, largely because of an unappreciative public. Thus what started off as something potentially grand deteriorated into disaster.

If Dr. Frankenstein were a banker, he probably would have a reputation as a bad strategic planner and poor manager. Let me explain, keeping in mind the literary metaphor, what I see as our modern day Frankenstein in the ACH system.

The ACH is a payments mechanism conceived 15 years ago in response to the paper processing problem that threatened to overwhelm the back offices of commercial banks and other depository institutions. The ACH concept was simple: to convert the volume of paper payments made by check to electronic machine-readable transactions. The mechanism was designed to be a natural extension of the existing payments processes and technologies used for high-volume or "batch" transaction processing, so it could be adopted easily by all depository institutions.

Thus, the ACH had two important design features. First, it was designed to be a low-cost substitute for the high-volume, primarily low-dollar payments that were beginning to clog processing operations. Second, by building upon existing processes and by exploiting familiar technologies, it was intended to achieve wide acceptance by depository institutions.

The original intention for the ACH has been fulfilled, but only in part. The system is used primarily for low-dollar payments in a batch processing environment, although the crux of the problem today is that too few of these types of payments are being processed. Further, acceptance by depository institutions has been high; today, over 20,000 depository institutions participate in the ACH.

Yet, ACH progress is not what it should be, primarily because the volume of payments remains low compared with paper processing. Indeed, few depository institutions could justify their ACH operations as efficient substitutes for processing high volumes of paper payments, because the number of electronic transactions is too low to take advantage of potential economies of scale. In many cases, ACH is justified in a business sense because depository institutions view it as a special-purpose mechanism to be used for payments that are relatively few in number, such as using the system as an "electronic lock box" for cash concentration. The progress that is possible will not materialize until ACH is viewed as more of a general purpose, volume-oriented application.

While disappointing, the fact that ACH has not fulfilled its original promise by attracting a much larger volume of payments is no reason to panic. After all, in 1985 over 580 million

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The author is senior vice president of the Federal Reserve Bank of Richmond. He serves as the Federal Reserve's product manager for electronic payments services, including Fedwire and ACH. *"Dr. Frankenstein and the ACH" is reprinted with permission from the Journal of Cash Management.*

"Public acceptance cannot be taken for granted but rather requires a basic change in behavior."

payments were processed in a highly automated fashion through the clearinghouse, and volume growth remains high. What causes concern, however, is that insufficient attention is given to educating the public generally about the benefits of electronic funds transfer (EFT) and to promoting the ACH as a substitute for routine check payments. This concern about promoting the ACH as a small-dollar check substitute is heightened by marketing efforts that appear to be moving the network in just the opposite direction—toward a special purpose, large-dollar mechanism.

Indeed, some current developments could dramatically alter the ACH's original thrust, threatening the progress already made as well as future progress in attracting check substitute payments and encouraging depository institution participation. One such development is using the ACH as a large-dollar payment substitute; another is limiting the use of processing technologies commonly employed by many depository institutions in a rush to make the ACH fully electronic.

Before discussing such threats to the objectives of the original ACH, we must understand why volume growth has been disappointing. This is where the literary metaphor based on the *Frankenstein* story comes in.

The ACH originally was designed to address depository institutions' problems, not primarily corporate or consumer problems. Perhaps some advocates thought that, once introduced, the ACH would be so attractive that volume would take care of itself. It has not, of course, and here lies the problem. Introspective bankers will admit that the industry has devoted little attention to promoting or marketing electronic payment substitutes like ACH. In fact, the amount of ongoing investment in marketing the system appears minimal not only in an absolute sense, but when compared with the attention given to ACH operational, legal, and procedural issues. Thus, like Frankenstein's creation, the ACH got off to a good technical start, but the marketing that could help fulfill its promise as a check substitute has been neglected.

Like Dr. Frankenstein, creators of the ACH have given too little attention to public acceptance. Perhaps in part because the capabilities are so great, public acceptance has been difficult to achieve. For example, the ACH's intrinsic capability to move money not only efficiently but quickly reduces the float benefits of using checks. Because of issues like this, public acceptance cannot be taken for granted but rather requires a basic change in behavior that demands effort to achieve. Considering what has been accomplished with the investment in educating the public about ACH to date, I believe great potential waits ahead if supporters make an effort to achieve broad-based public favor.

Consider an important exception to the general failure to market ACH. Currently, over half of all ACH transactions still derive from one source: the U.S. government. The Treasury and many government agencies have energetically and effectively promoted and marketed the system to their "consumers," including Social Security recipients, active and retired military personnel, and federal employees. Acceptance rates for government ACH applications have been high as a result of commitment and hard work that offers a model for the private sector to follow. Among those determined to sell EFT, the government is still the ACH volume leader.

Our literary metaphor also might suggest the ACH could become a "monster." How could this occur? By allowing the network to go off unguided in directions contrary to its intended purpose. As pointed out earlier, this could happen by giving up on marketing the ACH as a broad-based check substitute and allowing the focus to shift to low-volume, large-dollar payments. Another danger is turning exclusively to technology to solve public reception and marketing problems, limiting the range of choice in operational alternatives for participating depository institutions or for those wishing to take part.

From the beginning, ACH has been managed by banks as a small-dollar mechanism akin to check processing. In particular, the system has been fitted into banks' back-office systems as a batch processing application instead of real-time processing, with posting to customer accounts once per day, generally during the night or early morning. Indeed, Federal Reserve Banks' recent research into ACH practices

"Pure electronics is not
the only way to get the job done in today's world."

reveals that nearly all depository institutions treat ACH as a batch application, holding files once they are received until the night accounting cycle. Further, less than 10 percent of all depository institutions even attempt to distinguish between small-and large-dollar payments received in ACH files.

Changing the focus to include large-dollar transactions could turn this payment mechanism into another funds transfer system, like Fedwire, CHIPS or Cashwire. At the least, such a shift is likely to require that the control, security, and accounting support necessary for funds transfer systems be replicated in the ACH batch system. Such procedures are expensive, and their incorporation into the ACH environment could lead to unexpected operational complications since these techniques typically have been designed for item processing, not batch processing systems. This raises the specter of an ACH system with a much higher unit cost as a result of changes necessitated in depository institutions' back offices, clearly contrary to the original objectives for the system.

It would make little difference how many large-dollar payments were involved, since even a small number would require investment in controls and operating procedures that characterize special-purpose EFT systems. This was deliberately avoided in the ACH fifteen years ago, and a change now could dramatically alter the attractiveness of the clearinghouse as a small-dollar check substitute. Without low unit costs, the ACH never will succeed in its original purpose.

The second potential danger would be limiting prematurely the range of technical options the system will accommodate. While extremely promising computer and communications applications exist in banking, as a practical business matter depository institutions continue to depend on a range of processing solutions that vary widely in design and sophistication.

Pure electronics is being advanced as a major breakthrough in the ACH because it can help overcome troublesome delays in the transportation of physical media such as magnetic tapes. While this is true, relatively few institutions have the capacity to integrate electronically received data flows directly into their processing systems. In this sense, pure electronics, if offered as the only choice, could degrade current processing efficiency. Take the case of a smaller depository institution currently "communicating" with the ACH using the popular 8.5 inch floppy disk common in many back office processing systems to perform functions like demand deposit accounting. Pure electronic delivery not integrated with back-office processing based on floppy disk technology could be a step backward. If an electronic data flow were transmitted to a depository institution via personal computer, only to be printed on paper when received, end-to-end processing efficiency would be degraded. Service to the customer actually could suffer.

This does not suggest the use of new technologies for the ACH, particularly pure electronic processing and communications technologies, is bad. But pure electronics is not the only way to get the job done in today's world, where more traditional technologies continue to serve many depository institutions well. By supporting an evolution to pure electronics, we can move in the right direction without the risk of disenfranchising many potential ACH participants. We do not wish to force out of the mechanism the many institutions whose participation is essential to maintain the broad receiver base necessary if the system is to be an acceptable substitute for checks.

The danger is that we risk turning the ACH into a monster for the same reason that Dr. Frankenstein's experiment did; we have created something new and awesome but have not adequately attended to its public acceptance or marketing.

Indeed, we have a problem with insufficient ACH volume today. Yet I worry about proposed solutions that focus not on increased education and promotion for high-volume check substitute payments, but on uses that do not necessarily fit into the original plan. My greatest concern is that the ACH is not a large-dollar transfer system and should not be used as such at this stage in its development, except for carefully thought out applications. It was not designed for that job. Banks can attest that back-office processing systems for ACH have

not been designed along the EFT model, and by and large lack the features that allow the credit, security, and funds management control that would permit the ACH to be an acceptable vehicle for large-dollar payments. If such back-office support systems did exist, we would see a much greater integration of funds transfer and automated clearinghouse management in commercial banks.

The ACH's great potential still appears to be that conceived in its original design—as a low unit cost alternative to paper processing. To achieve low unit costs requires a reasonably large volume base, built on small-dollar transactions.

Who are the Frankensteins in this story of the ACH? Clearly I am not blaming any individual or group for existing problems. The ACH has been developed collectively to a large extent, and we all share responsibility. Commercial bankers, Federal Reserve bankers, and corporate participants have played a joint role in creating the ACH and making it what it is. In that sense, we share equally in its accomplishments—but also in its potential decline.

Let me offer two general suggestions for addressing today's problems. Perhaps most important, banking industry policymakers responsible for payments system planning must take a more active role in managing the ACH, including the appropriate marketing and product management focus. We must make a conscious decision to seek volume growth first from the huge existing base of small-dollar payment transactions, looking toward the U.S. government as a good model. By extension, current ACH management issues also touch on some fundamental principles of running a banking business, including careful management of credit relationships, basic security policy, and the like. Policymakers must consider these principles as they evaluate the type of marketing thrust appropriate for the ACH.

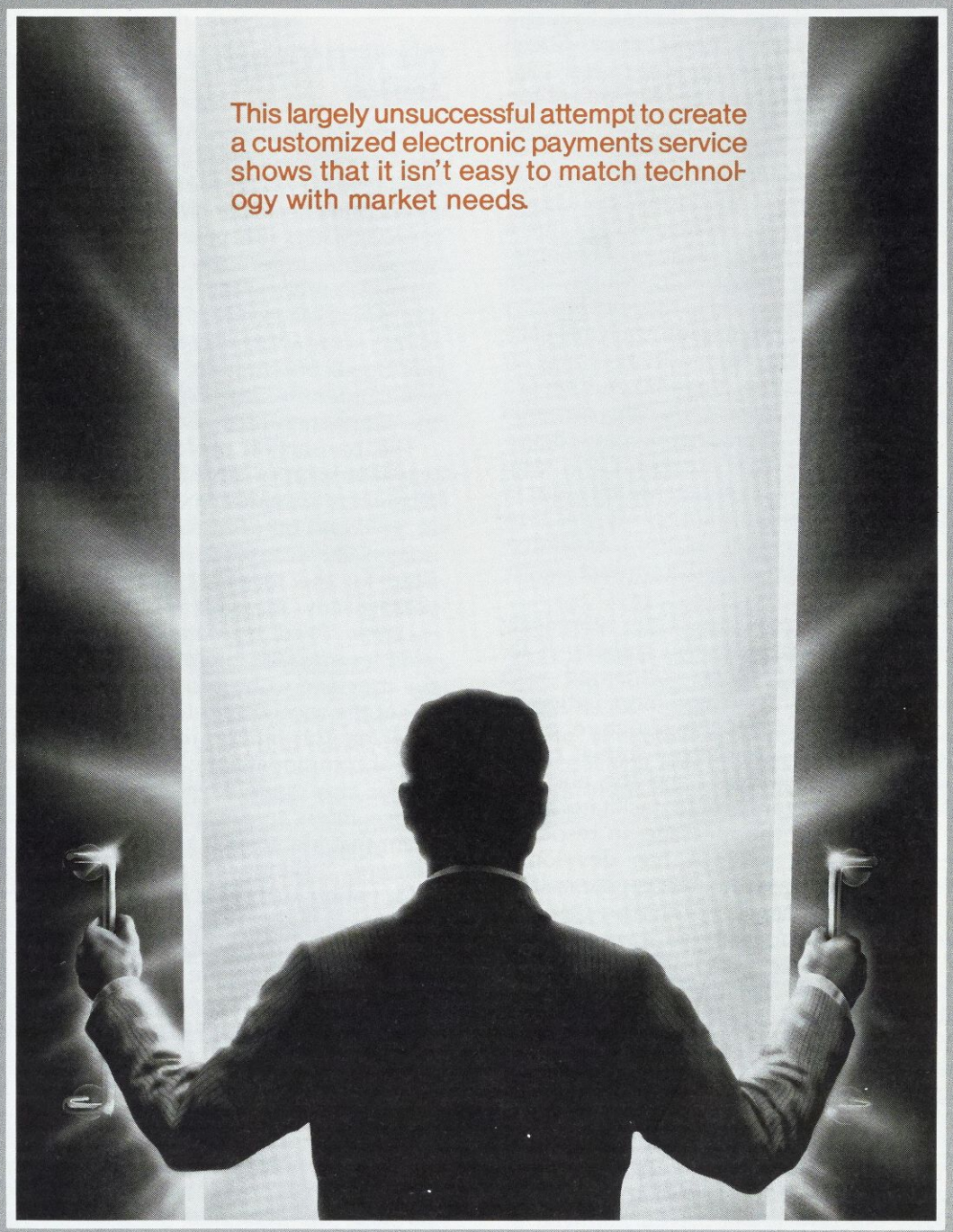
The second suggestion applies not only to the ACH but to virtually any aspect of operations management in a bank or other business. In managing technology, businesses must drive and guide technology, not the other way around. Like the original creators of the ACH, we need to carefully plan and manage the network to provide a range of technological choices compatible with accepted business practices while we plan for the future. In particular, we need to guard against disenfranchising participants that continue to rely on older technologies.

The problems the ACH faces today should not be underestimated. They are major problems, reaching to the core of how we define the automated clearinghouse. Yet these problems are not insurmountable. I believe we have an opportunity to address them in a timely way before they get out of hand.

My motive in being so forthright is not unlike that of Mary Shelley when she wrote her famous book; I hope to scare my audience. In this case, I hope the scare will lead to a reassessment of what we are doing in the ACH and to more careful management of the new mechanism so the many gains that have been achieved are preserved and extended.

Corporate Trade Payments: Hard Lessons in Product Design

Bernell K. Stone



This largely unsuccessful attempt to create a customized electronic payments service shows that it isn't easy to match technology with market needs.

Corporate trade payments—payments that businesses make to their vendors and suppliers—seem a logical area for automated clearinghouse use. Most businesses already maintain computer-based systems for creating checks; the same data could as easily generate ACH transactions. The ACH is not, however, widely used for corporate trade payments.

By 1983, ACH volume was limited to just a few classes of payment transactions: Social Security and other government pension payments, direct deposit of payroll, and preauthorized insurance debits. Use of the clearinghouse for cash concentration grew rapidly because of the late cycle processing option introduced in 1979. There was, however, virtually no use for business to business payments except for a minute volume in dealer-distributor payments.

The limited use of the ACH in this payment segment is sometimes traced to the absence of a way to provide the information that normally accompanies trade payments. In response to this apparent need, the National Automated Clearing House Association (NACHA) designed a new ACH service, appropriately named corporate trade payments (hereafter CTP), with the capacity to attach an extensive message to a standard ACH payment transaction. This new service, tested successfully in 1983 and introduced in January 1984, failed to attract significant volume.

The reason for the failure of this seemingly attractive service has been the subject of intense debate among those concerned with electronic payments. Two common criticisms of the CTP service arise: the structure of its message capability—a semi-fixed format rather than variable-length format—and the absence of a data content standard to facilitate automated processing of the message. In response to these criticisms, NACHA has developed another service designed for trade payments—corporate trade exchange (CTX). The CTX service provides the capability to have variable-length records and use a data content standard.

An assessment of why the CTP service has failed to attract corporate payments can help determine the requirements for a successful electronic trade payment and advice service. It can also indicate what is needed for the new CTX service, thus foreshadowing its prospects for market acceptance. A retrospective look at the CTP also can illustrate, with the benefit of hindsight, the complexity and difficulty of introducing an electronic payment service. Finally, the analytical framework set forth here can serve as a model for market analysis based on the needs of payors, payees, and their financial institutions.

The author is Mills B. Lane Professor of Finance and Banking at Georgia Institute of Technology.

The ACH Corporate Trade Payment Service

From its inception in 1974 until 1983, the ACH system provided for only single payment transactions, which used a 94-character format to encode check-like payment data in electronic form. It listed the payor institution and payor account number, the payee institution and account number, the payment amount, dates, and processing codes. This standard ACH payment record was limited in its ability to include additional information with the payment that would identify and explain the transaction to the transaction receiver.

The transaction record's message capability was restricted in several ways. First, of the 94 characters available in the transaction, only 30 to 34 could be used for messages. Second, no universally accepted rules or procedures existed for the receiving institution to follow in passing any message on to the transaction receiver. Third, no data content standards existed for message information that would enable the message to be processed automatically by either the receiving institution or the transaction receiver. This limited message capability could not accommodate the payment advice essential for most trade payments. The term *payment advice* refers to any information about a payment that identifies it and explains the payment amount. "Identifying the payment" requires information such as a reference to the invoice or invoices being paid and other data necessary for the payee to update its accounts receivable by giving credit to the paying company. Often the payment advice will explain adjustments that make the amount paid different from the amount invoiced.

The CTP Transaction

To address the market for corporate trade payments, NACHA introduced CTP, which expanded the standard 94-character payment

record by including the ability to attach from 1 to 4,999 additional message records of 94 characters each to the payment transaction.

The pricing structure of the CTP service involves a minimum charge for 15 addenda records, even if fewer than 15 records are used, plus an additional charge for each record in excess of 15. The CTP service allows one free-form, or variable-length, message.

A paying company could provide an electronic payment advice by "packing" the advice information into this series of 1 to 4,999 addendum records of 94 characters each. This advice would be sent through the ACH system and delivered to the receiving institutions along with the payment transaction. The receiving institution would presumably pass this electronic payment advice on to the payee along with the payment itself, giving the payee the same information provided by a check payment and advice. Thus, the payee could update accounts receivable and, if necessary, inform the payor of any problems such as disagreements on discount or other payee adjustments to the invoiced amount.

In essence, the CTP transaction seemed to provide an electronic analogue to a check payment and printed advice by providing for both payment and advice information.

The Pilot Test

Announcing its CTP service capability in the spring of 1983, NACHA proposed a pilot test for June through December. The pilot, involving a number of large companies and banks, tested the ACH's ability to handle a payment with addendum records. The Federal Reserve accommodated NACHA by producing the software for sending addendum information.

In the test, the ACH simply transmitted the addendum information and engaged in no processing other than the sorting and merging necessary to process the payment. The message information was packed into the 94-character records by either the initiating company or the originating depository institution; the receiving depository institution unpacked the message and delivered it to the payee. Essentially, the CTP service was an electronic data transmission capability that matched addendum data with a specific payment record and sent the message along with the payment data. In CTP processing the addendum data is handled in the same way as an electronic mail service. There is no processing of the message as such, but merely a store-and-forward transmission from the originating company to the receiving company.

In the pilot, both the procedures for handling addendum information and the software functioned as designed—the pilot was a technical success. Therefore, midway through the test period, NACHA announced a full-blown corporate trade payment service available to any ACH user beginning January 1984.

The Marketing Failure

NACHA's press releases and statements implied that it expected widespread corporate acceptance of CTP, and thus rapid volume growth. The opposite has occurred. Current CTP transaction volume is insignificant—numbering only a few hundred transactions per month. Few companies other than pilot participants now use CTP and their volume is low. Prospects for growth, either in transaction volume or number of new users, are slim at best. And, few depository institutions actively market and support the CTP service.

Apparently recognizing that the CTP service is unlikely to succeed in its current form, NACHA recently announced an alternative called corporate trade exchange (CTX). The primary difference between the two services is that CTX provides variable-length records rather than a series of fixed-length 94-character records and supports a data content standard, ANSI X12.4.

