Will Online Bill Payment Spell the Demise of Paper Checks?

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Summary: *Over the past several years, the emergence and adoption of electronic payment instruments have acutely affected check usage. This transition has been especially evident at the point of sale as debit and credit cards have become pervasive. Today, the rapid growth of online bill payment looks to threaten checks' last redoubt. However, bill payment technology is still in its adolescence; the interplay of many stakeholders in the industry, including technology firms, banks, billers, payment cards, and customers, has led to rapid, unscripted innovation in just a few years. This paper quantifies some of the trends in the industry while addressing the interests and impact of the market's prime movers in an effort to determine to what extent the displacement of checks will continue.*

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Introduction

Over the last 15 years, America has witnessed a marked reduction in the importance of checks as a mode of consumer payment, reaching a point where the number of electronic payments exceeds the volume of checks. According to Federal Reserve research, in 2003, for the first time, electronic payments, including credit and debit transactions, ACH transfers, and electronic benefits transfers (EBT), reached 44.5 billion transactions, surpassing check payments, which accounted for only 36.7 billion transactions.[1] This represents an average decline of 4.3 percent in check volume per annum since 2000 versus growth of 13.2 percent per year for electronic payments during this period.[2]

By far the most pronounced reduction in check usage has been at the point of sale (POS). But for the purpose of paying bills, it appears that consumers have been slower to adopt electronic forms of payment. For example, in 2000, even after several years of steadily diminishing use, 80 percent of the 15 billion to 17 billion consumer bills issued were paid by check.[3] Practically, it has been more difficult for researchers to precisely identify which alternative payment methods are supplanting checks and where it is happening because of the scope and diversity of check usage.

The Federal Reserve's 2002 Retail Payments Research Project has been one of the most far-reaching, definitive surveys thus far to tackle this question.[4] Commenting on its results,

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[1] Geoffrey R. Gerdes, S. Levy, et al., "The Depository Institutions Payments Study," The Federal Reserve System, 2004, pp 21-25.

[2] While the volume of check usage declined from 2001-2003, the *value per check* increased. The Depository Institutions Payments Study suggests that this could be due to the increased frequency of comparatively lower value consumer payments being converted to electronic transactions faster than typical business transactions and greater use of debit cards at the point of sale (POS).

It is interesting to note that from 1979 to 2000, the value per check *decreased* significantly, from $1,544 to $925. (See Geoffrey R. Gerdes and J.K. Walton II, "The Use of Checks and Other Noncash Payment Instruments in the United States," *Federal Reserve Bulletin*, August 2002.) The authors note that this progression likely occurred as bank-to-bank and bank-to-business transactions moved onto systems like Fedwire and CHIPS.

[3] Alexandria Andreef, L. Binmoeller, et al., "Electronic Bill Presentment and Payment – Is It Just a Click Away?" *Economic Perspectives*, Federal Reserve Bank of Chicago, Q4, 2001.

[4] This project actually integrated data from three separate surveys: the Depository Institutions Study, the Check Sample Study, and the Electronic Payment Instruments Study.

Geoffrey Gerdes and J.K. Walton found that 29 percent of retail check transactions occurred at the point of sale, 36 percent involved bill payment, and 13 percent involved either POS transactions or bill payments.[5] Debit transactions accounted for a significant portion of changing transaction mix, but importantly, this survey also revealed early signs of the impact of online bill payment as well.

Since the commission of this Federal Reserve survey, online bill payment has been garnering even greater attention, with anecdotal evidence and more recent studies attesting to its growing influence. But while growth is evident, it is uneven, and the impact of rapidly evolving technology, the many stakeholders, and the interplay between supply and demand factors have added much complexity to the development of this electronic payments application. The landscape has changed substantially in the past five years, and expected developments, such as the ascendancy of bank-based solutions, have been slow to materialize.

Because of the difficulty of delineating the impact of the various forces acting on and in the industry, some industry watchers now wonder to what extent online bill payment will continue to supplant check usage beyond what has occurred thus far. This paper is intended to advance this discussion by first offering a brief overview of how online bill payment works and qualitatively evaluating several of the primary actors likely to play a major role in its growth, focusing particularly on the actions and characteristics of technology firms, payment cards (issuers and networks), banks, billers, and consumers. It concludes by considering available data on the current environment and citing estimates of growth going forward. While there are many confounding factors that could potentially affect the pace of change, the author finds that today there is mounting empirical evidence that accords with structural changes occurring in this market, suggesting the transition from paper-based bill payment to electronic means may likely continue, if not accelerate.

[5] See G.R. Gerdes and J.K Walton, II (2002).

Principal Online Bill Payment Models

Today, there are two principal modes of electronic bill payment: the "biller-direct" method and the "consolidator" approach. The former approach is rather straightforward: an individual biller such as a utility presents a consumer's bill on its own web site along with the ability to capture payments. While the development and even ultimate provision of such services may be outsourced to a third-party firm such as CheckFree, the customer is presented with an integrated service directly accessible from the merchant's web site.

This model has offered certain advantages and disadvantages. The consumer receives a content-rich presentation of his or her account detail. The merchant has access to all relevant customer data and has domain expertise, ensuring that presentation is congruent with content. It is also often free for the consumer. However, fragmentation is a concern – customers must visit each merchant individually, typically monthly, and ultimately track many independent due dates.

Bill consolidation is the other main electronic bill payment option. Here, customers are offered an integrated platform with common interface that consolidates bills from multiple sources. This consolidated presentation, the automatic tracking of due dates, and the elimination of paper statements are seen as a substantial benefit to the consumer. However, it is often more complicated than the biller-direct model, especially during the initial phase, since biller information must be collected and entered from different sources that often employ different means of presenting billing and contact information. Studies have indicated a steep learning curve and attendant difficulty or reluctance for consumers to establish the many necessary connections with individual merchants necessary to maximally benefit from this product. Other drawbacks may include a monthly fee, lack of legal precedent with regards to the responsible parties if billing or payment data are compromised, and a lack of standards governing the way bills and related information are ultimately displayed to the consumer by the consolidator.[6]

[6] Alexandria Andreef, L. Binmoeller, et al., "Electronic Bill Presentment and Payment – Is It Just a Click Away?" *Economic Perspectives*, Federal Reserve Bank of Chicago, Q4, 2001.

Payments can be completed by the consolidator automatically creating and mailing actual paper checks, or via ACH transfers, MasterCard RPPS, EFT networks, credit card, debit card, and so forth. [7] Notably, although the landscape has changed slightly over the past few years, at the close of 2001, it was estimated that 40 percent of payments made on behalf of consumers through online channels were still fulfilled by check, with approximately 60 percent completed electronically – mostly through the ACH system.[8] Independent of increased consumer interest, expected further interoperability between entities, better biller acceptance, and technological development will continue to reduce this particular role of checks in the bill payment process.

The Role of Third-Party Technology Providers

While banks, portals, and merchants are customers' front door to electronic bill payment, in many cases, the actual facilitators are the third-party providers, such as CheckFree, Princeton eCom, Metavante, BillMatrix, and others, that offer outsourced bill payment technology solutions. The proliferation of such outsourcing firms over the past few years, validated by private equity investments from major commercial and investments banks, attests to the level of industry interest in the many sides of this business.

