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Antitrust and Payment Technologies

Dennis W. Carlton and Alan S. Frankel

Joint ventures, particularly those involving networks that contain many industry participants, present some of the most interesting and difficult antitrust issues. Modern payment and electronic funds transfer networks are technologies that have greatly benefited consumers and the economy by reducing transaction costs and allowing consumers to economize on their holdings of non-interest bearing forms of money. Payment networks, however, may also be able to engage in collective actions that allow their members to exercise market power, and these networks have been involved in several significant antitrust disputes. If members of a payment network exercise market power, the effects can be equivalent to a privately imposed sales tax on all network transactions.¹ Retail sales of goods and services in the United States total about \$2 trillion per year. A significant fraction of these sales are made by merchants who accept credit cards and other electronic forms of payment, so even a small tax on transactions because of market power can affect a large volume of sales. And because networks often exhibit significant scale economies, rival systems may not exist or may be unable to constrain the dominant system's pricing significantly. Economies of scale can make it hard for a relatively small network to compete and grow if the dominant network is significantly larger.

It can be difficult to determine whether a particular collective rule, or a particular business combination between two com-

peting networks, creates net benefits or net harms to consumers. Though antitrust intervention with respect to a network's structure or policies has the potential to generate savings for society, it also carries potential risks. Ill-founded antitrust intervention can reduce or eliminate the benefits society could otherwise enjoy from efficient network mergers and practices and can deter other networks from embarking on efficient activities. Antitrust intervention should therefore take place only when the economic effects of intervention are well understood and there is clear evidence that the benefits from intervention outweigh the harms.

It is sometimes stated that there are two levels at which competition occurs in payment networks: *intrasystem* competition occurs among members of a given network, and *intersystem* competition occurs among competing networks. Though this dichotomy is useful for some purposes, it has also led to confusion about the competitive importance of particular network rules and structures. Courts and commentators sometimes have treated the number of independent (and nonoverlapping) networks as the sole determinant of society's welfare, though we believe that the competitive economics of payment networks are far more complicated.

In this article we examine the concept of network competition and the notion that consumers of payment services can always be best protected through vigorous efforts by courts and antitrust enforcers to prevent the formation of *overinclusive* networks. It is our view that one typically cannot determine, on the basis of theoretical considerations alone, whether permitting access to payment networks by firms that already provide payment services is, on net, beneficial or harmful to consumers or to society. Instead, we believe that a careful analysis of the facts and economic evidence concerning particular networks and their policies is necessary to justify antitrust intervention.

¹ We explain later that in some cases such a network might even be able to impose this tax on transactions that do not use the network.

In section 2 we describe our analysis of Visa's exclusion of Dean Witter, owner of the Discover Card.² The Dean Witter case illustrates many of the issues that arise in antitrust controversies involving payment systems. First, we show that despite assertions by Visa, an appellate court, and some antitrust commentators, intrasystem competition can be significantly affected by a rule that denies membership to a large-scale, price-cutting firm like Dean Witter, even when there are already thousands of members in the network. This analysis refutes the notion that society's welfare depends entirely on the number of independent networks in the market. Second, we examine Visa's purported justifications for its exclusionary policy and show that the evidence does not support their justifications. Third, we explain why maximizing the number of competing networks does not necessarily lead to the greatest possible consumer benefits. We explain how network rules (and merchants' transaction costs) affect the prices consumers pay for credit card services and for the goods and services they purchase from merchants that accept credit cards. We show that Dean Witter's membership in Visa was unlikely to have any significant harmful effects on intersystem competition and its exclusion by Visa is instead likely to retard the introduction of new competing networks. We conclude that in this case Dean Witter meets our high standard for antitrust intervention.

In section 3 we explain why the arguments raised by other symposium participants regarding the alleged harmful effects of ATM network mergers fall far short of our standard for supporting antitrust intervention. Though these participants condemn virtually all network mergers because they eliminate competition between competing networks, we show that mandating their version of intersystem competition through antitrust enforcement is not a competitive panacea and in fact is likely to harm society. We analyze the effects of an ATM network merger in Chicago to illustrate our point. Finally, section 4 presents a brief conclusion.

NETWORK COMPETITION IN CREDIT CARD SYSTEMS: THE DEAN WITTER/VISA CASE

The confusion from equating society's welfare with the number of independent networks is evident in various discussions of the recent litigation between Dean Witter and Visa. The case involves an attempt by Dean Witter to overturn a Visa rule preventing Dean Witter from becoming a Visa member because Dean Witter also issues a competing credit card brand, the Discover Card.

Visa is a network joint venture comprising thousands of financial institutions that issue the Visa card, a general-purpose credit card. Visa members compete with each other and independently set annual fees, interest rates and other terms of their credit card programs. Dean Witter's Discover Card is also a general-purpose credit card, but it is issued on a proprietary basis by Dean Witter alone. Visa viewed the Discover Card, introduced in the mid-1980s, as a significant threat and undertook efforts to make it less successful.³ Despite those efforts, however, Dean Witter persisted, and the Discover Card became successful. Then in 1989, Dean Witter applied for Visa membership.

