Conference Summary

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I. Introduction

With the popularity of smartphones and online social networks, consumers are increasingly connected with each other, their banks and the businesses seeking to sell goods and services to them. As a result, consumers and businesses have access to real-time information about the transactions in which they are engaging. In addition, consumers' purchase opportunities can be more closely customized to their financial resources, preferences and location. These two dimensions of connectedness—real-time transaction information and customized purchase opportunities—are likely to drive much of the innovation in consumer payments in the next few years. Some of these innovations will involve payments on social networking sites. Other innovations will occur on mobile platforms, which provide a particularly convenient way for consumers to connect with other consumers, banks and retail businesses as they make payments. Most of these innovations will focus on domestic payments, but some may involve cross-border transactions such as remittances by immigrants and foreign purchases.

These developments are at the foundation of the Federal Reserve Bank of Kansas City's interest in consumer payments innovation: How should central banks and other policymakers consider and respond to the current wave of payments innovations to promote efficiency, and safety and ensure access to the payments system? Excessive government intervention in consumer payments markets could stifle innovation by weakening the profit motive and distorting incentives. On the other hand, unfettered markets could fail to produce the right mix of efficiency, safety and access, because payments participants may not consider all the costs and benefits of their actions to other parties. In such circumstances, central banks and government agencies may have an important role to play in shaping payments innovation. This role could include setting standards for new payments methods to solve coordination problems, ensuring that smaller innovators are not locked out of the new payments platforms, and enabling new payment methods to be cleared

and settled in a safe and efficient manner that maintains or even enhances access to the payments system.

These considerations formed the motivation for the Federal Reserve Bank of Kansas City's fourth international payments conference titled, "Consumer Payment Innovation in the Connected Age," which was hosted on March 29-30, 2012. Over six sessions and a keynote address, leaders from public policy institutions, industry and academia engaged actively to discuss, and sometimes debate, the following key policy questions: "Will increased connectedness revolutionize consumer payments in the next few years, and what roles will various payments participants play to bring about such change?" "What obstacles do private markets pose for payment innovation in the connected age, and what can public authorities do to overcome those obstacles?" "What new risks and privacy concerns will be created by payments innovation, and what changes in regulation are needed to address these problems?" "Will payment innovations increase access of currently underserved consumers to convenient, secure and reasonably priced payment methods?" "To promote socially beneficial payment innovation, what changes should be made in clearing and settlement of consumer payments, and what role should the Federal Reserve and other central banks play in the process?" "What lessons can be learned from governments, regulators and central banks that have been active in facilitating payment innovation?"

The following summarizes the conference on a session-by-session basis. Each session focused on one of the six key questions above. The summary highlights key insights from the experts, areas of agreement and points of contention.

II. Opening Remarks: Views from the Kansas City Fed

Esther George, president and chief executive officer of the Kansas City Fed, opened the conference with her views on the role of the Federal Reserve as an operator and as a catalyst for progress in retail payments. George noted that central bank goals of economic growth and financial stability rely in part on the smooth functioning of a nation's payments system. She emphasized that the public's trust in the payments system is essential for payments system stability, not only for large-value, wholesale payments but also for retail payments on which consumers depend every day. George urged the Federal Reserve to be prepared—as an operator—to facilitate retail payment transactions in good times and to backstop them when the inevitable crisis occurs. While voicing a preference for markets to fill future gaps in consumer payments services, like the absence of a digital replacement for the check, George said that where markets fall short, the Fed can assist in its operator role in those markets, delivering services that its customers value, and competing fairly by setting its prices to recover costs plus a market return in accordance with the requirements of the Monetary Control Act. Finally, George connected the Fed's operator role to its ability to play a catalyst role, leveraging its experience as a market participant to collaborate with the industry and other

authorities to remove barriers to progress and ensure the payments system meets the needs of consumers in the years ahead.

III. Session I: Increasing Connectedness and Consumer Payments: An Overview

Over the years, consumers and businesses have shown considerable inertia in their payments practices, and predictions of seismic changes, such as the disappearance of the check, have proven to be premature. Will this time be different? Social networking sites such as Facebook and Twitter are increasing connectedness in today's society. Consumers are increasing use of these sites for online shopping and other transactions such as charitable giving, and smartphones may increase connectedness in ways that could have an even more profound impact on consumer payments.

Kathy Walker, OpenAir Equity Partners, moderated this opening session to explore the impact of increasing connectedness on the speed of change in consumer payments and on the roles of various players in this market. She introduced session paper author, Michael Katz, Haas School of Business at University of California, Berkeley, and discussants, Don Kingsborough from PayPal and Hal Varian from Google.

