Antitrust Issues in Payment Systems: Bottlenecks, Access, and Essential Facilities

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In 1912, the Supreme Court of the United States recognized a unique type of monopoly—the bottleneck monopoly—that required a unique remedy under the antitrust laws. In *United States v. Terminal Railroad Association of St. Louis*, the Court compelled the owners of a jointly owned railroad terminal, one that could not practically be duplicated, to grant their primary competitors equal access to the terminal and its facilities on reasonable and nondiscriminatory terms. Because networks that carry electronic payments can create similar bottlenecks, the basic antitrust concept of requiring access to bottleneck monopoly facilities is important to the electronic payment industry.

Government action to compel access is beneficial for consumers when the bottleneck facility is unique and developing alternative facilities isn't possible. It can also be beneficial for consumers of network products such as telephone or payment systems if compelling access ensures compatibility among different providers of competing services. On the other hand, if competing facilities can be developed, and compatibility isn't an issue, compelling access can be detrimental.

Determining who should have access to a production facility is an issue that credit card associations, automated clearing house (ACH) associations, and automated teller machine (ATM) networks must address. Not only is the

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existence of bottleneck monopolies an issue in these payment systems, but compatibility is also.

NATURAL MONOPOLIES, NETWORK JOINT VENTURES, AND ESSENTIAL FACILITIES

Bottleneck monopoly—exclusive control of a vital input to production—is clearly a deviation from a perfectly competitive market. In a perfectly competitive market, many producers have access to the same production technology. Consumers, being able to shop at many producers, work to drive prices down to the marginal cost of production and to eliminate any excessive profits in the long run. In a monopoly market, one firm controls all the output of the market (or, practically speaking, it controls a very large share of the market's output). Because few alternatives are available to consumers, the firm can (if unregulated) charge prices that exceed marginal cost and allow it to earn above-normal profits in the long run. As a result, the resources of society are misallocated in favor of the monopolist.

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Often, the owner of the bottleneck facility competes in the final stage of production along with many other firms. But if the owner of the facility doesn't allow its competitors to use the facility (or charges high prices to some firms, thereby raising their production costs), this will limit competition in the market for the final good, and again cause a misallocation of society's resources in favor of the monopolist.[1]

Natural Monopolies. Bottleneck monopolies are examples of "natural monopolies," situations in which cost or demand conditions allow a single firm to supply the product at a lower cost than two or more firms could. For example, wiring a telephone network and switching facility at the local level constitutes a natural monopoly. The technology involved displays large economies of scale: the average cost of connecting callers falls as more calls are made, and duplicating the set of telephone lines in an area and the local switching center would be prohibitively expensive.

Because electronic payment systems employ large switching facilities to exchange the payments originated by different customers, and because the computer switches show large economies of scale, it's likely that there will be few providers of payment systems, at least at the local level. The presence of these economies of large networks does not presuppose that these are natural monopolies nationally, but the tendency toward having only a few networks in the market (although there may be many banks providing services in each network, as in an ATM network) suggests that payment systems may be natural monopolies in the intermediate market whose final good is banking services.

[1]An example of this practice is detailed in the *U.S. v. AT&T.* AT&T allegedly engaged in this practice before divestiture of the firm into separate long-distance and local-access firms. The intermediate good in that case was local access, an input into the final stage good—long-distance calling. Because AT&T refused MCI Communications Corp. and other potential providers of long-distance service access to its local-area networks, the government alleged that AT&T was denying access to an essential facility and access to the local-area networks should therefore be compelled. See *United States v. American Tel. & Tel. Co.*, 552 F. Supp. 131, 231-32 (D.D.C. 18-982), aff'd. For a discussion of this case and similar issues, see John M. Stevens, "Antitrust Law and Open Access to the NREN," *Villanova Law Review*, Vol. 38 (1993), pp. 571-623.

