Future of Banking Study

The Declining Number of U.S. Banking Organizations: Will the Trend Continue?

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In 1995, the Brookings Institution published a paper entitled "The Transformation of the U.S. Banking Industry: What a Long, Strange Trip It's Been."[1] Using a breathtaking array of facts and figures, the paper described in great detail the dramatic changes that had occurred in the U.S. commercial banking industry over the 15 years from 1979 to 1994. The banking industry was transformed during that period, according to the paper (p. 127), by "the massive reduction in the number of banking organizations; the significant increase in the number of failures; the dramatic rise in off-balance sheet activities; the major expansion in lending to U.S. corporations by foreign banks; the widespread adoption of ATMs; . . . and the opening up of interstate banking markets . . ." The paper went on to explain that most of these major changes in banking could be traced to two developments: (1) the extraordinary number of major regulatory changes during the period, from deposit deregulation in the early 1980s to the relaxation of branching restrictions later in the decade; and (2) clearly identifiable innovations in technology and applied finance, including improvements in information processing and telecommunication technologies, the securitization and sale of bank loans, and the development of derivatives markets. Other research would later confirm the paper's assessments and its explanation of the course of events in the banking industry over that period, marking the paper as a noteworthy contribution to the literature.

Yet, nearly a decade after the publication of that paper, data indicate that the transformation of the banking industry is ongoing and that the number of banking organizations continues to decline—though recently there have been signs that the number of institutions is

[1] Berger, Kashyap, and Scalise (1995).

beginning to stabilize. In fact, when we took a closer look at the data, we found that the rate of decline in the number of banking organizations appears to be slowing markedly. Indeed, if the data from the past few years indicate anything about future direction, the current rate of decline can be expected to slow even more over the next five-year period. Moreover, some evidence suggests that this slowdown in the rate of decline might presage a return to a relatively stable population of banking organizations. Such a result would be in sharp contrast to conventional wisdom about the equilibrium number of banking institutions for the United States going forward.

Because this paper is part of a collective review of the U.S. banking industry's past and an anticipation of its future, many aspects of the industry's transformation are discussed in companion papers. Our focus, therefore, is primarily on industry structure: the changes that have occurred and how the structure might evolve in the future. Accordingly, we begin with an updated review of the structural changes that have occurred in the industry over the past two decades (starting in 1984). This should give us a better understanding of the scope of the decline that has taken place. We then offer some projections of future banking industry structure and end with a summary of our findings.

Overview of Structural Change in the U.S. Banking Industry since 1984

Over the last quarter of a century, the structure of the U.S. banking industry has indeed undergone an almost unprecedented transformation—one marked by a substantial decline in the number of commercial banks and savings institutions and a growing concentration of industry assets among a few dozen extremely large financial institutions. This is not news. As mentioned

above, the decline in the number of banking organizations has been ongoing for more than two decades and has been well documented in the literature.[2] Nevertheless, a brief overview will serve to clarify the scope of the decline.[3]

At the year-end 1984, there were 15,084 banking and thrift organizations (defined as top-tier commercial banks, thrifts, and bank and thrift holding companies).[4] By year-end 2003, that number had fallen to 7,842—a decline of almost 48 percent (figure 1). Distributed by size, nearly all the decline occurred in the community bank sector (organizations with less than $1 billion in assets), and especially among the smallest size group (less than $100 million in assets). Yet community banks and thrifts still account for 94 percent of banking organizations (figure 2).

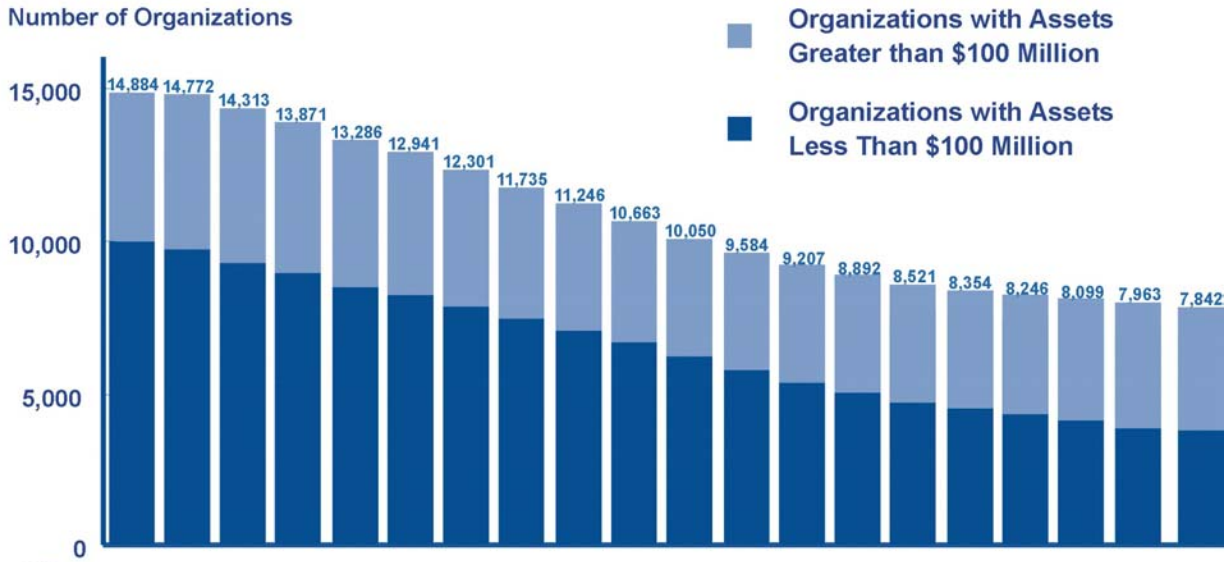
The bulk of the decline in the number of organizations from year-end 1984 through 2003 was due to unassisted mergers and acquisitions (see figure 3, which decomposes the net change in the number of banking organizations into several components). During that period, 8,122 individual bank and thrift organizations disappeared through unassisted mergers and holding company purchases. In fact, mergers and acquisitions were the single largest contributor to the net decline in banking organizations in every year through 2003, even the years

[2] Discussions about the declining number of banks can be found not only in the paper already mentioned (Berger, Kashyap, and Scalise [1995]) but also in Berger, Demsetz, and Strahan (1999); Hughes, Lang, Mester, and Moon (1999); and the Group of Ten (2001).

