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**Deregulation and Structural Change in the U.S. Commercial
Banking Industry**

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Abstract

Regulatory change not seen since the Great Depression swept the U.S. banking industry beginning in the early 1980s and culminated with the Interstate Banking and Branching Efficiency Act of 1994. Banking analysts anticipated dramatic consolidation with large numbers of mergers and acquisitions. Some expressed concern about the long-term health of the smaller community banks. This paper describes and discusses the actual evolution of the U.S. banking industry over the past two decades, using the 1976 to 1998 Report of Condition and Income (Call Report) and merger data recently posted on the web site of the Federal Reserve Bank of Chicago. Among several results, more permissive interstate banking and branching regulation significantly associates with higher merger rates, with lower net entry rates, and with higher concentration within states. Interestingly, more permissive intrastate banking and branching regulation only associates with higher concentration.

Keywords: commercial banks, regulation, structure

I. Introduction

The twentieth century witnessed two periods of dramatic regulatory and structural change in the U.S. banking industry – the Great Depression and the various events of the 1980s and 1990s.¹ While important regulations were enacted during the Great Depression, the 1980s and 1990s experienced the repeal and/or reversal of most of those depression-era financial regulations. Moreover, those two decades saw the transformation of the banking industry from one with extensive geographic limitations on banking and branching to one now characterized by interstate banking and branching.

The deregulation of first intrastate and then interstate banking and branching activities undoubtedly played a major role in the changing structure of the U.S. commercial banking industry. Our analysis follows two different, but complementary, paths – descriptive analysis that traces the trends in the changing structure of commercial banking and more formal analysis that considers the effects, if any, of deregulation on mergers, concentration, and net entries on a state-by-state basis.

The Federal Reserve Bank of Chicago recently posted on its web site the Report of Condition and Income (Call Report) and merger data for the period 1976 to 1998. That important source of data is now freely available to all interested parties. In the past, such data were only available at some real dollar cost to individual researchers. We employ those data to provide a panorama of structural change occurring over that period. Our description presents geographic patterns of change, largely on a state-by-state, and occasionally on a city-by-city, basis.² Those

¹ That statement ignores, of course, the events leading up to the passage of the Federal Reserve Act of 1913.

² Rhodes (2000) discusses similar issues using not publicly available data. The data at the Federal Reserve Bank of Chicago web site (<http://www.chicagofed.org/economicresearchanddata/data/bhcdatabase/bhcdatabase.cfm>) significantly levels the research playing field between those inside and outside the Federal Reserve System.

data also provide the inputs for our more formal, econometric analysis that uses panel data to perform fixed- and random-effects estimation.

The presentation in the paper unfolds as follows. Section II provides an overview of regulatory and structural change, and Section III considers merger activity of banks by state. Section IV examines concentration in banking at the national and state levels. Section V explores the movement of the largest banks, in terms of assets, by state and city, while Section VI discusses the entry and exit of banks over the sample period by state. Section VII concludes the analysis.

II. Regulatory and Structural Change: An Overview³

Because of our forefathers concern about concentrations of power, the U.S. banking industry possesses many more independent institutions than is the norm in the rest of the world.⁴ The regulatory environment within which the U.S. commercial banking industry operates changed notably in the last twenty years, including, but not limited to, the Depository Institution Deregulation and Monetary Control Act of 1980, the Depository Institution Act of 1982, and the Interstate Banking and Branching Efficiency Act of 1994.

Early in U.S. banking history, commercial banks received their charters from individual states and could not operate across state boundaries. The passage of the National Banking Act of 1864 established the chartering of national banks by the Comptroller of the Currency, but this

³ Our brief historical discussion of banking regulation relies heavily on the more lengthy discussions in Kane (1996) and Kroszner and Strahan (1999).