The doctrine of compelling access to bottleneck monopoly facilities is meant to prevent a misallocation of resources by ensuring access to facilities that are natural monopolies. In this way, many different producers can share the natural monopoly's facility, and so competition in the final product market is enhanced.

Essential Facilities. The concept of bottleneck monopoly first outlined in the St. Louis railroad case has been modified over time. The doctrine has been interpreted to mean that a firm that controls an *essential facility* must grant access when feasible, on reasonable and nondiscriminatory grounds, to all in the trade. What makes a facility essential? The courts have developed two basic tests to judge whether a facility is *essential:* the firm that controls access to the facility must have market power in some relevant but possibly narrowly defined market, and exclusion from the facility must put a firm at a significant competitive disadvantage in that market.

These tests are clearly met in the case of a natural monopoly where there are large economies of scale in production, so that a single firm would supply the good most efficiently. When there's a natural monopoly, other firms can't enter the market cost-effectively. For a firm that does not have access to the facilities of the monopolist, the competitive disadvantage is great because that firm cannot reproduce the production facilities of the monopolist economically.

Joint Ventures. In many of the cases that concern essential facilities, including the St. Louis Railroad Terminal case, the owner of the facility in question is a joint venture. A joint venture is an association of two or more firms that create, as owners, a business enterprise.[2] ATM networks, credit card networks, and ACH associations are often organized as joint ventures of banking firms.

A joint venture's legality under the antitrust laws depends on the specific facts connected with it. It is not legal for a joint venture to set industry prices, but a joint venture can be legally organized to build and operate a facility used by all the owner-members, such as a large electronic transaction switching and authorization center. Because of the antitrust laws' concern with the possibility that a joint venture might illegally monopolize, joint ventures are at a regulatory and legal disadvantage to proprietary ventures. Precisely because joint ventures are often created to build and operate large facilities that no individual member could successfully develop alone, the facilities of a joint venture are more often scrutinized to determine if they are "essential."

COMPULSORY ACCESS: "SYSTEMS COMPETITION" AND COMPATIBILITY

In payment systems, as with local telephone service, consumers demand "universal service."[3] An ATM network with more banks and machines will offer greater convenience to a potential bank member's depositors than a network with fewer banks and machines. A credit card network with more banks and merchants that accept the card will be more useful to a potential customer than one with fewer banks and merchants.

With payment or telephone networks, the competition among alternative producers is

[2]For a full discussion of joint ventures in banking, see Paul Calem, "Joint Ventures: Meeting the Competition in Banking," Federal Reserve Bank of Philadelphia *Business Review*, May/June 1988, pp. 13-21.

[3]The demand for a telephone network in which the greater the number of people connected to the network, the higher the value a caller places on it displays what is called a demand-side network externality. Network externalities are present in the payment systems we consider in this article. For a discussion of network externalities in ATM networks, see James McAndrews, "The Evolution of Shared ATM Networks," Federal Reserve Bank of Philadelphia *Business Review*, May/June 1991, pp. 3-16.

affected by whether the standards of the products sold are compatible. If they are, a consumer can freely substitute one product for another; if not, the consumer cannot do so. For example, if two telephone companies offer incompatible services, a consumer must have two telephones to call people on the two systems; if they are compatible, one telephone can reach both sets of subscribers. A firm can lessen the substitutability of its products by making them incompatible with other products, thereby creating a small monopoly for itself. Behavior of this sort, in which the systems created by the different producers are incompatible, can fail to provide the universal service demanded by consumers and can curtail price competition among the producers. Compelling access to one system can have the salutary side-effect of promoting compatibility.

