Chapter 4

Retail Financial Services

Contents

Page

Introduction. 97

Deposit Function 99
Direct Deposit 100
Point-of-Sale Systems 101
Lockbox Operations 101
Demand Deposit Accounts 102
Drafts 102
Giro Transfers 102
Traveler's Checks 103
Savings Accounts 103
Insurance 106
Accounts With Other Nondepository Institutions 107

Extension of Credit 108
Commercial Credit. 110
Consumer Credit 110

Electronic Funds Transfer 114
Automated Teller Machines 115
POS Full Funds Transfer 123

Financial Information Services 126
Check Authorization 127
Credit Authorization 127
Providers of Information Services 127

Home Information Systems 128
Technology of Home Information Services 129
Developers of Home Information Systems. 129
Costs of Home Information Systems 131
The Market for Home Information Systems 131
Implications of Home Information Systems 131

Tables

Table No. Page

3. Comparison of Depository Instruments and Accounts 100
4.Nationwide ACH Volume 101
5. Growth Projections for the CIRRUS Systems, Inc., National ATM Network.. 120
6. Principal Characteristics of HIS Users 132

Figures

Figure No. Page

6. Penetration of Direct Deposit Social Security Payments 101
7. Relative Use of ATM Functions, 1974-$1 .. + ~ 116
8. Number of ATMs in Use, 1973-81 118
9. Average Number of Monthly Transactions Per ATM, 1974-81 118
10.ATMs in the United States 121
11. Penetration Curve for Check Alternatives. 133

Chapter 4

Retail Financial Services

Introduction

The retail financial service industry consists of those organizations (e.g., banks, credit unions, insurance companies, consumer finance companies) that deliver products to end-users. * Consumers comprise the largest and most visible single group of end-users of financial services, but business and government both have roles as customers for retail financial services. Included among retail financial products are depository accounts, extensions of credit, and payment services.**

According to 1982 figures, the industry encompasses more than 90,000 business entities, including 15,000 commercial banks, 4,000 savings and loan associations, 1,000 mutual savings banks, 22,000 credit unions, 1,000 investment banks, 5,000 broker/dealers, 1,000 mutual funds, 1,000 mortgage banks, 3,000 pension funds and pension fund managers (other than banks and insurers), 2,000 life and health insurance companies, 3,000 property and casualty insurance companies, and more than 33,000 insurance brokerage agencies, as well as numerous factoring companies,*** leasing companies, credit card or traveler's check issuers, and finance companies. In 1980, the financial service industry (excluding real estate) contributed $100.4 billion, or 5 percent, to the U.S. national income.[1]

Historically, deposit-taking has been viewed as a special activity in the economy, and depository institutions have been viewed as occupying a unique place in the industry. Depositors place a very high degree of trust in the institutions holding their funds. At the same time, because depository institutions play such an important role of intermediation between sources of funds and those having need of them, they are in a position to exert a measure of control over virtually all other economic activities.

Retail financial services, especially those offered by banks, have been heavily regulated by both State and Federal Governments. Rates paid on deposits have been largely deregulated, but limits on the rates charged on consumer loans remain in force. Depository institutions are generally limited to offering prescribed products to predefined markets. Banks, for example, are limited with regard to the geographic area served, while credit unions are limited to serving only groups whose members share a common bond, such as employment with a specific firm. Generally, bank holding companies are not permitted to enter lines of commerce not closely associated with banking. Depository institutions are examined to ensure that they are pursuing business in a manner consistent with preserving institutional safety and soundness, and many of their business decisions (e.g., effecting mergers, opening branches, offering new products) are reviewed by regulators prior to implementation.

Depository institutions enjoy some unique benefits in exchange for heavy regulations. Only they can take deposits and offer accounts that are federally insured. Depository institutions are unique in having access to the various systems used to transfer funds.

*For the purposes of this assessment, wholesale financial services, as contrasted to retail, are those provided by one financial institution to another in a way that is largely invisible to the end-user.

**Customers of securities brokers are also users of retail financial services. However, because the security industry is governed by a body of policy unique to it that separates it from retail banking and other retail financial services, it is treated in ch. 3 of this report.

***Factoring is the process of selling accounts receivable to a third party, who then assumes the risk and costs of servicing them.

[1]State of New York, *Report of the Executive Advisory Commission on Insurance Industry Regulator?' Reform*, May 6, 1982, p. 101.

Today, insurance companies, providers of services such as credit cards and traveler's checks, consumer finance companies, dry goods merchants, investment companies, and food retailers also provide retail financial services. Some, such as insurance companies, are regulated, while others, such as providers of traveler's checks, are virtually unregulated. All, to an ever-increasing degree, are broadening their range of business activities and, to some extent, are encroaching on areas previously served by others, including those heretofore exclusively reserved to depository institutions.

Information processing and telecommunication technologies have contributed to the broadening of product lines by providers of retail financial services. New entrants have been able to develop and offer products that compete directly with those previously available only from depository institutions. Distance and location have lost much of their significance as factors limiting the market served by a service provider. In addition, by using the technologies, new classes of products have been developed. Foremost among these are those that deliver financial services to remote locations, such as the home, office, merchant's counter and unstaffed branches. Others, such as services to facilitate collection and investment of cash, are directed to the business communit y.

As noted, law and regulation are significant forces shaping the financial service industry and guiding its day-to-day operations. The existing legal regulatory structure dates largely from the 1930's and is built on the assumption that specific types of institutions will be the only ones offering each type of service. For example, transaction accounts are assumed to be offered only by banks; and thrift institutions are assumed to focus their lending activities on home mortgages. Thus, even though the intent was to regulate by function, the focus of legislation has been on the institutions rather than on the products they offer. As a result, the offering of new products by unregulated providers is often found to lie outside the existing legal/regulatory structure. New entrants who rely heavily on advanced technologies to implement their offerings generally fall outside the boundaries of existing regulation.

The financial service industry is becoming homogenized to a significant degree, and differentiation between products has become less apparent, particularly from the point of view of individual consumers. Commercial banks and savings and loan associations are now permitted to serve many of the same clientele. For example, recent legislation gave savings and loan associations the power to make some commercial loans, a product that could not previously be offered. While securities broker/dealers are not permitted to offer depository accounts, they do offer shares in money market funds that have properties very similar to deposits. Insurance companies offer universal life policies that share many properties with self-directed investment accounts offered by others.

VISA and MasterCard are the two principal bank card products offered nationwide. However, in addition to being offered by banks, these are now issued by such varied organizations as the American Automobile Association and various brokerage houses that offer them in conjunction with asset management accounts. Travel and entertainment cards can be used with automated teller machines (ATMs) to obtain either cash or traveler's checks. In some cases, a plastic card is used to access a depository account (e.g., checking). Plastic cards can also be used to draw on a line of credit either to pay for a purchase or to obtain a cash advance. The same card can be used for both purposes. However, the finance charges are assessed differently for the cash advance and the credit purchase.

One of the major developments of the 1980's has been the development and deployment of networks of ATMs. Some of these accept only the card of one institution, while others permit access to accounts held in any one of a number of institutions. Most of these networks are offered by depository institutions or consortia of depository institutions. How-

ever, retail dry goods merchants, supermarket chain operators, and operators of convenience stores are now establishing networks and offering financial institutions the opportunity to access them.

More generally, telecommunication has been a major factor in the development of financial products in the 1980's. Providing remote banking services has been a key area in the development of financial services. Publishing companies are combining with financial service providers and communication companies to deliver financial services directly to the homes of consumers. Grocery chains are establishing networks of ATMs that compete directly with those offered by banks. Banks offer cash management services to business, enabling corporate cash managers to control funds on deposit with institutions worldwide and to manage them to the best advantage of their employers.

Other developments of the 1980's have been the emergence of the financial supermarket and the specialized supplier of financial services. Several organizations have used differing strategies to develop into horizontally integrated suppliers of financial *services*. The remarkable point is that some find their roots in insurance, others in retailing, and yet others in banking. Under the existing 1egal/regulatory structure, all operate within differing constraints and therefore come to the market with varying strengths and weaknesses. Others, by way of contrast, seek to serve specific groups, such as members of the professions with products tailored to their particular needs. The market appears ready to support service providers across the full spectrum of possible product menus.

Fluidity in the structure of the financial service industry limits the utility of any description that focuses on the institutions that comprise it. A list of providers would almost certainly omit some and include others that arguably could have been omitted. Because product lines of various classes of providers of financial services are close substitutes for one another, descriptions of each of the classes of providers would become redundant.

Therefore, the approach taken to describing the retail financial service industry in this assessment is to focus on the functions performed for the customers and then to relate those functions by way of example to the organizations that provide them. The classes of functions described are treated under the headings:

- deposit/withdrawal function,
- extension of credit,
- electronic funds transfer, and
- financial information services.

Deposit Function

Technically, the function of accepting deposits is strictly limited to depository institutions. Simply defined, a deposit is a placement of cash, checks, or drafts with a financial institution for credit to a customer's account. Deposits become a liability to the financial institution since they represent an obligation to repay funds. The deposit function is the traditional banking process by which funds are accepted for credit to a demand, savings, or time account. Deposits are accounts for holding funds. The deposit is made by one of the following methods: in person, by mail or tape, or electronically via ATM or other remote terminal or by the Automated Clearing House (ACH).* In paper-based systems, access to deposits depends on the physical transfer of documents such as a check or draft.** However, electronic technologies have helped revolutionize this function.

*The ACH is a computerized facility that helps clear funds transactions among participating institutions electronically.

**Draft— A n order written on the funds of a third party to transfer the amount specified to the payee.

In essence, a deposit differs from an investment in that the depositor expects to be able to recover the amount deposited, often with some interest, with virtually no risk of loss. The depository institution holds itself ready to pay the amount of the deposit under conditions that are consistent with the contract under which it was taken. In the case of a demand deposit, for example, the depository institution stands ready to pay on demand. On the other hand, if the owner of a certificate of deposit withdraws the funds prior to maturity, a significant penalty is extracted that, in some cases, involves loss of principal as well as interest.

In the present environment, firms other than depository institutions offer products that are operationally similar to a deposit from the customer's point of view. For example, securities broker/dealers and investment companies offer shares in money market mutual funds that include the option of redemption by means of a draft written against the investor's holding. A whole-life insurance policy accumulates cash value that is available to the owner.

Some will tend to view these products as deposits because, operationally, the funds are available virtually on demand. The expectation is that payment will be made by the provider even though there may be contractual provisions that an order to pay need not be honored immediately. There may also be no guarantee that shares will be redeemed at the price originally paid by the investor. However, as long as institutions continue the practice of operating near-deposit products in a manner that closely approximates the operation of a true deposit account, the customers will see the former as being a close substitute for the latter.

In this environment, not all of those offering deposit or near-deposit products operate under the same set of rules. This variation introduces new elements into the calculus used by those responsible for the safety and soundness of the financial service industry and the formulation and execution of fiscal and monetary policy. In the sections that follow, the various types of deposit-like products and associated deposit-taking services are described.

Table 3 presents a comparison of the various depository instruments and accounts discussed in more detail below.

Direct Deposit

Direct deposit is most often used to effect payment from either private or public organizations to recipients of salaries, pensions, and entitlements. It is actually a preauthorized credit arrangement between the party issuing the payment and the receiver and is commonly

Table 3.—Comparison of Depository Instruments and Accounts

Instrument or type of account	Interest-bearing	Withdrawal notice request	Mandatory deposit period	Penalty for early withdrawal	Minimum deposit or balance
Check	No	No	No	No	No
Draft	Yes	Optional	No	No	No
Traveler's check	No	No	No	No	No
Conventional savings account	Yes	Optional	No	No	No
Credit union account	Yes	Optional	No	No	No
Certificate of deposit[a]	Yes	Yes	Yes	Yes	Yes
Money market deposit account	Yes	Optional	No	No	Yes
NOW account[b]	Yes	Optional	No	No	Optional
Super NOW account[b]	Yes	Optional	No	No	Yes
Savings bond	Yes	Yes	Yes	Yes	Yes
Savings certificate	Yes	N/A	Yes	N/A	Yes

[a]Effective Oct 1, 1983, interest rate ceilings are eliminated on all time deposits with original maturity or required periods of more than 31 days, and on time deposits of $2,500 or more with original maturity or required notice periods of 7 to 31 days
[b]Not available to commercial businesses
N/A–Not applicable

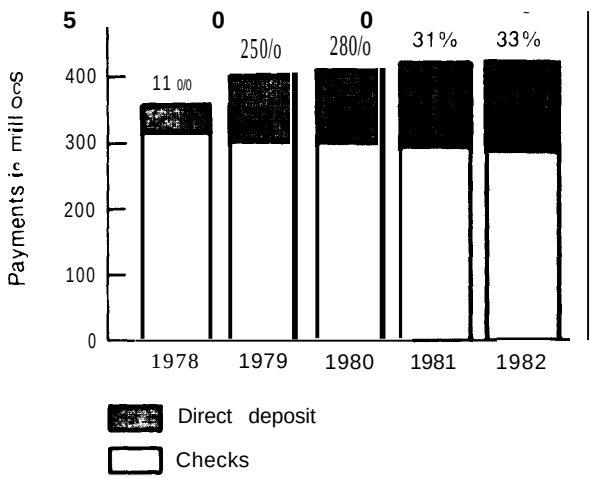
SOURCE Office of Technology Assessment

used for recurring payments. One of the largest users of direct deposit is the U.S. Department of the Treasury, for Social Security payments. It is also widely used for military payroll and other regular Government payments.

Figure 6 shows the increasing rate at which Social Security recipients have been willing to accept payment by direct deposit. In 1978, only 11 percent were willing to make use of direct deposit; but this proportion had grown to 33 percent by 1982. The Department of the Treasury hopes for further increases.

