

A Central Bank View of Emerging Consumer Payment Systems

Conference On

**Making Electronic Commerce Work
In Today's Financial Services Industry**

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It is a pleasure to be here today to discuss with you the role of electronic commerce in the financial services industry. In preparing my remarks for today, I quickly came to one conclusion -- that is, it is very difficult for a senior Federal Reserve official to speak on a topic, such as electronic commerce and the associated, emerging, electronic retail payment systems, without immediately seeing these developments from multiple perspectives. This conclusion stems from the consideration that the Federal Reserve plays three major roles in our nation's economy. The Federal Reserve is responsible for the formulation and implementation of monetary policy; it acts as the supervisor for many of the banking organizations that will be active in the electronic marketplace for financial services; and the Federal Reserve provides banking services for the banking industry, including payments services and discount window advances.

Electronic commerce, in my view, has the potential to affect each of these three areas in important ways. As a result, rather than trying to focus my remarks on just one dimension of electronic commerce, I concluded that you might find it more useful if I touched on the full range of issues in my discussion today. This approach should help you appreciate the many ways electronic commerce could potentially affect the financial services industry. But at the same time, this broad-brushed approach will prevent us -- owing to time constraints -- from going into too much detail on any one issue. Most likely, however, you would prefer to research the details carefully on your own time, depending on your individual needs and perspectives.

Therefore, with this broad-scoped strategy in mind, let me begin my remarks with a brief overview of the competitive implications of the movement toward greater reliance on electronic commerce in the future, then turn to the role of banks and bank supervision issues, next move onto the monetary policy issues, and then finish up with the role of the Federal Reserve in the payment system.

1. Vision of Electronic Commerce for Financial Services.

The title of this conference: "making electronic commerce work in today's financial services industry" reveals just how seriously the financial services industry already is taking the concept of electronic commerce. And for good reason. Banking, securities brokerage, insurance, and mutual funds all tend to be information-processing based businesses that already are highly automated. What the Internet allows us to do is shop for and purchase these products electronically, in an interactive mode, from remote locations, with some rather profound longer run implications.

Electronic commerce has the potential to reduce greatly geographical constraints for the marketing of many goods and virtually eliminating them for others. The potential for electronic commerce in this regard can already be seen for products that can be delivered by the ubiquitous overnight delivery services -- like books and compact disks -- and it is particularly true for products and services that can be provided electronically -- like financial services. Therefore, the number of potential low-cost competitors for providers of many goods and services, including financial services, will increase manyfold as consumers turn to the Internet and move beyond their conventional geographic barriers in shopping for these services. There is, however, one caveat here; the financial services firm will need to consider whether it can, consistent with local law provide banking services across borders.

The Internet's information retrieval capabilities also makes comparison shopping among standardized products very straight-forward and attractive to consumers. Similarly, the opportunities for finding new customers among comparison shoppers will provide financial services providers with an incentive to standardize their products so they can be offered in this highly efficient environment. This commoditization of financial services products will inevitably put pressure on profit margins and will reward the services providers that can achieve highly efficient operations through economies of scale. This need for scale economies will provide additional impetus to the consolidation in the financial services industry already evident almost daily in the financial press. I will return to this important subject of consolidation in a few moments.

But first, we need to touch on the idea that Internet commerce is much more complex than a consumer turning on a personal computer and a merchant maintaining a web site. A virtually impenetrable security infrastructure for exchanging purchase and payment information must be created. Internet commerce has three major security requirements:

The first requirement is that Internet sites themselves are protected from external as well as internal attacks. A successful "hack" into an Internet site that results in loss of information or the posting of inaccurate or inappropriate material on the site can result in significant reputational damage to the financial services provider and loss of confidence by consumers in electronic commerce. Major legal liabilities and meaningful financial losses are also potential problems.

The second security requirement is for secure communications and payment mechanisms. Consumers' concern about security is currently one of the major impediments to widespread use of the Internet for electronic commerce.

The final security requirement for successfully conducting electronic commerce over open networks like the Internet is for financial services institutions to "know their customers." That is, they must be able to identify with virtual certainty the person with whom they are doing business, even though that person is represented by electronic impulses that may be emanating from anywhere in the world.

Efforts to address each of these areas of concern (secure Internet sites, secure communications and payment mechanisms, and effective authentication) are moving forward rapidly and, in some cases, are already in use. But some important technical, legal, and operational issues remain to be resolved in each of these areas. Nonetheless, developments to date offer encouragement that these issues can be successfully resolved. Let me just give you a hint of what is going on in each of these areas.

(1) "Firewalls" for protecting Internet sites from external attack are readily available from several vendors, although these vendors are constantly challenged by the ever-increasing sophistication and computing power of attackers. The Federal Reserve's views on the appropriate measures for protecting bank Internet sites are laid out in Appendix B of SR Letter 97-32, which can be found on the Board of Governor's web site.

