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# FRBSF WEEKLY LETTER

February 23, 1990

## Shared ATM Networks: An Uneasy Alliance?

The United States has approximately 82,000 automated teller machines (ATMs) which process over 400 million banking transactions per month. About 85 percent of these transactions occur on ATMs that are part of a "shared ATM network." Banks and other depository institutions form these networks to share ATMs with one another and with institutions that do not own ATMs.

Shared ATM networks benefit banks and ATM users alike. Sharing lowers the unit costs of operating an ATM network by increasing the number of transactions conducted at each ATM within the network. Sharing also expands the geographic area within which customers can obtain transaction services. In addition, it enables small banks to provide some "big bank" services.

To achieve these benefits, shared networks require some degree of cooperation among participating financial institutions. Such cooperative agreements can be complex and unstable. This *Letter* discusses the characteristics of these cooperative agreements and their implications for the welfare of consumers in connection with a recent complaint that has been brought against a shared ATM network.

### **The costs of shared networks**

The fixed costs associated with owning and operating a large network of ATMs are considerable. By spreading these fixed costs over a large volume of transactions, a bank can lower the unit cost of operating a network. However, only very large banks generate sufficient transaction volume to profit from a proprietary network of geographically dispersed ATMs. In most cases, moreover, even large banks find off-premise ATMs (those that are not located at a bank branch) unprofitable, since these off-premise machines do not generate sufficient transaction volume to justify the added expenses.

Shared networks, in contrast, enable banks to spread the fixed costs of an ATM network over a larger volume of transactions, thereby lowering the unit cost of transactions. Likewise, shared networks can make off-premise ATMs profitable. As a result, even many of the nation's largest banks have joined shared systems in recent years. Under sharing arrangements, then, each bank continues to own and operate its ATMs, but agrees to allow other banks' customers to use its machines.

Just as ATMs themselves are subject to falling unit costs, so is the sharing technology. The main element in the sharing technology is the "switch," which facilitates the transfer of transactions between shared network members. Transactions carried out by one bank's customer on another bank's ATM, referred to as "foreign transactions," are routed from the ATM, through the switch, and on to the data processor of the customer's bank. The switch has a large fixed cost, so switch costs per transaction fall as the number of foreign transactions increases, up to a large number of foreign transactions.

The existence of falling unit costs in the switch means that every member of a shared network benefits from an increase in foreign transactions originated at any member's ATM, and suffers from a decrease in foreign transactions. The shared network's costs per switched transaction, which have to be met by member "switch" fees, thus should vary inversely with the number of foreign transactions.

### **Cooperation in shared networks**

To achieve the benefits of sharing, all shared networks require cooperation among banks that are otherwise competitors. For instance, member banks must agree on certain technological specifications for their ATMs to permit the transmission and processing of foreign transactions. In addition, members may be required to meet

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certain security standards or advertising practices to protect the public image of the network as a whole.

In most shared networks, cooperation is formalized through the organization of the network as a joint venture. In these networks, equity ownership and control of the decision-making processes regarding membership access, organizational structure, and specific details of network operation are shared between some or all of the members.

Cooperation in shared networks often extends to agreements on certain types of fees and prices. In addition to setting the switch fee and other network fees, shared networks set the "interchange" fee which members pay to *each other* (as opposed to the network owners) to cover the costs of foreign transactions. The interchange fee is paid by the customer's bank to the ATM-owning bank and is the same for all members. In turn, the bank that is charged the interchange fee often will pass this fee on to the customer who initiated the foreign transaction.

Shared networks set fixed interchange fees to avoid each individual member negotiating with each individual ATM-owner. The large number of bilateral negotiations necessary in such a situation likely would be prohibitively expensive to define and implement. Moreover, if some pairs of members could not reach agreement, the shared network could no longer offer universal access to all customers of all members.

## **A fatal flaw?**

Cooperative agreements between competing firms presumably increase the profits of the firms that are a party to the agreement. However, such arrangements often generate conflicting interests which threaten the existence of the agreement since they create an opportunity for individual members of the group to increase profits even more by violating the agreement that all other members are honoring. Ultimately, of course, the agreement will disintegrate if each member separately ignores it, thinking that all other members will hold to it. If this happens, all the members will be worse off than if they all had honored the agreement.