Katz predicted that core payment services will not experience revolutionary change but instead will follow an evolutionary path, with capabilities enabled by smartphones likely to be extensions of existing payments services. In building his arguments for this conclusion, Katz emphasized the importance of consumer payment behavior and preferences. He explained that while payment acceptance costs are a factor, merchants' primary interests are served by offering payment types that consumers want to use, so merchant demand is derived from consumer demand. Katz presented a variety of research on consumer payment preferences for features such as universal acceptance, convenience, security, privacy, rewards, credit and ability to monitor accounts. Katz compared how mobile payments features fit these preferences, concluding that while there are some advantages, they are not sufficient to result in rapid adoption. He argued instead that the revolutionary change will be in how businesses market their products and services and deepen relationships with the millions of "always connected" consumers. The addition of "context" to a payment transaction, including a consumer's location, two-way communication capability and storage/memory, provides rich data on which to target offers to consumers in real-time and at places beneficial to merchants.

In assessing the prospects for the various players in the battle to capture value from consumer connectedness, Katz predicted that consumers will maintain relationships with several types of firms—there will not be one winner. Katz concluded that telecommunication companies will not significantly shape the evolution of retail payments nor capture much value, but are essential to the infrastructure. Banks will

maintain an important role in payments with their advantage in consumer trust, account balances and unique skills in offering credit, but will not extend services boldly in new directions. Web service companies such as eBay, Google and Facebook collect the valuable profile and contextual information and maintain the data analytics skills that merchants may pay for, but their success will depend on resolution of privacy issues and regulatory and political forces. Apple has the consumer brand loyalty and vertical integration to be very successful, but may be constrained by its proprietary business model. As for the incumbent card networks, Katz appeared most optimistic about their potential for success in capitalizing on consumer connectedness given advantages of consumer trust, vast data and analytics capabilities, large merchant networks, and the fact that several successful innovators like Square and PayPal leverage the card networks for processing transactions.

PayPal's Kingsborough and Google's Varian suggested that consumer connectedness will have a more revolutionary impact on consumer payments than Katz predicted. Kingsborough argued that a significant shift is already taking place from a bank-centric payments system to a consumer-centric system as evidenced by the increase in multichannel shopping—mixing virtual and in-store capabilities at various points in the purchase process. Kingsborough agrees with Katz that services based on information will be revolutionary and while the players may be the same as in today's payments system, market shares will change with winners being those able to work with the existing infrastructure to get billions of consumer devices in the cloud to connect with them.

Varian raised a variety of points in his discussion of consumer payments innovation. While acknowledging the inertia of consumer behavior, he noted the power of the technology that can completely replace the physical wallet. Varian noted that it is possible that social networks may be a stronger force in consumer payments, citing "Farmville" game-maker Zynga's 12 percent contribution to Facebook revenues, and the potential of information captured by social networks to provide stronger authentication needed for payments. Varian commented on the early success of easy-to-use special-purpose payment systems like those used with Apple's iTunes Store or Amazon Marketplace and the likelihood that general-purpose payments systems will copy these features and eliminate this advantage. Using Square's payments acceptance method as an example, Varian also suggested that innovators need to build on existing infrastructure to avoid the costs of new devices or process changes for consumers and merchants. Finally, he noted that the availability of spectrum for innovations using Wi-Fi technology has been important to innovation in consumer payments

During the question and answer period, participants debated several issues. Do consumers value deals or simplicity in pricing? Will merchants be able to control and leverage consumer purchase data and profile information or will social networks and payment card networks step in and grab consumers' attention with multimerchant offers and payment capabilities? And what is the interplay and trade-off between innovation and security in this digitally captured and connected world? Varian and Kingsborough agreed that in the connected age, fraudsters may

always be one step ahead of innovators. Technology provides criminals the tools to steal substantial sums by attacking high volumes of lower-value transactions that are under fraud limits. On the other hand, Kingsborough noted that payments providers are using fraud data to quickly identify and close gaps, and using information about consumers and their normal behavior to detect and prevent fraud. Katz added that two-way communication between networks, merchants and consumers enables alerts that can improve authentication of real-time payments.

IV. Session 2: Market Obstacles to Consumer Payment Innovation and Public Policy Responses

A key concern about emerging payment methods such as mobile is that market obstacles may slow adoption and efficient development. It can be difficult to obtain the critical mass of adoption from consumers, merchants and various other providers to make the method viable. Some experts argue that the best way to overcome this coordination problem in private markets is for public authorities to take an active role in setting standards. Others argue that such government intervention could do more harm than good, by locking the payments industry into a technology or set of standards that later proves to be inferior. Chris Bierbaum of Sprint Nextel Corp. moderated a panel that explored the nature of obstacles to consumer payments innovation and how public authorities might respond. Panelists included Nicholas Economides, Stern School of Business at New York University; David Evans, Market Platform Dynamics; Alan Frankel, Coherent Economics; and Bob Lee from Square.

