PAYMENT CARDS Center
FEDERAL RESERVE BANK OF PHILADELPHIA

Update

A newsletter published by the Payment Cards Center, providing meaningful insights into developments in consumer credit and payments

Winter 2007

From the Director

Peter Burns, Vice President & Director

Welcome to the latest edition of *Update*, a publication of the Payment Cards Center highlighting recent activities. Also available on our website, *Update* complements the more complete set of information available at www.philadelphiafed.org/pcc.

As I considered this issue's opening note, I found myself reflecting on how the Center's agenda has evolved in the seven years since its inception in late 2000. The initial impetus for establishing a Payment Cards Center at the Philadelphia Fed was based on the Bank's proximity to and early familiarity with the concentration of credit card businesses based in Delaware. Over time, it has become increasingly apparent that the credit card is only a piece, albeit a significant piece, of the larger structure of consumer credit and payments. As a result, the Center's research interests have expanded to include the broader array of evolving forms of electronic payments and their use by consumers. We note several examples of this expanding scope in this issue.

Another important dimension of the Center's evolution over the past seven years has been the commitment to partnerships with Bank and other Federal Reserve colleagues, as well as with external organizations and firms in the industry. In very real ways, these partnerships have allowed us to leverage our relatively limited resources and benefit from other areas of expertise and business knowledge.

Earlier issues of *Update* have focused on the Center's relationships with organizations and firms in the payment card industry. This issue highlights several recent examples of how collaborations within the Philadelphia Fed have served to further the Center's mission. In support of the Bank's goal to expand its expertise in the broad area of consumer credit and payments, the Payment Cards Center has taken the lead in coordinating and leveraging relevant expertise found in other areas of the Bank.

A good example of this cross-functional collaboration, highlighted in this issue, is a recent conference co-sponsored by the Payment Cards Center and the Bank's Community Affairs Department. This event involved discussion of developments and innovations in how low- and moderate-income families use

Mission Statement

The mission of the Payment Cards Center is to provide meaningful insights into developments in consumer credit and payments that are of interest not only to the Federal Reserve but also to the industry, other businesses, academia, policymakers, and the public at large. The Center carries out its mission through an agenda of research and analysis as well as forums and conferences that encourage dialogue incorporating industry, academic, and public-sector perspectives.

In This Issue:

financial services. The conference greatly benefited from the Center's ability to build on Community Affairs' knowledge of the general challenges faced by this segment of society and our own experiences and contacts with banks and other financial services providers.

This issue describes another example of our efforts to expand cross-functional collaboration, in this case with the Bank's Research Department. From the Center's start, we have had a strong commitment to supporting academic research and have worked closely with the Bank's Research economists who have interests in consumer credit and payments. A September conference, "Recent Developments in Consumer Credit and Payments," was the fourth in a series of collaborative efforts between the Center and the Research Department to bring together leading scholars for a discussion of new research.

Importantly, our internal collaborations also lead to the development of new external relationships. A good example is the Center's visiting scholar program through which, with the help of colleagues in Research, we have established working relationships with academics who have relevant research interests. Later in this issue, we summarize a recent paper by one of the Center's visiting scholars, Jonathan Zinman from Dartmouth College. "Where Is the Missing Credit Card Debt? Clues and Implications" adds to the Center's efforts to better document the construction of commonly cited data sources and to recommend their appropriate use in research.

Last, this issue highlights a recent Discussion Paper written by the Center's Julia Cheney. "An Update on Trends in the Debit Card Market" is based on an earlier workshop at which industry practitioners reviewed data from customer surveys on developments in debit card activities.

I hope that you find this *Update* of interest. As always, I welcome your thoughts and suggestions as to how we might make the Payment Cards Center a more effective contributor to building relevant knowledge and insights in consumer credit and payments.

Payments, Credit, and Savings: The Experience for LMI Households

Today, financial products and services are evolving at a rapid pace. As these changes take place, the Payment Cards Center seeks to provide a forum through which experts from the financial services industry, policymakers, community leaders, and academics can examine products, services, and the practices of businesses looking to meet consumers' financial needs. While mainstream consumers and their financial practices have received the majority of attention thus far, the Payment Cards Center has also focused on developing insights into the trends and behaviors of low- and moderate-income consumers.