The variable-length record eliminates message packing and unpacking costs and provides much more flexibility than the series of fixed-length records required in CTP.

Contemporary Trade Payment Practices

A look at the basics of contemporary trade payment practices helps to explain why CTP does not offer sufficient economic or technical incentives to attract businesses. When goods or services are provided to a business on credit, the vendor usually sends an invoice identifying the goods or service, stating credit terms, and requesting payment. To enable the vendor to update accounts receivable records and credit the payor's account, the payor usually provides a payment advice along with the check.[1] This

payment advice identifies the invoice or invoices being paid. In transactions with major suppliers, businesses commonly pay many invoices with a single check. Moreover, because the amount paid often differs from the amount invoiced, a remittance advice is necessary to indicate the reasons for the difference. Such information may account for discounts, corrections to the invoice, adjustments for freight, returns or damage, trade allowances, promotional rebates, and a variety of other contingencies.

An invoice sent to a business does not generally include a standard scannable return document for updating accounts receivable, as do retail invoices such as telephone or power bills. Even if the billing company provided a standard return document, the typical corporate payor using a computerized check creation system would not match a computer-prepared check with a standard return document, because this would entail costly manual handling. Thus, in a computer-based accounts payable system, the payor creates a remittance advice that identifies the check for the payee and explains the amount paid compared with the amount invoiced.

Retail Versus Wholesale Processing. Payee processing costs, which differ markedly for standard retail payments and vendor payments, are the key to determining the processing and information requirements for a corporate trade payment service. (Exhibit 1 outlines areas for potential savings.) Retail payments use a standard computer-processable return document that makes processing simple and keeps costs low. The payee or its processing agent opens the envelope, verifies the check amount against the return document amount, prepares the check for deposit, and uses the return document to update accounts receivable records. Often this processing is performed by a retail lockbox service, which produces a daily tape or some other electronic medium for input to a company's accounts receivable processing. The cost of a retail lockbox is low, typically no more than 10 cents for each payment "item" or transaction.

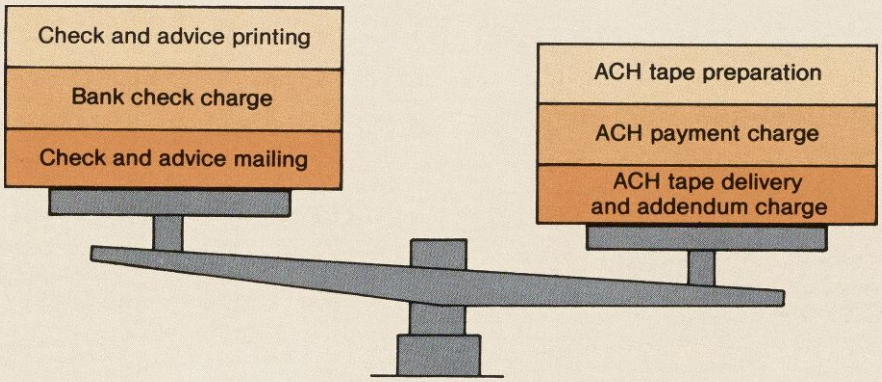
In contrast, wholesale payments ordinarily have no standard return document and are considerably more costly. The payment processing itself is more expensive—for example, it costs 30 to 50 cents per payment for the minimum wholesale lockbox service. Moreover, the payee's primary cost difference stems from processing the printed remittance information rather than the check payment itself.

The length and complexity of the payment advice determines actual keying costs; for a moderate length advice of 200 to 400 words, keying costs at least $1, or about one-half cent per word. Furthermore, the absence of a standard format and data elements means that a skilled person must preprocess the return document to identify data content and structure it for keying. Typically such prekeying costs about $1 per 100 words but can run substantially more for a long, complex invoice. Errors may arise both in the preliminary work that must be performed to organize remittance data for keying and in the data keying itself, raising costs still higher. Many companies find that error detection, resolution, and correction accounts for more than half the remittance processing costs for complex wholesale remittances. Thus, an electronic advice could cut payee costs by eliminating the need to rekey remittance data, reducing errors, and automating the accounts receivable processing.

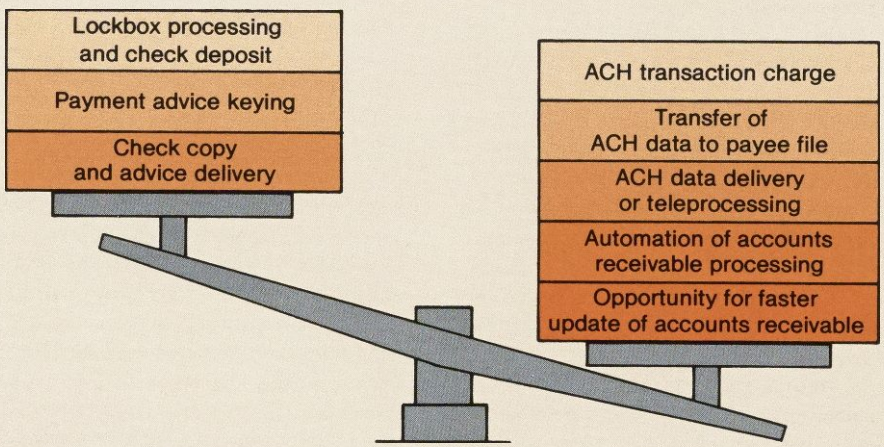
Providing the Remittance Advice. In contemporary payment practices, remittance advices are provided in three generic ways—a check-connected advice, a computer printout, and an electronic advice. When the advice is short, the advice information is attached physically to the check on perforated, check-size paper. The check and advice are sent in a single envelope to the payee or payee agent, who separates the two in processing the check. This check-connected advice is used for simple payments, for instance payment for a single invoice with straightforward adjustments such as discounts and returns.

A check-size addendum is too small to record all pertinent information in complex transactions. As an example, one check may be made for hundreds of invoices, each with a variety of adjustments and corrections. In this case, the check is usually appended to a computer printout and the two are mailed together. Sometimes, the check payment may simply refer to a remittance advice to follow. In this case, a hybrid of paper and electronic medium is often used. For instance, a check is sent to the company or its wholesale lockbox identifying an electronic advice that will follow. The payor then sends a tape, diskette or other

Exhibit 1
Savings Opportunities
(Checks Versus ACH)



Payor Savings Opportunities



Payee Savings Opportunities

- The ACH data transfer involves very little work since both the payment transaction and addendum data are already in electronic form. The only processing is moving the ACH data from the bank file system to a user file, including possibly transfer to a tape or diskette if the data is not teleprocessed.
- Payment advice data may be keyed by the lockbox bank as a data capture service or the advices may simply be forwarded to the company for keying.
- ACH data may be physically delivered to payee if provided on tape or diskette and in this case involves costs comparable to delivery of check copies and remittance advices, for example, an overnight courier charge.

electronic medium giving details for a long addendum. The electronic advice saves printing costs for the paying company and keying costs for the payee.

Compatibility with ACH Processing. Because most large companies use automated check preparation systems, all the information necessary for an ACH payment already exists in computerized form. Therefore, companies presumably could switch from check-based payment to ACH payment with minimal effort. Rather than incurring the cost of creating the check and advice, the company would deliver a tape or teleprocess pertinent data to its financial institution.

Benefits of Corporate Trade Payments

If an ACH service is to replace checks for corporate trade payments, its net benefits must provide both payor and payee an acceptable return on investment to justify the costs of running a hybrid check-ACH payment system. Exhibit 1 summarizes savings opportunities for payor and payee.

Payor Benefits. For the payor, benefits are straightforward and modest. Savings are achieved from any reduction in bank payment charges and the elimination of mailing costs (postage, envelope, and related envelope processing and handling). The maximum savings is probably 20 to 25 cents for each transaction (Exhibit 2). In most cases, savings will be less, and the transaction could even cost more for a long advice because of the relatively high charge of one-tenth of a cent per addendum record. For instance, 415 addendum records would require an additional 40 cents beyond the basic CTP electronic mail delivery charge. This compares with 22 cents in first-class postage for mailing the same data. Although it may cost the payor more, the long remittance advice holds great potential for payee savings, which could offset the additional message costs to the payor. If such payee savings exceed incremental payor costs, and if the payee shares the savings with the payor via credit terms or price rebates for electronic delivery, then long remittances may be viable within a CTP system.

Payee Benefits. In nearly all vendor payment situations, the payee's administrative savings are greater than the payor's. However, the payee's benefits and costs are more difficult to quantify, owing to the wide range of payee processing options and associated costs. First, processing costs depend heavily on the mode of collection—wholesale lockbox versus internal company collection and processing. Second, a broad array of possible data capture costs are linked to the complexity of the remittance advice and the extent to which critical data (such as an invoice number, vendor number or even payor bank account number) can drive the accounts receivable processing.

CTP clearly was not designed for simple, single-invoice payments, especially since the service has a minimum charge for the 94-character addenda records and an associated fixed cost for every CTP transaction. For simple, single-invoice remittance advices, the payee has little incentive to change from mailed check payments with a printed advice. For complex remittance advices, however, the potential savings from having data delivered electronically rather than through a printed advice are dramatic. Even greater benefits derive from avoiding rekeying of the remittance information and from automating accounts receivable processing, through a standard code for data elements. In both cases, human error is reduced significantly.

Electronic delivery refers to any computer-readable medium that obviates the need for rekeying. The data could be teleprocessed or delivered by means of a tape or disk (diskette); however, a printout prepared by the receiving depository institution does not constitute an electronic medium. Providing a printout of the addendum data would nullify the potential savings from avoiding rekeying. Moreover, because it is virtually impossible for a human processor to read and efficiently key a data structure and content code such as ANSI X12, a printout with CTX would eliminate the potential benefits of automated accounts receivable processing as well as the savings from not rekeying.

Automated processing requires a standard data code for the remittance advice elements so that the payee's software can read and process the remittance. Such a standard eliminates the need for a human to identify data content, a usual requirement in most paper-based systems today. With check payments, for example, an accounts receivable clerk usually keys data elements of the remittance

Exhibit 2

Inter-ACH Corporate Trade Payments
Payor Savings and New Payor Costs and the Most Economical Record Size

Payor Savings	Cents	New Payor Costs	Cents
Elimination of check and advice printing	.01	Per item delivery of tape to ACH	.04
Bank Check	.30	Bank ACH transaction origination charge[2]	.20
Elimination of mailing of check and advice[1]	.25	ACH addendum charge beyond 15 records where R is the number of addendum records[3]	.01 (R - 15)
TOTAL PAYOR SAVINGS	.56	TOTAL NEW COSTS	.24 + .01 (R - 15)

Net Payor Benefit

Net payor benefit = payor savings - new payor costs
= .56 - [.24 + .02 (R - 15)]
= .32 - .02 (R - 15)

The Maximum Economical Record Size

The maximum economical record size is obtained by setting the net payor benefit equal to zero and solving for the corresponding value of R. This gives:

0 = .32 - .02 (R - 15)
R = 15 + .32/.02 = 31

Conclusion

Given the current ACH charges, a typical payor would find the ACH more expensive than check payment whenever the number of addendum records exceeded 31.

Notes

[1] Includes postage, envelope stock, and an estimate of per item delivery to the post office.
[2] The estimate of the ACH origination charge for inter-ACH items is subject to bank markups over the 7.5 cent charge for an inter-ACH CTP transaction. The key point here is that this charge is 10 cents **less** than the assumed cost of a bank check.
[3] This analysis assumes a charge of .02 cents per inter-ACH addendum record—the current Fed charge. If banks mark up the Fed charge, then the maximum economic record size would be even lower than shown here. For instance, if banks were to charge .4 cents per inter-ACH addendum record in excess of 15, then the maximum economic record size would fall to 23.

Exhibit 3
Major Components of a Trade Payments Processing Service

Company Input Processing	A company tape or other source of input must be validated and put in the CTP format.
Network Transmission	Formatted input must be transmitted from the originating ACH processor to the receiving processor.
Collection and Settlement	Funds must be removed from the payor's account and credited to the payee's account.
Payee Output Processing	The payment and remittance data must be processed by the receiving depository institution and delivered to the payee company in a usable form.

advice into appropriate fields within a standard data format compatible with a particular company's accounts receivable processing system.

Standards already exist for electronic data interchange of remittance information between businesses. Some industries (like grocery and transportation) have industry-specific standards while others such as the automotive industry are now establishing industry-specific systems based on the general purpose ANSI X12 standard. The payor and payee can even use customized standards when they transact sufficient volume.

Network Requirements

If the network offering a remittance transmission service functions primarily as an electronic mail service—that is, performing pure data transmission from payor to payee—its requirements are simple: the payee or processing agent must receive the data electronically and must possess accounts receivable processing software that accommodates the data format, data structure, and data content dictionary used by the payor (Exhibit 3). In a straightforward electronic mail service, the network merely provides a way to identify the data and content standard when the users employ multiple formats, data structures or content standards. In effect, the data envelope must specify the "language," or the standard, of the electronic letter.

Since electronic delivery from the receiving bank to the payee is crucial in payor-originated trade payments, the receiving bank is the key player in a CTP service. This contrasts markedly with ordinary ACH transactions, in which the originating institution tends to be the active servicing agent. With a CTP-type service, the receiving institution must be equipped to offer a flexible array of electronic delivery services to payee clients. Otherwise, little hope exists for a viable trade payment service.

Explaining CTP's Failure

The failure of CTP is commonly blamed on one of four factors: (1) the difficulty and cost of converting from check-based to ACH-based payment, (2) loss of check float, (3) the absence of significant bank marketing and other support, and (4) use of a fixed-record format for the addendum (as previously discussed). Each of these arguments is incorrect or, at best, inadequate.

Conversion Difficulty. The contention that companies need time to convert to ACH-based payment is questionable. As already noted, most companies have a computer-based system for preparing checks and addendum information. Generally, both procedures are driven by a tape or tape-like file that feeds into a print processor; therefore, the data required for ACH transactions that a company would forward

to its originating depository institution are already available in computer-readable form. Moreover, the data usually are organized so that converting them from the check printing to the tape creation step should present no difficulty. The programming needed to effect such a change is minimal, requiring at most a week of work. In fact, using CTP via the ACH would ultimately reduce the effort and cost of creating payment and remittance advices, because a firm can produce and deliver a tape (or teleprocess a tape-like file) with greater ease and economy than it can run a check and remittance advice printing operation.

Any company with a check creation system based on computers is technically able to switch to corporate trade payments with very little programming effort and cost. Given the ease of conversion, firms must either lack incentive to use corporate trade payments or else they must be deterred by barriers other than conversion time and cost.

Check Float. A more plausible explanation for CTP's marketing failure involves companies' potential loss of check float—the time delay between release of the check and its presentation against the paying company's bank account. Check payment float consists of three components: mail time, recipient processing time, and check collection time. Typical check collection times take roughly one day, while ACH items entail a one-day delay. Thus, if electronic payment is initiated at the same time a corresponding check is mailed, using the ACH alternative will cause a company to lose the mail and processing float (see Box, p. 18).

Proponents of the check float argument assert that the financial gain from float surpasses any savings from the ACH. However, the accompanying box, which compares numbers, indicates that net float opportunity is actually insignificant when both payor and payee are considered. Hence, it seems that check float alone cannot account for the CTP service's failure.

Yet the float explanation contains a germ of truth. As designed, corporate trade payments promise virtually no administrative or other benefits to the payor aside from savings derived from replacing check and advice printing with tape creation and from eliminating mailing costs. Therefore, if float is lost, the paying company gains no net benefit from automating. Most potential benefits accrue directly to the payee to the extent that remittance processing costs are reduced. Thus, the payor's incentive must arise from mechanisms for sharing the payee's savings, such as changed credit terms for electronic payment, later payments or price rebates.[2] But without electronic delivery to save keying in and standards to allow automated remittance processing, the payee receives no significant benefit. When there are no savings to pass on to the payor and when no rationale exists for offering better credit terms, CTP becomes merely a float loss situation for the payor. The fact that CTP is so often criticized due to float loss reflects a failure to educate the market about potential administrative savings and net benefit sharing mechanisms.

The check-float obstacle is really just a symptom of corporate trade payments' larger problem—the absence of sizable savings. Even if check float were not an issue, CTP would still fail since it offers neither significant savings nor other features that make it clearly superior to check-based payment.

Bank Marketing Support. The lack of bank marketing support for CTP, like the check-float problem, is symptomatic. Financial institutions will invest in a marketing effort only if they believe that enough business exists to provide a return. Clearly, banks judge that CTP lacks attractive volume or margin potential.

The CTP product focuses exclusively on the ACH network's capability, ignoring processing required by banks. For instance, the service specifies no standard method for the receiving bank to deliver data electronically to the receiving company. Yet such data delivery is necessary for attaining the single largest source of payor-payee savings, as well as being a necessary step for saving the payee processing costs—eliminating the rekeying and relating processing of remittance advice data.

Record Format and Content Standards. The use of a series of 94-character addenda records has been widely criticized. This semi-fixed format is more costly and much less flexible than a variable-length message structure.[3] Moreover, charging for at least 15 of the 94-character records makes the message price seem prohibitively expensive for short remittance advices, especially those involving fewer than 100 characters.

Float—A Barrier to CTP?

Most payment float is a zero-sum game: a payor's disbursement float increases at the payee's cost, for it results in an equivalent extension in the time delay until the payee receives good funds (collection float time). A positive-sum float situation arises from clearing system slippage; that is, good funds usage is granted to the payee faster than funds are charged against the payor. For instance, if the payee receives one-day availability in depositing a check but the payor's account is not charged for two business days, then there is one day of clearing system slippage. This slippage can sometimes be traced to Federal Reserve float, which occurs when the Fed grants availability to a depositing bank faster than it collects from either the drawee bank or that bank's collection agent. The source of slippage also could be other payment system processors, as when a depositing bank grants funds availability faster than it can consistently collect in its direct send program. Similarly, the slippage could be caused by a correspondent bank that is slow in its processing, or a drawee bank that is slow in posting presented checks. The latter, though rare, occurs when a controlled disbursing bank receives a late check presentment and does not charge the drawee bank until the next business day.

Fully Priced Versus Unpriced and Underpriced Float

The Federal Reserve has reduced its float dramatically to a small fraction of the level six years ago, and has effectively priced the remainder. The issue is whether that remaining Fed float is underpriced or misallocated away from the payor and payee.

Most bank float is priced in some way. For instance, a lockbox processing bank may grant a premium availability schedule but also charge a premium price to cover occasional slippage. In fact, a study of lockbox banks shows that most collect checks faster on average than the availability granted. The net slippage across lockbox processing banks is negative and not generally a net float benefit to payor or payee. Similarly, a controlled disbursement bank that accommodates late presentment will charge for this service in some way. The charge may be reflected in the analysis statement so the paying company must return funds to the paying bank equivalent to the effective loan. In many cases, an additional charge will be levied for the loan and possibly a fee for this service.

In conclusion, virtually all clearing system slippage is priced in some way. The Fed prices float explicitly, while most deposit banks charge for slippage through a fee for deposit processing. Lockbox processors tend to use "float capture" for their net benefit, and drawee bank slippage, though unusual, is nearly always fully priced. Therefore, when both payor and payee are considered, check payment clearly no longer offers significant positive-sum float opportunity. The most common situation today is a zero-sum game between payor and payee—any gain in payor float involves an equal loss to the payee. With bank float capture, a negative-sum situation exists from the joint payor-payee viewpoint. Thus, when float is assessed from a joint payor-payee perspective, the majority of cases are either zero-sum or negative-sum situations. This means that float should not be a barrier to corporate trade payments.