Economides opened the discussion. He posed three scenarios for how mobile payment innovation might develop. For each scenario he discussed potential incentives for entry and innovation, merchant and consumer benefits, and competition authority response. In the first two scenarios, the dominant card networks like Visa and MasterCard or wireless carriers like AT&T and Verizon could enter the market for mobile payments by extending their services vertically. In the third scenario, firms without a current stake, like Google or Square, could enter the market with software. Economides argued that in both the card network and mobile carrier scenarios, network effects and the near-monopolistic market structure create strong incentives for firms to impose incompatible systems to win a dominant position in the new mobile payment market. In the third scenario, new entrants are more likely to design an open and compatible system to produce the highest merchant and consumer benefits and maximize adoption. In answering whether antitrust authorities should intervene in the case of firms that already possess significant market power, Economides predicted that the U.S. Department of Justice (DOJ) is unlikely to intervene because the market is new and the issue is vertical rather than horizontal. But, other public authorities in the United States may potentially intervene in the market because of interests in compatibility.

Evans was highly skeptical of the need for government intervention. He described an intense period of innovation in payments characterized by the spread

of mobile devices, development of sophisticated software platforms and improved data analytics capabilities. New entrants and existing providers are all focused on innovation. Evans noted several serious obstacles to market adoption of innovations: first, current payments systems work really well; second, the chicken-and-egg problem; and third, the massive amounts of investment in current payments systems and processes. He observed that market obstacles are not the same as market failures and suggested that government stay out of the way. Evans concluded by stating that there is no reason to believe the government could identify market failures with any degree of accuracy, and furthermore, governments do not have a good record when it comes to payment innovation.

Frankel took a strong opposing view to Evans, arguing that the conduct of payment market incumbents in pricing and rules creates competitive bottlenecks. He offered the case of the card networks and issuers promoting the more costly and less safe signature authorization over PIN for debit cards as evidence that card networks and issuing banks pursue innovation to preserve monopoly power, not to achieve efficiencies. Frankel noted that recent public authority interventions, including Regulation II on debit card pricing and the DOJ settlement on anti-steering rules, do not go far enough. He recommended that public policy ensure that there is competition for payment methods at the point of sale.

Lee provided a private sector mobile payments innovation example that leverages existing infrastructure to streamline the setup process for payment card acceptance, reduces acceptance costs and better meets the needs of small merchants like taxi drivers and farmers market vendors. Lee noted that because Square's interests are aligned with the card networks, the "self-regulated market" supports the innovation his firm delivers and expansion is only constrained by component supply issues. Lee asked policymakers not to intervene.

In a more restrained reprise of the lively debates at the 2005 Kansas City Fed conference on interchange fees, questions from participants centered on whether there is in fact a market failure to address, whether par pricing or interchange fees are appropriate, and the likely impact of public interventions—to stimulate or stifle competition. Frankel and Economides generally agreed that providing merchants the flexibility to charge for payments based on their costs would stimulate competition among payments methods at the point-of-sale but disagreed on whether par pricing was needed. Offering the opposing view, Evans suggested that granting a benefit to merchants translates into losses for consumers. Instead, networks, not governments, are better positioned to balance the needs of the two sides of the market for payments transactions and interchange fees are the mechanism to accomplish that balance. One area for agreement among the panel was that the effect so far of Regulation II has not had the devastating impact predicted by some card issuing banks.

V. Keynote Address: Mosquitoes, Micropayments and Privacy

Joseph Farrell, Director at the Bureau of Economics, Federal Trade Commission, gave the luncheon speech. Farrell's key message was that lowering the transaction costs of purchases of goods and services would produce significant consumer and societal benefits. He suggested that one opportunity for focus was micropayments, where the ratio of transaction costs to the value of the payment was significant. Farrell suggested that micropayments suffer from the "mosquito problem" in that the transaction costs (or the side effects) of mosquito bites vastly exceed the value (or the small amount of blood transfer) that takes place. Farrell provided various examples of micropayment transaction costs, such as the time spent waiting in line at a cash register or queuing up at a toll booth, or the inconvenience of entering payment information online every time a consumer purchases and downloads a song.

Farrell described several payment innovations that address the micropayment mosquito problem. Bundling similar goods, such as news articles, into one transaction reduces the ratio of the transaction costs to the size of payment by raising the price paid for a transaction. For unbundled goods like song downloads, online merchants like iTunes keep customers' payment information so that customers do not have to reenter it each time they purchase a song. A different mechanism eliminates fee payments and the related transaction costs to the consumer altogether, substituting an advertising revenue model in the case of premium TV programs and news articles. Farrell said ad support is not a bad way to do micropayments, but some forms of ad support that involve tracking consumers as they click through ads on the Internet, may raise privacy and data security public policy concerns.

