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Investing in payment innovations: Risks and rewards

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Advances in technology have helped usher in new payment mechanisms catered to current demographic and cross-border demands. Yet these payment innovations also pose increasingly complex security challenges worldwide. Participants at a recent Chicago Fed conference discussed the implications of these developments for the payments industry.

Materials presented at the conference are available at www.chicagofed.org/news_and_conferences/conferences_and_events/2006_payments_conference.cfm.

Electronic payments now dominate non-cash payments in the United States. Even so, the electronic payments space continues to evolve as the focus shifts from replacing paper instruments to creating *the* standard for the next generation of electronic payments or specializing technologies for customized applications. This migration is not always as dramatic as it may seem, since these innovations often leverage the existing platforms that support traditional payments systems.

The success of any payment innovation depends on its ability to attract a sufficient user base. To do this, several of the key participants, whether they are consumers, merchants, payment providers, or networks, need to benefit from its adoption. Two major forces persistently shape the demands of these constituents: demographics and globalization. As each new generation is exposed to more advanced technology, younger consumers often favor payment mechanisms that provide superior or combined functionality. Globalization of the payments market, facilitated by the Internet, is creating demand for new payment products that support cross-border trade.

Although globalization brings many opportunities, it also exposes the payments industry to complex security threats, as well as difficulties arising from varying payments standards across regions and countries. Regulators worldwide are thus faced with the challenge of promoting a more seamless and efficient payments system, while protecting users against inappropriate uses. To encourage discussions on these issues, the Chicago Fed hosted its sixth payments industry conference, titled “Investing in Payment Innovations: Risks and Rewards,” on May 11–12, 2006. This *Chicago Fed Letter* summarizes the conference discussions concerning the benefits as well as underlying risks of payment innovations to all participants in domestic and international contexts.

Federal Reserve perspective

In their introductory remarks, Michael Moskow, Federal Reserve Bank of Chicago, and keynote speaker, Donald Kohn, Board of Governors of the Federal Reserve System, highlighted the Fed’s role in the U.S. payments system. Kohn noted that although payment innovations may decrease risk within the payments system, they may also transfer risk to other participants or possibly increase it overall. He underscored the importance of managing risk collectively, as different payment silos become ever more integrated. Kohn said the Fed will continue to further efficiency of the nation’s payments system through active participation, while remaining attentive to the impact of regulations in this evolving market.

Confronting security threats

The first panel addressed the evolving security threats to the payments community. This panel featured William Barouski, Federal Reserve Bank of Chicago; Mikko Hyppönen, F-Secure Corp.; Daniel Larkin, Federal Bureau of Investigation (FBI); Rick Siebenaler, Deloitte and Touche USA LLP; and John Stewart, Cisco Systems Inc. The panelists agreed that the threats facing the payments industry are becoming more sophisticated and that staying ahead of them is imperative. They also noted that participants are not always aware of appropriate security protocols in this fast changing digital environment; hence, they may inadvertently initiate security breaches.

Hyppönen described how security threats are changing in the global economy. He pinpointed a significant transformation of the "enemy" to January 2003, when it first became clear that primary sources of Internet security threats switched from teenaged hobbyists to organized criminals. The latter attack for monetary gain, not just as a pastime. As a result, the payments industry has been bombarded with spamming, pharming, and phishing attacks that attempt to fool legitimate users into divulging personal payments information. The Internet magnifies the scope of these threats: Everyone on the Internet is, in a sense, next door.

Siebenaler observed that mitigating security breaches is further complicated by participants' lack of understanding of their respective roles. For example, a large percentage of merchants contravene a major card network's operating rules by retaining vast amounts of confidential data. Since security breaches by company insiders are also sizable, Stewart added, tackling security problems becomes even more challenging.

Panelists concurred that a greater sense of security needs to be reestablished as consumers are growing more apprehensive about existing protection levels. Barouski cautioned that online payment activity has been adversely affected by the publicity of some recent high profile attacks. Shoring up system resilience, Larkin commented, requires knowledge sharing between regulators and industry participants. To this end, the FBI has set up a nonprofit consortium to work closely with industry partners. Such initiatives should help the industry switch from reactive plans of action to proactive ones, as Stewart counseled is necessary.

Consumers will find a new payment instrument most compelling if it improves speed, flexibility, and convenience, all while enhancing security and feelings of familiarity.

Emerging technologies at the point of sale

The second panel discussed the dynamics of success for new electronic alternatives to traditional payment methods at the point of sale (POS). This panel comprised Tony Hayes, Dove Consulting Group Inc.; Diane Offereins, Discover Financial Services LLC; Scott Rau, JPMorgan Chase & Co.; and Martha Smith, McDonald's Corp. Several panelists asserted that payment tools need to provide net benefits to their participants. Of these, satisfying consumers' desires is particularly important at the POS. Being able to anticipate and adapt to shifts in consumers' behavior is tricky, yet this panel emphasized that leveraging existing technology helps smooth the transition to a new payment tool.

