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The Revolution in Retail Payment Systems

by

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The acid test of whether banks are in danger of losing at least part of their traditional payments role is the degree to which nonbanking firms are successfully offering payment services. Changes in the economy and in communications technology, and the impact of interest rate deregulation on commercial banks certainly provide an opportunity for nonbanks to compete in a number of service areas. Our focus is retail payments services, leaving aside the area of corporate payments. Specifically, our survey identifies banks and nonbanks either testing or currently providing automated teller machines (ATMs), point-of-sale devices (POS), and home banking. Reviewing who the major players are and what they are engaged in gives some insight into how the market for these services is evolving.

It should be stressed that, although we endeavored to identify all firms and organizations actively involved with ATM and POS services in the retail environment or with testing home banking, our data may not be 100 percent inclusive. Our information sources included news publications, trade publications, and previous research. Furthermore, we personally contacted organizations offering

these services and asked them to identify others that were involved. The result is a good overall inventory of the players and their products.

ATM and POS

Through an ATM several banking functions can be obtained that previously required personal contact at a banking site. These services normally include cash dispensing (both from demand deposits and credit accounts), deposit taking, movement of funds among a limited number of accounts within the bank, and balance inquiries. ATMs may be located on or off the bank's premises. In a retail store the ATM is most often used as a cash dispenser only, allowing customers to obtain cash to acquire merchandise. With customer access to cash through an ATM, the retail firm may benefit from reductions in check volume, bad check losses, and time spent at the checkout counter verifying checks. Moreover, an ATM located at a retail site may attract customers into the store to take advantage of a convenient banking facility; while there the consumer also may purchase merchandise that otherwise may have been purchased elsewhere.

A POS terminal is a different animal, one that allows a consumer to initiate an automatic debit to his account and an automatic credit to the merchant's. Whereas POS does not offer the extensive array of banking services that an ATM does, it has many of the same benefits to the retailer, such as reducing checkout time and bad check losses. In addition, the retailer may reduce his cash holdings, thereby diminishing the store's attractiveness to robbers. Except for the benefit derived from attracting customers into the store to take advantage of a convenient place to make banking transactions, ATM benefits to retailers are inferior to those associated with POS; therefore, ATMs may simply be a first step as retailers move toward POS.

What types of firms are offering customer access to ATM and POS terminals today? We find that the leaders are gas stations, supermarkets, and grocery and convenience stores. Most other types of retail establishments, such as department stores and specialty shops, have yet to venture into this area. Some interesting differences exist among the retailers' approaches and, as might be expected, the largest firms are the bellwethers. They are most capable of identifying the advantages of ATM and POS terminals, and of funding the research and development necessary to implement their use.

Table 1 lists firms in the retail gas business using ATMs or POS, as well as the type of terminal being tested and the location and number of terminals involved. The institutions most active in testing POS and ATMs are among the industry giants--Exxon, Mobil, Gulf, Shell, and Amoco. Also note that none of these companies was involved earlier than 1982; in fact, the majority started as late as 1983-1984. It is obviously a new area of activity.

Table 1. Gas Stations
Type of Payment System and Locations

| Name | Starting Date | POS or ATM | Location |
|-----------|---------------|------------|--------------|
| Amoco | mid 84* | POS | PA(6) |
| Arco | 9/83 | POS | CA(25) |
| Carioca | | | |
| Oil | mid 83 | POS | AZ(1) |
| E-Z Serve | mid 82 | POS | TX(4),HI(12) |
| Exxon | 7/83 | POS | TX(10) |
| | 11/83 | POS | AZ(83) |
| Fina | 9/83 | ATM | FL(6) |
| Gulf | 1/84 | POS | TX(16) |
| | mid 84* | POS | PA(15) |
| Marathon | 1983 | POS | OH(9) |
| Mobil | 8/83 | POS | VA(58) |
| | 9/83 | POS | CA(477) |
| | 4/84 | POS | FL(55) |
| OK Oil | 7/83 | POS | GA(20) |
| Shell | 1983 | POS | OH(11) |
| Standard | | | |
| of Ohio | mid 84* | POS | PA(10) |

* Estimated date.