Shared networks have not been able to completely avoid the internal conflicts that are

inherent in cooperative agreements. In 1987, a member of a regional network raised objections to the joint fixing of interchange fees in shared networks. More recently, a member of a large national shared network has challenged the network's prohibition of "surcharges," fees that ATM owners charge directly to customers of other banks for foreign transactions. These fees are in addition to any interchange fees the non-ATM owning bank may pass on to its customer.

The shared network is being sued by the network member on the grounds that it fixes prices in violation of antitrust laws. The bank claims that the interchange fee is not sufficient to compensate it for the full value of the foreign transactions carried out at its own heavily-trafficked off-premise ATMs. Despite the objections of the network, this bank has started to charge customers of other network members a \$1.00 surcharge every time they use one of the bank's ATMs in airports, casinos or hotels.

This type of infringement is typical of breaches of cooperative agreements. The recalcitrant member benefits only if the other members of the group continue to honor the agreement. A lone bank that imposes a surcharge will benefit when the surcharge raises revenues more than it raises costs. Although the number of transactions routed through the switch would fall, it would not fall by an amount sufficient to significantly raise per transaction member fees. However, if all members were to impose a surcharge, the decrease in foreign transactions could be substantial, and per transaction member fees then would rise significantly. This is why virtually all shared networks prohibit surcharges.

## **Bad news for ATM users?**

Thus, the widespread imposition of surcharges could have an adverse impact on consumers. The introduction of surcharges would raise the price of foreign transactions both directly, through the surcharge, and indirectly, through the rise in the per unit network cost of foreign transactions.

If the costs of sharing rise too much, the shared network could break up, increasing the costs of *all* ATM transactions, not just foreign transactions. Moreover, surcharges could lead to the break-up of shared ATM networks because banks might be reluctant to remain in sharing arrangements in which they have no control over the

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price that their customers pay to use other banks' ATMs. It is possible that banks could regain control by negotiating with ATM owners and setting up contracts on a case-by-case basis, but this may be prohibitively expensive.

On the other hand, permitting ATM-owning banks to levy surcharges may have some beneficial effects, as well. It is possible, as advocates of surcharges argue, that the number of ATMs installed would increase. Under current shared network practices, the interchange fee is the only compensation that an ATM owner receives for the costs of a foreign transaction. Thus, the supply of ATMs is restricted by the fixed interchange fee. If ATM owners in shared networks were permitted to impose a surcharge and thus were able to capture the full value of ATMs installed at popular locations, it is likely that more ATMs would be installed at such locations.

#### **Surcharges unlikely**

Even if the courts rule that shared ATM networks must allow surcharges, there is reason to believe that surcharges will not become widespread or be very large. An increase in the price of foreign ATM transactions due to a surcharge would decrease the number of these transactions. If demand for foreign transactions were quite sensitive to changes in price, revenues to the ATM owner imposing the surcharge could fall. Moreover, a substantial decrease in demand at one bank's ATMs might not affect network costs very

much, but would increase that bank's own per unit costs that are not shared with other network members. Therefore, demand that is quite sensitive to price changes would help to minimize surcharges.

Only in cases where demand is relatively insensitive to price changes would ATM owners possibly benefit from surcharges. For example, the number of transactions conducted at an ATM in a casino is not likely to be too sensitive to an increase in the price if the location cannot support an additional, competing ATM. Only banks with ATMs at such exclusive locations would be able to profit from surcharges. The number of such exclusive locations likely is small, given the ubiquity of off-premise ATMs owned by different banks. This suggests that most banks do not have an incentive to impose surcharges, which means, in turn, that ATM networks are inherently stable.

Prohibitions on surcharges probably were needed when shared networks were getting established and there were fewer off-premise ATMs, and hence more market power associated with each one. Now that off-premise ATMs are more commonplace, competition likely could take the place of outright prohibitions in holding down surcharges.

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