But this variety of providers and techniques also suggest a technology still in its formative phase. In such an environment, banks and other institutions potentially benefit from price competition among the many technology vendors, while consumers benefit from a broad array of product features and approaches. On the other hand, this fragmentation and the influx of new entrants have confounded the establishment of a uniform presentment standard, potentially delaying the process of consumer adoption, and have complicated the process of biller/consolidator integration. However, there are two emerging protocols – open financial exchange (OFX) and interactive financial exchange (IFX) – that have gained traction as nascent

[7] For a more detailed discussion of the mechanics of electronic payments, please see Robert Hunt, "An Introduction to the Economics of Payment Card Networks," June 2003.
[8] See Alexandria Andreef, et al. (2001).

means to provide for standardized data communication between billers and consolidators, potentially further abetting adoption among banks and billers.[9]

Payment Card Issuers and Networks Are Becoming More Involved

In addition to functioning as a generic mechanism to effect payments for stand-alone biller-direct or consolidator sites, many payment card companies have also staked a claim on the front-end and are promoting bill payment solutions to customers. Some card issuers, such as MBNA, offer free consolidated bill payment on their sites, incorporating a variety of settlement mechanisms, including ACH and, of course, payments cards, on the condition that consumers use the issuer's credit cards to pay at least several bills per month.[10] These card issuers benefit directly from increased interchange fees and indirectly from the benefits associated with running a consolidated payment site.

Less formal, ad hoc payment card-based solutions can likewise present several benefits for consumers, including an intuitive, familiar interface, existing consolidated end-of-month reporting, and potentially, reward points. As buyers have flocked to the Internet to purchase goods and services, the act of entering credit card information has become second nature. This contrasts with usage of the ACH system for direct debit, for which customers generally must look up financial institution identifiers and their DDA account information to establish a payment with a biller for the first time. Credit card fulfillment merely requires copying a number off the card in a person's wallet. Moreover, many consumers regard their credit card statement as an additional means of payment reconciliation and accounting. By shifting recurring payments to this mechanism, consumers gain use of a familiar, integrated picture of their entire spending behavior—achieving a form of records integration with little incremental effort.

[9] See Alexandria Andreef, et al. (2001).
[10] See http://www.mbna.com/billpaychoice/?refid=16&originalQueryString=refid%3D16 for a description of the terms and conditions associated with this service.

Card-related firms have also driven important innovation on the "back end" of the online payments system. MasterCard, in addition to promoting its branded credit card to billers and consumers for bill payment, has developed a new, complementary business line targeted to banks for use in others' bill consolidation efforts.[11] MasterCard's RPPS service is an open network switch architecture that piggybacks on the card network's risk management and settlement infrastructure to offer connectivity between virtually any bank and biller, completing transactions, end to end, in 24 hours.

Banks' Promotion of Online Bill Payment Is Growing

Banks have realized that benefits of online banking and bill payment are significant; many institutions have responded by making provision of such services a major strategic initiative over the past few years. They've found that online banking customers, and online bill paying customers in particular, are more profitable, [12] make fewer customer service calls, are more amenable to cross-selling of related services (visiting online banking sites 40 percent more than nonbill-paying customers[13]) and, ultimately, are more loyal. For instance, Wells Fargo disclosed that online customers were 50 percent less likely to leave the bank than other customers, and online bill payers were 70 percent less likely to leave.[14] These findings were echoed by a comScore Networks study that found online bill payment users were twice as likely to remain active banking customers compared to nonpayment customers – with attrition rates from Q2 to Q4 2002 of 16 percent and 34 percent, respectively.[15]

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[11] See http://www.mastercardintl.com/rpps/lvl2.cgi/about_1.
[12] A Boston Consulting Group study indicated that with an effectively administered program, online bill payment customers could be *40 percent* more profitable than their offline counterparts. See Carl Rutstein and Jack Whitt, "Online Bill Payment: A Path to Doubling Profits," The Boston Consulting Group, November 2003.
[13] Deena M. Amato-McCoy, "Creating Virtual Value," *Bank Systems and Technology*, May 2005.
[14] See Speer and Associates (2005).
[15] Press Release, "comScore Quantifies Positive Economic Impact of Online Bank Bill Payment Services," comScore Networks, April 21, 2003, available on the Internet at http://www.comscore.com/press/release.asp?id=323

Perhaps even more important for banks than customer "stickiness," the study also found that online bill payment customers maintained an average balance of $4,800 versus $2,400 for regular online banking customers and were more often younger with higher incomes. Bank of America found that bill-pay customers maintain higher deposit balances and have shown a 45 percent increase in the size of their loan balances.[16]

Banks also benefit from increased payment card usage for bill payment. First, the issuing bank will be able to accrue interchange fees for debit or credit card use rather than incurring additional expense to provide ACH transfers. Second, promoting these payments captures substantial additional card transaction volume and helps to make the bank's payment card even more valuable to the consumer, potentially further cementing customer loyalty.

Additionally, to the extent that consumers prefer a truly integrated approach to bill payment, banks currently enjoy an additional, if fleeting, advantage over billers and third-party consolidators. There continue to be billers that have little ability to receive and process electronic payments. Banks' "pay anyone" capability, initiated by the consumer at the bank's bill-paying site but ultimately completed as the bank or its processor mails a paper check, provides a more complete solution today to customers that truly seek an integrated, cohesive solution, than what they could find elsewhere.

Finally, customers are already accustomed to conducting financial transactions through banks, offering banks a further comparative advantage over third-party consolidators, especially with regard to perceived security and trust. They have the ability to show multiple account balances at once and to pay bills from multiple accounts, which can serve as a useful budgeting tool. To the extent that they can continue to overcome the technology hurdles, banks, it is argued, are also potentially better positioned to imitate the value-added services of products like Quicken more effectively than nonbank portals.

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[16] Lauri Giesen, "Why EBP Is Hot," *Digital Transactions*, November 2004.

How Banks Are Responding to Implementation and Acceptance Challenges

Nevertheless, significant supply-based challenges do exist for banks, especially the smaller institutions. Providing online bill payment is expensive, with costs totaling $1 billion per year industry-wide.[17] Regional and community banks typically lack the marketing capabilities to convince customers of the value inherent in online bill payment, don't have access to the same favorable demographic segments, and often lack the scale and resources necessary to make the initial investment or allow the ongoing service to be free to consumers.[18] Because offering free online bill payment may not directly generate revenues, small banks have thus far had difficulty getting bill-payment initiatives off the ground.

If supply-based obstacles are overcome, demand-based, or customer behavior-based impediments may remain. Surveys suggest that consumer adoption of online banking, and bill payment in particular, is ultimately influenced by several distinct drivers, including fees, speed of execution, the type of bill involved, and security concerns. But efforts to address some of these impediments have already had a measurable, positive impact on consumers' adoption of bank-based bill-payment services.

Bank of America was among the first to take the plunge to eliminate fees (in 2002) and has been joined by Bank of New York, BB&T, Citibank, PNC Bank, Wells Fargo, US Bancorp, Wachovia, Sovereign Bancorp, and Huntingdon Bancshares among others—all of which offer some form of free online bill paying. At the close of 2003, 78 percent of the top 50 U.S. Banks and thrift holding companies offered some sort of no-fee online bill payment, and 32 percent offered it completely free.[19] Subsequent evidence suggests that these percentages have increased since.

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[17] Peter Lucas, "A New Dawn for Online Bill Payment," *Credit Card Management*, March 1, 2005.
[18] Karen Epper Hoffman, "Electronic Bill Payment Comes of Age," *America's Community Banker*, July 2002.
[19] TowerGroup, "Processing Bill Payments In-house: Is There a Business Case for an Internal Warehouse?" December 2003.

One internal survey speaks to the impact of fees on the adoption of bank-based payment services. Online Resources Corp., a third-party provider of services for 700 banks and billers, noted that among its clients, 40 percent of consumers who were offered free bill payment in August 2002 began to use the service within a year; those charged less than $5 per month converted at a rate of 28 percent; and those charged above $5 converted at a rate of 19 percent.[20] These findings reflect heightened price sensitivity over the year before. (See Exhibit 1.) But the banking industry appears aware of this price sensitivity, and the pace of movement toward free service suggests that fees won't remain an impediment for much longer.

