

# Internet banking in the U.S.: landscape, prospects, industry implications

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## Abstract

Internet banking is receiving great attention in the banking industry and the regulatory community. As with other areas of e-commerce, discussions about Internet banking often proceed without reference to the actual state of market developments. This paper describes the current state of Internet banking in the U.S. and discusses its implications for the banking industry.

Even though only a small number of banks were offering Internet banking at the end of 2000, analysis of data collected from Office of the Comptroller of the Currency bank examiners shows that this will change significantly in 2001, with over 50% of banks offering Internet banking services. As a group, large banks are found to be more likely to offer Internet banking, although a growing number of small banks offer it, or plan to. Nevertheless, large banks appear to have an advantage over small banks in the range of services they offer over the

Internet. We argue that the modest use of Internet banking by consumer customers of banks is due in large part to a lack of a compelling value-added proposition. A more compelling case can be made for Internet banking adding value for banks' business customers, and this may explain why some banks are now targeting their Internet strategies toward business customers. Nevertheless, because an overwhelming number of consumers currently have accounts at banks that offer Internet banking, consumer usage patterns could change suddenly. In addition to affecting the way customers receive banking services, Internet banking may become an important influence on banking industry structure. However, the effect of Internet banking on consolidation in the banking industry is uncertain. The economics of Internet banking may favor large institutions, either because of economies of scale and scope, or because of the need to advertise heavily to be successful. Alternatively, Internet banking could offer entry and expansion opportunities that small banks traditionally lacked.

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## Introduction

Internet banking is receiving great attention in the banking industry and the regulatory community. This is because Internet banking reflects a more general interest in the role of the Internet as a vehicle for commercial activity. However, interest in Internet banking may be particularly keen because a strong case can be made that banking, along with other financial services, provides a particularly fertile environment for the development of e-commerce. At its core, banking involves the collection, storage, transfer and processing of information assets, and the Internet is an incredibly powerful and efficient tool for handling these information processes.

Discussions about Internet banking often proceed without reference to the actual state of market developments. Some analysts argue that Internet banking is revolutionizing the banking industry. Others see the Internet as simply adding another delivery channel. Nevertheless, only a small percentage of banking transactions are done online, and only about a third of all banks currently offer Internet banking. However, banks are developing Internet banking capabilities at a very rapid pace, with many of the largest banks in the US adopting the delivery of services over the Internet as a major component of their business strategy.

The purpose of this paper is to describe the current and prospective state of Internet banking in the U.S., and to discuss its implications for the banking industry. Section II describes the state of Internet banking in the U.S., drawing heavily on information collected from Office of the Comptroller of the Currency (OCC) national bank examiners through the end of 2000. In addition, we summarize the key findings of our previous research, which show significant differences between banks that offer Internet banking and those that do not. Section III summarizes information collected by OCC examiners on the Internet banking plans of national banks, and briefly evaluates industry estimates of potential demand for Internet banking. Section IV turns to implications Internet banking may have for banking industry structure, while Section V presents our conclusions.

## Internet banking in the U.S.: current landscape

Despite popular impressions, and the rapid growth in the number of banks offering Internet banking, only a minority of banks in the U.S. offered transactional Internet banking as 2001 began.<sup>2</sup> For the purposes of this paper, we define a bank as offering 'transactional' Internet banking if its customers can transact business over the Internet (e.g. access accounts and transfer funds, apply for an account or a loan, etc.). Thus, every bank that has a web site does not qualify as one that offers Internet banking. By 'Internet bank' we mean any bank offering Internet banking, including, but not limited to, 'Internet-only' banks.<sup>3</sup> In this section we describe structure and performance characteristics of Internet banks and 'non-Internet banks' (i.e. banks that do not offer transactional Internet banking, even if they have a Web site).

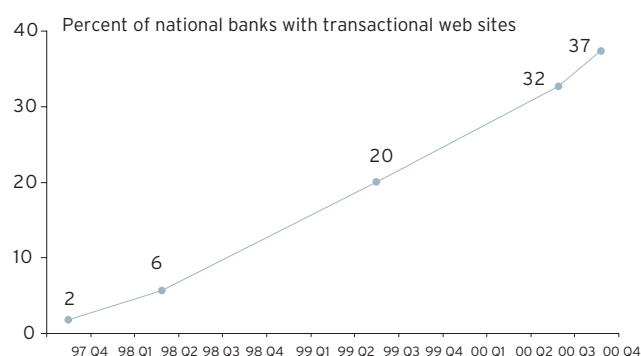


Figure 1: Substantial growth of transactional Internet banking  
Source: Office of the Comptroller of the Currency

Figure 1 indicates that somewhat over one-third of national banks offered transactional Internet banking by Q4 2000.<sup>4</sup> This represents a substantial increase over the 6% of national banks that offered Internet banking in Q2 1998. Nevertheless, banks offering Internet banking account for over 90% of banking system assets and over 85% of small deposit accounts. That is because most large banks offer transactional Internet banking. At the same time, proportionally few small banks offer transactional Internet banking. Both of these points are illustrated in Figure 2.

