

# Conference Summary

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## I. INTRODUCTION

The Federal Reserve Bank of Kansas City held an international payments policy conference November 9-10, 2009, to address the role of the central bank in the retail payments system. Public policy authorities in many countries are taking up questions related to the effectiveness, safety and efficiency of their retail payments systems, and more often than not the central bank plays a prominent role in addressing these questions. Central banks around the world are establishing public policy goals for the retail payments system to promote the attainment of these goals, and they are coordinating and cooperating with other public authorities concerned with achievement of these goals. How central banks go about this is of interest and concern to all the major stakeholders in the retail payments system, including individual and business users of retail payments services, the companies that supply these services, and other governmental authorities that share this public policy interest, including legislative bodies.

Strong public policy interest in the retail payments system is explained by dramatic changes in methods of payment and by prominence of the consumer sector in the overall functioning of a modern economy. In developed economies, electronic payments are quickly displacing more traditional instruments such as checks and cash. In developing economies where personal income is rising rapidly and larger segments of the population are joining the ranks of middle-class consumers, electronic payments are often the initial substitute for cash. In both developed and developing economies, the rapid advances in methods of payment are enabled by non-financial institutions that have not traditionally fallen under financial sector regulation. While end users of payments services are deriving many benefits from the advances taking place in retail payments, a number of issues abound, particularly surrounding charges levied for payments services, the security

of funds used for payment, and the privacy of consumer information (the so-called “transactional identity”).

It is against this background that the Kansas City Fed selected a conference theme that probes the key public policy issues, including the appropriate role for the central bank. The conference took up five broad issues: the seemingly uneven development of retail payments systems worldwide; factors determining the consumer’s choice of method of payment, with an emphasis on pricing; efficiency; safety and integrity; and alternative ways the central bank might play its public policy role, either as an operator or overseer in retail payments. These issues were probed by researchers and practitioners with deep and broad experience in retail payments, who represented both user and service provider perspectives. Their thinking was examined, challenged, and supplemented by approximately 100 participants who engaged actively in the discussions. Five main insights with public policy implications emerged at the conference.

1. *Public policy authorities should give prominent attention to retail payments systems.* The scale and complexity of retail payments system operations, combined with the importance of consumers in modern-day economies, create an imperative that these systems perform well. While efficiency is important, safety and fairness are crucial. Efficient systems that conserve real resources, minimize time demands on consumers and merchants, and increase convenience can contribute billions of dollars in savings. Systems that are safe to use and protect against fraud and identity theft increase confidence and minimize the potential of big economic disruptions that a general loss of confidence could present. Similarly, systems that treat their participants fairly will encourage adoption and use of modern payment methods. Widespread attention in the news to shortcomings in efficiency, safety, and fairness are warning signs that retail payments are not receiving appropriate public policy scrutiny.

2. *Retail payments system stakeholders with market power tend to use the power to their advantage.* Conversations involving stakeholders in retail payments networks reflect diverse concerns, and a lack of transparency in and shared understanding of how networks are managed and priced. These conversations often reveal a general lack of trust that all participants are being treated fairly, and evidence that network operators allocate costs and restrict merchant behaviors in ways that maximize operators’ revenues. These perceptions are increasingly validated by regulatory interventions in countries which seek to cap network fees, loosen restrictions on merchant pass through of network charges, and contemplate cost-based limits on merchants’ ability to pass along network charges. There is no clear self-regulatory model that adequately represents the diverse stakeholder interests in payment network rule making. Moreover, there is concern that the ultimate beneficiaries of payments system services, the end consumers, are not adequately represented.

3. *Government oversight and regulation of retail payments systems is on the rise, and central banks generally play a leading, but not necessarily exclusive, role.* Many central banks worldwide have undertaken, or are in the process of undertaking, formal oversight of retail payments systems. They are increasingly active in regulating pricing of payment network services, ensuring that access rules allow entry by new service providers (including nonbank service providers), requiring that minimum security standards be followed, and collecting and publishing data that allow the general public to understand how retail payments systems function. Central bank overseers are joined by competition authorities concerned about fair trade, financial institution supervisors concerned about safety and soundness and money laundering, and consumer protection agencies concerned about the rights of consumers. Accordingly, a necessary condition for successful central bank oversight is cooperation with the many public policy institutions having an interest in retail payments system issues. Because retail markets and payments systems operate across borders, this cooperation must be present at national and international levels.

4. *Central bank oversight may be an effective way to achieve public policy goals for the retail payments system.* The public policy issues in the retail payments system concern a broad spectrum of participants, from back-end suppliers of infrastructure services to individual and business consumers of payment services offered by banks and nonbank institutions. These issues can be extremely complex, and their resolution may require combinations of behavioral adaptations, some of which can be motivated by market incentives and others by regulated prescriptive, or proscribed, actions. Effective public policy depends on oversight flexibility, directness, and agility, ideally supported by legal mandates and powers. In exercising oversight, central banks do not and are not likely to have conclusive and unambiguous guidance from economic theory and empirical research. Accordingly, central banks would be prudent to tread carefully when they intervene to influence retail payments markets; and their interventions, at least for now, should focus on removing the barriers that prevent retail payments system participants from discovering and passing on the costs they bear. Public support among stakeholders for an active oversight role by the central bank is broad-based, although agreement with public policy actions is nonetheless likely to vary depending on a particular participant's position as a "winner" or "loser."

5. *The Federal Reserve Board does not currently play an active oversight role in retail payments.* Among central banks in major market economies, the Federal Reserve is an outlier in playing only a minimal role in overseeing the retail payments system. And while historically the Federal Reserve has influenced retail payments system policy through the active participation of the Federal Reserve Banks in check and ACH operations, and oversight of this operational participation by the Federal Reserve Board, these forms of payment are becoming relatively less important in the U.S. economy. As a consequence, the Federal Reserve's influence

over public policy is diminishing, especially as modern payment methods come to predominate and as the number and type of suppliers of retail payments services increases. Although there is some desire among certain retail payments system stakeholders for the Federal Reserve to play a proactive oversight role, these stakeholders will need to make a compelling case for the Federal Reserve to become actively engaged as an overseer.

The following sections of the summary attempt to capture the principal themes presented at the conference and to show how these themes were interpreted and modified in the discussions. The discussions were energetic, thoughtful, and practical, and the conference outcomes provide a number of insights that are likely to influence the thinking of policy makers and market participants.

## **II. KEYNOTE ADDRESS**

The conference began with a luncheon at which Federal Reserve Bank of Kansas City President Tom Hoenig introduced the guest speaker, Sprint Nextel Corporation CEO Dan Hesse. In his introductory remarks, Hoenig highlighted the significant change that has taken place in retail payments in the two years since the Kansas City Fed's last payments conference. Advances in telecommunications and how they enable new retail payments services are at the forefront of this change.

In his prepared remarks, Hesse indicated that "telephone companies" are now in the business of moving data and providing data-intensive services. The data services aspect of the business extends to all customer needs (including financial and banking services) with the exception of voice communications. The prominent role of telecommunications firms in data services is a natural consequence of the cultural change accompanying acceptance and growth of the Internet. Practically speaking, the Internet culture creates demand for "anywhere, anytime" access to data and data-intensive services. Cell phones, now evolved into smart phones, are at the core of modern consumers' life styles, and "Americans and their mobile devices are becoming inseparable."

The cycle of technology-driven change in data services and consumer habits is a consequence of upgrades in wireless capabilities. Third generation (3G) and emerging 4G wireless, together with Wi-Fi, are enabling mobile banking as a result of improved capacity, reliability, and security. In this connection, Hesse said that mobile banking, if properly managed, represents a big improvement in security over traditional payment technologies such as plastic cards: People recognize virtually immediately if their mobile device goes missing; telecommunications companies only develop applications that provide customers complete confidence that their information is highly secure; the highest level of advanced encryption is used; and user and device authentication is much more sophisticated than that used with plastic cards. As a result of these improvements over current technologies, the cell phone is positioned to replace cards using Near Field Communications (NFC). In short, he said that the mobile banking is a logical service to add to the package of services provided on consumers' "Swiss Army knife" cell phones.

Hesse said that while only 4 percent of banks and credit unions in the United States offer mobile banking services today, the proportion is expected to expand to 50 percent within a couple of years. He projected that 53 million U.S. consumers would use mobile banking services by 2013. Hesse also said that 25 percent of those using mobile banking today access their financial accounts while running errands, 9 percent do so while on vacation, and 8 percent do so while on business travel. There is an extended supply chain for mobile banking consisting of telecommunications carriers, smart phone manufacturers, suppliers of and merchants using readers and terminals, banks, and card companies. Widespread propagation of mobile banking will require significant up-front investment, and a strong business case that provides an attractive return on investment (ROI) for each element of the supply chain is a necessary condition for success.