Another format problem arises in relation to existing procedures for providing electronic delivery of lockbox data. The prevailing standard for lockbox data transmission by the Bank Administration Institute (BAI) uses an 80-character record. Thus, it is incompatible with the 94-character CTP records. For a bank already providing a company with lockbox data in the BAI standard, merging the company's CTP data into a single transmission in a single format is logical, since both will be used to update the company's accounts receivable. However, this can be achieved only if the CTP format is transformed by the receiving bank into the BAI format. The absence of standard software or software designs to interface CTP data with lockbox data transmissions reflects a failure to relate the CTP service with existing services and processing procedures.

Closely related to the problem of record format is the issue of data content standards. The CTP service included no provision for a data content standard. Advocates of the ANSI X12 standards for business to business electronic data interchange, which uses variable-length records, have criticized CTP's fixed

length 94-character records for failing to take the existing standards into consideration. However, a number of possible standards exist; the real need is for a standard capability that allows a sender to identify standard-encoded data to the receiver.

Resolving the issue of format and data content standards is crucial for achieving the potential benefits of electronics. Format affects interface cost, processing efficiency, and ease of electronic delivery.

Criticism Synthesis. Of the four common explanations for the CTP failure, only record format and data content standards are valid. Conversion to electronic data is easy for computer-based payment preparation systems although the use of a particular format that requires the conversion can be costly. When both payor and payee float are viewed in the context of net benefits, float in itself is not a significant problem. Bank marketing and product support are important for the success of any electronic trade payment service; its absence, however, is not a primary cause for failure, but rather a symptom of a poor product. The crux of a viable product is the ability to provide real economic benefits; format and standards issues must be viewed in this context.

Prerequisites for Check Displacement

Before electronic corporate trade payments can displace checks, benefits to the originating and receiving companies must be large. The greater this benefit, the greater the economic incentive and the faster the rate of adoption. Likewise, originating and receiving depository institutions will be convinced to create and aggressively market an electronic payment service rather than check-based services only in the presence of a net benefit. For an originating depository institution, "net benefit" implies two things: first, the margin from its electronic service must exceed that from its check processing service; and, second, the CTP margin must surpass the check payment margin by enough to cover start-up costs, to make up for lost check volume, and to generate sufficient income to provide an adequate return on investment. In the case of a receiving depository institution, net economic benefit means that the margin from its electronic trade payment service must exceed the margin from its deposit processing service.

If any one of these three benefits is missing, the electronic trade payment service—CTP, CTX or other variations that may emerge—is doomed to failure. No amount of marketing can overcome a lack of substantial net benefits to the payor and payee. Moreover, because companies can access the ACH only through their banks, the service cannot succeed unless enough institutions—both major corporate banks and the banks that process trade payment deposits—create and actively market the service to their existing customers. If an electronic corporate trade payment service is to thrive, payment banks must promote it as preferable to the controlled disbursing service they already offer. Alternatively, the benefits an originating institution derives from CTP must be compelling enough to attract corporate service banks that do not engage in corporate check payment servicing. Controlled disbursing often relies on geographic advantage (that is, the originating banks' location). ACH origination is geographically neutral if input is teleprocessed, and even provides an advantage to nearby banks if a tape or other electronic storage medium is delivered physically by the company. Thus, CTP offers major corporate service banks not now active in controlled disbursement an opportunity to seek payment processing business.

Two factors suggest that banks generally anticipate no significant CTP origination business vis-a-vis check processing. First, most controlled disbursement banks have slighted CTP and instead have worked vigorously to retain their disbursement business even in the face of formidable obstacles (such as revised Federal Reserve check presentment times). Second, since the introduction of CTP, many banks have invested substantial amounts to create and market check-based controlled disbursing. For instance, several New York City banks have used affiliates in Delaware or elsewhere to enter this business. Hence, the major corporate service banks perceive that the combination of relative margin and volume for check-based controlled disbursing outweighs the potential of its CTP equivalent.

Importance of the Receiving Bank. In contrast with its passive role in other ACH services, the receiving institution is the key player in a CTP service. The benefits it can gain help account for this predominance. As noted earlier,

the major advantages of CTP arise from electronic capture of complex payment advice data, which avoids the data keying and errors associated with a printed advice. If the receiving institution is not equipped to provide electronic delivery to the payee in a standard format and with minimal delay, then most payor-payee benefits are lost. Even today, as during the NACHA pilot test, the payee commonly receives a printout of the electronic addendum data, which must then be rekeyed. The printout is often sent either through mail or courier, so it is received no faster than if it were processed at the same bank's wholesale lockbox. Moreover, in the absence of ACH standards for format and data content, the printout of the advice may be even harder to interpret and key than the usual corporate payment service.

Summary of CTP Prerequisites. The payor and payee can obtain significant benefits from the CTP service only if the remittance data are transmitted electronically to the payee in a form that allows automated processing. Fully electronic delivery requires active CTP service support from the receiving bank. Having to handle a printout of the payment advice cancels virtually all benefits and may even be more costly than the payor's printed advice. The paucity of lockbox banks that have elected to act as CTP receiving banks suggests that they view CTP's potential margin and business volume unfavorably.

Conclusions

The CTP service has failed in part because of the semi-fixed format that requires packing remittance advice information into a series of 94-character addenda records. Lack of a data content standard such as ANSI X12 also precludes the automation of accounts receivable. The CTX service addresses these two problems, and so, it seems to be a move in the right direction.

There are, however, profound issues that reach beyond variable-format messages and the data content standards. Eliminating the rekeying of advice data and automating accounts receivable updates are major sources of savings for both payors and payees; therefore, the receiving bank's use of an electronic medium rather than a printout is crucial for cost-effectiveness. A printout of ANSI X12-formatted data will be of little value to the payee and could even make accounts receivable processing more difficult and costly, since this format is not designed to be read by a human.

If payee benefits are to be realized, receiving banks must provide timely electronic delivery to the receiving company. Unlike most current ACH uses, the success of a trade payment service depends on the willingness of receiving banks to assume an actively supportive role.

Finally, the central issue is economics. The cost of a CTX message must be competitive with transmission of advice data directly from payor to payee—for example, by mailing a tape or diskette or by a direct, computer to computer transmission (electronic mail). The current ACH message cost is expensive. Dramatic improvements in message processing efficiency are required to achieve a viable service. Only improvements such as these will convince companies that they can gain significant savings and that the ACH is the proper vehicle for such a service. Not only these improvements but systems enabling the receiving bank to provide electronic delivery are necessary to persuade banks that they can secure business volume and an adequate return through actively selling and supporting an electronic trade payment service.

Barriers to change will be reduced to the extent costs are reduced. Standard delivery systems and possibly delivery software should be provided to the receiving bank, to keep format conversions to a minimum.

These requirements for success suggest clearly that CTX is a step toward a viable trade payment service: it deals with two of the problems with CTP. Other major issues must be resolved, however, before the ACH can be expected to generate significant volume from trade payments. Electronic delivery is crucial. Processing software is desirable. General standard support is preferable to support specific to ANSI X12. Finally, lower message cost is essential.

NOTES

[1]In this article, it is assumed that the payor company is the transaction originator. Most companies indicate that they are not prepared to allow the payee to debit their accounts given the relatively large dollars involved in most trade payments, the absence of payor controls within the CTP service itself, and the need to incorporate in both the payment amount and remittance advice a variety of adjustments to the nominal amounts being invoiced by the payee.

[2]See Hill and Wood (1983) and Hill and Ferguson (November 1985) for a discussion of how net benefits of electronic payments can be shared between a buyer and seller by quoting credit terms and other benefit sharing devices.

[3]See Bernell K. Stone, "Desiderata for a Viable ACH," *Economic Review*, vol. 71, no. 3 (March 1986), pp. 34-43 for a more thorough critique of the costs involved in the series of fixed-length addenda records and the reasons for a flexible message capability.

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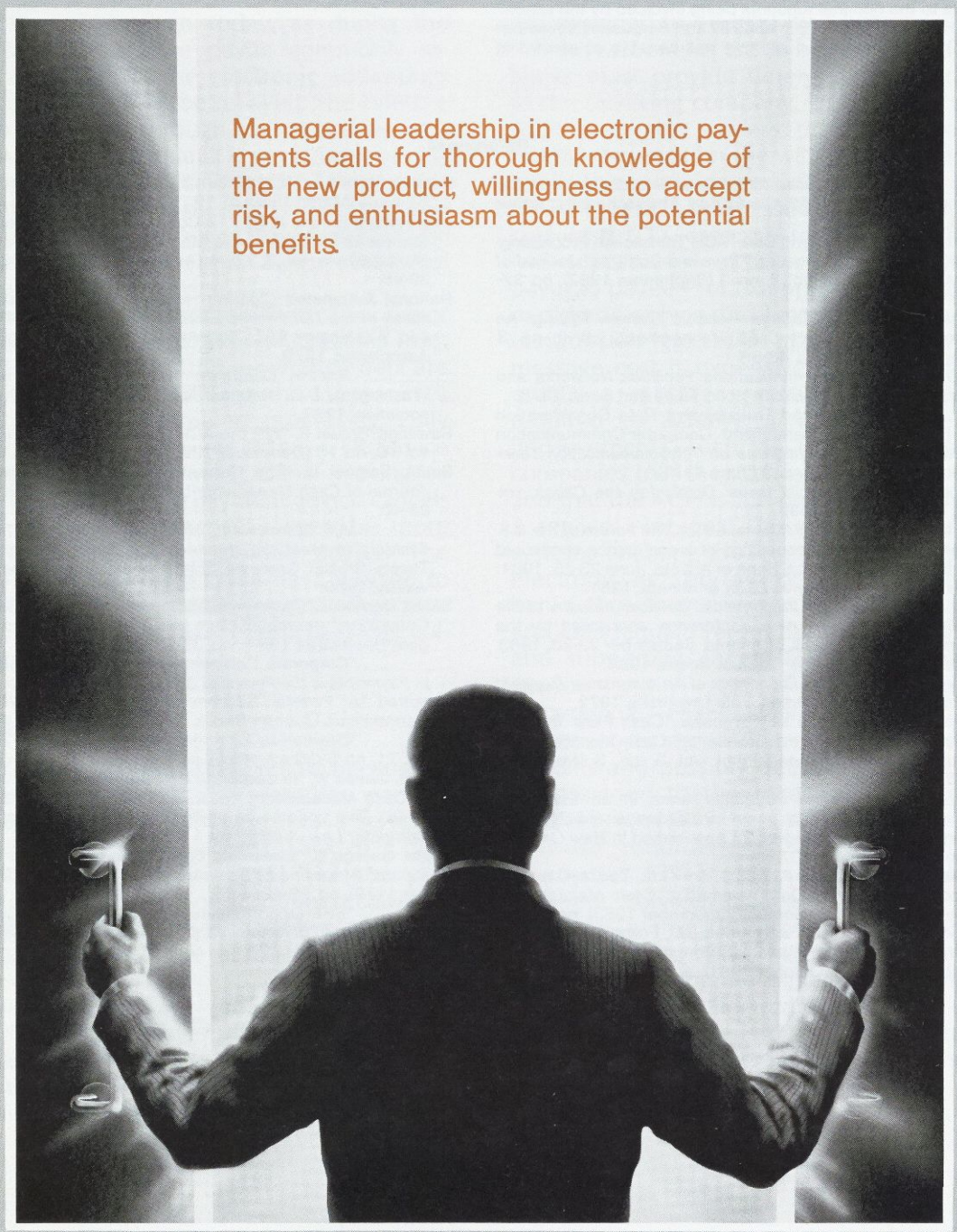
Managerial Leadership: A Key to Electronic Payment Success

George C. White



Managerial leadership in electronic payments calls for thorough knowledge of the new product, willingness to accept risk, and enthusiasm about the potential benefits.

When the potential of the automated clearinghouse is discussed, managers often ask whether customers will accept it. Many corporate executives assert that their customers, particularly consumers, will not agree to electronic forms of payment. Are consumers really reluctant to accept electronic payments? Can corporations benefit from using the ACH? How can corporations encourage their customers and employees to accept electronic payment?

The tendency among many corporate managements is to wait until "everyone" starts paying electronically. By not offering an electronic payment alternative and encouraging their customers to use it, they are missing out on the benefits of electronic funds transfer (EFT): primarily, payment on a precise date in good funds.

A few years ago, the editor of an Atlanta business publication who called to interview me on EFT development began the conversation by saying, "When we all start paying electronically...." I stopped him to ask what made him think this would happen. He hesitated, then explained that several Atlanta-based payment consulting firms spoke of it as inevitable. But, I asked, was he asking his subscribers to pay electronically? Were his advertisers asking him to pay electronically? Was he even paying his staff or printer or other vendors electronically? Of course, he was not. He was waiting—as so many corporations do—for others to make electronic payments "happen."

At a meeting last May of a National Corporate Cash Management Association committee and Federal Reserve staff members, the group concluded that the primary reason EFT was not being used more than its present 1 to 2 percent of check volume was lack of consumer education. Companies represented at the meeting (a communications company, a distributor, a financial services provider, and others) admitted, however, that they had not offered their customers an electronic payment alternative. *Is it customer reluctance to accept alternative payments or corporate hesitancy to institute new procedures that blocks development of the ACH?*

Preauthorized Repetitive Payments

Beginning in the 1950s, the life insurance industry developed and promoted—with the New York Life Insurance Company's leadership—the concept of preauthorized payment drafts. The industry found significant benefits in that concept. With preauthorization to withdraw funds monthly from a consumer's account to pay insurance premiums, fewer policies were cancelled than with conventional check payments, which enable the customer to cancel a policy by simply withholding the check. Many companies found that, because payments were more certain, they could share part of the savings with customers and offer lower annual premium rates even though the insurance premiums were paid monthly. Some insurance companies give sales personnel additional compensation for arranging preauthorized payment with policy holders. The conversion of insurance premiums to ACH has been a major commercial use of the clearinghouse.

Fairfield Communities, Inc., the country's largest condominium time-sharing developer, a national homebuilder, and developer of golf and tennis resorts, finances its own sales and uses preauthorized debits through the ACH to collect its payments. Customers unwilling to allow automatic periodic withdrawal pay a 1 percent surcharge to make conventional check payments.

The importance of management commitment is illustrated by a situation that occurred early in the conversion process several years ago. Fairfield Communities' sales were so active that temporary personnel had to be hired to key in the mortgage data as customers signed up for preauthorized payment. Apparently, some of the temporaries miskeyed codes for some customers' payment periods and their payments were withdrawn more frequently than scheduled—for example, semiannual payments were debited monthly. It was a serious problem, one that would have prompted most organizations to drop the entire program immediately. Fairfield did not, showing management's commitment to making electronic payments work. Errors were corrected quickly, and the system has functioned will since (see "ACH Means Timely Collections for Resort Community Developers").

Corporate Diversified Services in Omaha, a subsidiary of Nebraska Blue Cross/Blue Shield, uses preauthorized payments in two areas of its operation—for selling insurance and prepaid legal services. This service, which began in 1977, has been well-accepted by customers (see "ACH

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ACH Means Timely Collections for Resort Community Developers

Robert E. Bland

Fairfield Communities, with corporate headquarters in Little Rock, Arkansas, is one of the nation's largest resort community developers and a leading developer and marketer of timeshare intervals. It is among the top 60 homebuilders in America.

Over 100,000 families now own sites at one or more of our communities located coast-to-coast, with approximately 50,000 active contracts receivable for homesite and timeshare sales financed and collected in-house. Fairfield currently enjoys a portfolio of approximately $250 million that is better than 96 percent current within 30 days. After only five years of concentrated effort to "sell" electronic funds transfer (EFT), 80 percent of Fairfield customers use the system. The share of current payments has risen from 89 percent to a peak of 98.1 percent.

Management started the conversion program after an analysis of the few accounts previously using EFT suggested opportunities for a more predictable cash flow through timely collections and fewer delinquencies.

We initially offered existing customers a reduction of half a percentage point in interest rate plus an added incentive of a silver ingot if they would convert to electronic payments, achieving a significant response. Now, all contracts are sold with EFT as the standard and a 1 percent interest penalty is imposed if the customer declines to participate. The customer signs a single document at the sale and resistance is relatively insignificant. This document contains provisions for increasing the interest rate if participation is revoked.

EFT has helped collections greatly for several reasons. The obvious one is that it precludes the possibility that a customer will simply forget to mail a payment. It also avoids the situation where a customer, in effect, must make a buy/no buy decision each month, and under circumstances less favorable to Fairfield than those existing at the time of purchase. Finally, under an EFT system, the purchaser considers the money already spent, since it is deducted automatically each month. He or she must take positive action to cancel the draft authority. That can be important if a purchaser with limited funds is forced to choose each month between spending for daily essentials or for a recreational purchase.

Our integrated system to accommodate member and nonmember institutions has resolved most problems, and we are convinced EFT has benefited us by providing fewer cancellations, fewer delinquencies with greater ease of collections, a larger customer per administrator ratio, and a predictable cash flow. These significant advantages far outweigh minor operational hurdles.

When usage is optional, offering an incentive is necessary to encourage continued participation, with a provision to withdraw that incentive should participation be revoked. However, we feel that the benefits are well worth the cost of the incentive and would strongly recommend EFT utilization in any collection effort.

The author is director of loan administration for Fairfield Communities, Incorporated.

Lowers Premiums and Lessens Cancellations"). Robert Henrichsen's role in implementing the changeover illustrates the importance of leadership in developing electronic payments. In the early 1970s, Henrichsen was a bank officer helping the four Omaha utilities offer their customers preauthorized payment options. He has used electronic forms of payment wherever he has been—whether with a bank or, as now, a service organization.

The most commonly voiced objection to preauthorized direct debiting is that the customer may be reluctant to give up control by allowing funds to be withdrawn on a prescheduled date. Yet many organizations using preauthorizations are finding it is so cost effective that they can reduce prices. As mentioned, the insurance industry has pioneered the use of preauthorized payments, most recently as ACH debits. Some insurers now offer some, or even

ACH Lowers Premiums and Lessens Cancellations

Robert A. Henrichsen

Corporate Diversified Services, Inc. (CSDI), is a wholly owned subsidiary of Blue Cross and Blue Shield of Nebraska. Our primary business is marketing health, life, income protection, and prepaid legal insurance through banks and savings and loan associations in the state.

To collect the premiums for these products, we originally used conventional preauthorized drafts. We established corporate depository accounts in most of the banks we used, but the collection system was costly and slow.

In November 1977, we changed to electronic processing through the National Automated Clearing House Association. We were one of the first companies in the Midwest to use the ACH, so we experienced some problems. Many receiving banks did not understand processing procedures, especially handling return items. Some customers not only did not understand, but did not even have a checking account.

Times have changed. Occasionally we still experience incorrectly prepared return items with incorrect identification numbers or incorrect processing dates, but the biggest improvement has been in customer acceptance. Today, everyone we contact has an account that can be charged. Most applicants for insurance will ask us, before we can even suggest it, if we will "just charge the account."

When we train our sales force, we emphasize that they must be advocates of the automatic payment system, because it is for the customers' benefit. By eliminating the monthly bill and the tedious process of opening mail, we greatly reduce operating expenses, lowering premiums for the customer. The risk of unintentional cancellation is less because premiums continue to be withdrawn electronically even while the customer is on vacation or hospitalized and unable to handle his or her affairs. Because of these benefits, we use only electronic prepayment to sell our products: customers must pay through the ACH.

But what about banks that cannot receive ACH items? Our originating bank uses a table to identify those financial institutions. We currently process 75,000 debits each month. Approximately 13 percent go to a file to print drafts; we hope that number will continue to decline.

We like this system so much that in 1983 we changed our payroll system to direct deposit. With only 38 employees, we can have 100 percent participation. The benefits of direct deposit are emphasized to new employees while discussing other benefits such as vacation and sick leave.

Putting it simply, Corporate Diversified Services believes in the ACH.

The author is the director of Corporate Diversified Services' Rural Depositor Program.

all, of their policies only on a preauthorized basis.