Another obstacle is payment speed. When paying a bill at a biller's web site via a debit or credit transaction, consumers can receive same day credit, whereas a payment using most consolidated online banking portals may impose a delay of several days. However, banks have started to selectively offer alternatives, albeit at a cost. Recently, Bank One, Wells Fargo, and others have exclusively offered their online banking customers an accelerated mechanism to make payments. For instance, Bank One's "Overnight Check" service allows customers to request a payment as late as 10 p.m. for delivery next day, anywhere in the continental United States for a fee of $14.99.[21] This service has the obvious advantage of providing access to payees that don't yet accept electronic payments; not as obvious is its quickness compared to the standard electronic alternative. Bank One's normal guarantee is to make electronic payments in two days; other banks may take longer.

Here, too, banks have taken steps to increase the timeliness of payments and improve notification of when a bill actually settles. In many cases, the lengthy delay involved in bill settlement is a legacy of the nonelectronic payment infrastructure used to facilitate pay-anyone capabilities. But another reason that payments have been slowed in the past has been delays

[20] Press Release, "Free Service Is Lighting a Fire Under Online Bill Payment," June 24, 2004, available on the Internet at http://www.digitaltransactions.net/newsstory.cfm?newsid=291.
[21] Jennifer Saranow, "Banks Start to Cater to Late Payers – Procrastinators Get Help Settling Their Bills on Time," *Wall Street Journal*, February 2, 2005.

associated with the confirmation of funds availability. For instance, banks using CheckFree as a facilitator would first need to confirm funds availability before CheckFree would go forward and route funds to the biller. But now, CheckFree will begin the processing immediately, assuming the risk associated with the transaction in the short term. As a result, today 75 percent of payments going through CheckFree are settled within 24 hours.[22]

Finally, security has been a pressing concern for many potential online customers. In fact, a Bank of America survey indicated that security concerns were the foremost reason consumers did not engage in online banking.[23] These concerns are echoed industry-wide, and it appears that consumers' perceptions of risk have a basis in reality. A recent Gartner Group survey found that 57 million Americans so far have received "phishing" e-mails and that, of that number, 2 million have been victimized in some way.[24] With the recent flurry of publicized high-profile security breaches, many consumers have grown more cautious about transacting online, with important ramifications for bill payment particularly.

According to Gartner's Avivah Litan, security-related concerns are the number one reason people are less willing to use online banking services, with 14 percent of survey respondents discontinuing online bill payment, at least temporarily, and a MasterCard survey indicating 7 percent of people feared that their identity information was most at risk while using online bill payment, compared to other online activities.[25]

To bolster confidence, many banks now offer payment guarantees. For instance, Bank of America provides a "$0 liability promise" for any unauthorized activity associated with online

[22] Will Wade, "Offering Consumers Same-Day Bill Pay," *American Banker*, May 26, 2005.
[23] Press Release, "Convenience, Access and Time Savings the Top Reasons to Bank Online," December 28, 2004.
[24] "Phishing" is an online fraud in which a perpetrator produces emails purporting to be from a legitimate business that induce consumers to share sensitive financial information. See Avivah Litan "Phishing Victims Likely Will Suffer Identity Theft Fraud," Gartner Group, May 14, 2004.
[25] Daniel Wolfe, "Fear of Theft Hurting Site Traffic, Surveys Find," *American Banker*, June 28, 2005.

banking and bill payment.[26] Similar guarantees made by credit card networks such as Visa to improve confidence in electronic commerce transactions will, in many cases, extend to safeguarding online bill payments. Interestingly, these assurances are in some cases redundant, as existing federal provisions, such as Regulation E, do provide consumers with a full measure of protection for payments implemented through ACH or debit systems, while the UCC extends similar safeguards to check transactions.[27] A few firms, including Citigroup and E-Trade Financial Corp., have actually resorted to cash incentives to counter the recent loss in confidence in online bill payment security, although the MasterCard survey suggests that $0 liability assurances are even more effective than cash bonuses in encouraging usage.[28]

Billers Are Also a Growing Force in the Industry

Billers benefit from electronic bill payment and have also started to develop and heavily promote the use of their bill payment options. Eliminating the costs associated with paper statements and check processing is a major advantage for most billers. An industry estimate suggests that a completely electronic bill-payment system could reduce the $1.25 average cost for paper-based billing and processing by 50 percent.[29] These savings would total $15 million, on average, per year per biller.[30]

Other advantages include customer "stickiness," improved cash flow management, and reduced financial risk as the risk of nonpayment is increasingly being assumed by card-issuing banks. Finally, and perhaps most important to many billers, to the extent that consumers must revisit a biller's site monthly to verify bill details and enter payment for variable amount bills, the

[26] Press Release, "Convenience, Access and Time Savings the Top Reasons to Bank Online," December 28, 2004.
[27] For a more detailed discussion, see Mark Furletti and Stephen Smith, "The Laws, Regulations, and Industry Practices That Protect Consumers Who Use Electronic Payment Systems: Credit and Debit Cards," Federal Reserve Bank of Philadelphia Payment Cards Center Discussion Paper, January 2005, available at http://www.philadelphiafed.org/pcc/ConsumerProtectionPaper_CreditandDebitCard.pdf.
[28] See Daniel Wolfe (2005.)
[29] Chris Stefandis, "Why Hasn't Electronic Bill Presentment and Payment Taken Off?" *Current Issues*, Federal Reserve Bank of New York, July/August 2002.
[30] Jennifer Alsever, "Here's the Hook: Gifts for Online Bill Payers," *New York Times*, November 28, 2004.

biller enjoys additional opportunities to strengthen the customer relationship and to sell additional goods and services[31] – a clear advantage of the biller-direct model and, to a lesser extent, the "thin" consolidator model (where a consolidator provides just line item summaries of charges, and the biller provides full billing detail) as well. Billers have recently worked to further enhance their services' appeal to customers by offering annual summaries, e-mail receipts, and, in some cases, pre-authorized automated monthly charges to a payment card.[32]

For smaller, local firms or utilities, these ongoing network fees and the sizable startup investment, which ranges from $150,000 to $1 million, with an average cost of $400,000,[33] have been a deterrent to offering an electronic payments processing mechanism. For now, most such firms remain paper-based. Larger firms, however, have been more aggressive: 47 percent of the largest billers in 2004 accepted online payments, either on their own sites or via a consolidator.[34] One can assume that the percentage has continued to increase in the past year.

But many billers have been confounded by the many different payment mechanisms available and the associated fees, which vary widely. Additionally, because billers have often developed their payment and fulfillment systems in a piecemeal, incremental fashion, their interoperability and efficiency have suffered. Recognizing this as a potential opportunity, JPMorgan Chase & Co. founded an electronic bill-payment strategy and implementation consulting company, BillPay Solutions, to work with billers to integrate processes and work to

[31] Peter Burns and Anne Stanley, "Innovations in Small Dollar Payments," Federal Reserve Bank of Philadelphia Payment Cards Center Discussion Paper, October 2001, available at http://www.philadelphiafed.org/pcc/workshops/workshop5.pdf.
[32] Of course, different payment systems have different ways to allocate costs between merchants, consumers, and financial institutions. An ACH transaction that would be attractive to a merchant would be less attractive to a bank than a card transaction done with that bank's own credit card. But in most cases, from a merchant's perspective, electronic payments of any type "dominate" or are less expensive than checks. See Daniel D. Garcia, et al., "The Economics of a Cashless Society: An Analysis of the Costs and Benefits of Payment Instruments," AEI-Brookings Joint Center for Regulatory Studies, September 2004.
[33] Chris Stefandis, "Why Hasn't Electronic Bill Presentment and Payment Taken Off?" *Current Issues*, Federal Reserve Bank of New York, July/August 2002.
[34] Lauri Giesen, "Why EBP Is Hot," *Digital Transactions*, November 2004.

reduce costs by assisting billers to shift payments from checks to debit ("PIN-less"[35] or otherwise) and ACH payments. Similar areas of expertise have been developed at traditional consulting firms, indicating growing recognition of the need for process improvement, and ultimately indicating another source of innovation and movement away from paper-based payments.

