SPECIAL ISSUE

THE FEDERAL RESERVE BANK OF CHICAGO

SEPTEMBER 2004
NUMBER 206a

Chicago Fed Letter

An electronic supply chain: Will payments follow?

by Sujit Chakravorti, senior economist, and Erin Davis, senior analyst

Businesses, both small and large, are adopting new technologies to automate and reduce the exchange of paper documents in their transaction flows. However, more than 80% of payments between businesses are still made with paper checks. As the exchange of information along the supply chain becomes increasingly electronic, it raises the question: Will payments follow?

Recent technological advances are allowing a wider range of businesses to reduce paper handling and automate more of their business processes.

While U.S. consumers are increasingly making payments with electronic alternatives, U.S. businesses still make more than 80% of their payments with paper checks. For some businesses, creating an end-to-end electronic supply chain offers the possibility of linking payments to their accounting systems, thereby permitting faster processing of invoices and payments and reducing the overall cost of the order-to-pay cycle. For other businesses, while an electronic financial supply chain may offer certain benefits, it also evokes concerns about high technology costs, increased security problems, shortened payment cycles, and changes to familiar business practices without significant immediate benefits.

The migration to electronic payments is a part of the larger process of achieving cost reductions in business-to-business (B2B) transactions. Over the past several decades, banks and solution providers have introduced various technologies aimed at further automating B2B commerce, but, for the most part, these technologies were affordable for only the largest firms. Recent technological advances—particularly the widespread use of the Internet—have meant that a wider range of businesses are able to automate more of their business processes. Killen & Associates' (2002) research indicates that, while the time it takes a company to process, deliver, and invoice for an order has fallen from as much as five weeks in 1960 to two or three days in 2000, the time it takes for a company to make a payment remains about the same—45 to 60 days.[1] As the exchange of information along the supply chain becomes increasingly electronic and automated, it raises the question: Will payments follow?

On May 26–27, 2004, the Federal Reserve Bank of Chicago hosted its fourth payments industry conference titled "An Electronic Supply Chain: Will Payments Follow?" The conference brought together more than 120 participants representing corporations, financial institutions, payment networks, and solution providers. This *Chicago Fed Letter* summarizes participants' responses to the following five questions:

- B2B electronic payments: Who wins and who loses?
- What is the value proposition for corporate trading partners?
- Are incentives aligned for existing payment networks to provide B2B solutions?
- Are financial institutions proactive or reactive to B2B solutions?
- Why are certain industries adopting B2B electronic payments while others wait?

Thomas Ciesielski, Federal Reserve Bank of Chicago, said that an important conference objective was to foster discussion among key industry players around ways to increase the adoption of B2B electronic payments. The four conference panels provided a diverse set of views about the opportunities and challenges of implementing an end-to-end electronic supply chain, with particular focus on the electronic processing of payments.

In the first keynote address, Cathryn Gregg, Treasury Strategies, Inc., stressed the importance of thinking about the B2B transaction process in its totality. While an electronic supply chain might benefit certain departments in a firm and its trading partners and their financial institutions, often each participant focuses on its specific role in the supply chain without understanding the overall process. Gregg emphasized that, considering how complex corporate procurement processes are, businesses have made a great deal of progress toward adopting electronic financial supply chain solutions. However, migration to electronic payments remains very slow.

Banks and nonbanks in the B2B payments space

The first panel of the conference featured Nick Alex, Bank of America Corporation; Tom Dean, Medical Banking Exchange, LLC (MBEXX); Perrin Gunduy, First Data Corporation; Rob Martens, KeyBank N.A.; Rick Langer, U.S. Bank PowerTrack; and moderator Cathryn Gregg. These institutions play an increasingly active role in managing their customers' financial supply chains. These new roles have created opportunities to provide more value-added services by deepening relationships with their customers. Both banks and nonbanks are making significant investments in developing new technologies. However, industry participants are still uncertain as to which specific information exchange platforms will become dominant in the future.

Several panelists pointed out that not all companies are eager to transition to electronic payments. While Alex saw opportunities for his bank to provide new services, such as purchase order management for its corporate customers, he conceded that as electronic payments grow, the bank's new revenues from paperless payments may not offset its revenues lost from check processing. All panelists agreed that payments will be the last piece of the financial supply chain to become paperless. For example, while MBEXX continues to automate claims processing for the health care industry, its customers still make 97% of their payments with paper checks.

The panelists said that integrating their own systems with their corporate customers' existing accounting and information systems can be a costly and time-consuming process. They noted that very few business practice or technology standards currently exist, and that even standard off-the-shelf software is often customized, making systems integration among trading partners and their financial institutions cumbersome and expensive. Some panelists have overcome the lack of standards by focusing on automating vertical market segments, where businesses often have relatively similar business practices and more incentive to integrate. Other solution providers, Gunduy pointed out, have created systems that can accept remittance information in any format and then convert it to a common standard. Martens noted that the B2B market has begun to consolidate and predicted that continued consolidation will make standard setting easier.

The lack of standards for remittance information and communication technologies makes it difficult to realize the benefits of the migration to electronic payments.

