For use in newspapers
on Sunday, Nov. 7, 1971

Electronic Handling, Storage and Transfer of Checks and Certificates

Remarks of George W. Mitchell

Member, Board of Governors of the Federal Reserve System

at the

Trust Conference

Sponsored by

Virginia Bankers Association

Williamsburg, Virginia

November 6, 1971

Electronic Handling, Storage and Transfer of Checks and Certificates

All of us are aware in some degree of the revolutionary technological change taking place in the means of handling, storing, retrieving and manipulating data of all kinds. That awareness differs, depending on our perspective and what we do for a living. Just reading the newspaper, or watching TV, however, conveys the reality of the growing role of the computer in our economy and its enormous capacity and adaptability. Computational miracles in science and aerospace, for example, are taken as a matter of course, but these applications are remote from the day-to-day experience of most of us. So we are a little surprised when the computer's capabilities touches, or threatens to alter, our daily routines and to invalidate or obsolesce our precepts for the prudent conduct of business affairs. As it does--and it will--its functioning will become just another of those numerous applications of science which we do not fully understand but come to accept.

The essence of the change electronic data processing is forcing on our daily lives is the elimination of the paper records and documents that are so familiar to us. It is the beginning of the end for chits, adding machine tape, journals, ledgers and numerous transaction records, as well as beautifully engraved certificates of ownership or indebtedness and currency. Living without paper evidence of transactions and ownership--however redundant--is going to involve a period of adjustment.

The new system, however, clearly will be more convenient and less costly than the paper shuffling and safekeeping it displaces, and it will not involve the sacrifice of any essential records nor the ability to trace past transactions.

The Federal Reserve is involved in two activities directly concerned with the displacement by electronic facilities of paper and paper processing: (1) check clearing; (2) the safekeeping and transfer of Government securities. Both have required close integration with operating activities of commercial banks and both have involved relatively long periods of gestation and progressive stages of implementation.

Our objective in the case of safekeeping and transfer of Government securities was to obviate the issuance, handling, and redemption of large columns of individual securities at the several Federal Reserve Banks. This was done by setting up an accounting record in each Reserve Bank establishing the ownership interests of each depositor in the System.

The installation of the so-called book-entry system for Government securities has now been under way for several years and still is not fully operational. In essence, under the book-entry procedure, definitive Government securities are eliminated, and a record of ownership is stored in a computer operated by a Federal Reserve Bank. There is no physical piece of negotiable paper evidencing ownership.

Interest on all book-entry Treasury securities is directly credited to owners' accounts, thus eliminating the burdensome task of clipping and handling millions of coupons. Unless otherwise instructed by the depositor or pledgee, amounts due for maturing securities, or interest, are credited, under advice, to the reserve account of a member bank depositor, or--if the depositor is other than a member bank--in accordance with its instructions.

The conversion of security accounts into book entry has presented numerous and unique legal problems, tax questions, and operational complications. These are a reflection of the fact that for decades the law, commercial practices, and traditions governing transactions in securities--including, for example, sale, purchase, assignment, negotiation, endorsement, hypothecation, delivery, taxation, and creditors' rights--have all been based on the existence of a piece of paper denoting ownership. Under the book-entry procedure, that piece of paper no longer exists. In this respect, the book-entry procedure is indeed a revolutionary concept, but obviously a necessary one if the process is to avoid paper shuffling and shipping.

The first phase of the transformation began on January 1, 1968. At that time, the procedure was only applied to the securities owned by member banks and held in custody at their Federal Reserve Banks. The next step in the program went beyond the securities held at the Reserve Banks to those held in custody by member banks for the account of third parties.

This second step opened up an entirely new application for book-entry procedure: the conversion by commercial banks of their customers' accounts to book-entry. This is expected to take some time.

Since January 1971, Federal Reserve Banks have accepted for safekeeping the Government securities in investment portfolios of banks, securities in banks' customers' accounts (including brokerage accounts) and securities in dealers' trading inventories. These are the most important categories of holdings. Because of internal problems, many banks have not yet been able to take full advantage of the availability of the System's facilities. They are making progress, however, and we expect that a substantial amount of the securities still held in physical form in money-center banks will soon be converted to book-entry form.

At the present time, approximately $233 billion in Government securities are held under the book-entry procedure at all Federal Reserve Banks. This is 58 per cent of the outstanding debt in the hands of the public.

Up to this point legislation has been unnecessary to activate the program. Nor do we see the need for legislation to extend the program to Federal agency securities, a step which is planned for the near future by means of administrative action. However, in view of the rather revolutionary nature of the book-entry concept, it may be that at some point along the line legal questions will arise that are best resolved by Federal legislation.