Questions following Hesse's prepared remarks reflected interest in better understanding the technical and business limitations to hosting multiple banking applications on cell phones. Hesse indicated that there are no technical impediments, although technical standards are essential especially for point of sale (POS) terminals, as retailers are not going to support multiple different terminals at the point of sale. In response to a concern that the telecommunication and banking industry business models for mobile banking do not yet appear to be converging, Hesse indicated that this is indeed a hard question and reiterated that every player needs a sufficient ROI if mobile banking is to succeed. Another questioner observed that telecommunications providers accept limited or no liability for losses resulting from fraud or service interruption related to dropped calls, commented that this standard of service is not compatible with the much higher banking standard, and then asked how the telecommunications industry will engage in a public/private partnership that allocates responsibilities for securing financial transactions and bearing the cost of fraud. Hesse's response emphasized the strong security used in the telecommunications industry, and he added that he is not aware of any failure on the part of the telecommunications industry to "sit at the table" where these matters are discussed.

### **III. THE CHANGING RETAIL PAYMENTS LANDSCAPE: AN OVERVIEW**

In his paper "The Changing Retail Payments Landscape: An Overview," Harry Leinonen of the Bank of Finland provided not only a broad perspective on change, but also concrete and specific details to help with a practical understanding of retail payments system trends. His main thesis is that retail payments now becoming available are lower in cost, more secure, and offer delivery approaching real-time. Moreover, new types of payments are easier to use, in part because they are delivered through devices on which consumers already rely for a variety of information services, notably, the cell phone.

At the same time, however, Leinonen indicated the improvements in retail payments services are unevenly distributed around the world. He presented data for a group of about 17 European and North American countries that suggest a

bell curve distribution of electronic payment sophistication and use, with about four countries that he called “eRun-aways” and another similar-sized group of laggard outliers. While the eRun-aways are far along in the transition from reliance on ATMs to intensive use of POS, the outliers are still making the transition from branch to ATM banking. The reason for this uneven development is an open question, especially as telecommunications services are developing more rapidly than payment services, and Leinonen attempted to explain the uneven development.

In Leinonen’s reasoning, retail payments system development is promoted by increases in efficiency that enable and/or force services providers to create and pass on tangible benefits to consumers. He posits six “efficiency dimensions”: cost efficiency; integration efficiency; competition efficiency; development efficiency; security efficiency; and regulatory efficiency. These efficiency dimensions are loosely associated and range from real improvements in how retail payments services are produced (cost efficiency) to regulatory interventions that require payment service suppliers to follow less monopolistic pricing practices (regulatory efficiency). He explained each efficiency in detail.

Cost efficiency was in the first instance driven by the continued increases in computer processing power and telecommunications capacity that also drive improvements in other data-intensive services. But the extent to which the public adopts and keeps up with these improved capabilities (which as Rysman later indicated can be a somewhat complex matter affected by country demographics and other factors) is also relevant. Widespread use of technology and the presence of messaging standards were highlighted as necessary conditions for true system-wide efficiency gains, as they support straight-through processing of payments without manual intervention, and provide customer convenience in the form of instantaneous processing of payments at any time. Leinonen attached special importance to the ISO 20022 standard for payments and noted that it is the basis for SEPA payments in the Eurozone. He also mentioned outsourcing and consolidation as natural outcomes of a business in which scale economies dominate, and these developments should not be resisted. Overall, though, Leinonen suggested that there is a good deal lacking with respect to cost efficiency: Industry is slower than it needs to be in taking up opportunities that exist, and an external motivating force may be necessary to drive further cost efficiency. He also cautioned that the benefits to individuals and the economy as a whole require more than cost efficiency, which needs to be balanced against service levels.

Integration efficiency was explained in terms of deep penetration of digital information standards into the payment applications used by businesses and individuals across all providers of payments services. Examples included bank account numbers, reference numbers for tracking invoices, message formats for credit and debit transfers, and card payments. Leinonen indicated that the costs incurred by users of payment services are much greater than the resource costs incurred by the providers themselves; this is especially true with respect to time- and process-specific investments attributable to payers and payees who need to

interpret the payment-related information they exchange. Pushing standards down into the actual business processes used by consumers will allow them to shed the integration costs they currently bear. Moreover, easy integration of payments and payment-related information across providers implies it is easier for consumers to move their service provider relationships, as conversion to different business process standards is no longer necessary. A chief example is the bank account number. If all bank account numbers followed the same technical formats and rules (for example, the International Bank Account Number, or IBAN), then customers would not face the expense of converting numbers when switching service providers. It was noted that there are important parallels to telephone number portability.

Competition efficiency, or the lack thereof, was cited by Leinonen as the main factor creating barriers to payments system development. Scale and network economies lead to natural monopolies whose governance, if not motivated by public policy goals, leads to the establishment of barriers to entry and limitations on consumer choice. The primary barriers that arise in payments networks are the use of proprietary (as opposed to open) standards, and hidden pricing that shields consumers from the real costs of the services they select. Leinonen argued for control over the monopolies and for public policies that foster the use of open standards and explicit, cost-based pricing of services. One of the most pro-competitive standards that could be implemented is one for bank account numbers which would let the consumer switch banking relationships at minimum cost (just as portability in telephone numbers does so for communications services). In addition, Leinonen argued that price theory which justifies two-sided markets and internalization of costs by producers and merchant-users, using internal pricing schemes such as interchange fees for cards, is inherently protectionist and shields the producers of payment services from the discipline of the market.

Leinonen described the “zero-sum cannibalization” dilemma that underlies his notion of development efficiency. The dilemma arises because payments volumes are essentially fixed, growing only with underlying economic activity and thereby creating incentives for legacy producers of payment services to avoid investments in improved payments that add to costs but not to revenues. He indicated that intervention by public authorities to change incentives can be a strong development driver. Such incentives might include requirements that pricing be more transparent, with limitations on float and value-days.

Security efficiency was described as the balance represented by electronic payment security that gives consumers confidence that their transactions are protected, set against the cost of achieving this protection. Again, lack of standardization is an issue in that it results in proprietary solutions limiting the ability of consumers to switch providers. In addition, however, globally increased reliance on the Internet opens electronic payments to criminality worldwide and affords relatively good protection against being caught. Leinonen presented his view of the baseline security needed for electronic payments: multifactor authentication and a common “eID” useable across networks; his security vision was based on the technology

capabilities used by telecommunications providers and functions through the SIM card in mobile phones. He said that universal security solutions are slow to develop and represent a public policy problem that warrants attention by authorities.

Regulatory efficiency was described as the result of active interventions by public policy authorities that increase understanding of issues through research, leadership by example in best practice management of government payments, recommendations to the private sector, and if necessary regulations that prescribe specific behaviors and outcomes. But, Leinonen noted that activism by regulatory authorities can be a double-edged sword, inhibiting payments system development if not done right. Specific examples of positive interventions include government use of e-invoicing in the Nordic countries, regulatory requirements governing processing speed in Europe and Norway, and regulation of interchange fees in Europe and Australia. Leinonen also postulated that national central banks contribute to the slow adoption of electronic payments because they continue to supply cash in a manner which protects the public from the real cost of using this means of payment. While politically difficult, he said that making cash costs transparent is an effective policy for promoting more efficient payments.

In his discussion of the paper, Tony Hayes of Oliver Wyman summarized the efficiency arguments and provided recent examples to illustrate some points of difference with Leinonen. Hayes basically agreed with Leinonen on the cost and security efficiency propositions. He provided somewhat different views, however, on the other efficiency categories.

Hayes stated that there is now widespread integration of new payment services and core banking functions, ranging from information services that help customers keep track of their current account balances, to security alerts that help protect funds on account from fraudulent access. Moreover, banks are increasingly making it easier to access their current account balances using a variety of electronic payment methods, with recent breakthroughs involving access through smart phones. He cautioned, however, that there are still significant barriers to widespread use of mobile payments using smart phones, specifically smart phones that provide “tap-and-go” functionality based on NFC technology. The issues include a chicken-and-egg problem represented by consumers who want numerous merchants, and merchants who want numerous customers, before either will make the move; a sustainable business model that generates enough returns to compensate additional links in the supply chain such as carriers; and a compelling service that moves consumers away from traditional card payment methods. Raising another point of difference with Leinonen, Hayes held out the possibility that innovation does stimulate new demand and growth in electronic payments on a per capita basis, which means that successful innovation can lead to a sustainable business model.

Acknowledging the uneven development of electronic payment alternatives, especially mobile payments, Hayes focused, as did Leinonen, on technical barriers and costs that make switching difficult. Like Leinonen, Hayes pointed to



regulation of the communications industry, where the Federal Communications Commission facilitates consumer movement among providers by requiring mobile operators to support portability in telephone numbers, and where customers can easily transfer their telephone numbers and address books to a new provider. In addition, he added that a long-standing and popular Giro payment method (“credit push”) used in Europe and elsewhere faces the difficulty that payees need to disclose their bank account numbers as a condition to receiving “good funds” credit transfers.