At the time Dean Witter introduced the Discover Card, Visa and MasterCard (like Visa, a bank credit card joint venture, the membership of which largely overlaps Visa's) had policies of admitting as members any financial institutions that qualified for federal deposit insurance. The Dean Witter subsidiary that issued the Discover Card met this criterion. Indeed, at the time Dean Witter introduced the Discover Card, it had an affiliate that was already a member of Visa, but it subsequently allowed that membership to lapse. Visa tried to induce Dean Witter to convert its Discover Card into a Visa card, but Dean Witter declined. Subsequently, Visa denied Dean Witter's application for admission and passed a new rule prohibiting affiliates of Dean Witter, American Express, or any firm with a card brand deemed competitive by the Visa

² The authors and Lexecon Inc. were retained as experts on behalf of Dean Witter in the litigation. See *SCFC ILC, Inc. d/b/a MountainWest Financial Corporation v. VISA USA, Inc.*, 819 Federal Supplement 956 (U.S. District Court, District of Utah 1993), *affirmed in part and reversed in part*, 936 Federal Reporter, 2nd Series 1096 (U.S. Court of Appeals for the 10th Circuit, 1994); certiorari denied, 115 Supreme Court Reporter 2600 (1995). This case has already spawned a significant literature. See, e.g., Carlton & Frankel (1995a, 1995b), Carlton & Salop (1995), Evans & Schmalensee (1995), Hovenkamp (1995), Balto (1993, 1995a, 1995b), and Baker (1993). This section draws heavily on our previous two articles.

³ For example, Visa made it difficult for some merchants to accept the Discover Card by refusing to allow them to process Discover Card transactions on the same merchant terminals as Visa transactions.

board from becoming Visa members. Visa pointedly did not deem competitive either MasterCard, despite the fact that most banks that issue the Visa card are also MasterCard issuers, or the proprietary cards Diners Club and Carte Blanche, which are issued by Citibank, Visa's largest member.

In 1990, Dean Witter acquired the assets of a Utah financial institution that was already a Visa member. When Visa learned of Dean Witter's plan to use this financial institution to issue millions of additional Visa cards, it blocked the issuance of those cards and litigation ensued. Dean Witter claimed that its exclusion from Visa caused antitrust injury because its Visa program would have benefited consumers directly by delivering low-priced credit cards to them and by causing a general increase in competition. (At the time that Dean Witter had planned to launch its *Prime Option* Visa card, it would have been the only major issuer of no-fee Visa cards or MasterCard cards; AT&T's no-fee offer had just expired, and Visa's largest members still maintained annual fees on most of their accounts.) Dean Witter also claimed that Visa's actions had the intent and effect of restricting competition in the market for credit card services by reducing the likelihood that Visa members would create their own proprietary credit card brands to compete with Visa. Visa's actions indicate that a Visa member would risk expulsion if it was successful in issuing a card outside the Visa system.

Visa raised four main defenses to Dean Witter's legal challenge. First, Visa claimed that it was *impossible* for it to exercise market power because it did not control the terms of credit card plans offered by Visa's thousands of individual members. Visa asserted therefore that the entry of one more member, Dean Witter, could not possibly benefit consumers. Hence exclusion of that firm could not possibly harm consumers. Second, Visa claimed that admitting Dean Witter into Visa actually would harm consumers by reducing intersystem competition between Discover Card and Visa. Third, Visa argued that even if Dean Witter's membership in

Visa would benefit consumers, Dean Witter would be *free-riding* on Visa. For example, Visa claimed that Dean Witter would be able to obtain confidential Visa information to use in promoting its Discover Card. Visa also argued that it was entitled to any profits it could earn by excluding Dean Witter or anyone else, even if consumers were harmed as a result, because to force it to do otherwise would be an infringement of Visa's property rights.

A district court jury found in favor of Dean Witter. In reversing this jury decision, the Tenth Circuit found, among other conclusions, that as a matter of law Visa lacked market power, even though its members collectively accounted for a large share of the market, because its *individual* members had small market shares. Therefore, it reasoned, Visa could not have exercised market power by excluding Dean Witter.⁴ We examine each of Visa's main arguments in more detail and explain why we found that the evidence supports Dean Witter.

A Single New Visa Card Issuer Like Dean Witter Can Benefit Consumers

Visa's first argument was that, because it already had thousands of issuers and did not set the terms of the card plans offered by those members, it could not keep prices higher and exercise market power by excluding any one potential member. As a logical matter, this argument is wrong. Exclusion of an unusually efficient firm can indeed adversely affect competition. Moreover, this argument was directly contradicted by evidence that Visa and its members expected that entry by a large-scale, low-price firm like Dean Witter would have depressed prices and profits significantly. Visa members had good reason to think so. In March 1990, one year before Dean Witter had planned to launch its Visa card, AT&T rocked the banking industry by launching a massive bank credit card program. Whereas the top credit card issuers generally charged a \$20 annual fee on their accounts, AT&T offered consumers a credit card *free for life* if they accepted during the program's first year and used the card at least once a year.

⁴ The U.S. Supreme Court declined to review the Tenth Circuit's decision.

