

# The Role of Central Banks in Retail Payments: The Central Bank as Operator

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## I. INTRODUCTION

Central banks throughout the world seek strong economies and stable financial markets. These goals, in turn, rest to a considerable degree on well-functioning payment systems. Payment systems, especially retail systems, are evolving rapidly across the globe. Electronic payments are becoming the norm. New technologies, new participants, and new market structures continue to arise. Recognizing the significant changes underway, many central banks have been re-evaluating their role in their respective retail payment systems. This paper looks at the operator role in particular.

The first section of the paper addresses the operator role in both theory and practice. It first examines the various objectives, roles, and economic rationales that central banks rely on in formulating and implementing payments policies. It then surveys specific operator roles that central banks play throughout the world. The second section of the paper offers a description and analysis of a specific case study, the Federal Reserve. It first examines the Federal Reserve's past and current involvement as a retail payments operator. It then explores future options. The paper ends with some closing thoughts.

## II. OPERATOR ROLE: THEORY AND PRACTICE<sup>1</sup>

### A. Objectives and Roles

Safety and efficiency are the principal objectives of central bank retail payments policy. Virtually all central banks stress safety, and most stress efficiency. Some central banks also highlight accessibility, for example, the Federal Reserve. Others add competitive conditions as an explicit objective, for example, the Reserve Bank of Australia.

Fostering safety in retail payments is typically interpreted broadly as seeking an environment in which economic agents are able to undertake transactions smoothly and securely. In some cases, central banks use the alternative term, integrity, to describe this objective. Integrity arguably is a richer, more informative term in that it draws attention not only to the safety and soundness of individual payments entities but also to the safety and soundness of a payments system operating as a whole. A retail payments system must have integrity—it must be reliable, and it cannot be vulnerable to disruption or failure at any point along the payments chain.

Fostering efficiency in retail payments is similarly broadly interpreted. While rarely formally defined, most central banks appear to regard an efficient payment system as one that uses a minimum of economic resources for a given level of economic activity. Efficiency, of course, is influenced by such factors as technology, innovation, market structure, and competitive conditions, all of which are taken into consideration to varying degrees by central banks.

Central banks serve three principal roles in retail payment systems: operator, facilitator (catalyst), and overseer. The level and type of involvement in these three roles vary widely across central banks, reflecting different histories, institutional structures, and legislative authorities.

The operator role of central banks falls along a spectrum. In many countries central banks offer final settlement on their books for some retail payment systems. Some central banks also provide direct clearing services for some retail systems. In addition, many central banks provide retail payment services to government agencies, and some maintain databases for security and fraud mitigation purposes. Central bank operator activities are surveyed in greater detail below.

The facilitator, or catalyst, role of central banks also falls along a spectrum. Activities range from maintaining contacts with private sector firms, to conducting research on important payments topics, to encouraging and initiating various market outcomes. Central banks sometimes work with other public authorities in their catalyst role and also often draw on their strong relationships with their country's financial institutions and banking and payment associations.

It is in their role as overseers that central banks' involvement in payment systems has evolved the most in recent years. The Bank for International Settlements has observed that "the concept of central bank oversight of payment and settlement systems has become more distinct and formal in recent years as part of growing public policy concern with financial stability in general...and the function has now come to be generally recognized as a core responsibility of central banks (2005)."

As in the case of operator and facilitator involvement, the level and type of oversight activity varies considerably from central bank to central bank. Some central banks have explicit legal authority and powers for retail payments oversight. Others have less well-defined authority and powers. Oversight activities can range

from general monitoring of payment market developments, to establishing industry rules and standards, to on-site supervision of specific firms and networks.

## B. Economic Rationales

Central bank involvement in retail payments is almost always undertaken in furtherance of one or more of the overriding objectives discussed above. So, at its most general level, a central bank's involvement is almost always grounded in broad public policy considerations. But often underlying these broad public policy rationales are more distinct economic rationales. Sometimes these economic rationales are made explicit, sometimes they are not.