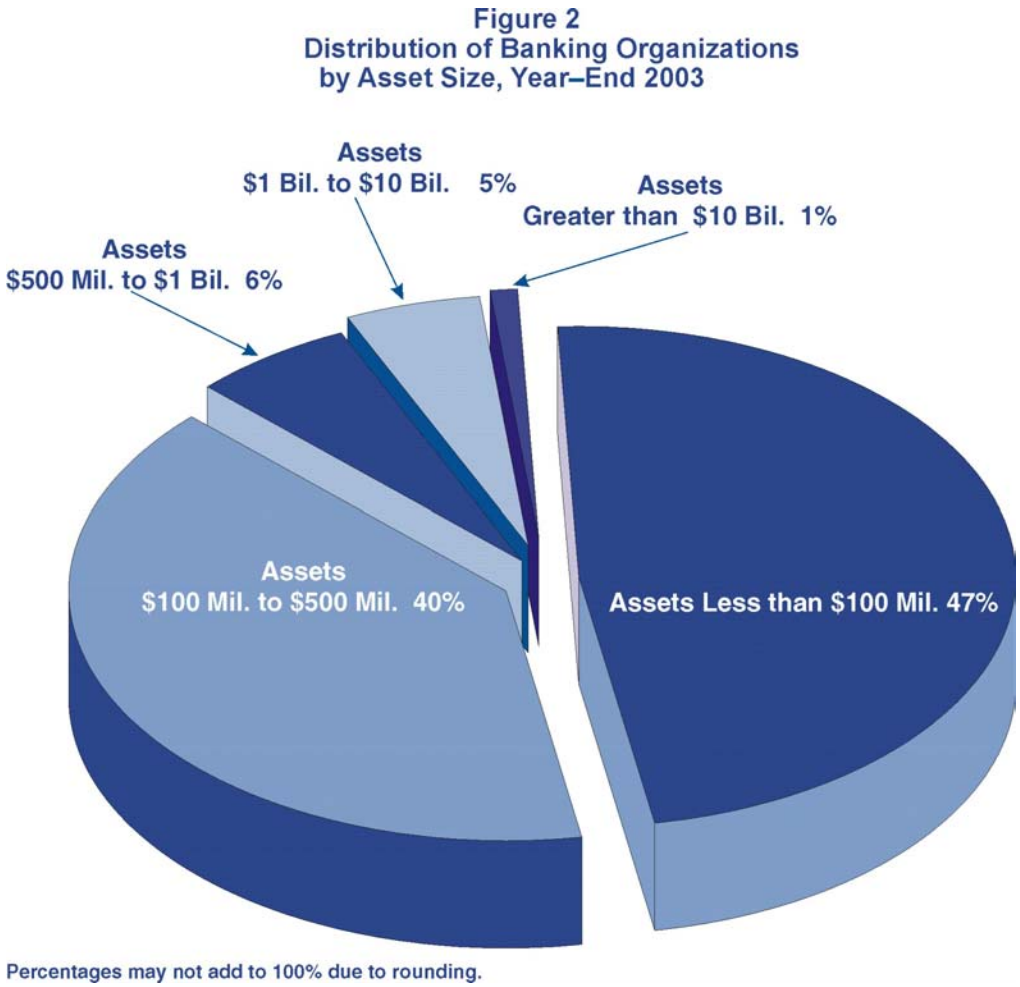
[3] Data limitations at the level of banking organizations restrict our analysis to the years 1984–2003. And because the number of commercial banks alone peaked in 1984 at 14,496, we use that year as the beginning of our discussion of the consolidation trend, even though in certain respects the transformation of the U.S. banking industry may be said to have begun earlier.

[4] The expansion of banking powers over the last two decades has left few differences between commercial banks and savings institutions (thrifts), so our analysis combines the two types of institution. Hence, unless otherwise specified, all references in the paper are to the combined industries. Moreover, we focus on top-tier organizations rather than on individual institutions in order to avoid counting multiple charters belonging to a single corporate entity. The count here includes all active organizations, while figure 1 only includes organizations that filed a financial report at the end of 1984 which totaled 14,884.

Figure 1
Number of Banking Organizations
1984 – 2003



Asset Size	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03
>=$10B	78	84	95	96	99	98	93	87	81	81	87	84	79	80	74	77	85	86	90	95
>=$1B & <$10B	620	624	619	611	597	571	515	461	409	384	351	360	356	369	360	377	381	383	388	411
>=$500M & <$1B	484	481	478	464	483	494	463	420	408	372	368	367	393	371	378	402	416	447	475	481
>=$100M & <$500M	3,718	3,845	3,849	3,749	3,606	3,546	3,403	3,342	3,313	3,185	3,055	3,033	3,025	3,025	3,015	2,987	3,029	3,082	3,151	3,172
<$100M	9,984	9,738	9,272	8,951	8,501	8,232	7,827	7,425	7,035	6,641	6,189	5,740	5,354	5,047	4,694	4,511	4,335	4,101	3,859	3,683

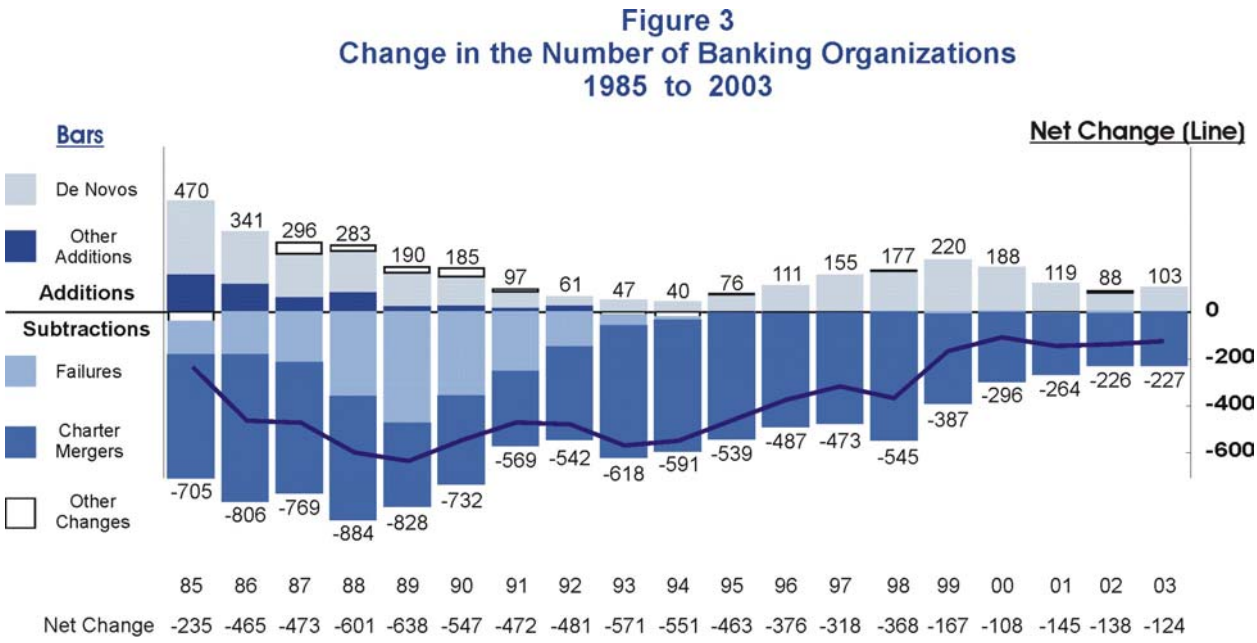


when the savings and loan (S&L) and banking crises were at their peak. Before 1993, though, another significant contributor to the decline in the number of banking organizations was failures (figure 4).

During the entire period 1984–2003, 2,698 bank and thrift closings were caused by failure[5]—but almost 75 percent of them occurred in the five years 1987–1991, when failures

[5] This number includes individual charters that were merged into other charters with FDIC assistance, but it does not include insolvent institutions that remained open with FDIC financial assistance. These closings represent 2,262 organizations (including multi-bank holding companies) that were eliminated because of failures. Other additions

averaged 388 per year.[6] In contrast, from 1994 to 2003 only 66 institutions failed—a figure that reflected greatly improved economic conditions.