2 Furst, Lang, and Nolle (2000) note that some consider the 'Internet banking era' to have begun only several years ago; and, indeed, at the end of 1997 only about 100 banks and thrifts offered transactional Internet banking.

3 Note that a new term, 'Internet-primary,' has begun to be used by regulators. This reflects the recent shift in thinking in the market toward the notion that some, perhaps limited, physical presence may enhance remote delivery of financial services. As of the beginning of 2001, only about two dozen banks and thrifts were 'Internet-primary.'

4 Data for Q3 1999, Q3 2000, and Q4 2000 are from a detailed questionnaire answered by OCC examiners for active national bank charters. We believe these data for the nationally chartered portion of the banking industry are representative of the whole (nationally-chartered plus state-chartered) banking industry. See Furst, Lang, and Nolle (2000) for details on pre-Q2 2000 data.

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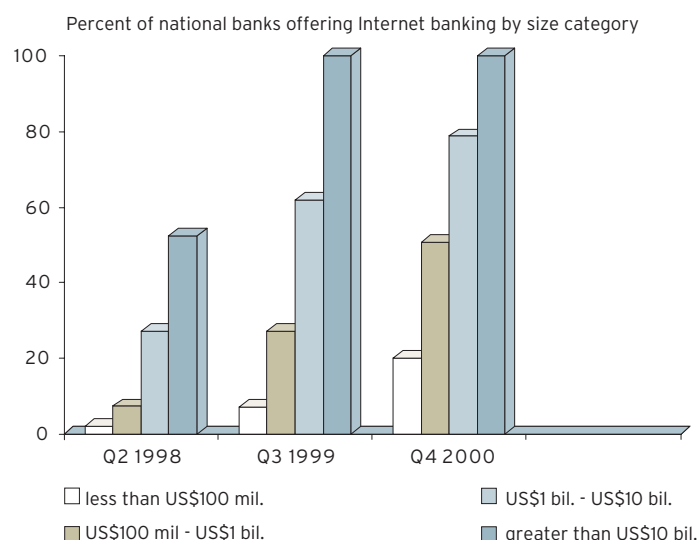


Figure 2: Small banks lag large banks in offering Internet banking  
Source: Office of the Comptroller of the Currency

In our previous research, we identified key differences between Internet banks and non-Internet banks.<sup>5</sup> Within size classifications, banks that offer Internet banking have higher concentrations in business and credit card loans, rely less on deposits relative to purchased funds, and have higher ratios of non-interest income to net operating revenue. Taken together, these characteristics indicate that Internet banks are less reliant on traditional banking activities and take a more aggressive business posture relative to non-Internet banks of similar size.<sup>6</sup>

For most size categories, Internet banks also have higher returns on equity (ROE) and lower non-interest expenses as a ratio of net operating revenue. However, this pattern is reversed for small banks under US\$100 million in assets. When de novo banks are included, banks in the smallest size category are both less profitable and less efficient than non-Internet banks. Removing de novos from the small bank group eliminates the discrepancy between the profitability of small Internet banks and small non-Internet banks. That is, de novo banks offering Internet banking were significantly less profitable and less efficient than non-Internet de novos. It is pos-

sible that new banks offering Internet banking have adopted a business strategy based on a belief that demand for Internet banking services will grow rapidly in the near term. It is also possible that these institutions made relatively substantial investments in Internet banking products and marketing based on the belief that a higher than normal payoff in the future will more than offset near-term costs. Clearly, it would be useful to obtain more information on the business strategies of these young Internet banks and to track the performance of these banks over time in order to determine the extent to which performance matches expectations.