*Comparative advantage and economies of scope.* One economic rationale underlying payments policy is comparative advantage and economies of scope. Virtually all central banks maintain reserve or settlement accounts on behalf of major financial institutions. Because of this, it is sometimes argued that central banks have a comparative advantage in performing intrabank funds transfer services—there may be economies of scope between maintaining these accounts and providing funds transfers among these accounts.<sup>2</sup> This comparative advantage/economies of scope consideration, along with a near-universal concern over systemic risk (see below), is the reason why most central banks in fact operate large-value (wholesale) payment systems. While economies of scope are typically not offered as a rationale for retail payments involvement, the possibility has been raised.<sup>3</sup>

*Market failures.* A second economic rationale underlying payments policy is market failures. A market failure is generally defined as a situation in which market forces lead to an inefficient allocation of resources. This can mean that a given service or product is being produced at a higher cost than necessary, or that a service or product that is being produced is not fully consistent with the preferences of consumers. Assessing whether a market failure is present can be a difficult task, however, and grey areas abound. In payments markets, market failures can potentially arise for a number of reasons.<sup>4</sup> It is convenient to group these into three categories: externalities, noncontestable monopolies, and asymmetric information.

An *externality* exists when the benefits or costs accruing to an individual agent taking an action do not coincide with the benefits or costs accruing to society as a whole as a result of that action. Externalities can be either negative or positive.

One example of a negative externality is that associated with *systemic risk* in payments systems. Systemic risk is the risk that the failure of one party in a payments system will lead to the failure of other parties in the system, having a domino effect that may eventually be transmitted to other parts of the financial system or economy. Systemic risk can arise from externalities because individual agents conducting transactions in a given payment system will not take into account the effect that a late payment or insufficient funds on their part could have on the system as whole. Central banks throughout the world devote considerable resources to monitoring and evaluating large-value payments systems and any associated systemic risk.

Another, related, example of a negative externality arises in the context of *underprovision of safety measures* in a payments system. Payment systems typically involve a large number of entities, including networks, banks, processors, merchants, security firms, Internet service providers, and so on. Schreft (2007) has noted that a data breach at any one of these entities could have a major impact on all of the others, but individually, none of the entities has an incentive to take this interdependence into account when making security investments. As a result, safety measures could well be inadequate for the system as a whole.

A third example of an externality, this time a positive externality, arises in the context of so-called *network effects*. Payments products and services often involve networks that require a critical mass of participants on two sides of a market. For example, enough merchants must be willing to accept a specific form of payment for consumers to use that form of payment, and enough consumers must use that form of payment for merchants to install the necessary hardware and software to accept that form of payment. But because individual incentives do not take into account such network effects, such products and networks may not develop, even though consumers and merchants, once the product or network was in place, would benefit.

Closely related to this are *coordination difficulties*. Situations may arise in payments markets where coordination among participants would be beneficial to all concerned—for example, adoption of uniform standards, adoption of a common technology, or use of single shared resource. But agreement on a specific standard, technology, or business practice may be difficult to achieve since participants will typically vary in size and preferences, and some may be tempted to “free-ride”—that is, bear little or no cost—on any agreement that might be made. Such coordination difficulties are another example of an externality, in which the benefits to participants in sum are greater than the benefits to individual participants. The result is an underprovision of services or products.

A second type of market failure potentially impacting retail payments is *non-contestable monopolies*. Because there are large economies of scale in processing electronic payments, it may be cost-efficient for just a small number of firms to operate. But this, in turn, may give these firms significant market power, which can lead to monopoly or near-monopoly pricing and provide insufficient incentive for innovation. If such firms believe they have potential competitors who could enter their market—that is, if their market is contestable—competitive conditions could still prevail. But in the absence of credible contestable threats, economies of scale can lead to a monopolistic or near-monopolistic market structure.

A third type of market failure potentially impacting retail payments is *asymmetric information*. An example is when a seller of a payments service knows more about the security features of that service than a potential buyer (Schreft 2007). Naturally, the seller wants to highlight the positive features of the product but has

little incentive to reveal any negative features, for example, poor fraud protection. If the buyer is able to find another seller selling the same service but with better fraud protection, there is no problem. But if such information is difficult to verify, sellers with strong fraud protection are unable to differentiate their product and hence have little incentive to provide this protection. The result is, this asymmetric information can lead to lower average fraud protection than some buyers would be willing to pay for.