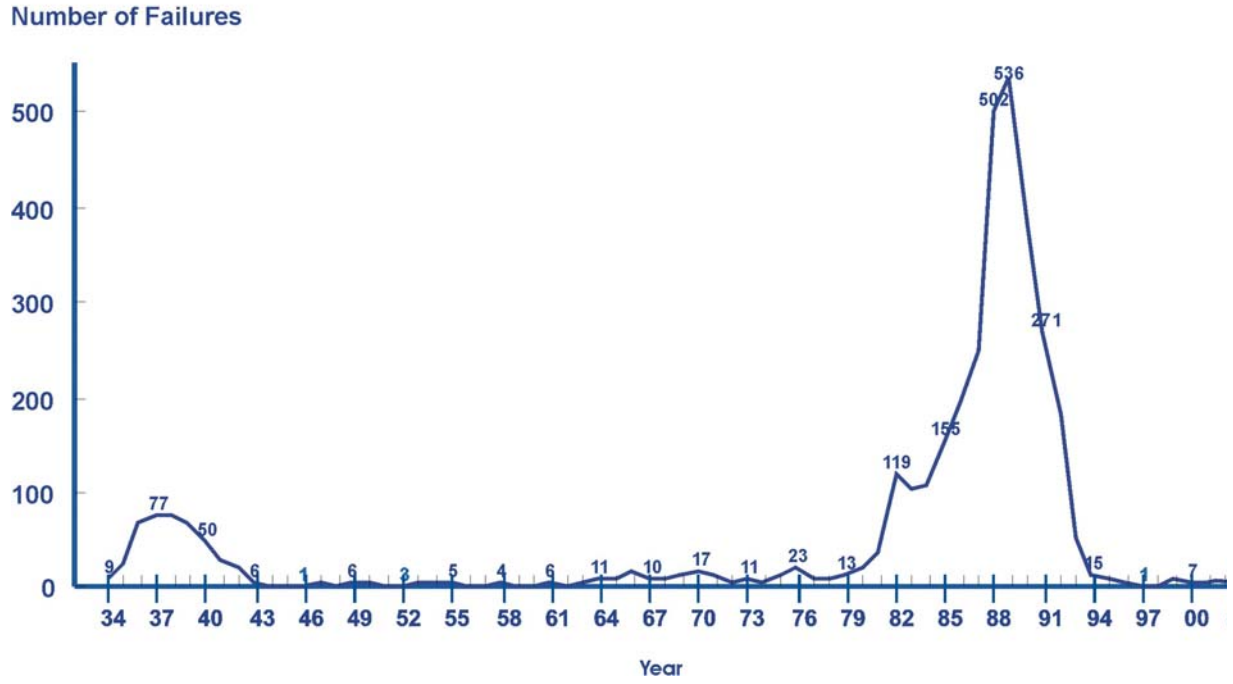


The decline caused by mergers, acquisitions, and failures was partially offset by the entry of 3,097 new banking organizations from year-end 1984 to 2003. The number of bank start-ups during the period is remarkable, given the overriding downward trend. During the entire period, the number of de novo bank entrants averaged 163 per year. This happened even though the

included in figure 3 were non-FDIC-insured institutions that became FDIC-insured, often from state insurance programs in the mid-1980s. Other changes in figure 3 include voluntary liquidations of organizations.

[6] During the 1980–1994 period, 1,617 FDIC-insured commercial and savings banks and 1,300 thrifts were closed or received FDIC financial assistance. The number of failures peaked in 1989, when 536 banks and thrifts failed.

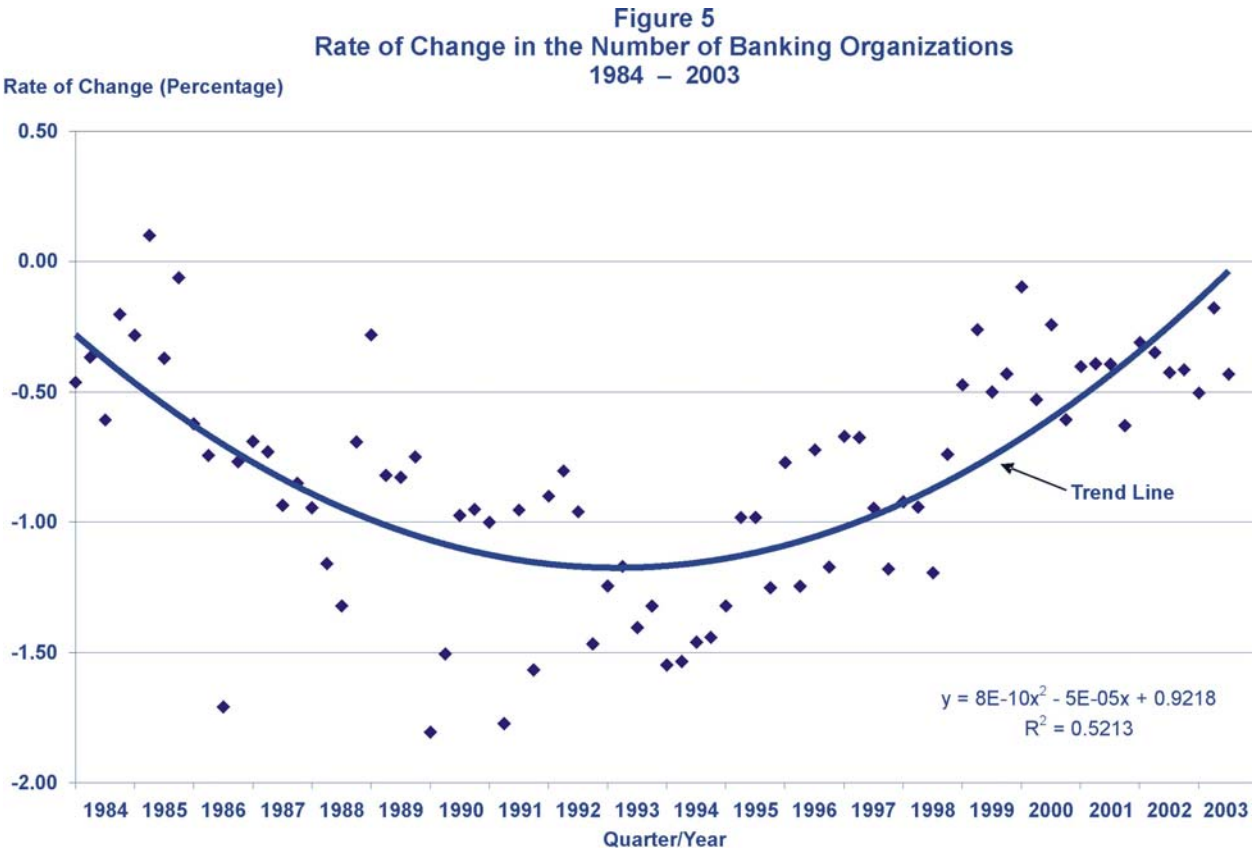
Figure 4
Number of Commercial Bank and Savings Institution Failures
1934 – 2003



creation of new banks was suppressed at the height of the thrift and banking crises (after peaking in 1984, the number of start-up institutions declined each year until 1993). Then, as economic conditions improved and more capital became available, de novo entry into the banking industry resumed and continued through the end of the century. With the beginning of an economic recession in March 2001, the number of new charter formations again began decreasing.

Although the decline in the number of banking organizations has been a consistent phenomenon for the last two decades, the pace of the decline has not been uniform. Indeed, graphing the rate of change in the number of banking organizations reveals a very strong cyclical