One example is the 2005 conference "Payment Cards and the Unbanked: Prospects and Challenges," which brought together a number of experts to discuss the roles played by banks and nonbanks in meeting the financial needs of underserved consumers, requirements for consumer education, and the regulations that govern existing financial products and services. At that conference, keynote speaker Michael Barr, a professor of law at the University of Michigan Law School, argued that the movement toward electronic payments will, in many cases, create a myriad of more efficient options to meet the basic financial needs of the underserved consumer. Barr noted that 22 percent of low-income U.S. families (10 million households, or 22 million people) had no banking relationship at all and that a larger number of households — the underserved — did have some type of bank account but lacked reliable or cost-effective vehicles to make payments, access credit, or accumulate savings.

On May 21-22, 2007, at a conference entitled "Payments, Credit, and Savings: The Experience for LMI Households,"* the Federal Reserve Bank of Philadelphia's Payment Cards Center and Community Affairs Department revisited the themes discussed in 2005 and explored Barr's recent research on the financial practices and attitudes of low- and moderate-income households and the financial products and services available to them. The research discussed at the conference was derived from the 2005-2006 Detroit Area Study (DAS), conducted by the University of Michigan's Institute for Social Research, Survey Research Center, where Michael Barr serves as the faculty investigator. The two-day event brought together participants from the financial services industry, academic community, consumer and community development organizations, and federal and state regulatory agencies to consider data and early findings from the study.

Delivering the keynote remarks, Sandra Braunstein, director, Division of Consumer and Community Affairs, Federal Reserve Board of Governors, set the tone for the day's discussion. She pointed to technological advances, payment innovations, and the entrance of alternative financial services providers as critical new forces supplying a greater range of choices and improving the delivery of financial services to LMI households. Braunstein also argued that these changing dynamics are presenting challenges for consumers, providers, and regulators in moving toward a more inclusive financial system.

Barr characterized one of these challenges as a "financial services mismatch." He argued that a mismatch exists between the often undifferentiated value propositions delivered to LMI households by traditional financial services providers and the more distinct needs for functionality and pricing demanded by this market segment.

Gathering data from the Detroit metropolitan area, the DAS sought to gain a better understanding of how and why

*** The conference agenda and summary are available at: http://www.philadelphiafed.org/pcc/conferences/2007/CA-PCC_Agenda_5-18-07.pdf**

Sandra Braunstein, Director, Division of Consumer and Community Affairs, Federal Reserve Board of Governors

LMI households use a wide variety of financial services, how they assess the relative costs and benefits of such services, and how these households would respond to potential new financial products specifically tailored to their needs. While the DAS covered a wide range of topics, the conference was divided into three sessions, each addressing a specific financial activity: making payments, accessing credit, and setting aside savings. For each session, Professor Barr or one of his co-authors shared preliminary insights from the study and then welcomed remarks from a panel of subject matter experts. Jonathan Zinman of Dartmouth College and Ronald Mann of Columbia University Law School, both visiting scholars at the Payment Cards Center, served as panelists.

Conference participants noted several trends. First, LMI households, although once perceived as an unprofitable segment of the banking services consumer market, are now generally viewed by financial service providers as an ever increasing source of new revenues — an untapped market for financial institutions. This revised view is, in part, a consequence of cost efficiencies that have changed the traditional economics related to serving these consumers and recent research that indicates that significant potential profits exist for business models that effectively target these consumers. Second, the DAS data indicate that the market for financial products and services for LMI households has evolved mainly outside the financial mainstream. The study shows that these consumers frequently make use of non-bank check cashers and payday lenders for services such as paying bills, cashing checks, and accessing credit. Barr noted that while financial institutions seem to be motivated by the opportunities in this market, they are still struggling with how to leverage their existing products and payment infrastructures to cost-effectively serve consumers who may be intimidated by bank branches, who mistrust banks,

Michael Barr, Professor of Law, University of Michigan Law School

or who feel that bank products are too complex, costly, or inconvenient.

Overall, the 2005-2006 Detroit Area Study was designed to help researchers, policymakers, and private-sector providers better understand LMI consumers' attitudes, preferences, and choices when it comes to making a variety of financial decisions. While no one is certain how the financial services market for LMI households will evolve, conference participants were able to contribute a number of insights into how institutions might simplify value propositions, leverage existing behaviors, and more appropriately match products and services to the specific needs of low- and moderate-income consumers. Ultimately, the organizers hope that the development of more finely tuned products and delivery mechanisms will bring more LMI households into the financial mainstream.