SOURCE: Federal Reserve Bank of Atlanta, April 1984.

Gas stations tend to favor POS devices over ATMs. Both devices require a tremendous card base and gas stations already have large proprietary card bases. Gas stations are interested in reducing cash while facilitating the transaction. The POS serves their purpose better than does the ATM. Only one institution, Fina, is offering ATMs, testing six of them in Florida.

As Table 2 shows, most of the tests by gas companies utilize true debit cards. Only five of the tests involve POS where the sale is activated by a credit card. Mobil is sponsoring the largest test, using both the direct debit and credit debit to activate the transactions. Because bank debit cards are used to activate transactions, the

Table 2. Gas Stations
Type of Card and Network

| Name | Type of Card | Type of Network | Who Owns Machines |
|-----------------------------|---------------------------|-----------------|-------------------|
| True Debit Card | | | |
| Amoco | bank debit | shared | retailer |
| Arco | bank debit | proprietary | retailer |
| E-Z Serve | bank debit | proprietary | retailer |
| | bank debit | shared | retailer |
| Exxon | bank debit | proprietary | retailer |
| | Exxon debit | proprietary | retailer |
| Gulf | bank debit | shared | retailer |
| Marathon | bank debit | proprietary | retailer |
| Mobil | bank debit & Mobil credit | shared | retailer |
| OK Oil | Bypass debit | proprietary | retailer |
| Shell | bank debit | proprietary | retailer |
| Standard of Ohio | bank debit | shared | bank and retailer |
| ATM | | | |
| Fina | bank ATM | proprietary | bank |
| Debit to Credit Card | | | |
| Carioca Oil | bank credit | | retailer |
| Gulf | Gulf credit | | retailer |
| Mobil | Mobil credit | | retailer |
| OK Oil | bank credit | | retailer |
| Standard of Ohio | Boron credit | | bank and retailer |

SOURCE: Federal Reserve Bank of Atlanta, April 1984.

gas companies maintain a relationship with banks that provide these services. The tests using direct debit cards are split evenly between shared and proprietary networks. (Shared systems link a number of banks together in the network, increasing the customer base by allowing card holders of different banks to use the same system.)

Who owns the POS or ATM is important because it points to the moving force behind the test. In all but two of the tests, the gas companies own the POS or ATM terminals. Quite obviously, banks are not taking the lead here.

In adopting POS the gas companies' objectives are to induce consumers to purchase full tanks of gas and to reduce costs associated with cash, check, and credit transactions. These retailers are less interested in attracting customers by presenting a convenient opportunity for them to bank when they purchase gas. Gas companies have established a broad credit card base and to some extent have developed customer loyalty. Their motives for using this new technology are thus quite different from supermarkets'.

Table 3. Supermarkets and Grocery Stores
Type of Payment System and Locations

| Name | Starting Date | POS or ATM | Location/Stores |
|--|---------------|------------|--|
| Albertson's | 1983 | ATM | FL(28) |
| Allied Supermarkets | 1983 | ATM | MI(3),OK(9) |
| Dahl's Foods | 1975 | ATM | IA(10) |
| Food Giant | 1983 | ATM | GA(6) |
| Food Lion Supermarkets | fall 84* | ATM | NC(150) |
| | future | ATM | SC,VA |
| Giant Food Stores | mid 84* | ATM | DC ¹ (24) |
| Goodings | 1983 | ATM | FL(3) |
| Jewel Food Stores | 9/81 | ATM | IL(17) |
| Kroger | mid 70s | ATM | AR,FL,GA,IN,KY,LA, OH,TX,WV,VA(200) |
| Mid Atlantic Food Dealers Association | mid 84* | ATM | DC ¹ (11) |
| Pantry Pride | 1983 | ATM | FL(24) |
| Pathmark Supermarkets | mid 84* | ATM | NY(5) |
| | future | ATM | CT,DE,NJ,PA |
| Publix Supermarkets | 12/82 | ATM | FL(225) |
| Randall's Food Markets | 1981 | ATM | TX(6) |
| Safeway Supermarkets | 1983 | ATM | CA(60) |
| | 1983 | ATM | TX(75),DC ¹ (92) |
| Smitty's Supermarkets | 1983 | ATM | AZ(20) |
| Wegman's Food Markets | 6/83 | ATM | NY(30-40) |
| Winn-Dixie | 12/83 | ATM | FL(26) |
| | 1983 | ATM | FL(60) |
| Angelo's | 1976 | POS | MA(18) |
| Dahl's Foods | 1981 | POS | IA(1) |
| Hyvee Food Stores | 1981 | POS | IA(12) |
| Mid Atlantic Food Dealers Association | mid 84* | POS | DC ¹ (12) |
| Starmarket | 1976 | POS | MA(43) |