Direct deposit transactions started as paper transactions, but the rising volume of such payments has encouraged the use of the ACH network and systems, which depend heavily on the interchange of magnetic tape (see table 4). The process involves coding payment information in machine-readable form and moving it between banks on computer tapes or, in some cases, over telephone lines. The paying bank or organization consolidates all its payments for a certain date and submits them on magnetic tape through the ACH. The ACH then routes the payment information to each receiving bank. The tape can be sent in advance with the information predated. For example, stock dividend checks could be processed through the ACH for direct deposit. It

Figure 6.— Penetration of Direct Deposit Social Security Payments



SOURCE *Economic Review* Federal Reserve Bank of Atlanta, August 1983 p 33

Table 4.—Nationwide ACH Volume

Year	Private	Government (Social Security)
1976	4,283,770	46,646,999
1977	10,344,192	69,694,741
1978	18,612,263	93,207,073
1979	33,324,163	123,353,594
1980	63,362,597	144,112,204
1981	117,019,927	164,157,190
1982	174,613,862	176,821,896

SOURCE National Clearing House Association

is expected that use of the ACH will increase once a critical volume has been achieved by the flows to and from large organizations. As this occurs, users with smaller volumes of payments should gradually be absorbed into the system.

Point-of-Sale Systems

Point-of-sale (POS) systems, discussed in detail later in this chapter, also function as a deposit-taking method. In some cases, retail clerks will accept funds for deposit to customers' accounts. In others, the financial institution will operate a station or counter in the retail store at which deposits are accepted. A third alternative is the placement of an ATM at the retail store location. The ultimate goal of POS implementation in the financial service industry is to institute an electronic process through which transactions may be instantaneously debited/credited.

Lockbox Operations

In lockbox operations, payments go directly to a post office box that is controlled by the payee's financial institution. The services provided include picking up the mail at the post office, opening it and crediting the funds, or receiving the opened letters and crediting the funds to the company's account. A fee is imposed for each function the financial institution performs for the company.

Lockbox operations are used to speed the collection of remittances and reduce "float"*

*An amount of money represented at any one time by checks outstanding and in the process of collection. The period of time between receipt of notification of payment by the creditor and the actual debiting of the consumer's account.

by eliminating the time required to transfer payment from a company to the financial institution. Interestingly, lockbox operations are offered by other institutions, also. For example, in July 1983, Sears Roebuck & Co. announced that it would provide retail lockbox processing for Pittsburgh's Mellon Bank in seven cities across the country. With its national presence, Sears is in a unique position to offer such services. This arrangement will not only reduce float for the bank's corporate customers but also decrease processing costs, since a larger number of the checks received could be processed locally and not as interregional items through the Federal Reserve Board's check processing system. As noted in *American Banker*, "Interstate banking restrictions have prevented banks from opening offices around the country to accept deposits, and thus most banks have operated lockboxes only within their own State. Lately, however, a number of banks have begun to expand their geographic coverage through joint marketing arrangements and correspondent relationships. "2

Demand Deposit Accounts

For users of demand deposit accounts, institutions make funds explicitly available to the user without any optional or contractual delay. Demand deposits represent a significant portion of the domestic money supply. As of December 31, 1981, demand deposits for all commercial banks totaled $370 billion.[3] A checking account is a demand deposit account. The check is the instrument that activates the checking account and is the end-product of the original written instructions used by an individual to make a payment from a credit balance. A written check is deposited into an account (the collecting bank) by the creditor, wherein it circulates within the banking system as an instrument to debit the account of the debtor at his bank (the paying bank).

By law, demand deposits do not yield interest for the account holder. Although several other types of accounts use a check to access funds, these accounts are not considered demand deposit accounts.

Drafts

Drafts are essentially an expanded collection service, with funds being transferred when the payer orders the bank to pay the draft. They are used by credit unions, which technically classify their transactions as purchases of shares in equity accounts and money market funds. Credit unions began to offer share draft accounts as a competitive tool against the checking accounts offered by banks. The draft itself is debited against the individual's account. Although to the consumer, a draft looks and works much the same way as a check, it differs in two ways: 1) it may have a specified time constraint and can be drawn on an individual, corporation, or bank; and 2) the initiative for payment of goods is taken by the seller, not the buyer.

The three types of drafts are: 1) sight–payable immediately on presentation; 2) arrival—payable on arrival of goods; and 3) time—payable at a fixed date. There is a considerable amount of float associated with checks/drafts because funds need not be in the bank on which the item is drawn until the day the check/draft reaches the bank and is presented for collection. Float in this case can work to the advantage of the depositor in that funds also do not sit idle. The company can transfer the amount needed to cover the check/draft, leaving the balance in higher yielding investments.

Although presently a heavily paper-based instrument, drafts are being converted into a form of electronic billing service whereby vendors can collect from customers by sending an electronic debit (draft) to their account.

Giro Transfers

While checks are a way to effect a debit transfer, the giro, which is an instrument not used in the United States, is a way of making a credit transfer. To effect a giro payment, the

[2] *American Banker,* July 29, 1983.
[3] Federal Reserve Statistical Release, April 1983.

person making the payment instructs the institution holding his funds to transfer them to the account of the payee in the name of another institution. This is in contrast to a check given to the creditor that is finally presented at the debtor's bank for payment. Giro organizations usually send a statement to each account holder every day on which transactions are recorded; this is expensive in postal costs. "The notable feature is that the average value of paper giro transfers is higher than the average value of check payments in all countries except the United Kingdom."[4]

Traveler's Checks

Another form of a deposit transaction is the traveler's check. The traveler's check is "paid for" in advance by the purchaser, generally with a premium of 1 percent of the value. It is considered a deposit because the funds are held by the issuing company until the traveler's check is redeemed by the purchaser. This instrument works and is accepted, for the most part, like cash. It can be a universally accepted payment mechanism and is considered a deposit instrument.

Savings Accounts

A savings account is an interest-bearing account used to accumulate and safekeep funds. Institutions retain the optional right to require written notice of an intended withdrawal, often not less than 14 days before withdrawal is made.

Despite the notice requirement, a savings account is in practice extremely liquid. Until recently, most people used their savings account as a long-term savings/investment vehicle, even though several alternatives offered higher explicit interest. However, new options available have made the consumer more concerned with earning explicit interest on his money. As a result, savings accounts are being increasingly used only as short-term repositories or as interim investment vehicles during the accumulation of funds sufficient for supporting higher denomination and higher yielding investments. They are also frequently used to establish and maintain a relationship with an institution for the purpose of eventually using other services, such as loans and check cashing.

Savings accounts take the following forms:

1. *Conventional savings accounts.* Conventional savings accounts offered by depository institutions are designed primarily for individuals. Savings accounts may be issued in passbook or statement form and involve the institution's periodic issuance of summaries of deposits and withdrawals. Savings deposits do not have maturity dates, but a hold may be required before withdrawal-most often on deposits made by check, but possibly on cash deposits, also. This is rarely, if ever, imposed, and for the most part, individuals regard these accounts as being very liquid. As defined by the Federal Reserve, a savings account from which more than three telephonic or preauthorized transfers are permitted per month is considered a transaction account, with the specific exception of the money market deposit account.

   Savings accounts presently have a regulated interest rate set by Federal authorities and governed by the Depository Institutions Deregulation Committee (DIDC). Until these ceilings are finally phased out (scheduled for 1986), the ceiling is imposed on interest rates for federally insured banks and thrift institutions. Effective January 1, 1984, the differential interest rates on passbook savings accounts and 7- to 3 l-day deposits under $2,500 **at** both thrifts and commercial banks were removed, with each having a ceiling of 5% percent.

   Federal deposit insurance of up to $100,000 per account holder is provided in all but a very few depository institutions. The Federal Deposit Insurance Corporation (FDIC) insures accounts in commercial banks chartered by both the

[4] Jack Revel], *Banking& EFT—A Study of the Implications,* p. 143.

Federal and State Governments and in mutual savings banks. The Federal Savings and Loan Insurance Corporation insures accounts in federally chartered savings and loan associations and savings banks. The Credit Union National Administration (CUNA) insures accounts held in federally chartered credit unions. In addition, some States have insurance programs to cover deposits in State-chartered institutions, such as savings and loan associations, that are not eligible for Federal deposit insurance.

Credit unions provide savings services as well, including savings accounts (which are insured up to $100,000 per member by CUNA, investment certificates, money market certificates, share savings accounts, and individual retirement accounts.

2. Time *deposits.* The owner of a time deposit accepts limitations on his withdrawal rights. The account is established with the idea that the funds are on deposit for a negotiated period of time in return for receiving an offered interest rate. Certificates of deposit (CDs) are interest-bearing time deposit instruments issued by a depository institution for amounts that can vary from as little as $100 up to more than $100,000. CDs pay interest at maturity and cannot be withdrawn from the bank without penalty prior to their maturity date. The most commonly offered maturities are 91 days, 180 days, and 1 year. Although most CD rates are tied to Treasury bills and longer term Treasury securities, some of the funds do receive an unregulated market rate of interest. Large CDs are typically issued in negotiable form, so they may be traded in an organized market.

The Depository Institutions Deregulation and Monetary Control Act of 1980 (DIDMCA) was enacted to provide for the orderly phase-out and the ultimate elimination of ceilings on the maximum rates of interest and dividends that maybe paid on deposit accounts. The act transferred the authority to set interest rate ceilings on deposits at federally insured commercial banks, savings and loan associations, and mutual savings banks to the DIDC, whose members are the Secretary of the Treasury; the Chairman of the Federal Re serve Board; representatives of FDIC, the Federal Home Loan Bank Board, and CUNA; and the Comptroller of the Currency, a nonvoting member. The law provides for a 6-year phase-out of ceilings on deposit rates, during which the committee has the discretion to set ceiling rates on deposits based on economic conditions. (The committee has been given a schedule for targeting the gradual phase-out of such ceilings.) During the transition period, credit unions are subject to separate regulations. In 1986, all Regulation Q authority expires, CUNA's authority to set interest rate ceilings for credit unions terminates, and the DIDC ceases to exist.

Under DIDMCA, the committee has eliminated (effective Oct. 1, 1983) all interest rate ceilings on (a) all time deposits with original maturities or required notice periods of more than 31 days; and (b) time deposits of $2,500 or more, with original maturities or required notice periods of 7 to 31 days. Also, the committee has eliminated other regulations on time deposits except for the minimum early withdrawal penalties; a minimum denomination of $2,500 for ceiling-free time deposits with original maturities or required notice periods of 7 to 31 days; current ceiling on time deposits of less than $2,500, with original maturities or required notice periods of 7 to 31 days; and agency rules that require a l-percentage-point differential between a loan rate and the rate on a time deposit securing a loan.

DIDC also established new minimum early withdrawal penalties: for time deposits with original maturities or required notice periods of 32 days to 1 year, loss of 1 month's simple interest; for time deposits with original maturities or required notice periods of more than 1 year, loss of 3 months' simple interest.

These changes helped reduce the competitive edge previously enjoyed by nondepositor institutions against depository institutions because a large number of financial services being offered by the nondepositor institutions were attractive, offered higher interest rate return, and were not subject to regulation. Funds placed outside of the depository institutions are not federally insured; however, the individual appears to be more concerned with return on investment than the risk associated with placing funds outside of federally insured depository institutions.

3. *Money market deposit account.* The money market deposit account, a high-yielding liquid account, was authorized by the Garn-St Germain Depository Institutions Act of 1982 to allow commercial banks and thrift institutions to compete with money market mutual funds. The account is available to all depositors, including businesses. It requires an initial balance of at least $2,500 and has no interest rate ceiling. A '7-day hold on withdrawal can be imposed by the depository institution. Additionally, the money market account allows for up to six third-party transfers, including up to three by draft and up to three preauthorized transfers per month. There are no restrictions on making withdrawals from the account in person, by messenger or mail, or by ATM. The funds are federally insured. If the minimum balance falls below $2,500, the interest on the funds reverts to the statement/passbook rate and remains at that rate until the balance is brought up to $2,500. Unlike some restrictions imposed by the money market funds, there is no minimum on the size of an account withdrawals or deposits.
4 *Negotiable order of withdrawal (NOW) and Super NOW account. NOW* and Super NOW accounts are unique savings instruments because they are interest-earning transaction accounts. Although they can be accessed by a check, they are not considered demand accounts because the offering institution can impose a hold before honoring the withdrawal, although it is a restriction unlikely to be enforced. Individuals regard these accounts as rather liquid, and most are probably unaware of the restrictions that can be enforced. The NOW account does not legally require a minimum to open the account, although most institutions require a minimum balance of $500.

The Super NOW account is primarily a combination of the NOW account and the money market deposit account. The Super NOW, which DIDC authorized as a financial instrument as of January 1983, requires a minimum initial deposit of $2,500 and an average balance in any month of $2,500. The account has no interest rate ceiling, although the funds revert to a conventional savings account yielding the regulated interest z-ate under Regulation Q if the account falls below the minimum balance. Additionally, a 7-day notice of withdrawal maybe required. Because the notice of withdrawal requirement applies to such funds, they are categorized not as demand deposits, but as savings deposits. These accounts are not available to for-profit businesses. They are available to Federal, State, and local governments, as well as to nonprofit organizations and individuals.

5. *Savings bonds.* Savings bonds are sold by the U.S. Government to generate revenue. They are issued at a discount and appreciate at a rising rate in specified increments to a stated value at maturity. Bonds may be redeemed before maturity, but the interest rate becomes higher the longer the bond is held.
6. *Savings certificates.* Tailored to the needs of individuals in terms of deposit time (generally 90 days, 5 years, 10 years), savings certificates have interest rates that are dependent on maturity time and current rates. Savings certificates are not negotiable and are issued by depository institutions for $100 up to $100,000. There is a penalty for early withdrawal.

The latest figures' indicate deposits, as of October 1983, in various savings instruments:

Super NOW accounts: $27 billion
NOW accounts: $100 billion
money market deposit accounts: $369 billion
money market funds: $138 billion*

Insurance

In today's competitive environment, commercial banks, savings and loan associations, and savings banks not only vie with one another to attract new deposits, but also compete with many nondepository organizations. One of the largest providers of financial services is the insurance industry. It has a sizable customer base (insurance products are used in almost every household or business) and is a major lender of funds to businesses. The insurance industry has access to an enormous amount of capital. Insurance companies are enormous financial intermediaries in that they collect and invest vast amounts of premiums on policies. Life insurance companies collect premiums from policyholders, invest the receipts until needed, pay death benefits to heirs of those who die, and make payments to those who redeem policies and/or take out loans against their cash value.

