

# Electronic Money and the Fed's Role in Providing Payments Services\*

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## 1 Introduction

Since the early years of the Federal Reserve System, there has been recurring controversy about the role of the Fed in the payments system. Today, at a time when this controversy seems to be heating up again, the Fed has to make decisions regarding its participation in the provision of retail-payments services that new technologies are bringing into existence.

At first glance, these decisions would seem to turn on two questions that have been framed in the "White Paper" on priced services.<sup>1</sup> First, can the Fed fully recover its costs if it participates as a competitor in these markets? Second, would such participation yield a clear public benefit that private-sector providers alone could not be expected to provide? Then my task in this paper would seem to be an easy one: to explain the rationale for using these questions as criteria for market entry, and to examine how the criteria might apply to some specific products or services.

On closer inspection, though, the matter turns out to be complicated with respect to both the rationale and also the application of the market-entry criteria. From the point of view of the Fed, the cost-recovery criterion unambiguous, and its rationale is simply that Congress has required it; but the rationale for any specific public-benefit criterion has to be much less straightforward. I will argue below that Congress expects the Fed to use its best judgment about how to advance the public interest, and even about how to characterize it. This delegation of responsibility puts the Fed in the position of having to grapple with some difficult issues.

Furthermore, the co-existence of the Fed with private-sector participants in the market for payment services complicates the application of the White Paper's market-entry criteria. The relevance of competition to cost recovery is most obvious: the Fed has to make a forecast of who will purchase its services in order to determine what its costs and revenues will be, and such a

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\*The views expressed in this paper are solely those of the author, and do not necessarily represent the views of the Federal Reserve Bank of Minneapolis or the Federal Reserve System

<sup>1</sup>The White Paper is published in the *Federal Reserve Bulletin*, May, 1990. It is also issued as F.R.R.S. ¶7.139-¶7-147.

forecast necessarily involves assumptions about what the Fed's competitors will do and how the Fed will respond to them. When the Fed commits itself to a particular competitive policy, that commitment potentially affects the feasibility of cost recovery. It is equally true, although perhaps less obvious, that such a commitment can affect the Fed's ability to contribute to public welfare.

To consider these matters, then, must be the agenda of this paper. I will argue for three main conclusions. These conclusions apply to the Fed's participation in the payments system in general, and to its participation in markets for electronic-based retail-payment products and services in particular. I will focus on such products and services, which I will generically call *electronic money*, at a number of points to exemplify the general argument.

- The Fed's participation in the payments system should have two main goals.
  - Enhancement of economic efficiency in the payments system itself.
  - Enhancement, by means that do not impair economic efficiency, of the Fed's ability to achieve its other goals—particularly to formulate and implement monetary policy as an independent central bank.
- The market-entry criteria in the “White Paper” are largely consistent with these goals, and in practice they are applied in a reasonable way.
- The competitive-impact criteria in the “White Paper” are also consistent with the goals, but their application in practice tends to be narrower than the goals would warrant.

## 2 Congress charges the Fed to exercise discretion in setting payments-system policy

People often speak as though the Federal Reserve Act (FRA) has given the Fed a clearly defined responsibility for “leadership in the payments system,” and has even indicated that such leadership can best be provided by direct participation in the payments system as a service provider.<sup>2</sup> Actually, though, the following survey shows that the FRA and its legislative history provide virtually no specific guidance regarding the Fed's role as a direct participant in the retail payments industry.

Scholars generally regard the oft-cited rationale, “to furnish an elastic currency,” which is stated in the preamble of the FRA, as having to do more with operation of the discount window than with note issuance per se.<sup>3</sup>

Section 16 of the FRA, regarding currency issuance, is full of provisions that are so specific that they can only be read as applying to paper currency.

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<sup>2</sup>Throughout this paper, I will use ‘participation’ to denote direct provision of products or services, as opposed to other forms of involvement such as regulation.

<sup>3</sup>The distinction that I draw here is between the economics of how currency is backed with reserves and the mechanics of how it is issued to the public. The FRA language implicitly makes reference to the “real bills doctrine,” according to which commercial paper should be used as reserves for note issuance, in order to allow the money supply to vary with the business cycle. (In 1913, the amount of outstanding Treasury debt was arguably insufficient to provide sufficient flexibility.) While the FRA did replace the national banks with the reserve banks as the direct issuers of circulating currency, that replacement was not essential. Rather, the essential feature was the reserve banks' authorization to discount member banks' commercial loans.

Section 11A (incorporated through the Monetary Control Act of 1980 (MCA)) envisions that the Fed might possibly provide new services "to effectuate the electronic transfer of funds," but it does not characterize what services would be appropriate.<sup>4</sup>

To view the problem from another angle, consider what one would expect the FRA to stipulate if there were a definite Congressional intent for the Fed to provide a product or service having the economic features of a stored-value card, for example.<sup>5</sup> At the very least, it should specify how electronic money issuance should be structured, just as Section 16 specifies how currency issuance is to be structured. How could electronic money be issued in accordance with the FRA, though? As a service to the Treasury in the Fed's fiscal-agent role? (Sec. 15) As a form of payment for government securities acquired in open-market operations?<sup>6</sup> (Sec. 14) One has to make conjectures, because nothing is stated explicitly. In fact, especially if the Treasury were not to be involved, squaring issuance of electronic money with the FRA might turn out to be a fairly ambitious project for the Fed's legal staff.

The explicit language of the FRA does not provide guidance about the extent of the Fed's participation in the market for electronic money, then. In such a case, the next place to search for guidance is in legislative history. In the case of the FRA, this is also of limited value. The retail payments service with which the FRA originally dealt directly was check collection. A few of the drafters of the FRA seem to have had in mind that the Fed would play a special economic role in the payments system, but the argument that persuaded Congress as a whole to put the reserve banks in the check-clearing business was that providing this service without pricing it explicitly (although banks purchased it implicitly by the deposit of reserves) would help attract a critical mass of state banks to be members. (Stevens 1996) Today the MCA prohibits such a subsidized-service arrangement. That is, the specific legislative intent in 1913 of having the reserve banks provide retail payments services is no longer relevant since 1980.