Payment Card Issuers Are Slowly Making Online Payments More Attractive to Billers

Arguably, the cost of accepting and processing payment card payments has thus far clouded the value proposition of online payments for billers. In many cases, these costs are passed on to the customer. For instance, the utilities that do accept credit cards for payment often impose a surcharge of $3 to $6 to cover the fees of the merchant acquirer, the interchange fees for the network,[36] and the costs of providing the bill-payment technology. In turn, this extra fee has had a predictable effect on consumer demand. The situation promises to change, however, as card networks have recently begun to acknowledge and target this sizable, untapped market – especially as credit card usage elsewhere has slowed appreciably. For instance, in a new effort to improve penetration for utility bill payment, Visa has announced a lower interchange-reimbursement fee schedule for utility companies, claiming these companies could see cost reductions of 44 percent. Currently, Visa estimates that its cards are being used for only 2 percent of monthly utility payments, lagging well behind checks and electronic alternatives.[37]

[35] Until recently, debit transactions were conducted in one of two ways. PIN debit, traditionally used at the point of sale, requires that the card be swiped at a merchant's terminal and that the cardholder enter a four-digit code to corroborate his or her identity. These transactions are cleared through regional ATM or ETF networks, such as STAR or Pulse. In contrast, "signature" debit does not require a PIN but rather relies on a signature, just like a credit card, to be used in the case of disputes. These transactions are routed through the networks of the MasterCard and Visa card associations. "PIN-less" debit is a fairly recent innovation used to conduct *online* payment (without the physical card present) in which the consumer types in the number of the payment card and, like a regular debit payment, the transaction is then routed through the regional ATM networks for clearing and settlement. In each case, the policies, charges, and protections of the respective clearing network, e.g., STAR or Visa, will ultimately be applied to the transaction.

[36] Bill payments via credit card are treated as "card not present" transactions and thus command higher interchange fees, on average, than POS charges.

[37] Daniel Wolf, "Looking to Cards for New Life in Aggregation," *American Banker*, November 18, 2004.

Debit cards have faced greater impediments in making inroads owing to inherent technology issues, but here, too, there are signs of changes in the competitive landscape. The nature of the online environment means that online or PIN-based debit is generally infeasible, limiting transactions to the PIN-less variety, switched through ETF networks, which some allege might expose billers to greater fraud and lack of funds risk. While mechanisms do exist for consumers to enter PINs via telephone or via their computer keyboard, these techniques are not popular with consumers because of security concerns and the inconvenience of the process.

Instead, participating billers provide other authentication schemes or may rely on third-party solutions. For example, a product from BillMatrix, an online billing outsourcing firm, mitigates fraud risks by streamlining the confirmation of card validation and funds availability through the online Star, Pulse, NYCE, and Accel EFT networks. This service has enabled PIN-less bill payments for more than 100 clients, including at least one mortgage company.[38] To reduce risk further, offline debit transactions have been limited to subscription-type relationships in safer environments, e.g., to financial institutions or utilities. For now, this is a critical limitation of this form of payment. Another drawback is that some facilitators cap the maximum payment made to a single biller — a security measure that may prove to be a drawback for some consumers.

In general, PIN-less debit card transactions are not extended the same level of protections as credit card transactions. While credit card associations such as Visa and MasterCard emphasize their generous "zero liability" and chargeback procedures, the EFT networks do not offer system-wide comparable solutions. However, individual bank participants in the EFT networks often do make available (although they do not widely advertise) protections for debit transactions that are functionally similar to those of the credit card associations.[39]

[38] ATM & Debit News, "Mortgages Added to PINless Debit," *ATM & Debit News*, March 25, 2004.
[39] For a more extensive review of these protections, see Mark Furletti and Stephen Smith, "The Laws, Regulations, and Industry Practices That Protect Consumers Who Use Electronic Payment Systems: Credit

PIN-less debit does offer a marked cost advantage to billers versus credit, though, since its fixed or fixed plus variable interchange cost to issuers has been capped at below $0.50, well below the analogous rates commanded by credit cards.[40] But BillMatrix does impose a facilitation fee, and most of the utilities using this service for payment card processing also pass on a $2 to $3.50 "convenience fee" to the customer. Moreover, certain credit card network rules, now being more strenuously enforced, may further erode debit's relative cost advantage. For example, the Visa requirement that the convenience fee charged by a biller be the same across all payment options has already led to changes in the payment facilitation fees ultimately charged to consumers and has increased credit card payments at the expense of PIN-less debit.[41]

Overall, merchant acceptance of this payment mechanism is growing quickly, albeit from a small base. Only 230 billers currently accept transactions through the Star network, for example, indicating that this technology for online bill payment does not yet approach critical mass.

The Current State of Online Bill Payment: Who, How, and Why

Customer Characteristics and Behaviors

To date, consumer attributes, behaviors, and preferences have done much to affect overall levels of adoption of online bill payment across the multiple channels and platforms. The customers that have been using existing online bill payment methods present certain salient traits; unsurprisingly, studies have shown that wealth, technology savvy, and high-speed access are statistically significant indicators. The more affluent are more likely to use electronic banking—

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and Debit Cards," Federal Reserve Bank of Philadelphia Payment Cards Center Discussion Paper, January 2005, available at http://www.philadelphiafed.org/pcc/ConsumerProtectionPaper_CreditandDebitCard.pdf.

[40] Transaction Trends Magazine, "TRIPLE PLAY – Three Payment Methods That Are Changing Internet Transactions," *Transaction Trends Magazine*, June 20, 2004.

[41] David Breitkopf, "PIN-less Debit Grows, and Visa Takes Steps," *American Banker*, May 5, 2005.

i.e., 55 percent of Internet users with household income of $75,000 or more have tried it, compared to 32 percent with household income less than $30,000.[42]

Broadband capability has had an even more pronounced correlation with online banking usage — 63 percent of those with such a high-speed connection have used online banking versus just 35 percent who use a dial-up connection.[43, 44] This level of usage is borne out by individual banks' findings. Bank of America reports that 60 percent of its online customers have broadband access, while Wachovia reports 66 percent. In addition, a survey by the U.S. Department of Commerce in 2004 found that broadband access was strongly indicative of a propensity to engage in online banking.[45] In regard to online payments in particular, Fumiko Hayashi and Elizabeth Klee of the Federal Reserve System noted in a 2003 paper[46] that direct deposit use and Internet purchases are statistically significant indicators of a propensity to use electronic bill-payment methods.

Finally, it is evident that U.S. consumers as a whole have demonstrated a steadily increasing commitment to conducting commerce online over the past several years (Exhibit 2). The Commerce Department's quarterly research shows that the online channel has accounted for a burgeoning portion of retail sales since 1999 and that the trend is accelerating. As more and more consumers become comfortable engaging in such transactions, it stands to reason that any lingering behavioral obstacles to electronic bill payment will continue to decline in importance.

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[42] Press Release, "Online Banking Jumps 47% in Two Years," February 2005, available at http://www.pewinternet.org/pdfs/PIP_Online_Banking_2005.pdf

[43] Ibid.

[44] To date, no study has controlled for demographics such as location, income, age, and so forth while also assessing the impact of broadband access on electronic banking or bill payment. As there is likely appreciable multicollinearity between broadband access and these other characteristics, this distinction could be important.

[45] Daniel Wolf, "Challenges – and Opportunities – in Broadband," *American Banker,* September 14, 2004.

