

## Speeches

### Vision for the Future of ECP and Image Technology

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I'm sure that many of you in the audience took a look at your program and asked the obvious question, What is the President of a Reserve Bank, a guy who makes his living talking about monetary policy and price stability, doing kicking off a conference on technology and image in our payments system? The answer comes in where I come from, not where I am now.

Thirty-two years ago, I started my career at the Federal Reserve Bank of Atlanta in the computer programming area. Fresh out of Virginia Tech, I knew I was going to make my mark doing technical things. In this case, I was writing COBOL code for check processing software. I guess, looking back, I thought I was at the center of the payments universe, and, in fact, I might have been. What has struck me in retrospect is what a simple universe it was.

The payments business was pretty much the check business. The Fedwire System was only partially automated through the use of specially developed terminals for use by only the highest volume banks. The ACH system wasn't even a figment of anyone's imagination. The only vendors in the payments business, other than the credit card companies, were the big mainframe providers, who had diversified into manufacturing reader/sorters, and a phone company or two. Let's face it; I didn't need a scorecard to keep track of the players.

Over the years, this simple model changed. Other vendors entered the computer marketplace, producing plug compatible equipment such as tape drives, disk drives, printers, network interfaces, and, ultimately, terminal equipment and PCs. From a financial perspective, the choices grew quickly beyond the ability of most users to manage in order to optimize their use of automation. Many of us hired people called "systems integrators" to lead us through the maze and assemble systems that promised improvements in efficiency and performance.

I would propose that the same phenomenon has just occurred in the payments arena. A few years ago, trusted financial institutions integrated those few payments processes that existed. Now, we live in a completely different world, one in which the payments system is an increasingly complex amalgamation of banks, communication companies, nonbank service providers, software firms, and equipment manufacturers, all carving out a piece of the business according to the technology in which they specialize. When I was programming, the banking business was beginning to *depend on* technology. Today, the banking business *is* technology, just like every other service industry in this global economy that increasingly defies our traditional beliefs in how payments systems work.

Today, I'm going to suggest to you that the evolution of the payments system into this complex state is both a boon and a curse. While our new payments paradigm brings with it vast alternatives for the users of the system, it also presents some difficult challenges for our industry. With increasing complexity comes issues about risk and liability, issues about efficiency and interconnectivity, and issues about our responsibility to the end users who must make decisions about which alternatives to use. I then want to turn my attention to the paper-based products that are the foundation of our current payments system. In doing so, I'll explore the dilemma that faces us as an industry, that is, the need to move from paper to electronics in the face of some very confusing economics.

#### Complex Payments System

Let's start with the complexity of our system. One of my staff members pointed out to me the other day that a simple bill payment that originated from a piece of PC-based financial management software could be touched by as many as 12 different payments service providers before it reaches the payor bank. It starts with a PC manufactured by a computer vendor (like IBM) and a software package developed by an entrepreneurial software firm (like Microsoft's "Money"). The payment order is initiated by the consumer and travels over a network (like America OnLine) to a payments service company (like Checkfree). Checkfree creates an ACH debit against the consumer's account, which it sends to the Fed for delivery to the customer's financial institution or its designated third-party processor. The credit to the payee company may be presented through another ACH provider, like Visa or NYACH, and then travel over a private network, like Visanet, and is delivered to, perhaps, another third-party bank processor (like First Data Resources) for posting to the corporation's account. That service provider may have to translate the payment information through a piece of EDI translation software produced by yet another software firm (like Goldleaf Systems) and is finally delivered to the corporate receiver.

Somewhere in the middle of all this activity, settlement occurs across the books of a Federal Reserve Bank. Now, I don't know about you, but I find that to be something less than simple. It is made more complicated by the fact that for every stop along the way, there is not one, but three or four, different service providers or software firms or network providers. For example, the consumer had the choice of initiating the payment from that PC, or from a screen phone, or via a preauthorized debit. Or, the consumer may have initiated a payment using a debit card at a point-of-sale terminal in a retail outlet. Or, perhaps via a smart card. You get the point, I trust, that there may be more here than we can get our hands around. I hope you noticed that nowhere in this example did I mention a bank as a party in the transaction process, other than for settlement.