Insurance companies channel funds into various investment outlets and qualify as significant allocators of financial resources in the economy. Their investments are made in almost every sector of the capital market and in a wide array of investment outlets. Their investment decisions are based on a philosophy of maximizing their rate of return within the bounds of State investment laws and on the principle of safeguarding the security of the funds invested.

Life insurance saving differs fundamentally from saving through deposit-type institutions for at least three reasons: first, it is long-term and contractual in nature and is therefore more stable; second, it is motivated primarily by the desire for family financial protection in the event of death; and third, it is ordinarily expected to be left intact until the death of the insured rather than withdrawn for some consumer expenditure.

Insurance policies exist in almost every household. They take such forms as automobile insurance, property insurance, and health insurance. Such a strong presence permits the industry to introduce and market new financial products and services with relative ease. Insurance companies now offer several products that are treated like deposits. Two new products introduced into the market in 1983 are quite interesting—one works like a cash management plan for businesses under $10 million; the other works as a securities and cash management service. These accounts feature money market funds, checking accounts with unlimited access, lines of credit, an overdraft, and a Gold MasterCard, which does not carry a line of credit. The customers' money market accounts are debited each month to cover card charges. The checking and charge card operations are handled by a local bank for the insurance company. The investment accounts are offered in conjunction with an investment firm. Both products require a minimum of $10,000, and customers are penalized whenever their monthly average drops below $5,000 for 2 consecutive months.

Another instrument of the insurance industry is *universal life insurance,* which is an investment vehicle. It functions like a depository instrument and is a flexible investment vehicle with access to mutual funds. It offers the policyholder flexibility because the cash value buildup or funding phase—-which makes it appear to be a savings instrument-and the pure life insurance phase of the traditional whole-life insurance policy are separated. A company can declare competitive interest rates on the funding phase, and the policyholder can vary the amount and frequency of premium payments and the amount of death benefits.

Whole life insurance provides a constant amount of insurance for the same premium over a lifetime. It is payable to a beneficiary

'Federal Reserve Statistical Release, Dec. 16, 1983.
*These funds are not federally insured.

at the death of the policyholder, and premiums are payable for a specified number of years or a lifetime. A policyholder is entitled to the cash value if he cancels the policy. Since the policyholder may borrow from the insurance company against the cash value of the policy, policy reserves may be viewed equally as a legal liability of the insurance company and as an investment of the policyholder. Life insurance companies make loans against the cash value of whole-life insurance policies. These accounts play a significant role in the insurance companies' lending ability. The policyholder has the right to borrow from the insurance company any amount up to the cash value, at a specified rate of interest. Moreover, earnings on insurance are partially tax-exempt.

Just as insurers will increasingly compete in the provision of financial services, other financial service providers will increasingly compete with insurers in the provision of insurance. The unbundling of insurance products has revealed that there are significant functions in the operation of insurance that involve the performance of noninsurance services.

The insurance industry is in a position to expand its service offerings to include a myriad of financial products. This is possible for several reasons. As discussed, some insurance products being offered resemble existing products being offered by depository institutions. Also, modifying software for existing systems enables the company to create new products and services. For example, insurance companies could easily offer a money market fund and additional services that can be implemented with relative ease and minimal capital.

The insurance industry is adapting automation in many ways. Insurance agents, for example, are internally incorporating automation to manage office functions, such as client information and accounts receivable and payable. They are applying automation to increase efficiency and to improve marketing. Externally, communication and information technologies are used to tie into carriers where they are able to obtain quotes and to underwrite business themselves. Many large networks are being developed that enable the agent to obtain pertinent information online as well as directly relay information to the carrier.

Technology is used to support other services of the insurance industry as well. Claims services, for example, are now becoming automated. The claims process, which is heavily paper-based, is being handled by converting the information electronically and transmitting it online to the carrier, allowing the carrier to deal with the claim more effectively and to maintain more control over the settlement process.

The automation of risk management services for large corporations allows them to handle in-house insurance analysis. These companies are able to tie into networks that provide important and timely information used to assess and manage risk.

Accounts With Other Nondepository Institutions

Insurance companies, large retailers, and virtually every kind of financial service organization offer individual retirement accounts (IRAs), money market funds, and a myriad of investment services. Although the funds invested by individuals into nondepository institutions are not federally insured, this fact has not prevented individuals from investing in these instruments. The amount of money that has shifted from depository institutions into nondepository institutions has been significant. Previously, these types of institutions were very different from each other. When the concept of commercial banking was first conceived, commercial bankers made little or no effort to attract individual deposits, concentrating primarily on attracting demand deposits from businesses. Conversely, the savings banks and savings and loan organizations were not authorized to offer checking accounts, and their range of time and savings deposits was limited.

Today, that has changed drastically. Commercial banks fiercely compete with other de-

pository institutions, insurance companies, and brokerage houses/investment firms for consumer deposits. All of these organizations offer accounts that can serve the customer in similar ways. However, the range of services available to the customer are not as markedly different from the customer's point of view as the products seem from the point of view of regulators or the providers themselves. An individual can easily establish an IRA or Keogh (retirement) account, obtain a loan, and use a checking or checklike account or savings account from any depository institution. He/she can obtain similar instruments from nondepositor institutions such as insurance companies, retailers, and investment firms with cash management accounts.

Prior to the introduction of money market deposit accounts and Super NOW accounts, depository institutions were restricted as to the maximum interest payable on demand deposit accounts and savings accounts, with the exception of jumbo CDs and similar instruments. These restrictions helped reduce bank payouts on their liabilities and reduced customer earnings on short-term asset holdings in depository institutions. Since depository institutions could not compete on interest rates, they competed on the basis of services, which were actually subsidized by the spread between interest paid on money in savings and received on money loaned. The spread resulted from below-market rates paid because of the regulatory environment. This is changing. Zero-balance accounts are becoming widespread. Financial service providers have come to rely more heavily on fee income from services.

Large financial service providers have the privilege of offering several types of financial products. For example, the use of information technologies enables firms such as American Express, which owns Fireman's Fund American Life Insurance Co., to market additional services directly to their strong credit card base. They can offer insurance services and have the premiums be added directly to the American Express card account.

Extension of Credit

One of the principal functions of the financial service industry is intermediation between holders of assets and those in need of funds. Funds are gathered through the deposit-taking activities described in the preceding section. Extending credit, described in the following pages, is one of the mechanisms used to make funds available to those requiring them. *

Historically, credit extension has been one of the principal sources of revenue for the financial service industry. The rate differential between that paid on deposits and that charged on loans was sufficiently great to support many of the services offered by financial institutions. However, one of the effects of deregulation of the rates paid on deposits has been to narrow this differential and cause financial service providers to look elsewhere for revenue. They have turned to information processing and telecommunication technologies to improve the efficiency of their internal operations and as the foundation on which new revenue-generating products can be built. One of the most promising opportunities for cost saving is converting as many paper-based transactions as possible to electronic processes.

Interest rate fluctuations, such as those experienced over the past several years, have made the problem of portfolio management more difficult for financial service providers. Some found themselves faced with the problem of supporting long-term, fixed-rate loan portfolios with short-term, expensive depos-

*Funds are also made available by investors who take an equity position in the organization requiring funds. Equity instruments and the markets for them are described in ch. 3.

its and few options for correcting the imbalance. Congress increased the powers of savings and loan associations to help them overcome this problem.

One of the responses of the financial service industry to the disappearance of the interest spread has been to encourage individuals and businesses to view all of their liabilities and assets as a total package and to manage them as such. The goal of some institutions is to place themselves in the role of financial advisor to their customers. On the one hand, these institutions would like to generate revenue by providing advisory services for which a fee may be charged or services that would attract business and customer loyalty, resulting in most financial service needs being purchased from a single organization.

To this end, service providers are using their credit products to increase the effective liquidity of assets held by consumers. In addition to such traditional offerings as credit cards, they are creating lines of credit secured by a variety of assets that range from home equity to securities portfolios. Ease of activating lines of credit is emphasized. In the case of an overdraft account, the same check or debit card that is used to draw funds from a transaction account is the instrument used to activate the line of credit when the funds in the account are exhausted. Some institutions issue checks that can be used to draw against home equity at the convenience of the customer. The customer benefits by being in a position to take advantage of opportunities to make either purchases or investments on favorable terms that may be available only for limited periods.

Information processing and telecommunication technologies are key elements in supporting the viability of the credit products that are now offered. One of the reasons a credit card issuer can guarantee payment to the merchant accepting it is the ability to keep track of account activity and effectively to halt its use almost instantaneously if circumstances require. The processing and clearing of credit card drafts would be virtually impossible without the technologies. Paper is truncated early in the processing cycle as one factor in controlling costs of processing and to facilitate the timely posting of transactions to customers' accounts. Some merchants submit transaction data electronically to card issuers to facilitate processing.

Credit has long been a tool of the retail industry. Card bases have been created on the assumption that they help create and maintain customer loyalty and facilitate impulse purchases. Advertisements are regularly included with customer bills. While most retailers do not rely heavily on revenues generated from retail receivables, the funds generated can be considerable.

Some retailers see third-party cards such as those offered by banks as an interference in their relationship with their customers. Retailers feel they should know when a customer is activating a line of credit so that an alternative can be offered. Also, retailers question the propriety of card issuers charging the same discount for a card transaction, whether it activates a line of credit (credit card) or is used to access a transaction account (debit card) in lieu of a check.

While individuals make extensive use of a variety of credit services, businesses and governments are also major users of credit. Generally, these users are quite sophisticated and use a number of services that are not available to the general public. The Federal Government is active in the primary credit markets as an issuer of debt. Also, one of the primary means used to implement monetary policy is trading by the Federal Reserve System in Federal Government securities in the open market.

Further complicating the credit markets is the multiplicity of providers of credit services. Depository institutions and retail merchants have been mentioned. However, among other participants in the market are consumer financial companies, mortgage bankers, insurance companies, pension funds, and acceptance corporations, such as those operated by major

automobile and appliance companies. Private individuals also make loans, as is the case when the seller of a home takes a second mortgage from the buyer for a portion of the purchase price.

Credit is extended in the following ways:

1. 1nstallment credit—a direct loan to an individual or business, repaid in fixed, periodic payments; it is a type of closed-ended credit. A typical example is a car payment loan.
2. *Open-ended credit, often called revolving* credit—funds that are available under an agreement that allows the borrower to borrow several times, up to specified credit limits, with interest and without further investigation of creditworthiness. Many charge accounts at department stores and credit card accounts are examples. Since part of the loan is repaid over time, the borrower can again draw against the line up to the predefine limit. This type of credit is often open-ended with respect to time and the total amount of credit available, Minimum payments are required, and the maximum amount of credit extended is limited.
3. *Closed-ended credit—a* loan that is extended for a predetermined amount. The borrower cannot reopen it by obtaining extra funds under the original lending agreement.
4. *Line of credit–the* amount of credit a lender will extend to a borrower over a period of time, where the borrower can draw on the lineup to some fixed limit at his/her discretion. Generally it involves a specified amount of money a customer may borrow without filing a new loan application. A personal line of credit on checking accounts is one example; the credit card with a line of credit is another. Each month, the individual cardholder chooses between complete payment of the invoice or extended credit, with the choice of making a minimum payment. The credit is used not only for purchases and credit payment, but also for obtaining cash advances. With the exception of cash advances, the cardholder can pay the entire amount due without finance charges.

Commercial Credit

Commercial credit is the credit extended to businesses by various lenders. Commercial banks are the primary funders of commercial credit, but recent legislation gave savings and loan associations limited power to participate in this market. Others, such as acceptance corporations, leasing companies, and factoring companies are also active. Generally, the debt is short term and is used to meet requirements for working capital, such as the funding of receivables or inventory.

Much commercial lending activity is conventionally viewed in the category of wholesale rather than retail financial services. For example, commercial banks will purchase consumer debt from consumer finance companies, which then lend the funds to individuals at higher rates than banks charge. Commercial lenders also finance capital acquisitions through third-party leases that cover such items as aircraft and computers.

Commercial organizations will also float debt in the open market, where it may be purchased by any variety of lenders. One is short-term commercial paper; but, as discussed in the chapter on the securities industry, long-term bonds are also issued.

Consumer Credit

Consumer credit is a specified amount of credit that is extended to individuals primarily for personal, family, or household purposes by a number of types of institutions that include issuers of travel and entertainment cards, retail merchants, consumer finance companies, and acceptance corporations. Early on, depository institutions began to recognize that consumer loans were not only an asset to the bank, but also a contribution to the overall economy. Consumer credit loans are extended to individuals or small businesses and provide for repayment either monthly, quarterly, annually, or in full at maturity. Consumer credit

can be extended through loans, overdrafts, credit card checks, and credit cards.

Loans

The extension of credit is perhaps best recognized in the form of a loan. Simply defined, a loan is money lent, generally to be repaid with interest. Loans can be made on a secured basis, where the funds are protected by pledged collateral, or on an unsecured basis, where the funds are extended with no pledge of collateral. Loans are made to consumers and businesses on a regular basis. A loan is an agreement between two parties. The lender does not have to be a financial institution. Loans can be secured by life insurance, contracts, deposits in financial institutions, securities, or personal and real property. Banks, acceptance corporations, consumer finance companies, and credit unions are major lenders of consumer credit.

Overdrafts

Credit can also be extended through an overdraft, which is a check or payment order written against a demand deposit or transaction account for funds in excess of the balance. It must be arranged in advance, and when honored by the depository institution, the overdraft creates a loan. If approval for overdraft privileges has not been obtained in advance, overdrafts are prohibited. Basically, the overdraft can be defined as an instrument that operates with a credit limit, fixed by the institution for each customer and reviewed periodically. Since the application of an overdraft is typically for personal use, it is rarely secured. The arrangements for repayment of the overdraft are set by each institution.