Although the financial industry has a good opportunity to offer mortgages, installment loans, and credit card monthly minimum or full repayments on a preauthorized basis, few are using this capability. Financial institutions' senior administrators need to realize that their internal accounting systems may actually deter bank managers from using preauthorized payment alternatives. The fact that the world's largest finance company—General Motors Acceptance Corporation (GMAC)—is pilot-testing preauthorized automobile loan repayment through the ACH should alert bank managers to this opportunity. This is especially significant considering that, if it were a bank, GMAC would be the fifth largest in the country. Ford Motor Credit Company is also beginning a preauthorized payment program. Banks, on the other

hand, rarely capitalize on this opportunity to use the electronic mechanism.

Preauthorization can provide important benefits in handling many small-value repetitive payments. Some organizations—charitable, educational or religious—use the preauthorized payment option through the ACH because of the low cost of operation and the assurance of consistent giving. Since the donor must take action to change or terminate the pledge, he or she finds it easier to continue making preauthorized payments. With check payments, however, the donor usually needs only to stop sending checks to bow out. The repetitive payments that consumers make for newspapers and magazine subscriptions and similar purchases further illustrate payments that companies will find cost-effective when collected weekly, monthly or quarterly. Corporations should balance the minimal expense involved in offering preauthorization against the benefits, which may be sufficient to justify making preauthorized payment mandatory, or at least standard.

Mandatory Direct Deposit of Payroll

When corporations using direct deposit of payroll through the ACH discuss employee participation, the figure they cite is often only one-third to one-half of their staffs. Corporate executives usually explain that the small participation rate is justified for various reasons—employees do not want their spouses to know their overtime or bonus payments, for instance, or the employees "want to see the check." Yet, these same executives say that up to 100 percent of their employees give annually to United Way campaigns, particularly if their chief executive officers are involved in the effort. Organizations could promote direct deposits just as they promote participation in a charitable cause. Managers often assume their employees understand direct deposit when, in fact, it is not understood, and calls for considerable explanation.

When payroll checks were first offered, few companies gave employees a choice between continuing to be paid by cash or electing to adopt the new check system. Obviously, checks became the routine method of payment, and corporations worked with financial institutions to facilitate check cashing on payday. Why should we keep offering the check when we have the ability to deposit funds directly to the account on payday? Many automated teller machines even offer the possibility of obtaining cash from payroll checks deposited electronically.

Corporate Diversified Services requires its small staff to be paid with direct deposit through the ACH (see "ACH Lowers Premiums and Lessens Cancellations"). Rather than presenting it as a mandate, which has negative connotations, direct deposit is simply the way the subsidiary pays its employees.

Mississippi Lime, a chemical company in Alton, Illinois, is another example of 100 percent direct deposit participation. This company found that holding meetings with small groups of 10 or so employees prior to implementing a direct deposit program enabled executives to explain the benefits to individual employees. Mississippi Lime also arranged for local financial institutions to support the program by offering employees attractive deposit services. Again, leadership with internal and external communications encouraged total direct deposit participation. When a corporation exercises managerial leadership it can capture the opportunity to pay employees electronically. Such firms may find that their sacrifice in funds float is more than offset by reduction in employee time lost on payday.

Participation Based on Mandatory Electronic Collection

A number of businesses are based on distributorship agreements that are particularly adaptable to electronic payment. While some think incorrectly that the organization with a unique product can simply decree the use of electronic ACH payment, practically all franchisers or distributors show care in considering the impact of electronic payment on their dealers. For example, Anheuser-Busch, one of many breweries using the ACH to collect payments from distributors, instructed its implementation team working to convert to the system several years ago that the program would be cancelled if any dealer decided to leave the company. Miller Brewing, in collecting payments electronically, also incorporated electronic crediting of payments to dealers to avoid a one-sided debiting situation.

Lotteries Convert to 100 Percent ACH

Albert Filidoro

The Ohio Lottery Commission is one of 22 state lotteries operating in the United States. State lotteries offer public games of chance, usually in the betting form of on-line computer terminals and conventional or instant rub-off tickets. The sales network for each lottery is as diverse as the people who play its games, ranging from major multi-store chains to mom-and-pop type grocery or beverage stores.

The Ohio Lottery sales network consists of over 6,000 such outlets, translating into over 6,000 checks to be processed each week. In fact, the lottery once processed these checks through a long and cumbersome distribution system that resulted in loss of revenue interest during the 14-day processing period after the checks were picked up from our retailers. More than 18 employees were involved in the check process from start to finish.

In September 1983 we decided to convert our accounts receivable to an electronic funds transfer (EFT) system. My goal was to make our system 100 percent paperless. Though we realized that we could capture accurate information through our on-line system, we were determined to restructure our instant game accounting system for greater accuracy and to convert this paper system to EFT.

We decided to make EFT mandatory, but embarked on an extensive agent education program to gain wide acceptance of this system and assure full cooperation. The education program consisted of explanatory letters, question and answer formats, prenotification forms and instructions, statewide seminars, and an 800 number to call for information.

We also decided to accept only financial institutions that were members of the National Automated Clearing House Association (NACHA). We worked directly with our local ACH to reach every member bank with information updates to assure their attention and participation.

All EFT lottery employees were trained in NACHA's rules and helped establish a statewide telephone network with every ACH department. We promoted high visibility for the new process and committed ourselves to correct immediately any problem that could occur in our bank system.

Within weeks of implementation, we achieved our goal of reducing defects and errors to zero. With this reliability, which we had promised to our agents, we were able to gain wide praise from our sales network.

I later had the opportunity to implement this system in Vermont and California, where I have been able to develop equally successful EFT systems. California, which started lottery sales last October, has over 20,000 sales agents throughout the state and had estimated it would need more than 40 employees to handle its check inflow. Instead, fewer than 6 employees are now needed in the state's Revenue Collection Unit to handle the same check flow with virtually no errors.

Ohio estimated that it increased revenues by $1.8 million for 1984 through a combination of greater interest income and better employee utilization. Also, the sales agents' bad debt rate of $150,000 a month has dropped to $4,000 a month, with most of that collected within 24 hours after our financial institution sends an insufficient funds notice.

The story of our success has spread throughout the lottery industry where, in the near future, all state lotteries will take a serious look at collecting their revenue through electronic funds transfer.

The author is a fiscal officer for the Ohio Lottery Commission.

Some commercial finance companies use mandatory electronic debiting, particularly for borrowers with marginal credit. Automotive organizations such as General Motors use the preauthorized payment method to bill automatically a specified number of days after a new car financed by a bank is delivered to the dealer. Automatic billing for a product or a service usually offers excellent opportunities for paying electronically. A number of companies leasing equipment find that this is an attractive way to improve the efficiency of their accounts receivable function, and customers widely accept the idea of using preauthorized payments for these repetitive lease arrangements, normally paid monthly.

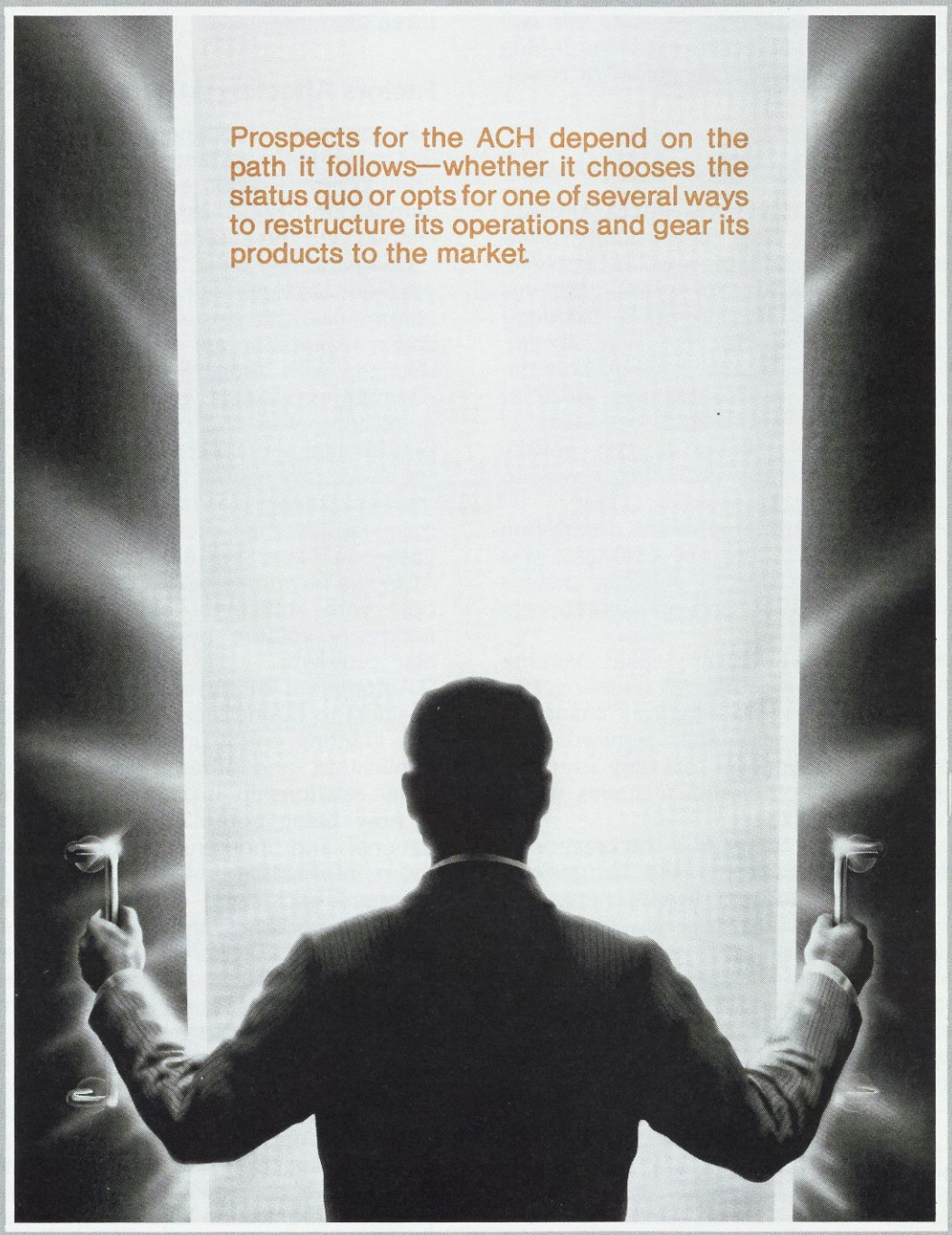
In one interesting application, the Ohio State Lottery now collects lottery sales from retail merchants through the ACH. This process has evolved so that a merchant who wants to be an agent handling lottery tickets to consumers must agree to electronic collection (see "Lotteries Convert to 100 Percent ACH"). Now other states, including California and Vermont, are implementing similar procedures. While this is an ideal, unique ACH application because the payment due is a byproduct of the electronic lottery sales process, it took an innovative individual to get it started—as is true in so many similar situations. Others apparently shied away, arguing the typical reasons why it would not work—that no other lottery had done it, that retailers would not accept it, and so on to maintain the status quo. Clearly, if a company's analysis of electronic payment appears positive, it need not wait and see what others have done.

Conclusion

While these cases refer to specific uses of electronic payment—primarily for required participation—their wider importance is to illustrate how a single individual often can make change take place. The converse is that in many organizations not taking advantage of electronic payment, one strong individual has blocked consideration. Senior management should encourage an atmosphere that allows creative individuals to analyze and, if feasible, implement electronic payments to benefit the bottom line of the organization and its customers.

Scenarios for the Future of the ACH

Bernell K. Stone
and
George C. White



Prospects for the ACH depend on the path it follows—whether it chooses the status quo or opts for one of several ways to restructure its operations and gear its products to the market.

ACH-type payment services are certain to evolve, but how will they evolve? By reviewing the present ACH in light of what will favor growth or inhibit it, several possibilities for the evolution of the ACH delivery structure emerge. Here we will consider five alternative scenarios for the future of the ACH, concluding with a discussion of the likelihood of each. We will also look at the prospects for accomplishing the changes necessary for significant ACH volume growth.

Why a Scenario Approach is Necessary

Projections of ACH volume, prices, and services depend upon how infrastructure problems and other change barriers will be resolved. With all the different ways of solving problems and the many opportunities to utilize computer communication technology, it is virtually impossible to predict with any certainty how the ACH infrastructure, service features, price or transaction volume will unfold. Scenarios of future developments, however, can portray likely directions, thereby providing a way to assess possibilities.

A scenario is simply a coherent description of a future possibility, and not a forecast or a prediction. It is intended to organize analysis by structuring key issues and anticipated conditions.

A baseline scenario that depicts volume growth from existing products, assuming current pricing policy and no significant change in the organization of the ACH network, can provide the groundwork for assessing structural changes portrayed in the other scenarios, which are summarized in Exhibit 1.

A central issue for the ACH is the creation of an industrial infrastructure able to perform market research, product development, and related activities required for a new technology to displace an existing one. Three of the following scenarios portray alternative ways that the necessary infrastructure requirements might be met—a restructured National Automated Clearing House Association (NACHA), an innovative Federal Reserve utility or private sector service providers. Each of these scenarios depicts possible paths for evolution to cope with existing infrastructure failures by presenting different ways to resolve organizational problems. In this sense, these three scenarios bracket the likely infrastructure changes. A final scenario considers a combination of these three extremes.

Factors Affecting ACH Volume Growth

Automated clearinghouse volume could be expanded by important developments in computer communication economics, the emerging automation of business to business data interchange, and the automation of retail payments.

Comparative Costs. The cost advantages of payment services using computers and data communications versus those relying on paper and transportation are compelling and become stronger with time. From the viewpoint of payment processing, electronic payments require computers and communication networks that involve a relatively greater fixed cost than for check processing; however, ACH-like electronic payments also have a dramatically lower marginal cost than checks and other payments based on paper and transportation. Therefore, ACH-like payments have a total cost advantage only with sufficient volume. Obtaining the necessary volume becomes a "chicken-and-egg" problem.

Automation of Buyer-Seller Data Exchange. Business to business data interchange for ordering, granting credit, invoicing, remitting, cash application, and other aspects of the buyer-seller relationship in commercial transactions is now being automated according to both national and industry-specific standards.[1] As more information is stored in computerized files and exchanged electronically, electronic payment becomes a logical part of an automated buyer-seller relationship.

Retail Automation. Increasing automation of retail transactions, such as retail point-of-sale terminals that capture payment and related transaction data, may also lead to paperless, automated payments. Some of the current pilot projects in point-of-sale automation plan to use the ACH for their payments.

Several barriers, however, have so far thwarted realization of the economic advantages of computer-communication-based payments: (1) The

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The authors are, respectively, Mills B. Lane Professor of Finance and Banking at Georgia Institute of Technology and the president of White Papers, Inc.

Exhibit 1
A Summary of the Alternative Scenarios

Scenario Name	Definition	Key Assumptions
Baseline	No significant change.	1. Volume growth arises primarily from the existing usage areas. 2. No new capabilities or services that generate significant volume.
Restructured NACHA	NACHA reorganizes and assumes active role in product development and the operation-management of its processing system.	1. NACHA system reorganized. 2. Equity participants assume responsibility for operation of the processing. 3. Life cycle pricing.
Market-Oriented Fed Utility	Fed offers ACH system as a "public utility" to all depository institutions.	1. Fed decides that it must have a significant share of electronic payments. 2. Fed offers its own ACH processing service, introducing new capabilities and modifying its system to improve costs significantly. 3. Fed acts as settlement agent for electronic payments and treats them as equivalent to checks in all ways.
Private Sector ACH System	One or more private sector organizations offer ACH processing in competition with the current system.	1. Equity capital makes life cycle pricing viable. 2. New capabilities offered that expand scope to at least some high volume usage segments. 3. A single location is used for sort-merge processing so that fixed costs are dramatically reduced compared with the current system.
Combination	Hybrid of the three change scenarios: restructured NACHA, market-oriented Fed utility, and private sector ACH system.	1. ACH processing is provided by several servicing organizations, analogous to check processing. 2. Industry infrastructure evolves slowly.

existing organizational infrastructure is unable to engage in life cycle pricing to accelerate necessary volume growth. (2) No infrastructure exists for product development that can expand the ACH to significant payment classes beyond current uses (primarily Social Security and Federal retirement payments, direct deposit of payroll, cash concentration, insurance, and some other recurring fixed-amount payments). (3) Existing network structure and sort and merge processing seem inefficient compared with alternative network configurations and processing procedures. (4) Data delivery that relies primarily on tape or disk (diskette) for moving data between financial institutions and the ACH network is inflexible and costly.[2] (5) Economic incentives and marketing support are lacking for most of the financial institutions that are the nominal distributors of both check and ACH services. (6) Automation technology and other improvements have made check processing more efficient and, thus, relatively more difficult to displace.

A Profile of Current ACH Volume

The volume of ACH transactions for 1985 was approximately 600 million transactions,

about 1.5 percent of current annual check volume, which exceeded 40 billion checks in 1985.[3] This is modest volume for a system heralded at its beginning in 1972 as the payment vehicle that would usher in an electronic payments revolution.

Market Segment and Product Submarkets. In determining market potential, viewing the ACH as a single technical product is a mistake. Intelligent projections demand a look at both logical market segments (such as government, wholesale, and retail) and specific payment uses (such as payroll, fixed-amount recurring bills, variable-amount recurring bills, nonrecurring bills, and so on). To describe a baseline scenario that focuses on both market segments and product submarkets, we will consider two market segments—government and commercial—and their major payments uses. Government payments are those initiated by any government body—federal, state or local. "Commercial" is a catchall term for nongovernment payments, nearly all of which originate from businesses.

In the baseline scenario, current growth rates for existing ACH uses and the maximum reasonable penetration of ACH processing for these uses become the basis for projecting how much ACH volume growth is virtually certain to occur if there are no significant new uses, structural changes or price incentives.

Government Payments. Government transactions arise primarily from Social Security and government pension payments, which were the primary source of ACH volume until the early 1980s, when commercial transactions began to grow.

Exhibits 2 and 3 summarize ACH transaction volume by market segment (government and commercial) and by geographical region. Exhibit 2 gives ACH origination volume and Exhibit 3 provides ACH receiving volume. These volumes represent only items processed through ACHs. Additional ACH-formatted transactions are often handled internally as "on-us" items (transactions within the same financial institution) or processed outside the ACH system for transactions between correspondents. Likewise, they are sometimes sent directly to another institution. As a result, the totals of ACH-formatted transactions are actually somewhat higher than indicated by Exhibits 2 and 3.

Recent data for a typical month in 1985 show 25.7 million government transactions and 27 million commercial transactions per month. As already noted, annual ACH volume for 1985 was approximately 600 million transactions, or about 1.5 percent of the 40 billion plus noncurrency payment transactions. Thus, for 1985 there are approximately 0.75 percent government ACH transactions and 0.75 percent commercial ACH transactions.

Social Security and government payments account for the bulk of government transactions, which were the primary source of ACH volume until the early 1980s. However, volume growth rates for government transactions have leveled off to about 10 percent per year, making dramatic growth in Social Security and government pension payments unlikely without significant changes that would make the ACH system more attractive to the recipients of these payments.

Approximately 15 percent of all government payments are currently conducted through ACH transactions. The Atlanta Fed's check usage study (based on 1979 payment data) indicates that government payments account for approximately 5 percent of all noncurrency payments. Thus, there is still potential for significant growth in government ACH payments but the total volume will remain a small fraction of overall noncurrency payments.

The Treasury has embarked on a program to shift federal government payments from check to electronic, which should add about 77 million payment transactions to the existing base of Social Security and pension payments. Most of these 77 million additional transactions will be to businesses. Additional government payments to consumers, however, will require their acceptance, and volume growth in this area is likely to be slow.

Commercial Transactions. Commercial transactions arise primarily from three payment classes: direct deposit of payroll, cash concentration, and preauthorized debits for recurring, fixed-amount insurance payments. Other commercial transactions are special purpose applications such as dealer, distributor or franchise payments in which a major company has a large volume of recurring, standard transactions with a large homogeneous class of businesses. However, dealer-distributor payments represent a small share of total ACH volume.