⁴ At the other extreme, Canada currently has 8 domestic banks and 43 foreign banks. The domestic banks experienced a recent fall from 11 to 8 with the loss of the three smallest banks. Although relatively large in number, foreign banks held just over 1 percent of total Canadian bank assets at the end of 1998. Information on the number and size of banking operations comes from the web site of the Office of the Superintendent of Financial Institutions at <http://www.osfi-bsif.gc.ca/AndreE/Index.htm>. The U.S., on the other hand, had 9,389 banks at the end of 1998. The U.S. banking data, unless otherwise noted, comes from the Report of Condition and Income (Call Report) data from 1976 through 1998 that is posted on the web site of the Federal Reserve Bank of Chicago. U.S. bank numbers, unless otherwise noted, include mutual saving banks and non-deposit trust companies, banks in U.S. territories, as

legislation, although silent on the issue of branching by the national banks, was interpreted to conform to existing prohibitions against branching across state borders. The McFadden Act of 1927 and the Banking Act of 1933 generally prohibited branching across state lines.

That legal landscape, however, possessed its loopholes. First, seven bank holding companies already operated across state lines when the McFadden Act was enacted. Those institutions' operations were grandfathered. But second, and more important, bank holding companies could acquire banks across state lines, if such actions were explicitly permitted by the states involved. That second loophole was first mined in 1975 when Maine adopted legislation permitting out-of-state holding companies to acquire Maine banks, if reciprocity existed in the other state. But substantial movement did not really begin until 1982 when New York also passed reciprocity legislation and Massachusetts passed similar legislation restricted to the New England states. The overture by New York led to a patchwork of regional reciprocity pacts that emerged over the next few years. Most states participated in one or more regional pacts with California, New York, and Texas as notable exceptions (exclusions). Although banks were allowed to acquire failed thrift institutions across state lines as a result of the savings and loan crisis, the bulk of bank mergers across state lines preceded through bank holding companies. Finally, and most recently, the Interstate Banking and Branching Efficiency Act of 1994 permitted bank acquisitions in other states.⁵ State legislation has generally liberalized its rules on branch banking within states' borders.⁶ Legislative activity has gradually reduced the number of states to a very few that have either unit or limited branching.

well as domestic and foreign banks.

⁵ States could opt out of this legislation, if they so chose. To date, only Texas and Montana have opted out of interstate banking and branching.

⁶ Historically, states were divided into three groups: (i) those states that allowed statewide branching with few restrictions, (ii) those states that allowed limited statewide branching with numerous restrictions, and (iii) those

Branching and merger restrictions were originally promulgated to prevent banking institutions from monopolizing credit markets. That same legislation, ironically, granted local monopoly power to smaller community banks. Thus, the relaxation of restrictions on interstate and intrastate banking and branching may lead to wholesale or large-scale acquisition of small community banks. An important policy concern associated with such a prospect is the supply of credit to small businesses, which many see as one of the real engines of future growth.

A few authors forecast the future structure of the U.S. banking industry. Those analysts see a two-tiered system with a group of megabanks that participate in national and global credit markets and a much larger number of community banks that participate in local credit markets. For example, Miller (1988) forecasts just over 2,000 banks in a fully operating interstate banking and branching system.⁷ More recently, Berger, Kashyap, and Scalise (1995) provide a long-run forecast of between 2,000 to 4,000 banks under interstate banking and branching.⁸ Moreover, they forecast that the decrease in organizations should occur largely within five years. Our actual count of banks (not organizations) at the end of 1994 equals 11,698 (see Table 1). This count falls to 9,839 in 1998, or 84 percent of the 1994 level.

states that allowed only unit banking with essentially no branching activity (see Kaparakis, Miller, and Noulas 1994).

⁷ Miller (1988) estimates a regression model that explains the number of banks and offices in each state, depending on branching restrictions, and state demographic and geographic information. He then substitutes the national data for the demographic and geographic information with the statewide (i.e., nationwide) branching dummy variable turned on to generate forecasts of the number of banks and offices under full interstate banking and branching. Miller (1988, fn. 9) also uses the existing distribution of banks in California, a state with statewide branching rules, to calculate what the distribution of banks assets would look like under interstate banking and branching. He estimates that 49 of the 2,017 banks in the interstate banking and branching equilibrium would hold \$1,551 billion in assets for an average size of \$31 billion.