While I think we can argue persuasively that this panorama of choice is a good thing for the end-users of the payments system, we can also see that this new complex payments system raises some interesting public policy issues, beginning with one that you would expect me as a Federal Reserve official to worry about. That is, the risks associated with the emerging electronic environment. Clearly, the vast majority of the entities involved in that single payments transaction I just described are unregulated in the traditional banking sense. They are not subject to deposit insurance. They may not even have to adhere to regulations that we at the Fed promulgate.

Many people have asked me whether the Fed or some other regulator shouldn't leap into the fray and bring these new payment providers into the safety

net. I recently heard Bill McDonough, the President of the Federal Reserve Bank of New York, suggest that the safety net, in the form of insured deposits, does, in fact, provide banks with a marketing advantage vis-a-vis non-bank providers. In essence, risk control, security, privacy, and other factors can be viewed as value-added aspects of a payments service.

Having said that, I believe there is clearly a need to remain vigilant when it comes to consumer protection, trying to find the right balance between controls and the benefits that new payments alternatives can produce. The Board's well thought-out approaches to Reg E and smart cards are recent examples.

Perhaps a more significant question relates to whether the consumer, absent specific regulatory protection, is at least made aware of the risks of the ride, so to speak. Today, I understand that 18 million credit card purchases traveled across the Internet, totally unencrypted. I take this as an indicator that consumers really don't understand the underlying characteristics of the alternatives available. In an age when we demand full disclosure on card-based accounts, we need to ask ourselves whether similar protections are needed here to assure that consumers are fully aware of the risks they take on in the areas of privacy, security, audit trails, and clear definitions of liabilities. I won't even try to answer the question of whether or not the banks who maintain the trusted account relationship with the customer should be responsible for educating consumers. H.G. Wells, in his *Outline of History*, notes that, "Human history becomes more and more a race between education and catastrophe." I hope that we can move to make sure education is the winner in this case.

### **Efficiency of the Payments System**

Turning away from the risk issue, there remains a very practical dilemma concerning the overall efficiency of the payments system. By one account, our existing payments system consumes 1 to 2 percent of our GDP, a number four times that of other industrially competitive nations. This is a substantial infrastructure to support, with no short-term promise of improvement. Every study continues to project growth in our check business while electronic alternatives evolve.

This situation does not imply a more efficient system in the short term; instead, it promises a long period of redundant costs. These costs can be even higher if alternate payment systems evolve in a way in which standards are not clearly defined, and movement from system to system becomes a costly hurdle. In the past, the Federal Reserve has been involved in dealing with standards issues, whether it was the MICR line or ACH formats. Perhaps we could again play a useful role, independent of our processing and regulatory roles, to bring diverse parties together to deal with issues of interoperability in an attempt to make this transitional period as efficient as possible.

I am encouraged that banks, in the form of a new organization sponsored by the Bankers Roundtable called PIT, are stepping up to address the problem. There is a crying need for leadership in this form, and I hope that the Federal Reserve can help in this effort and others to address the problems of coordination among multiple technologies and formats.

These are but two of the ramifications of our brave new world, a world that remains dominated by paper-based systems, including what we regularly describe as our "inefficient check system." Everything I know about our check system tells me that it is inefficient, and everything I know about electronic alternatives promises long-run improvements in efficiency. With that mindset, I was recently taken aback by some comments made by my Director of Research in Atlanta, Bob Eisenbeis. He asked me a simple question. If paper is so inefficient, why do people keep using it? He contends from an economic standpoint the answer is that someone must be providing a subsidy. He then asked me if it was the Fed. After some deliberation, I jokingly replied that I didn't think so, that our cost accounting system would never allow it. In the private sector, everyone says the world is run by lawyers. At the Fed, we think it's the accountants.