*Public goods.* A final economic rationale potentially underlying payments policy is so-called public goods. A public good, once supplied, can be consumed by all without limiting the consumption of others. Because a public good is available to everyone, individuals have little incentive to pay for additional increments of the good since they will be able to enjoy any additional increments paid for by others—this is the so-called free-rider effect. The result is an underprovision of the good.

Some have argued that payment system safety and efficiency are examples of public goods and have used this line of reasoning to suggest a role for central bank involvement. At its core, however, is the more fundamental rationale of externalities. As noted above, externalities can lead to an underprovision of safety measures. And network effects and coordination difficulties can lead to an underprovision of efficient payments products and services.

*Additional considerations.* While economic rationales are clearly important, other considerations also factor into the nature and extent of central bank involvement in retail payments. A key consideration with respect to a potential operator role is ensuring that the central bank does not have an unfair competitive advantage in offering a particular payments service or product. In the case of the Federal Reserve, for example, the Monetary Control Act of 1980 and ensuing pricing principles adopted by the Board of Governors require full cost recovery, including all operating and float costs and imputed taxes and return on capital for each service line offered.<sup>5</sup> In the case of the Eurosystem, the cost recovery principle states that “in order to avoid competitive distortions or a crowding-out of market initiatives, NCBs (national central banks) which offer retail payment services to credit institutions take due account of the requirements and competitive environment of the market concerned, including cost recovery.”<sup>6</sup>

Central bank involvement in retail payments—as operator, overseer, or facilitator—may be subject to other criteria and considerations as well. For example, does a particular payments activity—a new service, a new regulatory requirement, or a new industry initiative—carry an acceptable level of operational, reputational, or financial risk for the central bank? Are there potential legal restrictions associated with a new activity? What degree of reversibility or irreversibility is inherent in a given planned investment? What kind of private sector response is anticipated in light of a new initiative by the central bank?

**C. Operator Role in Practice**

As noted earlier, central bank involvement in retail payment operations varies considerably across countries. In some countries, the central bank has little or no presence. In others, the central bank has a significant presence.

Many central banks provide settlement services. The central banks of all G10 countries and Australia, for example, provide settlement services for some, although typically not all, retail payment systems.<sup>7</sup> This settlement takes place on the books of the respective central banks. Depending on the particular country, payment systems making use of this service include paper-based systems, usually checks; direct debit and credit transfer systems; some debit card and ATM systems; and some e-money systems. Credit card systems, in contrast, typically do not make direct use of central bank settlement services, nor do postal and other giro systems.

A number of central banks also offer direct clearing services to various retail payment systems. A recent World Bank study reports that 102 check clearinghouses serve 116 countries (2008). Central banks operate 57 percent of those clearinghouses or provide other check services. Similarly, 83 ACH systems processing retail electronic credit transfers and direct debits serve 97 countries. Central banks operate 40 percent of those ACH systems. Tables 1 and 2 list the countries in which central banks perform these services.<sup>8</sup>

In the United States, for example, the Federal Reserve provides both check collection and ACH services. The Federal Reserve has been an active operator in the nation's check collection process since its founding, and it has been a prominent participant in the ACH industry as well. The Federal Reserve's operator activities are discussed in greater detail in the next section of the paper.

In Germany, the Deutsche Bundesbank operates its own Retail Payments System (RPS). RPS is used to clear and settle checks, ACH credit transfers, and ACH direct debits. Roughly 700 credit institutions and other Bundesbank account holders, such as public authorities, use RPS, and they submit about 9 million orders per day. The RPS has a market share of under 15 percent in German payments.<sup>9</sup>

The Bank of Italy manages the BI-COMP clearing system. This system enables participants to settle retail payments made by customers using paper instruments, such as checks, or electronic instruments, such as credit transfers. BI-COMP calculates each participant's multilateral debit or credit balance at the end of each clearing cycle (three per day). Prior, preparatory bilateral clearing of payments is performed by private entities.<sup>10</sup>