⁸ Berger, Kashyap, and Scalise (1995) estimate the asset-size distribution in each state as a function of demographic and geographic variables, using a pooled cross-section, time-series data set. Moreover, they allow for lagged adjustment to the implementation of interstate banking and branching. They also employ the distribution of California banks to forecast the distribution of banks under interstate banking and branching. Hannan and Rhoades (1992) use California to forecast the number of banks under interstate banking and branching at around 3,500 organizations in 2010.

Those last observations suggest that the consolidation in the banking industry may be proceeding more slowly than Berger, Kashyap, and Scalise (1995) projected. The growth of *de novo* banks, and “new” banks by conversion and relocation explains the slower rate of consolidation. Between 1976 and 1998, the merger data at the Federal Reserve Bank of Chicago web site record 11,055 bank mergers (see Table 1). The number of banks did not fall from 15,264 to 4,209, but rather ended 1998 at 9,839. Over that same period, the merger data record 6,679 new banks – *de novo*, conversions, and relocations.

What explains the large number of new bank entries? Several recent papers (Berger, Bonime, Goldberg, and White 1999, Keeton 2000, Seelig and Critchfield 1999, and Jeon and Miller 2001a) consider that question, examining the hypothesis that new bank entries fill a void (market niche) left by bank mergers. That is, new entries provide services to small businesses and other bank customers formerly provided by banks that have now merged into larger organizations.⁹ That conventional wisdom implies that bank mergers lead to new entries. Seelig and Critchfield (1999) challenge conventional wisdom with their empirical findings that mergers only dissuade entry. Berger, Bomine, Goldberg, and White (1999) support conventional wisdom with their empirical results. More recently, Keeton (2000) criticizes the methods of the prior two papers and offers an improved method, finding support for the mergers-imply-new-entries hypothesis. Moreover, Keeton (2000) concludes that “... new bank formations may offset some of the harmful effects of mergers, making it more likely that banking consolidation is beneficial on balance.” (p. 35). Most recently, Jeon and Miller (2001a) consider a number of issues related

⁹ Keeton (2000) uses that cause-and-effect argument. An alternative hypothesis views increased merger activity as a signal that bank charters go at a premium. Thus, new entries acquire a bank charter solely to have it acquired by another bank through merger.

to new charters, failures, and mergers. They also support the mergers-imply-new-entries hypothesis.

III. Trends in Merger Activity

Merger activity in the U.S. banking industry over the past two decades was initially led by bank holding company acquisitions. In states with restrictions on branching, bank holding companies acquired banks (offices) in locations that circumvented the branching restrictions imposed on an individual bank. More recently, the state legislation allowing bank holding company acquisitions across state boundaries has facilitated such acquisitions. Most recently, the Interstate Banking and Branching Act of 1994 opened the door in nearly all states to regular bank mergers across state boundaries.

Intrastate and Interstate Merger Activity

Table 1 presents information on commercial bank mergers.¹⁰ Several general observations emerge. First, bank mergers as a percentage of the total number of banks has trended upward over time reaching 6.6 percent in 1997 and 1998. Bank merger activity between states was limited to takeover of failed institutions until the implementation of the Interstate Banking and Branching Act of 1994 that went into full effect in July 1996. The between-state merger percentage of the total merger activity jumped from just over 2 percent prior to 1995 to 6 percent in 1995 to 10 percent in 1996 and to 30 percent in 1997 and 1998. Thus, this new legislation has affected between-state merger activity. Nonetheless, we note that intrastate mergers still capture a wide majority of the activity.

¹⁰ See the merger data file for commercial banks posted at the Federal Reserve Bank of Chicago web site. The merger file contains information that can be used to identify all bank acquisitions and mergers that have occurred from 1976 to 1998.