It is obvious that some kind of book-entry computer system for corporate and municipal securities is highly desirable and probably inevitable. However, extension into the corporate and municipal area introduces new complexities. In the case of Government securities, we have been fortunate in having to deal with only one issuer--the United States Government--and only one body of applicable law--Federal law. In the case of corporate and municipal securities, there are thousands of issuers, and the laws of fifty States to contend with. Nevertheless, despite the obstacles, it seems clear that this is the direction in which the financial community must go, and, indeed, there has already been considerable interest and significant progress in moving forward in this direction.

As with Government securities, the majority of the Federal Reserve Banks hold in safekeeping securities issued by municipalities and other public subdivisions and various corporate bodies. The warehousing of these securities, whether at a Reserve Bank, member bank, or a dealer, involves costly space, leads to work backlogs and involves exposure to thefts and losses. Due simply to the variety of shapes and sizes of securities, storage and handling problems are aggravated. And, to cap it off, coupon clipping and the subsequent processing operations are probably the most cumbersome and least efficient security or money operations in which we are involved.

The Federal Reserve System has an active interest in encouraging any program that will eliminate or minimize its present storage and processing costs for public and corporate securities. And with a view to maintaining public confidence in the nation's financial institutions, fiduciaries, and money and capital markets, we see electronic handling of securities as a means of reducing serious problems of losses from theft, fraud or carelessness. Unfortunately, in this area we are more of a bystander than a participant since we exercise the role of fiscal agent only for the Federal Government.

The other facet of our experience with the application of electronic data processing concerns check clearing. I believe it would be helpful to start with a few summary comments on the dimensions of the money transfer problem and the mechanics of money transfer. Then I want to outline for you the essential features of the electronic system which is evolving.

The aggregate dimensions of the nation's money transactions are huge. We start with the fact that there are about 23 billion checks written annually. These are drawn on 90 million accounts. These checks transfer 13 trillion dollars--an amount thirteen times the current gross national product of the economy. Half of the checks written are for less than $25, but added together they come to only about 2 per cent of the total dollars transferred. One hundred million checks written for $10,000 or

more (less than .5 per cent of all checks written) account for close to 50 per cent of the $13 trillion.

The identity of check writers is vital information for appraising the payments problem. As nearly as can be estimated, individuals write about 52 per cent, business 43 per cent, State and local governments 2 per cent, and the Federal Government 3 per cent. Of the 90 million demand deposit accounts, 81 per cent have balances of under $1,000. If it is assumed that virtually all of the accounts under $1,000 are for individuals, the average monthly check volume per account would be 14 debits per month.

In addition to identifying check writers (payors) we also need, so far as the mechanics of automated transfer are concerned, to identify the recipients (payees) and the character of their transactions. It is especially important to segregate the volume of checks written to payees who show up at regular intervals in the check book of the payor.

In the case of individual payors these would be retail stores, oil companies, utilities, the family doctor, insurance companies, credit card issuers, etc. Further, we need to identify among the repetitive payees those who receive the same amount regularly as, e.g., rent, mortgage and car payments, insurance premiums, etc. The repetitiveness of payees and amounts in the settlement process provides the opportunity for an optimal use of electronic gear.

The adaptive feature of the repetitive transaction is that it obviates the need to convert each individual transaction into machine language. This is the most costly phase of the operation and, since electronic equipment can store and reactivate identical transactions weekly, monthly, or periodically at an extremely low cost, the economic advantages are evident. Even if amounts change in a given transaction, having the payee's identification readily available in machine language is a significant cost savings.

For businesses, repetitive payments (not necessarily in identical amounts) would be for salaries and wages of employees, dividends to stockholders, interest to bond holders, insurance annuities and intra-company transfers.

For governments, repetitive payees would include employees, allotees, retirees and social security beneficiaries. It is worth noting that electronic deposit of sums directly into the bank accounts of millions of individuals receiving wages, salaries, allotments, pensions and benefits from businesses and governments could incidentally ameliorate a serious and growing crime problem, the theft of checks en route to recipients, and losses in connection with the depositing, handling and cashing of checks.

Since the transactions where both the payee and amount are repetitive at regular periods is the ultimate in adaptability for an efficient electronic transfer system, arrangements which result in a uniform average monthly payment over a period of a year with reconciliation at the end of the period are needed. The number of repetitive amounts is relatively small under present billing practices but it can be significantly increased by broadening the scope of average monthly billing by utilities.