VI. Session 3: Risk and Privacy Implications of Consumer Payments Innovation in the Connected Age

Consumer payment innovation in the connected age could have both positive and negative implications for the safety and stability of the payments system and consumers' privacy. On the positive side, connecting consumers with their banks via mobile phone during the payment process could improve authorization and authentication, mitigating fraud risk. Payment methods that involve real-time settlement could also reduce the risk to merchants of consumers having insufficient funds in their accounts to cover purchases. On the negative side, fast and final settlement could make it more difficult to prevent and reverse fraudulent or erroneous transactions. The collection and storage of personal information to customize consumers' buying experiences could also lead to an unwelcome erosion of privacy and increased risk of payments fraud using stolen personal data. Of concern to central banks, the payment system could become more vulnerable to a sudden loss of confidence from data breaches or misuse of personal information, with adverse consequences for the economy as a whole. Gary Fish of FishNet Security

introduced session paper author Ross Anderson of the University of Cambridge, and discussants Alessandro Acquisti, Carnegie Mellon University, and Sarah Jane Hughes, Indiana University Maurer School of Law.

Anderson began with two examples of consumer payments innovation that highlighted the issues and provided context for recommendations he later would make. The first example was a service offered by Germany's Sofort Bank to online merchants, through which consumers give the service access to their bank accounts, essentially an authorized "man-in-the-middle" attack, to initiate a credit transfer to the online merchant. The service's low merchant fees and waiver of consumer fees have sparked its growth, despite nervousness on the part of the banks holding the consumers' accounts. In the second example, Anderson described a service offered by U.K. banks that enables consumers to send mobile person-to-person (P2P) payments with immediate and final settlement. The rapid settlement feature exposes the service to potential fraud loss from malware compromises of the sender's banking credentials and criminal account takeover with no ability to reverse the transaction before funds are stolen. Anderson predicted that innovation in consumer payments will lead to an increase in fraud and privacy issues as well as complexity. He noted several contributing trends—the accumulation of consumer data, the entrepreneurial spirit of cybercriminals, and more prevalent outsourcing by payments participants. Anderson recommended that regulators extend consumer protections to new services and focus on monitoring and reporting fraud statistics across all payments channels to spot issues timely. He also advocated that regulators attempt to enable competition within a market, but observed that "it is quite normal for firms competing in two-sided markets to offer insecure products in the race for market share and then lock things down later." Although clearly concerned with innovation's impact on fraud, Anderson urged regulators to consider the risks in the context of sizable social benefits of innovations like online commerce.

Acquisti offered several possible views on whether innovation will increase fraud and privacy concerns. Based on his research of usability of security systems, Acquisti first reinforced Anderson's prediction of more fraud and complexity in payments. He noted that users may believe they have enabled security features in mobile applications when, in fact, they have not. Moreover, mobile applications are more vulnerable to social engineering attacks because they work invisibly and thus hide evidence of corruption. Acquisti said innovation has produced many new payment systems and there is no guarantee that the few that survive in the market will be the most secure. Acquisti then posed an alternative view. He noted that social networks are driving much of the mobile application innovation and that the successful network will produce large amounts of user data that then can be used to detect behavior that indicates payment fraud. In the case of a dominant social network provider of payments services, payments may be less complex and less risky but at the cost of users losing their privacy.

Hughes began by noting that the development of mobile payment applications is concentrated in unregulated institutions. Lack of involvement by regulated institutions may indicate higher risk in the mobile payment application and thus hinder adoption by older users. In addition, if a prominent mobile payment system experienced a massive failure, users would most likely switch to traditional payments rather than to another mobile payment application. Hughes went on to raise a number of payment law questions that the design of mobile payment applications should address. How are records of mobile payments stored and accessed if a need arises to prove a payment? Are balances on mobile payments accounts insured, or if not, are providers required to have a performance bond? Do the payments have adequate authentication, and data integrity? How are problems resolved, such as in cases of failure to complete a payment? Answers to these questions are important from two perspectives: one, to understand how consequences of problems in payments are distributed across providers, consumers, developers, banks and others; and two, to remove uncertainty that may be an obstacle to consumer adoption of new payment methods.

In response to the discussants' comments, Anderson noted that the security challenge is in managing complexity of the mobile payment system. The main issue is whether the development environment is controlled by concentrated and effective stakeholders. The legal environment (regulation, contracts, tort law) will also help to determine whether there is an appropriate balance between features and security.

The audience asked questions on four topics. First, how should businesses protect themselves when personal devices are used in the workplace? Panelists recommended several possible strategies including dedicating devices, subject to high degrees of control, to sensitive tasks or outsourcing them to organizations with security expertise. Second, how has the U.K. approached the collection and reporting of fraud loss statistics? Panelists noted that the U.K. data relies on participation of financial institutions. Participation is possible in part because statistics are aggregated to protect individual institutions from bad publicity. Panelists encouraged U.S. regulators to promise data aggregation and pursue voluntary disclosure by banks and nonbanks instead of the more time-consuming legislative mandate approach. Third, could a hardware solution, such as a properly implemented computer-chip-based card, reduce payment fraud and reduce the need for personal information in the payment approval process? Panelists expressed concern that the EMV standard suffered from both poor implementation and complexity. More secure technology is available for payments but research has shown that only a minority of consumers are willing to bear added expense of better security. Fourth, is there evidence that the U.K.'s Faster Payments Service is being used for fraudulent payments and what can be learned from that experience? Although an industry concern, fraud statistics from the U.K.'s Faster Payments Service are not yet available. Risk could be mitigated in a U.S. system by allowing faster settlement only on accounts that are unlikely to be compromised and for domestic transactions, thus making them less attractive for money laundering.