Demographics provide vital clues about which new technologies will flourish in the market. Offereins observed that younger generations are often more attached to their cellphones than their wallets. She suggested that this may presage a movement away from plastic to mobile payments. She added, however, that there is room in the market for several forms of electronic payment tools, as long as they provide unique functions. Smith concurred, saying McDonald's found itself increasingly disconnected from its customers due to its historic reliance on cash. This pushed the company to accommodate a broader array of payment technologies.

Hayes maintained that recent payment technologies were not as innovative as credit and debit cards had originally been. Offereins agreed, saying that the industry is more likely to accept technology that leverages the current infrastructure. Rau supported this with the example of the contactless technology, branded "blink," that JPMorgan Chase now offers on some of its credit cards. He noted that it is simply a new capability that increases speed at the POS. Developing technology that builds upon *existing* networks lowers learning costs for all participants. Consumers have also come to expect new products to provide security that is at least as good as it is in existing products. Overall, the panelists observed that today's consumer will find a new payment instrument most compelling if it improves speed, flexibility, and convenience, all while enhancing security and feelings of familiarity.

Prepaid card applications

The next panel and subsequent keynote speaker discussed new markets for prepaid cards, as well as the uncertainty that comes with this diverse product. The panel comprised Gary Palmer, e-Funds Prepaid Solutions Inc.; Talbott Roche, Blackhawk Marketing Inc. (a wholly owned subsidiary of Safeway); Terrence Cooney, HealthBenefit Corp. (formed by Blue Cross Blue Shield and 31 regional Blue Cross plans); Jack Sipes, American Red Cross; and Andrew Crowe, MasterCard International, followed by keynote speaker Anil Aggarwal, Prepaid Media Inc. A prepaid card is a payment instrument that is funded in advance, with value residing on either the card or a remote database.[1] These cards exemplify how products can leverage existing technology, Palmer stressed, because they utilize the same equipment at the POS used for credit and debit cards. While prepaid cards first appeared in the market as transit and telephone cards, numerous market entrants are bringing these cards to new segments. Third party solution providers, health benefit administrators, nonprofit organizations, and others have diversified the prepaid card market by replacing paper products or enhancing traditional processes, or both.

Over the past five years, prepaid cards have been commonly deployed as gift cards, replacing paper gift certificates. This aspect of the prepaid gift card market is expected to contribute less to future growth in the overall prepaid card market, since much of this substitution has now occurred.[2] Roche showed that from a marketing perspective there are still other growth opportunities in gift cards. New participants are designing prepaid cards to target niche functions and market them in distinctive ways. She described convenient one-stop multicard displays in grocery and convenience stores, organized logically in categories, such as travel, movies, and food.

Crowe pointed out that prepaid cards can also enhance or even create a relationship between a provider and an end-user. Prepaid cards offer the convenience of electronic payments to those who lack access to depository or credit accounts. For example, payroll cards allow unbanked employees to pay electronically without requiring them to have a relationship with a bank. Cooney detailed how health savings accounts can be tied to prepaid cards and coupled with high-deductible participating provider options (PPOs). This application helps consumers budget health care payment decisions, allowing them to search for lower prices. Lastly, Sipes described the replacement of paper vouchers with prepaid cards in disaster relief situations. He identified these cards as a way for consumers to gain more control over their disaster recovery funds. This also reduces the burden on merchants, who are more familiar with cards than with paper vouchers.

Aggarwal argued that despite impressive growth, prepaid cards are still in their infancy. New participants, as well as the broad set of applications these cards now support, make it difficult for the market to converge on aspects of regulation, security, and individual responsibilities. This creates vulnerabilities in the market. While the potential for prepaid cards' success has been firmly established, he said, his new company is trying to give a collective voice to the prepaid world to address these obstacles.

Investment strategies

Participants on the fourth panel described how their firms choose payments industry investments. This panel featured David Hochstim, Bear, Stearns & Co.; Eric Dunn, Cardinal Venture Capital; Thomas Smith, Total Technology Ventures LLC; Patrick Foy, Fiserv Inc.; and Mark Tiggas, Wells Fargo Bank & Co. Investors are drawn to the payments industry due to its potential for large markets and high returns on capital, Hochstim said. The panelists described how investors enter into the product cycle at a point that fits best with their firms' overall strategies. They also identified promising product characteristics.