Perhaps his greatest point of disagreement with Leinonen was on the extent of competition. Hayes suggested that competition should be evaluated not only on the back-end network operator level, but on the front-end payment product level. He presented data to illustrate intense competition at the product level. In addition, he cited examples to illustrate that innovation has resulted in both winners and losers, suggesting a very competitive setting. With regard to the back-end networks, and especially telecommunications networks that support mobile payments, Hayes indicated that natural monopoly is a fact of life and that there may be a role for regulation to prevent cross-subsidization. This is especially so inasmuch as it is very difficult for innovators on the front-end to recreate the capital-intensive network platforms, and that back-end providers are therefore in a position to determine just how readily entry can be gained.

Like Leinonen, Hayes said that active regulation can either speed up the rate of development in electronic payments, or slow it down if poorly conceived and implemented. Overall, however, he was more circumspect about the potential beneficial outcomes of regulatory interventions. His principal example of successful regulatory intervention was the Federal Reserve’s Check 21 initiative. He said that the Fed’s card regulations of late have also been positive, especially relaxation of requirements to provide receipts for small payments. But these successful regulatory interventions addressed relatively straightforward problems with well established and well understood payment instruments. He expressed concern about unintended consequences in more complex areas including interchange fees and card-related overdraft service fees.

The general discussion revolved in part around the respective importance of back-end infrastructure and front-end services as determinants of payments system efficiency. It was noted that new front-end services like PayPal add value to existing network infrastructures through attractive consumer services, but also that all of the infrastructures are interconnected in terms of the movement of money that consumers initiate through their bank and commercial transactions. In responding to a request that they identify the most innovative markets for payment services, Leinonen and Hayes took very different positions. Hayes emphasized that a variety of choice is a good indicator of an efficient and responsive market and that the United States and Asia are among the most innovative markets. He noted that government intervention to encourage if not direct innovation away from cash to electronic payments, as in Singapore, may be one of the most direct paths for

innovation. In contrast, Leinonen said that it is most important to achieve efficiency in the infrastructure, especially by avoiding unnecessary duplication, and that payment instruments can only offer consumers a limited number of alternative forms of payment.

Participants asked about and gave some alternative views on the importance of price transparency as a factor behind innovation and change. For example, it was noted that merchants do not break out categories of production expense (such as rent or overhead) other than payments which might be surcharged and suggested that payments should perhaps be treated no differently. The alternative view presented was that payment methods are special in part because of the implicit subsidies that exist for cash versus electronic payments, Leinonen arguing that the most important incentive is one which makes the high cost of cash more transparent. In this connection, however, participants noted that surcharging can have the effect of discouraging electronic payments compared to cash payments. A participant pointed to the Interac payment network in Canada, which appears to represent a good balance of cost sharing among all parties, including merchants, with no interchange fee charged. The discussion highlighted factors that have made this payment network successful in Canada, including the concentrated banking structure, the not-for-profit nature of the network, the form of explicit price regulation, and direct involvement by the competition authority which has given a waiver allowing the banks to coordinate their participation.

Finally, the participants amplified two specific topics covered in the presentations. With regard to the size and growth in the number of payments, it was noted that volume of payments is correlated with gross domestic product growth, so that the “size of the pie” is getting bigger thereby providing a basis for revenue growth in the payments industry. In addition, it was noted that the ANSI X9 standards group is working on adoption of IBAN as the standard for the U.S. market, with adoption possible in 2010. In connection with this discussion, Leinonen re-emphasized the importance of governmental intervention to make such standards binding in the marketplace.

#### **IV. DETERMINANTS OF CONSUMER PAYMENTS USAGE**

Marc Rysman of Boston University provided highlights of his paper “Consumer Payment Choice: Measurement Topics,” which summarizes the theoretical and especially empirical work attempting to explain choice of payment method, principally for U.S. consumers. He described two types of theoretical approaches to explain choice of payment: “classical” explanations, following traditional economics, and “behavioral” or “bounded rationality” explanations that offer additional and harder to measure motives. The determinants of payment choice posited by traditional economics include demographics of the customer base, explicit or pecuniary costs and benefits, and implicit or non-pecuniary costs including convenience of use. Less obvious but potentially powerful behavioral explanations

account for consumers' mental calculations in making payment decisions which involve hard to measure factors such as the satisfaction resulting from immediate versus deferred payment. But, these behavioral explanations have, to date, been validated only in a laboratory setting, and Rysman suggested that there is little near-term prospect for useful field evidence to be forthcoming.

Rysman described the academic and private sector research into payment choice as "a small cottage industry" which has resulted in numerous but not systematically related empirical results. Moreover, these results are often not available for public scrutiny or use, thus making it hard to access the information which would help in devising business strategy and public policy. Almost all of the empirical studies are cross-sectional, or "point-in-time." Rysman lamented the general absence of time-series data that would systematically trace changes in patterns of choice. He also noted that measuring behavioral factors is much more difficult than measuring traditional factors.

The cross-sectional studies of general payment choice are based on consumer surveys, conducted by Internet, telephone, or mail, and sometimes through panels of consumers. The most valuable data is that which is collected on actual transactions that people conduct, and these data can be obtained either through panels (Visa) or by relying on passive collection of electronic data for people who allow access to their financial transaction records (LightSpeed Research). Rysman pointed to a few case studies that attempt to explain the reasons consumers decide to make and/or change the method of payment, an example being changes from cash to electronic payments at the toll both on the Illinois highway system. While Rysman was concerned primarily with studies of the U.S. payment system, he did refer to data collection efforts outside the United States, including in Germany, France, and other European nations.

Rysman indicated that statistical data patterns point to a strong influence of convenience and transaction size in explaining choice of payment method. His summary of the available data noted that consumers find electronic payments of various types and cash "easy to use" compared to checks. Contrary to what is generally thought to be true, the data do not indicate that consumers who choose to use debit payment instruments do so because of a desire for more "control" over financial resources. Also somewhat unexpected are empirical results showing that consumers do not see much difference in the relative security of signature versus PIN debit, challenging general notions that security is a chief criterion explaining consumer choice. The data also indicate that cash is the overwhelming payment choice for transactions under \$10, and that use of cash drops off dramatically for transactions above about \$25. As the preference for cash declines as transaction value increases, electronic debits become the payment method of choice for mid-range transaction values of about \$25-50, above which credit use rises significantly. The principal reason for use of debit cards is convenience, while inability to track use of the cards is the principal reason they are not preferred.

In interpreting the data results that focus on use of credit and debit cards, Rysman indicated that they are strong substitutes for cash. He also indicated that consumers who carry large and therefore costly credit card balances will tend to use lower-cost debit cards more. Regarding credit cards, while reward programs are important in providing pecuniary benefits, the data show that removing reward incentives does not induce a large shift of consumers to other credit cards or payment types. Rysman indicated that his own research using Visa data shows that consumers tend to hold multiple credit cards but use only one of these cards at a time for their transactions—so-called single-homing. This practice may be explained by a desire to take advantage of the features of the card program that provide the greatest benefits, while preserving the flexibility to switch cards if necessary. Rysman's research also shows a significant statistical correlation between the cards that consumers use and the number of merchants that accept those cards.

In reviewing the regression results of the various studies, Rysman indicated that only age and income level give strong results explaining adoption of electronic payments. Age as a strong predictor of electronic payment usage should be interpreted as a function of overall adaptation to technology. Education is not a strong predictor of payment choice.

Rysman's final comments focused on the factors that might explain why consumers would switch from one payment type to another. Here he emphasized the drawbacks of cross-sectional studies. One of the challenges in empirical assessments of switching is that households rarely switch. He said that case studies can overcome this problem and pointed to the results of a study by Amromin, Jankowski and Porter of toll payments when the Illinois Toll Highway Authority doubled the toll at most locations from 40 to 80 cents for cash users but left the toll at 40 cents for users of the new I-PASS payment method, which uses RFID technology to allow payments to be made "on the fly." Rysman interpreted this study as supporting the idea that even a small surcharge that is clearly, immediately and explicitly tied to method of payment will cause people to switch quickly. Accordingly, explicit transaction cost is a powerful influence.

Kylie Smith of the Reserve Bank of Australia (RBA) furthered the discussion of measurement by describing the detailed results of a 2007 study of consumer patterns of payment behavior. In doing so, she illustrated the potential research contribution that a central bank can make in exercising its payment system oversight responsibilities. The RBA captured information over a two week period relating to value and type of merchant for actual transactions across a range of payment types for a sample of 662 consumers, amounting to 17,000 transactions. These data could be analyzed in relation to demographic factors such as age and income level, and variables potentially explaining patterns of use including convenience, cost and loyalty programs. These data results are especially interesting in the case of Australia, where the RBA exercised its oversight authority in 2003 to force reductions in card interchange fees and allow merchants to levy surcharges.

Smith showed data on patterns of payment use that are similar to those reviewed by Rysman for the United States. In particular, cash is strongly preferred for small payments, and its use falls off dramatically for transactions over about \$50. Also, a large proportion of small businesses in Australia accept credit cards and EFTPOS payments, while a smaller yet still significant proportion also accept Internet payments and debit cards. She also presented RBA survey results showing the time consumed (in seconds per transactions) by making credit card, EFTPOS, cash, and check payments at the point of sale, with check being the most time-consuming, followed by credit card payments.

