An Update on Trends in the Debit Card Market

Julia S. Cheney*

June 2007

***Summary**: On March 20, 2007, the Payment Cards Center of the Federal Reserve Bank of Philadelphia hosted a workshop led by Stan Paur, chairman of PULSE EFT Association LP, a Discover Financial Services LLC company, and Tony Hayes, vice president of Dove Consulting, a division of Hitachi Consulting. Paur and Hayes shared findings from PULSE's 2007 Debit Issuer Study, conducted by Dove Consulting with 55 debit card issuers of varying sizes. In examining developments in the debit card market, Hayes and Paur shared survey results and provided additional insights into four key areas: performance metrics, networks and interchange, debit rewards, and debit card fraud. This paper describes trends and issues affecting the debit card market in each of these four areas, in an effort to expand understanding of this dynamic and increasingly important category of consumer payments.*

* Payment Cards Center, Federal Reserve Bank of Philadelphia, Ten Independence Mall, Philadelphia, PA 19106. E-mail: julia.cheney@phil.frb.org. The views expressed here are not necessarily those of this Reserve Bank or of the Federal Reserve System.

FEDERAL RESERVE BANK OF PHILADELPHIA

Ten Independence Mall, Philadelphia, PA 19106-1574 • (215) 574-7220 • www.philadelphiafed.org/pcc

I. Introduction

On March 20, 2007, the Payment Cards Center of the Federal Reserve Bank of Philadelphia hosted a workshop led by Stan Paur, chairman of PULSE EFT Association LP, a Discover Financial Services LLC company, and Tony Hayes, vice president of Dove Consulting, a division of Hitachi Consulting. PULSE EFT Association, acquired by Discover Financial Services in 2005, is the third largest electronic funds transfer network in the United States, serving more than 4,400 banks, credit unions, and savings institutions across the country. In 2006, 1.8 billion debit card transactions were processed over this network, a growth rate of approximately 17 percent over the total number of transactions processed in 2005. Paur served as president and chief executive officer of the PULSE EFT Association for 23 years prior to being named chairman in March 2006. Dove Consulting is a well-recognized research and consultancy firm in the financial services industry, providing analysis on a range of related topics, including consumer electronic payments. Hayes has been with Dove Consulting for over 13 years and has led the firm's financial services industry practice for the last five years.

PULSE EFT Association and Dove Consulting collaborated on the 2007 Debit Issuer Study,[1] a survey conducted with 55 debit card issuers[2] of varying sizes. The research focused on four key areas influencing the development of the debit card market: performance metrics, networks and interchange, debit rewards, and debit card fraud.[3] Hayes presented the results of their study in each of these areas, and then, Paur and Hayes shared insights gained from this research. This paper describes trends and issues affecting the debit card market in each of these

[1] For more information on the 2007 Debit Issuer Study, the related press release by Dove Consulting and PULSE EFT Association LLP can be found at www.doveconsulting.com/onpayments/article_downloads/News_2007_Debit_Issuer_Study_22807.pdf.
[2] Together these issuers represented 62.3 million debit cards, or 22 percent of the 279.71 million debit cards in the market in 2005. (*The Nilson Report*, Issue 865, September 2006)
[3] Data used for the analysis of performance metrics, networks and interchange, and debit rewards were reported as of July 2006. The data used to measure debit card fraud were reported for the calendar year 2005.

four areas, in an effort to expand understanding of this dynamic and increasingly important category of consumer payments.

II. Performance Metrics

The survey was designed to provide a picture of the debit card market today, including recent growth dynamics and issuers' expectations for the future. Hayes shared survey results on debit card issuers' penetration, activation, and usage rates as well as the incidence and growth trends for several fee categories: PIN transaction fees, foreign ATM fees, and overdraft fees. Finally, Hayes and Paur discussed issuers' strategies for building their portfolios and respondents' projections for future growth in the debit card market.

Hayes reported that debit card penetration, defined as the portion of demand deposit accounts having a debit card associated with the account, averaged 72 percent across all respondents; the top quartile of issuers, in terms of penetration performance, reported an average 89 percent penetration rate. As Hayes emphasized, these results reflect an increasingly mature market with relatively little scope for expanding consumer penetration rates. Respondents characterized 85 percent of these debit cards as dual function or as offering both signature and personal identification number (PIN) authorization capabilities, 14 percent as PIN-authorization-only cards, and 1 percent as signature-authorization-only cards.