(2) Encryption techniques for securing communications, including payment instructions, are continuously evolving and improving. Although these techniques are also constantly tested by ever-more sophisticated and powerful code-breaking procedures, a consensus seems to be developing that current encryption technology adequately protects e-commerce transactions.

(3) And finally, the use of digital and other electronic signatures shows great promise for customer and vendor authentication. Already some State governments are beginning to give these digital and other electronic signatures the same legal status as hand-written signatures. Nevertheless, issuing institutions will face risks and challenges in monitoring the use of these certificates to detect fraudulent use as quickly as possible. The liabilities for issuers of digital certificates that are used in the course of fraudulent transactions have not been clearly determined at this time.

2. Banking Markets and Bank Supervision Issues.

If these security issues can be successfully resolved, banks, I believe, will be actively engaged in electronic commerce at two levels: (1) marketing their savings and credit products electronically over the Internet and (2) helping create the payment infrastructure, including the processing capabilities, for making secure transactions on this open, electronic network. This active involvement of banks in the electronic delivery of financial services, in turn, could affect banking markets, creating some potentially important bank supervision issues. Let me lay out the logic of this argument in a little more detail.

Banks have traditionally played a key role in the payments mechanism, by distributing paper currency, contributing to the check-clearing infrastructure, and participating in electronic payment mechanisms such as the ACH and Fedwire. I expect that banks will continue in these roles and provide payment services for electronic commerce via the Internet. Banks are in the forefront of using encryption technology to secure communications with their customers and are collectively very active in exploring alternative payment systems such as electronic Internet-currency, electronic checks, stored value cards, and the development of secure credit card applications. Banks may also find a natural role as "certification authorities" -- that is, issuing digital certificates to authenticate their customers for electronic commerce. If banks are successful in delivering the full range of banking services electronically, rather than through brick-and-mortar branches, banking markets could change dramatically.

Electronic delivery of banking services may accelerate the trend toward consolidation in the financial services industry already well underway because of the ending of the restrictions on interstate branching and the blurring of distinctions among which financial services banks and their nonbank competitors can offer. Large capital investments are necessary for successful electronic commerce, primarily because of the required security and communications infrastructure and the need to integrate current systems and databases for various products and customers -- often referred to as "legacy systems" -- into seamless, integrated networks. In addition, as previously noted, substantial rewards will be gained from efficient operations resulting from the economies of scale associated with the processing of large volumes of payments and commoditized financial products. Smaller banks will need to determine whether and how they also will be able to reap these benefits, which in their case might be gained through joint arrangements and outsourcing.

Electronics will alter the competitive landscape in other ways as well. Banks and other providers of financial services are now concerned that the rewards accruing to economies of scale, efficient operations, and technological virtuosity may result in the encroachment by powerful nonbank competitors into all aspects of electronic commerce, including financial services and payments mechanisms. These powerful nonbanks could become full-fledged competitors, or they could operate large-scale, low-cost processing centers where banks could outsource key segments of the origination and management of electronic-commerce transactions in order to keep their costs as low as possible. In addition, a struggle appears to be developing for control of the user's access -- known as the "user interface" -- to electronic commerce. If powerful nonbank competitors control the critical user access to electronic commerce, these "gatekeepers" may charge a fee for every transaction, further eroding banks' margins on commoditized financial services. If banks end up losing the consumer interface as well as being put in a position of outsourcing their processing, they could effectively be disintermediated and cut off from their customers, as consumers become indifferent to who holds the underlying transactions deposits. Banks believe that they will need to be extremely aggressive and proactive to maintain their desired role in electronic commerce, and banking groups such as Integriion and the Bankers Roundtable have undertaken major initiatives along these lines.

Exactly what this all means for bank supervision is difficult to know at this time, but we can speculate about one possibility. The requirements of large capital investments in technology and achievement of economies of scale could result in the longer run in a relatively small number of large, highly efficient and technically proficient financial services firms offering a broad scope of products. These large, technically sophisticated and organizationally complex entities could pose significant challenges to financial supervision, with technology playing an increasingly important role in shaping that challenge.

An institution's technological capabilities often contribute to its strategic opportunities, risk profile, and quality of management processes. In recent years, technology has been a far more important driver of the upward and downward fortunes of financial firms than is generally recognized and could become even more important in the future. It is imperative, therefore, for supervisors to develop among their staffs a much fuller understanding of technology and its interaction with risk management, internal controls, information security, and management reporting systems in much the same way we expect bank examiners to have a solid grounding in basic financial risk analysis and internal control concepts.