The danger of the compulsory access doctrine is that if applied too broadly, it reduces the incentive other firms might have for creating an alternative system that could compete with the existing joint venture. The crucial question is whether the facility is a natural monopoly. If it is not, compelled access could raise costs to society by making the joint venture "overinclusive" or could result in an overused production facility.[4]

Taken to the extreme, if any entrant could gain access to any incumbent firm's production facility (even if it isn't a natural monopoly) by claiming that being denied access to an (allegedly) essential facility put it at a competitive disadvantage, the entrant could "free ride" on the product-development risks and costs of the incumbent firm.[5] If, on the other hand, an entrant had to "invent around" the incumbent's processes to successfully retain customers, the entrant would have an enhanced incentive to do so, thereby quickening the competitive pulse of the market in "systems," that is, in the market for railroad terminals, telephone networks, or payment systems themselves.

To protect the incentives for competition among systems while avoiding the exclusionary practices of a bottleneck, the courts have typically adopted a *rule of reason* criterion for judging the exclusionary effects of a firm's rules, as opposed to declaring all exclusion illegal *per se*. Under a rule of reason, all facts can be considered, and exclusionary rules can be upheld if found to be pro-competitive.

CASES AND DECISIONS INVOLVING PAYMENT SYSTEMS

Several court cases involving payment systems have sought to apply the doctrine of compelled access. Some show the clear benefits of such a policy, but others show the drawbacks of using the policy when no natural monopoly is present.

ACH Associations and Thrift Access. Prior to passage of the Monetary Control Act in 1980, the Federal Reserve provided its payment services at subsidized prices. The Fed-

[4]See David A. Balto, "Access Claims Faced by Credit Card Joint Ventures," *The Business Lawyer*, Vol. 49, May 1994, for a discussion of the problems arising from excessive application of the essential facilities doctrine.

[5]This concern raises the important question of pricing for facilities once access has been granted. The general antitrust doctrine requires access on a nondiscriminatory basis, that is, prices charged must be equal across the group that has access to the facility. This concept can be difficult to implement if some members of the group operate in both the intermediate-goods stage and the final-goods stage (that is, if they are vertically integrated) and others operate only in the final-goods stage. Furthermore, the doctrine does not determine the level of prices for the facility. For discussions of these issues, see William J. Baumol and J. Gregory Sidak, "The Pricing of Inputs Sold to Competitors," *Yale Journal on Regulation*, Vol. 11:149, 1994, pp. 171-202, and Nicholas Economides and Lawrence J. White, "Access and Interconnection Pricing: How Efficient Is the 'Efficient Component Pricing Rule'?" March 1995, New York University, Leonard N. Stern School of Business, Working Paper EC-95-04.

eral Reserve supported the development of the ACH system (the low-dollar-value electronic payment system by which many people have their wages directly deposited to their bank accounts) by operating ACH processing facilities at a subsidy for many of the private-sector regional ACH associations across the country.[6] The private-sector regional ACH associations determined which firms could be members of the association and, therefore, who could gain direct access to the Fed's subsidized facilities. In 1977, the U.S. Department of Justice brought bottleneck monopoly suits against two automated clearing house associations, asking the courts to admit thrift institutions to the two associations.[7] The government alleged that because of the "substantial subsidy provided...by the...Federal Reserve...it is commercially unfeasible to establish an alternative ACH to provide service to thrift institutions."[8]

Several court cases have applied the doctrine of compelled access to payment systems.

The two tests necessary to compel access were clearly satisfied in these cases. The regional ACH associations had market power because they controlled direct access to the Fed's subsidized facilities. Also, the excluded thrifts suffered a competitive disadvantage because the associations controlled facilities that could not be easily duplicated without the cost subsidy provided in those years by the Federal Reserve System. Further, the New York ACH association did admit thrifts, weakening any arguments that suggested that admitting thrifts would give them a "free ride" on the development of the system by the associations. The Department of Justice dropped the cases when the two associations dropped their rules excluding thrifts.

The Federal Reserve eliminated subsidization of services after the passage of the Monetary Control Act in 1980. For that reason, the scope of the cases is limited, but they do suggest that a publicly produced and subsidized payment system can be considered an essential facility and should be offered on a nondiscriminatory basis to depository institutions.