VII. Session 4: Ensuring Consumer Access to the Payments System in the Connected Age

A well-functioning payments system should provide consumers from all regions and socioeconomic groups with access to convenient, secure and reasonably priced payments methods. Payments innovations sometimes have the unintended effect of excluding certain groups of consumers; more recent payment innovations, such as prepaid cards and mobile payments, however, have the potential to expand access of the unbanked population to efficient payments methods. Rachel Schneider, Center for Financial Services Innovation, moderated a panel of experts to provide insight on the extent to which new payment methods increase consumer access and insights on which groups of consumers might benefit.

Schneider began by defining the unbanked and underbanked U.S. population as being from 30 million to 40 million households, a third of which have no relationship with banks; the rest using check cashing, money orders, prepaid cards or other alternatives in addition to banking services. She dispelled myths about this segment of consumers, such as that their wealth is insufficient to be a policy concern and that they are not technologically enabled. Schneider pointed out that smartphone adoption and interest in mobile financial services is high relative to the population as a whole because of a convenience differential. Most unbanked and underbanked consumers are managing their cash flows dollar-by-dollar, making services such as real-time balance information, immediate funds transfer and financial planning tools valuable.

U.S. Bank's Kevin Morrison explained how prepaid products serve as an entry point into the mainstream banking system for unbanked and underbanked consumers. Distributed through its branch network, U.S. Bank's reloadable prepaid card establishes a banking relationship that can lead to more traditional products such as checking and savings accounts, and even credit. He pointed out that retail banks are in a good position to serve this segment of the population, as they have the necessary infrastructure, such as ATMs, branch distribution networks and fraud monitoring systems, in place. Morrison agreed with Schneider that smartphone utilization is high among this segment and that mobility and communication capabilities are valuable to them.

Steve Streit from Green Dot Corp. offered a different perspective on prepaid debit cards, not as a transition for the unbanked to banking products, but as a separate financial product distributed conveniently in retail stores where consumers visit frequently. In addition to convenient access, Streit emphasized that most prepaid products have features similar to bank accounts, including FDIC insurance and Regulation E protections that make them good alternatives for consumers who have not been well-served by banks.

Louisa M. Quittman from the U.S. Department of the Treasury brought a public policy perspective on financial inclusion and discussed government benefit

payments initiatives that improve and rely on broad access to the payments system. For example, to achieve the efficiencies promised by its "all electronic payments" initiative, the U.S. Treasury offered a prepaid debit card as a low-cost option to receive federal benefits payments and a first step into the financial system. Quittman also highlighted payments features valued by the underbanked, including being quick, simple, controllable and safe, with transparent fees and personal data protections. She noted room for improvement in certain aspects of payments products to promote savings and help consumers build reasonable credit. Quittman stressed the importance of financial education and consumers' ability to access their own data to aid in financial decisions. Quittman referred to the importance of consumer research and pilots to ensure Treasury's payment products meet the needs of consumers and concluded by urging industry, academia and others to contribute their research and data to encourage further innovation.

Paul Breloff of ACCION International's Venture Lab offered a perspective on consumer payments innovation in developing markets. First, he distinguished payments innovation in developing countries as transformational, providing the initial access to financial services. In countries without payments infrastructure, cell phones connect people to basic financial services and serve as a gateway to more advanced products and services such as credit, funds transfers—which are very important in developing markets—and government payments. Breloff contrasted the challenges in developed markets of coordinating the various players in the payments value chain with the challenges in developing markets of building a complete digital payments infrastructure with a distribution system for cash withdrawals. He noted that successful innovations in developed countries must solve a specific need, such as P2P payments for families that are split. Other challenges include marketing, trust, capacity of users and uncertainty of regulation.

In responding to how prepaid card products fit into the overall product suite and customer relationship strategy, Morrison noted that they are important to establish a relationship with a new client, build the relationship and "graduate them" into more mainstream financial products like checking, savings, and eventually, credit. Streit disagreed that this segment of consumers is looking for an entry point into traditional banking services; instead they view prepaid cards as an alternative to banking services. Morrison agreed but predicted that as mobile payments mature, consumers will chose the product that best fits their needs. In response to a question about progress on the transition from checks to electronic payments, Quittman explained that one factor impacting adoption of electronic payments is generational, as many benefit recipients are over age 60. Research also shows that financial exclusion strongly correlates with low-income communities and minorities, for whom past experience with banks impacts their trust in traditional financial service providers. Schneider commented that the uncertainty of how easily an individual can get cash in and out of an electronic system is another issue. Morrison added that the transparency of fees at check cashers is an advantage over banks, where fees are not visible upfront. He called on financial institutions to make efforts to educate consumers and provide more transparency.