As background, Smith indicated that merchants, particularly larger merchants, have begun to levy surcharges on the use of credit cards following the RBA's actions. Other related increases in explicit fees have been instituted in response to the reduction in interchange revenue, including higher fees for use of "foreign" ATMs. Consumer behavior has shifted accordingly, as reflected in material declines in foreign ATM use, offset by increased reliance on "own" ATM networks. In general, more-explicit costs faced by consumers have led to observable changes in choice of payment method.

The general discussion underscored some of the unexpected results of the research on U.S. payment patterns Rysman discussed, in particular the apparent lack of significance of security as an important factor motivating consumer choice. One factor mentioned in explanation was the influence of consumer protection laws that shield consumers from most of the direct monetary losses when fraud takes place. Similarly, the insignificance of education as an explanatory variable was questioned. In response to another question about the empirical findings, Rysman explained that electronic debit might be reported by respondents as a less convenient form of payment than credit cards because of the mental calculations consumers make to determine whether their account balances are sufficient to cover a payment when a debit card is used.

With regard to the Australian experience, caution was urged in interpreting the surcharge data, because whereas 20 to 30 percent of merchants are surcharging, their surcharged transactions account for only about 5 percent of total transactions. Asked whether the RBA has any evidence whether variation in surcharges have led to consumer sorting across merchants, Smith indicated that this is not yet known, but that some evidence is available for the Dutch market. The discussion revealed that in the Dutch market only debit cards and cash are accepted at the point of sale, and that one out of five merchants surcharge for debit card payments, often charging up to four times the actual amount of the merchant service fee; Smith noted that Australian merchants who are surcharging seem to be charging the merchant service fee. The experience in the Netherlands has raised concerns that surcharging is inciting consumers to use cash rather than electronic payments, and that as a consequence the Dutch central bank has begun a campaign to encourage merchants not to surcharge and consumers to use electronic payments, with positive initial

results. A participant noted that surcharges are not levied for debit card payments in the United States and that this form of payment is growing rapidly.

The discussion also led to questions about the actual benefits to consumers from the RBA's interventions in the payments system, in that consumers evidently are now paying a variety of explicit fees which has increased their cost of making payments. Participants seemed to agree that overall explicit and transparent fees for consumer payment services have the potential to increase competition and provide incentives for improvements in efficiency. But the conversations also revealed concerns that if left to themselves as currently structured, the markets could shift cost burdens too heavily toward consumers and inadvertently provide incentives for using cash rather than electronic payments, especially for smaller-value payments at the point of sale.

## V. ECONOMICS OF PAYMENTS MARKETS

Sujit Chakravorti presented findings of his paper "Externalities in Payment Card Networks: Theory and Evidence." Like Rysman, he summarized and assessed an extensive literature. He also assessed the practical experiences of several countries where the public authorities have intervened to change pricing practices for payment cards. The public policy issues Chakravorti addressed included no-surcharge rules, interchange fees and honor-all-card rules.

Chakravorti posed three main questions that confront public policy makers in the payment card markets: What is the socially optimal structure of fees; will competition improve outcomes; and what form should regulation take? These are high-profile questions because of the visibly contentious arguments among the merchants, banks, and card networks about the rules governing their participation, and also because of the card networks' high profitability and market valuation as evidenced by recent IPOs. He noted that the academic literature addressed the questions principally from the standpoint of pricing theory pertaining to "two-sided markets," ignoring user fees which prevail in more traditional markets for goods and services. A two-sided market is one in which there are two types of distinct end users who share benefits (in this case consumers and merchants), the success of the market depends on participation by each, and they must share the price of the payment service.

Chakravorti's remarks underscored that the price structure issues and theory are extremely complicated for two-sided markets. Not surprisingly as a consequence, there is no academic or policy consensus as to what constitutes an efficient fee structure. Moreover, there is conflicting theoretical information as to whether more competition in these types of markets is likely to result in an allocation of costs that improves public benefits, especially if merchants compete for customers based on the attractiveness of the payment options they provide. The evidence from Australia, where the RBA mandated reductions in interchange fees for Visa and MasterCard, shows that consumers end up facing more explicit price signals: Card fees increased and rewards decreased. While the RBA sees this as a positive

development, some argue that consumers are on net worse off as a result. The Bank of Mexico used moral suasion to force a reduction in interchange fees in order to encourage merchant participation and thereby boost use of cards. At the same time, the Mexican government subsidized the installation of POS terminals. Together, these two initiatives have achieved the intended result of increasing the use of cards for payments. Finally, Chakravorti cited the experience of Spain, where starting in 1999 the antitrust authority required a reduction in interchange fees to the level of actual network operating and fraud costs. Early analysis suggests a positive public policy result.

Actual public policy experiences were discussed that shed considerable light on the practicality of the theoretical literature. With respect to no-surcharge policies, Chakravorti pointed to the RBA's 2002 removal of no-surcharge restrictions, which was motivated by concerns that improper price incentives were dampening consumer use of debit cards. In this case, and as noted by Smith in the previous session, a significant portion of merchants instituted surcharges. The RBA observed that if one network's card is surcharged more than another network's, then consumers dramatically reduce their use of the card with the higher surcharge. In addition, the RBA discovered that so-called convenience users of credit cards did not shift to use of debit cards. Also, the RBA is contending with the unexpected result that merchants are adding surcharges that significantly exceed their costs of accepting payment cards, leading to consideration of further regulations to cap the amount of surcharges. High merchant surcharges of up to four times the cost of accepting card payments is also evident in the Netherlands. Moreover, the experience in the Netherlands is that debit card surcharges are widely assessed for purchases below 10 Euro, suggesting that merchants are unwilling to pay the fixed cost of accepting debit payments for small purchases.

With regard to honor-all-cards, a lawsuit in the United States resulted in the decoupling of acceptance of credit and debit cards over the MasterCard and Visa networks. In this case, even though few merchants have declined one type of card and accepted the other, Chakravorti indicated that merchants may have gained bargaining power for negotiating fees.

In his comments, Dennis Carlton of the University of Chicago reinforced some of the main points made by Chakravorti. In particular, the economic theory of pricing in two-sided markets is complex and moreover provides no clear answers (notwithstanding that the analysis has a history reaching back almost two decades). He indicated, however, that it is possible to adopt some reasonable assumptions concerning the effects of active public policies relating to interchange fees and no-surcharge rules. In particular, Carlton asserted that even if surcharges are allowed but not used, interchange fees will automatically be constrained. Moreover, any possible harm resulting from failure to actually levy surcharges would be limited to cash customers. He also indicated that allowing surcharges mitigates public policy concerns about interchange fees because of third-party effects.

Carlton offered concrete advice to those developing public policy in the payment card markets. He stated that one should be wary of complicated models and should rely more heavily on empirical evidence to understand consumer behavior and reactions to policy interventions. Especially in light of the imperfections in theory and the limited formal empirical studies available, Carlton said that the development of public policy should rely most heavily on the growing body of regulatory experience from around the world.

The general discussion began with a question as to whether three- or four-party arrangements are theoretically superior card network models. The literature does not provide a direct answer to this question, and experience shows that four-party arrangements have “staying power,” notwithstanding the emergence of alternative constructs. Another question sought a logical explanation for surcharges that are clearly higher than merchant costs when no-surcharge rules are removed, referencing the experience in the UK Chakravorti indicated that such outcomes are not expected under conditions of perfect competition, and Carlton said that there is no general answer and that regulation of surcharges should be avoided to the maximum extent possible, giving the market the opportunity to achieve the right competitive balance. In this connection, a participant referred to experience in New Zealand, where recent legislation allows surcharges but also permits negotiation of surcharge and interchange trade-offs between merchants and card companies in four-party networks. The early experience is that fees are collapsing rapidly, following negotiations.

The concern was also expressed from an European Central Bank (ECB) perspective that the theoretical and empirical research may be getting in the way of a more down-to-earth approach to making public policy, motivated by more straightforward goals. The principal goal is to get payments done in a manner that reduces reliance on cash. In this general connection, high interchange fees and schemes that encourage costly expenditures on rewards programs tend to work against encouragement of efficient outcomes by masking real costs from consumers. Carlton noted that extreme positions for or against interchange fees are problematic, and that arguments that such fees are necessary to provide incentives for the rapid adoption of noncash payments are likely to be too strong in light of evidence from Europe, where the absence of interchange fees has not held back the adoption of noncash payments.

## **VI. IMPLICATIONS OF THE CHANGING PAYMENTS LANDSCAPE FOR COMPETITION AND EFFICIENCY OF RETAIL PAYMENTS SYSTEMS**

Issues of competition and efficiency were taken up by a panel chaired by Wiebe Ruttenberg of the ECB; participants included Matthew Bennett of the UK Office of Fair Trading (OFT), Gwenn Bézard of the Aite Group, Dickson Chu of PayPal, and Adam Levitin of the Georgetown University Law Center. Ruttenberg



began the discussion by noting that while efficiency is generally thought of as an outcome of competition, because payments are a network industry, cooperation is also a necessary ingredient and public policy must seek the right balance between competition and cooperation.