Figure 1

Average Annual Fee Charged by Visa Issuers

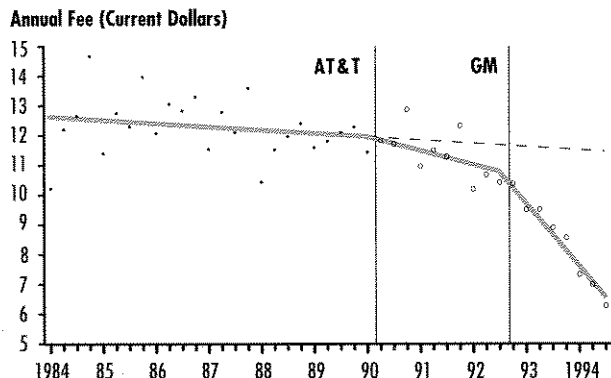
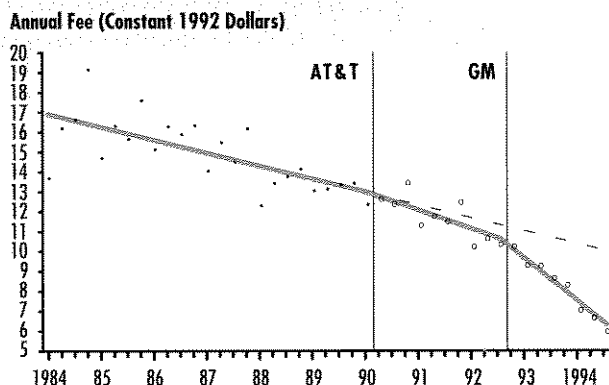


Figure 2

Average Annual Fee Charged by Visa Issuers



Industry observers say the effect of AT&T on the credit card market was profound.⁵ Hundreds of other banks began reducing or waiving their annual fees, and many industry participants and analysts credited AT&T with igniting a price war. Visa adopted rule changes to make more difficult a repeat of AT&T's program, and several banks tried to persuade various regulators that AT&T's program should be shut down because of alleged legal violations. Dean Witter tried to follow AT&T one year later, and General Motors did launch a major no-fee card of its own in late 1992. Others have since followed, and the annual fee, which became prevalent in the early 1980s when credit controls,

high interest rates and usury laws caused credit card issuers to incur significant losses, is now much less common.

In an earlier article we cited this AT&T effect as evidence that a large price-cutting entrant could generate significant benefits to consumers.⁶ Figure 1 shows the trend in average credit card annual fees from 1984 to 1994.⁷ Figure 2 shows the annual fee series in constant 1992 dollars. It is apparent from the figures that AT&T's entry caused not an immediate drop in fees, but instead an acceleration in the rate at which they were declining. It took time for AT&T to enroll its millions of cardholders. It also took time for competitors to feel the effects of AT&T's entry and to react. Some of their customers likely began defecting when their accounts came up for renewal after obtaining AT&T's card or hearing of its offer. As banks reacted with no-fee or low-fee card programs of their own, additional banks decided to drop their annual fees and some banks that initially dropped fees only for the first year decided later to make the no-fee feature permanent.

We estimate the following annual fee regression equations:

$$(1) \text{Log(RFee)} = \alpha + \beta_1 T + \beta_2 (T > \text{AT\&T Entry}) + \gamma (\text{Quarter Dummies}) + \epsilon$$

$$(2) \text{Log(RFee)} = \alpha + \beta_1 T + \beta_2 (T > \text{AT\&T Entry}) + \beta_3 (T > \text{GM Entry}) + \gamma (\text{Quarter Dummies}) + \epsilon$$

$$(3) \text{RFee} = \alpha + \beta_1 T + \beta_2 (T > \text{AT\&T Entry}) + \gamma (\text{Quarter Dummies}) + \epsilon$$

$$(4) \text{RFee} = \alpha + \beta_1 T + \beta_2 (T > \text{AT\&T Entry}) + \beta_3 (T > \text{GM Entry}) + \gamma (\text{Quarter Dummies}) + \epsilon,$$

where RFee is the average annual fee in constant 1992 dollars, T is a measure of time, and (T > AT&T Entry) and (T > GM Entry) are zero before the respec-

⁵ See Carlton and Frankel (1995a, 1995b) for discussions of trade press accounts of AT&T's entry into and effect on the market.

⁶ Carlton and Frankel (1995a).

⁷ The data are those used by Evans and Schmalensee (1985). Evans and Schmalensee terminate their annual fee series in 1992. We updated their series through late 1994.

Table 1

Summary of Effects of AT&T and GM on Average Real Annual Fee Charged by Visa Issuers

Dependent Variable:	Log of Average Visa Annual Fee (in 1992 Dollars)		Average Visa Annual Fee (In 1992 Dollars)	
	Equation 1	Equation 2	Equation 3	Equation 4
β_2 : Years after AT&T's Entry (Zero before AT&T enters, or elapsed time in years after AT&T enters)	-0.104* (0.013)	-0.031* (0.015)	-0.767* (0.154)	-0.286 (0.215)
β_3 : Years After GM's Entry (Zero Before GM enters, or elapsed time in years after GM enters)		-0.187* (0.028)		-1.219* (0.415)
R ²	0.941	0.973	0.945	0.956

* Indicates significant at 95 percent confidence level. Standard errors in parentheses.

tive entry dates of those firms and equal to the amount of time (in years) that has elapsed since their entry thereafter.⁸ The regression equations implicitly restrict average annual fees to be continuous at the date of AT&T and GM's entry.⁹ Quarterly dummy variables account for seasonal effects.