Other topics included prepaid reload fee disclosures and pricing structures. Streit asserted that reload fees are disclosed at purchase by merchants and tests are under way to see whether fee structures impact reload behavior. Morrison noted that reloads for U.S. Bank's prepaid product are free as consumers view prepaid as a financial account, similar to a traditional bank account.

The panel discussed whether consumers have options for international remittance transfers to relatives who may be using mobile wallets. Streit, Morrison and Quittman said their prepaid products are designed for domestic transfers only. Breloff mentioned that money transfer organizations are currently tackling international remittances, adding that mobile wallets, however, are not very popular in developing countries. Asked whether foreign central banks or regulatory authorities are moving to allow cash out from international remittance via mobile channels, Breloff mentioned that most of the focus is on domestic transfers but there are certainly efforts being made. Typically, after a domestic distribution network is built, Western Union or MoneyGram will take over, benefiting consumers in the short run, but making it difficult for new entrants.

Panelists also addressed confusion surrounding the government's policy with respect to payments innovations like prepaid. On the one hand, the U.S. Treasury encourages consumers to use prepaid cards to receive benefit payments and at the same time, it is holding hearings on fraud in IRS tax refunds that are being loaded onto prepaid cards. This discussion pointed to the multiple roles governments play in payments and the complexity that presents for public policy.

VIII. Session 5: Facilitating Consumer Payments Innovation Through Changes in Clearing and Settlement

Consumers and merchants appear to be placing a higher value on real-time payments, suggesting that innovation is likely to involve this feature. But delivery of real-time payments requires significant changes in the "back end" of the payments process—the sequence of steps following authorization of payment and ending with final transfer of funds between banks. With most current payment methods, the final funds transfer occurs with a lag of at least one day. Furthermore, except for payments with PIN debit cards, consumers are generally unable to monitor their finances in real time because their bank accounts are not debited at the same time the payment is authorized. In the United States, a proposal to settle automated clearinghouse (ACH) payments on the same day the payments are submitted rather than the next day is being considered. However, some experts argue that same-day ACH payments would not provide sufficient immediacy. Mike Brown of Euronet Worldwide served as moderator for this session and introduced paper author Bruce Summers, who discussed a possible model for real-time payments in the United States and governance issues that may prevent its implementation. Discussants were Richard Mabbott of the U.K.'s Faster Payments Scheme Limited and Neil Platt from Fiserv/CashEdge.

Summers began by setting out some key assumptions for payments system features that are valued by consumers, who he defined broadly to include individuals, businesses and governments. Summers contended that in this digital age, consumers now expect immediate completion of transactions they engage in online and their expectation for payments is no different. In addition, he noted that consumers value both versatility and universality, the ability to pay anyone for anything, which are unique elements of the check. Summers observed that while methods to make immediate digital payments are being introduced in the United States, they lack the universal clearing and settlement infrastructure and can connect only consumers participating in closed networks.

Based on his study of clearing and settlement systems in other countries, Summers described a model for immediate funds transfer (IFT) in the United States that would offer consumers real-time notification and final settlement of payments in commercial bank money (i.e., digital records in commercial bank accounts). Sending and receiving banks would settle for those payments in central bank money later, in intervals they choose, using either a private clearinghouse or directly with the central bank. Summers compared this model to U.K.'s Faster Payments Service and the real-time payments scheme in South Africa. He observed that market acceptance, technology and the cost to operate all appear to support implementation of an IFT system for consumer payments in the United States. However, Summers argued that the United States lacks strong payments system governance needed to coordinate the planning and development of the clearing and settlement infrastructure and to overcome the friction caused by the threat to participants' existing business models.

Summers concluded with several recommendations, including a challenge to the Federal Reserve Board to clarify its role and that of the Reserve Banks in the evolution of consumer payments in the digital age. He encouraged policymakers to leverage the Reserve Banks' payments operations and technology expertise to perform a technical and cost assessment of implementing an IFT-like payment system. In the end, Summers was pessimistic that either the Federal Reserve or the payments industry would take the lead and suggested that Congress establish a national commission to review the issue as it had in 1974. Finally, he recommended that the Federal Reserve Board develop a special-purpose bank charter for nonbank payments service providers to encourage competition with banks on a level playing field.