Among transactional Internet banks, a key difference between large and small banks is that large banks offer a wider range of online banking services. For example, we found that in Q3 1999, 58.5% of Internet banks with more than US\$10 billion in assets offered a package of Internet banking services that included balance inquiry, funds transfer, electronic bill payment, and at least three other Internet banking services. By contrast, only 14.1% of Internet banks with less than US\$100 million in assets offered such a premium package of Internet banking services.<sup>7</sup>

There are two other significant differences between small and large banks offering Internet banking. For banks with less than US\$100 million in assets, there appear to be start-up hurdles to overcome in offering Internet banking.<sup>8</sup> We found that even after excluding de novo banks from the group of banks with under US\$100 million in assets, Internet inexperienced small banks were not as cost efficient as non-Internet banks.<sup>9</sup> For banks with more than US\$100 million in assets, length of experience in offering Internet banking did not affect efficiency.

A final important difference between small and large Internet banks is their different emphases on business-oriented Internet banking services. For example, as of Q3 2000, 49% of Internet banks with over-US\$10 billion in assets, and 30% of the Internet banks with more than US\$1 billion in assets but less than US\$10 billion in assets offered business cash management services, which is roughly double the corresponding percentages from Q3 1999.<sup>10</sup> In contrast, only 14% of Internet

5 Furst, Lang, and Nolle (2000).

6 See in particular Furst, Lang, and Nolle (2000), Tables 7 and 8.

7 See Furst, Lang, and Nolle (2000) for a detailed discussion of small bank/large bank differences in the range of Internet banking services.

8 These start-up hurdles may include both direct and indirect costs related to technology. Direct costs include licensing fees for Internet banking software and investments in hardware. Indirect costs include modifications to existing systems to allow

for the integration of information between various systems or service providers.

9 'Internet inexperienced' banks are those banks adopting Internet banking after Q2 1998. See in particular Furst, Lang, and Nolle (2000), Table 12.

10 The Q3 2000 figures are from data compiled by the Office of the Comptroller of the Currency for all national banks. See Furst, Lang, and Nolle (2000), Table 5, for the Q3 1999 information.

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banks with less than US\$100 million in assets offered online cash management, unchanged from Q3 1999. Indeed, there are frequent reports in the business press announcing new or expanded business Internet banking services being offered by large banks.<sup>11</sup> A common thread linking these accounts is that large banks are targeting small- and medium-sized enterprises. Given the traditional financial ties between small banks and small businesses, the more aggressive Internet banking strategies of large banks may have particularly important competitive consequences for small banks.

## The future of Internet banking in the US

Recent OCC analysis of the Internet banking activities of national banks includes information on examiners' knowledge of banks' plans for future online activity.<sup>12</sup> Figure 3 summarizes current and planned offering of Internet banking by national banks. That diagram shows that in addition to the 37% of national banks that offered Internet banking by Q4 2000, an additional 18% have concrete plans to offer transactional Internet banking by the end of 2001. Hence, on current

Percent of national banks with transactional Internet banking (as of fourth quarter, 2000)

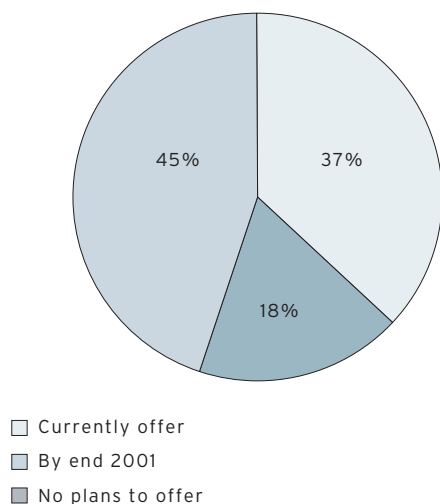


Figure 3: Internet banking and national banks: current use and planned growth  
Source: Office of the Comptroller of the Currency

plans, by the end of 2001, slightly over half (55%) of banks will offer Internet banking.

Since most large banks already offer Internet banking, most of the growth in the number of banks offering Internet banking will be among small banks. Nevertheless, important differences will continue to exist between small banks and large banks. As Figure 4 shows, approximately one-third of banks with under US\$100 million in assets plan to offer Internet banking in the near future, but that percentage is still well

