

## **The Changing Pattern of Payments in the United States**

Presented by Anthony M. Santomero, President  
Federal Reserve Bank of Philadelphia

25th SUERF Colloquium: "Competition and Profitability in European Financial Services:  
Strategic, Systemic and Policy Issues"

Marjolin Lecture  
Madrid, Spain  
October 16, 2004

### **Introduction**

Good morning. It is a pleasure to be here and a great honor to present this year's Marjolin lecture and prize. I thank you for the invitation and the opportunity to share some of my perspectives with you today.

As we bring the colloquium to a close this morning, we can reflect on the many ideas and challenges presented by the changing landscape of European financial services that have been discussed during our sessions. In preparing my lecture for the colloquium, I thought I could best contribute to the events of the past several days by offering you my commentary - as a career academic and current U.S. central banker - on some changes taking place in the financial services industry "across the pond." Specifically, I thought I might use my time with you today to discuss what is happening in the U.S. payments system. I believe you will find the changes occurring there interesting in their own right and as a point of comparison and contrast with what is happening in the European payments arena.

As anyone who knows the sector would readily admit, the origins and evolution of payments structures on our two continents could not be more different. Now, however, we are beginning to see signs that our two systems are starting to converge. We are both moving toward more electronic payment services through a number of vehicles. What we are experiencing is two systems that started out quite differently converging toward similar future systems. On the U.S. side, the pattern of payments is indeed evolving - some might say it is experiencing a radical change. America's paper-based payments system is giving way to a new realm of electronic payments vehicles - a transition that has already occurred in Europe. Indeed, there has been quite a bit of diversity in the forms of payments used in the U.S. However, as is typical in this area, change has been, and will be, greatly affected by our financial history and its legacy systems.

This presents our central bank with many challenges, because unlike most central banks in Europe, the Federal Reserve is not only a regulator but also a service provider. We have been a vital part of the retail payments system since our founding over 90 years ago. From its inception, the Federal Reserve has had a dual role as the central bank charged with ensuring the integrity of the payments system and as a participant in its evolution.

Over time, the Fed's role in payments and that of European central banks are likely to converge as well. It is expected that the Fed's role in paper processing will diminish over time as checks recede in both absolute volume and relative importance in our retail payments system. As this occurs, it will further our resemblance to the central banks of Europe. Over time, both the Fed and European central banks will concentrate more of their efforts on their services on large dollar gross settlement, with TARGET 2 likely following the evolution of Fedwire.

So, with that prologue, I would like to spend my time with you today sharing my thoughts on payments, concentrating on three issues:

- the current status of the U.S. payments infrastructure vis a vis Europe's,
- how the roots and evolution of the U.S. payment system differ from that of Europe,
- and finally, the likely future path of the U.S. payment system and the Fed's role in it, with an emphasis on how we are likely to resemble Europe and how we will be different.

### **The Current State of Payments Technology in the U.S.**

Historically, Americans and Europeans have long relied on an entirely different mix of payments vehicles. For example, Europeans use cash roughly twice as much as Americans.

However, looking at our noncash transactions gives evidence of where our differences truly lie. In Europe, half of all noncash retail payments are made through a Giro system and only about 15 percent are made by check. In the United States, it is almost exactly the reverse. Half of all noncash retail payments are made by paper check and less than 10 percent are made through our ACH, which is the American version of a Giro system.<sup>1</sup>

The dominance of the Giro in Europe and of the check in the United States is a long-standing feature of our respective payment systems. The history of how this dominance evolved is interesting and instructive, as I will elaborate in just a minute.

Payment cards account for the remainder of retail payments. Here there are similarities and differences between Europe and the United States. The similarities are in our use of debit cards. Debit cards, a relatively recent innovation, have caught on quickly both here and in the U.S., and now account for about a quarter of noncash retail payments in both places. The differences are in our use of credit cards. Credit cards have long been an important payment vehicle in the U.S., and at present account for about a quarter of noncash retail payments there. In Europe, credit cards are used less frequently - in fewer than 10 percent of transactions, though I would note that Europeans' use of credit cards has picked up in recent years.<sup>2</sup>

The long-standing success of the credit card in the U.S., and the rapid rise of the debit card in both Europe and the U.S., are also interesting and instructive stories, which I will touch on as well.