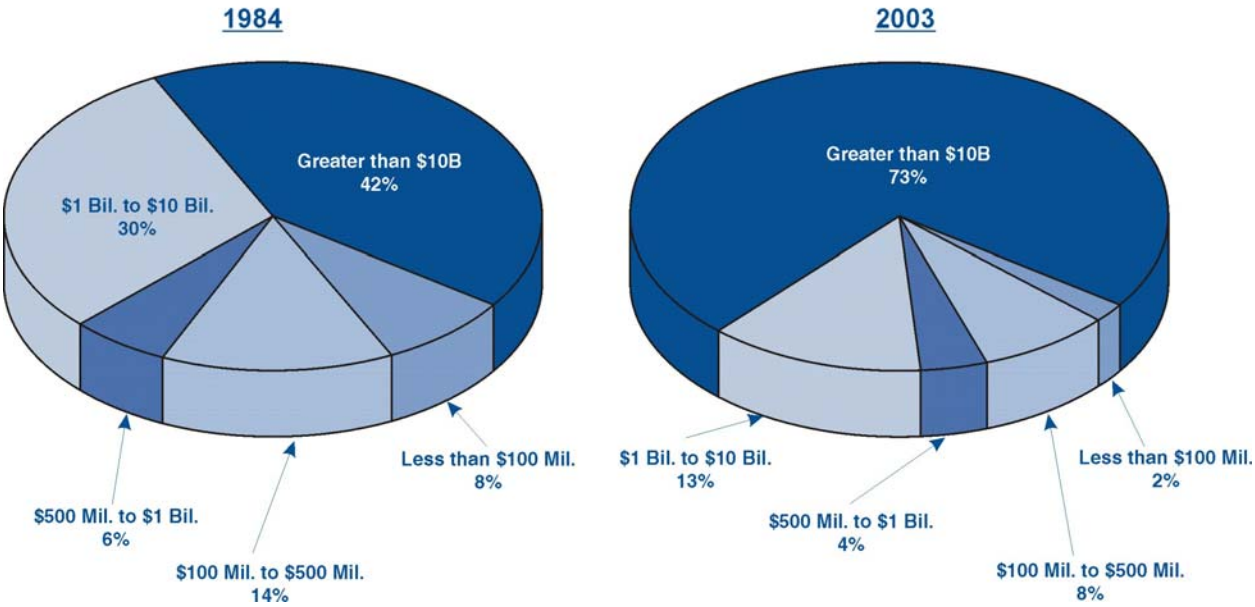
pattern, with declines occurring at an increasing rate in the 1980s, only to slow in the 1990s (figure 5). Since 1992 the rate of decline in the number of institutions has trended consistently lower. This pattern has important implications for our projections of the structure of the industry.



At the same time that the number of banking organizations was decreasing, industry assets were increasing. Over the 1984–2003 period, they more than doubled (in nominal terms) to $9.1 trillion. Existing assets and asset growth, however, were not evenly distributed across the industry but, instead, were becoming more and more concentrated among the nation's largest financial institutions. This can be seen in figure 6, which compares asset share over time for

each of five size groups during our period. The asset share of the largest size group—organizations with more than $10 billion in assets—increased dramatically, rising from 42 percent in 1984 to 73 percent in 2003. In contrast, the share of industry assets held by community banks (organizations with less than $1 billion of assets) dropped from 28 percent in 1984 to only 14 percent; and the smallest banks, those organizations with less than $100 million in assets, accounted as a group for only 2 percent of industry assets in 2003—compared with 8 percent in 1984.

Figure 6
Share of Banking Industry Assets by Size Group
1984 and 2003



In terms of deposits, industry concentration has been equally dramatic: a quarter of the nation's domestic deposits are now controlled by just 3 organizations (see table A.1), whereas in

1984 that proportion of deposits was held by 42 companies. At year-end 2003, Bank of America Corporation, the largest holder of domestic bank deposits, held approximately $512 billion in domestic deposits (9.8 percent of the industry) and had $870 billion in assets (9.6 percent of the industry).[7] At the same time, the 3,683 banking organizations that each hold less than $100 million in assets accounted as a group for only $192 billion of industry assets (2 percent, as noted above) and $160 billion (3 percent) of domestic deposits.

Analyzing banking industry concentration, Moore and Siems (1998) and Rhoades (2000) found that, despite some recent increases, national and local measures of concentration had remained, on average, relatively low.[8] This was surprising, given that many mergers had been of the within-market type—those most likely to result in increases in concentration. Hence, despite the heightened merger activity among banks over the last two decades, it appears that concentrations of market power have not yet emerged. This may be due in part to the fact that deregulatory efforts to lower entry barriers and expand bank powers—helped along by advances in technology—have resulted in an expanded geographic reach of competitors. Competition from nonbank financial market participants also provides an important check on market power. However, Rhoades (2000) does caution that, although MSA (metropolitan statistical area) market concentration remains fairly low on average, it has nonetheless increased substantially since 1984, and the increase suggests that in the future there is likely to be a growing number of MSA markets in which bank merger proposals raise significant competitive issues.

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[7] In October 2003, Bank of America announced that it would acquire the nation's eighth-largest bank—FleetBoston Financial—in a $47 billion all-stock transaction. These numbers are for the combined organization based on year-end 2003 data.

[8] Standard measures of concentration include the Herfindahl-Hirschmann Index (HHI; defined as the sum of the squares of the individual market shares of all banks in the market) and the three-firm concentration ratio (CR3; that is, the percentage of deposits accounted for by the three largest banking organizations in the market).

Projections of Banking Industry Structure

Because banks play an important role in the U.S. financial system, changes in the industry's structure are likely to have widespread effects. Hence, for planning purposes it would be useful if future structural changes could be anticipated before they occurred.

Several studies have documented and discussed the decline in the number of banks. Several among them, including Hannan and Rhoades (1992), Nolle (1995), Berger, Kashyap, and Scalise (1995), and Robertson (2001), have also made projections regarding the future size and structure of the banking industry. For the most part, these studies based their projections of commercial banking industry structure on linear extrapolations from past trends (judgmentally modified by observed subnational patterns of either structural development in the absence of geographic restrictions or structural responses to past episodes of geographic deregulation). Although these studies all used somewhat different approaches, they all predicted a sharp decline in the number of commercial banking organizations through the decade of the 1990s and beyond.[9]

In the earliest of these papers, Hannan and Rhoades (1992) approached the task of projecting future U.S. commercial banking structure by assuming that the national trend would follow past responses—observed at the regional level—to the relaxation of interstate banking regulations. Accordingly, the authors examined more closely the structural transition to interstate branching experienced by the Southeast and New England over the period 1980–

[9] To the best of our knowledge, all previous studies projected numbers of commercial banking organizations or institutions only. None of the earlier studies included thrift organizations.

1989.[10] The authors approximated linear trends for each region by calculating an average annual rate of change in the number of commercial banking organizations for the period studied (and for the subperiod 1984–1989). They then assumed that the number of commercial banking organizations in the nation (starting in 1989) would change at the same rate as that observed in the two regions. This method projected the number of commercial banking organizations in the United States to be in the range of 5,000 to 6,000 by the year 2010 (depending on the region and period used). For comparative purposes, the authors also based projections on extrapolations from national trends. This resulted in a projection of just over 5,000 commercial banking organizations by 2010.

In addition to extrapolating from regional and national trends, the authors also extrapolated from the banking structure observed in the state of California (where intrastate branching had been allowed since 1908). The commercial banking structure in California, they reasoned, would represent a sort of equilibrium case since the structure there had evolved in the absence of branching restrictions over a long period of time. In this extrapolation, the authors assumed that once all geographic restrictions on branching were lifted, the ratio of commercial banking organizations to bank deposits nationwide would approach the ratio already observed in California. Projections to 2010 based on this approach varied depending on the period used to formulate the trend. However, according to the authors the most realistic projection indicated

[10] Nolle (1995) reports that by 1984, most of the six New England states had established reciprocal arrangements allowing bank holding companies to own (typically through acquisition) banking subsidiaries in another New England state; by 1987, all six states were participating in these arrangements. Similarly, most of the states in the southeastern region of the country had accepted reciprocal arrangements by 1985, with full participation by 1988.

that the U.S. banking industry would eventually shrink to about 3,500 commercial banking organizations.[11]

Given the range of predictions yielded by the different cases, Hannan and Rhoades eventually offered a "best-guess" projection for the year 2010 of 5,500 commercial banking organizations. Regardless of the methodology, however, all extrapolations suggested that, even with a continuation of the decline, the long-run equilibrium banking structure in the United States would probably consist of a very large number of banking organizations.