Shown here (left to right) are conference participants Jennifer Tescher, Ed Bachelder, Bob Bucceri, Patricia Hasson, and Jonathan Zinman.

Collecting Consumer Debt in America

In addition to supporting monetary policy and other analytical efforts, the Bank's Research Department produces working papers and other publications, including the *Business Review*, which features articles written in a more generally accessible style by staff economists. The Payment Cards Center has had a strong partnership with the Bank's Research Department and, as a matter of course, provides links to relevant *Business Review* articles on its website. One recent example is "Collecting Consumer Debt in America," which appeared in the Second Quarter 2007 issue of the *Business Review*.*

*** This article served as the basis for a presentation that Bob Hunt made at the Federal Trade Commission's conference, "Collecting Consumer Debts: The Challenges of Change," October 10-11, 2007. The article is available at: www.philadelphiafed.org/econ/br/index.html.**

Robert M. Hunt, Senior Economist, Research Department, Federal Reserve Bank of Philadelphia

In this article, Senior Economist Robert M. Hunt explores how creditors and their agents attempt to collect past-due consumer debt, how debt collection has evolved into a multi-billion dollar business, and how various regulatory initiatives have influenced the industry. Hunt uncovers an evolution underway within the debt collection industry that is changing the ways in which creditors and their agents attempt to collect past-due consumer debt, particularly credit card and other unsecured debt.

Traditionally, firms have actively collected debts owed them by their own customers. This type of collection is known as first-party debt collection. However, more recently, other firms have begun to purchase debts that are (or were) owed to others. These firms are called third-party debt collectors, and, as Hunt notes, third-party debt collection is becoming a large and financially attractive business. In 2005, third-party debt collectors recovered $51 billion in delinquent debts, returning $39 billion to their clients, and employing more than 130,000 workers to do so. Moreover, these firms actively sought collection of more than $200 billion, contacting consumers over 1 billion times, and earning total revenues in excess of $11.4 billion.

What explains the rapid growth of this industry? Hunt provides several answers. First, he points to the volume of past-due consumer debt and the process by which creditors and their agents seek recovery of these debts. Hunt observes that, in 2006, total household indebtedness topped $13 trillion and that, if data gathered from 1992 through 2005 were reflective of 2006, approximately 4 million households were 120 or more days late on debt payments. Hunt notes that while many lenders must eventually write off much of these debts, many consumers who are behind on their payments do not seek bankruptcy protection immediately or at all. Hunt points out that no more than half of credit card debt written off by banks is triggered by the debtor's filing for bankruptcy. As Hunt states, "There is a considerable period in which creditors and their agents seek to recover past-due debts using persuasion as well as the contractual and legal remedies available."

Second, Hunt observes that creditors have changed their practices with regard to working with collection agencies. While creditors traditionally paid third-party debt collectors on a commission basis for debts collected on the creditors' behalf, during the 1990s they began selling bad debt outright to these firms. It is estimated that in 2005 creditors sold $128 billion (face value) in nonperforming consumer debt, two-thirds of which (approximately $88 billion) was defaulted credit card debt. Moreover, two-thirds of all bad credit card debt sold (approximately $65 billion worth) was sold directly by card issuers. These issuers received, on average, 4.5 cents for each dollar of face value, totaling roughly $3 billion. Today, it is estimated that debt buyers hold approximately $170 billion in uncollected credit card debt that is less then five years old (typically the point at which legal remedies are no longer available).

Third, Hunt points to changes in technology. As an example, he cites advancements in computer dialing programs that have increased the ability of debt collection agencies to contact more debtors. These programs are capable of determining what time of day is best to call, of quickly matching collection agents with debtors who pick up their phones, and of measuring response rates in real time. Moreover, improvements in sorting programs have enabled the prioritization of consumers from whom collection is most likely and eased the arduous process of organizing collection records. Productivity growth enabled by technology is evidenced by the 250 percent increase in the number of people employed within the collection industry, versus inflation-adjusted revenue growth of 360 percent, between 1982 and 2002. Hunt also points out that innovation in information technology has made ancillary activities such as skip tracing (the process of locating the current address and phone number of a debtor) more efficient.