Bennett spoke to the practical considerations that the OFT has faced as a result of surcharging in the card system in the United Kingdom. The regulatory authorities have encouraged merchant surcharging because of its potential to increase competition. In reality, merchant competition has limited the application of surcharges, although surcharges are used extensively in industries where low up-front fees predominate (the airline industry being a prime example). In the latter case, surcharges take the form of “drip fees” that cumulatively add considerably to total price. In fact, payment card surcharges sometimes exceed the cost they are designed to recover by a considerable amount, with the unintended consequence of subsidizing users of cash. This is a difficult problem to which the OFT has not yet devised a solution, and it reflects the complexities and risks of competition in payments markets.

Adding to the description of the realities of payments markets, Bézard began his remarks by noting that these markets are far from perfect, the competitive balance being highly skewed toward the card issuers, who have the strongest link to the customers. In light of this market reality, Bézard exhorted the merchant sector to become more engaged by becoming proactive competitors. In particular, he said that merchants should shift from their traditional reliance on litigation and legislation to redress the imbalance, and invest more of their energy in new payment schemes that offer alternatives to the schemes provided by banks and the card companies. He provided examples of schemes tried in the United States that promised reduced merchant acceptance fees but that floundered because of lack of acceptance by merchants. In contrast, he also described ELV in Germany, which is a low cost debit card scheme that now accounts for over half of all debit card transactions in that country. In his view, decoupled debit in the United States offers an avenue for merchants that could be leveraged in a pro-competitive manner, leading to greater efficiency and improved competitive balance.

After highlighting the PayPal value proposition as an example of successful innovation and pro-competitive market entry, Chu stated four practical criteria to define an efficient retail payments system. These are 1) low cost, 2) real-time speed, 3) convenient access, and 4) a standards-based foundation. A truly efficient retail payments system, which does not yet exist, would provide the ubiquity of cards, wire transfer speed, and ACH-type costs. Chu said that performance and cost advances in technology combined with strong risk controls are the key factors allowing for retail payments system efficiency, both of which in his view are well advanced and should allow for a more efficient system than we see today. He said that interchange fees in the card systems have been flat or increasing, bucking the trends in technology and risk control, suggesting that these markets are not perfectly competitive. Herein lies the challenge for public policy.

Levitin described a balanced competitive and cooperative market as a “delicate ecosystem” that can be destabilized by external shocks. He stated that the profitability and distribution of profits that characterize the current balance of the retail payments markets in the United States is about to change dramatically due to five influences. These include 1) interchange litigation and legislation, 2) activist governmental intervention to contain or lower consumer fees, 3) banking industry consolidation, 4) mobile payment breakthroughs in established markets, especially in the United States, and 5) an inexorable shift in demand from credit card to debit card or “pay now” products. The consequences of these influences will likely include the establishment of new payment networks by the three largest U.S. banks acting individually or collectively. Levitin specifically referred to new contactless card services offered by Chase under its own brand as an example of such a development. As the large banks withdraw their support for the existing networks, new issues will arise because of the loss of the subsidy they provide for small-bank participation in the networks. Public policy authorities will face a dramatically changed market structure within 5 years time, and this is yet another issue that needs to be anticipated.

Leading off a discussion among the panelists, Ruttenberg expressed skepticism about how well a restructured retail payments market would support broad public policy objectives. By way of example, he noted that while surcharging is now permitted in Europe, the opportunity this freer behavior presents has not yet been taken up. He asked rhetorically why one should expect large banks that establish their own networks to avoid the problems and tendencies that the current networks demonstrate. Further, he wondered whether there is a natural monopoly element to network operation that poses difficult choices for public policy authorities, in terms of picking winners and losers.

The ensuing discussion among the panelists highlighted the potential for non-bank innovators to enter the market, leading to a new, more competitive balance. But concerns were also expressed about the need for continued, if not intensified, cooperation especially in environments like Europe, where highly segmented, nation-oriented payment markets need to catch up to the already unified Euro market for goods and services—this will call for more cooperation, and cooperation will be complicated as nonbanks enter the payments business. The panelists took up the role of public authorities in encouraging if not requiring such cooperation, which all agreed must be inclusive across providers, consumers, and merchants if it is to be truly effective. The Faster Payments initiative in the UK was offered as a model whereby government authorities tap the market to devise the operational approach, using moral suasion and the threat of government regulation to ensure a timely and responsive outcome consistent with public policy objectives. Direct government involvement as an operator, the “public option” to private services, was also identified as a possibility. On net, the panelists appeared to agree that national and regional culture will determine what type of outcome will be most effective in reflecting the “political will” for improvement in payments. Also, on net, the panelists appeared to share concern for the risks posed by a strong government intervention, including

regulation that might lead to unintended consequences and consumers who are no better, or even worse off in terms of the choice and efficiency they face.

Principal themes surfaced in the open discussion concerning the appropriate role for the central bank and/or other governmental authorities in ensuring that retail payments markets are sufficiently competitive to lead to efficient payments. Two participants expressed concern about industry collusion and the consequences of self-regulation by a “cartel of banks.” An as-of-yet unattained measure of efficiency illustrated by these concerns was said to be the failure to achieve par clearing in card payment systems, analogous to par clearing in the check and cash systems. Panel participants responded to this concern by saying that par clearing is a desirable efficiency objective, and public policy should not be paralyzed by concerns about possible unintended consequences. Some said that central banks and other authorities have a number of options for promoting efficiency, only one of which is regulation. It was noted that moral suasion is relied on by the Eurosystem, and that one result is the serious consideration now being given by the private sector to the establishment of a third card network to compete with Visa and MasterCard.

A further example of cooperation between governmental authorities to promote competition in the Netherlands is that between the competition authority and central bank relating to switching. The Dutch central bank persuaded banks to make switching easy and operationally smooth. Now that banks have implemented the new practice, which includes portability of account numbers, the actual incidence of changing bank relationships has been very low. Nonetheless, non-observance is not interpreted to mean that the new policy is not meaningful, but rather that the ability of consumers to be able to switch freely is in and of itself a powerful competitive force.

A participant also indicated that overseers should be vigilant to ensure that payments system enhancements which are stimulated by public policy not be diluted by offsetting practices that substitute one type of inefficiency for another. The example given was the introduction of chip and PIN security for payment cards, followed by new bank rules that deny reimbursement of fraud losses to consumers in cases where the PIN is used to commit fraud. This participant asked whether the panel viewed the general problem as legitimate and received an affirmative response.

Finally, another participant spoke to public policy in Australia that has allowed surcharging. Repeating a theme heard earlier, this participant said that the low incidence of surcharging should not be interpreted to mean that the policy is not meaningful, saying that surcharging is now a negotiating tool that merchants can use in agreeing to interchange fees. Moreover, the benefits resulting from specific public policy initiatives should not be evaluated in isolation but rather in the context of the authorities’ overall program for promoting efficiency. In the case of Australia, for example, the policy allowing surcharges should be evaluated together with the Reserve Bank’s “suite” of initiatives, including the one resulting in broad access to the self-regulatory process and membership in Visa and MasterCard by

nonbanks. Supporting the comments made earlier concerning the importance of active merchant involvement in new payment innovations, some Australian merchants are becoming self-acquirers.

## **VII. IMPLICATIONS OF THE CHANGING PAYMENTS LANDSCAPE FOR INTEGRITY OF RETAIL PAYMENTS SYSTEMS**

The implications of the changing payments system landscape for the integrity of the retail payments system were taken up by a panel chaired by Mark Greene of FICO and comprising Cathy Allen of the Santa Fe Group, Daniel Eckert of HSBC Card and Retail Services, Paola Masi of the Bank of Italy, and James Van Dyke of Javelin Strategy and Research. Setting the stage for the panel discussion, Greene indicated that the stakeholder panelists would respectively represent four stakeholder perspectives: advocate for consumers, bridge between the consumer and the bank, bankers, and regulators. Highlighting some of the stresses that have arisen in the retail payments system, Greene said that the Know Thy Customer and trust-based relationships between banks and retail clients is being severed by new forms of payment (for example, decoupled debit). When there is no established trust relationship underlying a new payment service relationship, there are gaps in the “security continuum” and new opportunities for fraud. Greene said the key strategic question in this new world is how to protect against and detect fraud and security breaches.

According to Greene, many traditional forms of payment fraud are now well controlled, but there is growing concern about new forms of attack. He described the new tools being used to mitigate fraud, including intelligent profiles, neural networks, and adaptive analysis, collectively referred to as “systematic art forms” which are deployed in a leapfrog game against those who are attempting to compromise the integrity of retail payments systems.

Allen referred to this being a transformational time in the financial services industry and identified her theme as the need for transformational leadership. There has been an erosion of trust between financial institutions (FIs), FIs and their customers, and between the public and their regulatory agencies, resulting in trouble for banks with their customers and a legislative backlash against both banks and regulators like the Federal Reserve. She also referred to a recent study showing that over two-thirds of consumers plan on moving their banking relationship with an improvement in the economy. The media “is on this” situation and we are facing “the equivalent of our industry’s oil spill.” In addition, fraud risks are materializing in new ways now including ACH takeovers of corporate accounts; consequently, the trust relationship issues go beyond the individual consumer and extend to small businesses and even the corporate elite.