But first, let's begin with the story of the Giro and the check.

### **The European Structure**

To understand the dominance of the Giro in Europe and the check in the U.S. we have to go back about 100 years to the late 19th and early 20th century. At that time, European banks did not provide routine payment services. They served primarily as merchant banks and as private banks for wealthy individuals.

In the late 1800s, local post offices began establishing postal Giro systems as a convenient way for common people to deposit savings and later evolved to allow them to remit and receive payments. The system was successful in that it allowed every post office savings account holder to make and receive payments both locally and nationally. This revolutionary achievement rendered noncash payment transactions accessible to large sectors of the population.

Later, in the 1950s and 1960s, European banks sought to broaden their business lines to encompass the mass market as a way to expand their deposit base to fund loans. This meant providing routine payments services to customers, and so bank Giro systems were created to handle the volume.

This evolution occurred relatively smoothly and rapidly as a result of Europe's concentrated banking industry - a few banks operating nationwide, cooperating closely with each other.

At the same time, European governments wanted to establish payment systems that minimized costs and maximized access. The advent of technological advances created such opportunities through electronification. When technology made it economical to replace paper Giros with electronic Giros, European governments pushed for the transition, and the concentration of the payments system in the hands of the postal service and a few national banks made it relatively easy to accomplish. Because of its Giro system, Europe had, or could easily set up, centralized accounts for credit transfers. In short, European central banks encouraged - and in some cases, mandated - the use of electronic Giro systems.

### **The U.S. Structure**

In contrast, the U.S. payments system evolved quite differently from Europe's. Historically, U.S. banks tended to provide services - including payments services - to the broad spectrum of people and businesses.

On the loan side, commercial banks focused on commercial and industrial lending, but they took deposit balances from all economic strata.

In early America, the geographical expanse of the country encouraged a fragmented system where state banks issued their own notes. Entry into the banking business was relatively easy, but bank branching was very restricted. Banks were prohibited from branching outside their home state, and in many states, branching was restricted still further. As a consequence, a region would be served by a relatively large number of banks, but there were no banks operating nationwide.

To effect transactions, people paid one another with paper checks drawn on their bank or paper currency notes issued by their bank. The banks would then clear these checks and notes among themselves.

With so many individual banks spread out across such a big country, and banks clearing paper instruments among themselves, effecting transactions outside the local area was cumbersome. When someone received a bank check or a bank note as payment and deposited it at his bank, the bank would discount the instrument's value based on the cost of presenting it to the "drawn on" bank for payment and some assessment of the creditworthiness of the "drawn on" bank. The farther away the bank, the less familiar its financial condition and the greater the transportation cost associated with clearing the instrument, and so the greater the discount tended to be. So a merchant in Kansas City, Missouri, accepting as payment a check drawn on a bank in Allentown Pennsylvania, knew he would be credited with less than the face or par value of the check and would have to consult with his bank to find out how much less. Obviously, this was a payment system inimical to the growth of national commerce.

By the turn of the 20th century, it was clear that the U.S. needed a more well-integrated national payment system. Indeed, one of the main reasons Congress established the Federal Reserve System back in 1913 was to create a national clearing system in which checks could exchange at par value. To achieve this, the Federal Reserve offered check clearing services free of charge to banks that joined the Fed System.

However, the Fed did not become the sole provider of check clearing services, despite offering its services for free. First of all, not all banks chose to join the Fed System, primarily because of some of the regulatory implications. In addition, large correspondent banks offered smaller respondent banks an array of "bankers' bank services" including check clearing, and banks could take advantage of local and national clearing house arrangements.

Nonetheless, the Fed established a large market presence, providing a baseline level of national check clearing services accessible to all banks, large and small, anywhere in the country. Thus, the Fed contributed to the viability of both the paper check and the small community bank.