Turning to activation rates, Hayes observed that debit card issuers' definitions characterizing an active card varied both in terms of the type and the recency of a transaction. Issuers classified a debit card as being active if it was used for i) a signature point-of-sale purchase, ii) any point-of-sale purchase (signature or PIN authorized), or iii) any point-of-sale purchase or ATM transaction. The time frame within which an active account holder must have made his or her last transaction ranged, depending on the issuer, from at least once in the last 30 days to ever within the life of the account relationship. Most issuers defined an active card as one used for a signature-authorized point-of-sale transaction at least once in the last 30 days. The next most common definition allowed for any debit transaction, either at the point of sale or at an ATM, in the last 30 days. Of the issuers surveyed, a 56 percent portfolio active rate was reported for those using the signature point-of-sale-only criteria and a 70 percent rate for those allowing any debit transaction to qualify an active card.

In addition to providing estimates of active rates for debit card portfolios, the survey yielded usage data at the account level. Survey results showed that active cardholders completed 10.6 signature debit transactions plus another 5.5 PIN debit transactions, for a total of 16.1 point-of-sale debit card transactions per month. The average transaction size was $39.72 for signature debit card transactions and $41.53 for PIN debit card transactions.[4]

Debit card users can be subject to direct fees from their financial institutions for particular transactions. To better understand how these fee structures affect debit card users and how they may have changed over time, the survey probed three fee categories: PIN transaction fees, foreign ATM fees, and overdraft fees. As of July 2006,[5] 28 percent of survey respondents noted that they charged some portion of their customers a fee for PIN debit card transactions. At the same time, the survey results suggested that these fees affected only 5 percent of cardholders. Reported fees for PIN transactions ranged from $0.21 to $1.00, averaging $0.48. Hayes noted that the number of issuers charging PIN transaction fees and the number of consumers paying them have been declining in recent years. With regard to foreign ATM fees, the survey found that 85 percent of issuers charged a fee when a customer used another bank's ATM. The survey results revealed some differentiation by type of bank: The 15 percent of issuers that did not charge this fee were characterized mostly as credit unions and community banks. The average fee for foreign ATM use was reported to be $1.44.

---

[4] For comparison purposes, according to data from *The Nilson Report* (Issues 842 and 865), the size of signature debit card transactions increased modestly (~ 1.5 percent) from 2004 to 2005, increasing from $39.73 to $40.33. Over the same period, the size of PIN debit card transactions grew at a much faster rate, reaching $37.09 in 2005, an 11 percent increase over 2004.

[5] As previously noted, survey respondents reported performance metrics data as of July 2006.

Hayes also identified a relatively new feature of many banks' debit card programs that may provide an additional source of income. A number of banks indicated that purchases can be authorized even when there are insufficient funds in the underlying demand deposit account at the time of the transaction, in essence allowing cardholders to overdraw their accounts. Until only a few years ago, standard industry practice was to decline such transactions. The survey found that today, offering some form of overdraft protection and charging a fee to do so is becoming more common: While only 34 percent of debit card issuers offered overdraft protection in 2003, this percentage had nearly doubled three years later. During the workshop discussion, participants noted that this practice is gaining public attention, with several industry commentators arguing for clearer disclosure practices to help consumers understand that their demand deposit account will be overdrawn if they initiate debit card transactions with an insufficient balance.

In sum, the 2007 Debit Issuer Study highlighted debit cards as having attained significant market penetration: 72 percent of respondents' demand deposit accounts have a debit card associated with them. Moreover, 70 percent of all debit cards managed by the issuers were deemed active when defined as any type of debit card transaction within the last 30 days, and, on average, cardholders were using their debit cards to make 16.1 point-of-sale transactions per month — all of which points to very positive penetration, activation, and usage rates in the debit card market as of the July 2006 survey date, despite certain fees associated with these card programs. With regard to fees, the research indicated that issuers' use of PIN transaction fees was decreasing, foreign ATM fees were seemingly holding steady, and overdraft fees were not only being charged by more issuers but were also coming under increasing scrutiny as debit cards gain more prominence as a payment method of choice for a growing number of consumers.[6] Hayes

[6] According to the 2004 Federal Reserve Payments Study, debit card transactions increased 23.5 percent from 2000 to 2003. In comparison, credit card payments increased 6.7 percent, ACH transactions increased 13.4 percent, and check payments decreased 4.3 percent. For more information, see www.frbservices.org/Retail/pdf/2004PaymentResearchReport.pdf.

emphasized that balancing portfolio growth objectives with program servicing fees continues to be an ongoing strategic focus in the debit card market.