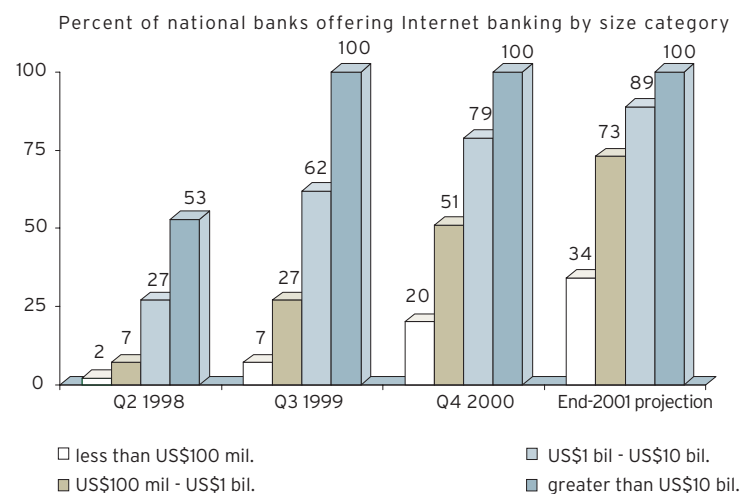


Figure 4: Projections: small banks will still lag large banks in offering Internet banking  
Source: Office of the Comptroller of the Currency

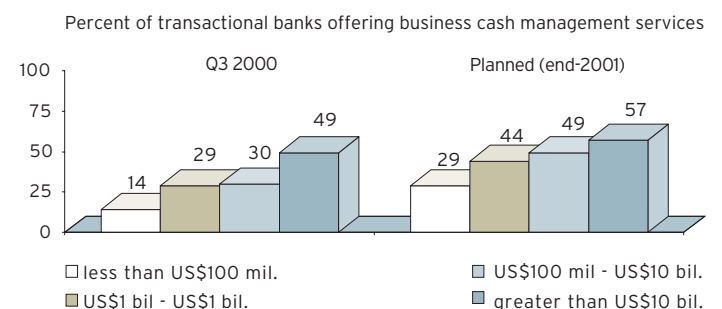


Figure 5: Will small banks lose business customers to large banks via the Internet?  
Source: Office of the Comptroller of the Currency

<sup>11</sup> See, e.g., O'Brien (2000) and Ptacek (2000).

<sup>12</sup> See Office of the Comptroller of the Currency (2000) for summary information.

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below the percentages in the larger bank groups. In addition, small Internet banks will continue to lag behind larger Internet banks (Figure 5) in the range of online services they offer.

The data in Figure 3 also indicates that almost half (45%) of all national banks currently have no concrete plans to offer Internet banking. If current plans are an accurate reflection of the future, then, as Figure 6 shows, the banking industry would be divided into Internet 'haves' and Internet 'have-nots.' The data demonstrates that most of the 'have-nots' are small size banks. It is unlikely that the 'have-not' plateau will persist indefinitely if, as expected, there is substantial growth in customer demand for Internet banking. However, the relatively large number of small institutions with no plans may be an indication that many small banks are not weighing carefully

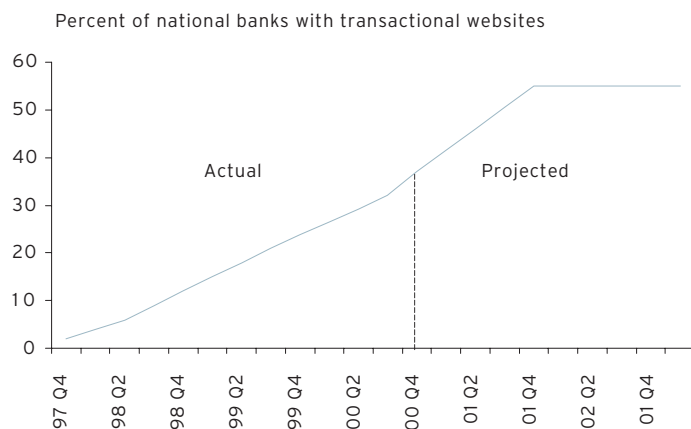


Figure 6: Internet banking 'haves' and 'have-nots'?  
Source: Office of the Comptroller of the Currency

the implications of the Internet for their business strategy. There are several significant strategic considerations that most banks, including most small banks, consider in determining their Internet strategy.