Credit Card Checks

Credit card checks are special drafts written against a credit card account rather than a demand deposit account. They are issued in conjunction with a credit card account and access a credit line. They work just like a personal check; however, the amount is charged automatically to the credit card balance at time of use. Credit card checks are treated as cash advances, with the monthly statement reflecting the advance. When used, interest is paid on money borrowed from the day the check is written. Merchants do not have to pay the discount and service fee associated with all card transactions when credit card checks are used.

The development of credit cards has helped satisfy the demand from consumers for a more convenient way to finance their day-to-day credit needs.

Credit Cards

With the advent of electronic banking systems, the plastic card has become commonplace in today's financial institutions and retail organizations. Nearly all customer/bank communication terminals—ATMs, remote service units, POS terminals-use card technology in some form. The card is used to access funds in various accounts and as a medium to extend credit. Today, almost 600 million credit card accounts exist in the United States, and 7 out of 10 households have at least one credit card. Outstanding balances on credit card accounts total more than $75 billion.[1]

Electronic processing has helped minimize the amount of paper used in handling credit cards, and online credit authorization has helped encourage card use because it entails less of a waiting period. The transaction can be approved and completed within a time frame that is acceptable to the customer. Today, there are many online POS terminals for credit authorization throughout the United States. Generally, any credit card can be accepted by the systems, which operate over standard telephone lines.

Credit cards offer the individual the ability to defer payment of part of the balance due as part of an extension of credit. A dollar, or floor, limit is established, which permits using

[1]Federal Reserve Board, *Credit Cards in the U.S. Economy—Their impact on Costs, Prices and Retail Sales,* July 27, 1983, p. 1.

the card without credit authorization at the time of purchase. For purchases over the required floor limit, credit approval is necessary. Ceilings are generally set on the total amount the cardholder may have outstanding.

Over the past several years, many of the card-issuing organizations have imposed annual fees to the cardholder for use of the card. Interest paid on outstanding balances falls under State usury laws. Certain State laws, however, place rigid standards on such actions. The result has been: 1) higher annual interest rate charges to the cardholder, where permitted by usury laws; or 2) the relocation by the card-distributing organization of its credit card processing facilities into States such as Delaware and South Dakota, which permit higher interest, card fees, or both, so that the card-distributing organization is able to operate under the banking laws of the State where the processing is done.

Card-issuing organizations impose annual fees on credit cards as a way to generate additional income. These funds were needed because of the high interest rates financial institutions were paying for funds. Additionally, the annual fee charge is a way to generate income from those individuals who use the bank credit card as a convenience mechanism and who pay the monthly statement charges in full and therefore do not incur interest charges.

Basically, there are three kinds of credit cards: bank cards, travel and entertainment cards, and retail and nonbank cards.

Bank Cards.-The bank credit card has become an integral part of the American lifestyle. Bank credit card systems have a structure all their own. The two major bank credit card systems are VISA and MasterCard. VISA International is owned by over 15,000 member financial institutions located in almost 100 countries. Over 100 million cards have been issued, allowing consumers access to checking accounts, savings accounts, investments, and lines of credit. VISA U.S.A. is jointly owned by U.S. financial institutions, including banks, savings and loans, credit unions, and mutual savings banks. VISA operates a worldwide electronic data communication system that transferred nearly 1 billion transactions between member institutions in 1983.[7]

For processing purposes there is no distinction between a VISA debit or credit card. The same processing procedures apply for both cards; therefore, only the card-issuing institution and the cardholder are familiar with the function of a particular VISA card.

Each card-issuing financial institution sets the policies for its own customers in the VISA system. These policies are regulated by applicable State laws that limit maximum charges on credit card accounts, the method of assessment of finance charges, and minimum charges that can be imposed on credit card accounts. Different card-issuing banks nationally may compete with one another and may have slightly different policies. Generally, the most important competition exists between banks as they attempt to sign consumer and merchant accounts. The merchant discount offered to encourage acceptance of the card at an establishment is one of the primary competition tools.

Bank credit cards have become subject to credit controls because of their role in extending consumer credit. They are recognized as instruments for installment lending to consumers and as loans by banks. The controls tend generally to be the ones applying from time to time to consumer credit. The controls include compliance in usury limits and truth in lending as set forth in Regulation Z.

To examine critically the national bank card systems and the member institution's role as an extender of credit in the financial service industry requires some analysis. Inherent in every payment device are two separate and distinct services. The first is payment for goods and services, and the second is the extension of credit. The first has traditionally been priced in free and open competition and has not been subject to usury laws. The sec-

[7] VISA, U. S. A., *Credit Controls and Bank Cards Analysis and Proposal,* March 1980.

ond has traditionally been subject to usury laws. Whether the card is used solely as a payment device or as a credit device, by deferring payment of the full balance, is determined by the cardholder. The use of electronic technology and plastic cards has made it possible to combine multiple functions in a single device, blurring the distinction between what constitutes payment service and what constitutes extension of credit.

The national card systems have also expanded their use to include card access to ATM networks. Several ATM systems established by banks use VISA or MasterCard as the access card to a proprietary system. However, both VISA and MasterCard have also set up their own national ATM networks to compete with national interchanges. They are in the process, like other national ATM interchange networks, of attracting ATM networks from across the United States to join their systems. VISA also plans to establish a global ATM network.

Because Delaware and South Dakota allow higher interest charges or annual fees for the bank card, a number of depository institutions have moved their processing centers to these States. Although technically it makes no difference where the actual processing is done, the critical elements are the type and location of the organization issuing the card and the laws that govern the State where the cards are being distributed. Credit cards are also distributed by nondepository organizations, such as the American Automobile Association, and by brokerage houses. These cards are, however, tied to a financial institution for processing and credit extension.

Travel and Entertainment Cards. -Travel and entertainment cards serve the general public in relatively the same manner as a bank card. They offer the possibility of deferring payment. Generally, the monthly limit associated with these cards is far greater than that of the bank card; some are issued with no preset expenditure limit. The cardholder is charged an annual fee, and the monthly statement must be paid in full. As the name implies, these cards are intended mostly for travel and business use. Travel and entertainment card companies generally follow more stringent guidelines in issuing the charge card than do issuers of other cards.

Several elite versions of the travel and entertainment card exist; for example, the American Express Gold Card. These elite cards offer check-writing privileges and a higher floor limit for purchasing goods (which exceed those for the conventional card). Both the Gold and conventional cards provide access to ATMs and traveler's check dispensers and ease of check cashing at hotels and American Express offices.

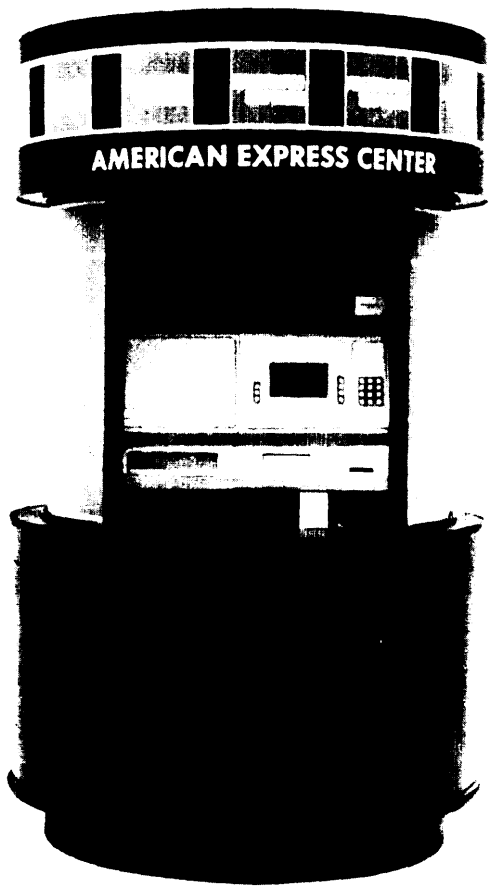


Photo credit: American *Express Co*

Automated traveler's check dispenser

Travel and entertainment card transactions are consummated in the same manner as with bank cards. The difference is, however, that the drafts are accumulated and billed monthly to the consumer, with the full amount due within a specified period after billing. Since this process is considered a payment service, its cost is unrelated to the funds outstanding, which are not considered a loan of money with respect to usury statutes or annual percentage rate disclosures. Usury statutes apply only when the cardholder elects to pay in installments through a prearranged line of credit with a financial institution.

Retail and Nonbank Cards. -Retail credit cards are distributed by both large and small retail and service organizations, which have been in the business of extending credit to individuals and organizations for some time and were the leaders in establishing the credit card. Large chains of retail stores, gas/oil companies, and hotel and travel businesses run their own credit card operations. Sears Roebuck, the largest issuer of retail credit cards in the United States, accepts only the Sears credit card in its stores.[8] J. C. Penney, also a major retailer, accepts not only the J. C. Penney proprietary credit card but also VISA and MasterCard. J. C. Penney, for example, has a very complex electronic network system, enabling it to service accounts online throughout the country. The Penney system supports 35,000 online terminals, allowing access to the VISA system directly without the need for a financial institution intermediary. It is the only retailer to do so. Retailers continue to encourage the use of their proprietary credit cards for several reasons: 1) to provide convenience to their customers, 2) to tie their customer base to their stores, and 3) to facilitate impulse purchases.

Card operations can also cross companies. J. C. Penney, for example, processes credit transactions for oil companies. The authorization is accomplished by running dedicated lines from the service station to the nearest Penney store. The signal is then sent over the main trunk line to the data center where the authorization file is maintained. The information is captured and transmitted to provide a basis for generating customer invoices.

[8] *Nilson Report,* June 1983.

Electronic Funds Transfer

Funds transfer is defined as any transfer of funds by means of a check, draft, or similar paper instrument or by electronic means through a terminal, telephone, computer, or magnetic tape so as to order, instruct, or authorize a financial institution to debit or credit an account. A transaction can take several forms: cash purchase, charge purchase, purchase by check or draft, deposit to an account, withdrawal from an account, or a debit from one account to another account owned by the same party, interbank, or intrabank. A currency-based funds transfer uses cash or coin. A paper-based transfer of funds is activated by check, draft, or bank card/charge card (when the transaction is not tied directly to a communication system that facilitates an immediate debit or credit).

Electronic funds transfer (EFT) enables consumers to carry out financial transactions via electronic devices instead of using paper money or checks. Electronic funds transfers can be carried out through use of an ACH, a home banking system, an ATM, or a POS system. One example of an EFT transaction is the use of an access card, a plastic card encoded with an identification number to trigger the electronic impulses. Although debit cards allow access to an account with adequate funds, some debit cards may also be used to borrow money, thus becoming all-purpose transaction cards.

Automation and electronic payment systems have often been at the forefront of recent changes in financial service organizations. Certainly one main effect of these changes lies in the cost reductions that have been made possible by the elimination of paper-based transactions, which are personnel-intensive and, therefore, costly. Electronic financial services, however, are not pervasive. While the deployment of ATMs, for example, appears to be prevalent in major cities, smaller towns and remote areas of the country still rely on traditional systems for delivering financial services, although this picture is rapidly changing. While individuals depend on traditional services, many of the financial service providers rely on automation for the ease and efficiency of operating the services. Network systems continue to expand because communication and information technologies enable a broader geographic base to be served and allow increased transaction volume without a proportional increase in costs.

EFT has come to play an important role in the financial service industry. Although EFT systems have been operational since the late 1960's, it wasn't until the mid-1970's that their acceptance became more obvious. Electronically transferring funds today involves several methods: direct deposit, credit and check authorization at point of sale, and most notably, use of the ATM. To some degree, although they have not penetrated the market as greatly as the ATM, the POS terminal and remote information systems, such as home banking, also play significant roles.

Automated Teller Machines

The first applications of automation in customer services were very simple cash dispensers that provided the user with a fixed sum of cash in a single denomination. These systems generally operated off-line, so the transaction was not a direct debit. Now ATM systems offer most of the same transaction capabilities as a branch bank, allowing consumers to withdraw cash from a bank account, make deposits, borrow cash against a line of credit, obtain a cash advance on a credit card, pay bills, transfer funds from one account to another, and inquire about account balances. (The relative use of ATM functions is illustrated in fig. 7.) Credit can be obtained either by granting of overdraft limits or, in some cases, through using a credit card rather than a debit card to activate the machine to obtain a cash advance. Systems vary, however; some are merely cash dispensers, although the technology of the different systems is basically the same.

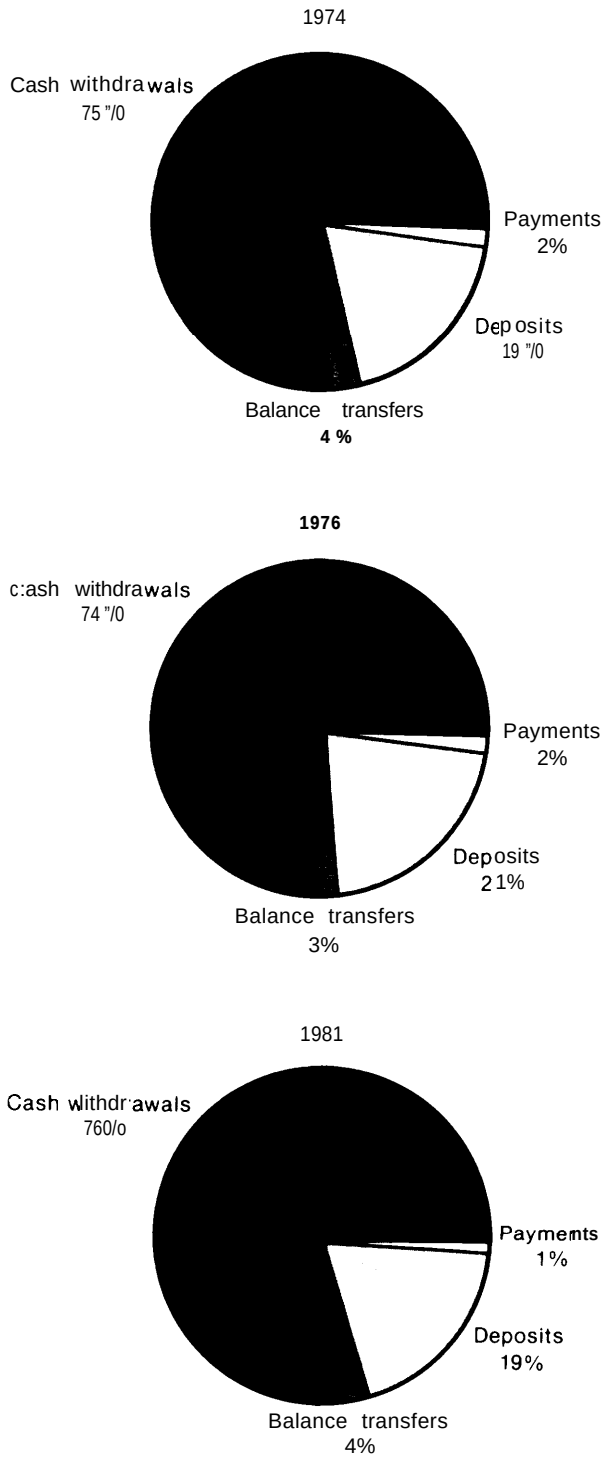
The plastic card's magnetic stripe is the "key" that unlocks the machine for use. The way the data are encoded and what items of information are placed on the magnetic stripe varies. A great deal of attention has been paid to the standards being developed for the plastic card.