Nolle's 1995 paper likewise attempted to simulate the possible effects on U.S. banking structure of liberalizing interstate branching restrictions. Using data on the state-by-state pattern of mergers, failures, and entries over the seven-year period 1987–1993, Nolle mechanically projected the number of commercial banks (individually chartered institutions) through the end of the year 2000. He considered two scenarios: an extrapolation from past trends under the assumption that legislation allowing nationwide interstate branching would not be enacted, and a judgmental adjustment of the first scenario assuming that interstate branching legislation would be passed in 1994 and fully enacted by midyear 1997 (this latter case proved to be historically accurate).[12] Results from the first scenario (the no-interstate-branching case) indicated a decrease of just under 2,100 banks (to 8,798 institutions) during the period 1994–2000—equal to about two-thirds of the amount of consolidation observed over the 1987–1993 period. The second extrapolation (the interstate-branching case) suggested that the total additional effect on

[11] Extrapolations from the 1980–1989 period actually predicted a slight increase in the number of commercial banking organizations nationwide. The estimate of 3,500 organizations is based on the trend from 1984 to 1989.
[12] For his interstate branching scenario, Nolle assumed that no states would choose to opt out of interstate banking or branching provisions; that all multistate, multibank holding companies (MSMBHCs) in existence at midyear 1993 would still be in existence at midyear 1997, when interstate branching was assumed to be fully in effect; and that as a group these MSMBHCs would "branch up" 75 percent of their out-of-home-state subsidiary banks by year-end 2000.

consolidation of interstate branching would be an additional decline of about 1,000 banks (resulting in an industry total of 7,787 commercial banks in the year 2000). Given these results, Nolle concluded that interstate branching would not fundamentally alter the structure of the nation's commercial banking industry; that is, there would still be thousands of commercial banks and thousands of bank holding companies in existence at the turn of the millennium.

A conclusion similar to those reached by Rhoades and Hannan (1992) and Nolle (1995) was reached by Berger, Kashyap, and Scalise (BKS, 1995) as well, but they used a much more complex methodology. To quantify the possible effects of the removal of all state and federal restrictions on interstate branch banking, BKS constructed an econometric model to explain the distribution of domestic commercial bank assets across organization size classes on a state-by-state basis. In their model, the proportion of banking assets in each size class was assumed to be a function of state demographic variables as well as of a number of independent variables that had been designed to capture differences in the existence and the lifting of regulatory restrictions not only on statewide and interstate branching but also on multibank holding company acquisitions.

Using the regressions, the authors then simulated the effects of nationwide interstate banking for 5, 10, and 25 years, and for the long term, under two scenarios: first, assuming zero growth of gross domestic banking assets; second, assuming asset growth at the national trend rate over the sample period (1979–1994). For each scenario the authors assumed that nationwide banking occurred immediately (in 1994); they therefore removed all variation among the explanatory variables related to the liberalization of geographic restrictions, except for variables capturing time-since-liberalization effects. These time-effect variables were adjusted for the

number of years to be projected in the simulation. The changes in the predicted proportions for each size class for each state were then added to the actual proportions in 1994 to obtain the future value. The predicted shares of domestic banking assets for each size class were then aggregated across the 50 states to obtain a weighted average proportion of assets in each size class at the national level. Finally, an estimate of the number of commercial banking organizations in each size class was obtained by dividing the projected total dollar value of assets in each size class by the average size of organizations in that size class in 1994.

Results from the zero-growth simulations indicated that "the removal of all geographic barriers to nationwide banking was likely to result in continued substantial consolidation of the banking industry".[13] Specifically, in this scenario the model predicted that the number of commercial banking organizations would fall by almost 4,000 by 1999, from a total of 7,926 to 4,106—a decline of almost 50 percent over five years. Surprisingly, little change was predicted to occur after that date. When gross domestic assets were allowed to grow at trend rates, the predicted increase in consolidation in the first five years due to enactment of interstate branching was even greater: the number of commercial banking organizations falls to 3,440. In contrast to the zero-growth simulation—which predicted little consolidation after the first five years—the growth simulation projected the number of organizations as continuing to fall. Under this scenario the number of banking organizations falls to 1,939 in 25 years—a decline of 76 percent from 1994 levels. Notwithstanding these reductions, BKS's simulations still predicted that the banking structure in the United States would be characterized by thousands of small banking

[13] Berger, Kashyap, and Scalise (1995), p. 113.

organizations. This finding was consistent with those of Hannan and Rhoades (1992) and Nolle (1995).

Finally, Robertson (2001) projected the number of commercial banking organizations in each size class by first calculating a transition matrix that indicated the probability that a bank would remain in the same size class from one year to the next, move to a new size class, or leave the industry altogether. After confirming matrix stability, he then applied the transition probabilities from the 1994–2000 transition matrix to the year-end 2000 numbers to obtain estimates for the industry's future size distribution. On the basis of this methodology, Robertson predicted that the number of commercial banking organizations would continue to decline—from 6,750 in 2000 to 4,567 in 2007—a 32 percent reduction. Like the projections of earlier studies, Robertson's suggested that the number of smaller banking organizations would continue to fall steadily. Indeed, Robertson's simulation predicted that the number of banking organizations with less than $100 million in real assets would decline by nearly 40 percent over the seven-year period he was forecasting.

On the basis of earlier studies, then, it seems that we can expect to see further declines in the number of banking organizations, especially in the community banking sector (where the number of organizations with less than $100 million in assets is expected to continue to fall dramatically). Some of the aforementioned projections, however, are based on data that are more than a decade old. We show above that the decline in the number of banking organizations, while ongoing, has slowed appreciably in the last few years. This slowing should have important implications for expectations about the future structure of the banking industry.

Consequently, we formulated new projections of industry structure based on the latest observed trends.

As a starting point, we adhered to the linear approach to project the number of banking organizations in each of five size classes through the year 2013. Our projections are based on the average quarterly net change over the five-year period 1999–2003. To make our projections comparable with those of earlier studies, we projected both the number of commercial bank organizations and the number of commercial bank and thrift organizations combined. Table 1 presents our five- and ten-year projections. As can be seen in panel A, our linear extrapolations suggest a continuing decline (of 34 organizations per quarter) in the total number of banking and thrift organizations—from 7,842 at year-end 2003 to 7,161 at year-end 2008 and to 6,480 at the end of 2013. The projected decline over five years is 681 organizations (8.7 percent), and over ten years, twice that. Projections for commercial bank organizations alone (panel B) show a similar pattern. Interestingly, projections for both groups indicate that the decline will occur exclusively within the smallest size group (organizations with less than $100 million in assets). Our extrapolations from the trends of the past five years indicate that all other size groups will grow by small amounts.

For comparison, figure 7 contrasts our linear projections for the number of commercial bank organizations with those from earlier studies. Remarkably, Hannan and Rhoades's (1992) "best-guess" 20-year projection for the number of commercial bank organizations in 2010 is not that much different from our own—5,500 compared with our 5,847. The projections by BKS (1995) and Robertson (2001), however, suggest significantly more of a decline among

commercial bank organizations than is indicated by our linear extrapolation from the data for the last five years.