Nor is the legislative history of the MCA helpful. This act was part of a larger piece legislation (the Depository Institutions Deregulation and Monetary Control Act) that responded to an urgent situation involving disintermediation from Fed member banks, diminution of reserves (and consequently of revenue to the Treasury), and competitive imbalance between member banks and other depository institutions. These issues, rather than the long-term future of the Fed's role, were in the foreground of Congress' attention.

Rather than understanding Congress as having given a set of specific instructions to the Federal Reserve Board (Board) regarding what to do in the payments system, the the strategy of Congress in drafting legislation such as the FRA can be understood in terms of the *delegation doctrine* in administrative law. The following is a sketch of this doctrine as it applies to the Fed in the payments system.

In 1913, Congress understood broadly that the status-quo structure of the U.S. monetary,

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<sup>4</sup>Throughout this paper, I will follow the common usage of referring to Section 11A as the MCA. When I refer to the FRA, ordinarily I mean the act as currently amended (including Section 11A).

<sup>5</sup>Since a stored-value card works essentially like a stock of travelers' checks, Congress would not have had to anticipate a technological revolution to have had such an intent.

<sup>6</sup>No counterparty would accept this form of Federal Reserve liability unless there were a binding commitment to exchange it for an asset or another Fed liability that is directly recognized in the law (such as an increase in a bank's reserve balance). Presumably such commitment can be given via a reserve bank's general corporate power of contract. (Sec. 4)

banking, and payments systems was suboptimal, but largely avoided making specific reforms of it. Rather, Congress established a regulatory body (that is, the Board), and authorized it to use discretion and initiative to determine how the status quo ought to be changed, as well as to accomplish that change.<sup>7</sup> Naturally, Congress intended that the Board should use an appropriate concept of the public welfare to guide its agenda. While Congress does not guide the Board's agenda directly, it exercises indirect influence through various devices such as its role in the appointment of governors.

In addition to its regulatory authority over private-sector participants, Congress provided another means by which the Board can effect change in the payments system: its supervisory authority over a group of specially chartered and capitalized corporations, the federal reserve banks.<sup>8</sup> A reserve bank's charter resembles the charter of a national bank with respect to corporate powers, but various features of its corporate governance are designed to subordinate profit-seeking to public service as its goal.

### 3 Some proposed rationales for retail-payments participation

The upshot of the previous section is that, except for check collection, the FRA gives the Fed complete discretion regarding its participation in the market for retail-payments services. The Fed bears the *de facto* burden of convincing Congress and the public that it has a sound rationale for the degree of participation that it chooses. Now I will consider three broad rationales that have been proposed for such participation. In each case, the discussion will be organized as follows:

- Statement of the rationale;
- Assessment of its cogency;
- Assessment of the probable effect on public welfare of the sort of participation that the rationale would justify.

#### 3.1 The "three-legged stool" argument

The "three-legged stool" argument, according to which payments-system participation provides information or competence that is useful in making monetary policy and acting as lender of last resort, is sometimes applied to retail payments.<sup>9</sup>

While this rationale has enough plausibility to justify its careful consideration in the case of large-value, interbank payments, it is not very persuasive as it applies to retail payments. Electronic money does not seem to pose critical difficulties for monetary policy. To the extent that it would pose difficulties, they could be addressed by regulation, such as treating electronic money

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<sup>7</sup>Subsequently, in 1987, Congress passed the Expedited Funds Availability Act, which explicitly granted the Board regulatory authority over the payments system.

<sup>8</sup>The FRA authorizes the Board to require each reserve bank to operate a clearinghouse for depository institutions in its district, and to require one of the reserve banks to serve as a clearinghouse for transfers among the reserve banks (Section 16), and it gives the Board oversight of the fees that the reserve banks will charge for any payment services that they provide (Section 11A).

<sup>9</sup>"Three legs" refers to monetary policy, supervision and regulation, and participation in the payments system.

as a deposit subject to a reserve requirement. Neither does provision of a retail-payments product confer any obvious advantage for the emergency provision of liquidity to financial institutions.

In fact, even if there were a relationship between electronic money and monetary policy, the best action for the Fed would likely be inaction. Given the slow growth that is projected for electronic money use, the Fed should ignore electronic money rather than issuing it if the goal is to minimize difficulties that its use would engender.

### 3.2 Equity and universal service

The experience of the telecommunications industry is relevant to the electronic-payments industry, because the technological features of the two industries may be sufficiently similar to have identical economic consequences. Equity and universal service are currently an issue in telecommunications. Providers are arguing that sparsely populated regions are considerably more costly to serve than large metropolitan areas are.

If electronic money also has such a cost structure, then the same issue will arise here. There may be a trade-off between universal service at nationally uniform price and quality levels (for example, the average distance between a store and an electronic money terminal) and economic efficiency, since sparsely populated areas require greater real resources to serve. The Fed would have to take a position regarding the appropriate trade-off between these prima-facie goals. If the Fed is going to emphasize equity considerations, then there is a further question of whether market participation is a more effective means than regulation to do so.

### 3.3 Technological efficiency

The rationale that most frequently proposed for the Fed's participation in the payment system is enhancement of efficiency. One concept of efficiency emphasizes technological innovation. Calls for the Fed to exercise "leadership" often give heavy emphasis to technological innovation.

Technological innovation is not in end in itself, though. The appropriate question to ask is, will the use of a technological advance contribute enough to welfare to justify the cost of its development. The best way to answer such a question about the potential usefulness of a technology that has not yet been widely adopted, especially when it is still evolving, is to induce a broad group of people with various kinds of expertise to think about aspects of it, and then to aggregate their information and analysis.

When the employers of these people are "small" with respect to the market, there is a problem that such information will be undersupplied because the gain to investment in providing it cannot be appropriated. In such a circumstance, public investment in research and development can be desirable. The outstanding example is the phenomenal gain in productivity in American farming that has been induced throughout the past century by research conducted by the Department of Agriculture. Similarly, at a time when banking was fragmented because of interstate-branching restrictions, the Fed arguably provided an indispensable service by developing MICR encoding.