Vendor payments via the Corporate Trade Payment (CTP) format are negligible (currently just a few hundred transactions per month) and show no evidence of accelerating. The Corporate Trade Exchange (CTX) extension is a new product just emerging from design and will require development and testing. Thus, in projecting a baseline volume from existing products and growth trends, the only sources of reasonably certain commercial growth are those already mentioned, with the possibility of limited growth in other fixed-amount payments such as mortgages.

While some ambiguity exists in defining these payment classes, the Atlanta Fed check study and these authors' own data on cash concentration volumes indicate that these uses comprise between 14 and 18 percent of all noncurrency payments. The current ACH commercial volume of less than 0.75 percent for these classes suggests excellent potential for growth. However, significant commercial volume for ACH-type payments, say more than 10 percent of total noncurrency payments, will require that new applications be developed to penetrate the approximately 80 percent of noncurrency, nongovernment transactions that fall outside these three major commercial uses.

Geographic Patterns in ACH Volume. Exhibit 2 shows ACH origination volume by Fed regional ACH location. In each regional ACH, just 3 or 4 banks usually generate 75 percent or more of the region's volume. These figures indicate considerable concentration of origination volume among a few banks.

The ratio of "outgoing-to-local" volume illustrates the variation among regional ACH members in gaining local depositor participation. The ACHs served by the Boston and Richmond Feds have done well in generating local participation. However, the New York ACH in the Second Federal Reserve District generates 6 times as much interregional as local volume in serving national corporate accounts (for example, insurance companies, oil companies, and consumer finance firms).

The last two columns in the exhibit provide a comparison of the percentages of national ACH volume with the percentages of national check volume (taken from the 1979 Atlanta Fed check study). The New York ACH originates 2.5 times as much ACH volume as its comparable national share of check volume. This indicates the emphasis on ACH origination by major banks in New York and the decision of national companies to originate their interregional transactions via these banks.

Exhibit 3 shows the volume of ACH items received for commercial and government transactions. Some areas of the country generate a modest ACH volume locally and receive a larger volume of transactions generated elsewhere for their customers. The ACHs handled by the Atlanta Fed receive 5 times as much ACH volume originated externally for their customers as they generate themselves. On the other hand, the New England (Boston Fed) and Upper Midwest (Minneapolis Fed) ACHs generate more local volume for their own regional customers than is originated externally.

The varying pattern of ACH usage, especially the interregional variation, suggests that one factor in ACH growth within existing application areas is the need for assertive marketing by more financial institutions in the less active regions.

The use of the ACH for mortgage and other loans with fixed payment amounts is a small fraction of total fixed-payment loan volume. Many financial institutions do not actively encourage ACH use for these payments. Since financial institutions are the de facto distributors of ACH services, this low level of use for their own transactions suggests one of the infrastructure problems—the need for active ACH marketing by the potential base of distributors.[4]

Scenario One: Baseline Scenario of Limited Change and Slow Growth

The starting point for portraying scenarios involving significant change in ACH structure, services, or prices is a picture of slow to moderate growth that involves limited change in ACH services, ACH organizational structure, and ACH prices compared with check prices. Thus, growth in volume in this limited change situation arises primarily from growth in the existing payment usage classes. Exhibit 1 summarizes the key assumptions for the limited change scenario and Exhibit 4 summarizes the user segments and the usage classes.

Government Payment Growth. Government payments are projected to grow 10 percent per

Exhibit 2
Monthly Origination Volume
(August 1985 Federal Reserve Data)

ACH Sites	Association	Outgoing Interregional Commercial*	Ratio Outgoing to Local	Local Commercial	Total Commercial	National ACH Percentage	National Check Percentage
Boston	NEACH	781,451	0.7	1,140,474	1,921,925	7.1	4.5
New York	NYACH**	4,547,151	6.2	967,400	5,514,551	20.3	8.5
Philadelphia	3DACH	321,380	1.0	324,058	645,438	2.4	4.3
Cleveland	HAPS/CRAFTS/ TRISACH	1,416,956	1.6	907,046	2,324,002	8.6	5.6
Richmond	VACHA/NACHA/ Nor-SoCACHA	509,171	.4	1,235,632	1,744,803	6.4	7.7
Atlanta		994,743	2.3	425,024	1,419,767	5.2	11.4
Atlanta	GACHA	512,221	5.6	91,440			
Miami	FPSI	122,399	6.0	20,547			
Jacksonville	FPSI	105,944	.8	128,546			
Nashville	TACHA	102,182	1.4	74,276			
New Orleans	LAMACHA	60,425	.8	72,807			
Birmingham	ALACHA	91,572	2.4	37,408			
Chicago		2,301,872	1.8	1,255,001	3,556,873	13.1	13.6
Chicago	MACHA	1,727,373	4.8	358,345			
Detroit	MACHA	181,589	.5	367,777			
Des Moines	IACHA	122,947	.8	156,762			
Indianapolis	INDEX	117,838	.9	129,295			
Milwaukee	WACHA	152,125	.6	242,822			
St. Louis		444,556	1.3	330,115	774,671	2.9	5.1
St. Louis	MPX	223,579	3.5	63,712			
Memphis	MSACHA	95,099	1.8	53,315			
Little Rock	MPX	43,588	.5	85,752			
Louisville	KACHA	82,290	.6	127,336			
Minneapolis	UMACHA	770,272	1.2	658,428	1,428,700	5.3	3.5
Kansas City		1,313,835	1.6	824,519	2,138,354	7.9	6.6
Kansas City	MPX	300,045	1.6	190,670			
Omaha	MPX	554,402	2.2	255,479			
Oklahoma City	MPX	141,845	1.8	77,392			
Denver	RMACHA	317,463	1.1	300,978			
Dallas	SWACHA	672,890	1.0	694,843	1,367,733	5.1	9.5
San Francisco		2,247,178	1.1	2,000,424	4,247,602	15.7	19.7
San Francisco	CACHA/OACHA	1,454,715	1.4	1,008,151			
Los Angeles	CACHA	591,274	.7	632,567			
Seattle	NWACHA	104,576	.4	253,164			
Salt Lake City	IMACHA	96,613	.9	106,542			
Totals		16,321,455		10,762,964	27,084,419	100%	100%

*Total Number of Commercial Transactions = 27,084,419
**Government entries processed by Fed, commercial entries by New York ACH.

Exhibit 3
Monthly Receiving Volume
(August 1985 Federal Reserve Data)

ACH Sites	Association	Incoming Interregional Commercial	Ratio Incoming to Local	Local Commercial	Total Commercial	Ratio Commercial to Government Entries	Government Entries
Boston	NEACH	705,492	.6	1,140,474	1,845,966	1.4	1,291,776
New York	NYACH*	762,405	.8	967,400	1,729,805	.8	2,156,880
Philadelphia	3DACH	698,180	2.2	324,058	1,022,238	1.0	1,010,039
Cleveland	MAPS/CRAFTS/ TRISACH	899,809	1.0	907,046	1,806,855	1.0	1,729,953
Richmond	VACHA/MACHA/ Nor-SoCACHA	1,412,349	1.1	1,235,632	2,647,981	1.0	2,715,382
Atlanta		2,378,429	5.6	425,024	2,803,453	.8	3,578,765
Atlanta	GACHA	620,672	6.8	91,440			575,469
Miami	FPSI	328,630	16.0	20,547			688,330
Jacksonville	FPSI	516,259	4.0	128,546			1,312,946
Nashville	TACHA	256,482	3.5	74,276			272,366
New Orleans	LAMACHA	382,535	5.3	72,807			402,977
Birmingham	ALACHA	273,851	7.3	37,408			326,677
Chicago		1,809,618	1.4	1,255,001	3,064,619	1.1	2,784,984
Chicago	MACHA	661,578	1.8	358,345			876,080
Detroit	MACHA	399,789	1.1	367,777			949,146
Des Moines	IACHA	277,378	1.8	156,762			294,239
Indianapolis	INDEX	239,785	1.9	129,295			309,028
Milwaukee	WACHA	231,088	1.0	242,822			356,491
St. Louis		846,004	2.6	330,115	1,176,119	1.0	1,214,769
St. Louis	MPX	254,449	4.0	63,712			484,460
Memphis	MSACHA	201,240	3.8	53,315			217,913
Little Rock	MPX	168,461	2.0	85,752			232,562
Louisville	KACHA	221,854	1.7	127,336			279,834
Minneapolis	UMACHA	482,931	.7	658,428	1,141,359	1.5	786,487
Kansas City		1,311,006	1.6	824,519	2,135,525	1.2	1,713,405
Kansas City	MPX	365,908	1.9	190,670			526,406
Omaha	MPX	179,194	.7	255,479			231,964
Oklahoma City	MPX	230,181	3.0	77,392			404,741
Denver	RMACHA	535,723	1.8	300,978			550,294
Dallas	SWACHA	1,234,784	1.8	694,843	1,929,627	1.0	1,846,043
San Francisco		3,468,836	1.8	2,000,424	5,469,260	1.1	4,911,204
San Francisco	CACHA/OACHA	1,650,718	1.6	1,008,151			1,991,143
Los Angeles	CACHA	1,345,700	2.1	632,567			1,921,032
Seattle	NWACHA	280,390	1.1	253,164			697,223
Salt Lake City	IMACHA	192,028	1.8	106,542			301,806
Totals		16,009,843	1.49	10,762,964	26,272,807	1.04	25,739,667

*Government entries processed by Fed, commercial entries by New York ACH.

Exhibit 4

A Summary of the Baseline ACH Usage Projection As a Percentage of Noncurrency Payments*

Segment	Most Likely	Maximum Likely
Government	1.0%	1.5%
Nongovernment	4.0%	6.0%
	5.0%	7.5%

*The 1985 volume of total noncurrency payments is projected to be 50 billion.

year in the late 1980s and then fall to 5 percent or less as government use approaches practical saturation in the mid-1990s. This growth pattern suggests that ACH payments from government sources would comprise 1.5 percent to 2.5 percent of total noncurrency payment volume by the mid-1990s.

Growth in the Private Sector. Without significant product innovation or price reductions, private sector growth arises primarily from growth in the areas of current usage, namely: (1) direct deposit of payroll, (2) preauthorized payment of recurring, fixed-amount bills (insurance, mortgage, fixed-payment loans), (3) cash concentration, and (4) special purpose corporate payment applications such as dealer, distributor, and franchise payments.

Projecting current volume growth for these payments requires considerable care. Data from the Atlanta Fed check study indicate that the maximum possible volume for these uses is 14 to 18 percent of all noncurrency payments. Current volume in these areas is approximately 0.75 percent of all noncurrency payments. If we extrapolate recent annual volume of approximately 300 million ACH items in these areas over the next ten years, at an initial growth rate of 30 percent per year that declines to 20 percent per year, then there would be 2 to 3 billion commercial ACH transactions by the mid-1990s from current usage areas. This would be 4 to 6 percent of the nearly 50 billion noncurrency, annual payment transactions projected for the mid-1990s. If we assume that 30 percent ACH usage is practical saturation in these commercial areas, then growth to 4 percent of noncurrency payment volume is much more feasible than the 6 percent figure.

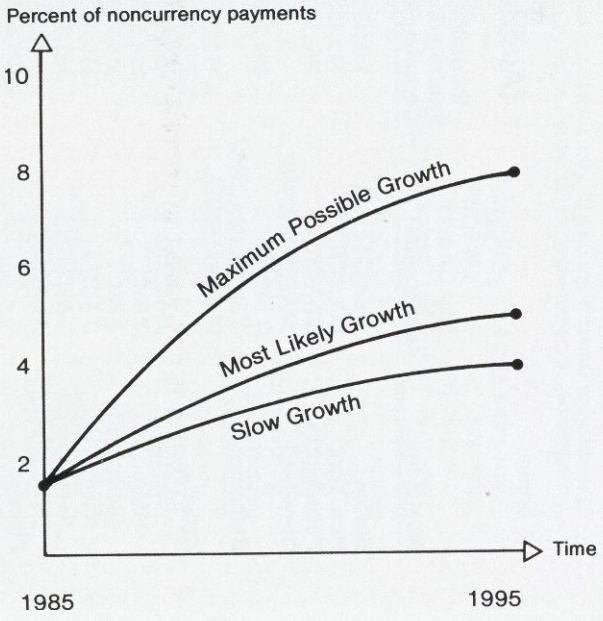
Total Volume With Limited Change. Combining the projection of government and nongovernment volumes gives a mid-1990 volume share of between 5 percent (1 percent government and 4 percent nongovernment) to 7.5 percent (1.5 percent government and 6 percent nongovernment).

The 7.5 percent volume represents practical saturation ACH use in these categories. Since this penetration is unlikely without significant price incentives and/or changes in ACH marketing and organizational structure, achieving 7.5 percent of the volume of total noncurrency payments should be viewed as an upper limit on the ACH volume growth achievable in existing use categories given this framework of no significant structural changes in ACH services or the current ACH organization. Therefore, without significant innovation in services to expand ACH use to new segments of the payment market, ACH volume growth is limited to 7.5 percent of noncurrency payment volume in the mid-1990s; it will probably be no more

Exhibit 5

ACH Volume Growth in the Baseline Scenario

(Slow to moderate growth is possible with existing usage categories)



than 5 percent of noncurrency payment volume by the mid-1990s.

Exhibit 5 depicts the likely time pattern of ACH volume growth from existing usage areas based on extrapolating current volume and volume growth over the next ten years with no significant structural changes.

Scenario Two: A Restructured, Market-Oriented NACHA

In this scenario, NACHA examines the many infrastructure problems inherent in its existing organization, recognizing that the existing ACH is in a dilemma: without volume, there cannot be an economic incentive to switch payment activity to the ACH; but having an economic incentive to generate volume depends on life cycle pricing, which is effectively precluded by the existing organizational structure.[5] NACHA also recognizes that providing standard software or encouraging the development of application-specific software is necessary to induce financial institutions to become active distributors and sellers.

In this market-oriented stance, NACHA recognizes that it must be more than a trade association offering conferences, limited training, press releases, and the coordination of member committees and regional associations. The crux of the decision for NACHA is that it must move from its role as a passive trade association to one as an active service developer.[6]

To innovate, NACHA must have control over the product and the ability to engage in life cycle pricing. Therefore, NACHA must create an organization with equity capital able to promise a favorable long-run return to the capital providers. The equity capital and long-run focus enable NACHA to incur losses in the early development years. There are several ways that such an organization could function.

Creation of a Network Processing Service Organization. One model involves the creation of a "NACHA Processing Services Consortium" similar to the Society for Worldwide Interbank Financial Transactions (SWIFT). The purpose of this processing service would be to operate a communication system and a processing switch.[7] The processing switch would receive transactions from originating depository institutions, sort and merge these transactions, and finally deliver them to the receiving financial institutions. Following the SWIFT model for the organization and operation of the processing switch, the NACHA processing services consortium would have its own communications network and run its own processing centers. SWIFT also has a development and operations staff and is in the business of being a communications service organization for banks and other financial institutions. It operates a communication system with intelligent switches and provides a wide range of payment, security transfer, and other communication-based financial services.

A variation on this model would be to hire a private sector processor with a long-term contract. This processor would provide the network, with NACHA (or its service organizations) operating the processing switch, or the contractor would provide both the network and the processing switch. The latter alternative is probably less viable from a technical viewpoint because it requires a contract with a third party and legal definition of all the contingencies. Moreover, when the contractor for processing and switch operation does not have a clear long-run equity interest in building volume, there is much less incentive to build volume quickly through either life cycle pricing or significant new products and services. Thus, it seems logical for NACHA to operate its own switch or switches, even if it contracts for network services.[8]

Collection Settlement Mechanisms. Two options exist for collection settlement in a revised ACH operated by a restructured NACHA—Fed net settlement and correspondent accounts.

Net Settlement Via the Federal Reserve. Settlement between financial institutions could be achieved by using the Fed to provide daily net settlement as done in the Clearinghouse Interbank Payment System (CHIPS). If the Fed is the agent for the network, net position for settlement is charged to the Federal Reserve account each day. Therefore, the overall effect is that the Federal Reserve is the collection and settlement agent for the net position of a financial institution on a day-to-day basis, but not the collection and settlement processor for individual transactions.

Correspondent Account Settlement. Financial institutions could use correspondent accounts as was done in BankWire and is now done in SWIFT money transfers.[9]

NACHA's Future Role

William R. Moroney

Sometime during the 1990s the number of payments made through automated clearinghouses will grow to exceed those made by paper checks.

This statement presumes continued growth in ACH volume at least equal to the present 35 to 40 percent rate. It also presumes that the National Automated Clearing House Association (NACHA), the Federal Reserve System, the U.S. Treasury Department, hundreds of commercial banks, and scores of private ACH service providers will remain active in the development of electronic ACH services.

NACHA's role over the next decade will be to serve as a constant catalyst in this process.

Growth From Strength

The successful growth of ACH products and services in recent years is hard to keep secret any longer. Over 750 million ACH items were processed in 1985, representing almost $4 trillion in funds transferred.

Two electronic funds transfer (EFT) services, traditionally reserved for "high-tech, on-line, real-time" processing, are now making the switch to the more cost-effective automated payment alternative offered by ACHs:

(1) Retail Point-of-Sale (POS) services are growing most rapidly when supported by the automated clearinghouse. For instance, the nation's largest POS service is conducted by the Arizona Automated Clearing House Association.

(2) Corporate trade payments are migrating in increasing numbers to clearinghouses from the higher priced wire transfer and more cumbersome "automated remittance processing" services.

NACHA has met all these market demands for new services with strong support, including timely changes in NACHA rules. For example, a significant rule change approved by the NACHA board of directors accommodated new corporate trade exchange (CTX) formats. CTX represents a marriage of the ACH and the electronic business data standard ANSI X12.4, developed by the American National Standards Institute. CTX permits corporations to standardize additional remittance and payment advices with ACH payments to an even greater degree than the original corporate trade payment (CTP) formats developed earlier by NACHA, before the ANSI X12.4 standard was finalized.

The identification and development of new ACH products and services, combined with the adoption and refinement of NACHA rules to support them will be essential in the future of the association and its Marketing and Rules and Operations Committees.

The author is president and chief executive officer of the National Automated Clearing House Association.

Private Sector ACH Processing

NACHA's private sector project has already made significant contributions to the improvement of ACH processing and will have a tremendous impact on the system's future.

One important outcome of the project has been the creation of a competitive environment for ACH processing. The Federal Reserve System had proved a supportive and responsive clearinghouse processor even before NACHA launched the private sector project. Recent improvements in Federal Reserve ACH service and productivity are but another example of the benefits of competition in this important processing field.

Important private sector project accomplishments that will affect the future include:

Settlement: Resolution of the basic issues associated with settlement between the Federal Reserve System and private sector processors and among private processors.

Rules: Preparation of NACHA rule changes to accommodate multi-provider ACH processing.

Operations and Software Design: Agreement on basic functional requirements for private sector processing.

Advanced Program Participation: Solicitation of representative depository financial institutions to participate in a pilot program during the first half of 1986.

Education and Training: Approval of a basic users' guide to assist financial institutions in day-to-day operations with a private sector processor.

Certification: Significant progress toward finalizing the creation of a process for monitoring and communicating with all ACH service providers that operate in a multi-operator environment. This should ensure the high quality and measurability of service from all providers.

NACHA's short-term future role in supporting the private sector project will be to work with the Federal Reserve on behalf of all private sector processors to address three key issues: inter-provider settlement, ACH processor exchange schedules, and advanced participation program evaluation.

Future Role with the Federal Reserve

Since its inception, NACHA has always maintained a special relationship with the Federal Reserve System—a relationship that admittedly has become somewhat strained during the difficult stages of creating opportunities for private competition.