Mabbott offered lessons learned from the U.K.'s experience in the transition to and implementation of an IFT system. Mabbott characterized Summers' vision for IFT as "eminently doable" and stated that the Faster Payments Service would not have come about without regulatory intervention. He reviewed the history beginning with the Cruickshank Report in 2000, which led to the formation of the Payments Task Force in May 2005. The Task Force was chaired by the Office of Fair Trading and charged with reducing clearing and settlement times for telephone- and

Internet- initiated payments, with recommendations due in six months and a solution ready for mass market implementation within two years. Two alternatives were considered: 1) speed up the existing batch processing system to achieve same-day settlement, meeting regulators' minimum requirements, or 2) develop a mostly new infrastructure for a "near real-time" system, meaning that the payer knows within seconds that the payment was completed, meeting longer term market needs. The Task Force agreed to pursue the second path with the scheme owned by 10 financial institutions and operated by a third-party processor. It leveraged proven settlement concepts (deferred multilateral net settlement with net debit caps) and existing components (ATM switching) where possible. The Faster Payments Service went live in May 2008 and has processed nearly 1.5 billion transactions through February 2012. Mabbott closed by noting several issues to improve upon, including the complexity of access for smaller financial institutions and a collateral or pre-funding process for second-tier participants.

Platt offered a private sector market perspective on the need for a digital replacement for the check and whether IFT is necessary to meet that need. Platt runs Popmoney, formed from the merger of Fiserv's ZashPay with CashEdge's Popmoney network, a digital P2P payment service available to customers of nearly 1,500 financial institutions in the United States. Platt began by noting the deficiencies of the check payment process that Popmoney was designed to overcome—slow, inconvenient delivery and deposit for payers and receivers, prone to fraud, and provisional credit to the depositor. Platt's consumer research shows that for most P2P needs, delayed settlement is sufficient, but that "immediate is better" in that it opens up cash replacement use cases and provides a better user experience. As a result, Fiserv is working to move volume from ACH settlement to the credit and debit card/ATM networks. However, Platt noted that this transition will be slow in that there is no universal network that can provide both real-time payments and reach all consumer accounts.

In commenting on the role of government in solving this problem, Platt said he was open, but concerned about unintended consequences. In the meantime, private sector innovation will continue to make progress. Summers followed Platt with a clarification on his views that the role of government and public policy is to serve as a "light touch overseer" to set objectives for payments system improvements that are in the public interest and encourage cooperation among private sector participants to achieve them.

Questions from the audience prompted additional insights on whether directories containing account holder information serve to protect consumer account details or offer criminals "a honey pot" of banking credential information. Both Platt and Mabbott emphasized that financial institutions ensure a "strong front door" for authentication of the sender of the payment. Turning to the industry incentives for adoption of an IFT system, the audience questioned whether there was an economic case for investment without some government mandate. Summers characterized the role of government as a catalyst to begin the process of

replacing antiquated back-office infrastructure that needs to occur to benefit from new technology. Finally, the audience discussed the fact that universal reach is somewhat elusive with smaller banks holding out; however, moving forward with a solution that reaches the vast majority of consumers with a service that meets their needs represents progress.

IX. Session 6: Perspectives on the Role of Public Policy in Facilitating Payment Innovation

Governments, regulators and central banks could potentially play a number of roles in promoting socially beneficial innovation in consumer payments. These roles include guaranteeing access of all innovators to mobile platforms, helping the industry develop standards for mobile technology, ensuring that low-income consumers and consumers in remote areas enjoy continued or even expanded access to the payments system, and facilitating efficient payment innovation through changes in clearing and settlement. This concluding session, moderated by Sean O'Connor of the World Bank, assembled an international panel of policymakers and advisers to continue the discussion of payment infrastructure and the role of public policy in consumer payment innovation. Panelists included Ricardo Medina from the Bank of Mexico, Gerard B.J. Hartsink with the European Payments Council, Malcolm Edey from the Reserve Bank of Australia (RBA) and M.J. Moltenbrey, a competition and antitrust litigator.

Medina discussed the role of the Bank of Mexico in the development and operation of SPEI, the interbank electronic payment system. The central bank has broad regulatory powers to promote an efficient payments system, in Mexico. Traditionally, its focus was on its large-value payments system but recently the focus has shifted to retail payments. Medina explained that SPEI launched in 2004 principally to handle clearing and settlement of large-value payments among 88 bank and nonbank financial firms. Today, 90 percent of payments SPEI processes are retail payments of less than $8,000 each. He reviewed the key features of SPEI, including near-continuous multilateral netting of payments among participants with no extension of intraday credit. Recognizing that SPEI was well-suited to meet the needs of customers for real-time retail payments, Medina explained that the Mexican central bank worked with participants on rules to ensure a consistent, high quality experience for end-users. For example, a rule sets the limit of processing time from end-to-end. The limit has been reduced from 30 minutes to 10 minutes and from 10 minutes to 30 seconds, with plans to reduce it further. Another rule restricts participants' pricing to their customers: beneficiaries are not charged, and the senders cannot be charged a fee that varies with the value of the payment. The Bank of Mexico is also involved in other aspects of SPEI, including setting standards for message formats, advertising the scheme and providing electronic receipts directly to originators as proof of receipt by beneficiaries.