A fourth example, the National Bank of Belgium, fully operates the CEC (Centre for Exchange and Clearing) retail payment system. The CEC is a non-profit organization chaired by the National Bank of Belgium, with the board of directors comprising representatives of leading banks, the post office, and the

**Table 1**  
**Central Bank Operates Check Clearinghouse or Offers Other Check Services**

Albania	Egypt	Malaysia	Solomon Islands
Angola	El Salvador	Malta	Sudan
Bahamas	Germany	Mauritius	Tanzania
BCEAO	Ghana	Mozambique	Thailand
Belgium	Guyana	Myanmar	Trinidad and Tobago
Belize	India	Nepal	Uganda
Bhutan	Indonesia	Netherlands	United Arab Emirates
Cambodia	Israel	Antilles	Uruguay
Cape Verde	Italy	Nicaragua	USA
China	Jordan	Oman	Venezuela
Colombia	Kenya	Paraguay	Yemen
Costa Rica	Kuwait	Portugal	Zimbabwe
Cyprus	Lebanon	Qatar	
D. R. of Congo	Lesotho	Romania	
Dominican Republic	Macao	Rwanda	
ECCB	Madagascar	Saudi Arabia	

Source: The World Bank, 2008, "Payment Systems Worldwide—A Snapshot"

**Table 2**  
**Central Bank Operates ACH System**

Afghanistan	Egypt	Latvia	Portugal
Albania	Estonia	Lithuania	Serbia
Austria	Germany	Mauritius	Slovenia
Azerbaijan	India	Moldova	Solomon Islands
BCEAO	Indonesia	Mongolia	Tanzania
Belarus	Italy	Mozambique	Uganda
Belgium	Kazakhstan	Netherlands	USA
Colombia	Kenya	Antilles	Venezuela
Costa Rica	Kyrgyz Republic	Oman	

Source: The World Bank, 2008, "Payment Systems Worldwide—A Snapshot"

Belgian Bankers' Association. The CEC is the central point for channeling a variety of retail payments, including checks, electronic transfers, and card payments.<sup>11</sup>

Finally, in addition to providing assorted settlement and clearing services to market participants, many central banks also offer various retail payment services to other branches of government. And at least two central banks operate databases for payment security purposes. The Bank of France maintains two national databases focusing on check-related matters, while the Bank of Italy manages a database directed at both check and payment card incidents.<sup>12</sup>

### III. CASE STUDY: FEDERAL RESERVE

#### A. Background

As noted in the previous section, the Federal Reserve has historically played a key role in the U.S. retail payments system. The legal foundation for the Federal

Reserve's involvement in retail payments is found in a number of statutes, including the Federal Reserve Act of 1913, the Electronic Funds Transfer Act of 1978, the Monetary Control Act of 1980, the Expedited Funds Availability Act of 1987, and the Check Clearing for the 21st Century Act of 2003. The Federal Reserve has emphasized three overriding objectives for payments policy: safety, efficiency, and accessibility. In recent years, the term integrity has sometimes been used in place of safety to underscore the attributes of reliability, security, and resilience in addition to safety and soundness.

The Federal Reserve acts in all three roles in retail payments: as operator, facilitator, and overseer. Its involvement as an operator is based on guidelines developed in the White Paper of 1984.<sup>13</sup> The White Paper lists three criteria that must be met for the Federal Reserve to consider introducing new services: the Federal Reserve must expect to achieve full cost recovery, the Federal Reserve service must expect to provide a clear public benefit, and the service should be one that other providers alone cannot be expected to provide with reasonable efficiency, scope, and equity. The Federal Reserve's involvement as a facilitator is usually self-initiated and directed at improvements in the overall payments system. For example, the Fed might bring together key industry players to collaboratively address industry problems with interoperability or risk management. The Federal Reserve's involvement as an overseer is based on an assortment of statutes, arrangements, and agreements and is performed by a separate and independent staff that operates at arm's length from the Fed's payments operations staff.<sup>14</sup> The roles and rationales for Federal Reserve involvement as a retail payments operator, in particular, have evolved over the years, as discussed next.