Once the ability of private ACH processors to compete with the operating Federal Reserve Banks has

been firmly established, NACHA fully expects to resume its traditionally close role with the Fed's regulatory arms. When private sector competition has been ensured, NACHA will be completely neutral regarding processors. The association will focus on evaluating the processing abilities of all providers to give members comparable information for choosing CTX and making other business decisions.

NACHA will remain a strong advocate of the rights of private ACH processors to compete with Federal Reserve ACH processors, but will not advocate one processor—whether government or private—over another.

Aggressive Marketing of ACH Services

Clearly, NACHA's most important role in the years ahead will be as a catalyst and aggressive marketer of automated services.

NACHA is restructuring its general administration and staff to redirect its resources and sell corporate America on the benefits of using payments services provided by automated clearinghouses. NACHA's marketing efforts initially will be in four principal payments areas:

1. Regular and recurring payments, such as payrolls, insurance premiums, dividends, and utility payments that can be easily preauthorized and batched for processing. This is the traditional payments market that the ACH system was established to serve.
2. New high-technology EFT services (such as retail POS and videotex payment services based on debit cards) in search of more cost-effective processing solutions.
3. Corporate trade payments, including all types of ACH formats, both domestic and international.
4. Government payment applications, such as expanded federal and state entitlement programs, military payrolls, and general disbursements.

Such payments have the potential to increase ACH volume enormously over the next few years. Through its committees and members, as well as working with numerous other trade associations, NACHA will refine and target opportunities to sell automated payment options to a multitude of potential users.

NACHA's future role will be inexorably tied, as it always has been, to the successes resulting from increased ACH usage. Beginning this year, the association, through aggressive marketing, will assume an active role in determining its own future as well as that of all electronic funds transfer services.

As the banking industry continues to automate the payment system, many exciting new EFT services will evolve. The automated clearinghouses, however, will be the backbone of this development—ensuring a base level of automated payments at a superior level of service. NACHA will find its future role at the center of this process.

It is possible to use both options. Settlement through correspondent accounts would be used among the active, high-volume ACH participants and the Federal Reserve would be used whenever there were depository institutions that did not have joint correspondent accounts for settlement, especially the less active, relatively low volume ACH participants. The latter would assure a universal participation if ACH transactions were required to provide access to every demand deposit account, transaction account, money market deposit account, and other time accounts without any stipulation that the depository institution belong to either NACHA or the network consortium of NACHA. This would put ACH transactions on an equal footing with checks and drafts.

This scenario recognizes a crucial fact for any future restructuring of the ACH system: network operation and sort and merge processing could be logically separated from settlement, especially in an end-of-day settlement system.

This separation contrasts markedly with the current practice in the majority of ACH regions. Here the Federal Reserve operates most of the regional ACH processing centers and the interdistrict data transfer system. The net effect is that the Fed is now involved in network operation, switch operation, and sort and merge processing, as well as collection and settlement. The various functional activities required for an electronic payment system have not been clearly identified and separated to the extent technically possible.

Viability of Life Cycle Pricing. A market-oriented NACHA could apply life cycle pricing to the processing of ACH transfers. Because the actual price can be "unbundled" into logical components—data transfer, sort and merge processing, data delivery, and collection and settlement, and the pricing system can also be unbundled. Because collection and settlement will be a small proportion of the total ACH service cost, full-cost pricing by the Federal Reserve (as required by the 1980 Monetary Control Act) will not seriously impair the possibility of life cycle pricing if most of the services are provided by the NACHA processing services consortium rather than the Fed.

Ownership for the network (or the network and the processing switch) and equity capital provided by a group of active ACH participants would provide both a means and an economic incentive for life cycle pricing.

Segment-Specific Products and Services. This scenario also requires NACHA to develop standard applications or ensure the development

of the appropriate software. Encouraging providers of payment and software services to enter the business of developing and supporting segment-specific capabilities is one way to provide new products. The key to attracting such providers is a low-cost, viable, well-defined automated payment switch with definite future rules and prices to reduce business uncertainty.

Once again, a comparison with the SWIFT network is pertinent. SWIFT's planning and pricing infrastructure is such that service capabilities and prices are generally announced ahead for several years. Thus, bank users of SWIFT can plan their own services, quote prices, and bid on contracts to major companies with reasonable confidence about the capabilities and prices for the required network services. Elimination of uncertainty is crucial if vendors of payment services and software support are to invest in developing applications based on ACH processing, invest in marketing, set prices for their customers, and enter long-term service contracts with their customers.

Scenario Three: Innovative Fed Utility

The Fed's role in the ACH has been evolving and will change more in the near future. The Fed began its involvement in ACH as a contractor to the regional associations and NACHA, processing transactions for all the regionals except New York, as well as providing an interregional processing and settlement system. With the pricing of ACH services in 1981, the Fed extended those services to all depository institutions and ended its formal role as a contractor. The Fed now processes at 28 offices with centralized coordination and has a product director for electronic payments—both wire and ACH. Thus, the Fed has created a product management structure for electronic payments similar to that for checks and security services.

As the ACH evolves, so will the Fed's role. Several issues that will determine how this evolution takes place pertain to the Fed's relationship with private sector processors and competitors. One is the terms and price for access to the Fed system by non-Fed processors. Another is whether the Fed will be willing to act as a settlement agent for non-Fed transactions, including the provision of a net settlement service similar to that provided for CHIPS. Closely related to these issues is the need for price "unbundling" that would price components of the service separately, especially settlement. Most important is the Fed's ability to

Federal Reserve ACH Services: Past and Future

Bruce J. Summers

The Federal Reserve plays an important part in the nation's payments system, including a role in clearing both paper and electronic payments. This role originated with the Federal Reserve Act of 1913 and has been shaped by over 70 years of experience in a dynamic financial environment. Since passage of the Monetary Control Act of 1980, the payments system has undergone particularly rapid change, most dramatically in electronic payments. Of all developments in this area, none is more exciting or holds more promise than the automated clearinghouse.

A review of the Federal Reserve's past role in the payments system, including the ACH, reveals a historical continuity that makes the Fed's future role understandable and predictable. Moreover, the Federal Reserve's current activities as an ACH processor reveal a basic optimism about the future of the system.

The ACH is a young payments mechanism, so we should expect to see major changes in today's operation. In contrast with the "mature" check mechanism, the ACH has relatively few active clearing agents. In fact, apart from the Federal Reserve Banks, the only active clearinghouse operations are those in New York, Arizona, Hawaii, and now California. As the operation matures, particularly as a larger volume of electronic transactions provides new business opportunities, the ACH should become more like the check mechanism, with many participants involved in various stages of processing. The Fed believes this is a healthy prospective development that would reflect the robustness of the network. Correspondent banks, which already play a major role as providers of payments services for their respondents, can be expected to engage more actively in the ACH as they adapt to changes in respondents' needs brought about by the shift from paper to electronic payments. Service bureaus and groups of institutions that pool their resources in uniquely tailored clearing arrangements (as they are doing with checks today) are likely to participate increasingly in processing ACH transactions. Furthermore, electronics holds great potential—greater than that of checks—for the direct exchange of transactions between depository institutions.

The Federal Reserve's role in a "mature" ACH environment should be predictable when viewed in a historical context and in light of the principles that guide the System's payments activities. The foremost

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principle is to ensure the integrity, safety, and soundness of the payments process through the Fed's involvement in payment operations. Beyond this, the Federal Reserve aims to contribute to the effectiveness and efficiency of the payments mechanism and to provide an adequate level of service to depository institutions nationwide. The Monetary Control Act specifies that the Federal Reserve will pursue these latter objectives in a more competitive environment, matching its costs with revenues. These objectives apply regardless of what form the payments process takes.

A longer-term look at the future of the payments system suggests that a continued shift from paper to electronics will occur. The Federal Reserve expects larger volumes of payments to be converted to electronics and assumes that the ACH currently provides the most effective path for this change. Our practical experience, however, tempers this view; it indicates that progress in the ACH will be incremental and that volume growth, while perhaps steady, will not be explosive.

The reasons for continuing at a moderate pace in the movement to electronic payments are well known. Aside from payors' unwillingness to forgo float "benefits," not all depository institutions and corporations are ready to embrace fully automated and electronic processing techniques. In a large, complex financial system such as that of the United States, characterized by many thousands of linkages between payors, payees, and their clearing agents, technological change requires not only skill and knowledge but organizational acumen as well. The Federal Reserve believes that before technological progress can lead to fuller use of electronic payment techniques nationwide, the technology must be brought within reach of depository institutions of all sizes and levels of sophistication.

The evolution from paper to the automated clearinghouse, and from the automated clearinghouse to the electronic clearinghouse will probably take place over a period of years. Some examples of the Federal Reserve Banks' recent efforts to encourage a transition from partly automated to fully automated and electronic ACH processes may help illustrate how we envision the incremental transition.

In February 1985 Reserve Banks began converting paper ACH return items received from depository institutions into electronic transactions. At the same time, depository institutions submitting paper ACH return items were assessed fees to cover processing costs. Concurrently, the Fed pursued a nationwide program focused on making ACH delivery widely available through low-cost microprocessors. Today, electronic delivery of ACH transactions to and from the Reserve Banks is supported through diverse electronic access types, ranging from personal computers to large central processing unit interfaces.

The rapid adoption of electronic access methods has made the ACH a truly national payments mechanism. Geography now is largely irrelevant in defining ACH markets. The ACH payroll, cash concentration, vendor payment or dividend payment business of a corporation located in, say, the Midwest constitutes a viable opportunity not only for midwestern depository institutions but also for those in other regions. This breakdown of geographic barriers has created a new challenge and responsibility for the Federal Reserve: to maintain an even level of service nationwide that treats all depository institutions equitably.

The issue of deposit time illustrates the Federal Reserve's increased sensitivity to maintaining equity among all those considering these payment services. In early 1984 depository institutions competing for corporate business in a national marketplace noted that the terms of access to Federal Reserve services differed somewhat from region to region. In particular, they expressed concern that some regions enjoyed more favorable ACH deposit times than others, which gave some depository institutions a competitive advantage. In response, the Federal Reserve adopted a uniform national ACH deposit schedule, while also establishing later deposit times.

Pricing of Federal Reserve ACH services has also been in the spotlight in recent years. In an effort to meet depository institutions' needs for an efficient electronic clearing process, the Fed has improved operating efficiency to maximize the economies of scale possible with the ACH. Indeed, the Federal Reserve's fees for these automated services have remained essentially constant since 1983, notwithstanding the complete phase-out of the incentive pricing that led to recovery of full costs for ACH services in 1986. Additionally, separate fees have been established for the automated and labor-intensive components of ACH services. This division allows depository institutions to benefit further from the efficiencies promised by a fully automated mechanism with economies of scale, because institutions that adopt automated processing can use the lower-priced automated services.

In summary, the Federal Reserve envisions, and indeed welcomes, a more dynamic ACH with broader participation by many clearing agents. While we look forward to increased growth in the ACH, our optimism is tempered by the knowledge that all participants—not only processors but also the originators and receivers of such payments—must automate their operations if the full benefits promised by the ACH are to be enjoyed. Further, we see the automated clearinghouse becoming an electronic clearinghouse, but only in increments. Along with the other participants in the ACH process, the Federal Reserve will work toward an electronic future; but, an element of patience must accompany our collective enthusiasm.

compete over time with private sector competitors on cost and service capabilities.

In this scenario the Fed rapidly evolves its ACH services so that it becomes an innovative processing utility, expanding ACH capabilities to include the information exchange and control features now inherent in many check-based payments, thus facilitating use of the ACH as a substitute for checks in more payment areas. It also means improving the overall efficiency of ACH processing so that ACH prices decline significantly and become much lower than Fed charges for comparable check services.

This scenario implies that the Fed provides universal access to its system for all depository institutions and their processing agents. It could even mean direct access by large payment originators willing to abide by system rules and able to guarantee the integrity of their transactions.

The Logic for a Long-Run Fed Role in ACH Payments. The Federal Reserve has a legal mandate to maintain an orderly payment system. If electronic payments are to be a major proportion of noncurrency payments in the future, then the Federal Reserve must actively provide ACH services. This logic parallels the logic of the current Fed argument that maintaining an orderly check payment system requires that it have a significant presence in the check system as a service provider and not be just a regulator or merely a "processor of last resort."

The Logic for an Active Role. Given the current situation in electronic payments, the Fed recognizes that it must either adopt an innovative, market-oriented role in ACH services or else have most of the volume for ACH-type payment take place outside the Fed system.

Significant volume growth requires new capabilities and services. Deciding what capabilities are needed and how they should be incorporated within the ACH is complex. Continuing the historical reliance on NACHA for primary input on market needs and product design is inconsistent with an innovative Fed marketing role, which requires that both market research and the implied product design and development be integrated in a coherent long-run planning and product management process. Although NACHA members are clearly a useful forum for advice and ideas, the current organization is not well-suited to either market research or market design. The failure of the CTP service to generate significant volume illustrates the complexity of successful ACH innovation. It also illustrates why, if it is to innovate successfully, the Fed cannot assume a passive stance in market analysis and product design, relying primarily on NACHA.

The cost structure of ACH processing (high fixed cost and low variable cost for incremental processing) is one that rewards the low-cost, high-volume provider. It has many characteristics of a natural monopoly. Thus, a decision to have a significant share of ACH-type electronic payments means that an active, innovative role is essential to offer the capabilities necessary to displace checks in high volume payment usage areas.

The Features of an Active Fed. Once the Fed decides to promote ACH volume growth and to obtain and hold a significant share of ACH processing, several activities must follow. First, the Fed must assess market needs, translate this information into required system features, and then evaluate alternative delivery designs. Based on the cost involved in providing various capabilities, the Fed can then decide which additional requirements are economically viable to generate the volume necessary to produce sufficient revenue for return of the development and delivery cost. This process should produce an overall growth plan as well as a product capability evolution plan.

Pricing is central to marketing new products. Thus, the Fed would need to modify current cost markup pricing. This could be achieved by capitalizing start-up costs as a private sector company might. Logical pricing strategies include: life cycle pricing, price unbundling, and wholesaling via volume discounts for intermediate vendors to encourage their entry for specific industries and uses.

Being cost competitive or even providing low-cost services will force review of the current processing system. The probable outcome would be more centralized processing of what are now "interregional transactions," with more local entry points. These entry points might be operated by local electronic clearinghouses that handle local items outside the Fed system and consolidate nonlocal items for efficient batching.

Scenario Four: A Private Sector ACH

In today's ACH environment, discussions of private sector participation in the ACH refer to a "private sector vendor" that would be an alternative contractor to the Fed for ACH processing; for example, NACHA has certified General Electric Information Services (GEISCO) as an alternative ACH contractor for processing services, and the Calwestern ACH has selected GEISCO as an alternative to the Fed to process intraregional ACH transactions.

In this scenario, however, when we refer to a *private sector service provider* we do not mean a processing contractor for either NACHA or the regional associations, but rather, a private sector provider of ACH-type services in competition with the existing ACH system.

Services Provided. To relate the functioning of an alternative ACH to the current ACH system, consider the generic functions involved in the ACH system (Exhibit 6): (1) methods for receiving ACH transactions from the originating institutions, (2) sort and merge processing, (3) ways to deliver ACH transactions to the receiving institution, and (4) a settlement mechanism for transferring funds between institutions. These basic functions are the same for any payment processing clearinghouse—check, ACH or wire.

The two major alternatives for settlement are correspondent accounts or Federal Reserve accounts. The Federal Reserve System would be a facilitating participant if it offered settlement to private sector service providers competing with the current ACH. Fed settlement would probably be handled on a net basis similar to the Fed settlement services provided to CHIPS.

Settlement is not an area in which competition is likely between a private ACH and the Fed. A private competitor would probably want to work with the Federal Reserve in the area of settlement, making this scenario compatible

Exhibit 6
Basic Clearinghouse Functions
Existing ACH Versus Hypothetical Private Sector Competitor

Clearinghouse Functions	Existing ACH	Private Sector ACH
Data Receipt	● Tape ● Disk (diskette) ● Direct transmission	● Tape ● Disk (diskette) ● Direct transmission
Network Structure	● Many regional processing points	● One primary processing point
Network Provider	● Federal Reserve	● Telecommunications company
Switch Operator (Sort-Merge Processor)	● Federal Reserve (Also New York Clearinghouse Association, GEISCO)	● Private sector competitor
Output Data Distribution	● Tape ● Disk (diskette) ● Computer to computer high speed transmission	● Computer to computer high speed transmission ● Computer to personal computer ● Tape or diskette
Settlement	● Federal Reserve accounts	● Correspondent accounts ● Net via Fed accounts

"One or more private businesses
might offer ACH-like systems to compete with the existing ACH."

with the previous scenario in which the Fed is a "settlement utility."

The opportunity for significant improvements in efficiency and service options arises not in the area of settlement but in the areas of network structure, communication interface, and sort and merge processing. The private sector alternative could be a single-node switch that acts as a large, centralized sort and merge processor. In this system, direct computer to computer transmission would be the primary means for data entry and data delivery and would use tape and disk (diskette) as secondary, background entry and delivery mechanisms. These secondary mechanisms would be used for high-volume, value-dated transactions and messages that are not time critical.

This alternative system would look like an electronic version of the next-day mail system offered by Federal Express, in which all originating transactions are transmitted to the central processing location by each originating organization.[10] These transactions are sorted by receiving institution and merged into a file. Then the sorted transactions are sent to each receiving organization.

Likely Participants. The private sector ACH alternative would probably have at least three or four classes of participants and possibly even more. Described according to the roles they will play and their reasons for taking part, the likely classes are:

- *Equity Participants.* These owner organizations, would put up the equity capital to create the switch in the communication network, develop standardized software, and provide for the governance and management of a consortium organization.
- *Transfer Originating Depository Institutions.* These depository institutions would actively originate ACH transfers as agents for companies and other payors. They would play a role similar to an originator in the current ACH system.
- *Transfer Originating Companies.* These nonfinancial business organizations have a sufficiently high volume of payments that it would be worth contracting to be a "limited participant" to generate transactions for activities such as payroll, vendor payments, and dividend payments. Such an organization would agree to provide transfer data directly to the central processing switch. The company's depository institution would act passively in these transactions. It would have no role in the creation, validation or authentication of the transfers. It might act as a settlement vehicle and possibly as a provider of funds.
- *Nonfinancial Transfer Origination Service Companies.* These companies would act as agents to create transfers but are not depository institutions. They would require an account at some financial institution for their agent companies, but they would assume responsibility for the creation, authentication, and validation of transactions. These service companies would bear a liability for any errors involved in their transactions. The system would probably call for them to post some type of performance bond.
- *Passive Transfer Receivers.* These financial institutions would agree to process appropriate media for a standard fee and to abide by the system rules. The fee could be charged to the bank vendor or originator, to the system, to an account owner or to a combination of these. The ACH system would provide standard software to passive transfer receivers so that an interface to demand deposit accounting or other account processing routines would be fairly standard and would probably look similar to check processing in terms of transaction execution and record keeping. Thus, it would be reasonably painless to be a passive transaction receiver. In fact, this activity would probably look much like the current credit transfer receipt function for a financial institution in the present ACH system. The only differences are that for those in the passive transfer receiver category, there are well-enforced rules; the necessary software is standardized, updated, and maintained by the software design and development agent (or agents) of the ACH system; and the settlement mechanism may not be Federal Reserve accounts.

Reasons for a Private Sector ACH. One or more private businesses might offer ACH-like systems to compete with the existing ACH system for several reasons. A trade association structure like NACHA or a government organization like the Fed has limitations. (1) Neither has equity capital and thus neither can invest

"Organizations like trade associations and government agencies are inherently unable to deal with . . . problems involved in creating a new, technology-based product."

significantly in research, development or facilities, engage in life cycle pricing or otherwise sustain a significant operating loss in attaining a favorable long-run return. (2) They have limited capabilities for performing market research and product development. (3) Organizations like trade associations and government agencies are inherently unable to deal with either the strategic or management problems involved in creating a new, technology-based product to displace an existing product. Moreover, these general organizational restrictions are exacerbated by additional limitations. For instance, NACHA is an association of associations with conflicts of interest among members. In particular, the small, relatively inactive ACH institutions will generally oppose investment in system improvements that would benefit primarily the active ACH institutions. The Fed's role as a check payment processor and bank regulator is an additional complicating factor, as is the need to coordinate across 12 district banks.

