Performance and Operation of Commercial Bank Web Sites

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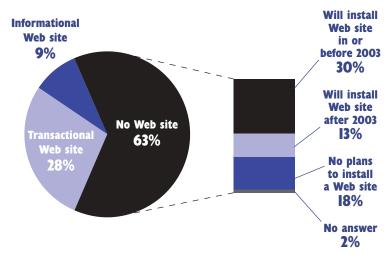
INTRODUCTION

The year 1995 marked the beginning of the Internet banking era, when Wells Fargo began offering account statements on the Web and Security First Network Bank became the first Internet-only bank.¹ In its early years, adoption of Internet technology by banks was slow, customer use of Internet banking was marginal, and many bankers questioned whether it could ever live up to its promise. Analysts view the year 2000 as a breakout year for Internet banking.² Estimates put the number of households using online banking at a surprising 12.5 million in 2000, up from 7.5 million in 1999. For many banks, use of the Internet to solicit customers and deliver bank services has proceeded from a curiosity to a necessity.

After six years of experience, there is little systematic information available to address important questions concerning the challenges, opportunities, and performance of the Internet operations of banks.³ Why have some bankers chosen to offer their customers a Web site, and why have other bankers shied away from the Internet? For those with Web sites, how many of their bank customers use Internet banking, and how many new customers have banks obtained through the Internet? What factors have challenged bankers when they installed their Web sites, and what has challenged them in operating the site? The 2001 Survey of Tenth District Banks included questions designed to shed light on these issues. Answers should be useful to bankers evaluating the performance of their Web sites, to bankers seeking the best way to plan an installation of a Web site, to bank super-



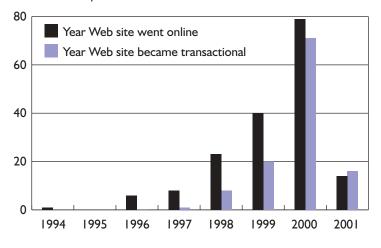
Current and Future Use of Bank Web Sites



Source: 2001 Survey of Commercial Banks in the Tenth Federal Reserve District.

Chart 2 Internet Experiences of Banks with Web Sites

Number of respondents



Source: 2001 Survey of Commercial Banks in the Tenth Federal Reserve District.

visors assessing how banks manage the risks of Internet operations, and to policymakers evaluating the trends in Internet banking.

We find that bankers who have installed a Web site did so for long-term, strategic reasons, while those who have not are skeptical of the business case for a Web site. Despite their skepticism, the majority of banks without Web sites plan to install them in the near future. Performance of bank Web sites (measured by customer enrollment, usage rate, fee revenues, and generation of new customers) has been modest but improves with added Internet experience and as Web sites become more functional. While technical aspects of Internet operations are challenging, bankers also indicate that standard business activities such as developing policies, working with vendors, complying with regulatory requirements, marketing, and personnel training are significant challenges as they install and operate their Web sites.

This article will first paint a picture of the Internet banking landscape as reported by the survey respondents. The second section reviews answers to questions regarding why bankers have or have not adopted a Web site. The third section looks at bank experience with their Internet operations. The final section summarizes results and comments on their implications.

THE INTERNET BANKING LANDSCAPE

Survey respondents help us gain a picture of the current state of Internet banking in the Tenth District. Most respondents do not have a Web site, but the majority of those plan to install a site in the near future, showing that adoption of Internet banking has begun to reach the community bank population. Web sites of respondents offer standard services, but bankers indicate that they plan to expand functionality, including forays into cuttingedge features.

Charts 1, 2, and 3 present basic facts about Web site experience of sample banks (information on the methodology and characteristics of the sample is contained in the first article in this issue of *Finan*-

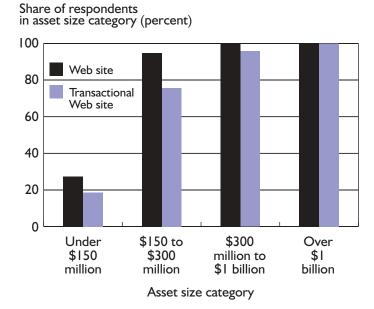
cial Industry Perspectives).⁴ Sixty-three percent of respondents report that they do not have a Web site (Chart 1). While a minority of respondents have Web sites, most of those sites have transactions capability. (A transactional site, at minimum, allows a customer to access account balances and to initiate an inter-account transfer, while an informational site provides information about a bank and its services.) Twenty-eight percent of respondents have transactional Web sites, and only nine percent of respondents have informational Web sites. Experience of banks with Web sites is limited, as most respondents report that their Web site went online in 2000 or later (Chart 2).