However, just as "agribusiness" has progressively taken the lead in agricultural R&D, so firms with large market share (actual or potential) in other industries can match the government in both the ability and the incentive to innovate. Then the most important issue becomes, which

organizational form will succeed better at aggregating information. Economic theory suggests that the market will do better.<sup>10</sup> Moreover, international comparisons provide some evidence (such as comparison between the outcomes of Japanese and American investment in developing high-definition television, and between Anglo-French and American investment in passenger airplanes) that market competition works better than public-sector initiative to get good results out of applied research and its implementation. In the current environment, where highly sophisticated and well-financed firms are already involved in the development of electronic money, Fed "leadership" in developing technology does not seem desirable.

### 3.4 Cost minimization

Cost minimization contributes directly to welfare. Thus it is a better *prima facie* rationale than technological innovation.<sup>11</sup> There are two cases in which Fed provision of retail-payment services can potentially serve to minimize costs. First, there are some services that the Fed provides to the U.S. Treasury in its capacity as fiscal agent, and that have high fixed cost and low marginal cost. Since a private-sector provider would have to replicate the Fed's fixed-cost investment to enter such a market, the Fed has a cost advantage in extending the service to private-sector customers. There is good reason for the Fed to participate in (and even to dominate) the private-sector market for such a service. Except for this, there must be few if any retail payment services in which the Fed has an intrinsic cost advantage over other market participants.

In addition, even when the Fed has no intrinsic cost advantage, there is a conceivable cost-minimization justification for the Fed to participate in a market where a private-sector provider has a monopoly. Specifically, suppose that there are two payments technologies, *A* and *B*, that are close substitutes for some, but not all, prospective users. For simplicity suppose that these

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<sup>10</sup>There is not a fully developed theory (analogous to the "invisible hand theorem" for market allocation in a static environment) regarding whether (or under what conditions) a market will aggregate information perfectly, but there are well-understood principles that suggest that market economies will reach better decisions on the whole than centrally planned ones.

<sup>11</sup>An important caveat is that a cost comparison between two technologies is only genuine if the low-cost technology serves the needs of its users as well as the high-cost technology does. The inappropriateness of a cost comparison as a proxy for a welfare comparison otherwise is shown very clearly by research on the choice between using checks and ACH payments. Checks are widely used in preference to ACH transactions, although ACH transactions are less costly in many cases. In an influential paper, David Humphrey and Allen Berger ("Market failure and resource use: Economic incentives to use different payment instruments," in *The U.S. Payment System: Efficiency, risk, and the role of the Federal Reserve: Proceedings of a symposium on the U.S. payment system sponsored by the Federal Reserve Bank of Richmond*, ed. David B. Humphrey, pp. 45-86. Kluwer Academic Publishers, 1990.) documented this cost comparison. Despite the lack of a strong justification, they attributed the behavior of payment-system users to market failure. They argued that the market failure must be associated with check float, although they acknowledged the weakness of the theoretical justification for supposing so. Recently Kirsten Wells ("Are checks overused?" *Federal Reserve Bank of Minneapolis Quarterly Review*, forthcoming.) has shown that the value of check float has declined so much that it is no longer large enough to be an important cause of market failure, but the use of checks continues to grow. It is possible that a market failure unrelated to float (but rather involving a "network externality") is occurring, but probably that the awkwardness and inflexibility of ACH transactions for many purposes (discussed by Scott Knudsen, et al., "Business-to-business payments and the role of financial electronic data interchange," *Federal Reserve Bulletin*, 1994, pp. 269-78.) is largely accountable. That is, a check is a more expensive way of making a payment than an ACH transaction, but for many purposes it is a better way. Welfare arguably would be decreased by distorting the incentives of firms and households to use one means of payment rather than the other.

technologies have no fixed cost, and suppose that the marginal cost of *A* is lower than that of *B*. Suppose that *B* is provided competitively, so that its price is equal to its marginal cost. However, suppose that the provider of *A* is a monopolist, who maximizes profit by charging a price much higher than the marginal cost of *B*. The monopolist loses the customers for whom *B* is a close substitute, but makes a large profit from the remaining customers. When some customers switch to *B*, though, there is economic inefficiency because they are using a costlier-than-necessary technology. If the Fed is able to operate technology *A* as cost effectively as the private-sector provider (or, at least, at lower cost than is necessary to provide *B*), and if it charges its marginal cost for this service, then its participation in the market will increase welfare by ensuring that users for whom *A* is an appropriate technology will use it rather than the more costly technology *B*.

Despite this being a case that could be made in principle, I cannot think of an actual example where it would provide a justification for Fed participation. Even if some retail-payments service market were to have the assumed competitive structure, one would need to ask whether Fed participation is a better remedy than regulation by either the Fed or the antitrust authorities could provide. In practice, then, extension of fiscal-agent services to the private sector is the only area in which cost-minimization provides a rationale for Fed participation. In view of the importance of the Treasury's effort to implement electronic payments (including electronic benefits transfer to households), though, this could conceivably become an important rationale for the Fed to offer electronic money.

### 3.5 Economic efficiency

An *economically efficient* allocation of goods and services is one that, for practical purposes, cannot be improved for anyone without making someone else worse off. This is a broad concept that takes account, for instance, of the the required safety and soundness of the financial system. (That is, everyone can be made better off by reducing the risk that an unsound financial system generates.) This concept can be used to frame a rationale for Fed payments-system participation: the attainment of an economically efficient allocation in markets where structural features prevent private-sector competition from working well.

Rather than being framed explicitly in terms of enhancing economic efficiency, this rationale is often framed in terms of addressing "market failure." Market failure is said to occur when a competitive equilibrium fails either to exist, or else to support an economically efficient allocation. The problem with framing the rationale in terms of market failure is that it implicitly assumes that the Fed will achieve efficiency in an environment where the market fails to do so. The sound reason for the Fed to participate in a market is not merely that the private sector is doing a less-than-perfect job there, but that the Fed can do a better job. Let's recognize that talk about remedying market failures is actually shorthand for improving economic efficiency.