In the 1960s and 1970s, U.S. banks and the Fed applied advances in computing technology to check processing, increasing the efficiency of their operations. Banks found the paper check payments business to be profitable, and consumers were quite comfortable and confident in the use of checks.

In short, checks were the dominant form of noncash payment, and there was little momentum for change in the U.S. payments system. One might argue that bank Giro systems, which were arising in Europe at the time, would have increased the efficiency of the payments system even more. Yet with so many banks in the U.S. - all serving local markets - developing the legal framework, industry standards, and institutional arrangements necessary to establish such a payments network nationally would have been a daunting task. And in any case, American banks are forbidden under antitrust law to work together.

The Fed itself introduced its version of an electronic Giro system in the early 1970s. We call it our Automated Clearing House, or Fed ACH. Fed ACH has met with some success.

However, unlike the European Giro, ACH has not developed into the dominant form of electronic payment, in part, because, traditionally, only banks - not individuals - could initiate ACH payments. This made the ACH practical only for companies engaged in batch-processing a large number of payments, such as payroll disbursement.

In a typical transaction, a firm would forward to its bank an electronic file containing payments to be made from the firm's account. The bank would then initiate the ACH transactions by sending the file to the Fed, which would transfer funds from the bank's account to the accounts of the various payees' banks, and then notify them of the account holders to be credited.

I will add that a relatively recent variant allows large organizations to collect regular payments using the ACH. A typical transaction of this nature would involve individual customers' authorizing their bank to make ACH payments directly to a firm - perhaps their utility company or mortgage company - on a recurring basis.

## **Cards Drive Changes in U.S. Payments**

While Fed ACH saw some success as a means to effect electronic payments, it was the credit card that proved most instrumental in moving U.S. payments from paper to electronics. The credit card actually was the first electronic payments instrument to emerge in the U.S. Credit cards were introduced in the 1950s, and their use grew rapidly over the next three decades.

### **Credit Cards**

Not coincidentally, the U.S. credit card infrastructure looks a lot like the European banking system. There are relatively few major card associations. They operate nationwide. And they are not subject to the anti-trust laws that prohibited collaboration among U.S. banks. In fact, the credit card associations benefited from some early antitrust rulings against banks.

In the 1990s, when the tech boom made information processing and telecommunications more powerful and less expensive, the credit card associations were well-positioned to take full advantage of these developments. Low-cost telecom has made real-time, point-of-service verification of cardholders and their credit status widespread, speeding transactions and curtailing fraud. Of significance for the future, this technology has made the credit card a viable means of payment for e-commerce.

### **Debit Cards**

After the credit card, the debit card is the second most popular electronic instrument for making retail payments in the U.S. today. The debit card arrived on the scene relatively recently - during the 1980s - in both the United States and Europe. But since its arrival, growth in usage has been dramatic.

In Europe, the debit card emerged as an evolution of banks' automated teller machine (ATM) systems. Instead of using their card to withdraw cash from an ATM to pay merchants, bank customers simply present their card to the merchants and their bank account is debited directly.

This same progression occurred in the U.S., too. But in the U.S., the credit card networks responded with debit card products of their own. Visa and MasterCard already had an infrastructure in place for processing credit card transactions at the point of sale. They leveraged this infrastructure to establish offline debit card networks. Indeed, in the U.S., these so-called "signature" debit cards are proving at least as popular as ATM, or "PIN-based," debit cards.

Signature debit cards now account for about 2/3 of the total of debit transactions at the moment, so it could be said that they are even more popular than their PIN counterparts. However, PIN-based debits are growing a bit faster than signature.

In any case, debit cards in general seem to be leading the migration away from cash and checks and toward electronic payments in the U.S. This trend is substantiated by the Survey of Consumer Finances, sponsored by the Federal Reserve Board of Governors and compiled by the Research Department at the Philadelphia Fed.

The survey indicates that fewer than 18 percent of households used debit cards in 1995. But by 2001, nearly half of all households were using them. Not coincidentally, the survey also divulged a substantial reduction in the use of cash over the same period.