Although the cost of ATMs has fallen significantly since their introduction, "the cost of ATMs is unlikely to fall as rapidly as that of many other parts of an electronic funds transfer system because of the various mechanical parts that are necessary. The capacity to process transactions and information will become much cheaper as intelligent terminals are developed, with display screens and keyboards being largely electronic. There are many mechanical parts in the dispensing of cash, in the printer, and in the mechanisms for accepting funds. A further result of the mechanical nature of cash dispensing is the shorter life of currency because it quickly becomes unsuitable for use in cash dispensers' [9]

With the ever-increasing operating costs for traditional delivery systems, the customer demand for new services, and the competition from new as well as traditional sources, most organizations in the financial service industry realize the need to use automated banking systems. The initial cost of establishing an ATM is high, but it is far less expensive than building a branch bank. And, unlike a branch, it can be operated around the clock at a fairly low incremental cost. Therefore, many bankers feel

[9] Revel], op. cit., p. 44.

Figure 7.— Relative Use of ATM Functions,[a] 1974-81



[a]Excluding balance Inquiries. Includes only Years for which estimates based on field research are available

SOURCE Economic Review Federal Reserve Bank of Atlanta, August 1983

that ATMs will provide both competitive advantage and significant return on investment over the next decade. To soften the high cost of such systems, especially ATM networks, many financial institutions have entered into sharing arrangements.

The ATM, which is operated by the customer, can be located in a variety of places. In the United States many are installed either in the main banking space of bank offices, in lobbies partitioned off from branches, or on the exterior of a building. They can also be located away from the main bank, at shopping centers, grocery stores, gas stations, offices, and factories. Almost all systems are or will be online. The customer's plastic card allows him/her to gain access to the ATM location outside banking hours and to conduct his banking business in relative security.

The large success of ATM deployment has created another trend in bank branching. Instead of building large, full-service branches that are personnel-intensive and very costly, many organizations are replacing these structures with satellite branches, which are small-scale, highly automated, full-service, and generally require management by only two or three personnel. ATMs, for the most part, replace the teller; personnel are there to handle general information or other personal business. Figure 8 illustrates the growth in the number of ATMs in use from 1974 to 1981. Figure 9 illustrates the increases in the average number of transactions performed at each ATM.

ATM Systems

ATM services can be offered in one of four ways: a proprietary system, a shared system, an interchange system, and a piggyback system. In a proprietary system, or "single institution" system, only the customers of the bank that developed and installed the ATM system may use the machines. In a shared system, a group of financial institutions mutually researches, installs, markets, and operates the system. In an interchange system, separate institutions with ATM programs or even sepa-

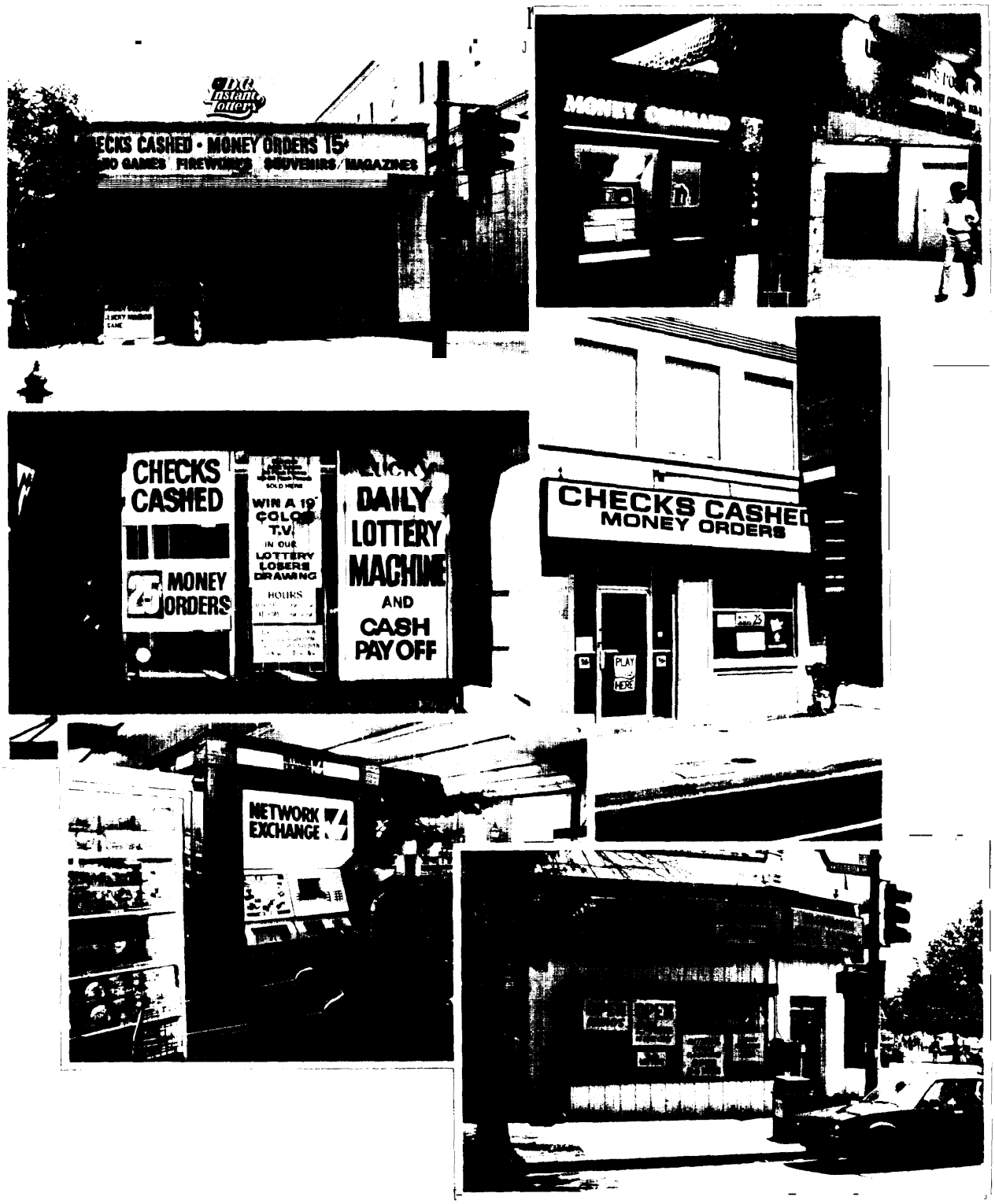
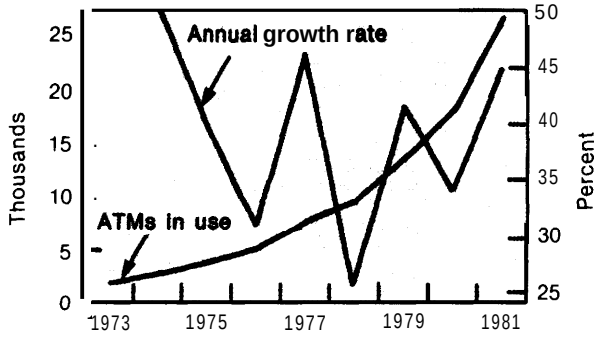


Photo *credits:* Steven *Rothenberg*

Consumers can obtain cash through a variety of service delivery systems

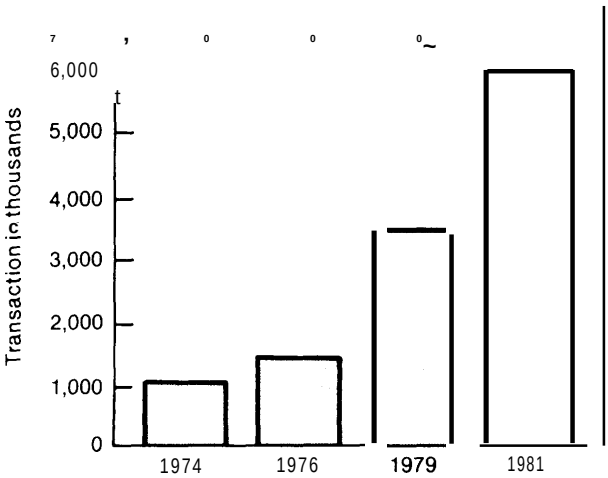
Figure 8.— Number of ATMs in Use, 1973-81



Average annual growth rate, 1973-81
34.780/o

SOURCE Economic Review, Federal Reserve Bank of Atlanta, August 1983, p 16.

Figure 9.—Average Number of Monthly Transactions per ATM,[a] 1974-81



[a]Does not include balance inquiries, includes only years for which estimates based on field research are available

SOURCE Economic Review, Federal Reserve Bank of Atlanta, August 1983, p 16

rate, shared systems allow one another's customers to use their machines. The term "shared system" is associated with an interchange system. Generally, there is an interchange fee associated with using another institution's ATMs. A piggyback system occurs when one institution with equipment allows the customers of other institutions to use its machines .10

"Norman Penny and Donald Baker, *The Law of Electronic Funds Transfer Systems,* (Boston, Mass.: Warren, Gorham & Lament, year), p. 6.03.

Shared ATM Systems

The number of shared and interchange systems is growing rapidly. As national ATM interchange proliferates, shared systems such as Plus and CIRRUS allow customers access to their funds on a national basis. National interchange systems, however, are not being run only by banking organizations. ADP, Inc., and American Express have also begun developing and marketing national ATM interchange networks. Supermarkets and retailers are also positioning themselves in the ATM arena.

There are, however, limitations to the kinds of services available through the national networks. Presently, because Federal regulation prohibits interstate deposit-taking,* most systems serve as cash dispensers and provide information about account balances. The fees imposed for using national ATM systems are set by the individual networks and range from $0.75 to $1.30 per transaction. A portion of the fee goes to the financial institution whose machine is being used, and a portion goes to the organization running the system.

Not all ATM systems are run by banking organizations. With the advent of regional and national ATM networks, ownership of these networks by third parties has become a major business. The systems operate in two ways: the third-party company can own, deploy, and operate the ATM network, with the financial organization paying a transaction fee each time its customers use the machine, or the third party can be the switch operator, receiving either a percentage of the transaction fee or a fixed monthly fee for its processing efforts. These systems are developed on a local, regional, and national basis and are in direct competition with bank-run systems.

Safeway–an Oakland, Calif., supermarket chain-has announced plans to develop and market a national ATM network. Presently, Safeway participates in a shared interchange

*Reciprocity agreements exist among several States. The Massachusetts Legislature passed a bill in 1983 entitled "An Act Relative to Branch Offices and Acquisitions of Financial Institutions," that permits interstate deployment of ATMs and deposit-taking among five New England States.

network, owned and operated by the Network Exchange of metropolitan Washington, D.C. The objective of the Safeway program for in-store ATMs is to increase store traffic and sales by providing customers with full-service, one-stop shopping convenience. Safeway has committed to installing common-access ATMs in key stores throughout California. The Washington, D. C., program, however, is presently not a participant of the Safeway ATM program being developed in Oakland. To attract the maximum number of prospective shoppers, Safeway will promote both the availability of the ATM services at its stores and the financial institution cards that can access the machines. Safeway is also prepared to assist the participating financial institutions in generating new accounts that can access the in-store ATM services.

Participation in the program is on a transaction-fee basis. National Transaction Systems, Inc. (NTSI), will provide ATMs; install, maintain, and service them; and perform all required transaction processing, funds transfer, settlement accounting, billing, and customer service operations required to support the Safeway ATM program. Safeway cash machines will be linked to NTSI switching and processing system via leased telephone data circuit. Other leased data circuits will link the switch with the participating institutions' host computers. Initially, the only function available will be cash dispensing, selected by the financial institutions from the following three service-level options:

1. *Direct host link.* The participating institution's computer is linked directly to the NTSI switching processor. The institution pays for the dedicated data circuit and modems associated with its host computer link to the NTSI switch.
2. *Direct host fink with "stand-in "processing.* NTSI maintains a cardholder authorization file and control parameters on the NTSI computer for processing the participating financial institution's cardholder Safeway Cash Machine withdrawal transactions when the institution's host computer is not available. In addition to the dedicated data circuit and modems, the institution pays a service fee for the stand-in processing option.
3. *Full stand-in processing.* NTSI maintains the participating institution's cardholder file online at NTSI. NTSI verifies the cardholder's personal identification number and authorizes or denies the cardholder's Safeway Cash Machine transaction in accordance with the institution's authorization parameters and cardholder positive file information, updated daily by the institution's processor. The institution pays an additional service fee for this stand-in processing option.