Second, the banking problems first experienced in the mid 1980s, due in large part to agricultural and energy-related loans, and ending in early 1990s are reflected in the number of mergers involving government assistance.¹¹ The peak years were 1988, 1989 and 1990 when a total of 649 bank mergers received government assistance, representing just over 31 percent of the total bank mergers in that period. The initial increase occurred in 1982 and the problems did not end until 1995.

Charter Type of Merger Survivors and Non-Survivors

The merger data file also allows a classification of the charter (bank) type for both merger survivors and non-survivors. Charter (bank) types include the following classes: mutual savings banks and federal mutual savings banks, national banks, state banks that are members of the Federal Reserve System, state banks that are not members of the Federal Reserve System, non-deposit trust companies that are members of the Federal Reserve System, and non-deposit trust companies that are not members of the Federal Reserve System.¹²

Table 2 reports the charter status for merger survivors and non-survivors. Consider, for example, the column headed by NAT. This column reports the survivors of mergers that are national banks. Here 5,485 mergers resulted in a survivor who had a national charter. Of this total, 211 non-survivors were mutual savings banks, 2,743 were national banks, 378 were state banks who were members of the Federal Reserve System, 2,073 were state banks who were not members of the Federal Reserve System, and so on.

¹¹ More specifically, Illinois experienced a number of bank failures in the early 1980s. Then Iowa, Kansas, Louisiana, Minnesota, Missouri, Nebraska, Oklahoma, Oregon, Tennessee, Texas, Utah, and Wyoming followed with numerous failures in the mid to late 1980s. Finally, more than 60 percent of the states then saw unusual numbers of failures in the late 1980s and early 1990s.

¹² National banks are automatically members of the Federal Reserve System; mutual savings banks, state banks, and non-deposit trust companies may or may not be members of the Federal Reserve System.

Now, consider the row for national banks. Here, 3,934 national banks merged and did not survive. Of this total, 19 were merged with a surviving mutual saving bank, 2,743 merged with a surviving national bank, 312 merged with a surviving state member bank, 858 merged with a surviving state non-member bank, and so on.

Several observations emerge. First, a substantial number of the survivors, 54 percent, have the same charter as the non-survivor, an intra-charter merger. The 54 percent comes from adding the diagonal elements in Table 2 and dividing by 11,055, the total number of mergers. As a consequence, 46 percent of the mergers are inter-charter mergers. Second, except for state member banks, more than 50 percent of the mergers were intra-charter type with mutual saving banks having the highest percentage of 75.8 percent followed by non-member state banks at 66.5 percent. State member banks had intra-charter mergers of only 24.5 percent. Finally, some charter types grow, since they have more survivors than non-survivors – national banks (almost 40 percent more survivors) and state member banks (almost 30 percent more survivors).¹³ On the other hand, twice as many mutual savings banks disappear in mergers as survive and more than 30 percent more non-member state banks disappear in mergers as survive.

Merger Activity by State

Table 3 reports and Figure 1 shows the merger activity by state in three categories – mergers of banks within the state, mergers where an out-of-state bank took over an in-state bank, and mergers where an in-state bank took over an out-of-state bank. Moreover, Table 3 sorts the states by the average number of banks over the sample period. Thus, Texas leads with the highest average number of banks; Alaska holds the rear with the lowest. Not surprisingly, the number of

¹³ Many of the regulatory reforms instituted in the 1980s have reduced the cost of membership in the Federal Reserve System. Consistent with those cost reductions, national banks and state member banks grew as a result of merger activity, whereas the other categories declined.

mergers in a state generally rises with the number of banks in that state. But that relationship is far from perfect. The map in Figure 1 reports the total number of mergers over the entire sample period and shades the states depending on ranges for the total number of mergers. The size of the pie chart in each state measures the total number of between-state mergers and identifies the fractions of those between state mergers where the surviving bank was in state or out of state.

Colorado, Florida, Illinois, Missouri, and Texas each experienced more than 400 mergers over the sample period. On a percentage basis, those states that experienced a relatively high level of merger activity within their borders include Arizona, Florida, New Jersey, North Carolina, Utah, and Virginia, each of which averaged mergers per year over the entire sample period of more than 5 percent.