Table 1. Projected Number of Banking Organizations, 2003-2013

By GDP-deflated Asset Class

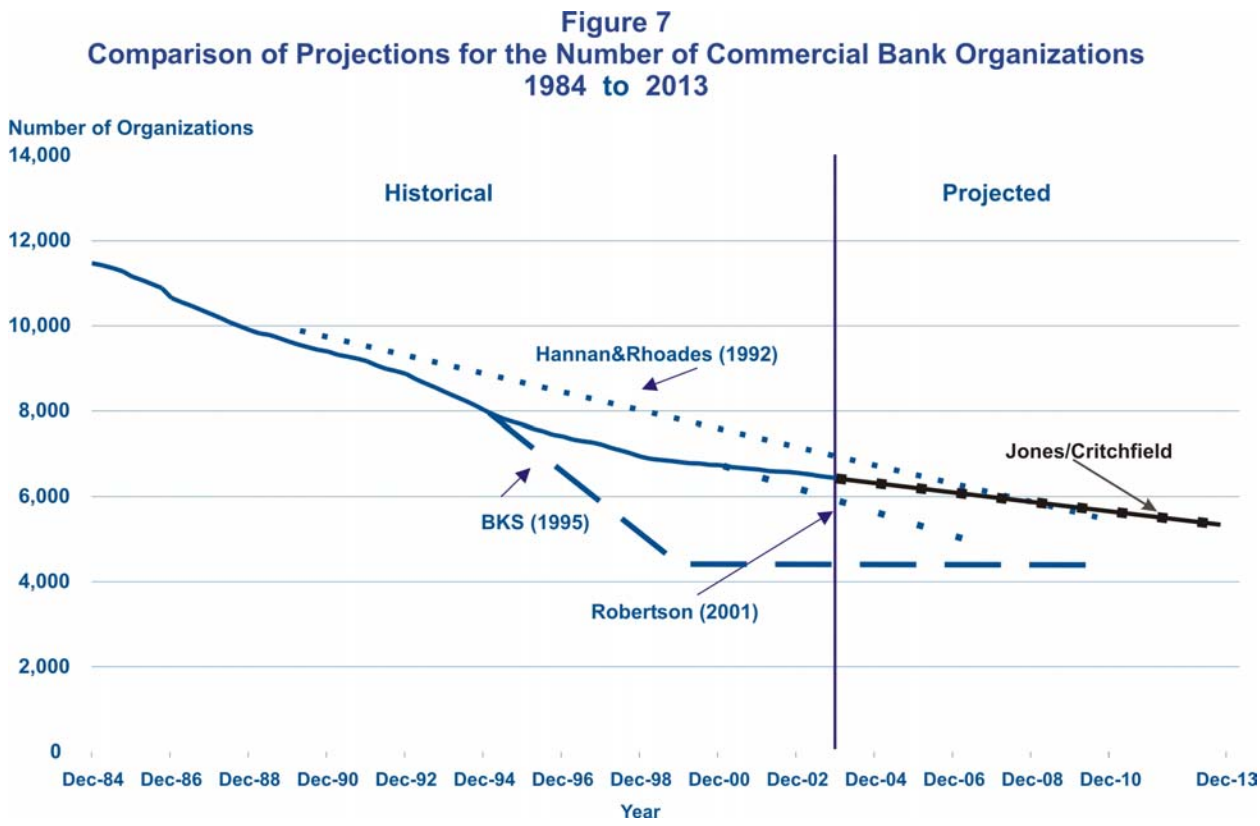
Linear projections based on 5-yr average quarterly change (1999-2003)

Panel A. Commercial Banks and Thrifts Combined

Number of Organizations	Assets < $100M	$100M<= Assets <$500M	$500M <= Assets <$1B	$1B <= Assets <$10B	Assets >= $10B	Total
5-year Average Quarterly Change	-50.55	7.85	5.15	2.50	1.00	-34.05
2003	3,683	3,172	481	411	95	7,842
2008	2,672	3,329	584	461	115	7,161
2013	1,661	3,486	687	511	135	6,480

Panel B. Commercial Bank Organizations Only

Number of Organizations	Assets < $100M	$100M<= Assets <$500M	$500M <= Assets <$1B	$1B <= Assets <$10B	Assets >= $10B	Total
5-year Average Quarterly Change	-43.40	13.50	3.90	2.70	0.60	-22.70
2003	3,219	2,568	335	290	71	6,483
2008	2,351	2,838	413	344	83	6,029
2013	1,483	3,108	491	398	95	5,575



Although linear extrapolations like those described above provide a simple means of projecting industry structure, Shull and Hanweck (2001) have argued that projections based on simple linear extrapolations of past trends are inadequate because they fail to specify the process generating the structural change. We tend to agree. Although we used the linear approach for illustrative purposes, we believe this approach is somewhat naive because it fails to incorporate all the information contained in the data. Most importantly, it ignores the changing nature of the forces behind the decline in the number of organizations. As a consequence, for reasons that will

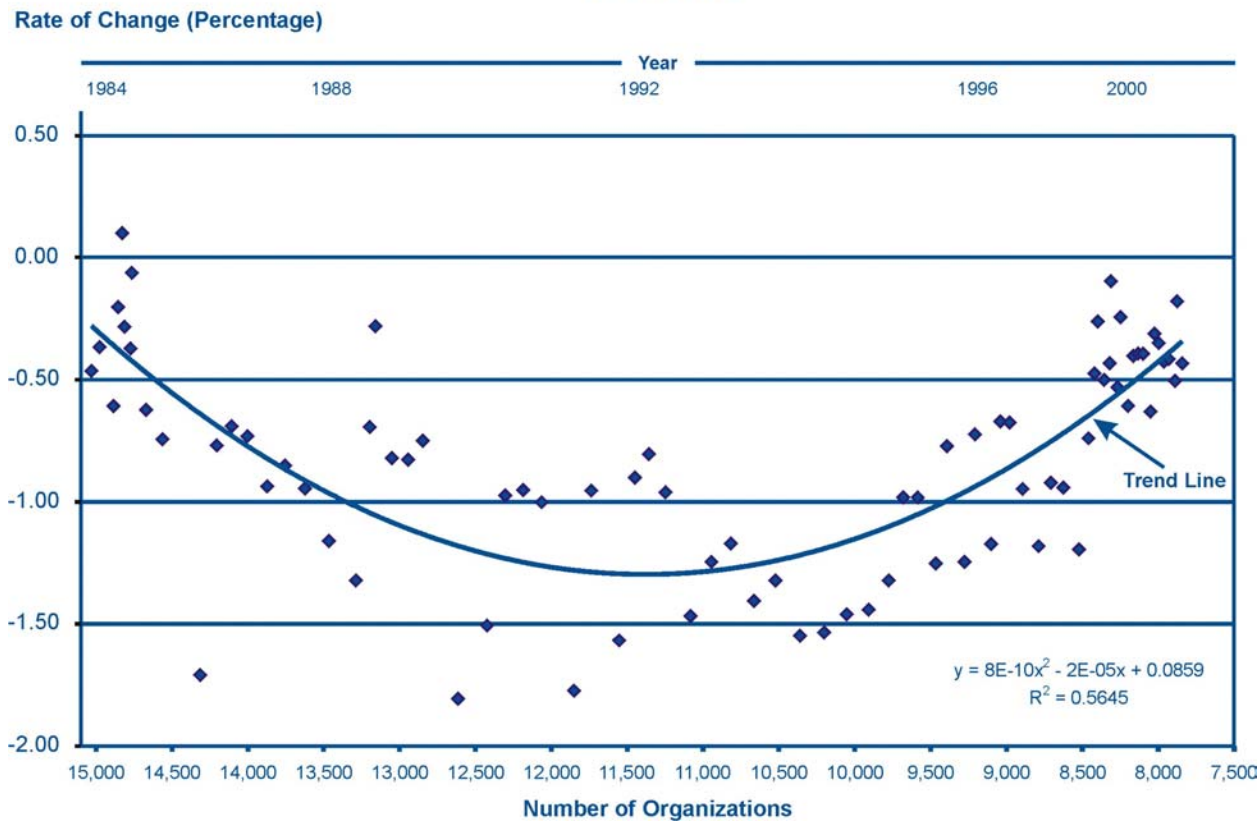
soon become clear, we view our linear projections as representing the lower bound of our estimates of the future size of the banking industry.