Fourth, Hunt observes that state laws typically reward unsecured creditors who are more prompt in their collection efforts by offering them more senior claims (priority) on the consumer's assets or income not already pledged to repay secured debts. This creates an incentive for creditors and collection agencies to be vigilant in their collection efforts. In Hunt's words, "Knowing that other creditors are [racing to claim a debtor's limited assets or income], each creditor has an incentive to seek immediate repayment of his or her debt even if it comes at the expense of other creditors or induces a sale of the consumer's assets at fire-sale-prices."

Finally, Hunt turns his attention to federal laws, including the enactment of the Fair Credit Reporting Act of 1970 and the Fair Credit Billing Act of 1974. Hunt describes in detail the Fair Debt Collection Practices Act (FDCPA), the principal body of federal law regulating third-party debt collectors, which is primarily enforced by the Federal Trade Commission. Hunt notes that, unlike many other federal laws governing consumer credit, "the FDCPA acts as a floor for consumer protections rather than a ceiling," and that in the 30 years since passage of the FDCPA, many states have enacted more stringent regulation of debt collection practices.

Hunt concludes his article by drawing on economic theory. He notes that it has long been understood that as the costs of ensuring loan repayment increase, less credit will generally be available or will be offered on less advantageous terms. Moreover, he observes that as punishments associated with default increase, demand may decrease, since some consumers will choose not to borrow in the first place. Hunt draws attention to several studies that have analyzed the effects of regulatory restrictions on both the variety of remedies available to unsecured creditors and the supply and demand for loans. Hunt points out that while those studies laid a foundation for understanding the effects of these regulations on the supply and demand for credit, there has been very little research of this sort in recent years. Given the many changes in industry structure and collection practices outlined in his article, Hunt argues that it is time for renewed attention and study by economists and other scholars.

An Update on Trends in the Debit Card Market

The Payment Cards Center has followed consumers' rapid adoption of debit cards and the growth in the debit card market for a number of years. In 2004 the Center held a conference entitled "Prepaid Cards: How Do They Function? How Are They Regulated?" at which Ronald Congemi, president of Debit Services and Star Systems for First Data Corporation, delivered the keynote address, "Electronic Payments: Back to the Future." In that speech, Congemi made a number of forecasts about both signature- and PIN-based debit cards. He predicted that the growth of debit card transactions in the near future would be between 25 and 30 percent and that PIN debit growth would outpace signature growth. Moreover, he envisioned a convergence in pricing models from merchants' increased acceptance of PIN debit. While much of what Congemi predicted in 2004 has come true, the debit card market remains an evolving business, particularly in areas such as fighting fraud and creating comprehensive incentive programs.

To explore these areas and continue its study of the debit card market, the Payment Cards Center hosted a workshop on March 20, 2007, led by Stan Paur, chairman, PULSE EFT Association LP, a Discover Financial Services LLC company, and Tony Hayes, vice president, Dove Consulting.[1] During the workshop Paur and Hayes presented the results of their 2007 Debit Issuer Study,[2] (conducted with the participation of 55 PULSE brand debit card issuers of varying sizes) and shared insights gained from their research and experience. In her subsequent Discussion Paper, "An Update on Trends in the Debit Card Market,"[3] Industry Specialist Julia Cheney examines this study and

Julia Cheney, Industry Specialist, Payment Cards Center, Federal Reserve Bank of Philadelphia

describes trends affecting the debit card market, focusing on four key areas from the study: performance metrics, networks and interchange, debit rewards, and debit card fraud.

Cheney highlights several performance-based statistics noted by the study. First, debit cards have attained significant market penetration, with 72 percent of respondents' demand deposit accounts having an associated debit card. Second, cardholders actively use their debit cards, conducting 16.1 point-of-sale transactions per month. Third, the practice of charging consumers a fee for PIN-based transactions is generally trending downward. Last, respondent card issuers commonly identified two broad strategies designed to drive growth: (1) implementation and increased use of rewards programs, and (2) focused marketing initiatives specifically tailored to target populations.