The rationale of enhancing economic efficiency is widely thought to be quite potent for justifying participation. The reason is that features commonly found in payments technologies, notably increasing returns to scale and "network externalities," have been thought to cause market failure.<sup>12</sup> These features of a market do not necessarily justify the Fed's participation in it,

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<sup>12</sup>*Increasing returns to scale* (or *economy of scale*) means that a large producer can produce more output from the same inputs than can a small producer. *Network externality* means that the more widely a payments system is

though, for two reasons.

First, it is not clear that the view is correct. It is true that for the type of competition that economists have studied most intensively in the past—*atomistic* competition among a large number of producers, each of whom is “small” relative to the market as a whole—increasing returns to scale can prevent equilibrium from existing and network externalities can render equilibrium inefficient. However, these conditions are compatible with the existence of a *natural-monopoly equilibrium*—reflecting strategic competition among a few “large” sellers or potential sellers—and such an equilibrium can be economically efficient if the market is subject to appropriate regulation. If such regulation can be provided, then public-sector participation is unnecessary.

Second, as pointed out above, even when private-sector firms fail to achieve efficiency in a market, there is no automatic presumption that a public-sector participant can do better. Even if the public sector can surmount some problems that firms face in such an environment, it is susceptible to other problems, particularly to problems of managerial incentives. In the United States, as well as in other industrialized economies, “privatization” of public enterprises operating in markets with increasing returns and network externalities has been widespread, and on the whole it has turned out markedly to increase economic efficiency.<sup>13</sup>

### 3.6 Public stature that supports central bank independence

I would like to propose here a considerably different rationale.<sup>14</sup> It is that the Fed’s participation in the payments system helps to maintain a political climate in which it can operate effectively and independently in the sphere of monetary policy.<sup>15</sup> Specifically, I would suggest that participation increases the “public stature” of the Fed, and that this stature is useful in enforcing sound long-term policy at times when following that policy is not in the short-term political interest of Congress or the president.<sup>16</sup> That is, participation in the payments system indirectly helps to resolve the problem of time-consistency that a central bank faces. As such, it provides support for central bank independence in the context of U.S. institutions.

Much of the structure of the Fed, such as the emphasis on regional representation through geographically defined districts, is clearly designed to maintain a political climate favorable to the Fed. Thus, while the FRA and its legislative history do not have much to say about the substance of the Fed’s role in the retail payments system, they do show clearly that public stature is a legitimate consideration in framing the Fed’s payments-system policy.

This consideration does not carry much weight if the Fed’s participation in the payment system conflicts with economic efficiency, though. At the very least, there would a trade-off, even if it

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used, the more valuable it is to every user.

<sup>13</sup>Conrail is a prominent example at the federal level.

<sup>14</sup>This subsection is based on research that I am currently conducting in collaboration with Melvin Burstein of the Minneapolis Fed. In order to focus on what is directly relevant to the present topic, my characterization of our argument neglects an important aspect, concerning the special role of the reserve banks in the making of U.S. monetary policy.

<sup>15</sup>Monetary policy is generally regarded as being the principal mission of a central bank. Section 2A of the FRA (incorporated through the Full Employment and Balanced Growth Act of 1978) embodies this view quite explicitly.

<sup>16</sup>Burstein and I argue that the Fed’s role in banking supervision and regulation can also enhance its public stature. Given that this is so, a relevant question is whether or not there is any advantage to participation in the payment system as a service provider, over presence as a supervisor of the private-sector participants.



were possible to build stature by detracting from economic efficiency. Moreover, it is difficult to see how engaging in activity that would detract significantly from economic efficiency could make a net contribution to the stature of an institution that is supposedly dedicated to increasing the public welfare.

Where the Fed's participation is consistent with economic efficiency, though, considerations of the Fed's public stature provide further prima-facie reason to participate. Of course, the more objectively the Fed's need for public stature and the value of payments-system participation to enhance this stature can be shown, the more convincing a case for participation based on public stature can be. To provide objective evidence about these matters is well beyond the scope of this paper. Here I will take it for granted that a strong, objective case can be made, in order to focus on the implications of a public-stature rationale.

#### 4 Fed retail-payments participation and economic efficiency

In the preceding section, I have established that any case for Fed participation in a retail payments-system market must include a convincing argument that participation will enhance, or at least maintain (in order to invoke the public-stature rationale), economic efficiency.

Superficially, my foregoing discussion might seem to suggest that the economic-efficiency rationale can offer only a very limited prospect for Fed participation in retail payments markets. Fed participation might not seem necessary for efficiency, especially since economists are more optimistic than they used to be that market competition, when structured by appropriately tailored regulation, can achieve economic efficiency even in the presence of scale economies and network externalities. Moreover, although the reserve banks are not typical public-sector enterprises, one might well be concerned that public-sector enterprises tend to be structured in ways that make them unlikely to achieve efficiency. These enterprises do not go out of business despite persistent losses, unless their access to public revenues can be blocked. Because they are not separate from the government itself, many public enterprises enjoy free access to these revenues. As a result, they tend to make large investments that cannot be justified by the resulting contributions to public welfare. Another reason why some public enterprises have been inefficient is that their managers and workers operate within a rigid, bureaucratic, institutional framework that discourages entrepreneurial performance.

On closer inspection, though, neither the observation regarding regulated private-sector competition nor the observation regarding typical private-sector enterprises applies to the payments system in which Fed is involved. Presently the private-sector participants in retail payments markets are not subject to specifically tailored competition regulation.<sup>17</sup> They are subject only to the body of competition law that is generally applicable to firms in all industries.<sup>18</sup> In contrast, in the industries where natural-monopoly competition seems to work effectively, there is further regulation that is specifically designed for the industry (such as rules promulgated by the Federal Communications Commission for telecommunications and by the Federal Energy Regulatory Commission for power generation and transmission). The role of such regulation is not to place

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<sup>17</sup>Regulation by the Fed concentrates on transactions between a firm and its customers, rather than on competition among firms.

<sup>18</sup>The Board deals with antitrust issues under its authorization in the Bank Holding Company Act, which essentially incorporates the provisions of the Sherman Act.

firms virtually under public management (as traditional regulation tended to do), but rather to enforce a specialized set of rights within the industry. (For example, a long-distance telephone carrier has a right to purchase access to a local network at a price that reasonably reflects the burden that its messages place on that network.) In order to operate efficiently without the Fed's participation, then, the retail-payments industry would presumably need to be regulated more closely than it presently is, in order to avoid inefficient outcomes of increasing returns and network externalities.