The growing popularity of debit cards in the U.S. seems to be part of a broader phenomenon. As I mentioned earlier, debit cards have caught on just as quickly in Europe. In fact, recently, for the first time ever, Visa's global debit sales volume surpassed its credit sales volume .<sup>3</sup>

## **The Future of the U.S. Retail Payments System**

By now, I hope I have given you some perspective on the current state of U.S. retail payments and the evolutionary process that brought us there.

Looking ahead, retail payments in the U.S. will continue moving away from cash and paper checks toward electronic instruments, including credit cards, debit cards, ACH, and emerging vehicles such as prepaid cards.

Though roughly half of our noncash payments are still being made by paper check, the tide has turned. In fact, recent research by the Federal Reserve shows check usage peaked in the mid-1990s and has been declining steadily ever since. So paper checks are not only losing market share, they are actually declining in volume and have been for about a decade.

The share of retail transactions handled by cards will continue to grow in the U.S., particularly at the point of sale. Debit cards have made particularly deep inroads in the realm of "micropayments" - purchases under \$20. According to a survey by MasterCard International, debit cards now account for about 1/3 of all micropayments, a 61 percent increase over 2001.<sup>4</sup> And Visa claims to have authorized 82 percent more payments at quick-service restaurants between January and July of this year than during the same time period last year.<sup>5</sup> Here we see debit transactions replacing cash, since the survey indicated a substantial drop in cash micropayments.

Several big-name fast-food chains are promoting greater use of payment cards at their restaurants. (It undoubtedly has not escaped their attention that customers spend, on average, over 50 percent more when they pay with a card rather than cash.<sup>6</sup>) This movement has tremendous upside potential. Last year, consumers used their cards to make purchases of \$6.5 billion at fast-food restaurants, and that was with only 10 percent of such restaurants accepting cards.<sup>7</sup>

Into the future, organizations other than banks will expand their role in the payments system, especially retailers themselves. As a result of recent legal action brought by WalMart against U.S. card companies, retailers now appreciate the costs and benefits associated with alternative payment processing arrangements and will weigh in to protect their interests going forward. As you may know, WalMart, the largest retailer in the U.S., along with other merchants, balked at the idea of accepting signature debit cards - and their associated fees - without the right to negotiation. They sued U.S. bank credit card associations, prevailing in a good portion of their efforts. Their settlement eliminated the "honor all cards" rule, effectively allowing merchants to decline signature debit products without jeopardizing their ability to accept credit products or PIN debit cards.

In short, I expect keen competition among card providers, and aggressive marketing by both card providers and merchants, to increase the speed with which cards replace paper for point-of-sale transactions in the U.S.

How quickly U.S. consumers move from paper to electronics, when it comes to bill paying, is an interesting question. The speed and scope of that transition depend on the evolution of our payments system.

As I mentioned earlier, our ACH system has not been as successful as your Giro systems. But things may be changing. Financial institutions are finding innovative new uses for ACH, spanning a broad range of retail transactions and shifting substantial volumes to this system, primarily at the expense of check volume.

The most important of these innovations is ARC conversion. Large organizations that receive paper checks from customers as remittance for retail payments are now scanning the checks to digitally capture their relevant payment information. The companies can then use this information to create an electronic file, which is then transmitted to an ACH payments provider - usually the Fed - for processing. In some cases, even individual merchants who accept customer checks at the point-of-sale can use the information on the

check to generate an electronic file. That file is then sent to the merchant's bank for processing through the ACH.

Conversion to ACH is helping to streamline payments initiated by check, even when the paper check would follow. It is also being used to process one-time payments initiated via the Internet.

As the owner/operator of the Fed ACH system, the Federal Reserve has been working to ensure its ACH system is equipped to accommodate changes in volumes and the nature of payments, even as these applications proliferate. As in check processing, the Fed is not the sole provider of ACH. Though the Federal Reserve network currently originates about 2/3 of all ACH payments volume, we are also seeing growth among private-sector ACH networks. Indeed, as ACH continues to gain acceptance as a payment vehicle, its products and marketing will evolve so as to make it more attractive and accessible to individuals and businesses.