At least two factors help explain this limited experience. First, banks used considerable resources preparing their computer systems for the year 2000 conversion and may have delayed installation of Internet banking systems, resulting in the surge of Internet banking installations reported by survey banks after 1999. Second, research has shown that smaller banks often lag behind in adopting new technologies.5 Chart 3 illustrates how adoption of Internet banking depends on bank size. Virtually all respondent banks with assets of \$300 million or more have adopted Web sites, and adoption rates decrease as asset size falls. Because most banks that reported installation of a Web site in the year 2000 or later are under \$150 million in assets, the adoption process is at a stage where Web technology is filtering its way to smaller banks. Lags inherent in the adoption process, along with the smaller size of most Tenth District banks, contribute to the limited experience of respondent banks with Internet banking.

Future plans of respondents whose banks do not have a Web site confirm that Web technology will reach most Tenth District banks. Chart 1 breaks down responses from banks that do not have Web sites according to their plans for Web sites in the future. Thirty percent of respondents do not have a Web site but plan to install one in 2003 or sooner, and an additional 13 percent plan to install a Web site after 2003. Combined with respondents who currently have a Web site, 80 percent of respondents either have or plan to have a Web site.

Chart 3

Bank Size and Web Site Adoption Rates



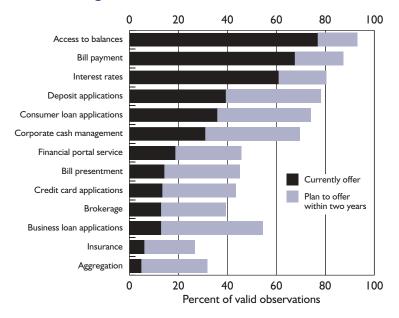
Source: 2001 Survey of Commercial Banks in the Tenth Federal Reserve District.

Web sites of sample banks offer a range of information and services, from account balance information to insurance products (Chart 4a). Banks who plan to start a Web site will offer a similar set of services (Chart 4b), which have become fairly standard for bank Web sites.⁶

Perhaps more important, the Web sites will continue to expand services over the next few years. Many banks whose Web sites do not offer some services plan to offer them soon, with deposit applications, consumer loan applications, corporate cash management, and business loan applications drawing particular interest. Banks who plan to install a Web site will start them with considerable functionality, and intend to expand functionality soon after installation.

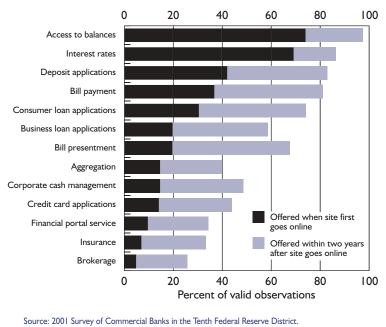
Survey respondents also currently offer more "cutting-edge" capabilities, such as bill presentment, aggregation services, and financial portals.⁷ Although fewer than 20 percent of respondents with Web sites currently offer these services, there is Chart 4a

Current and Future Functions on Existing Web Sites



Source: 2001 Survey of Commercial Banks in the Tenth Federal Reserve District.

Chart 4b Initial and Future Functions on Planned Web Sites



considerable interest in them, with at least 30 percent of respondents with Web sites planning to offer them within the next two years. Interestingly, bill presentment and aggregation are particularly attractive to banks that do not have a Web site now but plan to offer one in the future.

To summarize this section, the adoption process for Internet banking is still at an early stage, with many District banks deferring installation of a Web site. Survey responses suggest that there is considerable change coming. Many more banks will install Web sites in the future, and existing bank Web sites will become more functional, including capabilities that are in the early stages of development.

WHY HAVE SOME BANKS GONE ONLINE WHILE OTHERS HAVE NOT?