Also, as I have already mentioned, the reserve banks are not typical public enterprises. Unlike those enterprises, which are directly subservient to the government, reserve banks are instead supervised by the Board, which is relatively insulated from politics. Also, the reserve banks' internal governance structure more closely resembles that of private-sector corporations than of government bureaus.

Thus the relevant choice is not a naive one whether to have a pure form of laissez-faire versus dominance by state enterprise, but rather, which of five regulatory regimes to adopt for the retail-payments industry:

- A regime in which only the reserve banks are legally permitted to provide certain retail payments services.
- A market consisting entirely of profit-maximizing firms that operate without a special framework for regulation of their competition.<sup>19</sup>
- A market in which such firms would compete within a regulatory structure that has not yet been designed.
- A regulated market in which both private-sector firms and the reserve banks compete.
- A "mixed market" in which both private-sector firms, not subject to special regulation, and also a set of quasi-public corporations (that is, the reserve banks) subject to regulation (by the Board) would be able to offer products and services.

The economic study of regulation is not fully enough developed to provide a conclusive recommendation about this choice, and there is some room for honest disagreement among economists. My advice is as follows.

- Protecting the reserve banks from the entry of private-sector competitors would greatly increase their resemblance to a typical public-sector enterprise. The resulting performance would probably not be economically efficient.
- Because of increasing returns and network externalities, a market of private-sector firms within a well-designed framework of regulation would be more efficient than a market of private-sector firms subject only to general competition law.

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<sup>19</sup>The distinction between regulation of competition among firms and regulation of a firm's transactions with its customers is important, although it is not completely clear in every case. The Board does regulate retail electronic payments (under the authority of the Electronic Fund Transfer Act, for example), but this regulation predominantly concerns disclosure and other such transactions-related issues, rather than competitors' strategic relationships with one another.

- In principle, adding the reserve banks to the set of regulated competitors would combine the virtues of a regulated market with the advantage of providing public stature to the Fed. In practice, though, the long-run tendency might well be for regulation to favor the reserve banks over their private-sector competitors. (This would be a risk especially, although not exclusively, if the Board were the regulator.) To avoid this risk of the regime degenerating into a legally protected market for the reserve banks, either the private-sector firms should be unregulated or else the reserve banks should be excluded from the market.
- The mixed market (that is, with Fed participation) will be as conducive to stability and efficiency as the regulated market of private firms, subject to the following three provisos.
  - The reserve banks' retail-payments activities will be conducted in a responsible, capable and entrepreneurial way.
  - The reserve banks will be prevented from using their seignorage revenue as a funding source for investments that are too costly to be justified by the resulting welfare gains.
  - The reserve banks will not be driven out of business by their unregulated competitors, if they operate in a way that yields the same level of welfare as a market wholly consisting of regulated private firms would achieve.
    - \* If the reserve banks pay sunk costs to enter retail-payments markets, and subsequently abandon them, that will be inefficient.
    - \* If the reserve banks must settle for achieving a level of welfare lower than what a wholly regulated industry would achieve, in order to protect themselves from "cream skimming," then it would be better to opt for a wholly regulated market where cream skimming could not occur.

If these three provisos can be met, then the mixed-market structure merits adoption on account of the public-stature rationale.

## **5 Ensuring responsible, capable and entrepreneurial performance: Reserve bank initiatives**

The need for capable and entrepreneurial performance in the provision of payments services has been recognized within the reserve banks for some time. Innovations such as FRAS and the product-office structure have been made in order to address this need. The ultimate effectiveness of these reforms is not yet known, but certainly there has been a consistent record of energetic attention by the reserve banks to the problem of ensuring capable and entrepreneurial performance.

In contrast, regarding responsibility, some people outside the Fed wonder whether its effort has been completely satisfactory in at least one area: accurate and disinterested disclosure about cost recovery. Whether such suspicions are well grounded or not, the Fed defeats the public-stature rationale for participation in the payments system when it operates in a way that engenders them.

Part of the problem is that evaluating the cost-recovery issue requires expert attention to some subtle accounting issues. The issues are that fixed costs are prominent in the technology for providing payment services, those fixed costs are shared costs of several services provided to the private sector, and they are also shared by services provided to the Treasury.

Periodic outside auditing of the reserve banks' priced-services business, which is being seriously contemplated now, is the best way to resolve the issue credibly. If the Fed takes this step, then the over-all case for the reserve banks quality of performance in the public interest will be a strong one.

## 6 Ensuring the profitability of reserve banks' investments: the MCA and the White Paper

The reserve banks' retail-payments activities can break even, without sacrificing economic efficiency.<sup>20</sup> Given that this is feasible, the reserve banks should be required to recover their costs in the aggregate.

There is an argument to the contrary, that profitability might be a barrier to achieving efficiency, that the claim I have just made requires me to refute. The argument goes as follows.

In a market where there is a network externality, it is possible that use of the system by agents who gain very little from it will enormously increase the benefit to other users. In that case, if price discrimination between the high-valuation and low-valuation users is infeasible or prohibited, then use of the system must be priced low in order to attract the users who generate the benefit to others. That is, the benefit to the high-valuation users cannot be appropriated to fund the service. Therefore, if the benefit to all users of the system, net of its cost, is maximized when the low-valuation users are included, and if this total net benefit is positive although the cost exceeds the amount of benefit that can be appropriated through pricing, then provision of a subsidy is essential to attainment of economic efficiency.

Note that this is not really an argument for subsidy. Rather, it is an argument in favor of permitting and even encouraging the reserve banks to engage in welfare-maximizing price discrimination. It is a firmly established result in economics that some amount of price discrimination is generally required to attain economic efficiency in a market where either an increasing-returns technology or a network externality is a prominent feature.

Despite some constraints of both legality and feasibility (such as the problem of distinguishing high-benefit from low-benefit users) on the extent of price discrimination, full cost recovery apparently can be achieved. Private-sector firms have adequate pricing flexibility to earn a profit. They engage in lawful and arguably efficient price discrimination such as offering volume discounts. Judging from the avid interest of private-sector firms in entering the electronic money market, they evidently forecast that they can serve a large enough segment of it to earn large profits.