Nonetheless, the potential scale and scope of these large financial firms will make it difficult for financial supervisors to accurately assess the risks associated with the operations of these organizations. Moreover, the rate of technological change is unlikely to slow in the future, and it is already quite difficult for supervisors to stay technically current. These trends, in turn, will reinforce the move toward risk-focused supervision, which the Federal Reserve has already adopted for bank supervision. Under this approach, the examiners' attention will be focused on those activities posing the highest or least well understood risks as well as assessing the firm's internal checks and balances for its other activities, rather than directly checking each and every one of these activities through the examination process.

These large financial entities with unconstrained geographical reach and broad product ranges raise other policy issues. By now, some of you, I suspect, are thinking that it was not all that long ago when banking was simpler, smaller, and geographically constrained and policy makers were concerned about the moral hazard created because some banks were perceived to be "too big to fail". With the distinct possibility that e-commerce could contribute to the creation of very large, complex banks, an important consideration in financial supervision is ensuring that the quality of management processes, management oversight, and, importantly, corporate governance at banks is sufficient to ensure that "too big to fail" does not become an issue again.

These large firms with many nationwide and international financial services offerings will, of course, also pose many knotty jurisdictional problems. The issue of enhancing supervisory information sharing and coordination has been squarely on the table since the failure of Barrings. The international organizations of banking, securities, and insurance supervisors -- the Basle Committee on Banking Supervision, the International Organization of Securities Commissions and the International Association of Insurance Supervisors -- have created a joint forum to address these issues. This joint forum has developed a set of proposals that is currently out for comment and is available from the Basle Committee's website. A key observation from this effort is the vast scope of the challenge created for supervisors by firms managing global, financial businesses, in a unified manner, that cut across the legal-entity structure on which supervisory jurisdiction is now based. Looking ahead to the time when electronic networks increasingly become the delivery channels for financial services, we should not underestimate the additional challenges to the supervisory framework that could well develop.

For example, another issue that will continue to surface is analysis of bank mergers. As more financial products are offered on a uniform, nation-wide basis, antitrust analysis will need to develop better tools and new perspectives. Clearly, local geographic markets will become less relevant. Even analyzing the share of deposits held by the merged institution on a state-wide basis might become less relevant if out-of-state institutions can effectively compete through electronic delivery channels.

3. Monetary Policy Issues.

I would like to turn from the challenges for bank supervision and reflect for a few minutes on whether any important challenges will be created for monetary policy as we move toward greater reliance on electronic commerce. In many respects, the payments mechanism for electronic commerce will consist of new ways to access existing banking relationships -- that is, new ways will be created for consumers and banks to communicate, but the underlying payment instruments will be fundamentally unchanged. For these cases in which new payment instruments are not created, we do not anticipate any problems for monetary policy. Electronic money, in contrast, does represent a new payment instrument because, in essence, electronic money is electronic notes or bills of exchange issued by the private sector, not by the Federal Reserve as is the case with paper currency.

Whenever I mention electronic money and commerce in the context of monetary policy, people immediately ask me whether these developments will affect the measurement of the money supply, especially if nonbanks issue electronic money. The money supply continues to lose much of its value as an indicator and target for monetary policy because of other innovations such as retail sweep arrangements, strong demand for U.S. currency overseas, and greater consumer acceptance of stock and bond mutual funds. Electronic money just becomes another reason not to focus too much attention to the money supply in the policy deliberation process; although I suspect to the extent we have good data, we will still include electronic money in the appropriate measures of money. Central bankers in other countries, however, such as Germany, that still rely quite heavily on the money supply in the policy process, may not dismiss this problem in such a cavalier way as I just did.

But there are also some other potential implications for monetary policy that are often overlooked. If you take a look at the Federal Reserve's balance sheet, for example, you will notice that roughly 90 percent of its liabilities is represented by currency in circulation, and roughly 90 percent of its assets is held in the form of United States Government securities. The Federal Reserve's holdings of government securities, in turn, are important for two reasons:

(1) the Federal Reserve influences short-term interest rates by buying and selling these securities in the open market -- so called open market operations, and (2) the interest earned from these securities, although for the most part returned to the U.S. Treasury, is the source of income that pays the expenses of the Federal Reserve and, therefore, helps to maintain the independence of the Federal Reserve within the government as it implements monetary policy, in pursuit of longer run economic stability. As a result, if privately issued electronic money replaced paper currency now issued by the Federal Reserve, the resultant reduction in the Federal Reserve's balance sheet potentially could impact the way monetary policy is implemented.

This issue, of course, is highly theoretical in nature because electronic money issued by the private sector is unlikely to replace paper currency to a large degree in the foreseeable future. As a matter of fact, it is estimated that as much as two-thirds of the U.S. Currency outstanding is held abroad, as a highly safe store of value, precisely because it is the liability of the central bank of our nation. It is, therefore, unlikely that electronic money would become large enough to cause any significant problems for monetary policy even if it became quite popular as a day-to-day transactions instrument for consumers here in the United States.