Merrill Lynch, Pierce, Fenner, & Smith Inc., has signed an agreement with Safeway Stores, Inc., that will enable the brokerage concern's customers to tie into the Safeway ATM network. Merrill Lynch customers who have one of its Cash Management Accounts, which link a securities account and money market funds with "check" writing privileges and a VISA card, can use the VISA card to obtain cash at Safeway stores. This is expected to begin in early March 1984; it will be limited, for the present time, to California locations. However, Merrill Lynch expects to expand the services to include nationwide access.

In Florida, Publix supermarkets has also established its own ATM network, which it offers for use to any bank in the State (operated on a piggyback basis). Fees are imposed for every transaction a customer makes at a Publix terminal. In addition to deploying the ATM, Publix also runs the switch that operates the system.

Shared systems exist primarily on a local/regional basis. The Tyme Corp. of Wisconsin has operated as one of the first shared systems in the United States, and in Washington, D. C., the Money Exchange has operated as one of the first shared networks on an interstate basis. Shared/interchange systems allow the small institution to compete with other financial institutions in the ATM competition. The feasibility of all financial institutions operating switches and deploying ATMs within a

contained area is uneconomical. By operating in a shared/interchange environment, the financial institution can extend the geographic reach of its market and earn income from the ATM.

CIRRUS—National ATM Network

The CIRRUS System, Inc., is a not-for-profit membership corporation that allows its members to offer their customers the convenience of nationwide ATM access. Incorporated in June 1982, CIRRUS is headquartered in Oak Brook, Ill. When fully operational, it will serve 41 States. Growth projections for the system are summarized in table 5.

Membership in CIRRUS is exclusively reserved for banks, savings and loans, and credit unions. Associate membership is limited to banks. CIRRUS does not preclude its members from joining other networks, nor does it require the sharing of other electronic services, such as POS terminals. There are three classes of membership for the CIRRUS System:

1. *Principal.* Principal members have exclusive marketing rights in their territories. They may share their link to the CIRRUS switch, run by the National Bank of Detroit, by licensing correspondent members. Principal members are required to add their ATMs to the network.
2. *Associate.* Associate members also have a direct link to the CIRRUS switch and may share their connection with the correspondent members they license.
3. *Correspondent.* Correspondent members are linked to the CIRRUS stitch through the principal or associate members who license them.

CIRRUS allows its members to offer their customers the convenience of nationwide ATM access. Using a CIRRUS card at an ATM deployed by any CIRRUS member, a customer can make a withdrawal from his savings or checking account, check balances, and access a line of credit. All CIRRUS ATMs must accept the cards of every CIRRUS member; however, individual members may set limits on the amount of cash their customers may withdraw at a time. CIRRUS ATMs must also be online in order to authorize transactions. The CIRRUS switch, maintained by the National Bank of Detroit, does not provide backup authorizations for its members. The network ensures against switching downtime by utilizing an ACI/Tandem computer.

Individual CIRRUS members are responsible for the cost of hooking up to the switch and maintaining the connection. They must also pay for hardware and software modifications necessary to comply with the network's operating rules.

Associate members pay a one-time entrance fee of $25,000 to join the network, connect with the switch, and reserve the right to license correspondent members. Correspondent members' entrance fees are set by agreement with the licensing banks. Ongoing membership fees for the CIRRUS System are $2,500 per month for associate members; correspondent members pay the membership fees set by their licensing bank. There are also processing and interchange fees. Each time a CIRRUS cardholder uses his ATM card at a bank other than his own, the card issuer pays the switch $0.25 for processing the transaction. For withdrawals and for accessing a line of credit, the card issuer also pays the institution deploying the ATM an additional $0.50 interchange fee per transaction. For balance inquiries and other transactions, the card issuer pays the machine-deploying institution a $0.25 interchange fee.

Table 5.—Growth Projections for the CIRRUS System, Inc., National ATM Network

	1982	1983	1984	1985
Number of CIRRUS participants	682	862	1,760	2,297
Number of CIRRUS ATMs deployed	3,364	5,015	7,210	8,839
Number of CIRRUS cardholders	14,600,000	18,000,000	28,900,000	32,700,000

SOURCE The CIRRUS System, Inc

ATM-deploying institutions earn revenue from interchange fees every time another institution's cardholder uses their machines to transact banking business. Card-issuing institutions are permitted to charge their customers for the privilege of being linked to the CIRRUS network. Associate members can share their direct link to the CIRRUS switch with other institutions for a fee, and no matter how many correspondents an associate signs up, it never has to pay more than its flat monthly membership fee. Members of the CIRRUS network are free to join other networks.

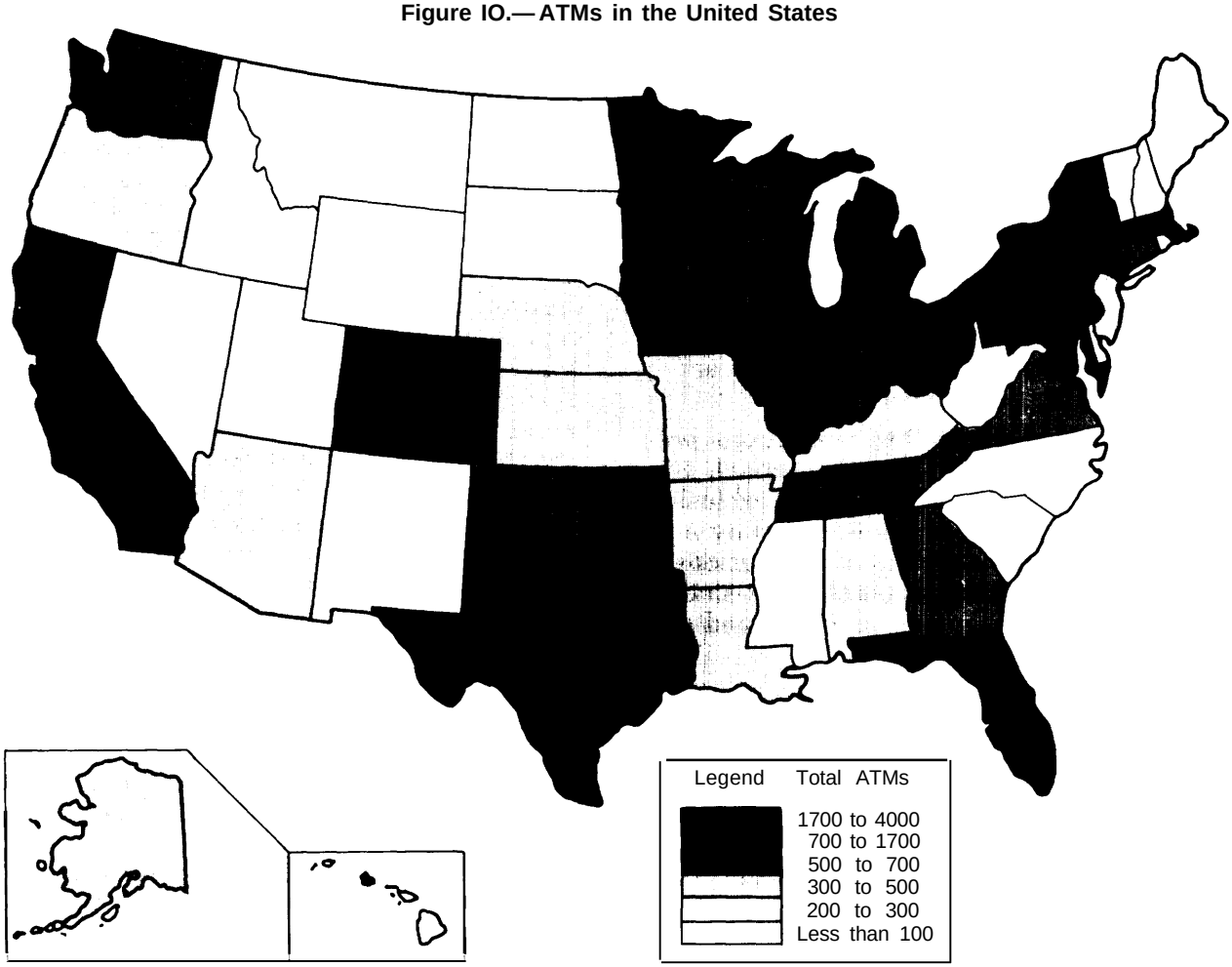
When fully operational, CIRRUS will link over 5,200 ATMs serving over 16 million customers. The national ATM switch is designed to handle at least two transactions per second. This represents a daily capacity of 173,000 transactions.11

ATM Deployment Legislation

Deployment of ATMs remains dependent on State-by-State banking legislation. Figure 10 shows the number of ATMs in each of the States in 1983. Certain States, such as Illinois, have very strict, off-premise deployment laws. Illinois permits State-chartered banks to establish ATMs subject to a number of geographic, time, and number restrictions. First,

"CIRRUS Systems, Inc., Oak Brook, Ill.

Figure IO.—ATMs in the United States



SOURCE Economic Review, Federal Reserve Bank of Atlanta, August 1983, p 13

prior to January 1, 1980, a bank may establish not more than two ATMs, each no more than 3,500 yards from its main office. Second, commencing January 1, 1980, a bank may establish an additional eight ATMs, at the rate of two per year. Third, prior to January 1, 1981, these ATMs maybe located only within the county of a bank's main office. Finally, subsequent to January 1, 1981, a maximum of four of the eight ATMs may be located within an adjacent county. ATMs located not more than 3,500 yards from the bank's premises need not be shared, but those located more than 3,500 yards from the bank's main premises must be made available on a nondiscriminatory basis for use by customers of any other bank that would be permitted (under the statutory geographic restrictions) to establish an ATM at that particular location. 'z

In sharp contrast to the restrictive Illinois law is Wisconsin legislation on terminal deployment and usage:

> Facilities established under the Wisconsin EFT statutory provisions must be available on a nondiscriminatory basis for use by any like institution which has its principal place of business in the State, or by any other like institution which obtains the consent of a like State, or by a national institution which has its principal place of business in the State and which is using the terminal.

The statute requires that regulations prohibit, with regard to a shared terminal, any advertising that suggests or implies exclusive ownership or control of the terminal by a financial institution or group of institutions. [13] Wisconsin law made possible the first shared ATM network in the United States and one of the largest.

Massachusetts went one step further. In early 1983 a law was passed that, for the first time, permits Massachusetts financial institutions to link their ATMs to regional and national interchanges. Entitled "An Act Relative to Branch Offices and Acquisitions of Financial Institutions, " the act establishes new authority for mergers, branching, electronic branching, and mortgage lending by Massachusetts financial institutions. While the act is generally limited in its operation to activities involving five New England States, the EFT provisions are expressly exempted from such limitations. Under prior law, no out-of-State financial institution nor bank holding company was permitted to purchase, establish, install, lease, use, or share an ATM in Massachusetts. The sole exception was allowed in a grandfather clause that exempted from the prohibition certain electronic branches established before December 31, 1981. To qualify for the exception, the ATM had to dispense only cash, traveler's checks, or both, and had to be limited solely to the use of customers of the financial institution that established it.

The new law empowers Massachusetts institutions to link their ATMs to regional or national networks. It also permits a financial institution, organization, or bank holding company, or its subsidiary organized outside of Massachusetts, to share any ATM established and used by a Massachusetts financial institution or organization, provided that the sharing entity limits its customers to cash withdrawals, advances against preauthorized lines of credit, and check cashing. Moreover, any out-of-State nondepository financial institution that establishes electronic branches that dispense only traveler's checks and are limited to use by the nondepository's own customers, such as American Express's Express Cash Program, are allowed to establish, use, or share electronic branches in Massachusetts.

Finally, the new law authorizes financial institutions, organizations, and bank holding companies in Conneticut, Maine, New Hampshire, Rhode Island, and Vermont to purchase, establish, install, operate, lease, or use electronic branches. That is, whereas the prior law permitted institutions from any State to share ATMs established and used by Massachusetts institutions, the new law allows New England institutions themselves to establish and use ATMs in Massachusetts, whether or not a

"Robert C. Zimmer and Theresa A. Einhorn, *The Law of Electronic Funds Transfer,* Card Services, inc., 1980, pp. I 1-11 to I 1-13.
"Ibid., p. WI-1.

Massachusetts institution is involved. " All of the participating States passed legislation approving the interstate branching.

There are no uniform guidelines on ATM deployment that each State follows in making its EFT deployment laws. Each State's legislature determines what approach will be best for the consumer and the banking community.

POS Full Funds Transfer

The term "point of sale" covers a variety of services rendered through machines located at retail establishments. POS terminals are generally clerk-operated devices located at the checkout or convenience counter of retail establishments. Electronic cash register versions of these terminals have been in operation for several years, maintaining store records on sales, inventories, accounts receivable, and the like. Now, POS devices have been linked to financial institution computers, allowing retail customers to receive approval for check cashing and electronically initiate transfers from their accounts to the retailer's, the latter being POS full funds transfer. In some installations, customers can make deposits to their accounts. POS devices accept either a plastic credit card or a plastic debit card, depending on whether the customer wants to delay payment by charging the purchase or wants the purchase deducted directly from his/her account. As electronic POS systems proliferate, their use will probably replace many of the paper transactions accomplished through cash payments and check and credit transactions.

The debit card, another means of facilitating funds transfer at point of sale, functions much the same way a credit card functions except that when the transaction is received by the issuing financial institution, it is debited to the cardholder's account, which may be a checking, savings, NOW, or other form of depository account. Some securities firms have distributed debit cards to access cash management funds. The card may also have an overdraft credit line. There has been much customer resistance to using a debit card at the point of sale because the customer associates the use of a plastic card with the elimination of float, which allows a grace period before actual payment is required. Also, many people in the industry have referred to the debit card as a paperless check, which is one of the reasons that retailers have been reluctant to accept it. Presently, retailers can accept accept and process checks for less than the fee imposed for processing a debit or credit card transaction. These differences have resulted in controversy between the retailer and card-issuing institutions.