*Estimated date

¹DC includes the surrounding area of Virginia and Maryland.

SOURCE: Federal Reserve Bank of Atlanta, April 1984.

Supermarkets

Table 3 lists the supermarkets and grocery stores currently using or testing POS or ATM. It also indicates the starting date, the type of terminal used, the state, and the number of stores involved. Supermarkets inaugurated their electronic payment systems earlier than the gas companies. Some of the players, like

Kroger, Dahl's Foods, Starmarket, and Angelo's, started their experiments in the mid-1970s, but the rest are relatively recent. Again, the major supermarkets tend to be the leaders in testing or adopting the new technology.

In all, 18 supermarkets are using ATM terminals and 5 are using POS. Thus there is a clear preference for

Table 4. Supermarkets and Grocery Stores
Type of Card and Network

| Name | Type of Card | Type of Network | Who Owns Machines |
|--|-----------------------------------|-----------------------|---------------------|
| Albertson's | bank ATM | shared | third party |
| Allied Supermarkets | bank ATM | shared | bank |
| Dahl's Foods | bank ATM | shared | retailer |
| Food Giant | bank ATM | proprietary | retailer |
| Food Lion Supermarkets | bank ATM | N.A. | third party |
| Giant Food Stores | bank ATM | shared | joint venture |
| Goodings | bank ATM | shared | third party |
| Jewel Food Stores | bank ATM | shared | retailer |
| Kroger | bank ATM | shared | bank |
| Mid Atlantic Food Dealers Association | bank ATM | shared | joint venture |
| Pantry Pride | bank ATM | shared | third party |
| Pathmark Supermarkets | bank ATM | shared | joint venture |
| Publix Supermarkets | Publix ATM bank ATM | shared | retailer |
| Randall's Food Markets | bank ATM | shared | bank |
| Safeway Supermarkets | bank ATM ¹ bank ATM | proprietary shared | third party bank |
| Smitty's Supermarkets | bank ATM | proprietary | bank |
| Wegman's Food Markets | bank ATM | proprietary | retailer |
| Winn-Dixie | bank ATM bank ATM | shared shared | bank third party |

¹Merrill Lynch CMA cards also have access.

SOURCE: Federal Reserve Bank of Atlanta, April 1984.

ATMs on the part of supermarkets. In offering convenient banking, supermarkets are giving their customers another reason to enter the store; they are creating the potential for additional sales while providing customers with the means of purchasing their goods.

Table 4 shows types of cards used to activate the supermarket terminals, and type of network to which the terminals are linked, as well as ownership of the terminals. Not surprisingly, in an overwhelming number of cases the supermarket ATMs are tied to shared systems that allow customers from numerous financial institutions to activate transactions. This arrangement tends to extend the card base, making the service more widely

available to the supermarket's customers.

Terminal ownership also has the potential to produce profits. In the case of supermarkets, the ownership is split fairly evenly among banks, the supermarkets, third parties, and joint ventures among the three groups. Apparently, all players view providing electronic payments and banking-type services in supermarkets as a fertile area.