First, bank management must evaluate the degree to which current and future market demands for Internet banking services warrant a change in their Internet banking plans. Market analysts estimate that current consumer use of Internet banking is relatively modest, but many also expect a steady

increase in the use of Internet banking over the near-term, as illustrated in Figure 7. Even so, it is interesting to juxtapose two observations: on the one hand, most households current-

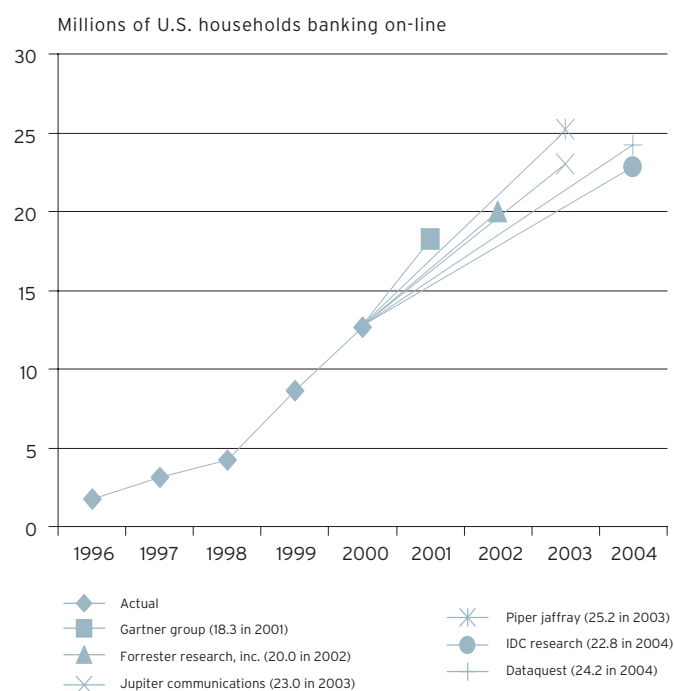


Figure 7: Projections: growth of 'demand' for Internet banking  
Source: Office of the Comptroller of the Currency using data from various industry sources

ly use a bank that offers Internet banking; it is therefore possible that most bank customers could switch rapidly to Internet banking.<sup>13</sup> On the other hand, even the most optimistic forecasts foresee only a partial adoption of Internet banking by existing consumers.

How compelling, then, is the Internet banking proposition to consumers, given the relatively modest use of Internet banking to date? The potential cost savings that consumers expect to get from conducting banking transactions over the Internet do not appear to be very large. In contrast, consumers embraced online brokerage with relish, because in many cases, brokerage customers were able to reduce brokerage

13 As noted above, over 85% of all small deposit accounts (i.e., accounts under US\$100,000) – a measure of 'household' accounts – are at banks that offer Internet banking.

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fees from nearly US\$100 per trade with a traditional broker to perhaps US\$10 per trade online. This suggests that any breakthrough in consumer usage of online banking may depend on banks developing new and better services, rather than simply reducing the price of standard banking products. It also suggests that low demand for Internet banking may be responsible for the wait-and-see posture of some banks toward offering Internet banking.

However, it is important to distinguish between consumer demand for Internet banking and business demand for Internet banking. Even small cost savings from the electronification of individual commercial transactions could result in substantial savings to a business simply because of the number of transactions it conducts relative to an individual consumer. Thus, there is a more compelling economic case for significant growth in demand for Internet banking services by banks' business customers. To the extent that Internet banking offers significant value to business customers, banks that remain on the Internet banking sidelines may risk losing business customers to banks with a more aggressive Internet strategy.

Another consideration for banks in determining when, and how deep, to plunge into Internet banking is the likely potential competitive pressure generated by the development of the Internet in the future. Banks face competition not only from their traditional rivals within the banking industry, but may increasingly find their market share threatened by banks from new, distant locations. In addition, non-bank firms – financial and non-financial – will increasingly compete with banks for their most valuable customers.

A third strategic consideration in developing Internet plans is the question of whether there are early adopter advantages. Some analysts point to the high market concentration of Internet banking customers in a few large banks as evidence that there will be a few big winners, and that laggards will have difficulty catching up. At the end of 1999, five large banking companies (Wells Fargo, Bank of America, Bank One Corp., Citibank, and First Union Corp.) accounted for an estimated 35.8% of all online banking customers.<sup>14</sup> Proponents of the

early-adopter advantage view also argue that Internet banking will increase the extent to which economies of scale and scope can be realized, and that early adopters will be in a better position to exploit these.<sup>15</sup> Furthermore, it may be that many Internet banking customers are sticky: that is, once they have spent time and effort in switching some or all of their banking transactions to a particular provider's online environment, they will be reluctant to incur new start-up costs to switch to another system.

The other side of the issue is that there is little evidence, so far, that leaders in online banking are earning higher profits. In addition, the increasing ease with which customers can 'comparison shop' among alternative (bank and non-bank) suppliers of Internet banking services may offset customer stickiness. Further, because of the rapid pace and broad scope of technological change in banking and payments, today's early-adopter advantage in capturing customers using the current set of Internet banking options may suddenly be undermined by the introduction of a new and more advanced technology.