Corporate perspective

In the second panel, representatives from three corporations discussed the progress their respective industries have made toward creating an electronic supply chain. Moderator Peter Burns, Federal Reserve Bank of Philadelphia, opened the panel by contrasting the success of electronic payments in the consumer market to the B2B marketplace. The panelists noted that each corporation's ability to automate its supply chain is closely linked to its industry's structure. If a supply chain has one or only a few dominant firms, these firms may be able to provide strong incentives for their trading partners to adopt a uniform information-exchange and payment platform. On the other hand, if the industry is composed of many small firms, the development of a standard platform may be more difficult.

Rebecca Jacoby, Cisco Systems, Inc., said that Cisco has been relatively successful in creating an end-to-end electronic supply chain. Cisco is closely integrated with its suppliers and is able to send an electronic payment to a supplier as soon as its product comes off the assembly line. Jacoby conceded that many suppliers probably believe that adoption of Cisco's own business flow and payment solutions is necessary to do business with Cisco.

Mary Bravo, GLS/Composites One, stated that her company receives almost all of its payments via paper check. Because electronic payments often arrive without sufficient supporting information to know which invoice the customer intended to pay, Bravo finds that electronic payments often take longer to reconcile than paper-based ones and result in higher handling costs. She stressed that the lack of standards for remittance information and communication technologies makes it difficult to realize the benefits of the migration to electronic payments.

In her presentation, Kathy Crawford, MindShare Worldwide, Inc., emphasized that misaligned incentives are preventing the advertising industry from adopting electronic procurement systems. The process through which advertising agencies buy and pay for advertising time is highly manual. A major obstacle to automating it has been deciding how to distribute the cost of the new technology among advertising agencies, radio stations, and television stations that

would benefit from the improvements. Without a strong player to champion a particular system, individual market participants are reluctant to invest in a system that may not be widely adopted.

Solution providers' perspective

The third panel of the conference featured Patrick Boyle, PeopleSoft, Inc.; Richard Winston, Accenture, L.L.P.; Tasos Tsolakis, Global eXchange Services, Inc.; Jerry Ulrich, Xign Corporation; and Richard Babb, VECTORsgi, Inc. Moderator Jeetu Patel, Doculabs, Inc., noted that these companies target different customers with different B2B solutions. Tsolakis said that the complexity of electronic data interchange (EDI) makes it more appropriate for larger firms. Web-based electronic invoice presentment and payment (EIPP) systems may be more suitable for smaller businesses, Ulrich stated, as these systems often require only minimal changes to businesses' existing procedures. The panelists agreed that EIPP systems are here to stay and not a transitional product. Boyle pointed out that, for some businesses, implementing electronic payment systems creates value by allowing companies to pay their bills faster and, therefore, to negotiate with vendors for early payment discounts.

Several panelists addressed the issue of standards. Some panelists predicted that market participants would not likely converge on a single set of standards and argued that problem is best overcome with software and services that translate between standards. Other panelists pointed out that businesses can agree on certain standards within a specific industry segment or when standards are dictated by powerful trading partners.

Winston saw an opportunity for banks to take a leadership role in coordinating the migration to electronic alternatives. In his view, banks can leverage their existing customer relationships and, through partnerships with solution providers, develop integrated supply chain solutions for their corporate customers. Similarly, Babb stated that, as corporations accelerate their adoption of electronic payments, banks should develop the capability to translate between formats so they can take advantage of this growth.

Networks' perspective

In the fourth panel, Kent Dolby, Elemica, Inc.; Alistair Duncan, Visa International S.A.; and George Thomas, Electronic Payments Network, L.L.C., discussed the role that networks could play in creating an electronic supply chain. The panelists agreed that the standardization of information flows is crucial to the success of any B2B network, though they offered different opinions on how this could be achieved. One company has created an electronic payments network and set certain standards for the information that travels over its network. Another translates between standards in a niche market, and the third proposes standardizing only the most vital remittance information so as to simplify coordination. Moderator Avivah Litan, Gartner, Inc., pointed out that different companies have varying needs and resources and the market will continue to support a variety of solutions.

As Duncan explained, most businesses use the Visa network for card-based, non-invoice spending. However, non-invoice spending makes up only 5% of total B2B spending, so Visa introduced VisaCommerce to handle larger-value, invoice-based transactions. Many companies are reluctant to accept card-based payments for large purchases because doing so would require them to pay merchant discount fees, which can be substantial for large purchases. VisaCommerce can integrate into businesses' existing enterprise resource planning (ERP) and procurement systems and let companies make payments and control the timing of their payments electronically. For VisaCommerce transactions, interchange fees are negotiated by banks and are not set by Visa.

Dolby stated that Elemica was founded by the chemical industry as an electronic hub for the exchange of documents such as invoices and shipping notices. Elemica integrates its systems with participating companies' ERP systems, but does not require them to "speak the same language." Instead, Elemica uses a hub-and-spoke model in which a document coming from one company is translated into Elemica's standard, then translated into the recipient's standard. As a result, participating businesses do not need to be integrated with each of their trading partners individually, but only with Elemica.