## B. Historical and Current Operator Role

The history of the Federal Reserve System's engagement in retail payments operations flows from the unique demographics, geography, and history of the U.S. banking system.

The United States is a geographically immense country by any standards, consuming more than 3.5 million square miles of varied topography, cultures, and local practices. Over time, the U.S. banking system has embraced large national banks, more modest regional banks, and thousands of small independent banks, savings banks, and credit unions. It is a thriving model of diversity, constantly changing over time, regulated and overseen by no fewer than five national regulatory agencies and 50 state banking agencies.

The challenge for the U.S. payments system is to provide reasonably equal, safe, and sound payments options to its inhabitants regardless of location or banking affiliation. While never officially recorded as public policy, this ideal has seemingly become a *de facto* national objective and is at the core of the Fed's documented financial services mission statement. Unlike many other nations, the U.S. payments system in general, and its retail payments system more specifically, is not

overseen by any single or collective payments authority, government agency, or body of law. Instead, it is essentially a free market outcome, regulated by a series of state and national laws and regulations, as well as private rules and practices, much of which is encompassed in the arcane Uniform Standards Commercial Code (UCC), which is adapted and implemented on a state by state basis.

To an outside observer, such a system may seem ripe for problems, certain to exhibit significant gaps in service provision, and equally certain to underachieve the aforementioned public policy objectives. In fact, some of these weaknesses were in evidence as the United States grew and evolved through its first 125 years of existence.

Individual states printed and minted their own currency and coin, even as the United States divided itself into two federations during the Civil War. But as the nation's footprint expanded through the latter half of 19th century, and as the population became more mobile, the differences became less tenable and Congress moved to fill the gaps. The need to standardize and nationalize currency and coin became evident, and the need to develop another payment instrument, the check, to avoid transporting great quantities of cash about the country became obvious. The U.S. Treasury took on the first challenge, but they needed another entity to be their agent in tackling problems of geography, moving currency and coin, and clearing checks about the country in ways that promised equity and safety.

Consequently, as industry leaders gathered in the early 20th century to address a number of banking issues, they created the Federal Reserve, replete with a national footprint of regions, offices, and staff. In the process of citing the responsibilities of the Federal Reserve and attempting to achieve a fully liquid supply of money, they noted some of the gaps in the existing system of payments and in a subtle, but historical way, they charged the Fed with a specific duty—to clear and settle funds for checks deposited at the Reserve Banks. From this seemingly innocuous beginning, the Fed's role in check clearing evolved. The Reserve Banks became the glue to hold together 50 states' worth of payments practices.

As the population grew, the number of checks being written grew even more rapidly, and the Reserve Banks evolved to meet the challenge of providing an efficient, effective, and timely check clearing network by opening a number of regional check processing centers around the country.

Over time, with the advent of sophisticated computer technology and the further evolution of technology-based firms, the Fed's role was challenged as a potentially unfair competitor to a private sector anxious to build new payments businesses on the backs of their automation capabilities. But absent a structure to allow interstate banking, the need to maintain the glue to operate efficiently across 50 states was still present.

Consequently, in 1980, as a secondary issue to resolving an increasingly ineffective reserve accounting system, Congress moved to address industry concerns,

not by taking away the Reserve Banks' role, but by establishing guidelines to ensure that Fed/private sector competition took place on a level playing field. Reserve Bank check and ACH clearing services were made available to all financial institutions. In return, the Reserve Banks were directed to price their wire transfer, check, and ACH services in a specific fashion so as to cover all direct, support, and overhead costs, in addition to a Private Sector Adjustment Factor (PSAF) that included the imputed value of taxes, insurance, and return on equity typical of a private entity.

As the technology of the payments system matured in the late 1960s and early 1970s, leading banks began to discuss ways to take advantage of the technology to improve payments system efficiency and effectiveness. The concept of electronifying many types of payments for which checks were popular was spawned in the form of the ACH, first in California in 1972 and then in Georgia in 1973, and over a period of years, in Minnesota, New England, and the rest of the country.