Differences between banks with and without Web sites provide an opportunity to understand why some banks have gone online while others have not. Strategic factors, such as the ability to retain customers, are particularly important to bankers who currently offer services through the Internet, while straightforward, bottom-line considerations appear least important. In sharp contrast, bankers without Web sites rank revenue and cost considerations as highly important.

In establishing a Web site, bankers place great weight on potential long-term contribution to the viability of their organizations, and are less concerned with immediate issues relevant to costs and revenues. Survey respondents rank customer retention, future competitiveness, and updating technology as most important in their decisions to offer bank services through the Internet (Chart 5). Conversely, these bankers rank reducing costs and supplementing revenue among the least important factors in establishing a Web site.

Emphasis for factors in the middle rankings differed depending on whether the bank had an informational or transactional Web site. Bankers with transactional Web sites place more importance on ability to offer new products and to respond to competitors. Bankers with informational Web sites place more importance on attracting new deposits. As seen in Chart 1, most banks without a Web site plan to install one in the near future. But the Tenth District also has a core of bankers who see little need to get online: 18 percent of respondents have no plans for a Web site. These bankers are skeptical about the value proposition for Internet banking, expecting cost savings to be low, cost of installation to be high, and customer use to be small (Chart 6). There is also anxiety over security weaknesses of the Internet as well as customer concerns about privacy. These results are similar for banks that plan to offer sites in the future compared to banks who do not plan to offer Web sites, but the latter banks feel stronger about high installation cost and low customer demand.

Respondents expressed less concern over employee technical skills, the quality of Internet access, or regulatory issues in their decision to refrain from offering bank services through the Internet. These factors do not appear to be major barriers keeping District banks from going online.

Overall, banks with Web sites have put revenue and cost considerations to the side for the moment and are more concerned with placing their banks in a position to satisfy their customers' demand for Internet banking. Banks without Web sites appear to have a difficult time making a sound business case for going online. They may be reluctant to incur the expense of an Internet banking system because they expect little customer use.

EXPERIENCES OF BANKS WITH INTERNET OPERATIONS

Do the experiences of banks that are online confirm the expectations of those that are not? In part, they do. Bankers who have a Web site report little revenue opportunity from Web operations and minor success at gaining new customers through the Internet. To a considerable extent, however, modest performance can be attributed to lack of Internet experience and limited online functionality. Survey responses suggest that additional Web site experience and functionality will likely improve performance of Internet operations. Nevertheless, at

Chart 5

Factors Important to Delivering Bank Services Through the Internet

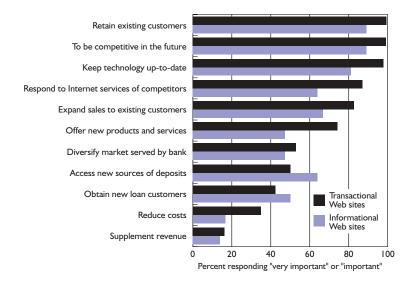
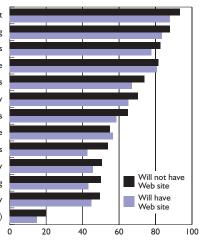




Chart 6 Why No Internet Site?

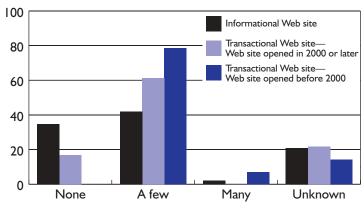
Insufficient cost savings to justify investment Too few customers would use Internet banking Expensive outsourcing costs Expensive cost for hardware and software Internet security weaknesses Customer concerns over privacy Risk of violating consumer laws and regulations Bank employees lack technical expertise Poor Internet access Difficult to develop privacy policy Competitors are not offering Internet banking Restrictive regulations for Internet activity Strategic factors (such as merger or sale of bank)



Percent responding "very important" or "important"

Source: 2001 Survey of Commercial Banks in the Tenth Federal Reserve District.

Chart 7 New Customers Obtained Through Bank Web Sites



Share of respondents in each new customer category (percent)

Source: 2001 Survey of Commercial Banks in the Tenth Federal Reserve District.