## **Managing the Transition**

So, the private sector is shifting retail payments in the U.S. away from paper-based instruments and toward electronic ones. But history tells us that people's payment habits change only gradually. When people are comfortable with, and confident in, a payment structure, they are reluctant to give it up. As a result, the paper check is likely to be with us for some time.

In the meantime, the Fed has been trying to take full advantage of the efficiencies afforded by electronic processing of payments initiated by paper check in the interest of maximizing the efficiency of the payment system. Thus, the Fed is doing what it can to foster check truncation and electronification at as early a stage as possible in the payment process.

The Fed is now well positioned to pursue this objective. Two pieces of legislation have set the stage. One is a law that has been on the books for nearly 25 years now: the Monetary Control Act of 1980. The second was passed just a year ago and goes into effect this month: The Check Clearing for the 21st Century Act, commonly called Check 21. Let me explain the significance of each.

Recall that when the Fed began its check processing operations, it provided the service at no charge to its member banks. The Monetary Control Act of 1980 changed all that. It required the Fed to offer its payments services to all banks at prices fully reflecting the Fed's costs of production including imputed profits. This change established a marketplace incentive for the Fed and its private-sector competitors in check processing to maximize the efficiency of their check processing operations.

The second piece of legislation, Check 21, adds an important new dimension to the competitive drive for greater efficiency in check processing. The essence of the new law is that it makes the facsimile of a check created from an electronic image serve as the legal equivalent of the check itself. In doing so, it eliminates a significant legal barrier to check truncation and electronification of the check processing. A collecting bank can soon create an electronic image of a check, transmit the image to the paying bank's location, and then present the paying bank with a paper reproduction or with the electronic image itself. The hope and expectation is that gradually more and more paying banks will prefer the image itself.

Accepting images for both deposit and presentment eliminates back office capture of the check as well as the inconvenience of physical transportation. Indeed, under the new Check 21 legislation, it will become even easier to move toward a more electronic check process because banks will be provided with additional options for processing image-based payments.

As a provider of financial services, we have been actively engaged in bringing a whole array of image products to market to take advantage of the capability of image clearing. We have established an image archive for electronic items; we have enhanced our ability to produce facsimile checks; and we have extended clearing times to encourage the use of the new image technology that the act allows. In short, the Fed is introducing new services that will enable banks to take full advantage of Check 21.

How fast will the transition occur? It is our best guess that the industry will be slow to embrace the new capabilities that the law permits. We must also consider the possibility that making check processing more

efficient will actually extend the life of the waning check. In any case, the Federal Reserve Banks' financial services division is committed to working with the industry to ensure a smooth transition.

## **The Challenge to the Fed**

With the evolution of the payments system in the U.S. accelerating, the Federal Reserve must make some major adjustments to its payments services as the changing payments system alters its role. Nonetheless, the Fed is committed to working to improve the reliability and efficiency of the current generation of payments vehicles, even as it works to foster innovation and to support the next generation of payments vehicles. Both commitments are equally important during this period of transition.

With this dual commitment in mind, we continue to fulfill our traditional role as payments processor even while we support the move to our new electronic clearing environment. Striking the right balance between these two seemingly divergent goals is a challenge. Nonetheless, the Fed has begun implementing a strategy that includes key elements to help us successfully meet both commitments.

The Fed has recently announced a program of "aggressive electrification" of retail payments in the U.S. This push toward electronics will help facilitate Check 21 and quicken the transition to an all-electronic world. The Fed is also investing heavily in technologies that enable electrification. In addition, as check volumes decline the pressure has been on to find new processing efficiencies. The transition will not be easy, particularly for the Federal Reserve System.

The Fed currently clears about 1/3 of all checks written in the U.S. As check volumes have declined, the Fed has had to consolidate its operations, closing down processing sites where appropriate. Nonetheless, it has attempted to maintain reasonable service levels nationally by re-routing checks to nearby sites.

So that you can see the scale of this effort, I will note that two years ago the Fed had 45 check processing sites. By early 2006 we will be down to 23. This downsizing to match costs and revenues helps us fulfill our traditional role of payments processor while at the same time maintaining efficiency in this new environment.