With regard to network fees, Hayes noted that survey responses revealed some apparent confusion about PIN interchange fees and rates. While 66 percent of issuers reported knowing the average interchange rate they received for signature-based debit cards, only 29 percent knew what they received for PIN-based transactions. Based on the information provided by those respondent-issuers that track interchange revenues, the average interchange rate for signature debit card transactions was 1.38 percent, with PIN-based debit transactions averaging 0.52 percent. Both Paur and Hayes emphasized that most respondents expressed general optimism for debit card growth, despite some uncertainty about interchange rates received and the direction those rates were heading.

Examining the relatively recent phenomenon of debit card rewards programs, Cheney observes, and the study confirms, an overall increase in the number of debit cards that offer rewards. According to the Debit Issuer Study, 37 percent of all debit card issuers offer at least one debit rewards program to a portion of their cardholder base, and 20 percent plan to offer rewards for debit card use in the future. The concentration of rewards programs was highest among large banks: 68 percent offer some type of debit rewards programs. Of respondent-issuers' existing rewards programs, 63 percent applied only to signature-based transactions, while 37 percent applied to both PIN- and signature-based transactions. While debit rewards programs varied – including anything from point-based rewards currency, to airline miles, to cash back – 38 percent of PULSE's responding issuers cited being members of the "Visa Extras" program.[4] Paur and Hayes voiced their expectations that debit card rewards programs would increasingly become a competitive point of differentiation, especially among large banks. Furthermore, they predicted that banks and issuers would increasingly move to relationship-based rewards programs whereby points

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[1] Since the workshop, Tony Hayes has joined Oliver Wyman, a global strategy consulting firm.

[2] Available for purchase at: https://www.pulse-eft.com/public/research/consumerresearch.html.

[3] Available at the Center's website at: http://www.philadelphiafed.org/pcc/papers/2007/D2007June UpdateDebitCardMarketTrends.pdf.

[4] "Visa Extras" is a reward program that awards points for qualifying purchases made with Visa check or credit cards. More information on the "Visa Extras" program is available at: https://www.visaextras.com/?ep=a_cmp_akqa_search.

earned across a broader set of financial service activities would be combined into single reward accounts.

Finally, in her paper, Cheney highlights several key points related to the survey's findings on debit fraud, especially fraud related to PIN-based debit. Focusing on PIN-based debit card use at both ATMs and the point of sale, the survey found that while PIN-based fraud at ATMs accounted for respondent-issuers' largest dollar losses (totaling $415 million in 2005), PIN-based fraud losses at the point of sale increased faster than those at ATMs, nearly tripling from 2004 to 2005. Despite this increase, PIN-based point-of-sale losses remained at the very reasonable level of $21 million. Nonetheless, respondent-issuers expressed mild concerns over the growth rate of PIN-based debit fraud at the point of sale and evidence from several recent data breaches, suggesting that encrypted PIN information and other sensitive data had been compromised. Despite these growing concerns, however, levels of PIN-based debit card fraud remain significantly below those of signature-based cards. Losses from fraudulent signature-based debit transactions in the first quarter of 2007 approximately doubled those from fraudulent PIN-based debit incurred at ATMs and were nearly 10 times higher than fraudulent PIN-based point-of-sale transactions. Regardless, Paur and Hayes noted that respondent-issuers reported that they are making new investments and taking steps to mitigate the risk of fraud in PIN-based debit transactions.

Where Is the Missing Credit Card Debt? Clues and Implications

The Payment Cards Center makes information on relevant industry statistics available to researchers and individuals interested in the payment card industry, including the Tools for Researchers section of the Center's website. Tools for Researchers includes links to a Payments Bibliography, a payment cards Data Dictionary, and Articles on Consumer Credit and Payment Statistics. As the several papers included in the articles section emphasize, interpreting many of the commonly cited public reports on payment card data can be difficult because there are often multiple sources for seemingly similar statistics. Moreover, definitions and calculations of statistics are often difficult to find and interpret. In an effort to confirm details about definitions and calculations related to apparent consumer underreporting of credit card borrowing in the Federal Reserve Board's Survey of Consumer Finances (SCF), Payment Cards Center Visiting Scholar Jonathan Zinman[1] worked with the Center's research assistant Christopher Ody to examine the leading measurements of household credit card borrowing in his recent paper "Where Is the Missing Credit Card Debt? Clues and Implications."[2]