As debit card issuers look to continue market expansion in the coming years, Paur and Hayes identified two broad strategies that respondents generally identified as part of their plans to drive growth: rewards programs and targeted marketing initiatives. As described in more detail in a later section, rewards programs, Hayes observed, seem to be taking a more integrated approach across an issuer's relationship with its customers. As a result, these programs may not be limited to rewards earned for debit card use but, rather, tie more broadly to other retail transaction, credit, and savings activities. Paur noted that many of the issuer respondents are also planning to use data mining and customer segmentation strategies to improve target-specific marketing. These more advanced techniques, long associated with credit card issuers, are expected to enhance penetration, but particularly activation and usage rates, and, thereby, overall portfolio performance. In fact, Hayes noted that respondents projected an overall growth rate in debit card transaction volume of 16.8 percent over the next year, with PIN debit growing slightly more than signature debit.

III. Networks and Interchange

As described by Hayes, one of the survey research objectives was to gain a sense of how issuers tracked the specific economics associated with signature and PIN debit card transactions and, specifically, how interchange income was analyzed at a portfolio level. He noted that issuers face challenges tracking debit card interchange rates because of the complexity in the rate schedules and, specifically, because these rates may vary not only by merchant segment and volume tier but also by particular merchants based on specially negotiated arrangements.

The survey results revealed that tracking interchange revenue can be difficult for issuers, particularly regarding fees associated with PIN debit card transactions. As Hayes described, PIN debit grew out of the ATM environment where cards were used solely as ATM access devices.

With the introduction of PIN debit card use at the point of sale and its own unique interchange structures, in many cases, the reporting of PIN debit card activity did not adapt. All PIN debit card activity, both at the point of sale and at the ATM, was combined into a single report, making it challenging to track PIN debit point-of-sale interchange revenue.[7] With many financial institutions participating in multiple PIN debit networks, this challenge was further heightened. The subsequent expansion of fee structures for signature and PIN debit has left many issuers with a less than full understanding of the interchange revenues they receive for debit card transactions. To illustrate this point, Hayes noted that 66 percent of the debit card issuers reported knowing the average interchange rate they received for signature debit card transactions, while only 29 percent of issuers knew this rate for PIN debit card transactions.

Hayes noted that issuers tracking interchange revenues reported an average interchange rate of 138 basis points for signature debit transactions and 52 basis points for PIN debit transactions. On average, 80 percent of the signature and 88 percent of the PIN interchange fees were reported as paid to the bank, with the remainder paid to the networks. As respondents assessed where debit card interchange fees would move in the future, most of those surveyed expected the gap to narrow between signature and PIN debit card transactions. Hayes and Paur emphasized that despite some level of uncertainty about interchange rates received and where these rates may move to in the future, most respondents expressed a generally optimistic outlook for debit card growth. In fact, several respondents commented that while debit card growth may slow from the current high rates, they believed that the convenience and flexibility provided by debit cards will continue to make them one of the most popular forms of consumer payment.

[7] While ATMs and the first PIN-secured cards were made available in the mid-1960s, PIN debit card use at the merchant point of sale was initially introduced in supermarkets in the 1980s but didn't gain wider acceptance at merchant locations until the mid- to late 1990s. For more information, see Stan Sienkiewicz, "The Evolution of EFT Networks from ATMs to New On-Line Debit Payment Products," Payment Cards Center, April 2002; available at www.philadelphiafed.org/pcc/papers/2002/EFTNetworks_042002.pdf.

IV. Debit Rewards

Turning the discussion to debit rewards programs, Hayes shared survey results showing that 37 percent of issuers now offer such a program for a portion of their cardholder base and another 20 percent are considering offering one. Of these rewards programs, 63 percent applied to signature debit card transactions only; the remainder rewarded customers for either signature debit or PIN debit transactions. Debit rewards programs also varied with regard to the type of rewards currency, including, for example, points, airline miles, or cash incentives. In addition, as previously mentioned, enterprise rewards earned across the customer relationship were shown to be gaining traction. The survey results clearly identified points-based rewards as being the most popular among issuers, and, in fact, Visa Extras, a points program, was offered by 38 percent of issuers with a debit card rewards program.