Throughout the conference, many speakers stressed that the development of standards for the electronic exchange of business data will be a critical part of the transition to electronic payments. Thomas agreed that standards are important, but offered a somewhat different solution. He suggested that, instead of developing an elaborate set of standards for the overall supply chain, the industry should focus on establishing standards for the information that is necessary for companies to process electronic remittances, such as the name of the sender. Once a minimal set of standards is agreed upon, he said, it would be easier for vendors of cash management and accounting systems to include standardized electronic payment capabilities in their products.

Industry case study

Greg Perman, John Deere Credit Inc., and William Lyne, Bank One Corporation, discussed Deere's transition to electronic payments. Deere's accounts receivable process was highly manual,

Michael H. Moskow, *President;* Charles L. Evans, *Senior Vice President and Director of Research;* Douglas Evanoff, *Vice President, financial studies;* David Marshall, *Vice President, macroeconomic policy research;* Richard Porter, *Senior Policy Advisor, payment studies;* Daniel Sullivan, *Vice President, microeconomic policy research;* William Testa, *Vice President, regional programs and Economics Editor;* Helen O'D. Koshy, *Editor;* Kathryn Moran, *Associate Editor.*

Chicago Fed Letter is published monthly by the Research Department of the Federal Reserve Bank of Chicago. The views expressed are the authors' and are not necessarily those of the Federal Reserve Bank of Chicago or the Federal Reserve System.

© 2004 Federal Reserve Bank of Chicago
Chicago Fed Letter articles may be reproduced in whole or in part, provided the articles are not reproduced or distributed for commercial gain and provided the source is appropriately credited. Prior written permission must be obtained for any other reproduction, distribution, republication, or creation of derivative works of *Chicago Fed Letter* articles. To request permission, please contact Helen Koshy, senior editor, at 312-322-5830 or email Helen.Koshy@chi.frb.org. *Chicago Fed Letter* and other Bank publications are available on the Bank's website at www.chicagofed.org.

ISSN 0895-0164

which made it expensive and error prone. The first solution that Perman considered was an EIPP system, but he decided to look for other options after a survey of Deere's customers revealed that they preferred not to be invoiced, or pay, electronically. Instead, Perman and Lyne focused on a solution that addressed Deere's efficiency concerns and did not force Deere's customers to move from paper to electronic alternatives. Deere is now using a wholesale lockbox with image, MICR, and data capture with transmission, and has reduced its manual processing by 50%. As its customers' willingness to adopt electronic payments increases, Deere should be better positioned to take advantage of the benefits of the migration to electronic payments.

Federal Reserve's role in payments

In his remarks, James Lyon, Federal Reserve Bank of Minneapolis, emphasized the importance of a well-functioning payment system to the health of the overall economy and discussed the various roles that the Fed plays within the payment system. One important responsibility of the Fed is to foster greater understanding of the payment system through market research and dialogue with payment system participants.

Lyon stated that, occasionally, the Fed is called upon to "impose" standards on certain aspects of the payment system. He noted that research on standards provides little evidence that policymakers would likely choose the correct standard. He also emphasized the delicate balance that the Fed must find between its roles as payment provider and regulator. As a payment provider, the Fed is required to recover the cost of providing the services it offers, and it must be careful not to subsidize its payment services from other parts of its business. Instead, he said, the Fed should leave standard setting to market forces and intervene only to remove systemic impediments to market-based solutions, such as legal or regulatory barriers.

Conclusion

In his concluding remarks, Sujit Chakravorti, Federal Reserve Bank of Chicago, observed that conference participants seemed to agree that the problem facing businesses is not limited to that of converting paper payments into electronic ones. In order for electronic payments to be widely adopted, businesses must also automate the exchange of the information supporting the payments. Some companies, particularly large firms, are anxious to realize the cost savings that the widespread adoption of electronic payments would bring. Other companies, particularly smaller firms and some banks, are reluctant to give up paper checks, especially when faced with the significant investments that electronic payment systems often require. For some institutions, the development of standards is fundamental to resolving these uncertainties, yet even on this issue industry participants face different incentives. Chakravorti observed that, though some companies see standards as critical, others see the lack of standards as an opportunity for them to create value.

The movement to an electronic financial supply chain will not happen overnight, but will be a series of small steps. Creating an electronic financial supply chain is a complex process, involving the coordination of different types of participants. Several conference participants suggested that banks will play an important role in fostering this movement, though it is unclear whether banks will choose to do so. Many of the successes participants discussed came from niche markets or from supply chains with a dominant trading partner, where it may be easier for market participants, together with their banks, solution providers, and networks supporting them, to agree on standards and to make sure appropriate incentives are in place for each member of the supply chain. Conference participants suggested that one electronic payment solution may not be enough to meet the needs of all businesses, and instead, banks, networks, and solution providers will continue to offer a variety of alternatives. Though the migration to electronic payments has been slow for B2B transactions, more firms are becoming convinced of their potential benefits and have started to migrate away from paper-based and manual processes in their financial supply chains.

[1] Killen & Associates, Inc., 2002, "Optimizing the financial supply chain," white paper, No. 464–1202, December.