The Federal Reserve System's policy for the payment services it provides was stated in the white paper, "The Federal Reserve in the Payment System," published in the *Federal Reserve Bulletin* in May 1990, pp. 293-98. The paper stated that "[i]n summary, the role of the Federal Reserve in providing payment services is to promote the integrity and efficiency of the payments mechanism and to ensure the provision of payment services to all depository institutions on an equitable basis, and to do so in an atmosphere of competitive fairness."

Credit Cards and Duality. In 1973, an Arkansas bank sued Visa over its exclusivity rule regarding credit cards, which provide both payment and credit services to customers.[9] That rule stated that no bank could issue

[6]See James McAndrews, "The Automated Clearinghouse System: Moving Toward Electronic Payment," Federal Reserve Bank of Philadelphia *Business Review*, July/August 1994, pp. 15-23, for a more complete discussion and references to the history of the ACH.

[7]*United States v. Rocky Mountain Automated Clearing House Ass'n*, C.A. No. 77-391 (D. Colo., dismissed Nov. 17, 1977), and *United States v. California Automated Clearing House Association*, C.A. No. 77-1463-LTZ (D. Cal., dismissed October 28, 1977).

[8]*United States v. Rocky Mountain Automated Clearing House Association*, C. A. No. 77-391 (D. Colo., dismissed Nov. 17, 1977) p. 12, cited in Donald I. Baker and Roland E. Brandel, *The Law of Electronic Fund Transfer Systems*, second edition, Warren, Gorham & Lamont, 1988, pp. 22-38.

Visa cards (and thereby gain access to Visa's facilities) so long as it issued MasterCard cards or provided processing to merchants for MasterCard accounts. This type of exclusion discriminates against banks using a competitor's cards and, hence, would run afoul of the nondiscriminatory access provisions of the essential facilities doctrine, provided that Visa's facility was ruled an essential facility.

The Arkansas bank issued Visa cards but wanted to engage in merchant processing for MasterCard. Although Visa was not a national monopoly, the Arkansas bank argued that the associations exerted market power locally because few banks provided merchant processing. Merchants (and sometimes cardholders) had to do business with two banks to process their transactions in the two systems. If, as was the case at that time in northern Arkansas, there were two banks engaged in the merchant processing business, the effect of Visa's rule was to reduce competition in merchant processing from a competitive two-bank market into a market of dual monopolies—a Visa processor and a MasterCard processor.[10] Furthermore, given the large number of existing users of both types of credit cards, by joining MasterCard and ending its association with Visa, the Arkansas bank could in no way duplicate (or replace) the services that Visa's cardholders and merchants received. The bank was at a significant competitive disadvantage in that it could not compete for MasterCard business (if a bank did not issue cards of either organization, it could process merchant receipts for both).

In the midst of the private litigation, and following a review by the Justice Department, Visa changed its exclusivity rule to one that allowed banks to join both credit card systems (as did MasterCard). The Justice Department's review of Visa's exclusivity rule suggested the exclusionary rule "might well handicap efforts to create new bank credit card systems and may also diminish competition among the banks in various markets."[11]

What resulted is known as "duality": most banks that issue credit cards now belong to both systems and issue both types of credit cards. In this way, the two systems have been made compatible. One clear efficiency is that merchants need not have two banks conduct their processing of credit card receipts. This should increase the number of competitors in the market for merchant processing and lower prices to merchants for that line of business.[12]

Credit cards remain a product in which access issues are important. In an important 1994 decision, the Court of Appeals of the

[9]At the time of this suit, the names Visa and MasterCard had not yet been adopted by National BankAmericard, Inc., and Interbank Card Association, respectively. For ease of exposition, I'll refer to the more recently adopted names of the organizations.

[10]For an excellent review of the competitive situation in Arkansas at the time of the case, see M. Troy Woods, "The Evolution and Early Competitive Considerations of Bank Card Duality," (Master's Thesis, Graduate School of Consumer Banking, University of Virginia, 1979), pp. 41-58.