Table 1 summarizes the AT&T and GM effects we estimate for these specifications. The results are quite clear. The decline in average Visa annual fees accelerated significantly after AT&T entered. Figures 1 and 2 and Table 1 also show another important phenomenon. When GM, a second aggressive no-fee entrant, introduced its program 2½ years after AT&T, the decline in annual fees accelerated further. This result supports our contention that Dean Witter, which would have entered 1½ years before GM, would have generated significant benefits to consumers.¹⁰

We also conduct a preliminary analysis of credit card interest rates (which some commentators have suggested are unusually unresponsive to movements in other market interest rates) and find evidence that credit card interest rates were also affected by AT&T's entry. Table 2 reports the results of several regression analyses we performed

using various consumer interest rate series published by the Federal Reserve.¹¹ The coefficients on the interaction between the AT&T dummy and the other interest rate series (that is, AT&T × other interest rate) is generally positive and statistically significant, indicating that credit card rates became more responsive to movements in other market interest rates after AT&T's entry. The results also indicate that the overall level of credit card interest rates (that is, the coefficient on the AT&T dummy plus the coefficient on the AT&T × other interest rate interaction variable multiplied by the actual other interest rate) fell slightly in the period following AT&T's entry, though this effect is not statistically significant.¹²

Within three years of AT&T's industry shake-up, average annual fees had fallen by 27 percent, and after 4½ years, annual fees had fallen by 53 percent. Credit card interest rates became more responsive to changes in other interest rates. We believe that AT&T and other entrants like GM had such significant effects, despite the existence of many other issuers, because they used novel marketing programs that included zero annual fees, rebates and discounts, massive national advertising,

⁸ T is set equal to zero in 1990:1, and rises by increments of 0.25 per quarter.

⁹ In the linear specifications there is no statistically significant change in the level of fees at the time of entry. In Equation 1, (with an AT&T, but no GM effect), there appears to be a slight upward shift in fees for the first three quarters, after which the net effect is negative and statistically significant. Because it may take time for consumers to switch issuers, we do not expect an immediate once-and-for-all downward shift in fees and instead impose the constraint that the average fee is continuous with respect to time. This constraint has only a minor effect on the other coefficients.

¹⁰ Regression specifications correcting for serial correlation generally confirm the findings reported in Table 1. Evans and Schmalensee claim that annual fees were declining in inflation-adjusted terms even before AT&T entered, and a regression analysis shows no incremental effect of AT&T's entry on the level of fees. Their analysis, however, suffers from at least two serious defects. First, Evans and Schmalensee test for a once-and-for-all, immediate shift downward in fees at the time of AT&T's entry, after which they impose the constraint that fees continue to decline at the old rate. As our analysis shows, it is important to allow for a change in the rate of decline of annual fees to identify an effect. Second, they omit half of the post-AT&T data from their analysis.

¹¹ The quarterly Federal Reserve data are published in the monthly Federal Reserve bulletins and in electronic form and are reprinted in the appendix to this article.

¹² Regressions correcting for serial correlation and regressions allowing for effects operating with a lag generally confirm these findings.

Table 2

Effect of AT&T's Entry on Credit Card Interest Rates

Dependent Variable:	Credit Card Plan Rate			Log (Credit Card Rate)		
	Equation 1	Equation 2	Equation 3	Equation 4	Equation 5	Equation 6
Intercept	14.860* (0.541)	13.702* (0.892)	12.199* (1.039)	2.448* (0.073)	2.219* (0.144)	2.011* (0.160)
AT&T	-1.681* (0.674)	-2.979* (1.237)	-5.569* (1.447)	-0.162 (0.087)	-0.402* (0.195)	-0.836* (0.219)
New Car Rate	0.284* (0.045)					
AT&T x New Car Rate	0.165* (0.061)					
Used Car Rate		0.280* (0.055)				
AT&T x Used Car Rate		0.198* (0.081)				
Personal Loan Rate			0.396* (0.068)			
AT&T x Personal Loan Rate			0.367* (0.098)			
Log (New Car Rate)				0.184* (0.029)		
AT&T x Log (New Car Rate)				0.071 (0.036)		
Log (Used Car Rate)					0.246* (0.052)	
AT&T x Log (Used Car Rate)					0.149* (0.071)	
Log (Personal Loan Rate)						0.327* .059
AT&T x Log (Personal Loan Rate)						0.308* (0.081)
R ²	0.858	0.780	0.852	0.873	0.774	0.856

* Denotes coefficient is significant at the 95 percent level. Standard errors in parentheses.

Monthly Interest rates are taken from Board of Governors of the Federal Reserve, *Federal Reserve Bulletin*.

¹³ Ausubel (1995) claims that overall credit card issuer profits remained high in the period after AT&T's entry. Regardless of whether one accepts this, industry pricing certainly was dramatically changed by AT&T's entry. (Even if Ausubel's claim is true, it is possible that profits would have been higher if AT&T had not entered the credit card market.) Annual fees fell, interest rates became more responsive, and according to Ausubel, miscellaneous fees increased—facts inconsistent with Visa's position that additional Visa members, such as AT&T, GM, or Dean Witter, should have no effect on what Visa claims is already a highly competitive market. In fact, recent evidence suggests that credit card profits may be declining. See "Competition and Expenses Put the Squeeze on Profits," *Credit Card News*, April 1, 1995, p.1.

and rapid achievement of scale economies (AT&T became the second largest Visa issuer within two years).