[46] Fumiko Hayashi and Elizabeth Klee, "Technology Adoption and Consumer Payments: Evidence from Survey Data," *Review of Network Economics,* Vol. 2, Issue 2, June 2003.

Current Online Banking and Bill-Payment Usage Statistics

Overall, consumer adoption of online banking has clearly grown over the past few years. According to the Pew Internet and American Life Project, 53 million people (44 percent of Internet users or 25 percent of all U.S. adults) were using online banking at the close of 2004, an increase of 47 percent over usage reported in 2002.[47] The Commerce Department reported similar findings, noting that online banking grew 10.4 percent between 2001 and 2003[48] — more than any other online activity tracked during that period.

On the other hand, online bill paying only now seems to be gaining significant traction with consumers and still seems to be in its early stages. According to a recent survey by Celent Communications, LLC, the average user of online bill payment receives 12 bills each month but, so far, pays only five online.[49] Clearly, there is room for greater penetration among consumers who already participate. At the same time, it appears that there is a sizable difference in the intensity of bill-payment activity between the competing approaches to delivering the service.

The Success of Billers, Banks, and Third-Party Portals

A recent study from Speer & Associates indicates that about 30 percent of Americans are paying bills online in some capacity;[50] however, only a small number are conducting this business at banks' own sites. Most other surveys indicate that the majority of bill payers are currently using the biller-direct model, but the number of payments and payment dollars are more evenly split across the two approaches. (See Exhibit 3.) Other studies attest to this disparity, emphasizing the relative success of the biller-direct model compared to banks and other consolidator services, for instance:

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[47] Daniel Wolf, "Challenges – and Opportunities – in Broadband," *American Banker*, September 14, 2004.
[48] Kathleen B. Cooper and M. D. Gallagher, "A Nation Online: Entering the Broadband Age," U.S. Department of Commerce, September 2004.
[49] Celent Communications, "Consumer Bill Payments: A Market Overview," November 15, 2004, available at http://www.celent.com/PressReleases/20041115/BillPmtOverview.htm.
[50] See Speer and Associates (2005).

- Forrester Research notes that in 2003, 14.4 million customers paid a bill at the biller's web site, versus 9 million at a bank's site.[51]
- A report from Synergistics Research Corp. indicates that 75 percent of respondents preferred to pay bills directly at the biller's site, citing lack of fees as a motivation.[52]
- A Dove Consulting study indicates that 56 percent of those who use online bill payment use the biller-direct approach, 21 percent use a financial institution, and 23 percent use a combination of the two.[53]

But some banks have done notably well building this business. Bank of America reports that as of October 2004, 49 percent of its customers bank online, and of those, 40 percent use its free online bill payment service.[54, 55] Other large banks have generated similar results. (See Exhibit 4.) Overall, bank-based online bill payment has grown quickly – at 37 percent between Q1 2003 and Q1 2004. All told, 20 percent of online banking customers (4.6 million people) were online bill payers, paying an average of 14 bills during the quarter, with an average value of approximately $250.[56] Industry-wide, consumers' online bill payments totaled $17 billion during this period.[57]

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[51] Burney Simpson, "Web Portals Expand Their Payment Options," *Credit Card Management*, Vol. 17, No. 1, 1/3/2005.
[52] See Speer and Associates (2005).
[53] Electronic Payments Week, "Banking on the Future: Free Electronic Bill Pay," December 21, 2004, referencing a 2004 Dove Consulting survey.
[54] See Speer and Associates (2005).
[55] comScore reports that in early 2004, Bank of America actually accounted for more than half of the entire online bill paying market.
[56] This compares to an annual total of 200 bills, as estimated by Research and Markets. See Press Release, "US Consumers Pay Less Than 2% of Their Bills at an Internet Portal," Research and Markets, September 24, 2004, available on the Internet at http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/09-24-2004/0002258264&EDATE=.
[57] Press Release, "comScore Analysis Reveals Usage of Online Banking and Bill Payment Has Grown Dramatically in the Past Year," comScore Networks, June 17, 2004, available on the Internet at http://www.comscore.com/press/release.asp?id=467.

So far, Internet portal consolidators have not been a major factor. A survey from research consultancy comScore Networks reveals that as of 2004, only 2 percent of the total number of bills paid were done through these sites.[58] But TowerGroup does project adoption rates improving to 11 percent by 2007 as greater biller access and consolidators' promotional efforts present customers with an improved value proposition.

Payment cards also have much room to grow as a means to settle online bill-payment transactions. For instance, annual Visa bill-payment transactions recently totaled $66 billion, a fraction of their overall volume — which did, however, reflect an increase of 24 percent over the previous year.[59] All told, Celent Communications estimated that only 3.5 percent of total online bill payments in 2004 would be fulfilled via credit cards. PIN-less debit has demonstrated more rapid growth, with the STAR EFT network reporting a 256 percent increase in bill-payment volume in 2003, accompanied by a 30 percent increase in biller acceptance.[60] For both payment types, growth has been from a small base.

Where Is Bill Payment Headed?

Exhibit 5 speaks to the broader trends in checks and electronic payments. Using data from a variety of institutional sources, Karen Furst and Daniel Nolle of the OCC trace the transition from checks to electronic payments from 1995 through 2003. I then combined their findings with numeric extrapolation to project the results two years in the future, through the close of 2005. This exercise, while an approximation, indicated a continuation of the clear linear trend downward in check payments and an upward, mildly accelerating pattern in electronic payments. If this trend is realized, the relative balance will be dramatically different from what was in evidence as recently as 2000; electronic payments have overtaken checks quickly and

[58] Karen Furst and Daniel R. Nolle, "Technological Innovation in Retail Payments: Key Developments and Implications for Banks," Office of the Comptroller of the Currency, October 2004.
[59] Lavonne Kuykendall, "Seeking Volume Hike, Visa Cuts Rates for Utilities," *American Banker*, November 10, 2004.
[60] Press Release, "STAR Launches Direct Debit, Verification Service," February 19, 2004.

recently. This transition is undoubtedly affected by the recent serious interest in online bill payment and the pressure it exerts on check writing. However, the Federal Reserve's 2004 survey also emphasizes that the growth in electronic payments is materially influenced by the substitution of electronic means of payment for cash at the POS. Finer-grained data are needed to provide a clearer picture of how and where check substitution is likely to occur in the future.

Celent Communications has conducted similar research focused on the mix of instruments just within bill payment. Its study has indicated a clear transition away from checks toward active one-time online payments and direct ACH debits. Celent noted that in 2001 a clear majority of bill payments were discharged by check, but by 2004, online methods, and especially ACH payments, were poised to take the lead — projected to do so in 2005. (See Exhibit 6.)

The data regarding the relative balance of bank-based and other consolidators compared to the biller-direct model are less clear-cut, with little consensus regarding which channel will be the biggest winner over the long term. A TowerGroup study (Exhibit 7) suggests that the balance will continue to tilt slightly toward the biller-direct model (in terms of absolute number of bills paid), while other analysts predict that portals from either banks or nonfinancial institutions will achieve greater prominence. However, projections also suggest a dramatic future growth in the number of people using online bill payment, whether the process is initiated at the bank or the biller. (See Exhibit 8.) This substantial growth in consumer adoption suggests the decrease in check payments will not abate during the foreseeable future.

The expected growth in online bill payment might be partially attributable to the anticipated continued growth of broadband Internet adoption among U.S. households. While the relationship between high-speed connections and online banking may not be causal, there has been a strong correlation between the two over the past few years (above). A recent study from PricewaterhouseCoopers projects that broadband access will grow 50 percent by 2008, reaching 54 million homes, up from 38 million in 2005. (See Exhibit 9.) As this occurs, the remaining

technological impediments to making online payments will likely erode further. Electronic bill payment and presentment[61] (EBPP), in particular, could benefit.