Evidence for the Private Sector Scenario. Although the objective in developing alternative scenarios is simply to portray future possibilities, there is some evidence that private sector alternatives to the current ACH are emerging.

Chase Manhattan Bank has organized its own "Chase ACH" with its subsidiary Lincoln First in Rochester, New York. Chase is the country's largest ACH originator. It now processes over 4 million ACH transactions per month or about 50 million per year. Many items are already handled through computer to computer transactions from large insurance, petroleum, and finance companies.

Chase will continue to participate in the ACH through its membership in the New York Clearinghouse Association and the New York ACH. In addition, Chase will (1) access the Federal Reserve's system directly in keeping with an agreement reached in December 1985; (2) transmit to a "window bank" for its transactions involving members of the New England ACH Association; and (3) transmit to Calwestern ACH members through direct communication with the GEISCO switch in Rockville, Maryland.

Chase's use of alternatives to the New York ACH provides two benefits. First, it enables Chase to attain more economical ACH processing for many of its transactions while maintaining the option of using the New York ACH when desirable. Second, Chase has more flexibility in providing service enhancements such as value-dated transactions, automated reprocessing of electronic originations, and automating corporate returns.

The Automotive Industry Action Group is an association concerned with electronic data interchange for orders, delivery instructions, invoicing, payment, payment advice transmission, and related administrative processing for automobile companies. General Motors has requested major corporate service banks to bid on serving as processors in an electronic network for invoicing, payment, and payment advice exchange. The electronic payments in this system are like those of the ACH, and the servicing banks could use the existing ACH when appropriate. However, it is logical for them to transmit and settle through correspondent accounts whenever system banks are involved as both originator and receiver, probably in most of the payment transactions. The net effect of the proposed GM system of electronic service banks could be an electronic data interchange system for GM, its vendors, and its dealers that would engage in ACH-like payment transactions, but primarily outside the current ACH system.

Private Sector Variations. There are many possible private sector alternatives to the existing ACH system.

One is a general purpose ACH service that could come into play if a major originator chose to bypass the ACH by sending transactions directly to regional associations and its high volume receiving institutions. Its system could also be extended to other originators as a correspondent service.

Another way a private, general-purpose ACH system could be created is through a consortium of major ACH processors, who first agree to exchange transactions directly. As volume and the number of direct-send participants increase, the use of a central sort and merge clearinghouse becomes viable. The active participants form a consortium to own and operate their electronic clearinghouse.

The alternative to a general purpose ACH system is a specialized network. This could be industry-specific, for example, for manufacturing industries—automotive, airline, chemicals or metals—or retailing segments like the grocery industry. Such a system could also focus on particular types of transactions. For instance, vendor trade payments have different message, data standard, timing, and authentication requirements than point-of-sale debit transactions. Variable debit amount bill payment is, in turn, different from either vendor trade payments or point-of-sale debit transactions.

Many organizations have national communication and processing capabilities. J.C. Penney, for example, is now using an enhanced version of its internal communication network to offer credit card and related point-of-sale transaction processing to others, especially several oil company credit card systems. The airline industry has several systems for exchanging orders and tickets. Automated Data Processing is a time sharing and computer services firm. It now does processing for the origination of about 1.5 million direct deposit payroll transactions, as well as cash concentration. It announced but then retracted plans to offer ACH-like electronic payment processing. Such organizations are clearly equipped to provide ACH processing services if a viable settlement mechanism exists.

Private Sector ACH Systems: Synthesis. The current ACH system is limited by its organizational structure, which relies on the Fed, a government-like organization and NACHA, an association of regional associations. The relatively high cost and limited capabilities of the current ACH system restrict its use to payment areas that constitute a small fraction of the noncurrency payments that logically should be handled via an ACH-like system.

Hence opportunities exist for private sector organizations to offer ACH-like services. These could arise when high volume originators in the current ACH system decide to bypass ACH for transactional savings, develop a significant base of correspondent processing for other organizations, and then organize a centralized processing switch to function as an automated clearinghouse alternative. Private alternatives could also develop as special systems for a particular industry or payment use.

Scenario Five: Combination of Infrastructure Changes

One likely course for the evolution of ACH-type payment systems involves a combination of the various change scenarios, which are not mutually exclusive. It is possible: (1) for the Fed to act as an ACH processing and settlement utility offering a basic service to all depository institutions; (2) for NACHA to change its organization and its processing system, and to assume a more active marketing and development role; and (3) for several private sector organizations to emerge as major processors of ACH-like payment transactions.

Both check and wire transfers involve several alternative processing and settlement systems operating in parallel, although domestic wire transfers are clearly dominated by Fedwire, especially with the recent demise of BankWire. By analogy to these systems, it is reasonable to expect a combination of processing and settlement alternatives to emerge in ACH payments.

System Functions. There are several broad functions in an ACH-like system—sort and merge processing and related switch functions, data communication networks, and settlement. The current ACH combines most of these in one organization since the Fed is the primary processor for most of the intraregional transactions and virtually all interregional transactions. Nonetheless, these activities can be logically separated and performed by different organizations.

Communication Support Services. Many communication systems and communication vendors are able to provide the various data communication services required for ACH processing. Therefore, the key infrastructure issue is the operation of the processing switch and the settlement mechanism.[11]

Settlement Services. The Fed has a monopoly in providing settlement services. Many depository institutions have accounts with the Federal Reserve, especially commercial banks. Thus, the Federal Reserve has an advantage whenever access to financial institutions is involved.

Processing Services and Capabilities. The central infrastructure issue is the organization for processing ACH-type transactions. Organization in this area is the key to both the cost of ACH transactions and the ability to provide the

capabilities necessary to address the high volume segments of the payment services market. The current processing infrastructure is expensive and provides only a basic payment image exchange service.

One certainty is that the current processing structure must change and expanded capabilities must be provided if ACH-type payments are to achieve significant use. This article considered three ways to accomplish this change—a dramatically restructured version of NACHA, a Fed-operated processing utility, and a private sector competitor to the current system. Many activities necessary for technology displacement require organizational capabilities and structures absent in both NACHA and the Fed. For these reasons, it seems likely that the Fed will provide settlement services for ACH-type transactions regardless of whether it offers other ACH processing services. It is also reasonable to believe that high volume ACH originators and receivers will exchange transactions directly and settle through correspondent accounts. Some special purpose systems such as an automotive vendor trade payment exchange may use only a few institutions and rely primarily or even exclusively on correspondent accounts for net settlement.

Both Fed and correspondent account settlement will almost certainly emerge; the uncertainty is their relative importance. This depends on Fed pricing, settlement options, how much volume is concentrated in a limited number of ACH originators and receivers, and the extent to which special purpose and industry-specific alternatives emerge as viable alternatives to a general purpose ACH processing system. Thus, much of the processing for ACH-like transactions may ultimately move to one or more private sector systems. Since no significant private sector processing services are presently in place and since the Fed is the logical agent for much of the settlement, a long period of evolution is likely in the organizational infrastructure for ACH-type services. The evolution period will involve a combination of several types of processing.

Synthesis and Conclusions

Expanding ACH payments into new usage areas, especially those having significant volume potential, calls for considerable innovation, especially new capabilities able to provide buyer-seller information exchange and controls. Determining these capabilities in turn requires market research, product research and development, and greatly strengthened marketing (distribution). To accomplish this, the organizational infrastructure of today's ACH delivery system will have to change markedly.

Predicting future ACH volume, prices, and other features involves assessing ways to create the necessary organizational infrastructure, then projecting required system capabilities and costs, then jointly determining user demand and appropriate prices, and, finally, predicting likely volume and verifying joint consistency of volume and prices.

These scenarios helped to structure the analysis of complex organizational and structural barriers to change. The developments described in scenarios two, three, and four, as well as in the combination scenario, would facilitate the changes necessary for ACH growth; however, these developments will probably require considerable time. Thus, important changes in ACH capabilities and significant displacement of checks in payment areas requiring new information exchange and control capabilities are likely to be slow as they go through the product development stage. Attaining significant volume growth from new ACH uses requiring new capabilities is probably four to five years away and possibly even more distant. One way faster growth may occur is through rapid entry of a private provider offering a specialized capability aimed at a particular industry or payment use that involves a limited number of financial institutions.

Resolving infrastructure issues is crucial to rapid progress in electronic payments. Until these are resolved, ACH volume growth will be slow and most noncurrency payments will continue to be check-based.

NOTES

[1]The primary national standard for business to business data exchange is the ANSI X12 standard for automated buyer-seller information exchange for order inquiries, order placement, order acknowledgment and confirmation, delivery instruction, credit terms, invoicing, payment, remittance advice, and related buyer-seller information exchanges. For more details, see Accredited Standards Committee X12-Electronic Business Data Interchange, "An Introduction to Electronic Business Data Interchange," as well as, Hill and Ferguson (1985), Liss (1982), and Stone (1983). Industry-specific standards exist and are actively used for transportation. Standards are emerging in various areas for retailing such as the grocery business. See Arthur D. Little, Inc., *Electronic Data Interchange for the Grocery Industry: Feasibility Report*, 1980. Other industry-specific programs for electronic interchange include a pilot being conducted by Blue Cross for patient records and hospital transmission of patient claims data.

[2]The system allows direct, computer to computer transmission for both input to the ACH from depository institutions and output from the ACH to the receiving depository institution. The use of the direct transmission option is growing, however, it is currently a very small proportion of both input and output. Moreover, the system operating procedures and network design are still tape (disk) oriented so that potential operating efficiencies and service enhancements do not utilize the benefits of direct transmission.

[3]The figure excludes on-us items processed by the originating institutions before delivery to the ACH system, items processed outside the ACH, such as local transactions by the Arizona ACH, or bypasses made by major banks that exchange ACH items directly outside of the formal ACH processing and settlement network. It also corrects the NACHA data for interregional items that have been counted twice, as ACH transactions in both the originating and receiving regions.

[4]Financial institutions make approximately two billion non-currency payment transactions. Converting a significant proportion of these to the ACH, say half, would more than double current ACH volume, reduce the average cost of ACH transactions, and help cover the fixed cost of ACH processing within these institutions.

[5]For a thorough discussion of the reasons why neither NACHA nor the Fed can use life cycle pricing, see Bernell K. Stone, "Electronic Payments at the Crossroads," *Economic Review*, vol. 71, no. 3 (March 1986), pp. 20-33.

[6]There is some evidence of efforts by NACHA to change and innovate, for example efforts to obtain a private sector contractor for network and processing services, the introduction of the CTP and CTX services, and hiring a full-time, executive administrator.

[7]It is noted that, despite the logic in favor of a processing and servicing organization with equity owners, the political climate is unfavorable. In addition to the reasons discussed in these articles, the recent close down of BankWire and the $10.5 million write-off by its member banks means that many large banks will be skeptical of another processing consortium, especially if there appears to be competition with Fed processing.

[8]It is common to talk about "value-added networks." In fact, the "value adding" in ACH-type payment services occurs either at the originating depository institution, the receiving depository institution or the switch processing. Thus, in the context of payment services, it makes more sense to talk about "value-added switches" rather than value-added networks. The network services could easily be moved. NACHA does not need to own or create a network.

[9]BankWire ceased operation on March 7, 1986.

[10]Readers are referred to Bernell K. Stone "Electronic Payments at the Crossroads," *Economic Review*, vol. 71, no. 3 (March 1986), pp. 20-33 for a more thorough treatment of why the ACH system could achieve substantial reductions in both fixed and variable costs by having a single centralized processing point rather than the current 32 node network.

[11]The data communication system is the electronic analogue to the transportation system in a check processing and settlement system. The communication system is the means for getting data from place to place. There are many ways to move checks—couriers, public airlines, private airlines, express mail, etc. Likewise, there are many ways to move electronic data using existing communication services. The assertion that the choice of data communication system is not an important infrastructure issue does not mean that it is not economically important. It is very important to both cost and efficiency just as the choice of an efficient transportation system is important in checks.

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FINANCE

$ millions	MAR 1986	FEB 1986	MAR 1985	ANN. % CHG.		MAR 1986	FEB 1986	MAR 1985	ANN. % CHG.
UNITED STATES									
Commercial Bank Deposits	1,552,504	1,547,232	1,472,098	+ 5	Savings & Loans**				
Demand	326,252	322,159	317,643	+ 3	Total Deposits	696,704	701,859	572,031	+22
NOW	112,949	110,971	99,949	+13	NOW	26,270	25,970	18,065	+45
Savings	439,964	436,946	400,859	+ 9	Savings	156,519	158,202	131,288	+19
Time	713,878	712,486	699,083	+ 2	Time	513,805	517,393	424,257	+21
Credit Union Deposits	51,216	50,956	45,818	+12		FEB	JAN	FEB	
Share Drafts	6,739	6,617	6,029	+12	Mortgages Outstanding	766,120	763,790	603,308	+27
Savings & Time	43,822	43,447	39,036	+12	Mortgage Commitments	43,423	40,592	37,433	+16
SOUTHEAST									
Commercial Bank Deposits	181,894	180,530	171,154	+ 6	Savings & Loans**				
Demand	37,670	37,175	37,315	+ 1	Total Deposits	90,960	92,353	88,537	+ 3
NOW	15,481	15,192	13,199	+17	NOW	4,370	4,282	3,503	+25
Savings	50,086	49,619	45,248	+11	Savings	19,775	19,997	19,614	+ 1
Time	83,355	82,812	80,184	+ 4	Time	66,735	68,087	65,782	+ 1
Credit Union Deposits	6,184	6,342	5,487	+13		FEB	JAN	FEB	
Share Drafts	663	647	553	+20	Mortgages Outstanding	93,051	92,843	78,047	+19
Savings & Time	5,175	5,406	4,702	+10	Mortgage Commitments	4,776	4,603	4,521	+ 6
ALABAMA									
Commercial Bank Deposits	18,095	17,879	17,746	+ 2	Savings & Loans**				
Demand	3,883	3,791	3,868	+ 0	Total Deposits	5,777	5,787	5,541	+ 4
NOW	1,504	1,470	1,252	+20	NOW	256	252	184	+39
Savings	3,755	3,731	3,544	+ 6	Savings	1,014	1,020	935	+ 8
Time	9,491	9,388	9,705	- 4	Time	4,541	4,535	4,503	+ 1
Credit Union Deposits	941	922	744	+26		FEB	JAN	FEB	
Share Drafts	131	127	95	+38	Mortgages Outstanding	5,888	5,913	4,384	+34
Savings & Time	692	683	587	+18	Mortgage Commitments	318	328	284	+12
FLORIDA									
Commercial Bank Deposits	67,528	66,673	61,413	+10	Savings & Loans**				
Demand	14,048	13,774	13,615	+ 3	Total Deposits	59,517	61,115	57,981	+ 3
NOW	6,644	6,521	5,440	+22	NOW	2,904	2,843	2,473	+17
Savings	22,984	22,718	21,280	+20	Savings	13,610	13,899	13,593	+ 0
Time	25,557	25,308	22,739	+ 8	Time	42,693	44,105	41,895	+ 2
Credit Union Deposits	3,162	3,148	2,753	+15		FEB	JAN	FEB	
Share Drafts	343	334	293	+17	Mortgages Outstanding	56,638	56,502	45,821	+24
Savings & Time	2,603	2,653	2,286	+14	Mortgage Commitments	3,200	3,215	3,005	+ 6
GEORGIA									
Commercial Bank Deposits	28,504	28,419	26,577	+ 7	Savings & Loans**				
Demand	7,578	7,532	7,388	+ 3	Total Deposits	7,712	7,627	7,245	+ 6
NOW	2,060	2,011	1,761	+17	NOW	549	536	291	+89
Savings	7,946	7,872	6,857	+16	Savings	1,686	1,639	1,689	- 1
Time	12,380	12,306	11,958	+ 4	Time	5,542	5,553	5,357	+ 3
Credit Union Deposits	1,156	1,147	990	+17		FEB	JAN	FEB	
Share Drafts	100	97	84	+19	Mortgages Outstanding	10,798	10,629	9,045	+19
Savings & Time	1,049	1,040	907	+16	Mortgage Commitments	452	342	349	+30
LOUISIANA									
Commercial Bank Deposits	28,780	28,875	27,733	+ 4	Savings & Loans**				
Demand	5,316	5,296	5,654	- 6	Total Deposits	9,864	9,783	9,810	+ 1
NOW	1,834	1,893	1,664	+10	NOW	324	317	284	+14
Savings	7,443	7,400	5,957	+25	Savings	2,066	2,055	1,980	+ 4
Time	14,730	14,752	15,072	- 4	Time	7,577	7,527	7,682	- 2
Credit Union Deposits	78	78	70	+11		FEB	JAN	FEB	
Share Drafts	7	6	6	+17	Mortgages Outstanding	10,174	10,276	10,523	- 4
Savings & Time	67	66	63	+ 6	Mortgage Commitments	252	211	398	-37
MISSISSIPPI									
Commercial Bank Deposits	13,339	13,211	12,846	+ 4	Savings & Loans**				
Demand	2,441	2,440	2,430	+ 0	Total Deposits	1,748	1,726	1,327	+27
NOW	1,097	1,036	954	+15	NOW	80	83	45	+78
Savings	2,684	2,669	2,509	+ 7	Savings	264	257	232	+14
Time	7,424	7,355	7,276	+ 2	Time	1,403	1,401	1,146	+22
Credit Union Deposits	*	*	*			FEB	JAN	FEB	
Share Drafts	*	*	*		Mortgages Outstanding	2,724	2,722	2,117	+29
Savings & Time	*	*	*		Mortgage Commitments	262	226	212	+24
TENNESSEE									
Commercial Bank Deposits	25,648	25,473	24,839	+ 3	Savings & Loans**				
Demand	4,404	4,342	4,360	+ 1	Total Deposits	6,342	6,315	6,588	- 4
NOW	2,342	2,261	2,128	+10	NOW	257	251	226	+14
Savings	5,274	5,229	5,101	+ 3	Savings	1,135	1,127	1,185	- 4
Time	13,773	13,703	13,434	+ 3	Time	4,979	4,966	5,199	- 5
Credit Union Deposits	847	1,047	930	- 8		FEB	JAN	FEB	
Share Drafts	82	83	75	+ 9	Mortgages Outstanding	6,829	6,801	6,157	+11
Savings & Time	764	964	859	-12	Mortgage Commitments	292	281	309	- 6

Notes: All deposit data are extracted from the Federal Reserve Report of Transaction Accounts, other Deposits and Vault Cash (FR2900), and are reported for the average of the week ending the 1st Monday of the month. Current data, reported by institutions with over $25 million in deposits and $2.4 million of reserve requirements as of June 1985, represents 95% of deposits in the six state area. The annual rate of change is based on most recent data over comparable year ago data. The major differences between this report and the "call report" are size, the treatment of interbank deposits, and the treatment of float. Year ago data not consistently comparable with current data due to recent reporting changes. Year ago data reported by institutions over $15 million and $2.1 reserve requirements. Revisions are being made to provide a more comparable series for publication purposes. The total deposit data generated from the Report of Transaction Accounts eliminates interbank deposits by reporting the net of deposits "due to" and "due from" other depository institutions. The Report of Transaction Accounts subtracts cash in process of collection from demand deposits, while the call report does not. Savings and loan mortgage data are from the Federal Home Loan Bank Board Selected Balance Sheet Data. The Southeast data represent the total of the six states. Subcategories were chosen on a selective basis and do not add to total.

* = Fewer than four institutions reporting.