We conclude, based on statistical analysis that confirms industry opinion, that when AT&T entered the credit card market, something important happened that benefited many consumers significantly. Analysis also shows that the next large entrant (GM) generated significant

competitive benefits.¹³ Had Dean Witter been permitted to issue no-fee Visa cards in early 1991, consumers would have been significantly better off because they would have enjoyed the benefits of lower credit card prices faster. Our conservative estimate is that consumers would have saved more than \$1 billion in annual fees had Dean Witter been allowed to issue Visa cards.

Visa's Free-Riding Justifications Are Unsupportable

Visa claimed that it was necessary to exclude Dean Witter because otherwise Dean Witter would be able to free-ride on Visa. Visa identified two types of free-riding. The first involved outright Dean Witter appropriation of confidential Visa information, with which Discover Card could gain an unfair competitive advantage. The second claim was that Dean Witter would be free-riding on the investments made by founding members of the Visa joint venture and that Visa should not, under the antitrust laws, be forced to share its property with a competitor. Neither of these free-riding allegations is correct.

Visa has thousands of card-issuing members, most of which also issue MasterCard cards. Visa's largest member, Citibank, not only issues MasterCard cards, it also issues two proprietary card brands, Diners Club and Carte Blanche. Dean Witter itself had an affiliate that was a Visa member at the time it introduced the Discover Card. There is simply no evidence that these members have ever misappropriated valuable Visa information, and there is no basis to believe that misappropriation would be a problem for Dean Witter. There are few important secrets that are disseminated to 6,000 members and remain secret, and those that are, such as information conveyed in the approval of individual transactions, are protected by contract. So inconsequential is this concern of misappropriation that Citibank not only is allowed to serve on Visa's board of directors, but also was for several years guaranteed representation—despite its ownership of competing card brands. There is no reason to believe, nor did Visa argue, that misappropriation should be a greater concern for Dean Witter than anyone else.

Visa also alleged that Dean Witter's entry would allow it to free-ride on the investments made by its founding members, an investment on which Visa members were entitled to receive a return and should not be forced to share. According to Visa, such

forced sharing of property would have eroded the incentive for Visa to form and develop. However, most of Visa's thousands of members, including six of its largest 10 issuers, joined the network many years after Visa was formed. Even today Visa maintains an open membership policy, as long as the applicant does not issue any brands deemed competitive by the Visa board. This openness presumably demonstrates the lack of any inefficiencies from allowing new members and likely reflects the efficiencies Visa realizes from expanding the size of the network. Indeed, Visa's justification for excluding Dean Witter to protect investment returns of earlier members has nothing whatsoever to do with the fact that Dean Witter happens to issue a competing card brand. Every new Visa member shares Visa's property in exactly the same way that Dean Witter would have if it had been allowed to issue Visa cards. If taken seriously, Visa's argument would allow it to expel any firm selectively on the basis that it was not a founder and competed too vigorously with lower prices or better service. Though it is important to protect property rights, the antitrust laws do not grant joint ventures the unlimited property right to profits achieved through a collective exercise of market power.¹⁴ Visa's past behavior in granting applications for membership reveals that its exclusion of Dean Witter cannot be justified on an argument that its entry will erode the property rights that were necessary to create the incentives to form and develop Visa.

Visa's Rule Threatens Intersystem Competition, But Dean Witter's Membership in Visa Does Not

One check on the exercise of collective market power by members of a joint venture is freedom of its individual members to offer proprietary products and services outside the operation of the joint venture in competition with the joint venture's product. Payment systems are no exception. Though proprietary payment systems may be unable to realize the scale economies of the large joint ventures, they may at least

¹⁴The issue of preserving the profit incentive of joint ventures to invest, though easy to deal with in the Dean Witter case, is in general a difficult problem. See Carlton and Frankel (1995a, 1995b).

provide some constraints on prices. Visa's rule, which is likely to preclude any current or prospective Visa member from issuing any new proprietary card brands, eliminates or drastically reduces the threat of future competing proprietary cards like the Discover Card. Few if any firms would risk expulsion or exclusion from Visa to issue a proprietary card that competes with Visa. Visa's rule makes it less likely that Dean Witter's Novus network, on which it processes Discover Card transactions and can process other proprietary card transactions, will become an effective competitor of Visa and MasterCard in attracting the participation of other institutions because the most likely prospective participants are already members of Visa and would therefore be reluctant to issue a proprietary card.

So how would Dean Witter's entry into Visa threaten intersystem competition? Visa and its supporters argued that Dean Witter's membership in Visa would have been harmful to consumers because, though there are thousands of Visa issuers, there are only a few networks. They alleged that Dean Witter's membership in Visa is like a merger between the two, so there would have been even fewer networks competing independently. Visa claimed that Dean Witter would compete less vigorously once it became a Visa member. But these claims do not withstand careful analysis.

Dean Witter's membership in Visa would not have been at all like a merger between the two. Dean Witter would still have exclusive control and ownership of its proprietary network and would obtain only a small share of voting rights in Visa.¹⁵

Would Dean Witter have competed less vigorously once it was a Visa member? Visa's members thought the opposite was true, which is perhaps why they didn't want Dean Witter to become a member. Visa's own studies concluded that a large entrant within Visa would be a more effective competitor and put greater pressure on the prices and profits of incumbents than an entrant that had only a proprietary card program. Visa claimed that Dean Witter would have an unfair competitive advantage over other Visa members if it

could issue both the Discover Card and Visa cards. This may have concerned Visa's incumbents, but it should not by itself have been a concern of the antitrust laws.