The panelists offered varied perspectives on when to invest in a new payment technology. Dunn and Smith, panelists representing venture capital firms, prefer to invest in early stages of the product cycle, i.e., when a company has an attractive technology but not necessarily a consumer base. By entering early, their firms can help to actively shape and manage product development. Returns under this strategy tend to be high for successful products, but investors are subject to greater risk. While Wells Fargo often invests early in the process, Tiggas said, more mature products have also been appealing. For example, it has acquired companies whose products it used in-house, drawing upon its direct experience to improve the products. Foy explained that Fiserv invests in later stages in order to provide more consistent growth to its stakeholders. Beyond having a product, the company must have an established user base. There is a premium on acquiring companies at later stages, since they generally entail less risk.

The majority of panelists agreed that a rewarding investment usually involves a company with strong management and industry expertise, as well as a unique technology or customer focus. The panelists further described distinct product characteristics their firms find attractive. Later stage investors seek products that have synergies with the rest of their portfolios. Foy pointed to Fiserv's recent success with BillMatrix, a facilitator of online and telephone bill payments. While Fiserv already offered several electronic bill payment products, BillMatrix's strength in *expediting* payments to avoid interruption of service (e.g., electricity) proved to be a valuable addition. Smith asserted that the key to promoting product adoption and maintaining a solid customer base is using a trusted provider. To illustrate this point, he referred to Roche's example of prepaid cards sold in a local grocery store—a familiar and trusted merchant. Dunn emphasized that a new technology that best mimics the simple traits of cash (universal acceptance, no or low transaction fees, and minimal fraud risk) is much more likely to achieve wide acceptance. In the end, he stated, it is most important to ensure that an innovation is not detrimental to any of its main participants. If it is, he said, this product is more likely to fail in the market.

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Cross-border payments

The final panel discussed the forces shaping global payments. It featured Daniela Russo, European Central Bank; Joan Rosás, la Caixa; George Zinn, Microsoft Corp.; Eileen Dignen, Citigroup; and Emery Kobor, U.S. Department of the Treasury. While several panelists described how the global payments market has created new opportunities, they stressed the need for improved standardization within and across technologies and harmonization across regulations for this market to function more effectively. However, the greater the ease with which participants move money across borders, the more channels are opened for illegitimate actors. This brings new challenges to payments regulators.

New technologies have made global payment transactions and transfers of payments-related information easier, but the lack of standardization across borders remains a barrier. Zinn argued that when the global community settles on standards for international transactions, the system as a whole will become much more efficient as corporations' payments processes become interoperable. Russo pointed to the Single Euro Payments Area (SEPA) initiative as an example of how regulators can tackle some of these challenges.[3] While SEPA holds promise, incompatible standards persist throughout most of the rest of the world. Dignen said achieving standardization within Asia is particularly difficult due to sharp regional differences: Some economies are still fully paper-based, while others are almost entirely electronic.

Financial institutions also face global challenges related to network resilience. For example, Kobor pointed out that providers of open loop prepaid cards can issue them to customers without going through standard due diligence processes, like those used for depository accounts. These products use the same networks that financial institutions use. This creates a vulnerability to global out-of-network access because these cards can be purchased by anyone in the world. In addition, some issuers of prepaid cards do not have strong customer identification processes or monetary reload limits, making them easy to exploit by money launderers.

Despite these challenges, companies are developing products to better serve the financial needs of customers who face cross-border obstacles. Rosás provided the case study of how la Caixa integrated a remittance payments network into its retail banking strategy to assimilate immigrants into broader aspects of the financial system.[4] Such strategies have proven to be beneficial not only to previously underserved customers but also to banks by increasing their client base.

Conclusion

Richard Porter and Sujit Chakravorti, Federal Reserve Bank of Chicago, concluded that the influence of electronic payments in the global market continues to grow and change. While numerous new devices have penetrated the market with varied levels of success, Porter said, a clear model for the industry has not yet emerged. The market may support several devices as long as they address the different needs of its constituents. Prepaid cards show that niche applications continue to materialize. They also illustrate, however, that as the convenience of payment choices increases, so can vulnerabilities. These concerns multiply when one considers the global marketplace, Chakravorti noted, where criminal activity is facilitated by the same technologies that make global payments so attractive to legitimate users. Dramatic differences in security protocols remain across many products and regions, setting challenges for the industry to address in order to ensure the efficiency of the payments system.

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1 See Sujit Chakravorti and Victor Lubasi, 2006, "Payment instrument choice: The case of prepaid cards," *Economic Perspectives*, Federal Reserve Bank of Chicago, Vol. 30, No. 2, Second Quarter, pp. 29–43.

2 American Bankers Association and Dove Consulting, 2005, *2005/2006 Study of Consumer Payment Preferences*, Washington, DC: American Bankers Association.

3 SEPA is a European initiative seeking to establish common standards, procedures, and infrastructures for cross-border payments.

4 La Caixa, located in Spain, is the largest savings bank in Europe.