Another form of debit card transaction at point of sale gives the cardholder a rebate, which encourages use of direct debit at point of sale. Customers use the card, which works online, to debit their account directly to any participating retailer. The retailer receives instant credit, and the customer receives a rebate, ranging anywhere from 2 to 5 percent, directly credited to his savings account. One of the most successful of these programs is that of the Wilmington (Delaware) Savings Fund Society. Most of the other programs, however, have been unsuccessful. First of all, a significant card base was not represented. Second, many of the stores that signed up for the program were inconvenient to the majority of the cardholders, and these stores also tended to sell products at a higher cost than did discount stores.

Direct Debit POS

Retail Stores.–Although previously not many POS systems operated in retail stores, there is tremendous potential for their use. One of the most successful direct debit POS programs is in Des Moines, Iowa. There, Dahls and Hy-Vee supermarkets operate direct debit POS systems at the checkout counter, the first such systems in the United States. Customers of these supermarkets can pay for groceries with a proprietary debit card issued by Norwest Bank, which automatically debits the cardholder's account. ITS, Inc., operates the

[4]Electronic Funds Transfer Association, *Washington Report*, Jan. 11, 1983.

computer switch that makes EFT possible for some of the 205 participating Iowa banks, savings and loans, and credit unions. The Hy-Vee supermarket does about 4,000 POS transactions per month; Dahl's does about 2,000 per month. Each location paid about $18,000 to install magnetic stripe readers and keyboard add-ons to the NCR cash registers and to buy the processors and software. However, volume sales of the systems should cut costs. Moreover, the store receives good funds the next day.

Retailers and banks both benefit by having access to the customer's float, and both the retailer and the bank are assured the funds are good. "To encourage direct debit use, bankers will price check transactions higher than their debit card counterparts to nudge consumers along. The cost of processing one check is estimated at about 50@, and an EFT transaction costs about 30©. The higher the volume in EFT, the lower the per transaction cost because of the high fixed overhead. "[15]

Oil and Gas Companies.–The gasoline station is currently the focus of much POS activity because it generates more transaction volume than any other kind of retailer.[16] Many large oil and gas companies are installing POS terminals at service stations. A few direct debit POS terminals are being deployed directly into the gas pumps, although the majority are stand-alone terminals.

While still in its infancy, the idea of deploying POS terminals at service stations is becoming more accepted because of the increase in self-service gas stations, because more stations are remaining open 24 hours a day, and because service stations are often vulnerable to robberies. To help reduce the tremendous volume of cash generated each week by gasoline purchases, major oil companies and banks across the country are joining forces to test POS terminals at the pumps, using proprietary credit cards or bank debit cards as an alternative method of payment. Most of the tests at the service station involve agreements between oil companies and financial institutions under which customers can pay for purchases using bank debit cards that automatically debit the amount of purchase from their checking accounts. However, there is additional interest in proprietary credit card transactions at points of sale. Mobil Oil Co., for example, has 2,400 POS terminals linked to its Kansas City processing center, which captures all transaction information via electronic draft capture. Since the system is online the information is transmitted immediately. This POS system enables Mobil to capture billing information electronically, saving internal costs by reducing the amount of paper used in such transactions. Mobil implemented a credit POS system, which could easily convert to a hybrid system supporting both debit and credit, to maintain its loyal customer base and to generate new business. Mobil representatives feel that direct debit at this stage would alienate customers.

The POS transaction begins by the service station clerk inserting the card into a POS terminal. In some cases, the customer inserts the card into an automated pump and then keys in his own personal identification number (PIN). By implementing direct debit POS terminals, the customer's account is automatically debited, and the retailer's account is generally credited immediately or the next day. The benefits to both banks and oil companies are savings of millions of dollars. In most cases, the bank or network operator receives a transaction fee for each purchase. The oil company saves by being assured of good funds and by receiving payment immediately. This is a significant issue because the general lag time for credit card sales draft, according to a Mobil Oil Co. official, is 10 days.

Some POS test situations currently under way are being done by AmeriTrust Bank, Shell Oil, and Gastown in Cleveland, Wells Fargo Bank and Shell service stations in San Francisco, First City National Bank of Houston and Exxon Co.

[15] *Forbes,* Aug. 29, 1983, p. 46.
[16] *Management* Information *Systems Week,* July 27, 1983, p. 81.

National POS Systems

Large-scale communication networks are being developed, primarily by the major credit card industry, to connect thousands of POS retail terminals with financial institutions within a State, region, and, ultimately, the Nation. These networks will include computerized switching centers and a base for clearing settlements.

In addition, oil companies, banks, and other retailers are considering national POS networks. Tests are being conducted by Liberty National Bank & Trust Co. of Oklahoma City and a Southwest oil dealer whereby terminals will be deployed at stations offering the following services: automated dispensing at the pump, an ATM inside the station for purchasing convenience items, and a commercial depository that is wired to the ATM so that high-volume stations can make deposits.

At the present time, POS systems are being allowed by regulators to access time and savings accounts; however, this could change. Regulation D* is not being strictly interpreted with respect to POS activity. However, if the regulation were strictly interpreted, a large number of financial institutions, savings and loans, and savings banks, would be prohibited from actively participating in a POS system.

Other Uses of POS Systems

The POS terminal can also be used for check authorization, permitting the customer to obtain approval of a check for payment by running a verification of the check-cashing record through a computer. Likewise, the POS system enables merchants to verify the availability of funds in a customer's account or his access to credit before completing the sale. As with ATMs, customer access to POS terminals is usually by plastic card and PIN. This is an alternative to manual authorization and verification, which *is* handled by accessing a negative file or by having the retailer check a manual that lists card numbers of bad credit risks.

In the United States, POS experiments have been conducted since 1974. Very few systems involving instant transfer have survived, and the most important functions of POS, until online direct debit systems were in place, have been check verification and credit card authorization. One explanation for this very limited success could be that the experiments have generally looked for evidence of profitability within a few months of installation, whereas the change in social habits involved in moving from cash and checks to instant transfer takes a great deal longer.

Costs of POS Systems

For several years merchants and financial institutions have been at an impasse over how to implement electronic payment systems, especially retail EFT systems. The differing perspectives reflect differences in technologies being used, in terminal ownership, in customer bases, and in approaches in pricing the service.

One of the main concerns associated with implementing POS systems is the cost to be borne by retailers and banks. Another is the concern about merchant discount fees. Most banks charge the merchant the same fee for debit card transactions as they do for credit card transactions. The argument made by the merchant is that debit cards function in lieu of a paper check and therefore the merchant should not pay the same discount fee. A POS system can all but eliminate float, reduce credit risks, require the merchant to keep less cash on hand, and ease check approval.

Technology has also been a basis for conflict between the merchants and POS operators. Financial institutions typically base their debit cards on the magnetic stripe technology used for years on bank credit cards. Grocery retailers, on the other hand, typically base their technology on an optical scanner that reads bar codes on product labels and transmits the information to an electronic cash register (ECR). Department stores typically prefer optical character recognition characters read

*Regulation D is *a* uniform reserve requirement on all depository institutions with transaction accounts or on personal time deposits. It requires submitting reports on all deposits to the Federal Reserve Board and sets phase-in schedules for reserve requirements.

from merchandise tags and proprietary credit cards with a handheld wand. Product and customer information is fed into an ECR to effect electronic payments.

Financial institutions tend to prefer owning the necessary terminals and charging merchants a user's fee for making transactions through them. On the other hand, retailers tend to prefer devices that are integral components of their own ECRs.[17] Naturally, financial institutions and the merchants are wedded to their respective investments. It is unrealistic to expect the merchants to give up their technology in order to accept electronic payments. Developments such as VISA's "electron card" are aimed at simplifying this problem.

Another issue with respect to POS systems is the volume of sales to be handled. It has been argued that to be viable economically, the POS system must become competitive with cash; otherwise, there is no incentive for the retailer or the customer to use it. The customer is faced with loss of float, and the retailer is faced with transaction fees, which cash payments do not require. Under these conditions, systems that are shared among all the banks in an area and that provide for the recruitment of most retail outlets stand the greatest chance of success.

POS systems will undoubtedly increase during the next decade, with many new systems being built upon existing ATM networks. Both the banks and retailers stand to gain from the resulting reduction in the volume of paper transfers. However, merchants contend that since a debit card transaction saves financial institutions time and money relative to a check transaction, merchants should enjoy some of the savings. It has become quite apparent that in order for POS systems to develop and operate efficiently, the systems must be designed in close cooperation with the individual retailers, not just the markets the systems serve.

The technology necessary to operate electronic debit and facilitate POS transactions exists today. It is the intention that electronic debit cards will substitute for check, credit card, and cash transactions. However, when POS services become commonplace, the use of cash and checks as a payment mechanism will still exist. Disconcerting cost trends are leading merchants and financial institutions to seek lower cost alternatives for POS transactions. EFT is the method by which this goal can be reached.

[17] "Debit Cards at the Cross Roads," *Economic Review*, March 1983, pp. 37-38.

Financial Information Services

There are many forms of information services in the financial service industry. They include check or credit authorization/verification; status information on account balances; identification verification; billing and funds due information (e.g., preauthorized payments); accounting information with respect to general ledger, payroll, accounts payable, accounts receivable; and modeling and analytical services, such as Chase Econometrics and Wharton Econometrics, which provide access to data bases, econometric models and modeling tools, and various other analytical packages.

All financial service providers use information services. Retailers are perhaps one of the largest users of specific information services, particularly check verification. Check verification validates the authenticity of the check or its presenter. This system is accessed online through a telephone or terminal by the retailer. The retailer pays for this service, generally a percentage of the value of the check. These

systems are run by third-party organizations and banks that maintain negative files.

Check Authorization

Check authorization systems may be provided and maintained by the party accepting the check, by a financial institution, or by a third party engaged in such a business. The systems may be designed to access bank records directly or may rely on secondary data sources. In some systems, check approval is accompanied by a guarantee of payment. In an EFT system, a customer's plastic card and PIN can be used to access the system and verify the available balance. This is accomplished by placing the check into a terminal and keying in the appropriate information. The check is then validated and accepted at point of sale.

Credit Authorization

Credit authorization is yet another information service vehicle available to the retailer. It operates by allowing the customer's credit card to be read by a financial service terminal while a central computer verifies that the card is valid and the customer's account has sufficient funds. This can also be accomplished manually by checking a printed document, distributed by the card companies, indicating lost or stolen card numbers or by placing a call to an operator who will authorize or refuse the transaction based on information from a data base. This inquiry process is supposed to reduce the risk of credit fraud or of extending credit in excess of an imposed credit limit.

Information service systems allow for real-time access and reduction of risk at point of sale and ensure that the retailer will receive the funds. The risk is transferred to the party authorizing the funds. This service guarantees payment to the retailer and is attractive despite the fact that the retailer must pay a premium to insure the funds.

Providers of Information Services

Many kinds of organizations are information providers. Depository institutions use and provide information in unique ways. For example, the services they perform include providing status information to their customers on a very regular basis. The most familiar processes are inquiry of account balances or funds credited or inquiries regarding specific check clearing. Today, much of the status inquiry information is processed by online teller terminals with direct access to the accounts being questioned.

Service organizations provide accounting information services to customers, such as information services about payroll or accounts receivable/payable or other services necessary for efficiently running the organization without the added costs of implementing an automated system in-house. A wide variety of firms, including financial service providers, offers these services.

Two other key information service providers in the financial service industry are investment brokers and insurance firms. (The brokerage industry is covered in ch. 3 of this report.) Insurance information is compiled by actuarial scientists and categorized by risk, age, and the like. Much of this information is available to individual brokers through online videotex terminals. Insurance information requires some customization in order to meet the specific needs of the party requesting the insurance, although premiums and risk are determined by actuarial methods.

The information provider in the insurance industry is the insurance salesman. Although much information about general insurance is accessed to data bases via terminals, the processing of this information still requires the personal interaction of the salesman and client to provide the service adequately. Some insurance information is provided through computer/CRT* terminals that display rates and also give an explanation of the types of insurance available. The insurance industry is looking at further automating the delivery of insurance information.

*CRT terminal—video terminals that display data on a cathode-ray tube.

The following scenario may present itself in the near future. Through videotex and home information systems, insurance information can be transmitted and reviewed by an individual. If the need presented itself, for example, an individual would be able to increase the amount of homeowner's insurance for a specific period of time, say a weekend, if he planned to be out of town. The insurance policy modifications could be done instantaneously, and the additional premium payment could be automatically debited from the cash value of other insurance policies.

Several of the larger banks in the United States offer financial, securities, and investment analyses; payment products, models and data bases to corporations, other banks, insurance companies, financial institutions, and government agencies. An example is terminal-based cash management for major corporations and banks.

Mortgage servicing is another aspect of financial information services. Mortgage bankers and a growing number of commercial, mutual savings bank, and savings and loan customers use this type of service for servicing their portfolios of mortgage loans, which include taxes, escrows, and insurance. Loan closing documentation and mortgage preparation systems are available to help customers of the service keep track of inventories and financial commitment needs. Batch transmission and inquiry modes to a central location are used via dial-up and leased transmission lines. In this manner, nationwide service is provided from a single location.[18]

Information services provide immediate access to financial information and are used to transfer funds efficiently from one account to another. For example, in a corporate environment, real-time access and videotex technology allows a treasurer or financial advisor to manage and control all of the investment accounts. Through the same technology, investments can be transferred on a daily or perhaps even hourly basis.

Many organizations today conduct financial counseling programs for all ages and groups. These groups organize to seek sound financial guidance and to plan for long-range money goals. Interestingly, these groups include not only the affluent market but also young professionals and middle-income individuals who have become far more educated and concerned about how their finances are handled.

Different sectors of the financial service industry require different information services. For example, a bank loan officer may inventory data to assess liquidity and solvency. Financial analysts are concerned with equity investment decisions and are likely to place more importance on earnings-per-share and capital account data. On the other hand, various financial service groups use the same information in different ways in the decision process.