For the remainder of this section, I will therefore assume that the Board will regulate the reserve banks in a manner that permits them to engage in price discrimination to the full extent that is compatible with economic efficiency. If the reserve banks have this flexibility, then they should be required to recover their full costs from providing payment services in the long run. Besides being consistent with pricing that will support an economically efficient allocation, this requirement is also the most effective way to prevent the reserve banks from making the kind of ill-conceived investments to which public-sector enterprises are prone.

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<sup>20</sup>The argument that I sketch here relies on the assumption of a network externality. Increasing-returns technology can also be used as the premise of an analogous argument.

Such a requirement of full cost recovery is imposed on the reserve banks by the Monetary Control Act of 1980, and the Board implements it within the framework defined by its "White Paper" on priced-service activities. Costs are to be computed by a method that establishes a "level playing field" for competition between the reserve banks and private-sector firms. For example, Fed cost accounting should impute the taxes that the reserve banks would pay if they were in the private sector.

In addition, the Board specifies in the White Paper some investment criteria that the reserve banks must meet when they enter a new market or substantially enhances an existing service. (These are the same market-entry criteria that I briefly discussed earlier.)

1. While the MCA requires only that Fed priced services collectively recover their full aggregate costs in the long run, the Board further requires that each service line must be at least marginally profitable.<sup>21</sup>
2. The Fed must expect that its providing the service will yield a clear public benefit.
3. The service should be one that other providers alone cannot be expected to provide with reasonable convenience, scope, and equity.

However, there is an "escape clause" that seems to allow the criteria to be waived in cases where there is an overriding need for the Fed to provide an unprofitable payment service. Specifically, the White Paper states that

[C]ircumstances might arise... that could jeopardize the Federal Reserve's ability to meet its cost-recovery objectives in a particular service. ... If it becomes clear... that the service cannot be expected to meet cost-recovery objectives, the Federal Reserve would reassess the appropriateness of continuing to provide the service after taking into account its other objectives, including the requirement to provide equitable access and an adequate level of services nationwide.

On the whole, the White Paper criteria seem somewhat more stringent than what the MCA minimally requires. This is to be expected according to the delegation doctrine. Congress directly enacts only enough restrictions to convey its broad intent, and it then instructs the regulator to "flesh out" those restrictions to implement the legislative intent fully. Delegation of congressional authority is enforced by the implicit threat that, if the Board were not to issue its own further regulations, then Congress would enact tighter regulations directly, and those regulations would probably be more rigid and less responsive to the needs of the Fed than what the Board would draft.

Whether or not the White Paper criteria are the ideal ones, at least they are all germane to the goal of preventing the reserve banks from making ill-conceived investments in the payments system, while at the same time retaining the flexibility to make investments that the reserve banks have to make in order to enhance economic efficiency. Last year the Financial Services Policy Committee established a White Paper Task Force (WPTF), chaired by Ernest Patrikis of the New York Fed, to consider whether the White Paper criteria continue to be appropriate for determining when the Fed should participate in the payments system. The main conclusion of their report is that

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<sup>21</sup> A service line is a group of related products or services.

In principle, the WPTF believes that the White Paper establishes reasonable requirements that the reserve banks should be expected to satisfy before entering a new service. . . . [Despite some differing opinions within the WPTF, its members] have agreed not to recommend a revision of the current criteria. . . . On balance, the WPTF believes the the current criteria can accommodate changes to the payments system and the Federal Reserve's vision of its role within the payments system. (WPTF Report, pp. 1, 3-4)

The third White Paper criterion, keeping the reserve banks out of markets that the private sector can be expected to serve adequately, seems to have been the center of controversy within the WPTF. Their report states that:

- There was agreement that the criterion, if interpreted with some flexibility, could permit under appropriate circumstances the provision of a wide variety of potential wholesale and retail payment services that the committee contemplated as test cases. These included electronic legal tender and stored-value cards. That is, there was consensus that the criterion is not inherently an obstacle to anything that the Fed would want to do as a practical matter to enhance the efficiency of the payments system. (pp. 4, 5)
- Furthermore, some members endorsed the criterion as expressing the sound principle that a public entity has the burden of proof to justify the need for it to compete with private entities. (p. 11)
- Members who advocated eliminating the third criterion did not claim that it is intrinsically unsuitable. Rather, the problem they saw is with the Board's interpretation of it, which they viewed as effectively prohibiting the Fed from entering new, innovative service lines and as limiting the ability to enhance existing service lines. (p. 9)

The specific concern expressed about how the third criterion is interpreted was that, while it is written to require the Board to make a forward-looking judgment about whether other service providers "can be expected" to provide a service, it could be used to establish a policy of waiting and seeing what the private sector will do. Given the lead time necessary to develop and implement new services, this could have the practical effect of foreclosing the offering of new Fed services. (pp. 9, 10) The example that was given of such a wait-and-see interpretation a statement made last year by Vice Chairman Blinder on stored-value products.<sup>22</sup> The WPTF Report quotes him as having said that

[A conclusion that the industry would turn out to be a "natural monopoly" requiring either regulation or provision of electronic money] seems quite premature. And the availability of alternative payment mechanisms would mitigate any potential exercise of market power. Further, government issuance might . . . stifle important [private-sector] innovation. . . . So, while we would not rule out an official electronic currency payment product in the future, the Federal Reserve would urge caution.

On a close reading, this quotation does not support the charge made against it. Blinder made two arguments from principles that economists would widely accept: first, that availability of substitutes for a specific product minimizes the scope for the exercise of monopoly power in the market for that product; and second, that government investment in an innovation has a

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<sup>22</sup>In recent months, Governor Kelley and Chairman Greenspan have made statements in a similar spirit to Blinder's.

ceteris paribus effect of deterring competing private investment in it. These are forward-looking judgments about how the market for stored-value products can be expected to evolve and how Fed participation could be expected to affect that evolution. Blinder acknowledged that his forward-looking judgment could possibly turn out to be mistaken, and he indicated that the Fed might well enter the market in that event. Such an acknowledgement of fallibility and corresponding promise of flexibility should not be confused with a wait-and-see attitude, which implies the abdication by a person or an institution of its responsibility to engage in the kind of forward-looking reasoning that Blinder set forth.