Payments systems are at the center of consumer angst, due to a convergence of trust relationship problems. These include increased fees such as NSF charges, credit lines severed with little or no notice, and a higher incidence of data breaches.

According to Allen, these problems explain the forces behind establishment of a new stand-alone consumer financial protection agency. They also increase opportunities which nonbank providers of technologically advanced information services can exploit by substituting themselves in the traditional consumer-bank trust relationship in payments. She pointed to mobile banking and social networks (Google, Twitter, and Facebook) as the technology service domains that pose the greatest threat and yet opportunity.

In his opening remarks, Van Dyke took advantage of the conference venue to make the point that some of the core issues addressed by the conference are not new. He noted that the first credit card was introduced 110 years ago in Kansas City just across the street from the Fed, issued by a provider of horse-drawn buggy service to passengers using Union Station. Then, like now, freedom of choice became an issue, and antitrust actions ensued.

Van Dyke referred to recent Javelin research to make two principal points. First, according to Javelin, merchants and banks, respectively, absorb 90 and 10 percent of commercial fraud costs, including mitigation costs and the costs of goods, across multiple types of payments systems. Second, security against ID fraud is consistently the most highly ranked factor explaining consumer choice of a credit card. Further, with regard to consumer concern about security, Van Dyke pointed to data showing that consumer costs of ID theft rise in proportion to the length of time it takes for the consumer to discover and report the ID theft, leading to the conclusion that empowerment of consumers is an important element in the campaign against fraud risks. According to Van Dyke, there is opportunity for banks to strengthen the trust relationship by being proactive with security; in his words, “security is a relationship and marketing play,” and a focus on the security dimension of the relationship with consumers represents “the way ahead” for banks.

Strong customer need for protecting both their money and identity notwithstanding, banks will need to transform themselves to serve the customer and simultaneously take advantage of the opportunity to strengthen the trust relationship. This is because, according to Javelin research into the customer control capabilities of banks and credit unions, many FIs direct their energies to the “clean up” following the incidence of fraud, not to prevention and detection. He said that empowerment of and cooperation with customers is a lower priority than is resolution of fraud once it occurs. Finally, Van Dyke pointed to mobile technologies as the basis for customer-centric strategies to prevent and detect fraud.

From a bank perspective, Eckert said that this is a challenging time, including for a large card issuer like HSBC. Not only are alternative forms of payment challenging traditional franchises, but a combination of regulatory initiatives (including Regulation AA in the United States and Basel II internationally) will remove \$1.3 trillion of revenue from the credit card system. The core challenge is to preserve the safety and soundness of the payments system in this environment,

especially since much of the innovation is in services to consumers that rely on the legacy infrastructure, which is slow to adapt to change.

In contrast to Van Dyke, Eckert said that banks are good at preventing and detecting fraud. He provided the insight that the large majority of fraud, fully 94.6 percent according to HSBC's experience, is so-called first-party fraud that is the equivalent in the electronic world of check kiting in the paper check world. He cited problems in ACH to illustrate the nature of the problem with electronic payment fraud: banks act as guarantors of payments that clear through the ACH, yet must wait up to eight days for these transactions to clear, and gaps in the ACH rules allow consumers to declare that payments are unauthorized, resulting in bank losses that amount to 13 percent of total payment losses.

With regard to new, alternative payments, Eckert said that the disassociation of the payments system with the bank account used for settlement of the payment is representative of the risk now being faced. In the case of decoupled debit, for example, the customer relationship is with the payment service provider, whereas the account is with the bank. Eckert provided data from a case study to illustrate how banks innovate in detecting and combating fraud. His example showed how learning technologies, including neural networks, detected patterns of fraudulently initiated ACH debits and applied this learning to operating rules that rejected such payments.

Central bank concerns about and responses to the retail payments system risks posed by nonbank services providers were discussed by Masi. She cited original research published by the ECB and Federal Reserve Bank of Kansas City that establishes a basis for understanding and analyzing the role of nonbanks in the payment chain. This research shows the growing importance of IT services providers in retail payments systems, the ongoing consolidation within this industry, and the limitations of the national and international regulatory and oversight frameworks that are relied on to address these developments. This research provided the basis for a major survey of nonbank involvement in the retail payments system undertaken by the Bank of Italy and was scheduled for completion by the end of 2009.

The Bank of Italy has conducted a survey into nonbank involvement in retail payments covering all large Italian banks and other major financial institutions, including two providers of electronic money services, totaling over 170 institutions. The survey follows the analytical framework of the ECB and Federal Reserve Bank of Kansas City study by measuring nonbank involvement in 15 distinct steps in the payment process. The results show that each provider has, on average, three technical service providers for card payments, and two for credit transfer and direct debit payments. While a substantial proportion of the nonbank providers are actually owned by banks, ownership is not a determining factor in bank choice of a payment services provider; rather, the profitability of the relationship and the reliability of the provider are the basis for choice. In ranking the risks to be managed in these relationships, banks give fraud and its reputational consequences a very high ranking, as they do operational failures.

Masi noted that the survey results show that the technologies used in large-value and retail payments systems are very similar. Not surprisingly, then, many of the nonbank services providers are active in both the large-value and retail systems. Moreover, consolidation is on the rise, with large providers tending to dominate the market, and the market for operational services is increasingly a global market, with the main providers active in many countries. Masi concluded that central bank payments system overseers face a number of challenges as a result of what has been learned from the survey. Chief among these challenges is ensuring that the regulatory framework adequately covers payments system activities of nonbank providers, especially insofar as systemic implications are concerned, and that the strengthening of cooperative oversight arrangements reflects the global nature of the outsourcing business.

Discussion among the panelists focused first on the mobile transacting and social networking technologies identified as playing a prominent role in changing the payments landscape. These technologies, when applied to payments, pose serious risks in part because of the weak, password-based authentication they have traditionally supported, the strong interest that organized crime is evidencing, and the threat of insider involvement in breaches of integrity. A point reemphasized was that banks should take a less paternalistic approach to protecting their customers and instead empower customers with more capabilities and tools to protect their money and information, especially as new technologies are deployed for payments.

Greene asked whether the time has come for a generationally new retail payments system, not unlike the shift the wholesale payments industry undertook when it embraced SWIFT as its standard platform for international payments. This idea resonated with the panel, although it was noted that payback on such a huge capital investment is a major hurdle, which explains continued reliance on legacy infrastructures (some of which are a half-century old and only now beginning to yield adequate returns on investment). While capital efficiency is a key requirement, there are examples of potential successes, including the merchant-centric Tempo network and adoption of chip and PIN, which has dramatically lowered fraud losses since introduction into the UK about a year ago. It was also noted that standards are a necessary condition for universal acceptance of new payment forms.

Finally, the panelists were asked whether the establishment of a consumer finance protection agency in the United States is a good idea in terms of its implications for retail payments system integrity. The panelists were silent on the specific question but in general stressed that there is a strong need for some authority to fill what they take to be a regulatory void.

The general discussion began with a comment by a participant who explained why the Tempo service was not supported broadly by the merchant community. In short, the issue is not in the first instance about technology, but rather about capital efficiency when measured across the network of merchants, and the way the

capital cost would be borne. This participant emphasized that the market is two-sided, with merchants requiring a critical mass of consumers using the new card, and that the brand-building expense of developing the critical mass of merchant acceptance topped \$1 billion. Another participant reflected a merchant view that the allocation of interchange fees and actual distribution of the burden of fraud losses may stifle innovation. This participant reported that small acquiring banks use their interchange revenue to offset the 10 percent of fraud costs they bear, according to data that was presented in the panel discussion, whereas merchants are left to bear 90 percent of the fraud costs. Yet banks and merchants evenly share the fraud mitigation costs related to technology that is used to prevent fraud.

The chairman posed the question whether there is a role for the Fed in affecting the 90/10 cost allocation, prompting an initial resounding “yes” response from the audience. The discussion that ensued reflected a set of complex and sometimes conflicting views, however, extending beyond allocation of burden per se to the absolute cost of improving the security situation. It was noted, for example, that compliance with PCI on the part of small merchants whose pre-tax income is about \$40,000 could amount to \$20,000 per location. At a minimum, however, there is a need for an accepted baseline security standard to protect the integrity of what was referred to as the “next generation of currency,” namely, e-money that is replacing cash at the point of sale. Part of the costs networks are attempting to manage is due to the security standards “Tower of Babel.” Participants referred to a market failure to sufficiently coordinate network approaches to protecting the retail payments system, which are currently backward looking, and a desire for the Fed to become actively involved in the establishment of security standards. But, it was also observed that the Fed would best start by identifying what the actual sharing of the fraud cost burden is (this was in connection with a challenge to the 90/10 split mentioned earlier). The concluding observation cited three areas in which the Fed could help: by taking a stronger position on consumer protection; by playing a stronger role in cyber security; and by regulating the activities of nonbanks.