Jonathan Zinman, Assistant Professor of Economics, Dartmouth College

Analyzing the Federal Reserve Board's Statistical Release on Consumer Credit (known as the G.19) and the SCF, Zinman reasons that underreporting of household debt in the SCF may be less severe than previously believed. Making an initial comparison between the SCF's measure of revolving credit card debt and the G.19's measure of bank-reported revolving credit outstanding, Zinman notes that SCF households appear to underreport credit card debt by a factor of three. Looking more closely at what each data source measures, Zinman observes that since the G.19 data represent balance-sheet reports of outstanding debt owed to issuers, it is generally assumed to be an accurate measure. On the other hand, the SCF data are based on individuals' responses to a wide range of questions dealing with household finances. Consequently, it is not surprising that there would be differences between the two data sources. Zinman goes on to determine how much of the gap can be explained by methodological differences and then evaluates the usefulness of SCF data on credit card borrowing for research purposes.

Zinman finds that approximately one-third of the difference in the figures on outstanding debt is due to definitional distinctions. He notes that while the G.19 includes float, business use of personal cards, and noncredit-card lines of credit in its measure of outstanding debt, the SCF excludes these categories in its survey questions. When these definitional differences are accounted for, Zinman estimates that the underreporting of credit card balances in the SCF is reduced to a factor of two. Similarly, Zinman finds a disparity between the number of accounts reported by consumers in the SCF and the number of accounts reported by issuers in the G.19. He concludes that while "households report substantially fewer total accounts than issuers do, the gap narrows to a factor of less than 1.5 if one compares household reports to the number of active accounts in industry data."

In assessing the usefulness of SCF credit card data to researchers, Zinman finds that the adjusted SCF underreporting factor has held steady over a 15-year period (from 1989 to 2004), despite a significant increase in consumers' use of credit cards. During this period, 26 million new households entered the general-purpose credit card market and the proportion of overall credit card debt held on general-purpose

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[1] Jonathan Zinman is an assistant professor of economics at Dartmouth College. More information on Jonathan Zinman and Dartmouth's Department of Economics is available at: www.dartmouth.edu/~economic/faculty.html.

[2] Available at the Payment Cards Center's website at: http://www.philadelphiafed.org/pcc/.

cards rose from 74 percent to 88 percent. Despite these changes in consumers' use of credit cards, his analysis indicates that adjusted underreporting remained stable at a factor of two.

Finally, Zinman draws on the behavioral economics literature to suggest possible explanations for why households underreport credit card balances. These include the notion of a stigma associated with reporting a high amount of debt, effects of "survey fatigue," normal forgetfulness, survey respondents' limited attention spans, and respondents' failure to consider other family-held credit cards in the household. Zinman points out that, over time, important heterogeneity at the micro level might potentially be obscured.

Since credit cards are plausibly the marginal source of borrowing and consumption for many U.S. households, having accurate macro- and microeconomic data on household credit card use is particularly valuable to researchers and policymakers. By comparing existing data from two commonly used sources, Zinman reaches a positive finding: that households likely underreport their credit card data by a factor of two, not three as previously believed, and that this finding also appears relatively constant over time. In Zinman's words, "The results offer some reassurance for researchers interested in using micro data to study the role of credit card use in households' finances and their financial conditions."

Recent Developments in Consumer Credit and Payments

On September 20 and 21, 2007, the Payment Cards Center and the Research Department of the Federal Reserve Bank of Philadelphia co-sponsored the fourth conference in a series of joint research initiatives focusing on emerging issues in consumer credit and payments. Entitled "Recent Developments in Consumer Credit and Payments," the conference brought together Federal Reserve and academic scholars to present and discuss the latest research in these fields.

Charles Plosser, president of the Federal Reserve Bank of Philadelphia, welcomed participants on Friday morning. Focusing the audience's attention on the rapid innovation and growth in consumer credit markets over the past 15 to 20 years, President Plosser set the stage for ensuing discussions by addressing the impact of payment system changes and the evolution of financial systems on consumer credit and behavior.

The conference's call for papers attracted more than 100 high-quality submissions, from which six papers were selected for their originality and scholarship.

The full program agenda and copies of the papers are available at the conference website. A summary of the conference will be published in a forthcoming issue of the Research Department's *Business Review* and on the Payment Cards Center's website.