The evident course of electronic technology in the payments mechanism is the conversion of a very large number of transactions, probably something on the order of 50 per cent in terms of number of transactions, from checks to electronic credit transfers or to authorized charges. Thus, employees do not get payroll checks which they must redeposit, but credits to their bank accounts on pay dates. The same arrangements would apply to Social Security, pension, unemployment compensation and other regular welfare or allotment payments. Individuals do not write checks to pay households bills but, instead, authorize their bank to charge their account on some specific date for a repetitive monthly charge, or a specifically approved variable amount.

The credit card can do--and is doing--much to reduce check usage. For transactions which do not involve repetitive payees or that do not require immediate payment in "good" or immediately spendable funds, the credit card as it is now used aggregates a number of transactions into one bill settled by one check. As it can be used, and is starting to be used, the credit card can activate and complete the transfer of funds at the point of sale.

Several commercial banks have been experimenting with point-of-sale electronic terminals for the transfer of deposits or the accumulation of charges for later transfer from shoppers to merchants. Developments in this important area have been retarded by card identification problems and terminal and line costs. Fortunately, our decentralized banking system has made it possible for innovative-minded bankers in various parts of the country to tackle these problems on a scale which permits experiment, adaption--and even failure. There is no doubt that some of the installations now in being, or coming on line, will provide successful patterns for the industry as a whole.

One very significant project, the so-called automated clearing house, is the product of the California Scope Committee,

a group organized and supported by 10 large California banks and the Federal Reserve Bank of San Francisco. This project is in its test stage now and should be operational in a few months. It will cover both payroll crediting and pre-authorized debits. Other SCOPE-type projects are getting under way in various parts of the country.

The obvious problem still to be resolved is that of obtaining public acceptance for an electronic system. There is plenty of evidence that business and government attitudes will be receptive to electronic transfer. Payroll crediting and preauthorization, for example, are becoming established because of obvious costs advantages. Economics insure acceptance where large volumes of transactions are concerned.

Altering the money mores of individuals is another matter. Many of them are happy with checking accounts as they are. Others prefer currency and savings accounts. Few have had experience with preauthorization, payroll crediting, point-of-sale terminals, or any other facet of electronic transfer.

In all probability convenience is the feature of electronic banking that will appeal to people. Check writing and trips to the bank for depositing pay checks or making currency withdrawals are chores for most of us. A system which significantly cuts back on those activities will gain broad acceptance as soon as it can be experienced. The rapid penetration of the credit card into individuals' money management illustrates the possibility of changing money habits. The

now familiar credit card can be used for most banking transactions and for commercial transactions involving the transfer of funds. In this expanded role it will do a great deal to obtain public acceptance of electronic payment and settlement.

How should this experience with payments and security handling be capsuled? No doubt someone who is thoroughly familiar with the securities industry technology, and back-office operations would find in our experience specific policies and procedures to emulate and to avoid. The similarities in problems and solutions of the two industries invite comparisons--even at a distance.

It seems clear, for example, that the banking industry became aware of its back-office problems in time to initiate planning and stage-by-stage developments which will obviate any such confusion or crisis as has already occurred in the securities industry. Moreover, many banks have absorbed into their management team a cadre of officials trained, expecting and expected, to think in terms of an electronic technology. This did not occur over night. It involved major policy decisions by institutions and the industry. Fortunately, while a paperless operation has led to drastic internal changes in banking institutions the impact on the external phases of the business has, except in the imagination of some unusual innovators, been limited. Thus, the broad spectrum of policy preoccupations of management has been relatively untouched.

Another basis for comparison is how the transition from one system to another is handled. Moving check and security handling to a fully electronic system entails several transitional stages. In the case of checks, for example, we are shoring up the existing system with better and cheaper check clearing arrangements to be sure what we have will see us through the transition period.

Electronic transfers are being activated by stages, taking place initially in those regions and for those types of transaction where the operation gives promise of ready acceptance and economic feasibility. The greatest jeopardy in transitional steps is that they may delay, or even thwart, basic reform. It is possible for a transitional measure to incorporate the worst of two possible worlds; in this case by sacrificing the convenience and capability of an electronic system on the one hand, while retaining the costliness of our paper inheritance on the other.

Finally, both industries have to face the problem of public acceptance. It is often difficult to objectively distinguish public acceptance from apathy, ignorance of the nature of a change, or resistance. Arrangements that most people find cheaper and more convenient can generally secure the measure of acceptance needed. For those who prefer, for whatever reason, a more costly or less convenient system, and will pay for it, there is no reason not to make it available. But our experience indicates that time and economics combine to overwhelm resistance to change in banking, as elsewhere in an innovative society.

-0-