Can we improve on the simple linear extrapolations presented above? What is needed is a methodology that can capture the underlying features of the change in banking structure. One approach that promises to do this is suggested by Shull and Hanweck (2001). They view the structural change in banking as a dynamic and nonlinear process in which a population of banks in a stable state has been subjected to an exogenous shock (or shocks) that causes the population to shift to a new steady-state equilibrium. According to this interpretation, the reduction in the number of banking organizations is characterized as a situation in which an equilibrium banking structure (described by the stability in the number of banking organizations in the United States before 1980) was disturbed by economic, regulatory, and technological changes. The consequent decline has reflected a transitional movement toward a new equilibrium structure.

Figure 8 follows Shull and Hanweck's use of a phase diagram. It plots the quarterly rate of change in the number of banking organizations against the actual number of organizations for the period 1984–2003. In the diagram we can observe a distinct transitional pattern (as indicated by the trend line) from an equilibrium structure of just over 15,000 organizations (when the rate of change was last near zero) to the current structure of just under 8,000 organizations (at year-end 2003). Indeed, the transitional nature of the plot is quite dramatic. One noteworthy feature of the diagram is that once the numbers of banking organizations began to decline, they did so first at an increasing rate and then at a decreasing rate. The turning point appears to have been at about 11,500 organizations. This is roughly the size of the industry in mid-1992. Interestingly, that year marked both the end of a national recession and the unofficial end of the S&L and

banking crises. And if we layer the phase diagram with a time line, it becomes easy to see how the transition has progressed since 1984.

Figure 8
Phase Diagram of Number of Commercial Bank and Thrift Organizations
1984 to 2003



Extension of the trend line to a point of intersection with the zero-rate-of-change line would indicate that the structure of the banking industry will again reach an equilibrium structure in about five years at approximately 7,250 organizations (assuming that progression along the trend proceeds unimpeded). This outcome also implies that in the absence of a new shock to the industry, the United States is likely to retain a structure characterized by several thousand very

small to medium-size community bank organizations, a less-numerous group of midsize regional organizations, and a handful of extremely large multinational banking organizations. Consistent with projections from earlier studies, it does not appear that the U.S. banking industry will resemble the banking industries in countries such as Germany, which have only a handful of universal banks.

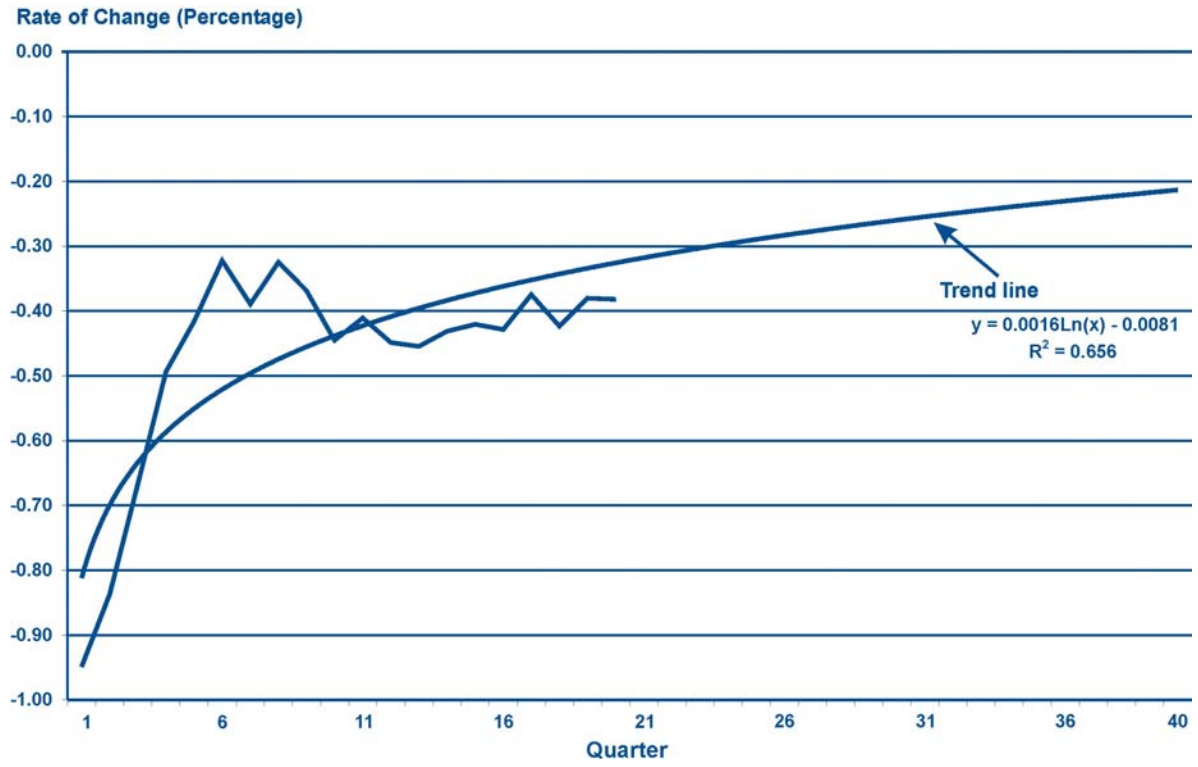
The conclusion to be drawn from the phase diagram—that the decline in the number of banking organizations has slowed appreciably and that industry structure is likely to stabilize within the next few years—is supported in part by our findings from a third projection method. Focusing more closely on the rate of change in the number of banking organizations and using only the last five years of data, we estimated a trend line for the quarterly rate of change in the number of organizations. We chose to focus on only the last five years of data because we believe that the change occurring over this period better reflects the mix of forces affecting the banking industry at the turn of the millennium and that this period is therefore most relevant to anticipating the future direction of the industry's structure. Figure 9 plots the average rates of change for the last five years (quarterly data, 1998Q1–2003Q4).[14] The pattern in the figure highlights the recent deceleration in the rate of change. The decline in the number of banking organizations is still occurring (the rate of change is negative), but at a decreasing rate. The nonlinear and decelerating trend in these data is best described by a logarithmic curve defined by the equation

$$y = 0.0016\mathrm{Ln}(x) - 0.0081$$

[14] The average is a 4-quarter moving average.

where y is the number of organizations and x corresponds to the quarter (the first quarter of 1999 equals 1). This trend equation is used to project future average quarterly rates of change. The projected rates are then applied to the end point of the historical data to calculate the future

Figure 9
Trend in Rate of Change in Total Number of Organizations
First Quarter 1999 to Fourth Quarter 2003