### Internet banking: implications for banking industry structure and performance

Globalization and increased competition are trends that have shaped the banking industry for decades. The expansion of Internet banking will contribute to these trends in the same way that previous advancements in telecommunications and data processing did – for example, by reducing barriers associated with geography and national boundaries. Many markets that were once highly localized (mortgage finance in the U.S., for example) have become national and sometimes international in scope. Not only will competition be enhanced by the reduction of geographical barriers, but also by the increased ability of bank customers to search for and locate new suppliers electronically.

Internet banking will also accelerate the ongoing process of financial deepening, i.e. the widening applicability of more formalized financial markets in the economy. Traditionally, small start-up firms with a limited credit history have been unable to secure external funding in formal credit markets, including

<sup>14</sup> See Furst, Lang, and Nolle (2000), Table 19.

<sup>15</sup> Radecki, Wenniger, and Orlow (1997) make this point about remote electronic distribution of banking services in general.

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banking. Technological advancements in data collection, data management, and financial engineering have improved the ability of potential creditors to assess the creditworthiness of potential borrowers and to price the risk associated with those borrowers through standardized mechanisms such as credit scoring. As a result, the range of businesses and individuals that can obtain loans through financial institutions is expanding rapidly. Credit scoring is based on an analysis of information that can be entered into a standardized database, and thus it avoids the costs associated with customized loan products. Standardized credit scoring is easily transferable to multiple lenders or potential lenders, a process that eliminates any economic rents created when credit depends on specialized knowledge of a lender with respect to a particular borrower. The result is greater access and lower cost for borrowers who qualify for this type of lending.

The impact of Internet banking on the consolidation of the banking industry is less clear-cut. The Internet can be employed as an extremely efficient device for banks of all sizes to collect and manage information in order to meet the various financial needs of individuals and businesses, particularly by integrating services or 'bundling' them together. On the one hand the Internet allows financial firms of different sizes to enter markets and reach customers previously out of reach to them. On the other hand, there are substantial economies of scale and scope in data storage and data processing, and larger banks are better positioned to exploit these than smaller banks. In addition, the proliferation of Internet sites means there may be a substantial advantage for banks able to distinguish their products from those of other banks. This implies a significant advantage for large firms and banks, which possess resources to brand and market themselves. These factors could boost both the pace and scope of consolidation in the banking industry.

However, even if the growing use of the Internet favors large banks, these banks must choose between alternative Internet-based business strategies. The Internet provides a very effective searching device for consumers to choose the best-of-breed producers of specialized services. Intermediaries may

play a role in helping users locate the best product given their individual preferences for quality, convenience and price. While economies of scale imply that information warehousing and processing will be highly concentrated, these functions may not necessarily be integrated into an individual banking firm. Rather, they may be performed by third parties that service the needs of highly specialized and focused financial firms. Thus, it is not clear whether the Internet will provide a larger impetus to increased focus or to greater conglomeration. Most likely, both types of business strategies will co-exist in the market place with some banking customers preferring the convenience of one-stop shopping, while others choose lower costs or higher quality products produced by specialized financial service providers.

### Summary and conclusions

Our analysis shows that a minority of banks currently offers Internet banking, but that is expected to top 50% by year-end 2001. As a group, large banks are more likely to offer Internet banking, although a growing number of small banks offer it, or plan to. Nevertheless, large banks appear to have an advantage over small banks so far in the range of services they offer over the Internet. Across most size categories of banks, Internet banks are more profitable than non-Internet banks, but given the relative newness of Internet banking, it is unlikely that there is a causal relationship between offering Internet banking and bank profitability for most banks.

Use of Internet banking, while forecast to grow significantly, is still relatively modest. On the consumer customer side, the so far modest take-up of Internet banking may be due to a lack of a compelling value-added proposition; a problem that may not be applicable for potential business Internet banking customers. Nevertheless, most consumers prefer to use banks that offer Internet banking, and so usage patterns could change suddenly.

Internet banking could have significant effects on the structure and performance of the banking industry. If the economics of Internet banking favor large institutions, either because of increasing economies of scale and scope, or because of the

need to advertise heavily in order to be successful, the consolidation of the banking industry that has been proceeding steadily for the past fifteen years could become more intense. Alternatively, Internet banking could offer entry and expansion opportunities that small banks lacked previously. □

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