The ACH concept viewed ACH transactions as direct replacements for checks and created clearing models that directly mimicked the clearing approach for checks, recognizing that these so-called "electronic checks" needed to be originated, edited for key elements, presented to other bank counterparties, and settled between all parties to the transaction. While the depositing, clearing, and settlement could be performed by computing systems, delivery to customers' banks represented a huge operational challenge. Only a few banks were prepared to accept electronic media, and the evolution to universal electronic receipt appeared likely to be lengthy.

Consequently, collectives of banks, frequently organized within Federal Reserve territories, formed local automated clearing houses and recognized the need to provide for paper output media as a means of allowing originating banks to achieve benefits from electronic origination, while receiving banks worked through their extended business cases for electronic receipt. These local ACHs realized that the best way to ensure timely, efficient delivery of paper payments information was to piggyback them on the nation's existing local check transportation networks, most of which were provided by the Federal Reserve. As a result, most Reserve Banks became ACH service providers for their regions.

Over time, the need to exchange ACH payments between regions became clear, and the banking community turned to the Federal Reserve, the nation's only national check clearing entity, to develop an interregional ACH exchange capability using the Fed's national check transportation network. That network already accessed all financial institutions across the country, thereby providing the universal connectivity needed for every bank to originate and receive payments on behalf of their customers. In local areas where private sector check clearing houses had been established (New York, California, and Arizona) the private clearing houses provided local ACH services and interchanged payments with each other and the Fed to achieve national coverage.

In the late 1980s, the Federal Reserve followed the lead of the New York Clearing House and mandated the advent of an all-electronic ACH network. California and Arizona joined in, and a fully electronic, national ACH network was born. Moreover, the payments formats, rules, and practices for exchange were developed by the private, bank-owned National Automated Clearing House Association (NACHA). The Reserve Banks, in collaboration with the other three ACH operators, agreed to bind their customers to the privately developed rule set as a means to ensure universally compatible standards among all banks. This certainty of specifications then resulted in the emergence of multiple software vendors who supplied the systems for banks to use to originate and receive ACH payments.

Ironically, the general process for moving to an all-electronic ACH network has been virtually duplicated in the wake of Congress's move to electrify the nation's check clearing system in 2004. Private sector providers and the Federal Reserve worked collaboratively to develop and adopt formats, rules, and procedures for electronic check image exchange, this time under the auspices of the American National Standards Institute (ANSI). In essence, the history of the Federal Reserve's operational presence in retail payments is accented by continuous collaboration with the industry in the areas of standards and rules that produce universal interoperability for all service providers.

In addition to being an efficient universal service provider and a prominent industry collaborator, the Reserve Banks have also served as a trusted intermediary in times of stress. In the wake of the "no fly" ban during the 9/11 crisis, the Fed played a lead role in getting the check clearing system operational within three days and, in the interim, guaranteeing deposit settlement to collecting banks even though the items could not be presented for collection on a timely basis. In essence, the Fed absorbed the float as a means of meeting the president's public policy commitment to keep the nation's payments system operating. When Hurricane Katrina devastated the Gulf Coast, the Reserve Banks took the lead in working with other payment providers and financial institutions to move check and ACH payments in and out of devastated areas. And in 2008, amidst the erupting financial crisis, the Reserve Banks became a safe harbor for clearing and settling payments transactions when the financial stability of some institutions was in doubt. In summary, the Fed operates its payments businesses in a highly competitive, fully transparent fashion, day in and day out. But the Fed is also in a position, as a quasi-governmental agency, to change hats during times of disruption to do the things necessary to preserve the integrity of the nation's public payments infrastructure.

### C. Future Operator Role

Looking to the future, and recognizing that the roots of the Fed's involvement in retail payments center around the check collection system, some observers have suggested that the Fed's role is no longer necessary in a fully electronic payments network. There appears to be an assumption that the opportunities of new technology and the presence of the Internet will allow financial institutions to privatize

all payments clearing and settlement and easily create the ability for banks to present items directly to other banks in the same way that individuals can send e-mails and text messages directly to any other individuals. From a purely technological viewpoint, such an outcome is clearly possible. However, from an economic efficiency and safety and soundness view, the path to the future may be less simplistic.