In addition, even if the amount of electronic money outstanding were to become large enough to make open market operations more difficult, it would probably only mean that the Federal Reserve would need to develop an alternative operating procedure.

Even though it appears to us at this time that electronic money is not likely to create significant problems for monetary policy, I thought it would be worthwhile discussing these possibilities with you to point out that the various innovations associated with electronic commerce, such as electronic money, need to be studied carefully from every potential angle. These innovations could have consequences beyond the obvious ones such as the measurement of the money supply in my example, that usually jump into one's mind. Of course, the need for careful study of the implications of electronic commerce from every possible angle is especially important for our nation's central bank. But also, for your financial services businesses, you might want to think carefully about the full range of potential implications of electronic commerce because there could well be consequences that are more subtle and, therefore, less likely to be uncovered by a quick analysis. And with that theme in mind, let us move on now to the potential consequences of electronic commerce for the Federal Reserve's role in the payment system.

4. Role of Federal Reserve in the Payment System.

As many of you already know, the Reserve Banks play an active role in the retail payments business, largely in the form of interbank collection of checks, distribution of currency throughout the banking system, and processing of electronic ACH data files. Consolidation in the banking industry, along with greater use of new electronic payment instruments, could reduce the Reserve Banks' check collection and currency distribution businesses. For example, greater consolidation in the banking industry means that more checks will become "on-us" items for large banks, and, therefore, these checks will never enter the check collection system. In addition, it is possible that someday, in the not-too-distant future, one or two large banks with a national presence will compete with the Federal Reserve in the check clearing business at a national level. Moreover, electronic versions of checks for payments over the Internet, electronic bill presentment, and payment systems actively being developed by three or four of the leading technology companies could also reduce the volume of paper checks processed by the Federal Reserve. Likewise, our currency distribution business could decline somewhat if consumers begin to download electronic money onto chip cards, rather than withdraw paper currency, when they visit their local ATMs. But, as I mentioned in my discussion of the monetary policy issues, I expect foreign demand for U.S. currency to remain strong, even if domestic demand softens a little as a result of privately issued electronic money.

The Federal Reserve has been keenly aware for some time now that its role in the payment system could change somewhat as technology advances. To assess whether the Federal Reserve's role in the payment system was still appropriate, Chairman Greenspan asked Vice-Chair Alice Rivlin to lead a committee of senior Federal Reserve officials, including the President of the New York Federal Reserve Bank, William McDonough. They focused primarily on retail payments, check and ACH processing, largely because of the potential for rapid innovation in this sector that we have been discussing here today.

Their strategy was to construct several, hypothetical scenarios for future Federal Reserve involvement in the payment system, ranging from: (1) withdrawal and liquidation of our retail payments business to (2) staying in the business and undertaking aggressive actions to promote electronics. The Rivlin Committee then sought input from various organizations involved in industry, including banks, large and small, and leading technology companies. As you can well imagine, the Committee received a broad range of feedback, most of it supportive of continued Federal Reserve involvement in the retail payment business. In addition, many participants at these meetings believed that the Federal Reserve could provide valuable leadership to the retail payments industry by working with commercial providers and others to: (1) address legal issues that might have inhibited the growth of electronic payments in the past, (2) establish standards and protocols, and (3) sponsor education and public outreach programs on the use of electronic payments.

We certainly do not have the time today to go into all the details of the Rivlin Committee's work. But I would like to make the point that it is important for the Federal Reserve, from time to time, to take a long, hard look at its involvement in the payment system and make sure that the degree and type of its involvement continues to be optimal for the smooth functioning of the payment system. The advent of electronic

commerce affords us another opportunity to do this. In the longer run, we do not want the public sector to perform functions that could just as effectively be performed in the private sector with no increase in risk or loss of competitive forces. Indeed, that is one of the criteria the Federal Reserve applies when it is considering providing a new payment service -- could the private sector perform the service just as effectively.

5. Conclusions.

As I promised at the beginning of my remarks, we have touched on a broad range of issues covering bank-supervision, monetary-policy, and payment-system. Electronic commerce is just beginning to develop, and I doubt at this time that anyone can accurately predict how far it will develop. Nonetheless, most experts would agree that a large amount of still untapped potential exists for electronic commerce, especially for the information-based products offered by the financial services industry. What I have tried to do today, by engaging in a certain amount of speculation, is to give you some idea for the potential for electronic commerce to change the way we do business as well as the way we make payments. To summarize my main points very briefly; I suspect that, for the most part, monetary policy will not be adversely affected. Banks and bank supervisors, on the other hand, could face some very interesting and important challenges in the future, as could the Federal Reserve in its retail payments processing business.

Thank you for your attention.