Hayes and Paur noted that debit card rewards programs are a relatively recent phenomenon, especially with respect to PIN debit card purchases. At the same time, Paur observed that rewards appear to be becoming a competitive point of difference in the debit card market, especially among large banks. In fact, 68 percent of those larger banks surveyed offered a debit card rewards program to some portion of their cardholders. While more debit card issuers are using rewards, Paur emphasized that such programs are still far less prevalent and, he believed, had yet to prove themselves as successful as similar programs in the credit card market in increasing transaction activity and cardholder loyalty.

Paur suggested that debit card rewards programs' penetration into an existing portfolio may be inhibited by issuers' tendency to require debit cardholders to opt in to programs as opposed to an automatic enrollment process. Other reasons these programs may be less successful than their credit card counterparts, Hayes posited, include the relative newness of debit card rewards programs and potential confusion about the various types of rewards being offered. Of perhaps greater significance, he suggested that because debit card programs operate on smaller margins than do credit card programs, rewards tend to be less generous. Given a choice, the rewards-motivated consumer will more likely use her credit card. Hayes echoed earlier comments in predicting that, in response, more banks will consider enterprise-wide rewards programs whereby customers earn rewards for a range of activities conducted with a single financial institution. Using such programs, bank customers may earn more or less rewards currency – for example, points, miles, or cash – for particular activities, such as transaction, credit, or savings activities, but, importantly, these rewards can be combined, allowing customers to earn rewards faster in the aggregate and, hopefully, assign increased value to their relationship with a single financial services provider.

V. Debit Card Fraud

Hayes emphasized the significant attention given by the payment card industry, including debit card issuers, to managing fraud risk. In today's increasingly electronic payments environment, he noted that the methods used to perpetrate payment card fraud and the sophistication of such attacks are ever evolving and, therefore, continue to challenge issuers and networks to stay one step ahead of criminals. Moreover, payment card fraud is shifting from attacks on individual card accounts perpetrated locally to attacks on data systems by sophisticated, and sometimes global, fraud rings that not only steal but also sell cardholder information over the Internet.[8]

Hayes pointed to recent merchant data breaches as examples of the movement toward attacks on data systems rather than individual accounts. These breaches have reportedly exposed tens of millions of cardholders' data and represent potentially significant consequences for the payment card industry. Hayes discussed several areas where the survey touched on the growing incidence of data breaches and highlighted respondents' emerging strategies to mitigate risks and

[8] For more information on the risk implications associated with data breaches, see the Payment Cards Center Conference summary, "Information Security, Data Breaches, and Protecting Cardholder Information: Facing Up to the Challenge," available at www.philadelphiafed.org/pcc/conferences/2007/C2006SeptInfoSecuritySummary.pdf.

support cardholders. He noted that in the survey, 90 percent of issuers reported being notified that their cards may have been affected by a merchant breach and that between 1 and 40 percent of their card portfolios could have been compromised as a result. When further examining survey results, Hayes found that, on average, issuers reported that 8 percent of their card portfolios could have been compromised. Of this 8 percent, the percentage of cards that were involved in actual fraud was believed to have been, on average, less than 5 percent (i.e., 5 percent of 8 percent, or less than 0.4 percent of an issuer's card portfolio).[9] Hayes noted that in many of these cases, issuers' responses addressed the possible fraud risks across all potentially compromised accounts rather than only those accounts that actually suffered losses. In so doing, most issuers either selectively or automatically reissued cards to customers identified as being part of the larger data breach, incurring significant costs. Hayes postulated that as issuers gain more experience managing their customer relationships in response to merchant data breaches, these costs will decrease over time as issuers' responses become more finely tuned to the actual risks to individual cardholders, consumers become better educated, and risks become better communicated.

An important finding from the survey, Hayes noted, was that PIN debit card fraud is an area of increasing concern among issuers. In several recent data breaches, thieves were able to steal not only card numbers and encrypted PINs but also the "keys" necessary to decipher the PINs. This latest threat has focused PIN debit card issuers' attention on strategies, as will be discussed in a later paragraph, to further secure PIN debit card transactions.