[11]See Business Review Letter to National BankAmericard, Inc. (October 7, 1975), Antitrust Division of the U.S. Department of Justice.

[12]David A. Balto, in "Antitrust and Credit Card Joint Ventures," 47 *Consumer Finance Law Quarterly Report* (1993), pp. 266-72, and others allege that competition in merchant processing between Visa and MasterCard was weakened because of duality. Banks tend to charge the merchants the same fee for handling a transaction, even though the bank faces different costs from the two systems, and so aren't pricing at marginal cost. But this doesn't mean competition was greater before duality. In fact, the fee merchants pay to banks for clearing card payments has fallen since duality, and there was a surge of issuing cards and extending aggregate lines of credit immediately following the decision on duality. These facts are documented in Woods (1979); John H. Shenefield, Acting Assistant Attorney General, "Competition Through Change: A Positive Force in the Banking Industry," remarks before the National Bank Card Convention, September 12, 1977; Dennis W. Carlton and Alan S. Frankel, "The Antitrust Economics of Credit

Tenth District rejected a request by a depository subsidiary of Dean Witter to gain admittance to the Visa credit card network. Dean Witter is the firm that owns the Discover Card, a proprietary credit card system that competes with Visa. (See *Visa and the Discover Card.*)

ATM Networks and Cobranding. In 1983, the PULSE ATM joint venture network in Texas asked the Antitrust Division of the Department of Justice for guidance in a request for membership by First Texas Savings Association. First Texas was a member of the only significant rival ATM system in Texas, MPACT (which was not a joint venture). In a fashion similar to Visa's exclusion of banks that participated in MasterCard (prior to duality), PULSE excluded from membership banks that participated in MPACT. First Texas asked to be admitted to PULSE, basically arguing that PULSE, because of its widespread acceptance, was an essential facility that no rival could duplicate, and that exclusion from PULSE put a firm at a competitive disadvantage in the Texas market. The Department of Justice stated that it believed that the added convenience to consumers from admission of First Texas would outweigh any loss of competition between the two systems.[13] This indicates that under Department of Justice reasoning, ATM networks could be considered essential facilities, at least at the local level. As a result, PULSE dropped its exclusivity rule, and nearly all the members of MPACT joined PULSE, resulting in a monopoly ATM system in Texas, with MPACT retaining its identity as a subsystem. In other words, PULSE allowed its members to "cobrand" their cards and machines with other rivals' brand names and to be members of rival networks; this is a limited form of compatibility.

Whether this result is desirable depends partly on whether price competition between ATM networks was enhanced. And there is reason to think it was.

First, cobranding can decrease consumers' costs of changing networks, thereby increasing the networks' incentive to price competitively. Without cobranding, the cost to a consumer of changing ATM network affiliation may not exceed the benefit because ATM network access is a relatively small consideration for a consumer of a bundle of banking services, which may consist of both savings and demand deposits, certificates of deposit, and auto and home loans. If one is unhappy with the ATM network to which one has access, but happy with all the other services of one's bank, there is a large cost to getting access to the rival network since the customer would have to incur the cost of changing banks or, at the very least, establishing an account at a different bank (and, therefore, holding accounts at two banks). This cost may exceed the inconvenience of the ATM network that one's bank offers, and so the consumer may not switch to the better ATM network.[14] Thus price competition may be curtailed. With cobranding,

Card Networks," *Antitrust Law Journal*, Vol. 63, 1995, pp. 643-68; and David S. Evans and Richard L. Schmalensee, *The Economics of the Payment Card Industry*, National Economic Research Associates, Inc. (1993). This evidence can be criticized since it is not known whether costs fell at the same time; no data on the banks' markups over costs have been gathered to determine whether markups rose or fell after duality.