Table I

Customer Enrollment for Transactional Web Services

	Web site opened in 2000 or later		Web site opened before 2000	
Deposit customers enrolled in Internet banking	Number	Percent of valid observations	Number	Percent of valid observations
Less than 5 percent	43	51.8	7	25.9
5 to 10 percent	30	36.1	7	25.9
10 to 15 percent	7	8.4	9	33.3
15 to 20 percent	I.	1.2	3	11.1
More than 20 percen	t 0	0.0	I.	3.7
Unknown	2	2.4	0	0.0
Valid observations	83		27	
No response	I.		I.	
Total	84		28	

Note: There are 110 valid observations in this table taken from the 133 banks that report operating a transactional Web site. Of the 133, two banks did not respond to this question, and 21 did not report when their Web site went online.

Source: 2001 Survey of Commercial Banks in the Tenth Federal Reserve District.

present, levels of satisfaction with Web site operations are very low.

Before looking at details, we should note that information gleaned from the Tenth District survey about banker experience with the Internet is tentative because most respondent Web sites have been online briefly. However, it is useful to establish some facts about adoption of an uncertain technology at the early state of its introduction. In addition, some banks have been online for several years, and their responses provide some insight into longer-term experience with Internet banking.

Addition of new customers through the Internet has been modest, at best. Most bankers report "a few" new customers obtained through the Internet (Chart 7). Adding functionality by changing from an informational to a transactional Web site, as well as additional online experience, has helped bankers gain new customers. The fact that a significant minority of respondents do not know how many new customers they have obtained through the Internet is a sign that delivery of Web services is so new that many banks have not yet implemented procedures to measure Internet banking performance.

Customer use of Internet banking has also been modest—almost all survey respondents report that less than 20 percent of their customer base has enrolled for transactional Web services (Table 1). Although modest, these enrollment rates are in line with general experience.⁸

There is a clear relationship between customer enrollment and Web site longevity. The proportion of bankers who report customer enrollment in the 10 to 15 percent and the 15 to 20 percent ranges is much higher for banks whose Web site opened before the year 2000 compared to those whose Web site opened in 2000 or later. Because most bankers would obtain a flow of new Internet banking customers over time, this relationship between longevity and enrollment should be expected.⁹

Enrolled customers are using Internet banking services regularly, but few are paying fees for premium services. Bankers with transactional Web sites most commonly report that 60 to 80 percent of enrolled customers use the system at least once per month (Table 2). Despite respectable usage rates, the great majority of these bankers also report that less than 20 percent of their Internet-banking customers are paying fees for transactional Web services (Table 2). Surprisingly, banks with longer Web experience do not report much higher usage rates or fees.¹⁰ Banks that have recently installed their Web sites may be particularly effective at encouraging customer use, perhaps taking advantage of wider awareness of Internet banking as the service becomes more commonly advertised in marketing efforts.

Only a handful of respondent banks report a fee for online access to account balances, while fees charged for online bill payment is almost universal.¹¹ The average fee charged for bill payment is \$5.64 per month, with 45 percent of banks charging a monthly fee in the range of \$4.95 to \$5.00.

Most bankers correctly anticipate installation and operational costs of Internet banking, with close to 80 percent of survey respondents reporting that installation and operating costs were about what was anticipated.¹² Those who did not correctly anticipate costs tended to underestimate costs. The bias towards higher-than-expected costs is greater for banks with transactional Web sites, especially for operational costs. Nearly a quarter (23 percent) of bankers with transactional Web sites report that operational costs were more than anticipated.

When installing their Web sites, updating policies and procedures, interacting with third-party providers, satisfying regulatory requirements, and developing Internet privacy policies were significant challenges common to banks with informational and to those with transactional Web sites (Chart 8a). Involving upper management and the board of directors was among the least important challenges for banks with either type of Web site.

There were some contrasts for the more important challenges to installing a Web site, depending on whether the banker had an informational or transactional Web site. Bankers installing informational sites were most challenged by developing privacy policies. Bankers with transactional sites were more challenged with Web site installation activity, such as technical problems and software expenses.