Such a radical transformation within our financial services division is made necessary by law. As I mentioned a moment ago, the Monetary Control Act mandated that we set prices on our services to fully recover our costs. At the same time, we are required to adjust our portfolio of services to correspond to the clearing needs of the industry. As such, the aggregate decline in volume in this volume-based service creates a substantial challenge to the System. And achieving full cost recovery will become more challenging for us as the volume of check usage continues to decline.

Nonetheless, by setting prices that reflect the low cost of electronic check processing relative to paper the Fed will allow, indeed encourage, the market to drive checks toward electronics. In addition, we will continue to develop our capabilities and expand our electronics capacity to respond to the market's evolution and consumers' needs. The impact of these changes and those that follow will ultimately transform the U.S. payments system and enable a radical restructuring of its service capabilities.

## **A Word about Wholesale Payments**

Before closing, let me say just a few words about our wholesale payments operation. Aside from its role in supporting retail payments, or small-dollar transactions systems, the Fed has long had a role in facilitating wholesale, or large dollar, transactions. As you are no doubt aware, Fedwire is the Fed's real-time wholesale payments operation. It is used to transfer both funds and securities. Fedwire transactions typically involve large value, time-critical payments, such as payments for the settlement of interbank purchases and sales of federal funds, or securities or real estate transactions.

Fedwire first went into operation back in 1918. Its operations have evolved with advances in technology and the integration of financial markets. The Fed has recently centralized Fedwire operations from all 12 Reserve Banks to our New York Bank - with both a hot and a cold backup.

Now, a parallel process seems to be in motion in Europe. The initiative known as TARGET 2 will likely consolidate European central banks' wire transfer operations. As in the case of Fedwire, this standardized

processing platform will reduce costs through economies of scale and improve flexibility of wholesale payments.

## Conclusion

By way of summary, let me suggest that my discussion today had several goals. First among them was to review and explain the state of payments technology in the U.S. to you, my colleagues, who come from a different tradition and institutional structure. There is a reason for most things, and the roots of our payment systems are found in our different banking structure and different perceptions of appropriate regulation.

Yours is a system of few large banks that can easily be regulated into a centralized world - first with near-universal Giro accounts and soon with an electronic world of more centralized clearing.

In the U.S., markets and consumers led us to a multiplicity of banks and a payments system that has been paper intensive. In the U.S. this is changing, as cards are replacing checks, and electronic clearing is truncating the maze of paper that fills our post offices. Indeed, it seems the U.S. payments system is moving toward convergence with the European model. Our progress, while promising, occurs largely in fits and starts. The U.S. is a large nation with many providers, much complexity, and a philosophy of market-based solutions.

This has presented challenges for the Federal Reserve as a provider of financial services. It has necessitated restructurings, plant closings, and difficult decisions that most central banks in Europe have been spared. Yet, by law, we are charged with the dual role of a regulator seeking to maintain the stability and efficiency of the payments system and a provider of payment services. At times, these roles present different challenges. This is one of those times.

Nonetheless, as payments technology moves forward in the U.S., our payments system will continue to change as evolutionary forces generate new innovations in payments and new ways to deliver them. In some ways we will look more like the European system even as our two payments systems move to the next generation of payments. We will look more alike, although we will get there from a very different starting point.

<sup>1</sup> Data from Bank for International Settlements, cited in *Statistics on Payment and Settlement Systems in Selected Countries*, March 2004 (Figures for 2002), Prepared by the Committee on Payment and Settlement Systems of the Group of Ten Countries.

<sup>2</sup> Data from source cited above.

<sup>3</sup> Press release, "Visa Global Debit Card Sales Volume Surpasses Credit," Visa International, April 20, 2004.

<sup>4</sup> David Breitkopf, "MasterCard, Pulse Report Wider Use of Debit Cards," *American Banker*, May 17, 2004.

<sup>5</sup> W.A. Lee, "CEO Confident as Visa Posts More Records," *American Banker*, August 5, 2004.

<sup>6</sup> Data from source cited above.

<sup>7</sup> "Cards...at participating restaurants," *Electronic Payments International*, August 19, 2004.