## **VIII. THE ROLE OF CENTRAL BANKS IN RETAIL PAYMENTS: THE CENTRAL BANK AS OPERATOR**

Richard Oliver and Stuart Weiner of the Federal Reserve Banks of Atlanta and Kansas City, respectively, presented a paper outlining the reasons for operational interventions by central banks as retail payments system operators, summarizing worldwide operational interventions and assessing the experience of the Federal Reserve Banks. They indicated that central banks might play three distinct roles: that of operator, facilitator, and overseer. The four types of operational activities are all services-related and involve settlement, clearing of payments, payments services to government agencies, and maintenance of security-related data bases. Like Chakravorti and Rysman, they pointed to externalities, noncontestable monopolies, and asymmetric information conditions as issues that deserve central bank attention, possibly to include operational involvement.



Oliver and Weiner also identified certain issues that could accompany a central bank's decision to become involved as a retail payments system operator. In particular, providing services that substitute for and compete with similar services provided by private firms is likely to result in challenges to such a role for the central bank, thereby placing a premium on an exceedingly well thought out and well articulated position for the central bank's intervention. In addition to a strong rationale for an operational role, the central bank needs to ensure that its services compete on a level playing field with those of the private sector, full cost recovery being a baseline condition for such involvement. Altogether, the way a central bank manages its operational role will affect the reputational and financial risk that it assumes. Oliver and Weiner cited the World Bank's 2008 survey to demonstrate a substantial operational presence by central banks in check clearing (59 banks from Albania to Zimbabwe) and ACH (34 central banks from Afghanistan to Venezuela).

The Federal Reserve Banks' operational involvement was presented in an historical context with roots in the 1913 Federal Reserve Act. Essentially, they indicated that conditions in the U.S. payments system, when the check was the primary means of noncash payment, presented the need for a strong, national banking presence and that the Federal Reserve Banks were established in part to add efficiency and certainty to check clearing and settlement. They also noted that once a strong operational presence such as this is established, withdrawal is difficult without causing disruptions to payments, thus leading to an historical inertia resulting in a permanent central bank role. Over the years, the U.S. Congress has legislated improvements in check clearing, including expedited availability of funds to depositors and improved efficiency and service through the introduction of check truncation and electronic clearing of payments, and this regulation has actually increased the dependency on the Federal Reserve Banks. Similarly, the private sector's request that the Federal Reserve Banks support the fledgling ACH in the 1970s expanded the central bank's operational role.

Looking at the historical record of payments system development in the United States, Oliver and Weiner said that the Federal Reserve Banks' operational involvement has been a positive catalyst for change. The domestic payment system was unified across a large and diverse nation, standardized processes and procedures contributed to efficiency, and safety was enhanced as a result of the priority given to the integrity of payments. With this sanguine backdrop, they said that accelerating change in the technology underlying payments, shifts in consumer preferences leading to greater demand for "anywhere and anytime" payments, and the emergence of nonbank providers have all led the Federal Reserve to reassess its traditional operational role. The basic strategic question is whether the changing landscape and the growth in electronic payments in particular call for a "retreat or expansion" of the Federal Reserve's operational role.

In discussing the paper by Oliver and Weiner, Joshua Peirez of MasterCard began with the observation that when the central bank becomes involved in

businesses where scale economies predominate, one ends up with a quasi-governmental monopoly. He asked rhetorically how a private company can then compete with the entity that is the monopoly provider and rule maker. Referring to Leinonen's remarks, Peirez said that if one believes consumer choice does not matter, then it is easy to conceive of a government-run payments system, but this is not so if one believes in consumer choice because then innovation in new payment instruments matters a lot. He said that it is not "just the payment" that matters but all that goes with the payment, including customer satisfaction.

Peirez indicated that he agreed with the large majority of the reasoning brought forward by Oliver and Weiner, noting especially the complexity of the Uniform Commercial Code and the substantial justification needed for government involvement as a payment system operator. Taking a less sanguine view about the evolution of the check and ACH systems in the United States, he said that the paper check clearing system has been very slow to evolve and has held up the transition to electronic payments. He said a private operator would have evolved the check system into a debit-card-type system and that even though back-end check processing has been converted to electronic processing, the fact that checks still need to be written presents a massive problem. Similarly, he said that the ACH does not provide for true real-time authorization and that timing issues in ACH payments present significant fraud risks. Referring to the strong Fed response to maintaining payments system integrity during national crises, including 9/11, Peirez indicated that privately operated systems have the same track record and did not fail to process a single transaction during such emergencies.

Finally, Peirez suggested that the efficiency goal of a government payments system operator is motivated principally by low cost, whereas that of a private payments system operation is motivated principally by value creation. He said that low cost does not necessarily define a good payments system, but rather that the value delivered to consumers is the appropriate measure of a strong efficiency outcome.

The ensuing general discussion elicited a number of comments and stimulated several exchanges about the efficiency and fairness of private credit card networks insofar as interchange fees are concerned. Consumer choice, merchant choice and cost efficiency were debated. Also, some participants expressed the view that the U.S. check collection system has been a model of progressive change. Clarifying his position on consumer choice, Leinonen distinguished between choice at the payment service level and at the "trunk line" level, indicating that the latter should be standards based and uniformly provided; he cited telecommunications services and e-mail as examples. Finally, a participant addressed a question raised earlier in the conference regarding the apparent failure of merchants to compete proactively by supporting new payment products. This participant stated the view that private operators that also set rules have discouraged such competition.

**IX. THE ROLE OF CENTRAL BANKS IN RETAIL PAYMENTS:  
THE CENTRAL BANK AS OVERSEER**

Ron Berndsen presented the paper “Central Bank Oversight and the Changing Retail Payments Landscape,” written with his colleague Bouke Buitenkamp of De Nederlandsche Bank. His perspective contrasted with that of Oliver and Weiner, in that the Dutch central bank does not provide retail payments services, except for final settlement of interbank obligations. While speaking from the perspective of a small country, Berndsen’s remarks also provided insight into the larger, cooperative oversight arrangements among the members of the European System of Central Banks.

Berndsen embraced the definition of oversight that has been promulgated by the Bank for International Settlements. According to this definition, central bank oversight is concerned with retail payments system safety and efficiency, and its objectives are achieved by monitoring and assessing both existing and planned payments systems, and by inducing change where it deems it necessary. Transparency is a hallmark of oversight, and De Nederlandsche Bank explicitly identifies the payment system “objects” of oversight, of which there are currently 22, 11 being retail in nature. Berndsen said that care is taken to exercise oversight in an efficient manner and that accordingly his department establishes priorities. Large-value systems that are systemically important are first priority, and these are formally assessed annually and whenever major changes are introduced. Among retail payments systems, priority is established following criteria set by the ECB, which include the value of retail payments handled in relation to the real-time gross settlement system, average value handled daily, the concentration of retail payments within the system, and the degree of netting compression leading to final settlement. Payment products and instruments are assessed at least every three years, and more often if there are major developments affecting the system, including incidences of fraud and unusual media attention. Berndsen emphasized the flexibility exercised in allocating scarce oversight resources and in particular the event-driven nature of oversight.

The cross-border reach of some retail payments systems has led to a protocol for conducting oversight, and Berndsen described the role of lead overseer within the European System of Central Banks. The lead overseer takes primary responsibility for oversight on behalf of other national central banks, which have a formal memorandum of understanding with the lead overseer that establishes their expectations, and which also provide cooperative support as called upon. This model is likely to be relied upon even more in the future as the Single Euro Payment Area (SEPA) takes hold.

The objectives Berndsen cited for conducting oversight of retail payments systems in the Eurozone were similar to those cited by Oliver and Weiner for central bank operations. Berndsen elaborated on the safety objective in particular, saying that the failure of a widely used payment instrument may have broad implications for the economy with some systemic risk attributes. These systemic implications and public good attributes notwithstanding, Berndsen said that a profit-maximizing firm will only take measures to ensure safety and integrity that reflect its individual potential losses. Accordingly, safety may be “produced” at a level below that needed by society at large. He made similar arguments regarding the efficiency objective.

Berndsen said that the changing payments landscape poses a number of challenges for central bank overseers. First, new payment system entrants include non-banks, and the payment activities of these entities need to be brought under oversight. It is sometimes hard to identify who these entrants are, and while the natural tendency is for them not to want to be bothered with official oversight, experience is beginning to show that the application of oversight can add legitimacy to and increase public confidence in the services of nonbank players. Second, innovation and the entry of new players is increasing competition that tends to boost efficiency, lower profit margins, and result in suboptimal production of safety. This has caused overseers to focus on minimum standards of safety that all providers must meet. Finally, the introduction of new services is resulting in more interconnections between systems as the operational platforms supporting new services are linked to existing back-end infrastructures. Operational and security complexities can result, and the potential exists for non-competitive restrictions on entry by firms that need infrastructure support in order to succeed. As a consequence, Berndsen said that overseers are increasingly reaching out to and cooperating with competition authorities, and shifting their attention somewhat from the scheme owners to the infrastructure providers. An underlying response to all of these challenges is proactive oversight and heightened awareness of change in the retail payments system.