When asked what Web site operational challenges were most important, bankers showed agree-

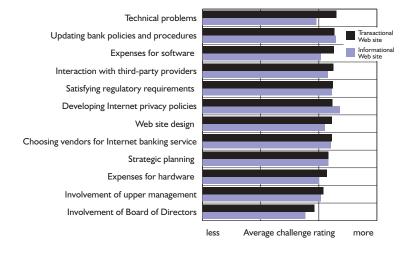
Table 2

Rates of Customer Use and Fee Payment for Transactional Web Services

a	Customers using Internet banking nce a month or more		Internet banking customers who pay fees	
Proportion of Internet banking customers	Number	Percent of valid observations	Number	Percent of valid observations
Less than 20 percent	22	17.3	96	76.8
20 to 40 percent	10	7.9	5	4.0
40 to 60 percent	23	18.1	5	4.0
60 to 80 percent	32	25.2	2	1.6
More than 80 percer	nt 16	12.6	7	5.6
Unknown	24	18.9	10	8.0
Valid observations	127		125	
No response	6		8	
Total	133		133	

Source: 2001 Survey of Commercial Banks in the Tenth Federal Reserve District.

Chart 8a Challenges of Installing a Web Site



Source: 2001 Survey of Commercial Banks in the Tenth Federal Reserve District.



Source: 2001 Survey of Commercial Banks in the Tenth Federal Reserve District.

ment on the top challenges, although emphasis sometimes depended on whether the banker has an informational or transactional Web site (Chart 8b). For either type of site, marketing and promotion ranked either first or second as significant challenges. Also in the top five operational challenges are controls for Internet security, auditing of Internet banking, personnel training, and customer support. Bankers with informational Web sites are particularly challenged with controls for Internet security.

Finally, banker satisfaction with Web sites is low: on a three-point scale, average satisfaction ratings rarely rise above a "1" (Charts 9a and 9b).

Rankings of satisfaction with various aspects of Web site performance differed substantially for bankers with informational compared to those with transactional Web sites, in part because some performance categories (transactions generated, revenue, and cost savings) are not particularly relevant to informational Web sites. Bankers with informational Web sites are most satisfied with their technical staff, customer retention, and use of the Web to communicate with customers (Chart 9a).

Bankers with transactional Web sites are most satisfied with customer participation, the ability of their technical staff, revenue from Internet banking fees, and cost savings due to Internet banking (Chart 9b). It is somewhat surprising that customer participation and revenue from Internet fees rank as high as they do, given previous information on enrollment rates and number of Internet banking customers who pay fees (Tables 1 and 2). But this may reflect realistic expectations for Web site performance. In addition, though the rankings relative to other performance measures are high, the level of satisfaction is still very low.

Moreover, banks with transactional Web sites are least satisfied with the ability of the Web to generate new business. Obtaining new customers, expanding sales to existing customers, and adding loans or deposits are the most disappointing aspects of Web site performance.

Satisfaction levels show a varied relation with Web site longevity (Chart 9b). Average respondent satisfaction with Web site performance options is sometimes higher and sometimes lower with added Web site experience (as measured by how recently a bank has added transactional capabilities to their Web sites). Average satisfaction is higher for banks with less Web site experience in categories such as transactions generated online, added loan volume, and added deposits. Banks with more Web site experience have a bit more satisfaction with customer participation, technical ability of staff, and use of the Internet to communicate with customers.

In summary, Tenth District bankers who have not installed a Web site may be correct to be skeptical about short-term performance of Web sites. Customer participation with online bank services is modest, Internet-generated revenues are low, and costs tend to be higher than expected. But bankers with Web sites, who emphasize longer-term, strategic reasons for being online, can point to some improvements over time in performance of their online operations. If these improvements continue, their strategic position may provide their banks with a significant competitive advantage.