To put PIN debit card fraud in context, Hayes shared industry estimates developed using data provided by survey respondents. He noted that while industry losses due to debit card fraud – including both signature and PIN based – increased 21 percent from $546 million in 2004 to

[9] For comparison purposes, in a January 2006 report, "National Data Breach Analysis," ID Analytics analyzed the risk that an individual's information, obtained in a data breach, was actually used in an attempt to commit fraud. They found that in a data breach of more than 100,000 consumer identities, the "misuse" rate was less than 1 percent. To see the report's executive overview or to obtain the full report, visit www.idanalytics.com.

$662 million in 2005, PIN debit card fraud at the point of sale almost trebled, increasing from $8 million in 2004 to $21 million in 2005. Hayes emphasized that while this is a significant increase in percentage terms, the dollar losses associated with PIN-debit use at the point of sale remains quite low in absolute terms, especially when compared to signature debit card fraud at the point of sale ($247 million in 2005). PIN debit card fraud at ATMs was also shown to be a more significant risk, with losses of $415 million in 2005.

From the perspective of a financial institution, the relevant fraud metric is debit fraud losses as a percentage of total debit card purchase volume. In 2005, issuers experienced a net fraud rate of 4.71 basis points on signature debit card purchases and 0.61 basis point on PIN debit card purchases. (That is, for every $100 spent on a debit card, on average, financial institutions lose 4.71¢ on signature transactions and 0.61¢ on PIN transactions.) On a relative basis, therefore, the loss rate on signature debit transactions is 7.7 times higher than on PIN debit. [10]

While PIN debit card fraud at the point of sale remains relatively low, it is obviously increasing and, Hayes noted, issuers are developing and applying new strategies to address the risks presented by the use of PIN debit, along with continuing efforts to combat signature debit card fraud. These strategies included use of CVV/CVC checking, fraud detecting neural networks, and international transaction blocks. The CVV/CVC number is a security code embedded in the magnetic stripe of a plastic payment card. It can be used by issuers to provide additional assurance that the card has not been counterfeited when it's used at the point of sale or at an ATM. Hayes noted that most large issuers are currently verifying CVV/CVC and many others are in the process of implementing these checks. In addition, many merchants are requiring online customers to provide the CVV2/CVC2 number, a three- or four-digit code written on the plastic card itself, as a mechanism to verify that the physical card is in the possession of the

[10] As reported in a recent Payment Cards Center discussion paper, "Supply- and Demand-Side Developments Influencing Growth in the Debit Market," a STAR and First Data Corporation study, the POS Debit Issuer Cost Study, estimated that average fraud losses as a percentage of purchase volume were four times greater for signature than for PIN debit programs.

person making the online purchase. Next, Paur highlighted debit card issuers' increasing use of data mining and neural networks in their efforts to identify potentially fraudulent transactions. He noted that many debit card issuers are leveraging cardholder data to evaluate fraud risk at the transaction level for both PIN and signature debit cards. Finally, Hayes and Paur discussed a more drastic strategy increasingly being used by debit card issuers to limit the debit card fraud perpetrated globally: blocking transactions from certain high-risk countries for a limited period or, even, indefinitely. For example, if a debit card issuer identifies a surge in fraudulent transactions from Country A, the issuer may decide not to authorize transactions from this region for a specified period in an effort to limit its and its customers' exposure. Obviously, this last tool is one that must be weighed against the potential harm to cardholders who are legitimately attempting to access deposit account funds internationally.

In closing, Paur and Hayes stressed the ongoing and strong commitment of debit card issuers, indeed all payment card issuers, to limiting fraud and to protecting the integrity of all consumer payment applications.

VI. Conclusion

As evidenced by the results of the 2007 Debit Issuer Study, the debit card market is continuing to evolve and grow. Portfolio performance metrics are strong, with issuers using cardholder rewards incentives and a keen focus on limiting fraud in efforts to motivate increased use of this type of consumer payment. Hayes and Paur observed that since debit cards are playing an increasingly integral role in a bank's broader relationship with its financial services customers, more focus is being given to the distinct economics of debit cards, apart from the demand deposit account, as well as to strategies, such as enterprise rewards, to enhance overall portfolio performance. Given these market dynamics, Hayes and Paur echoed the perspective of many of their survey respondents in predicting continued strong growth in the debit card market for consumer payments.