Transacting payments is a very different business than routing e-mails, in that issues like data security, data privacy, settlement risk, counterparty risk, relationship management, efficiency, contingency, and exception handling become far more important. As a result, countries around the world characterized by primarily electronic payments networks and a large number of financial institutions have consistently maintained one or more clearing houses, switches, or payments intermediaries as a cost-effective alternative to manage the issues noted above on behalf of all parties.

Absent such central utilities, banks interested in direct relationships are frequently confronted with the need to negotiate one-off bilateral legal agreements and implement non-standard technical, operational, problem management, risk control, and customer service procedures with each organization. Consequently, banks typically employ such direct relationships with a limited number of high-volume or high-value endpoints. In a future environment sensitized to the current financial crisis, confronted with worldwide growth in payments fraud, and scrambling to find profit margins in commoditized payments products, the use of intermediary clearing and settlement agencies seems likely to be a meaningful part of any efficient and effective payments solution.

The role of a central bank such as the Federal Reserve continuing to be a retail payments central service provider, however, is a more debatable issue, centered in a nation's view of the public policy nature of a payments system. If one believes that the U.S. will continue to be a country of thousands of geographically and functionally diverse financial institutions, then one might believe that the role of the Fed in the future will still exist in some manifestation of its current form.

This continuing role, however, must be predicated on the Reserve Banks meeting the market test of cost/revenue match under the stipulations of the Monetary Control Act so as to avoid the possibility of subsidization that would distort market outcomes. Given the partial public good role of the Fed, this remains an ongoing challenge, but it also ensures a level playing field fundamental to justifying a central bank's role in payments operations. In fact, the issues that dominate the industry today—financial stability, risk management, fraud, and consumer protection—might seem to cry out for the engagement of a fair and properly motivated public entity that can balance the welfare of all parties in times of success and times of stress.

Optionally, the Fed could retreat from its current role over a period of time to foster a fully private retail payments solution, such as is the case in a large number

of countries across the globe. The Fed could assume the role of a payments regulator developing and implementing regulations, as appropriate, to deal with the issues of efficiency, integrity, and equal access noted above. Such an option would allow the private sector to fill the gaps in service left by a Fed withdrawal over time and remove any arguments of public subsidies and unfair competition that are occasionally raised in criticism of the Fed's current role.

Typically, such solutions feature one or more national clearing entities, as well as the needed number of regional and local organizations to create universal access and coverage. Prices and service features are determined by each party, and competition weeds out ineffective players. Participants generally agree to compensate each other for use of each other's networks as a means of ensuring universal coverage. Over time, service levels, security, and other factors are determined via law and regulation devised by a national payments authority.

Of course, U.S. card networks work in this manner today, although the public oversight infrastructure in place is not clearly defined or, some would argue, terribly responsive. As a result, a wide range of issues are in debate with regard to service and pricing practices in the card world, including interchange fees, interest rate levels, credit limits, identity theft, denial of service, and collection practices.

Congress is currently debating the possible need for a broader consumer protection agency and a payments system oversight agency to help address these and other issues. Such outcomes could help address the issues at hand, but experience in some other countries suggests another set of potential problems with a fully privatized, government-regulated payments system: the promulgation of laws and regulations that address emerging problems on a piecemeal basis absent hands-on experience in the marketplace and a comprehensive understanding of the underlying business economics of proposed changes. For example, regulation directed at achieving technology changes with short lead times or focused on requiring certain pricing regimens may distort market outcomes by creating impractical business cases for market participants. Experience has shown that participants may then drag their feet in implementation and cut corners in other areas to create the business case.

Further, in times of stress, public policy stances are arguably harder to implement in fully privatized systems where maximization of profit for the private entity, as opposed to overall public welfare, is the appropriate driving force. Price gouging at gas stations and retailers during natural disasters is an example of this phenomenon. In summary, privatization of all retail payments infrastructures in the U.S. is an option for the future, but with that option comes a number of challenging issues.