SUMMARY AND IMPLICATIONS

The Tenth District survey reveals the following insights regarding the strategy bankers have fol-

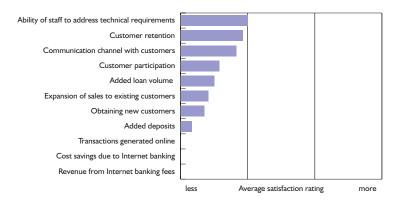
lowed in their Internet operations and their online experiences:

- Banks establish Web sites to remain competitive, retain customers, and update their technology, with less immediate concern for costs and revenue.
- Web sites have generated few new customers, and enrollment in Internet banking is modest, although enrolled customers are active users.
- Costs of Web site installation and operation have been about what bankers expected, with a bias towards greater than anticipated expenses.
- When installing Internet sites, banks are most challenged by developing policies, working with vendors, regulatory requirements, technical problems, and software expense, and least challenged by involving the board of directors and upper management.
- When operating their Internet sites, banks are most challenged by Internet security, marketing and promotion, personnel training, audit, and customer support.
- Overall satisfaction with Web activity is low, and bankers are most satisfied with the abilities of their technical staff, customer retention, and the Web as a communication channel with customers.
- Banks without Web sites are skeptical of the business case for offering bank services on the Internet: they expect little cost savings, expensive installation costs, and low customer demand.
- Nevertheless, the majority of those without a Web site say they will install a site in the next few years.

What are some of the implications of these insights?

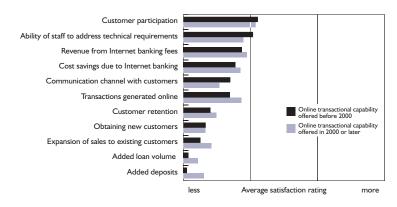
For bankers with Web sites, survey results can provide a benchmark against which they can compare the performance of their Internet operations. In addition, as with the initial performance of any new activity, activity generated through recently installed Web sites may be low. Performance may

Chart 9a Satisfaction With Informational Web Sites



Source: 2001 Survey of Commercial Banks in the Tenth Federal Reserve District.

Chart 9b Satisfaction With Transactional Web Sites



Source: 2001 Survey of Commercial Banks in the Tenth Federal Reserve District.

improve with time as well as with upgrades to Web site functionality.

Survey results may provide bankers who plan to install a Web site more realistic expectations about the challenges they will face when installing and operating their Web sites. For example, bankers may want to pay extra attention to vendor relationships when they install their Web sites, and ensure sufficient customer support for Internet banking operations. Installation and initial operation of Web sites may go more smoothly if bankers use this survey's information to direct resources towards the most significant challenges.

For bankers who do not plan to install a Web site, survey results provide them with a look at the implications of this decision. Within a few years, their banks will be in the minority in terms of delivery of services through the Internet. To a considerable extent, banker reluctance to commit to a Web site is because they perceive that their customers will not use the Internet banking services. There is no particular reason to question whether these bankers are correct-they know their customers best. And for many years, skepticism about the demand for Internet banking was justified because the growth of online banking households was slow. But many analysts were surprised at a jump in the number of online banking households in the year 2000.13 If bankers without plans to install a Web site underestimate the demand for Internet banking by their customers, they may be at a significant disadvantage in the future.

Bank supervisors may also find survey results useful. Examiners must review Internet operations of banks, and they should find the Web site performance benchmarks revealed by this survey useful in evaluating management of a bank's Web site. Supervisors also encourage bankers to involve their upper management and boards of directors in managing Internet operations, and should be heartened by survey results that suggest bankers do not find it challenging to do so. On the other hand, supervisors want banks to update policies and procedures for Internet activity, and survey results suggest that banks are finding this difficult.

Survey results offer several insights useful to policymakers. For example, bankers indicate some difficulty in satisfying current regulations applicable to their Internet operations. If it is best to have the decision to go online rest primarily on business issues, as opposed to regulatory concerns, then it may be wise to find ways to make regulations related to bank Internet operations less burdensome.

As a second example, an early 2000 review of Web sites of Tenth District banks placed the adoption rate for transactional Web sites among rural

community banks (assets under \$150 million) in the Tenth District at only 3.4 percent. This raised concerns that smaller banks in rural areas may be unable to remain competitive by adopting Internet technology.¹⁴ Results of this survey help to allay these concerns. First, poor Internet access and the ability of a bank's technical personnel may be barriers to some rural community banks for adopting Internet technology, but the survey suggests that many other factors are more important to the majority of bankers. Second, estimates from this survey place the adoption rate for rural community banks at 16 percent, which implies that adoption of Internet banking among these banks was very rapid during the year 2000. Third, most District banks report plans to install a Web site in the future. If some District banks have not jumped on the Internet bandwagon it is not because they face significant technical hurdles. They are more likely waiting until they can confidently make a business case for installing a Web site.