Some analysts assert that as EBPP becomes more widespread, one of the advantages of the biller-direct model, i.e., the ability to see full bill details, will erode. However, others assert that EBPP adoption has already peaked, with 29 percent of banks currently offering it in some capacity.[62] Banks are of mixed opinion in regard to its appeal; Wells Fargo, in particular, considers EBPP to be an additional selling point for online bill pay, while Bank One, an early adopter, actually discontinued the presentment portion of its online bill pay service, citing a lack of consumer demand.[63]

Reconciliation of the EBPP issue is important for better understanding the impact on continued check usage. Research has demonstrated that for bills paid electronically, the manner in which the bill itself is *presented* has a substantial correlation with the manner in which the funds are ultimately transferred. Alexandria Andreeff and colleagues observed that when bills are presented in electronic form, a majority are discharged via ACH, whereas online recurring payments not presented electronically are typically fulfilled via check.[64] Again, this phenomenon need not be strictly causal but could simply reflect that the billers who currently lack the ability to present bills electronically also lack the ability to receive payments electronically.

Therefore, in the case of EBPP, the increased feasibility of supply and greater adoption of the technology rather than simply the intensity of demand has important implications for reducing check use. As banks continue to invest in this area, the increased availability and promotion of these products implies better potential for enhanced interoperability between billers and

[61] Electronic bill payment and presentment refers to the integrated provision of bill information with the means to make a payment. EBPP offerings feature differing amounts of detail, from a simple line item including little more than the amount due, to a complete representation of the contents of a paper invoice.
[62] Lauri Giesen, "Why EBP Is Hot," *Digital Transactions*, November 2004.
[63] Steve Bills, "Will Presentment Growth Enliven Online Bill Pay?" *American Banker*, February 2, 2005.
[64] Alexandria Andreeff, L. Binmoeller, et al., "Electronic Bill Presentment and Payment – Is It Just a Click Away?" *Economic Perspectives*, Federal Reserve Bank of Chicago, Q4, 2001.

consolidators; as such connections grow, the remaining disconnect between payment initiation and payment completion noted by Andreeff will close.

Finally, payment cards are poised to play an increasingly important role in driving bill payment online. The products of firms such as BillMatrix, the promotional efforts of card-issuing banks to encourage use of their cards for bill payment, reductions of interchange fees like those offered to utilities by Visa, and the rapid acceptance of PIN-less debit industry-wide are all complementary developments that are providing billers and consumers with a more attractive value proposition. Again, in regard to check usage, these trends, motivated by many parties, will tend to shift the payment mix further away from paper-based solutions.

Conclusion

Over the past few years, a proliferation of technology, providers, and platforms have sprung forth to offer alternative means of effecting bill payments and interpersonal transfers, thereby spurring innovation and providing customers with a rich set of alternatives to paper checks. The increased interest and participation, in turn, creates network effects that make online bill payment easier and more attractive, furthering the transition in payment methods. While it remains to be seen which of the specific mechanisms and instruments will endure, this process suggests clear benefits for banks, billers, and consumers in the years to come. Ultimately, online bill payment will continue to grow to the extent that interested parties identify and promote a compelling value proposition for customers, be it EBPP, reward points, a consolidated account management facility, rapid payments, and so forth, while reducing complexity, compromises, cost, and risks.

For banks, the stakes are high. At the end of the day, a bank customer who also pays bills using the bank's web site is generally one with higher balances and greater income who is more likely to remain a customer of that particular bank. The barrier to switching from one bill-payment provider to another combined with the continuing movement toward consumer adoption

of electronic payments potentially puts those financial entities that are not providing such services at a disadvantage when it comes to attracting this particular customer segment. For banks, encouraging online bill payment at the expense of check clearing is an easy tradeoff.

Billers also have much to gain. Whether they are ultimately being paid through a biller-direct mechanism on their own web site or through a third-party consolidator, they will enjoy better cash flow management, lower costs, and reduced payments risk. Finally, consumers will continue to benefit from substantial savings in time and money along with the opportunity to take advantage of card and other reward programs used as incentives for consumers to adopt electronic methods.

Impediments remain, but the accelerating pace of adoption suggests that electronic bill payment will become even more important for each of these constituencies. Security continues to be a concern, but innovations in risk management have reduced the costs of potential fraud to consumers. Similarly, technology innovations and growing competition among third-party vendors are bringing down the costs and complexity of implementing a billing “front-door” for billers, which in turn enhances the value proposition of fully online, integrated bill-payment solutions. Finally, the increasing democratization of the necessary consumer technology, notably broadband access, with an attendant increase in the comfort level with such technology, suggests that early adopters of online bill payment will soon be joined by the masses. As this interplay between supply and demand plays out, the decline in check usage will likely continue apace.

Exhibits

Exhibit 1: Price Sensitivity of Online Bill Payment

Price Sensitivity of Online Bill Payment

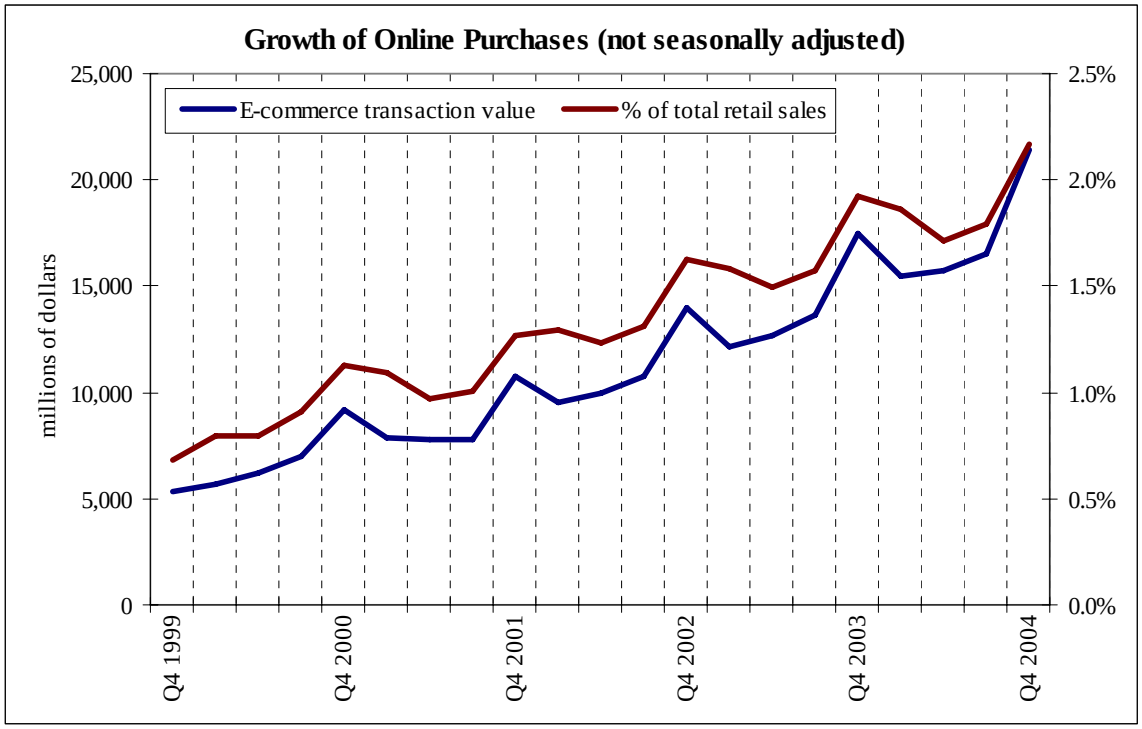
(All figures are from an August 2003 study unless otherwise noted.)