Some commentators have alleged that Dean Witter would have competed less vigorously for merchant accounts if it became a member of Visa and that this would have allowed Visa to raise its interchange fees. Interchange fees in the credit card networks are paid by the bank servicing the merchant to the bank servicing the cardholder in transactions involving two different banks. These fees are set by the collective action of Visa banks. Discover Card has no interchange fees because its transactions always involve a single financial institution. But Discover Card, like Visa members, negotiates discount rates with merchants. The merchant receives not the total face amount of a credit card transaction, but only the net amount after deduction of the merchant discount. Visa merchant banks must pay the interchange fee out of the proceeds from the merchant discount. Therefore Visa members have an incentive to reduce their merchant discount rates as Visa reduces the interchange fee.

Visa's supporters argued that if Dean Witter became a Visa member, it would increase its merchant discount rate on Discover Card transactions to enable Visa to raise its interchange fee, (and consequently to allow Visa members to raise their discount rates). However, there is a flaw in this analysis. It assumes that Dean Witter's introduction of the Discover Card has caused Visa to keep interchange fees significantly lower than it would have otherwise. There is no evidence to support this assumption. It is true that Discover Card was introduced with lower merchant discount rates than were typically charged by Visa members. That was because Discover Cards were carried and used by relatively few consumers and merchants were unwilling to pay much for a Discover Card transaction, since they would lose few transactions if they declined to accept it. But Discover Card's lower discount rate would cause Visa to reduce its interchange

¹⁵ Visa operates as a nonprofit joint venture in which members have voting power to elect board members according to their volume of credit card transactions.

fee only if significant numbers of merchants began to decline acceptance of Visa cards and Visa members could not reduce their merchant discount rates in response because the interchange fee was too high. This has not happened and is unlikely to happen. There are simply too many consumers using Visa cards for most merchants to be willing to accept only Discover Card (or, as explained later, induce consumers to use a Discover Card instead of a Visa card). This greatly attenuates the effect of intersystem competition on merchant fees.

There is another reason why Visa has not had to reduce its interchange fees in response to Discover Card. Most merchants do not distinguish their cash prices from their credit prices, and virtually no merchants charge different prices for different credit cards. There are several reasons to explain this behavior. First, many states ban surcharges on credit card transactions. Therefore while a discount for cash can be offered, this ban necessarily constrains all credit card transactions to occur at the same price. Second, credit card systems generally have contractual restrictions on merchants that prohibit merchants from doing anything—particularly with respect to price—at the point of sale to discourage the use of their brands in favor of others. Third, even where merchants are free to charge different prices for cash and credit, they usually do not. This implies that transaction costs permit at least some differences in transaction costs between different payment methods to persist and not be passed on to consumers at the point of sale. As a result, even when permitted, merchants generally do not offer inducements to consumers to use a particular brand of credit card even if its merchant discount rate is lower. Therefore once a credit card brand is accepted by a merchant, that brand gains no incremental sales by reducing its merchant discount rate. For all these reasons, Discover Card's merchant discount rate has little effect on the comparable rate for Visa.

In our earlier article we explained that we have neither performed nor seen

relevant studies that determine whether interchange fees are, on net, a procompetitive or anticompetitive practice compared with an at-par settlement system like that used for checks. Because merchants usually do not charge different prices for cash and credit, one effect of interchange fees is to raise the price to cash customers. (The merchant must raise the single price charged to recover the merchant discount, much of which reflects the interchange fee.) If credit card interchange fees are on balance harmful to consumers, then keeping Dean Witter out of Visa does little or nothing to solve that problem for the reasons explained previously. Moreover, if interchange fees somehow generate antitrust harm and excess profits, then antitrust policy should encourage card issuers' efforts, like those of Dean Witter, to rebate those profits to consumers, whether explicitly with cash or in-kind rebates, or implicitly with low prices for credit card services. In any event, antitrust policy should probably encourage the relaxation of restrictions on merchants' abilities to influence the choice of payment method at the point of sale.

In its argument, Visa stressed that Dean Witter doesn't *need* Visa to compete in the relevant market, so Visa should not have to admit Dean Witter. According to Visa, as long as a firm like Dean Witter can *survive* in the market on its own, it should have no recourse under the antitrust laws to demand entry into the dominant network. However, consumers can still be harmed even if a firm excluded from a dominant network can still survive. If Visa's reasoning were accepted, a dominant ATM network, for example, could expel banks that charged low fees, even if the only motive for and effect of the expulsion was an increase in market prices and profits of the remaining banks. Such expulsions would be immune from antitrust challenge under Visa's standard because the expelled banks could still compete by offering their own customers access to proprietary ATM terminals.