If the recent jump in overall customer use continues, then Internet banking will become essential to successful operation of most banks. It is therefore worthwhile to continue to monitor the adoption of Internet banking in Tenth District states, especially among smaller banks. This survey would indicate that we should continue to see District banks marching towards an online presence with an increasing ability of their Web sites to deliver banking services.

ENDNOTES

- ¹ "Six Years of Net-Banking Milestones," *Online Banking Report*, Issue 67 (December 31, 2000), p. 2.
- ² "Finally, A Reason to Celebrate," *Financial Services Online*, November 2000, p. 6.
- ³ There has been analysis of profitability, cost structure, and growth of banks with significant Internet strategies. See Robert DeYoung, "Learning-by-Doing, Scale Efficiencies, and Financial Performance at Internet-Only Banks," paper presented at the Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, May 2001; Karen Furst, William W. Lang, and Daniel E. Nolle, "Internet Banking: Developments and Prospects." Office of the Comptroller of the Currency, Economic and Policy Analysis Working Paper 2000-9, September 2000; and Richard Sullivan, "How Has the Adoption of Internet Banking Affected Performance and Risk in Banks? A Look at Internet Banking in the Tenth Federal Reserve District," *Financial Industry Perspectives*, Federal Reserve Bank of Kansas City (December 2000), pp. 1-16.
- ⁴ See Forest Myers and Richard J. Sullivan, "The 2001 Survey of Commercial Banks in the Tenth Federal Reserve District: Changes and Challenges," pp. 10-12.
- ⁵ Adoption of automated teller machines is examined in Timothy Hannan and John McDowell, "The Determinants of Technology Adoption: The Case of the Banking Firm," *Rand Journal of Economics*, 24(4), Winter 1993, pp. 503-28; adoption of credit scoring technology is analyzed in Jalal Akhavein, W. Scott Frame, and Lawrence J. White, "The Diffusion of Financial Innovations: An Examination of the Adoption of Small Business Credit Scoring by Large Banking Organizations," Working Paper 2001-9, Federal Reserve Bank of Atlanta, April 2001; adoption of transactional bank Web sites is reviewed in Marsha Courchane, David Nickerson, and Richard Sullivan, "Strategic Real Options and Endogenous Market Structure in Internet Banking: Theory and Empirical Tests," Working Paper, Department of Economics, Colorado State University.
- ⁶ See Sullivan, "How Has the Adoption of Internet Banking Affected Performance and Risk in Banks?".
- ⁷ Bill presentment is the electronic delivery of a bill from a biller to a customer. An aggregation service (sometimes referred to as screen scraping) collects personal financial information from various Internet sources and displays it on a single Web page. A financial portal displays financial news, data and planning tools, and possibly other non-financial information, as well as links to specific online financial services. If offered by a bank, these services would be available on the bank's Web site.
- ⁸ In a recent national survey of banks, respondents reported an average of 8.1 percent of their customer bases used online banking. See "Community Bank Competitiveness Survey: Web Census 2001," *ABA Banking Journal*, April 2001, p. 37.

- ⁹ This would be expected except in the unlikely case the new enrollments are small relative to the number of customers who ask to be removed from the Internet banking service.
- ¹⁰ This is not shown in Charts 9 or 10 but is available from the author on request.
- ¹¹ Of 133 respondent banks that allow online access to account balances, 121 report that they do not charge a fee for the service. On the other hand, of 115 banks that offer online bill payment, only 14 did not report an explicit fee for the service. The item for a bill payment fee was missing for seven respondents, and two respondents report no fee for bill payment. The remainder did not report a fee due to special circumstances, such as fee waiver during an introductory period.
- ¹² The survey asked respondents to complete the statement "Development and installation costs for the bank's Internet banking system were". The three available options were "less expensive than anticipated," "about what was anticipated," and "more expensive than anticipated."
- ¹³ "Finally, A Reason to Celebrate."
- ¹⁴ Sullivan, "How Has the Adoption of Internet Banking Affected Performance and Risk in Banks?," p. 4.