** = S&L deposits subject to revisions due to reporting changes.

CONSTRUCTION

12-month cumulative rate

	FEB. 1986	JAN. 1986	FEB. 1985	ANN. % CHG.
UNITED STATES				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	67,313	68,260	62,802	+ 7
Industrial Bldgs.	8,993	8,776	9,196	- 2
Offices	17,640	17,373	15,059	+ 17
Stores	11,549	11,228	9,770	+ 18
Hospitals	2,305	2,266	1,866	+ 24
Schools	1,211	1,137	1,094	+ 11
Residential Building Permits				
Value - $ Mil.	84,486	84,137	74,036	+14
Residential Permits - Thous.				
Single-family units	971.8	964.2	924.5	+ 5
Multifamily units	780.3	776.7	742.1	+ 5
Total Building Permits				
Value - $ Mil.	151,799	152,397	136,838	+11
SOUTHEAST				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	11,168	11,350	9,743	+ 15
Industrial Bldgs.	1,295	1,219	1,063	+ 22
Offices	2,704	2,675	2,262	+ 20
Stores	2,341	2,261	1,973	+ 19
Hospitals	390	372	409	- 5
Schools	158	142	113	+ 40
Residential Building Permits				
Value - $ Mil.	15,347	15,028	13,619	+13
Residential Permits - Thous.				
Single-family units	200.6	199.3	186.7	+ 7
Multifamily units	169.4	164.9	169.2	+ 0
Total Building Permits				
Value - $ Mil.	26,515	26,378	23,362	+14
ALABAMA				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	639	617	731	- 13
Industrial Bldgs.	60	55	195	- 69
Offices	163	157	94	+ 73
Stores	167	160	123	+ 36
Hospitals	18	15	57	- 68
Schools	14	14	6	+133
Residential Building Permits				
Value - $ Mil.	569	566	447	+27
Residential Permits - Thous.				
Single-family units	9.4	10.1	8.7	+ 8
Multifamily units	8.5	8.1	6.5	+31
Total Building Permits				
Value - $ Mil.	1,208	1,183	1,178	+ 3
FLORIDA				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	5,697	5,811	4,910	+ 16
Industrial Bldgs.	570	539	539	+ 6
Offices	1,220	1,197	1,048	+ 16
Stores	1,318	1,234	1,134	+ 16
Hospitals	214	203	165	+ 30
Schools	46	44	49	- 6
Residential Building Permits				
Value - $ Mil.	8,714	8,490	7,866	+11
Residential Permits - Thous.				
Single-family units	106.0	105.3	101.2	+ 5
Multifamily units	103.3	99.1	98.2	+ 5
Total Building Permits				
Value - $ Mil.	14,411	14,301	12,776	+13
GEORGIA				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	2,038	2,054	1,824	+ 12
Industrial Bldgs.	348	330	204	+ 71
Offices	547	544	544	+ 1
Stores	337	331	288	+ 17
Hospitals	34	32	49	- 31
Schools	17	17	18	- 6
Residential Building Permits				
Value - $ Mil.	3,349	3,270	2,793	+20
Residential Permits - Thous.				
Single-family units	48.5	47.4	42.7	+14
Multifamily units	27.7	27.8	26.4	+ 5
Total Building Permits				
Value - $ Mil.	5,388	5,323	4,617	+17
LOUISIANA				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	1,251	1,311	1,203	+ 4
Industrial Bldgs.	53	50	35	+ 51
Offices	458	451	314	+ 46
Stores	246	241	249	- 1
Hospitals	51	49	98	- 48
Schools	47	46	32	+ 47
Residential Building Permits				
Value - $ Mil.	745	752	975	-24
Residential Permits - Thous.				
Single-family units	11.5	11.6	14.0	-18
Multifamily units	5.5	5.7	11.9	-54
Total Building Permits				
Value - $ Mil.	1,996	2,064	2,177	- 8
MISSISSIPPI				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	307	304	248	+ 24
Industrial Bldgs.	27	26	12	+125
Offices	59	55	39	+ 51
Stores	68	64	48	+ 42
Hospitals	19	18	8	+138
Schools	8	7	3	+167
Residential Building Permits				
Value - $ Mil.	346	342	380	- 9
Residential Permits - Thous.				
Single-family units	5.9	5.8	6.4	- 8
Multifamily units	2.7	2.7	4.8	-44
Total Building Permits				
Value - $ Mil.	652	646	628	+ 4
TENNESSEE				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	1,237	1,253	828	+ 49
Industrial Bldgs.	220	219	80	+175
Offices	276	271	222	+ 24
Stores	238	231	132	+ 80
Hospitals	54	55	32	+ 69
Schools	17	14	5	+240
Residential Building Permits				
Value - $ Mil.	1,624	1,608	1,158	+40
Residential Permits - Thous.				
Single-family units	19.4	19.1	13.7	+42
Multifamily units	21.6	21.5	21.6	0
Total Building Permits				
Value - $ Mil.	3,071	2,861	1,987	+55

NOTES: Data supplied by the U. S. Bureau of the Census, Housing Units Authorized By Building Permits and Public Contracts, C-40. Nonresidential data excludes the cost of construction for publicly owned buildings. The southeast data represent the total of the six states.

GENERAL

	LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.
UNITED STATES					
Personal Income ($bil. - SAAR)	4Q	3,268.1	3,211.6	3,109.7	+ 5
Taxable Sales - $bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (000's)		N.A.	N.A.	N.A.	
Petroleum Prod. (thous.)	MAR	8,940.2	8,933.7	8,869.4	+ 1
Consumer Price Index 1967=100	FEB	327.5	328.4	317.4	+ 3
Kilowatt Hours - mils.	FEB	198.7	197.5	188.2	+ 6
SOUTHEAST					
Personal Income ($bil. - SAAR)	4Q	398.3	391.3	378.5	+ 5
Taxable Sales - $bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (000's)	MAR	6,419.4	5,871.7	5,903.5	+ 9
Petroleum Prod. (thous.)	MAR	141.1	141.6	150.8	- 6
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	FEB	31.4	30.0	28.6	+10
ALABAMA					
Personal Income ($bil. - SAAR)	4Q	43.1	42.2	40.9	+ 5
Taxable Sales - $bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (000's)	MAR	145.2	113.3	135.8	+ 7
Petroleum Prod. (thous.)	MAR	59.0	60.0	56.0	+ 5
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	FEB	4.5	4.2	4.2	+ 7
FLORIDA					
Personal Income ($bil. - SAAR)	4Q	154.5	151.2	145.4	+ 6
Taxable Sales - $bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (000's)	MAR	3,585.6	3,284.5	2,801.6	+28
Petroleum Prod. (thous.)	MAR	31.0	32.0	35.0	-11
Consumer Price Index 1967=100		MAR 176.5	JAN 174.6	MAR 169.7	+ 4
Kilowatt Hours - mils.	FEB	9.3	8.7	7.9	+18
GEORGIA					
Personal Income ($bil. - SAAR)	4Q	74.3	73.2	70.0	+ 6
Taxable Sales - $bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (000's)	MAR	1,763.7	1,698.1	2,152.1	-18
Petroleum Prod. (thous.)		N.A.	N.A.	N.A.	
Consumer Price Index 1967=100		FEB 336.9	DEC 335.3	FEB 322.4	+ 4
Kilowatt Hours - mils.	FEB	5.1	5.0	4.6	+11
LOUISIANA					
Personal Income ($bil. - SAAR)	4Q	49.4	49.4	48.7	+ 1
Taxable Sales - $bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (000's)	MAR	308.8	288.7	310.7	- 1
Petroleum Prod. (thous.)	MAR	1,238.0	1,240.0	1,328.0	- 7
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	FEB	4.6	4.4	4.5	+ 2
MISSISSIPPI					
Personal Income ($bil. - SAAR)	4Q	24.1	23.2	23.0	+ 5
Taxable Sales - $bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (000's)	MAR	38.5	30.3	37.2	+ 3
Petroleum Prod. (thous.)	MAR	83.0	84.0	89.0	- 7
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	FEB	2.2	2.1	1.9	+16
TENNESSEE					
Personal Income ($bil. - SAAR)	4Q	52.9	52.1	50.5	+ 5
Taxable Sales - $bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (000's)	MAR	577.6	456.8	466.1	+24
Petroleum Prod. (thous.)	MAR	N.A.	N.A.	N.A.	
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	FEB	5.7	5.6	5.5	+ 4

	APR 1986	MAR (R) 1986	APR 1985	ANN. % CHG.
UNITED STATES				
Agriculture				
Prices Rec'd by Farmers Index (1977=100)	120	122	132	- 9
Broiler Placements (thous.)	84,740	85,813	90,277	- 6
Calf Prices ($ per cwt.)	61.00	61.90	65.80	- 7
Broiler Prices (¢ per lb.)	29.9	30.2	28.80	+ 4
Soybean Prices ($ per bu.)	5.13	5.23	5.86	-12
Broiler Feed Cost ($ per ton)	(Q2) 189	(Q1) 189	(Q2) 204	- 7
SOUTHEAST				
Agriculture				
Prices Rec'd by Farmers Index (1977=100)	109	108	122	-11
Broiler Placements (thous.)	35,386	35,331	34,902	+ 1
Calf Prices ($ per cwt.)	57.14	58.17	61.44	- 7
Broiler Prices (¢ per lb.)	28.17	28.55	26.66	+ 6
Soybean Prices ($ per bu.)	5.22	5.27	6.01	-13
Broiler Feed Cost ($ per ton)	181	181	204	-11
ALABAMA				
Agriculture				
Farm Cash Receipts - $ mil. (Dates: FEB, FEB)	298	-	274	+ 9
Broiler Placements (thous.)	11,930	11,997	11,747	+ 2
Calf Prices ($ per cwt.)	54.60	57.50	59.70	- 9
Broiler Prices (¢ per lb.)	28.00	28.00	25.50	+10
Soybean Prices ($ per bu.)	5.27	5.45	5.99	-12
Broiler Feed Cost ($ per ton)	181	179	195	- 7
FLORIDA				
Agriculture				
Farm Cash Receipts - $ mil. (Dates: FEB, FEB)	777	-	721	+ 8
Broiler Placements (thous.)	2,388	2,296	2,162	+10
Calf Prices ($ per cwt.)	61.40	59.40	64.70	- 5
Broiler Prices (¢ per lb.)	27.00	28.00	27.00	0
Soybean Prices ($ per bu.)	5.27	5.45	5.99	-12
Broiler Feed Cost ($ per ton)	181	230	235	-23
GEORGIA				
Agriculture				
Farm Cash Receipts - $ mil. (Dates: FEB, FEB)	376	-	393	- 4
Broiler Placements (thous.)	14,308	14,275	14,192	+ 1
Calf Prices ($ per cwt.)	52.30	56.50	60.20	-13
Broiler Prices (¢ per lb.)	27.50	28.00	26.00	+ 6
Soybean Prices ($ per bu.)	5.15	5.05	5.97	-14
Broiler Feed Cost ($ per ton)	181	180	225	-20
LOUISIANA				
Agriculture				
Farm Cash Receipts - $ mil. (Dates: FEB, FEB)	310	-	264	+17
Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Calf Prices ($ per cwt.)	56.00	58.00	63.20	-11
Broiler Prices (¢ per lb.)	29.50	30.50	31.50	- 6
Soybean Prices ($ per bu.)	5.15	5.25	5.95	-13
Broiler Feed Cost ($ per ton)	181	245	250	-28
MISSISSIPPI				
Agriculture				
Farm Cash Receipts - $ mil. (Dates: FEB, FEB)	341	-	414	-18
Broiler Placements (thous.)	6,760	6,764	6,801	- 1
Calf Prices ($ per cwt.)	58.20	59.40	61.90	- 6
Broiler Prices (¢ per lb.)	30.10	30.5	28.50	+ 6
Soybean Prices ($ per bu.)	5.19	5.28	6.06	-14
Broiler Feed Cost ($ per ton)	181	157	160	+13
TENNESSEE				
Agriculture				
Farm Cash Receipts - $ mil. (Dates: FEB, FEB)	276	-	348	-21
Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Calf Prices ($ per cwt.)	58.40	57.70	59.20	- 1
Broiler Prices (¢ per lb.)	26.0	26.5	26.00	0
Soybean Prices ($ per bu.)	5.37	5.27	6.05	-11
Broiler Feed Cost ($ per ton)	189	176	183	+ 3

NOTES: Personal Income data supplied by U. S. Department of Commerce. Taxable Sales are reported as a 12-month cumulative total. Plane Passenger Arrivals are collected from 26 airports. Petroleum Production data supplied by U. S. Bureau of Mines. Consumer Price Index data supplied by Bureau of Labor Statistics. Agriculture data supplied by U. S. Department of Agriculture. Farm Cash Receipts data are reported as cumulative for the calendar year through the month shown. Broiler placements are an average weekly rate. The Southeast data represent the total of the six states. N. A. = not available. The annual percent change calculation is based on most recent data over prior year. R = revised.

EMPLOYMENT

	FEB 1986	JAN 1986	FEB 1985	ANN. % CHG		FEB 1986	JAN 1986	FEB 1985	ANN. % CHG
UNITED STATES									
Civilian Labor Force - thous.	115,725	115,431	113,592	+ 2	Nonfarm Employment - thous.	98,332	98,170	94,851	+ 4
Total Employed - thous	106,685	106,959	104,690	+ 2	Manufacturing	19,249	19,268	19,545	- 2
Total Unemployed - thous.	9,041	8,472	8,902	+ 2	Construction	4,346	4,490	4,011	+ 8
Unemployment Rate - % SA	7.3	6.7	7.3		Trade	23,224	23,482	21,889	+ 6
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	16,816	16,467	16,351	+ 3
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	22,366	22,169	21,122	+ 6
Mfg. Avg. Wkly. Hours	40.6	40.6	39.7	+ 2	Fin., Ins. & Real. Est.	6,074	6,049	5,742	+ 6
Mfg. Avg. Wkly. Earn. - $	390	393	374	+ 4	Trans. Com. & Pub. Util.	5,272	5,303	5,204	+ 1
SOUTHEAST									
Civilian Labor Force - thous.	15,401	15,286	15,131	+ 2	Nonfarm Employment - thous.	12,912	12,833	12,477	+ 3
Total Employed - thous	13,422	13,357	13,692	- 2	Manufacturing	2,313	2,309	2,307	+ 0
Total Unemployed - thous.	1,201	1,198	1,230	- 2	Construction	763	764	727	+ 5
Unemployment Rate - % SA	7.4	7.1	7.8		Trade	3,198	3,202	3,068	+ 4
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	2,297	2,278	2,235	+ 3
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	2,701	2,687	2,582	+ 5
Mfg. Avg. Wkly. Hours	40.7	41.0	40.1	+ 1	Fin., Ins. & Real. Est.	747	742	709	+ 5
Mfg. Avg. Wkly. Earn. - $	348	350	334	+ 4	Trans. Com. & Pub. Util.	727	725	720	+ 1
ALABAMA									
Civilian Labor Force - thous.	1,826	1,802	1,796	+ 2	Nonfarm Employment - thous.	1,433	1,425	1,396	+ 3
Total Employed - thous	1,659	1,637	1,599	+ 4	Manufacturing	354	354	355	- 0
Total Unemployed - thous.	168	165	197	-15	Construction	69	70	63	+10
Unemployment Rate - % SA	9.2	9.1	10.4		Trade	306	305	294	+ 4
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	307	301	298	+ 3
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	244	242	236	+ 3
Mfg. Avg. Wkly. Hours	41.0	41.3	39.1	+ 5	Fin., Ins. & Real. Est.	67	67	64	+ 5
Mfg. Avg. Wkly. Earn. - $	355	363	329	+ 8	Trans. Com. & Pub. Util.	71	72	72	- 1
FLORIDA									
Civilian Labor Force - thous.	5,381	5,344	5,246	+ 3	Nonfarm Employment - thous.	4,540	4,521	4,381	+ 4
Total Employed - thous	4,539	4,521	4,940	- 8	Manufacturing	525	523	516	+ 2
Total Unemployed - thous.	289	301	305	- 5	Construction	337	335	328	+ 3
Unemployment Rate - % SA	5.7	5.3	6.1		Trade	1,224	1,221	1,180	+ 4
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	697	694	680	+ 2
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	1,170	1,167	1,114	+ 5
Mfg. Avg. Wkly. Hours	40.9	41.0	41.2	- 1	Fin., Ins. & Real. Est.	328	326	310	+ 6
Mfg. Avg. Wkly. Earn. - $	326	323	321	+ 2	Trans. Com. & Pub. Util.	247	245	242	+ 2
GEORGIA									
Civilian Labor Force - thous.	2,876	2,844	2,794	+ 3	Nonfarm Employment - thous.	2,601	2,598	2,491	+ 4
Total Employed - thous	2,714	2,678	2,619	+ 4	Manufacturing	559	557	548	+ 2
Total Unemployed - thous.	168	166	175	- 4	Construction	153	151	131	+17
Unemployment Rate - % SA	5.8	5.8	5.6		Trade	663	661	620	+ 7
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	454	453	447	+ 2
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	465	463	445	+ 4
Mfg. Avg. Wkly. Hours	40.1	41.0	39.2	+ 2	Fin., Ins. & Real. Est.	143	140	132	+ 8
Mfg. Avg. Wkly. Earn. - $	326	336	310	+ 5	Trans. Com. & Pub. Util.	165	164	160	+ 3
LOUISIANA									
Civilian Labor Force - thous.	1,959	1,950	1,920	+ 2	Nonfarm Employment - thous.	1,568	1,575	1,585	- 1
Total Employed - thous	1,700	1,699	1,690	+ 1	Manufacturing	169	170	179	- 6
Total Unemployed - thous.	259	251	229	+13	Construction	95	95	107	-10
Unemployment Rate - % SA	13.2	12.9	11.7		Trade	382	384	378	+ 1
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	329	325	327	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	321	319	313	+ 3
Mfg. Avg. Wkly. Hours	41.2	41.5	41.5	- 1	Fin., Ins. & Real. Est.	85	85	83	+ 2
Mfg. Avg. Wkly. Earn. - $	431	433	428	+ 1	Trans. Com. & Pub. Util.	110	112	117	- 6
MISSISSIPPI									
Civilian Labor Force - thous.	1,121	1,111	1,088	+ 3	Nonfarm Employment - thous.	897	893	819	+10
Total Employed - thous	995	987	961	+ 4	Manufacturing	223	223	219	+ 2
Total Unemployed - thous.	126	124	127	- 1	Construction	33	33	32	+ 3
Unemployment Rate - % SA	10.5	10.3	10.6		Trade	177	178	170	+ 4
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	194	193	189	+ 3
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	132	131	127	+ 4
Mfg. Avg. Wkly. Hours	40.5	40.5	40.8	- 1	Fin., Ins. & Real. Est.	36	36	35	+ 3
Mfg. Avg. Wkly. Earn. - $	302	298	295	+ 2	Trans. Com. & Pub. Util.	39	39	39	0
TENNESSEE									
Civilian Labor Force - thous.	2,239	2,234	2,202	+ 2	Nonfarm Employment - thous.	1,875	1,878	1,800	+ 4
Total Employed - thous	2,043	2,043	2,030	+ 1	Manufacturing	483	482	491	- 2
Total Unemployed - thous.	195	191	203	- 4	Construction	76	81	70	+ 9
Unemployment Rate - % SA	8.7	8.6	7.9		Trade	446	452	13	+ 8
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	316	312	302	+ 5
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	369	365	343	+ 8
Mfg. Avg. Wkly. Hours	39.3	41.1	38.9	+ 1	Fin., Ins. & Real. Est.	88	88	87	+ 1
Mfg. Avg. Wkly. Earn. - $	332	347	324	+ 2	Trans. Com. & Pub. Util.	90	91	89	+ 1

NOTES: All labor force dara are from Bureau of Labor Statistics reports supplied by state agencies.
Only the unemployment rate data are seasonally adjusted.
The Southeast data represent the total of the six states.

Federal Reserve Bank of Atlanta
104 Marietta St., N.W.
Atlanta, Georgia 30303-2713

Address Correction Requested

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