[13]See letter from William F. Baxter, Assistant Attorney General, Antitrust Division, to Donald I. Baker, Jones, Day, Reavis & Pogue (Aug. 3, 1983) (on file with the Legal Procedure Unit of the Antitrust Division of the Justice Department).

[14]See Paul Klemperer, "The Competitiveness of Markets with Consumer Switching Costs," *Rand Journal of Economics* 18 (1987), pp. 138-50; and Paul S. Calem and Loretta J. Mester, "Search, Switching Costs, and the Stickiness of Credit Card Interest Rates," Working Paper 92-24R, Federal Reserve Bank of Philadelphia, January 1993, for analyses of the effects on competition of consumer-borne costs of changing suppliers.

Visa and the Discover Card

In the mid-1980s, Sears, Roebuck and Co. launched the Discover Card through its subsidiary, Dean Witter, and purchased a depository institution, Greenwood Trust, to issue the cards. Discover Card became profitable, and Sears decided it wanted to issue Visa cards as well as seek membership in Visa for Greenwood Trust. Visa responded by requesting Sears to change its Discover Card into a Visa card, but Sears did not respond. Visa then adopted a new rule that prohibited membership in Visa to any institution that issued or was affiliated with an institution that issued the Discover Card or American Express cards or any other cards "deemed competitive" by the Visa Board of Directors.

Sears then tried to enter Visa by buying Mountain West Financial, a thrift that already issued Visa cards. Visa refused to allow Mountain West to issue more Visa cards, and Mountain West then sued Visa.[a]

The case was tried in Federal Court, and the jury entered a verdict for Dean Witter in 1993. In 1994, however, the U.S. Court of Appeals for the Tenth Circuit reversed the decision and held that Visa could exclude Dean Witter and any affiliate associated with the Discover Card on the grounds that Visa could not exercise market power in the pricing of lines of credit because the "issuer market" consists of thousands of independent issuers of credit cards. In June 1995 the Supreme Court declined a request by Dean Witter to review the decision of the Appeals Court.

In its analysis, the Court of Appeals identified two markets in which competition occurs. The "general purpose charge card market" in the United States has five firms: Visa USA, MasterCard, American Express, Citibank (Diners Club and Carte Blanche), and Dean Witter (Discover Card); the competition among these firms to get consumers to use their cards is "intersystem." The Court reported that the parties agreed that, in the relevant market, competition occurs only at the "issuer level": "*members* issue cards, competing with each other to offer better terms or more attractive features for their individual credit card programs."[b]

Dean Witter argued that it wished to enter Visa to "compete more effectively" in the issuer market. This reflects the large network that Visa has spent decades to develop; with a larger network of merchants that accept Visa cards, Dean Witter is at a disadvantage by being restricted to issuing the Discover Card. Visa felt that allowing Dean Witter access to Visa would grant it a free ride on the development efforts of all its members over the years. Although competition would be enhanced at the issuer level, over 6000 independent firms issue credit cards, suggesting that competition was already brisk in that market, so the addition of even a large, aggressive firm would not enhance competition measurably. Furthermore, Visa argued, intersystem competition would be weakened if Dean Witter were to be admitted.

In a 1995 paper, two economists who served as consultants to Dean Witter in the suit, Dennis W. Carlton and Alan S. Frankel, make a point in favor of admitting Dean Witter.[c] First, they note that Dean Witter was still going to maintain its Discover Card program, so that competition in the systems market would not be harmed by allowing Dean Witter to issue Visa cards. Second, they point out that if any firm that creates a substitute for Visa must pay the price of not being admitted to Visa, systems competition is harmed because the extra cost incurred by the innovator increases the barriers to entry into the market.

The Court of Appeals ultimately decided that it should not risk lessening existing systems competition in the hopes that issuer competition would be strengthened and so ruled in favor of Visa's being able to exclude Dean Witter from issuing Visa cards.

[a]Sears has since sold Dean Witter, which owns the Discover Card; we will now refer to Dean Witter as the firm that sought access to Visa.