Our analysis of the *Dean Witter/Visa* case demonstrates why cases cannot be decided simply by comparing the number

of network *members* on the one hand with the number of *networks* on the other. The issues are far too complicated to settle on such simple grounds. We have shown through a careful analysis of the competitive effects resulting from Visa's exclusion of Dean Witter that mandating access to an intersystem competitor can sometimes be a sensible antitrust policy. We were able to reach this conclusion because Visa's efficiency justifications are meritless. In such a situation, Visa's exclusion of Dean Witter is a *naked exclusion*, one whose sole effect is to harm consumers.¹⁶

We are generally reluctant to recommend intervention in the operation or rules of a joint venture because we are concerned with the inefficiencies caused by interfering in an efficiently operating joint venture. When a rule like the Visa rule that excludes Dean Witter causes anticompetitive harm to consumers and has no offsetting efficiency benefit, however, such intervention is appropriate. If, on the other hand, there were significant legitimate efficiency considerations of roughly the same magnitude as the procompetitive benefit from Dean Witter's entry into Visa, we likely would have been unable to support Dean Witter's position.¹⁷

INTERSYSTEM COMPETITION IN ATM NETWORKS

Our standard for supporting antitrust intervention in joint ventures is that the gain to society from intervention clearly exceeds the harm, taking into account all legitimate efficiencies—with the benefit of the doubt going to the joint venture in close cases. This standard generally can be met only by a careful analysis of the facts and evidence of a particular case. Our standard stands in sharp contrast to that offered by other participants in this symposium. David Balto and Donald Baker lament the decline of intersystem competition in payment systems and condemn virtually all network mergers and network duality.¹⁸ The focus of their discussion is ATM network consolidation,

which they blame on antitrust enforcement that has, they say, for many years been far too lax. They claim that regulators followed a policy of favoring network mergers to achieve efficiencies of ubiquity and imply that that policy was misguided because those efficiencies pale in comparison with those that could have resulted from maintaining internetwork competition.

Balto and Baker would recommend unwinding many ATM network mergers because they think consumers have been greatly harmed. If that is the case, there should be by now (after many such mergers have occurred) plenty of evidence of that harm. However, they present little such evidence. They cite a few examples of ATM network mergers in which they claim that incentive discount membership programs were eliminated following a merger, but they present no evidence of aggregate consumer benefit or harm, or even of systematic increases in fees to consumers following mergers. Moreover, even if consumer prices *did* go up following mergers (and we are unaware of systematic evidence to that effect), consumers might still be better off as a result of the increased network size and geographic density. As the number of participants and terminals on the network increases, consumers can rely more on the network. The *full* cost of using ATM services, including search costs and the risk of being unable to find an operating terminal, might have fallen even if some fees increased. More relevant than price is quantity. If quantity rises as a result of a merger, that is evidence suggesting that consumers have benefited.

To illustrate how one might approach a systematic analysis of the competitive effects of ATM network mergers, we examine the results of a network merger between the only two regional shared ATM networks in Chicago, Cash Station and Money Network. Before 1987 these two networks competed with each other, but in late 1986 they agreed to merge. Following a transition that lasted more than a year, all consumers could use all ATM terminals belonging to members of the now-combined network in early 1988.

¹⁶See Rasmusen et al. (1991).

¹⁷In close cases, we likely would favor nonintervention. See Carlton and Frankel (1995a, 1995b).

¹⁸Duality means that a firm participating in one network is permitted to participate also in another competing network.

Table 3

Effects of Merger Between Cash Station and Money Network

Year	Cash Station/Money Network			Total United States	
	Number of Terminals in Network (Cumulative percentage change)	Number of Interbank Transactions in millions (Cumulative percentage change)	Network Operating Cost Per Transaction in cents (Cumulative percentage change)	Number of ATM Terminals (Cumulative percentage change)	Number of ATM Transactions in millions (Cumulative percentage change)
1987	850	34.7	22.5¢	68,000	4,108
1988	1,042 (+22.6)	44.8 (+29.1)	10.92¢ (-51.5)	72,500 (+6.6)	4,581 (+11.5)
1989	1,335 (+57.1)	60.3 (+73.8)	9.79¢ (-56.5)	75,600 (+11.2)	5,274 (+28.4)
1990	2,089 (+145.8)	72.2 (+108.1)	7.59¢ (-66.3)	80,200 (+17.9)	5,942 (+44.6)
1991	2,256 (+165.4)	83.0 (+139.2)	7.12¢ (-68.4)	83,500 (+22.8)	6,642 (+61.7)
1992	2,398 (+182.1)	79.9 (+130.3)	7.14¢ (-68.3)	87,300 (+28.4)	7,537 (+83.5)
1993	2,817 (+231.4)	80.1 (+130.8)	7.06¢ (-68.6)	94,800 (+39.4)	8,135 (+98.0)
1994	3,422 (+302.6)	84.8 (+144.4)	7.79¢ (-65.4)	109,080 (+60.4)	8,958 (+118.1)
1995	3,550 (+317.6)	89.0 (+156.5)	7.81¢ (-65.3)		

Sources: U.S. data are from Faulkner & Gray, *Bank Network News*, reprinted in the *Statistical Abstract of the United States* (1994), Table No. 801; and *Bank Network News 1995 ETF Network Data Book*. Cash Station data were provided by Cash Station, Inc. We thank James Hayes of Cash Station for his helpful cooperation and comments.