	Price per Month		
Category	**Free**	**< $5**	**> $5**
% of checking account holders using online banking services	17.8%	14.1%	12.7%
Y/Y adoption of online bill payment (2003 study)[1]	40.3%	28.3%	19.6%
Y/Y adoption of online bill payment (2002 study)	31.0%	28.0%	20.0%
% checking account holders using online bill payment[2]	7.2%	4.0%	2.5%
Retention of banking and bill pay customers[3]	92.3%	91.2%	90.8%

1) Number of bill payment users as a percent of online banking users
2) Number of bill payment users as a percent of checking account holders
3) Percent of online banking and online bill payment users with at least one session in past 180 days.

Source: Online Resources, "Online Bill Payment Market Update, Fee or Free?" September 2004 and Press Release, "Consumer Study Reveals Pricing Impact on Online Bill Payment Adoption," October 31, 2002.

Exhibit 2: Online Purchases Are Steadily Growing More Important



Source: Economics and Statistics Administration, U.S. Census Bureau, "Quarterly Retail E-Commerce Sales," *United States Department of Commerce News*, February 24, 2005.

Exhibit 3: Bill-Payment Shares at Banks vs. Biller Direct (Actual)

Share of US Online Bills Paid at Biller Site vs. Bank Site*, Q1 2004		
	Biller direct	**Financial Institution^**
Share of bill pay customers	84%	16%
Share of payment dollars	62%	38%
Share of payments	57%	43%

* Figures include top 10 US retail banks by number of active online accounts

^ Non-bank portal information is incorporated in the Financial Institution column

Source: eMarketer, referencing data from comScore Networks, June 2004, available online at http://www.emarketer.com/Report.aspx?epay_oct04&tab=Overview

Exhibit 4: Representative Online Bill-Payment Use at Major U.S. Banks

Online Banking and Bill Payment Usage at Selected Top Banks						
Name	**Total Banking Customers***	**% of Total**	**Rank**	**Online Banking Customers**	**Online Bill Paying Customers**	**% of Online Users Using Bill Pay**
Bank of America[1]	26,500,000	9.30%	1	12,400,000	5,800,000	47%
Wells Fargo[2]	16,302,000	5.72%	2	5,900,000	2,100,000	36%
Wachovia[1]	6,784,461	2.38%	7	2,900,000	1,000,000	34%

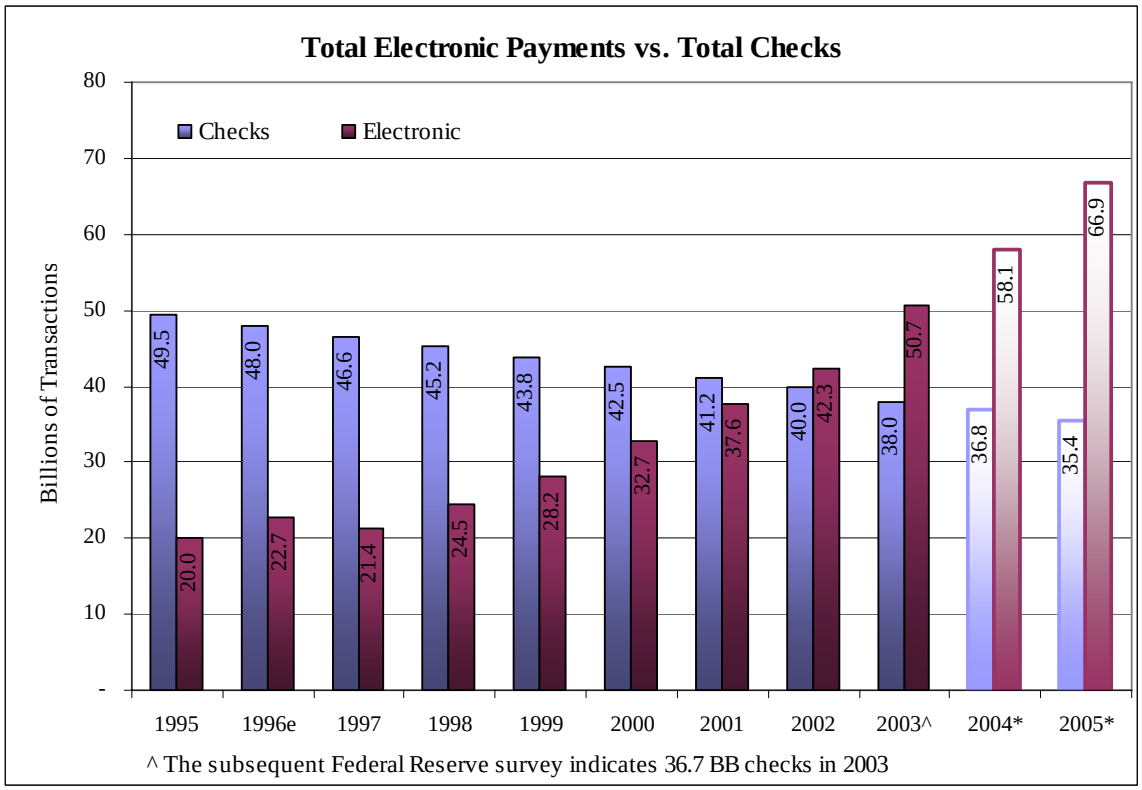
1) Online banking statistics as of Q4 2004

2) Online banking statistics as of Q3 2004

* Total debit cards outstanding were used as a proxy for individual accounts

Source: Card Industry Directory, EFT Databook, author's research, and company reports

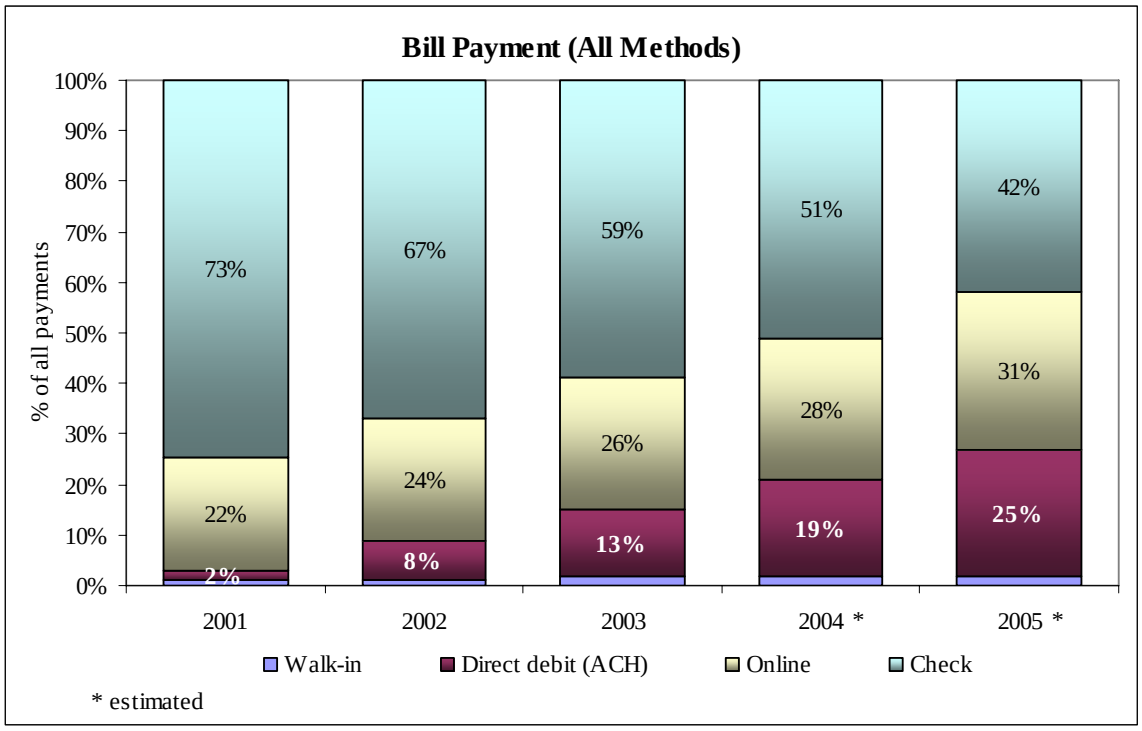
Exhibit 5: Electronic Payments versus Checks, 1995-2003, with Projections



Adapted from: Karen Furst and Daniel E. Nolle, "Technological Innovation in Retail Payments: Key Developments and Implications for Banks," *Journal of Financial Transformation*, The Capco Institute, Vol. 12, December 2004. I estimated 2004 and 2005 values using simple regressions.