To address those questions, would it be reasonable to raise an equally provocative alternative—the extension of the Federal Reserve into the card network space? Such a possibility has been raised in the past by various banking organizations who feel that card company practices favor some providers over others and that pricing practices are unfair and exorbitant. Likewise, retailers have filed and won lawsuits

challenging mandated practices by the card companies. The presence of a public-policy-oriented intermediary such as the Federal Reserve, it has been argued, could deliver many of the same benefits accrued over time in the check and ACH systems, with the Fed acting as one of the major intermediaries between large and small banks, ensuring that reasonably equal access, efficiency, and integrity of the system is in place. Critics of such proposals have countered that such intervention is completely unnecessary, and that the card industry effectively and successfully meets the needs of its customers.

From a very practical perspective, it should be noted that the card market is fully mature, and that current providers have invested millions in the existing infrastructure and relationships. A new entry into the market would have to raise and invest capital sufficient to provide promising scope and scale economies to be successful over the long run. This barrier has prevented any meaningful new entrants into the card markets in recent years.

In fact, history has shown that many electronic service markets tend to become oligopolies over time as the largest players benefit from growing economies of scale. These economies result in commodity pricing and reduced margins that drive out smaller, less efficient players and serve as a barrier of entry to new players, absent any dramatic developments (for example, economic collapse or massive fraud) that would redefine the public policy aspects of the system. Without substantial government subsidies, therefore, it appears unlikely that the Fed could easily or efficiently enter the card market at a scale that would invite long-term success.

#### **IV. CLOSING REMARKS**

These are challenging times for central banks. Over the past two years, global financial markets have experienced a level of turmoil not seen in decades. Economies worldwide have entered, and are struggling to emerge, from severe recessions. Central banks are being called upon to help restore economic and financial stability throughout the world.

Less visible, but no less important, are challenges facing central banks regarding payment systems. Well-functioning payment systems provide the underpinning for virtually all financial transactions and economic activity. Ensuring a safe and efficient payment system, therefore, is a mandate shared, implicitly or explicitly, by all central banks. Yet the environment in which this mandate is being addressed is changing in important ways. This is especially true of retail payment systems, which are evolving rapidly across the globe. Electronic payments are becoming the norm. New technologies, new participants, new risk profiles, and new market structures continue to arise. In response, many central banks have been re-evaluating their roles in their respective retail payment systems.

This re-evaluation will continue in the months and years ahead. What market developments and conditions warrant central bank activity in retail payments? More specifically, what types of economic rationales—market externalities,

noncontestable monopolies, asymmetric information—provide a basis for central bank intervention? Should that intervention, if deemed appropriate, take the form of operator, facilitator, or overseer? And, if operator, what types of activity are suggested? Such questions remain critical items on central bank agendas.

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## ENDNOTES

<sup>1</sup>Much of this section draws on Weiner (2008).

<sup>2</sup>See Green and Todd (2001) for discussion.

<sup>3</sup>See Stern (2005).

<sup>4</sup>Lacker (2005) provides a contrary view, arguing that market failures are largely absent from payments markets.

<sup>5</sup>Federal Reserve (1984).

<sup>6</sup>European Central Bank (2005).

<sup>7</sup>Table 1 in BIS (2003) provides a list of settlement and clearing activities of the G10 and Australian central banks.

<sup>8</sup>Retail payment operator activities and governance structures vary widely across countries. In addition to those noted in the Tables and discussed in the text, some other examples include: The Reserve Bank of Australia is involved as an operator but in a limited way, calculating the net settlement obligations for a number of retail systems; see BIS (2003). In Switzerland, the Swiss National Bank (SNB) oversees the Swiss Interbank Clearing (SIC) system, which is operated by the Telekurs Group (jointly owned by banks) on behalf of the SNB; see Swiss National Bank (2009). In Canada, the Bank of Canada does not have an operator role but does chair the Canadian Payments Association, which operates Canada's national payment systems; see Bank of Canada (2009).

<sup>9</sup>Deutsche Bundesbank (2009a, 2009b).

<sup>10</sup>Banca D'Italia (2009).

<sup>11</sup>National Bank of Belgium (2009).

<sup>12</sup>Banque de France (2008) and Banca d'Italia (2008).

<sup>13</sup>See Federal Reserve System (1984).

<sup>14</sup>For discussion of the Federal Reserve's facilitator and oversight roles, see Weiner (2008).

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