How were consumers affected by this merger? Balto and Baker would probably have condemned it outright and would have favored antitrust intervention to prevent it. After all, they would reason, the market supported two networks before, so two networks can clearly survive in this market. Why lose the benefits of competition between the networks? However, this simple argument is insufficient to justify antitrust intervention. As Table 3 shows, output by any measure soared following the merger. In 1987, when the networks had already begun to merge, there were 850 ATM terminals in the network, and the combined networks processed 34.7 million interbank transactions at an average network operating cost of \$0.225

per transaction. By 1990 the number of terminals had increased by 146 percent (compared with an increase of 18 percent for the United States as a whole), the number of transactions had increased by 108 percent (compared with 45 percent for the United States), and the network's average cost per transaction had fallen by 66 percent. This huge growth in network participation and usage occurred despite the imposition by many banks, for the first time, of foreign fees on their customers when they use ATM terminals owned by other banks. In 1991 the merged network increased its interchange fee, the fee paid by a card-issuing bank to the bank that owns the terminal used by its customers. The interchange fee influences the issuers'

decision to levy *foreign fees*, but can also affect the incentive banks have to deploy terminals. In fact, the number of terminals in the network has grown faster than in the United States as a whole, and transaction volume exceeds the level that existed before the increase of the interchange fee.

These results suggest that the Cash Station/Money Network merger was procompetitive and benefited consumers. It demonstrates the risks associated with basing antitrust enforcement on a simple tally of the number of independent networks and suggests that preventing network mergers and instead relying on internetwork competition to generate consumer benefits in payment networks may entail too great a cost in foregone efficiencies from network consolidation.

CONCLUSION

The goal of antitrust legislation is to maximize the benefits society obtains from competition. Payment system networks that are formed as joint ventures by competing financial institutions, like other types of joint ventures, present difficult antitrust issues because competing firms must cooperate to provide service. Some commentators have argued that the way to resolve these difficult issues is to use antitrust intervention to ensure that multiple payment networks remain separate and compete with one another. We have shown that this simple policy recommendation is inadequate. Instead, a thorough analysis of the competitive effects of any proposed antitrust intervention in these networks must be done before such intervention can be justified on the grounds of increasing society's welfare.

We showed how, in the *Dean Witter/Visa* case, one can perform such an analysis and support intervention when, as in that case, the evidence shows that the consumer benefit from intervention clearly exceeds the harm. We also showed, using an ATM-network merger as an example, that antitrust intervention based only on the number of networks can be misguided. The pursuit of competing and completely

nonoverlapping networks should not be the driving force of antitrust policy toward payment networks. In many cases society is likely to benefit from mergers of competing payment networks and is also likely to benefit from antitrust action that attacks restrictions imposed by a dominant network on the freedom of its members to compete as they wish. Payment systems continue to evolve, and new technologies are on the horizon. Antitrust can affect the extent to which society will benefit from these technologies. Antitrust enforcement that has a consistently positive effect on society's welfare will require serious and careful economic analysis.

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REVIEW

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Appendix

Federal Reserve Series of Average Consumer Interest Rates

Year/ Quarter	Post-AT&T Entry	Average Interest Rate			
		Credit Card Loans	48-Month New Car Loans	Used Car Loans	Personal Loans
84Q1	0	18.73%	13.32%	17.52%	16.16%
84Q2	0	18.71	13.53	17.64	16.35
84Q3	0	18.81	14.08	18.10	16.75
84Q4	0	18.82	13.91	18.34	16.63
85Q1	0	18.85	13.37	17.78	16.21
85Q2	0	18.74	13.16	17.77	16.09
85Q3	0	18.62	12.72	17.31	15.84
85Q4	0	18.57	12.39	17.22	15.61
86Q1	0	18.48	12.29	16.63	15.52
86Q2	0	18.32	11.45	16.06	14.89
86Q3	0	18.15	11.00	15.23	14.70
86Q4	0	18.09	10.58	15.12	14.19
87Q1	0	18.10	10.35	14.40	14.10
87Q2	0	17.92	10.23	14.47	14.00
87Q3	0	17.85	10.37	14.58	14.22
87Q4	0	17.82	10.86	14.97	14.58
88Q1	0	17.80	10.72	14.77	14.46
88Q2	0	17.78	10.55	14.83	14.40
88Q3	0	17.79	10.93	15.46	14.81
88Q4	0	17.77	11.22	15.80	15.06
89Q1	0	17.83	11.76	16.12	15.22
89Q2	0	18.11	12.44	16.45	15.65
89Q3	0	18.07	12.13	16.22	15.45
89Q4	0	18.07	11.94	16.10	15.42
90Q1	0	18.12	11.80	15.97	15.27
90Q2	1	18.14	11.82	16.00	15.41
90Q3	1	18.18	11.89	16.03	15.46

Appendix cont.

Year/ Quarter	Post-AT&T Entry	Average Interest Rate			
		Credit Card Loans	48-Month New Car Loans	Used Car Loans	Personal Loans
90Q4	1	18.23	11.62	16.04	15.69
91Q1	1	18.28	11.60	15.82	15.42
91Q2	1	18.22	11.28	15.74	15.16
91Q3	1	18.24	11.06	15.60	15.24
91Q4	1	18.19	10.61	14.90	14.88
92Q1	1	18.09	9.89	14.19	14.39
92Q2	1	17.97	9.52	13.89	14.28
92Q3	1	17.66	9.15	13.44	13.94
92Q4	1	17.38	8.60	13.66	13.55
93Q1	1	17.26	8.57	13.21	13.57
93Q2	1	17.15	8.17	12.55	13.63
93Q3	1	16.59	7.98	12.52	13.45
93Q4	1	16.30	7.63	12.33	13.22
94Q1	1	16.06	7.54	12.68	12.89
94Q2	1	16.15	7.76	13.78	12.96

Source: Board of Governors of the Federal Reserve System.