Furst and Nolle take their data from the OCC, including data from statistics on payment and settlement systems in selected countries ("Red Book"), Bank for International Settlements (BIS) (various years); NACHA; Card Industry Directory 2004; and other sources.

Exhibit 6: Relative Growth of Electronic Bill-Payment Methods, 2001-2005



Source: Lauri Giesen, "Why EBP Is Hot," *Digital Transactions*, November 2004, citing data from Celent Communications.

Exhibit 7: Percentage of Bills Paid at Banks vs. Biller Direct (Actual and Projected)

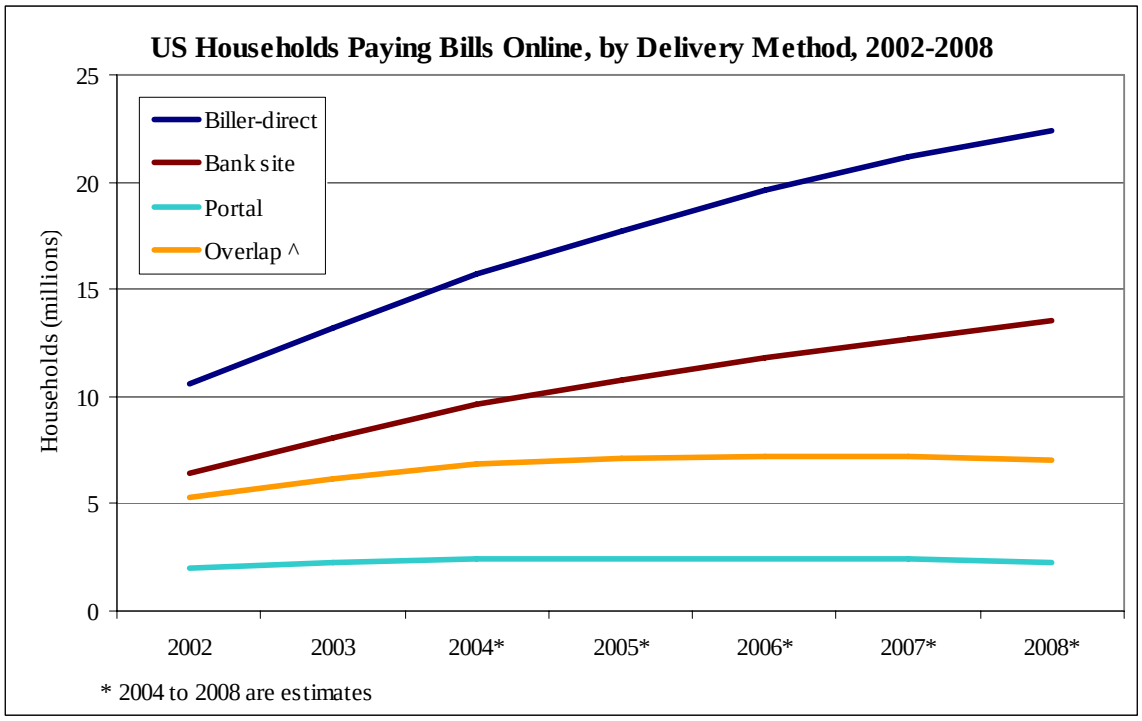
Percent of Bills Paid Online, by Delivery Method, 2001, 2003, 2006, and 2007

Year	Biller direct	Financial Institution^
2001	42%	58%
2003	57%	43%
2006	59%	41%
2007	55%	45%

^ Non-bank portal information is incorporated in the Financial Institution column

Source: eMarketer, referencing data from TowerGroup, August 2003, available online at http://www.emarketer.com/Report.aspx?epay_oct04&tab=Overview

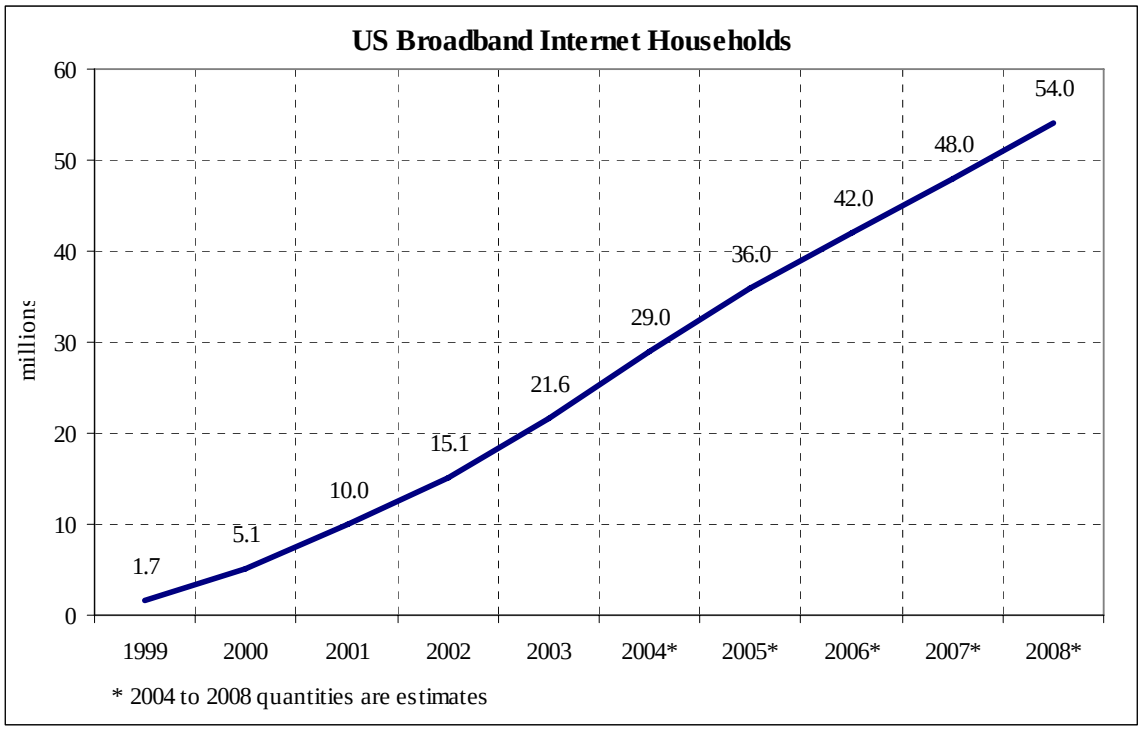
Exhibit 8: Comparison of Household Use of Bill-Pay Channels (Actual and Projected)



^ Overlap indicates the number of customers paying bills at more than one type of site

Source: eMarketer, referencing data from Forrester Research, November 2003
available online at http://www.emarketer.com/Report.aspx?epay_oct04&tab=Overview

Exhibit 9: Broadband Internet Adoption in the United States



Source: Peter Winkler and Laura Schooler (eds.), "Global Entertainment and Media Outlook: 2004-2008," PricewaterhouseCoopers, June 2004.