Convenience Stores

Like supermarkets, convenience stores favor ATMs over POS, and ownership of equipment is split almost evenly among retailers, banks, and network operators (see Table 5 and 6). The

Table 5. Convenience Stores
Type of Payment System and Locations

| Name | Starting Date | POS or ATM | Location |
|--|---------------|------------|-----------------|
| Conna Corporation and a group of other convenience stores | 9/82 | POS | FL, IN, KY(124) |
| Circle K | 4/83 | ATM | AZ(50) |
| Family Mart Stores | 10/83 | ATM | FL(12) |
| Kash 'N' Karry | 1/84 | ATM | FL(27) |
| Little General | mid 84* | ATM | FL(20) |
| Qwik Stop | mid 84* | ATM | AK(12) |
| Quik Trip | 3/84 | ATM | KS(42) |
| Shop and Go | mid 84* | ATM | FL(20) |
| Southland Corporation | 10/83 | ATM | FL(26) |
| | mid 84* | ATM | TX, DE, PA, IL |
| National Convenience Stores | 1983 | ATM | TX(81) |
| U-Save | 1/84 | ATM | FL(10) |
| Xtra | 1983 | ATM | FL(1) |

*Estimated date.

SOURCE: Federal Reserve Bank of Atlanta, April 1984.

Table 6. Convenience Stores
Type of Card and Network

| Name | Type of Card | Type of Network | Who Owns Machines |
|---|----------------------------|-----------------|-------------------|
| Conna Corporation and a group of other convenience stores | Conna debit bank credit | proprietary | retailer |
| Circle K | bank ATM | shared | network |
| Family Mart Stores | bank ATM | shared | bank |
| Kash 'N' Karry | bank ATM | shared | bank |
| Qwik Stop | bank ATM | shared | network |
| Quik Trip | bank ATM | shared | retailer |
| Southland Corporation | bank ATM | shared | bank |
| National Convenience Stores | bank ATM | shared | retailer |
| U-Save | bank ATM | shared | bank |

SOURCE: Federal Reserve Bank of Atlanta, April 1984.

Table 7. Shared Networks

| Area Covered | Name | Number of Cardholders |
|---|--------------------------------|-----------------------|
| California | Interlink | 6,814,000 |
| Texas, Oklahoma, Louisiana, Arkansas, New Mexico | Mpact and Pulse | 5,500,000 |
| Maryland, Virginia, Washington, D.C. | Most Exchange Network | 5,000,000 |
| Florida | Honor | 4,000,000 |
| Michigan | Magic Line | 2,400,000 |
| Colorado | Plus | 2,000,000 |
| Wisconsin | Tyme | 1,700,000 |
| Oregon, Washington, Idaho, British Columbia | The Exchange | 1,700,000 |
| New York and part of Connecticut | New York regional switch | 1,600,000 |
| Georgia | Avail | 1,400,000 |
| Massachusetts | X Press 24 and MONEC | 1,200,000 |
| Minnesota | Instant Cash and Fast Bank | 1,025,000 |
| Chicago area | Money Network and Cash Station | 987,000 |
| Iowa, Illinois, Missouri, South Dakota, Nebraska | ITS | 800,000 |
| Missouri, Kentucky, Kansas, Iowa, Illinois | Bankmate | 250,000 |

SOURCE: Federal Reserve Bank of Atlanta, April 1984.

Conna Corporation, based in Louisville, is the only convenience store we identified as using POS terminals.

Again, ATMs began to appear in convenience stores only recently. Given the problems that convenience stores have experienced with robberies, it is surprising that they are not moving more quickly to POS to reduce cash in the stores. But the ATMs may simply be an interim step for them.

Shared Networks--the Key

The profitability of POS or ATMs depends on the number of transactions, consumer convenience, and, for the retailer, the ability to serve the largest segment of the market. Therefore, shared networks are obviously the key to success, and that is exactly what we are seeing in the marketplace. Table 7 lists some of the larger shared networks and number of cardholders for each. The

Interlink network in California is the largest with well over 6.5 million cardholders. A shared system is necessary to make ATM/POS work for retailers, because without a large cardholder base the system will exclude too many potential customers, reducing its efficiency and profitability. The shared system is a necessity if ATMs or POS are to thrive in a retail environment.