In summary, while the third criterion conceivably may lend itself easily to misinterpretation as a wait-and-see criterion, I am unaware of any evidence that the Board is applying such a misinterpretation currently.

A more serious criticism of the third criterion in principle, in my view, is that takes no explicit account of public-stature considerations. The public-stature rationale justifies reserve bank activities that would increase the stature of the Fed. Although the goal of increasing stature has to be weighed against the goal of enhancing economic efficiency directly in the market where the activity is located (and most people would attach significantly greater weight to the direct effect on efficiency), there is no trade-off when the second White Paper criterion is satisfied. As I have pointed out earlier, the legislative history of the FRA shows that Congress intended the Fed's participation in the payments system to be used as a way of strengthening the institution to better enable it to conduct monetary policy. There is nothing in the MCA to suggest directly that Congress had changed its mind about that as a general principle. Moreover, as I stated in my description of the legislative history of the MCA above, Congress was more concerned with solving a set of urgent practical problems than with any subtle, long-run interaction between payments-system participation and the integrity of monetary policy. In recent decades, a central bank's public stature has been widely recognized to be one of its important assets for the conduct of monetary policy. Therefore the Board would have been implementing the intent of Congress if it had formulated its market-participation criteria in a way that would give generous scope to the public-stature rationale, conditional on the second criterion (that the Fed's market participation would not impair economic efficiency) being met. But instead, the third criterion does the opposite.

What is most salient, though, is that the WPTF has found that the third criterion does not raise a definite obstacle to the Fed in practice. Especially, one should not automatically assume that a revised criterion that takes account of public-stature considerations would justify the issuance of electronic money products more easily than the White Paper criteria.

If the Treasury were to ask the Fed to issue electronic money on its behalf, then considerations of cost-minimization (along with the requirement of the FRA that the Fed should act as the Treasury's fiscal agent) might well justify issuing it to the general public as well as to the Treasury's specific clients. It is clear from the White paper that this would be permissible. (F.R.R.S. ¶7-144.)

The difficulty for the Fed, according to the third White Paper criterion, would be to issue electronic money (in the narrow sense of a stored-value product) to the public in the absence of a request from the Treasury. In that case, I doubt that public-stature considerations would provide a basis for what the third criterion currently prohibits. Issuance of electronic money might erode the Fed's public stature rather than augmenting it. The reason is that, unless it were structured

in a very clever and indirect way, participation in this market would put the Fed into direct competition with the private sector in providing services directly to the non-bank public. This contrasts sharply with the traditional payments-system role of a central bank, which is to be a "bankers' bank." In fact, the conventional wisdom is that a central bank ought to operate as a limited-purpose corporation that takes great care not to exploit its privileged position to compete with commercial banks in their core business.<sup>23</sup> I fear that, unless the third White Paper criteria can be shown to be satisfied, the Fed would more likely lose public stature than gain it by entering a market where it could easily be perceived to be violating this tradition.<sup>24</sup> If the third criterion of the White Paper is satisfied, of course, then the public-stature rationale would not be needed to justify electronic money issuance.

To summarize, I have made three main points in this section.

- If they are evaluated exclusively in terms of the rationale of enhancing economic efficiency, the investment criteria articulated in the White Paper are correct ones in principle.
- The criteria seem flexible enough to justify the Fed's participation in a variety of markets for provision of electronic retail payment services. However, even when properly interpreted, they constitute a high barrier to the Fed's provision of a stored-value product. (This barrier might well become less formidable if the Treasury were to request the Fed explicitly to provide such a product.)
- Legitimate considerations regarding the Fed's public stature would justify relaxing the third White Paper criterion. In some cases, a revised criterion might make it easier to justify providing electronic payment services and products to banks. However, I doubt that considerations of public stature would strengthen the case for the Fed to offer stored-value products directly to the non-bank public.

## **7 Ensuring the viability of efficient Fed participation: competitive-impact analysis in the White Paper and in practice**

Recall my third proviso to the acceptability of a mixed-market regime, which is that regulated reserve banks coexisting with unregulated private-sector firms must be able to adopt policies that would achieve as high a level of economic efficiency as a wholly regulated market would achieve, without being driven out of business by their private-sector competitors. The key to satisfying this proviso is that the reserve banks must be able to engage in price discrimination to a substantial extent. In fact, the reserve banks must be able to engage in price discrimination to the same extent as their unregulated competitors are able to engage in it. It can be shown that unregulated competitors will drive the reserve banks from the market otherwise.<sup>25</sup>

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<sup>23</sup>cf. Charles Goodhart, *The Evolution of Central Banks*

<sup>24</sup>In the current financial-markets regime, the notion of serving banks should possibly be broadened to one of serving a somewhat broader set of financial intermediaries. The appropriate distinction is between this sector and the broad, non-bank public. Concern about inappropriate broadening of the "safety net" should reinforce the considerations that Goodhart cites in support of the central banking tradition.

<sup>25</sup>This is the "cream-skimming" argument. This argument is usually formalized by assuming that unregulated firms can engage in price discrimination without any constraint at all, while the reserve banks are constrained from any price discrimination whatsoever. While these extreme assumptions make the formal argument as transparent



competitive-impact criteria in a way that is not supported by economic analysis. Specifically, the Board often seems reluctant to acknowledge that in order to attain economic efficiency in markets with increasing-returns technology, price discrimination that fully reflects the differences in customers' benefits (that is, their willingness to pay for the service) may have to be adopted. Instead, when it has been willing to countenance price discrimination by the reserve banks at all, the Board has generally limited its magnitude by ad hoc criteria, such as imposition of an upper limit based on cost-of-supply differences that are much smaller than the economically relevant willingness-to-pay differences.