Service industries, such as banking, securities, and insurance, whose business operations rely heavily on information services, are finding that the whole environment in which they operate is changing rapidly. Earlier developments in information technology were such that only large corporations could take advantage of its capabilities. However, over the last several years, technical innovation has continued at such a rapid pace that, for example, information processing power, which once took a roomful of large equipment, is now available in portable machinery.

[18] Herbert A. Schulke, Jr., "Electronic Financial Systems," *Innovations in Telecommunications,* Academic Press, Inc., 1982, p. 1038.

Home Information Systems

Home information **services are a way by** which financial information services can be delivered to users of home computer terminals. Home information systems (HIS) started in a relatively minor way in the United States several years ago with the introduction of bill

paying by telephone. The original impetus came from thrift institutions, which saw telephone bill payment as a way to offer transaction accounts, thereby partially circumventing the law forbidding payment of interest on demand deposits. Soon commercial banks began offering the service. When the telephone bill payment service was first introduced, most of the systems required the customer to call in and give oral instructions over the telephone to an operator to perform banking services, specifically bill payment. Automation was introduced and made available to customers with touch-tone phones, although most systems still relied on operators during the business hours and on recorded messages at other times. Telephone bill paying services did not attract a large customer base, and many of the early programs have come to a halt.

Technology of Home Information Services

The introduction of videotex played a key role in the development of home information systems. Videotex—a generic term that refers to computer-based information retrieval systems that display text and graphics via video screen—is a product of the convergence of telecommunications and computing technologies. Through teletex* and videotex, one-way and two-way computer-based retrieval systems, information can be widely disseminated for viewing on modified television sets or on personal computers. In the last year or so, full videotex systems have become operational in several countries, giving the user the ability to send communications to the system computer for onward transmission. Because the videotex system is interactive, it can be used to facilitate financial transactions. The system functions in several ways. One way uses a videotex terminal and a television (which acts as a visual display unit); the communication with the system is supplied by telephone lines or cable lines. Some systems provide a hybrid communication delivery, using cable for incoming information and the telephone for outgoing information. In-place cable lines are primarily one-way communication lines, although most new cable lines being laid today are two-way cable lines.

Home computers also allow interaction with HIS and are becoming popular for receiving the services. A modem** can be used to tie the home computer to the information source by telephone lines. A CRT or television screen acts as the visual display terminal. The home banking software which runs the system is distributed by the participating financial institution.

As stated, cable plays an increasing role in the delivery of home information services. “The latest cable television systems now being developed will transform the technology of videotex and the economics of home banking. The use of coaxial or fiber optic cables gives much greater bandwidth, which provides three substantial technical advantages: 1) the possibility of carrying a large number of channels, up to 100 or more; 2) a more satisfactory and speedy interactive facility; and 3) a much improved ability to produce pictures (important in using home shopping).”[19] Direct broadcasting by satellite, which is being developed, is another method by which information can be transmitted into the home.

Developers of Home Information Systems

Home information systems are being developed by a myriad of organizations that include depository institutions (presently Bank of America and Chemical Bank are marketing systems that are up and running), information companies, entertainment companies, and the like. Several systems are being developed as cosponsored, joint ventures by consortia of major banks and corporations. One example

*Teletex is a one-way system that displays alphabetic and graphic information on a modified television set. Videotex displays the same sorts of information as teletex but also provides a communication path for the user to interact with the service provider.

**A modem transmits digital or computer information over telephone lines by manipulating it electronically and also protects the lines from undesirable signals that might cause interference with other users.

[19]Revel], op. cit., p. 50.

of a major project is the Viewtron Program in Miami, Fla. The Viewtron system will be supported by computers from seven major corporations from around the country and will be linked to Viewdata Corp. 's Viewtron computers in Miami. The gateways are American Express—subscribers will have access to a variety of services offered by this company; Commodity News Services—subscribers will be provided with instant and delayed stock market and commodity price quotations; and E. F. Hutton–subscribers will be able to track their personal investments and receive investment advice with "Huttonline," the first electronic information service offered by a retail brokerage house. E. F. Hutton customers will be able to access Hutton's computers in New York City for information about their accounts, such as cash management and margin balances, portfolio positions and market values, open orders, and recent transactions. All Viewtron subscribers will be able to order E. F. Hutton market comments and investment advice and send electronic mail to E. F. Hutton offices. Viewtron subscribers will also be able to order J. C. Penney catalog merchandise by using a direct link to J. C. Penney computers in Atlanta. They will receive online order confirmation upon completion of their order. If the requested item is not available in the color requested, the J. C. Penney computer will offer the Viewtron subscriber other color possibilities. The J. C. Penney catalog inventory system is immediately and automatically updated. In addition to processing the catalog order, the gateway to J. C. Penney will also provide for credit authorization for the J. C. Penney card, as well as for VISA and Mastercard. In addition, information from *The Official Airline Guide* and *Grolier Academic American Encylopedia* will also be available.

The financial gateway to the system, VideoFinancial Services, is jointly owned by four major bank holding companies: Southeast Banking Corp., Miami; Wachovia Corp., Winston-Salem, N. C.; Bane One Corp., Columbus, Ohio; and Security Pacific Corp., Los Angeles, Calif.

Applause, the home banking software offered by VideoFinancial Services, will supply a variety of services. The home banking activities include bill payment, funds transfer and account information, and special financial requests. VideoFinancial Services also provides credit authorization and settlement for credit card shopping orders placed on Viewtron. The system permits each participating financial organization to specify unique features within the system standard, including the use of individual colors and graphics. Presently, 12 Florida banks and savings and loans will provide home banking to Viewtron subscribers via VideoFinancial Services' computers in Orlando, Fla.

As a financial gateway, VideoFinancial proposes to provide the Applause service to all sections of the country through any videotex network. To support such an objective, VideoFinancial expects to establish regional data centers, where practical and necessary, to interconnect the financial industry to the regional network operator. The system will be streamlined. First, the home terminals will tie directly to the network operator, who will be fully responsible for promoting, enrolling, and billing the consumer for the network service. Communications, terminals, and data base management will be provided and managed by the service provider. The network will then feed into the VideoFinancial computer system. VideoFinancial will either connect online with or provide batch processing for subscribing financial organizations and will be responsible for developing and maintaining the home banking software package. The VideoFinancial computer system will tie in directly to the financial organizations offering the service. These financial institutions will assist the network operator in enrolling the consumer and will provide the data to VideoFinancial to support the home terminal request.

Over 50 information providers, including major wire services, educational organizations, reference and financial book publishers, universities, libraries, and professional organizations provide information for Viewtron.

Interestingly, the advent of HIS has encouraged cooperation instead of competition among the various financial service providers.

Costs of Home Information Systems

Cost is one of the major issues associated with the success of the HIS program. The Viewtron videotex costs are as follows:

- Subscription to the Viewtron service: $12 per month for access to nearly all Viewtron services.
- Communication charges to access Viewtron: approximately $14 per month (approximately $1 per hour to access Viewtron).

A serious consideration is the influence of local communication costs and their impact on HIS. It is possible that communication costs could increase to such a degree that the cost of making a local call discourages use or forces development of new types of local links.

Consumer acceptance of home banking/home information systems will be based on several other factors besides the natural inclination toward using these services. These factors include price of obtaining the hardware/software needed to use these services, price of using the services, and availability of these services. *

The Market for Home Information Systems

Much speculation has been associated with the home information market. Several leading authorities have targeted the affluent segment of the population as the major users of the home terminal. Their claim is that many consumers with incomes over $40,000 per year have an insatiable need for information of various types. The home terminal has great potential as the major investment, shopping, and news information source for affluent consumers. Additionally, it has been stated that many affluent consumers feel strongly that they can conduct their own financial transactions better than bank personnel can, and some find it enjoyable.

* information from Reistad Corp.—research conclusions.

Systems now in operation serve interactive facilities, providing travel services, sports, and general entertainment information (e.g., restaurant and movie guides); stock exchange information; shopping capabilities; and banking applications in a form similar to that of self-service banking. Users of these systems can pay bills, transfer funds, check balances, review banking statements, and keep up-to-date financial records.

The elderly may be another target market for such systems. The ease of being able to accomplish shopping and banking from the home, it seems, would be very appealing. There are problems, however, with respect to acceptance of the system, hardware and communication costs, and, most importantly, changing behavior patterns. Principal characteristics of HIS users are listed in table 6.

For consumers to adopt and use home information innovation, it must be associated with such advantages as convenience, compatibility, or specificity.

Implications of Home Information Systems

It appears likely that home banking systems will be tied to other services such as information services, entertainment, and even business uses. Also, any institution, whether financial or nonfinancial, will be in a position to provide financial services through a videotex network and to support these services in much the same way as Merrill Lynch operates its cash management accounts.

Home banking and its impact on branch banking has some major consequences. With a single investment in a computer installation, a new entrant to the retail banking market has the whole national market open to it. As long as it has the necessary computing capacity to handle the accounts of its customers, any bank will be able to leap over geographic barriers and offer payment services nationwide. * By the same token, nonbank operators will be able

*Banks have long been able to conduct business nationwide by opening offices (usually via holding company affiliates or subsidiary corporations) for business loans. This is also true for mortgage companies and consumer finance companies.

Table 6.—Principal Characteristics of HIS Users

Characteristic	Level of importance	Comments
Age	High	Research studies indicate most potential customers of HIS/home banking can be clearly identified by age. Two principal groups are 18-34 and 35-49.
Sex	Low	Research indicates sex is not an identifier for potential customers of HIS/home banking. Men and women rank about equally in intent to purchase. PRONTO pilot research shows, however, men were more frequent users.
Education	Moderate	Research indicates as the level of education increases, the propensity to purchase HIS/home banking increases. In all studies the majority who are interested in HIS have attained a college degree or higher.
Occupation	Low	Research indicates interest in HIS/home banking is not dependent on occupation. Blue collar workers and professional alike are likely to be interested in HIS. Interest increases gradually from a lower level among housewives to high levels among managerial employees. Those working in the home or retired are less likely to be interested.
Family status	Low	Research indicates married and not married, with family or without, are equally likely to be interested in HIS/home banking.
Income	Moderate to high	Research indicates as income increases, the likelihood of interest in HIS/home banking increases. However, among very high income households ($50,000/year and up) the likelihood of interest in home banking declines somewhat.
Financial services users	Moderate	Research indicates that users of ATMs, Telephone Bill Paying, and frequent check writers are more likely to be interested in HIS. However, a substantial number of those interested do not use these services.
Electronic communication product users	Moderate	Research indicates personal computer owners, cable TV subscribers and those attracted by electronic gadgetry are somewhat more likely to be interested in HIS. However, a large portion of those interested in HIS do not own or intend to purchase a personal computer. Among PRONTO pilot users, half had computer terminals (outside the home) prior to participating in the test.

SOURCE The Reistad Corp , Clearwater, Fla

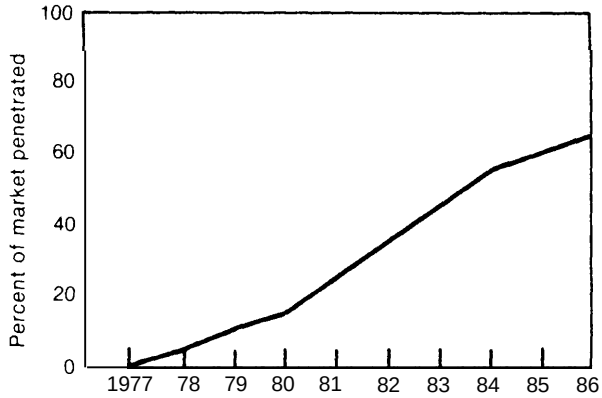
to compete with banks in these services to the extent that they are legally permitted to do so.

It is important to note that ATM, POS, and HIS will work together in the future. POS systems and ATMs will share network lines, and these systems will eventually reach out to incorporate other remote terminal activity such as HISS.

The various systems that have been and are being implemented for effecting payments are essentially designed to be substitutes for the paper check. While the rate of growth of checks has declined during the last several years and check usage in absolute terms may begin to fall between now and the end of the century, no one expects checks to be totally replaced.

Historically, usage of new consumer products has grown slowly during the first years following introduction. For successful products, this has been followed by a period of rapid growth. Then, as the level of saturation is approached, growth again slows. Overall, ” this creates the “S” curve shown in figure 11. This being the case, two questions relating to

Figure 11 .—Penetration Curve for Check Alternatives



SOURCE Economic Review, Federal Reserve Bank *of* Atlanta August 1983 p 33

the substitution of new payment products for the paper check remain unanswered. First, at what rate will new services grow? Second, at what level of penetration by each product will the market become effectively saturated?

Not all potential users of a service will use that service. It has taken decades for the level of penetration for checking accounts to reach the 85- to 90-percent penetration level, where it now rests. Further, it is not reasonable to assume that the level of maximum market penetration is the same for all products. Over the long term, for example, the proportion that uses ATMs may far exceed that which uses home information and banking services.

Further, the level of maximum penetration may vary with time. As technology evolves and its costs continue to drop, and as the products are funded, the proportion of potential users who actually become buyers may change. For example, the maximum potential market penetration for a home banking service today that requires a terminal costing several hundred dollars may be quite different from what it will be for a derivative of that service that is implemented using a terminal that costs less than $100.

The time constants that determine the steepness of the curve may also vary in response to events in the market. For example, the rate of growth in some electronically delivered services may increase in response to a requirement that all employees of firms over a specified size be paid by direct deposit. On the other hand, a series of events that demonstrate inherent weaknesses in advanced payment systems could slow the rate of growth of some products. In general, the impacts of events are most likely to vary from product to product in the mix that comprises the offerings of the financial service industry.

In the past, great promise has been held out for various payment products that has yet to materialize. However, increasing use of computers and telecommunication throughout society and the dynamism of the financial service industry may be creating an environment more favorable to the adoption of new systems for delivering financial services. Thus, there is a higher degree of confidence than in the past that the middle stage of the “S” curve will be reached, but the timing continues to be uncertain. The problem becomes one of closely monitoring developments in the financial service industry to identify those areas most likely to reach a critical mass and to assess on an ongoing basis the benefits and costs to society of the changes that are expected.