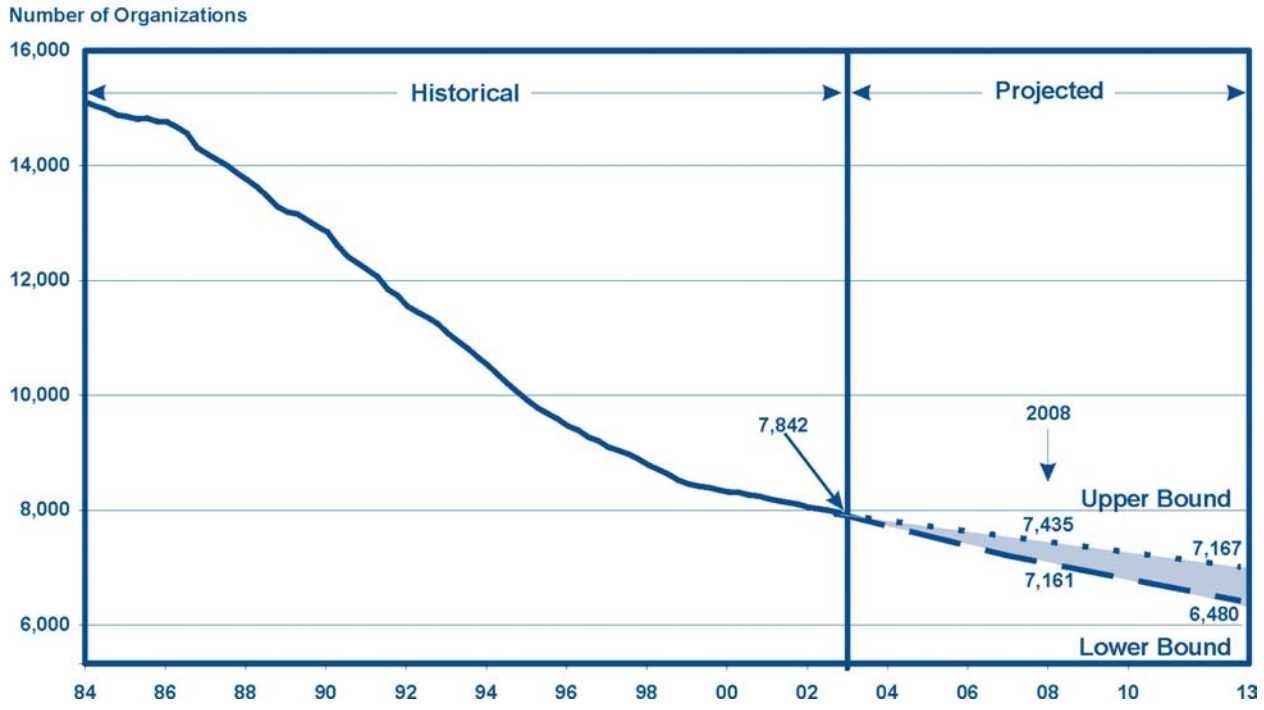


number of banking organizations. This projection is shown in figure 10 (as the upper bound).[15] The flattening of the curve beyond the year 2003 is notable. In contrast to the findings of earlier

[15] Because this result is somewhat sensitive to the selection of the base period used to form the projection, we view it as the upper bound of our estimates of the future size of the banking industry.

studies and to our own linear projections (the lower bound), the projections yielded by this nonlinear extrapolation show the number of organizations changing very little through the year 2008 (a net decrease of only 407 organizations) and even less in the second five-year period (2009–2013). Although these projections indicate that the industry will continue to consolidate over the next ten years, the total number of banking organizations projected for the year 2013 (7,167) is fairly close to the equilibrium size of the industry suggested by the phase diagram described above (7,250). When considered together, it becomes more difficult to refute the finding that the long decline in the number of banking organizations may be nearing an end.

Figure 10
Projected Number of Thrift and Commercial Bank Organizations, 1984 to 2013



Although our projections based on the trend rate of change contrast sharply with conventional wisdom about the future pace of decline in the number of banking institutions, we believe these projections to be reasonable under current conditions. The major influences of the 1980s, under which the decline accelerated, are no longer relevant. Gone are the high failure rates and other contractionary influences of the thrift and banking crises. Similarly, the effects of the liberalization of interstate banking and branching laws are largely in the past, as are the effects of most other major deregulatory initiatives. Bank holding companies, for example, have already collapsed inefficient multistate, multibank structures, and opportunities for additional gains are limited. Also gone are the merger-accommodating atmosphere and the "irrational exuberance" that accompanied the amazing stock market boom of the late 1990s.

In their place is a more uncertain economic environment that has spawned fewer bank mergers and consolidations. Although we believe that sustained industry profitability and competitive pressures will lead to some additional decline going forward, we do not foresee a return to the rate of decline in banking organizations witnessed in the late 1980s and early 1990s. Rather, we see a balance developing between the number of bank start-ups and the number of charter losses due to mergers and acquisitions—with little net change in the number of banking organizations nationwide.

Summary

Banking industry structure has changed substantially over the last 20 years. In particular, the number of bank and thrift organizations has declined by nearly 50 percent since 1984. And

the latest data indicate that the trend toward fewer banking organizations continues, albeit more slowly.

As the twenty-first century unfolds, we will probably find that a number of the driving forces behind the reduction in the number of banking organizations over the past two decades are no longer relevant or have much less influence. Indeed, since the mid-1990s the rate of decline in the number of banking organizations has been steadily decreasing. By incorporating the temporal dimension into our analysis, we project that the long decline in the number of banking organizations will most likely continue to slow and may even grind to a halt within the next five to ten years. In fact, our projections based on the trend rate of change indicate that, in the absence of additional exogenous shocks, the number of banking organizations (inclusive of thrifts) five to ten years hence will be only slightly reduced in comparison with today's numbers. In other words, it's possible that the 20-year trend of declining numbers of banking firms may be nearing an end.

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Appendix Table 1

Share of Industry Assets and Deposits Held by the Nation's 25 Largest Banking Companies (Pro-forma)

DATA AS OF DECEMBER 31, 2003

RANKING	BANK HOLDING COMPANIES	TOTAL ASSETS * ($ IN BILLION)	SHARE OF INDUSTRY ASSETS	CUMM. PERCENTAGE OF ASSETS	DOMESTIC DEPOSITS ($ IN BILLION)	SHARE OF INDUSTRY DOSMESTIC DEPOSITS	CUMM. PERCENTAGE OF DEPOSITS
1	J.P. MORGAN CHASE & CO. / BANK ONE **	1,009	11.11	11.11	345	6.61	6.61
2	BANK OF AMERICA / FLEETBOSTON **	870	9.58	20.70	512	9.82	16.43
3	CITIGROUP INC.	796	8.77	29.47	181	3.47	19.90
4	WELLS FARGO & COMPANY	380	4.19	33.65	241	4.62	24.52
5	WACHOVIA CORPORATION	362	3.99	37.65	213	4.09	28.61
6	WASHINGTON MUTUAL INC.	276	3.04	40.68	168	3.23	31.84
7	U.S. BANCORP	192	2.12	42.80	114	2.19	34.03
8	NATIONAL CITY CORPORATION	132	1.45	44.26	61	1.17	35.20
9	SUNTRUST BANKS, INC.	125	1.37	45.63	76	1.47	36.67
10	ABN AMRO HOLDING N.V.	107	1.18	46.81	46	0.88	37.55
11	HSBC HOLDINGS PLC	98	1.08	47.88	45	0.86	38.41
12	FIFTH THIRD BANCORP	95	1.05	48.93	51	0.97	39.38
13	BB&T CORPORATION	95	1.04	49.97	60	1.16	40.54
14	THE BANK OF NEW YORK COMPANY, INC.	90	0.99	50.97	34	0.65	41.19
15	KEYCORP	85	0.93	51.90	48	0.92	42.11
16	STATE STREET CORPORATION	80	0.89	52.79	13	0.25	42.36
17	GOLDEN WEST FINANCIAL CORP.	80	0.89	53.67	45	0.87	43.23
18	THE ROYAL BANK OF SCOTLAND GROUP PLC	78	0.86	54.53	58	1.12	44.34
19	THE PNC FINANCIAL SERVICES GROUP, INC.	64	0.71	55.24	45	0.87	45.21
20	MBNA CORPORATION	59	0.64	55.89	31	0.59	45.80
21	COMERICA INCORPORATED	53	0.58	56.47	40	0.78	46.58
22	SOUTHTRUST CORPORATION	52	0.57	57.04	33	0.62	47.21
23	ALLIED IRISH BANKS, P.L.C.	50	0.55	57.59	31	0.59	47.80
24	MITSUBISHI TOKYO FINANCIAL GROUP, INC.	48	0.53	58.12	35	0.67	48.47
25	AMSOUTH BANCORPORATION	46	0.50	58.62	29	0.56	49.03
	TOTAL TOP 25 BANKING COMPANIES	$5,321	58.62		$2,556	49.03	

NOTE: * Non-bank assets are excluded.

** Pro-forma data includes two pending mergers: Bank of America and Fleetboston ,J.P. Morgan Chase & Co. and Bank One Corp.

Source: FDIC - Call and Thrift Financial Reports