The Board's current interpretation of the competitive-impact criteria is serious, since it makes it most difficult to satisfy both the first or second provisos that I have suggested for Fed participation in retail payment services. Specifically, the Board's reluctance to permit the reserve banks to engage in efficient price discrimination that would be lawful for a private-sector firm has likely been the principal cause of the difficulties that the reserve banks have sometimes experienced in achieving full cost recovery. Alarming losses in the Fed's market share in some retail payments markets are also directly traceable to this reluctance. For example, in the half dozen years since VisaNet received permission to settle net transactions over Fedwire, the Fed ACH has lost twenty percent of the market, and this twenty percent largely coincides with the most profitable segment. VisaNet actively engages in price discrimination, while the reserve banks have not been permitted to do so.

If the provisos are legitimate ones, then the Board's reluctance to countenance price discrimination leads to a stark conclusion. The Fed must withdraw from payments-service markets wherever price discrimination is required for economic efficiency. That probably means withdrawal from nearly every payments-service market of any significance.

Consequently, if the Board's competitive-impact regulation of the reserve banks is indeed substantially more severe than the White Paper calls for, then that is a symptom that some attention needs to be paid to the regulatory relationship between the Board and the reserve banks. In most industries, firms have administrative-law remedies against overregulation, and they use them if necessary. This discipline on regulators is what maintains the high quality of regulation in equilibrium. In the case of the Fed, though, the reserve banks would not use such a remedy although the FRA might permit it in principle.<sup>27</sup> The upshot is that the Board is under persistent pressure from the private-sector competitors of the reserve banks—a politically powerful constituency—that is not counterbalanced by comparably forceful pressure from the reserve banks themselves. The potential for a resulting tendency toward over-regulation, despite the intrinsic good faith of the members of the Board, is clear. If my diagnosis is correct, then not only does the disparity between the Board's announced framework for competitive-impact analysis and its actual practice require attention, but also the "culture" of the relationship between the Board and the reserve banks may require some change.

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<sup>27</sup>One of the general corporate powers granted to the reserve banks is the power to sue. The reason for the reserve banks' circumspection is that they share with the Board the primary mission of making sound monetary policy, and overt conflict would be the surest way to impair the public stature that supports it.

## 8 Conclusion

To a great extent, Congress has given the Fed the responsibility to formulate the goals of its participation in the payments system, as well as to manage that participation. Two goals are worthy of adoption. A principal goal is to enhance economic efficiency directly. A subordinate goal, which is also very defensible in terms of congressional intent, is to maintain the public stature on which the Fed relies to operate with political independence in the area of monetary policy.

In the White Paper, the Board articulates criteria that are close to ideal for operationalizing these goals. The Fed's performance depends on the practical interpretation of the criteria as well as on how they are stated, though. With respect to criteria for market entry and service enhancement, the Board's interpretation of the criteria is conducive to efficiency as far as I am aware. There is a problem with respect to the criteria for competitive impact, though, specifically where the issue of price discrimination is concerned. Economic analysis suggests that a substantial latitude for price discrimination should be allowed on grounds of both efficiency and competitive viability. The White Paper can be read without any distortion to permit price discrimination in these circumstances. However, on the whole, the Board has been reluctant to grant permission for the reserve banks to engage in price discrimination that would arguably enhance economic efficiency, and that is lawful for the private-sector firms.

How this issue is resolved will fundamentally affect the answers to questions about how to draw the boundaries of the Fed's participation in the payments system. I would expect that, once it is clearly resolved in one way or another, questions about which specific payment services and products should be offered will largely be removed from the realm of controversy.

Is this much latitude for price discrimination is consistent with economic efficiency? The answer is that its consistency cannot be ruled out. I have already explained that economic efficiency requires some amount of price discrimination to occur. Theoretical examples show that the minimum level of price discrimination required for efficiency can be arbitrarily close to the maximum level that is possible to impose. To the best of my knowledge, there is no general principle that can quantify the losses from excessive price discrimination in practice, in cases when it results from the need to recover costs rather than from the exercise of monopoly power.

A potential obstacle to the reserve banks being able to impose a sufficiently high level of price discrimination to achieve efficiency is that the Board has required in the White Paper that reserve bank participation in the payments system must be subject to a competitive-impact analysis. The required competitive impact analysis might be suspected to require denial of permission to engage in price discrimination even when it would be appropriate to grant permission, but fortunately it does not require that.

What the White Paper does specify is that reserve bank activities that have an adverse effect on private-sector competitors are a problem only when they are "due to legal differences or due to a dominant market position deriving from such legal differences" between the reserve banks and their competitors. However, legal differences do not seem to be a problem, either directly or indirectly, in markets for retail payment services. As far as direct legal differences are concerned, private-sector competitors of the reserve banks in these markets have broad scope for lawful price discrimination. For practical purposes, the reserve banks could not have a direct legal advantage over their competitors in this respect.

Dominant market position deriving from legal differences is not a problem, either. In a market with natural-monopoly characteristics, it is a normal outcome of competition—and economically efficient—for one firm (or a joint venture by regional firms in a national market, in the case of the reserve banks) to hold a dominant position. The reserve banks' dominance in various retail payments markets is far more plausibly attributed to this phenomenon than to legal differences.

Let us suppose for the sake of argument, though, that the reserve banks were dominant by virtue of legal differences, so that the competitive effect of price discrimination by the reserve banks would have to be considered. The concern in competition law regarding price discrimination by a dominant firm has to do with predatory pricing—pricing calculated to exclude from the market an equally or more efficient competitor. The correct legal test for predation is considerably more strict than the occurrence of price discrimination.<sup>26</sup> While only a dominant firm is likely to be able to engage successfully in predation, a dominant market position confers no special advantage in the successful adoption of price discrimination per se. Thus, if the reserve banks were not engaging in predation, any adverse effect of their price discrimination on competitors could not be imputed to their dominant market position.

Like the investment criteria (that is, the market-entry and service-enhancement criteria) in the White Paper, then, the competitive-impact criteria are drawn narrowly enough to be consistent with economic efficiency. However, in contrast to my impression that the Board is appropriately interpreting the investment criteria, I have a strong impression that it is interpreting the

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as possible, it is evident that the comparison between the latitude for price discrimination accorded to the reserve banks and to their unregulated competitors is really the issue.

<sup>26</sup>cf. Richard Posner, *Antitrust Law: An Economic Perspective*. University of Chicago Press. 1976.