Where then is the subsidy? Certainly, float is part of the subsidy in that we as an industry do not pass along the true cost of it to the users of the system. We also partner with corporate America to reap the benefits of float. For that matter, I'm not at all sure that we pass the true cost of any aspect of the check system along to the end user. Ironically, the cost of collecting a check is carried by the collecting bank, not the paying bank that needs to provide incentives for different behavior from the consumers and the businesses that are its customers. Somehow, we must straighten this out. For that matter, we must be careful when we say the system is inefficient by asking, "inefficient from whose viewpoint?" For the government or the Fed, our costs of handling checks are certainly higher than handling an ACH entry. And, from an end-to-end societal perspective, there are numerous studies proclaiming the relative inefficiency of paper. But, I'll bet that there isn't a financial institution in this room that can say that an ACH entry is less expensive than a check in the backroom. The systems, the cost discipline, and the economies of scale just aren't there yet.

So, we must then realize that the check system is still going to be a vital part of our future. Should we then do the unthinkable and try to make the check system better as we simultaneously plan its demise? I don't think it would surprise anyone if I told you that there is considerable disagreement in the Fed on this point, as I'm sure there is in your institution. I do know that many of you in this room have made significant investments in paper-based processing systems and are extracting significant revenue from paper-based services.

### **The Promise of ECP as a New Mechanism**

Let me try out some thoughts on you, as much to provoke some thinking as anything else. As a central banker, I'm supposed to believe in the discipline of the markets, and I trust you know that our Chairman does. My economic training tells me that on a level playing field, the market will ultimately choose the most efficient alternative. As I noted earlier, I'm not sure from an accounting standpoint we have leveled the field, but bear with me.

As an industry, our goal should be to make the payments system more efficient over the long run. The goal is not to make it more electronic, per se, unless electronic is actually more efficient. With 60 billion checks in play, the definition of the long run may be very long. In the meantime, if our analysis of the environment tells us that rapid change is not likely, should we forgo the opportunity to lower the costs of paper based systems to serve those users better? I think the answer is "No!" We should do everything we can to improve the system, *subject to certain guidelines*. First, we should not do this at the expense of promising electronic alternatives. This a level playing field, remember. Second, we must make reasonable capital budgeting decisions that tell us that the investment in paper-based infrastructure can be recovered over time. Third, we should see some synergies with where the electronic world is heading as a means of further leveraging our investments. Finally, we should make sure that each improvement truly improves the efficiency of the end-to-end process.

As a case in point, let's take a look at a concept that many of you in the room are embracing and virtually every one of us has discussed - the concept of check truncation at or near the point of first deposit. I want to refer to this as electronic check presentment, or ECP, from this point on. Fundamentally, it involves the capture of a check at the bank or Fed of first deposit (we'll call this the "keeper" bank), and the conversion of that item into an electronic image for further clearing and posting to the customer's account. The check is imaged at the keeper organization and the paper is eventually destroyed. Returns and disputes are handled through electronic retrieval of the images from a keeper's data bases.

Let's apply our tests. Does this type of a system benefit at the expense of electronic alternatives? First, it all starts with the fact that a check was chosen as the payment device by the payor. ECP does not inherently encourage that process; it works at the next stop on the clearing highway. I could argue that, with ACH as the format and delivery system for the truncated item, it could actually help to make the ACH more efficient by introducing new volumes, improving economies of scale, and reducing the marginal cost of the electronic alternative. Moreover, one of the clear benefits of ECP--reduced float--will make electronic alternatives for large-dollar checks even more attractive. In summary, ECP seems synergistic, and it supports the critical success notion of electronic payments: that is, that the customer doesn't need a physical item returned with the statement. In fact, this truncated item looks just like an ACH entry, or debit card entry to the consumer.