Hartsink explained the role of public authorities in Europe, including the European Central Bank (ECB) and European Commission, to set the vision for

the Single Euro Payment Area "in which all payments are domestic, where the current differentiation between national and cross-border payments no longer exists." Hartsink noted the complexity of Europe's diverse payments landscape among countries where the line between where competition occurs and where cooperation is needed differs. Ultimately, there was agreement between the public and private sectors on a three-layer approach toward an integrated European market for card, Internet and mobile payments. At the scheme level, participants would cooperate on rules and standards, but compete for services to customers. Competition would also be the model for payment clearing and settlement services between banks. Hartsink described the cooperative governance model as the public authorities leading with the vision; representatives of consumers, businesses, and government administrators representing the "buy" side; and banks and other payments providers representing the "supply" side. While the suppliers have a pan-European focus and a more homogeneous view, the buy side and public authorities can have very different views, complicating the agreement process. In the end, Hartsink was optimistic about achieving the single payments vision in Europe, acknowledging the failure of the market to meet the objectives but suggesting public policy inconsistencies also have impeded progress.

Edey gave his views as to why socially beneficial payments system improvements are difficult to achieve in private markets. In contrast to a proprietary innovation, where a company invests to achieve a competitive advantage and derives a return on that investment, a systemwide improvement, like faster settlement, requires all participants to invest with no resulting competitive advantage. In addition, the cost to each participant will vary based on size, investment cycle and business model, making it difficult to gain agreement on timing of implementation and pricing. Edey argued that a coordination mechanism is necessary to overcome this inertia. While industry associations are effective to gain agreement on technical or routine changes, Edey suggested that leadership from a regulator may be needed where the innovation is complicated and conflicting incentives are strong. The payments system in Australia is regulated by the RBA with a mandate to promote stability and efficiency. Edey referenced a 2010 RBA study titled "Strategic Review of Innovation in the Payments System," developed with extensive consultation of payments service providers and endusers. The review captured gaps resulting from coordination failures, including real-time retail payments, and described various governance approaches currently under consideration to close the gaps. In addition, the review considered the benefits of payments hubs as a way to improve competition and innovation compared with the system of bilateral arrangements that are prevalent today in Australia. In conclusion, Edey suggested that given central banks' public interest orientation, they may be natural coordinators, but encouraged them to seek the expertise of payments participants to determine feasibility and most efficient means of delivery.

Moltenbrey, the panel's final speaker, brought her experience at the DOJ to shed light upon the question of whether antitrust enforcement can promote innovation and competition in payments markets. She spoke at length about the

challenges of applying antitrust principles to the payments industry, which is a two-sided market, and referenced examples of investigations and court challenges involving collective or collusive actions by payments participants (e.g., setting of interchange fees and exclusivity rules by card associations) to illustrate her points. Moltenbrey noted that courts generally decline to intervene in new markets, waiting to see how innovation evolves. In addition, courts are focused on very narrow questions, so solutions that promote competition on one side of the two-sided market can have negative consequences for the other side. With respect to the effects of incumbents seeking to introduce innovation, the question is whether they are using innovation to entrench their market power by expanding into other markets. Moltenbrey noted that this is a particular challenge for antitrust enforcers—to know when to intervene in a new market. Finally, Moltenbrey concluded by saying that while it is easier for competition authorities to challenge collective action, the risk to payment market competition from a dominant incumbent may be equally significant.

During the question and answer period, panelists addressed several topics including private sector versus government-run payments systems, interchange fees, card security standards and authentication for real-time payments. Medina explained the difficulty in collaborating with private sector participants who have a lot of conflicts of interests to construct and operate the centralized system like SPEI. Although the Bank of Mexico operates SPEI and sets rules that participating banks need to comply with, it leaves customer relationship—authentication, security and all the issues regarding the clients—to the banks. Hartsink provided his perspective on interchange fees: Because interchange fees will come down, an important issue is who should pay the bill for payments from an efficiency perspective. Hartsink also responded to coordination problems in payment card security. He explained the ECB's policy of facilitating issuance of EMV chip cards without magnetic stripes and the difficulty in coordinating security standards with countries outside the Euro areas, such as the United States where magnetic stripe cards are still the majority.

X. Conclusion

Regardless of whether revolutionary or evolutionary, increasing connectedness will bring changes in consumer payments. Many consumer payment innovations introduced by private sector participants offer the potential for enhanced efficiency, safety and accessibility of the retail payments systems around the world. The United States is no exception. However, the United States lags behind other countries in adoption of more advanced security standards for payments or a real or near-real time electronic funds transfer system. Experiences in those countries suggest that strong leadership on the part of central banks or other public entities is critical for adoption of such standards and systems. Whether the United States should take a similar approach to those countries was debated during the conference. The range of views and insights exchanged during the conference will help central banks and other policymakers make informed decisions about their approaches.

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