Home Information Systems and Videotex

Home banking may take many forms, but generally it constitutes an electronic system that allows the customer to access banking account information from his home. The consumer may be able to initiate preestablished bill payments and move funds among accounts; otherwise, it is simply a static information system. Table 8 catalogs the players involved in home banking or home information services--banks, retailers,

Table 8. Organizations Involved in Home Banking Projects

| Organization | Project | Who Operates Switch |
|---|--|----------------------------|
| Banks | | |
| Chase Manhattan Bank | Home Banking | proprietary |
| Chemical Bank | Pronto | proprietary |
| Citibank | Homebase | proprietary |
| First Interstate Bank of California | Day & Night Video Banking | Tymshare |
| Horizon Bancorp | Horizon Home Banking and Information System | CompuServe |
| Huntington Bank | Banc Share | CompuServe |
| Madison National Bank | Hometeller | proprietary |
| National Bank of Detroit | Video Information Provider | proprietary |
| Shawmut Bank of Boston | Home Banking | CompuServe |
| Toledo Trust | Vistabanc | proprietary |
| Retailers | | |
| J. C. Penney | First Hand | Tymnet |
| Sears ¹ | Trintex | N.A. |
| Communications Companies | | |
| CBS | Venture One | The Treasurer, Inc. |
| Continental Telecommunications | Contelvision | proprietary |
| Cox Communications | Indax | Chase Manhattan |
| Times Mirror Videotex | Times Mirror Videotex | VideoFinancial Services |
| Viewdata Corporation (subsidiary of Knight-Rider Newspapers) | Viewtron | VideoFinancial Services |
| Other Organizations | | |
| ADP | Home Banking Interchange | proprietary |
| Keycom Electronic Publishing | Masterkey | VideoFinancial Services |
| Financial Interstate Services | Bank-at-Home | CompuServe |
| Macrotel | Macrotel | Metroteller |
| Shuttle Corporation | Shuttle | proprietary |

¹Newly formed joint venture with CBS and IBM.

SOURCE: Federal Reserve Bank of Atlanta, April 1984.

communications companies, and system operators. The banks and retailers are some of the largest firms in their respective industries. For example, the list includes Chase Manhattan Bank, Citibank, and Chemical Bank, and, on the retail side, J. C. Penney and Sears, which is a joint venture with CBS and IBM. These firms are testing the market,

assessing the feasibility of offering home information products. The companies are major factors in their respective industries and they are at least interested enough to test the water. The early results are mixed, and their import is not clear to an outsider.

One thing, however, is quite obvious: home banking cannot stand alone. Offered in conjunction with a number of other home information services, it may in fact be viable. Table 9 shows the other types of home information services currently offered along with home banking.

Table 9. Services Frequently Offered

- I. Banking
 - Balance Inquiry
 - Bill Payment
 - Funds Transfer
 - Statements
 - Rate Information
 - Stop Payments
 - Messages for Bank Services
 - Loan Applications
 - Purchase Travelers Checks

- II. Other
 - Shopping
 - News
 - Advertising & Classified Ads
 - Weather
 - Electronic Mail
 - Sports
 - Games
 - Ticketing

SOURCE: Federal Reserve Bank of Atlanta, April 1984.

The larger banks are proceeding with their tests, as are the communications firms and system operators. The retailers, on the other hand, are showing mixed interest. J. C. Penney's experiment is no longer active, but Sears is just establishing a joint venture. The communications companies remain involved. Electronically supplying information, including banking information, to the home is a new business and evidently of major interest to some of the largest companies in the country.

Conclusion

This brief review of who the players were in April 1984 and what they were providing in the area of retail ATM, POS, and home banking systems indicates that retailers, system operators, communications companies, vendors, and data processors all are interested in providing some financial services that have traditionally been the province of banks. The roster of players is rapidly changing. The relevant question then seems to be: "Are banks in danger of losing at least a part of their traditional role in the payments area?" The race is on!