Second, can we recoup our investment in the technology to do this? This may be a more difficult question to answer because many of the costs of a full-blown ECP environment are not yet well known, but the costs of added infrastructure, given the huge volume of checks in play, seem reasonable. The primary investments in storage and retrieval equipment, clearing systems, and data communications resources can be partially offset in the short run by savings stemming from float reduction, and ultimately from overall reduction in processing capacity. I understand that most checks are handled by 3 to 4 processing entities. A banker I know contends that this is one factor that contributes to what could be described as an industrywide problem of overcapacity.

As I said, there is a lot more detailed analysis to be done, but the arguments for ECP being a good investment seem reasonable. In addition, the float and processing savings I mentioned should help to address the requirement for end-to-end efficiency improvements, particularly when coupled with other promising cost savings factors, such as improvements in the return-item process, reduction in fraud-related costs, and the elimination of a great deal of physical transportation.

It's because of this promise for improvement that we at the Fed are approaching ECP as one of our most important strategic goals in the next few years. You may be aware that we have organized an industry advisory group for ECP, consisting of representatives from some of the largest check processors in the country, as well as community bankers. This group has been charged with the task of analyzing the legal, customer, societal, and economic issues associated with ECP, to include the exploration of proof of concept models and the conduct of hands-on tests. This group has already agreed on key principles and has organized several pilot projects that look at ECP for low-dollar exchanges, travelers checks, and return items. We are very excited about this effort and the interest that exists in the industry. As we head into 1997, I hope that we'll be able to bring you some positive results that will lay the groundwork for more widespread efforts.

### **The Role of Image Technology**

This brings me to a final point before I close, and it relates to the role that image technology may play in the future payments system. I know for a fact that many of you in this audience are far better qualified to answer this question than I am. However, image serves to test our criteria in a different way. Early on in the development of image concepts, many of us believed that the future for image lay in image capture and full transmission of images as the replacement for the truncated paper item. Given the early success that some institutions had with image statements, it's not surprising that we felt this way. If this was a serious alternative, we could apply our tests for improving the paper-based system against the criteria.

While we might argue that image, as a primary payment flow might pass some of the tests, it appears hard to justify it from a payments system efficiency standpoint. The cost of transmitting full images and warehousing them in multiple locations is not justified given the current economics of these technologies. It also strikes me that this approach falls into the common trap in technology evolution of trying to use technology to mimic the previous system, in this case, paper-based flows. In fact, we should be trying to figure out how to use technology to create a new way of doing things.

While school is still out on the future economics of wholesale imaging, it's clear that image can really make some of our less efficient back room operations more efficient. This seems particularly true in proof of deposit, bulk storage of truncated items, adjustments, and statement rendering. In essence, imaging appears to be a powerful support technology for many aspects of the paper-based system and, used in these capacities, makes sense.

With that in mind, the Reserve Banks are deeply involved in working with IBM, Unisys, the U.S. Treasury, and others to develop proposals for image interchange standards in the banking environment. We're also looking at all aspects of central site archiving and retrieval and hope we can contribute something meaningful to the industry.

### **Conclusion**

Well, I've covered a lot more material than you probably wanted me to, but I would like to offer a final thought. We live in a period of the evolution of the payments system that is very, very complex. There are so many alternatives being explored that both consumers and banks are bewildered about where to make their investments. Most privately tell me that they are beginning to take a hard look at the new technology investments they are making. The reason for this, according to some thoughts Chairman Greenspan recently shared, is that as a society we have a terrible track record of predicting the technologies that will succeed. I know this from experience. In the early '70s, I was among those who predicted the advent of the paperless society through the introduction of point-of-sale, and I purchased my eight-track tape drive just in time for its rapid ascension to antique status.

But there's one thing that I'm pretty sure about and that is, with 60 million checks in play, what you learn in the next two days at this conference is likely to be valuable information. Thank you for your attentiveness; I would be happy to take a few questions.

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