[b]819 F. Supp. 956 (D. Utah 1993), aff'd in part and rev'd in part, No 93-4105, 1994 U.S. App. LEXIS 26849 (10th Cir. Sept. 23, 1994). p. 20, emphasis in original.

[c]See footnote 12 for a full citation of the paper.

costs to consumers of changing providers are reduced and so price competition may be increased.

Second, ATM networks compete by deploying ATMs in locations desired by consumers. Not all locations are equally desirable, so prime locations can be a source of competitive advantage for ATM networks. This form of nonprice competition may inhibit price competition. But by giving a bank and its customers access to all its cobranded networks' ATMs, the incentive to compete by deploying more ATMs in different locations is decreased. By decreasing the incentive for nonprice competition, cobranding can increase the incentive for active price competition between networks. This is an important consumer benefit of cobranding. Indeed, a recent action by the Department of Justice concerning ATM network access indicates that it views allowing multiple network memberships by banks as clearly pro-competitive.[15]

Mandatory Sharing Laws. In each case mentioned, the facility in question had market power: the regional ACH associations because they controlled access to the ACH, the Visa credit card system because one could not duplicate the array of merchants and cardholders, and the PULSE ATM network because of the large numbers of banks and machines that were uniquely affiliated with that network. These cases stand in marked contrast to many state laws passed in the 1980s that mandated access to even infant automated teller machine systems by all depositories in the state. These laws were widely considered to be a misapplication of the access doctrine, because there was little evidence of bottleneck monopoly in the early ATM systems. Consistent with the hypothesis that compelling access to a *nonessential facility* reduces the incentives to create the facility in the first place, there is convincing evidence that those states in which such laws were passed suffered slower development of ATM network facilities than states that did not pass mandatory sharing laws.[16]

Because of the potential inefficiencies caused by compelling access to a nonessential facility, a payments network should be shown to wield substantial market power before compulsory access is considered. This standard follows directly from the bottleneck monopoly criteria applied by the U.S. Courts. Here, it is argued that a newly created joint venture or payment firm should be allowed to restrict membership and that compulsory access should be considered as a remedy only after it is clear that a bottleneck monopoly exists.

CONCLUSION

The tension inherent in the issue of compulsory access to network facilities is clear: exclusion from an existing essential facility that has power in some market and that cannot be practically duplicated is anticompetitive; mandating access to a nonessential facility, however, can give a free ride to those allowed to join and can inhibit those who may wish to create new facilities, thereby conferring monopoly power on the owner of the nonessential facility.

Many payment networks, such as credit card associations, ACH associations, and ATM networks, display substantial scale economies, which is a necessary condition for a natural monopoly. These payment systems are also

[15]In 1994 the Department of Justice and Electronic Payment Systems (EPS), the owner of the MAC ATM network, entered into a consent decree by which EPS agreed to allow banks that are members of rival networks to join MAC.

[16]See Elizabeth S. Laderman, "The Public Policy Implications of State Laws Pertaining to Automated Teller Machines," Federal Reserve Bank of San Francisco *Economic Review* (Winter 1990) pp. 43-58, for a full description of the laws and evidence that the development of network facilities was impeded in states that had passed mandatory sharing laws.

often organized as joint ventures because of the widespread membership needed to initially succeed in offering an economical service, subjecting them to closer scrutiny from antitrust authorities than proprietary ventures. As a result, firms in each of these types of payment systems have had to face challenges to their access policies.

These challenges require a careful analysis of the products and markets in which the payment networks compete to determine if a true bottleneck does exist and what, if any, damage to systems competition would result from admission of excluded firms. The court must weigh the costs and benefits of compelled access. The cost of compelled access is the possible harm to systems competition caused by allowing a potential competitor admission to the facility in question. The benefit of compelled access is the possible increase in consumer welfare resulting from greater compatibility and enhanced competition in the final product market.