Discussant Jonathan Williams of Experian Payments began his remarks by expressing broad sympathy with the Dutch central bank’s approach to payments system oversight, which he described as very pragmatic. He expressed strong support for an approach that is based on standards and methods that are clear and well understood by all stakeholders. The biggest oversight challenge, according to Williams, is “where to draw the line” in terms of scope.

Williams stressed the importance of involving and getting input from users of payment services about service problems. He cast this advice in an international context, noting that many services are now supported by international providers, such as the SWIFT cooperative. Williams also saw a need to prioritize oversight attention and said payment systems could be divided into two groups for this purpose, 1) legacy systems and 2) “to be” systems in the planning stage. A further differentiator that overseers should consider in prioritizing their work is that between scheme owners and operators, taking care to ensure appropriate separation

between the two. He noted earlier references to the Federal Reserve's Chinese wall as an example of the kind of awareness that needs to be in place for payment systems to operate well.

According to Williams, security is the chief payment system attribute with which overseers should be concerned, inasmuch as public confidence depends on actual and perceived security. Security needs to be thought of holistically, however, to include not only defenses against fraud but also rules providing assurance that payments are final; Williams cited an issue in the UK regarding the indefinite finality accorded direct debit payments, which can in principle be returned at any time, to illustrate the way rules can undermine the certainty and perceived security of payment. With regard to efficiency, Williams referred to the importance of standards and again cited an example of the UK, where bank account numbering schemes are highly disparate and work against an efficient system.

Williams concluded by saying that innovation, which is often a product of new entrants into the payments system, will frequently pose challenges to existing assumptions about how payments can best be made. He said that it is important for overseers to be open minded and willing to challenge their assumptions so that innovation is not inhibited. In brief comments following Williams, Berndsen strongly agreed with the importance of engaging end users of the payments system as part of the oversight methodology. He said that the current practice of the Dutch central bank is to post its proposed standards on the central bank web site for three months, with the specific goal of getting user input.

The general discussion began with a question about network access and whether access pricing is a legitimate oversight concern. In reply, Berndsen said that access is a critically important issue to overseers and that fair and open access, with non-discriminatory pricing, is fundamental to an efficient system. He also indicated that the risk posed by prospective new entrants is the only differentiator that networks should follow in making access decisions. A further question was raised about the international scope of payments system oversight, specifically with reference to Anti-Money Laundering (AML) oversight. It was said that market participants face inconsistent oversight of AML rules in different jurisdictions today. Berndsen responded that central banks highly coordinate their oversight of designated systems such as SWIFT and CLS, but that currently AML is not within the ambit of payments system oversight, to the extent that it falls outside the domains of the international systems that have been designated as objects of oversight.

General discussion also concerned coordination of data collection practices by overseers. A participant noted that the need for payments system data is increasing for both official and private sector use and, as evidence, at the time of the conference many different overseers noted they are undertaking data collection initiatives. These initiatives, while intrinsically useful, do not appear to be coordinated and make it difficult for participants in different national payments systems to respond. Berndsen acknowledged the problem and the difficulty in solving it,

noting that payments system data is only one subset of the data that central banks collect, which runs the gambit from system data to balance of payments data. He indicated that the Eurosystem recognizes the issue and is attempting to increase coordination in the area. Williams stated that it is very difficult to get a coherent world view of payments systems today and that the problem is not just efficiency but effectiveness. He said that central banks are in an excellent position as overseers to provide the needed leadership to solve this problem.

## X. CONFERENCE WRAP-UP

In his closing remarks, Bruce Summers offered some personal perspectives that reinforced the public policy importance attached to retail payments systems by the speakers. He indicated that the retail payments system is a component of the critical infrastructure in a modern economy where upwards of 70 percent of GDP is attributable to consumers; that system efficiency depends on public confidence and trust; that public confidence is being undermined by unfavorable attention given to retail payments in the press; and that change in how payments are made is occurring at “Internet speed.” Summers also indicated that quality public dialogue on the issues will depend on more clarity and precision about the roles being discussed, with three roles in particular needing to be distinguished: scheme owners who set rules and standards, front-end service providers who market payment instruments to the public, and back-end operators who provide the clearing and settlement services. Whereas oversight covers all three roles, a central bank’s operational involvement is likely to be more specialized and it needs to be very clear about which role it intends to play.

He also said that the main public policy problems tend to arise in the front-end marketplace for consumer payment services, and that nonbank entrants are at least for now the principal innovators in this marketplace. Summers said that among the nonbanks, telecommunications companies are especially important players; these companies are often vertically integrated service providers and operators, adding special complexity to public policy. Because the public policy issues tend to be concentrated in the market for payment instruments, and with the increased complexity of the composition and structure of the market, oversight is on the rise as the more direct and flexible approach to achieving public policy goals. Summers also expressed surprise that none of the conference participants had identified what appears to be a major public policy question in the United States, namely, the minimal interest of the Federal Reserve in retail payments system issues and the default oversight role taken up by the Congress.

Summers suggested that five questions captured much of the focus of the conference.

- *What needs are unmet, what markets are underserved, and how can public policy help?* The Internet generation needs anytime, anywhere banking and payment services. Broadly speaking, real-time account maintenance is needed if electronic payment services are to meet customer needs. Unfortunately, “our deliberations” appear to have forgotten the consumers.

- *What actions are necessary to tilt incentives toward good integrity and efficiency outcomes?* The economic theory of two-sided markets, as applied to payments, is complex and does not provide clear answers; it is prudent to be wary. Theory needs to be validated empirically, but systematic data are not yet available, and probably will not be available for a long time. For whatever reasons, price and cost incentives in payments appear to be largely hidden from consumers and to distort behavior. In principle, cost transparency is good. A relatively safe public policy program would be to remove barriers to transparency (for example, by allowing merchant pass-through of costs).

- *Is clearing and settlement appropriately structured, managed, and overseen?* Back-end concentration gives rise to monopoly protection of market franchises, sometimes in subtle ways (for example, slow adoption of data standards and resistance to portability in bank account numbers). Looking ahead, innovation and new entry call for a broad and inclusive process for stimulating pro-competitive cooperation, especially across types of institutions, because “it’s not just about banks anymore.”

- *How serious is system-wide or systemic risk and how should it be mitigated?* A case can be made that we are facing the banking industry equivalent of an oil spill. Mainstream central bank attention to the issue is focused on concentration of operational risk through outsourcing to nonbank providers. Networks are capital intensive, and consequently security improvements will be focused on adaptation of existing systems.

- *Is central bank operations or oversight more effective, and is the choice either/or?* The “public will” driving competition and innovation may well include a “public option,” and there are antecedents in the United States. The nature of the role—whether light or heavy handed—depends enormously on culture and tradition. There are concerns about the Fed’s “invisible hand” in the United States; there needs to be a national conversation, with a lead role for the Fed, about what the baseline security standard should be; there is a shared problem with “clear market failure”; the Fed needs to play a much stronger role in consumer protection, establishment of security standards and enforcement, and oversight of nonbank actors that are taking on bank-like roles. While it can be argued that there is a synergy between central bank operations and public policy, there is a strongly held contrarian view that the private sector can and does do a superior job when measured against cost, value and integrity criteria. In actuality, oversight is not a utopian undertaking but rather a practical, gritty, and hands-on discipline. Moreover, oversight increasingly has an international dimension to match the global nature of the retail payments business.

The general discussion that followed Summers’ remarks led off with a participant suggesting that there is need for the Federal Reserve Banks to become more engaged in retail payments system issues beyond the narrow operating role, not unlike their involvement in the development of monetary policy through the Federal Open Market Committee. In response, Masi expressed a word of caution saying that central banks might best leave consumer protection to a different

governmental agency: This because central bank payments system overseers need to be concerned with safety and efficiency broadly, and responsibility to defend and represent only one stakeholder, namely, the consumer, could undermine the broader mission.

Participants also took up the question of payments system risk. One suggested that while perhaps not posing systemic risk, retail payments systems attract headlines that influence public opinion about the integrity of their payments. Actual and reported risks could shake confidence in retail payments systems. To that, Berndsen noted that in the Netherlands and Europe more broadly the central bank view of payments system risk recognizes the presence of both systemic risk that has financial stability implications, and system-wide risk that, while not systemic in the usual use of the term, can create big economic disruptions. Both types of risk are of concern to central bank payments system overseers. In relation to that dialogue, another participant called on the Federal Reserve to extend its role in the retail payments system by collecting and publishing comprehensive data on the incidence of retail payments system fraud and data breaches. The participant suggested that doing so would add needed transparency and suppress media speculation about threats to the retail payments system that are stimulated by what some see as attempts to hide the true extent of such problems. In responding to these thoughts, Summers noted that currently the Federal Reserve Board does not include any retail payments systems among its list of objects of payments system oversight as published on its web site, and is different from the Dutch and other central banks in how it defines the scope of its oversight responsibilities. He urged retail payments system stakeholders to enter into dialogue with the Fed as a means of reasoning through an appropriate oversight role in the context of international norms.