Conference Papers

"Liquidity Constraints and Imperfect Information in Subprime Lending"
Jonathan Levin and Liran Einav, Stanford University, and William Adams, Citigroup

"Information Technology and the Rise of Household Bankruptcy"
Borghan M. Narajabad, Rice University

"Who Makes Credit Card Mistakes?"
Barry Scholnick, University of Alberta; Nadia Massoud, York University; and Anthony Saunders, New York University

"The Age of Reason: Financial Decisions Over the Lifecycle"
Sumit Agarwal, Federal Reserve Bank of Chicago; Xavier Gabaix, New York University; David Laibson, Harvard University; and John C. Driscoll, Board of Governors of the Federal Reserve System

"Bankruptcy: Is It Enough to Forgive or Must We Also Forget?"
Ronel Elul, Federal Reserve Bank of Philadelphia, and Piero Gottardi, Università Ca' Foscari di Venezia

"Interest Rates and Consumer Choice in the Residential Mortgage Market"
James Vickery, Federal Reserve Bank of New York.

Discussants included, in order, Paige Marta Skiba, Vanderbilt University Law School; Kartik Athreya, Federal Reserve Bank of Richmond; Nicholas Souleles, University of Pennsylvania; Annamaria Lusardi, Dartmouth College; Anne Villamil, University of Illinois; and Brent Ambrose, Pennsylvania State University

Conference presenters (left to right): Borghan Narajabad, Rice University; Barry Scholnick, University of Alberta; Jonathan Levin, Stanford University; James Vickery, Federal Reserve Bank of New York; Ronel Elul, Federal Reserve Bank of Philadelphia; and John C. Driscoll, Board of Governors of the Federal Reserve System.

Conference discussants (left to right): Brent Ambrose, Penn State University; Anne Villamil, University of Illinois; Paige Marta Skiba, Vanderbilt University Law School; Nicholas Souleles, University of Pennsylvania; Kartik Athreya, Federal Reserve Bank of Richmond; and Annamaria Lusardi, Dartmouth College.

Recent Publications

The Payment Cards Center's commitment to industry analysis and research is fulfilled through its support of papers related to consumer credit and payments written by Center staff, visiting scholars, researchers affiliated with the Center, and economists in the Bank's Research Department. These papers can take several forms: Discussion Papers, Conference Summaries, Working Papers, or *Business Review* articles. Discussion papers and conference summaries are generally written by Center staff and are aimed at industry and policy audiences. Working papers are intended for the professional researcher and are written by Center visiting scholars and economists in the Bank's Research Department. The *Business Review* includes less technical articles written by economists in the Bank's Research Department. Recently published papers are available in pdf format on the Center's website. A chronological listing of papers posted to the website in 2007 follows.

2007

07-01 Information Security, Data Breaches, and Protecting Cardholder Information: Facing Up to the Challenges

07-02 Prepaid Cards: Vulnerable to Money Laundering?

07-03 General-Use Prepaid Cards: The Path to Gaining Mainstream Acceptance

07-04 Competitive Effects of Basel II on U.S. Bank Credit Card Lending

07-05 Bankruptcy: Is It Enough to Forgive or Must We Also Forget?

07-06 Collecting Consumer Debt in America

07-07 An Update on Trends in the Debit Card Market

07-08 A Quantitative Theory of Unsecured Consumer Credit with Risk of Default

07-09 Intellectual Property Rights and Standard Setting in Financial Services: The Case of the Single European Payments Area

07-10 Business Method Patents for U.S. Financial Services

07-11 Where Is the Missing Credit Card Debt? Clues and Implications

07-12 The Merchant-Acquiring Side of the Payment Card Industry: Structure, Operations, and Challenges

07-13 Payments, Credit, and Savings: The Experience for LMI Households

07-14 A Dynamic Model of the Payment System

07-15 Optimal Pricing of Payment Services When Cash Is An Alternative

07-16 The Anatomy of U.S. Personal Bankruptcy Under Chapter 13

Federal Reserve Bank of Philadelphia

Update

Payment Cards Center Newsletter

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The Payment Cards Center was established to serve as a source of knowledge and expertise on consumer credit and payments; this includes the study of credit cards, debit cards, prepaid cards, smart cards, and similar payment vehicles. Consumers' and businesses' evolving use of electronic payments to effect transactions in the economy has potential implications for the structure of the financial system, for the way that monetary policy affects the economy, and for the efficiency of the payments system.