Arkansas, Florida, Illinois, and Missouri led the list in states where out-of-state banks took over banks within their borders at 39, 53, 41, and 38 such mergers, respectively. Using percentages, Delaware, the District of Columbia, Idaho, and Nevada have relatively large numbers of mergers where the surviving banks is out-of-state, each averaging mergers per year over the sample period of more than 1 percent.

Reversing the focus, Alabama, North Carolina, Ohio, and California banks took over more out-of-state banks with 92, 95, 59, and 42 such mergers, respectively. Using percentages, Alabama, the District of Columbia, North Carolina, and Oregon have relatively large numbers of mergers where the surviving banks are in state, each averaging more than 1 percent per year. North Carolina surpasses every other state with 4.59 percent mergers per year with out-of-state banks.

The total number of bank mergers between different states is given in Table 1 as 614, where, as noted above, a large majority of these interstate mergers occurred since 1996. Thus,

the number of mergers reported in Table 3 where an out-of-state bank took over an in-state bank and where an in-state bank took over an out-of-state bank both sum to 614, as they should. The distribution of interstate mergers, however, is more diffused for out-of-state banks taking over in-state banks (i.e., the standard deviation is 20.0). Conversely, the distribution of interstate mergers is more concentrated for in-state banks taking over out-of-state banks (i.e., the standard deviation is 11.5). In other words, the survivors of interstate mergers are not surprisingly concentrated in fewer states than the non-survivors.

Deregulation and Merger Activity

We now consider how deregulation affected merger activity for panel-data regressions using fixed- and random-effects techniques. The dependent variable for each regression is the ratio of the number of mergers in each state divided by the total number of banks in the corresponding state -- the merger rate.

Deregulation includes two differing effects – the relaxation of restrictions on (i) intrastate and (ii) interstate branching and banking. Most banking researchers employ dummy variables to distinguish between states with different intrastate branching and banking regulations – typically unit, limited, and state-wide branching and banking states. We employ the average number of branches per bank (bch/bn) in each state to capture the actual effect of intrastate branching and banking regulation.¹⁴ We also employ three dummy variables to capture a state's regulatory stance vis-à-vis interstate operation of bank holding companies. The first (dr) equals one for states that enacted legislation that allows out-of-state bank holding companies from a proscribed region to operate within the state's boundaries – either with or without reciprocity from the home state of that bank holding company. Otherwise, dr equals zero. The second (dnr) equals one for

¹⁴ Jeon and Miller (2001a) provide more discussion of using the number of branches per bank to capture intrastate

states that enacted legislation that allows out-of-state bank holding companies irrespective of their headquarters' locations to operate within the state's boundaries, but only if the state where their headquarters are located have similar (reciprocal) legislation. Otherwise, *dnr* equals zero. The third (*dnn*) equals one for states that enacted legislation that allow out-of-state bank holding companies irrespective of their headquarters' locations to operate within those states' boundaries without any requirement for reciprocity from the other state. Otherwise, *dnn* equals zero. Finally, we employ the unemployment rate (*unem*) in each state to control for the business cycle.

Table 4 reports the findings for the fixed- and random-effects regressions on bank mergers and deregulation. The intrastate branching and banking control variable (*bch/bn*) proves insignificant. Each of the interstate branching and banking dummy variables emerges as significantly positive. Thus, more permissive interstate branching and banking regulation states experience higher rates of merger activity. Moreover, the economic condition in each state (*unem*) does not significantly affect the merger rate. Interestingly, the deregulation of the interstate operations of bank holding companies had significant effects on merger activity while the intrastate banking and branching variable did not. We comment further on that observation in the conclusion.

IV. Concentration in Commercial Banking

This section examines concentration in commercial banking, first at the national level and then on a state-by-state basis.¹⁵ We first present the magnitude of megabank size over our sample period. In 1976, the largest bank holds assets of \$73.0 billion. By 1998, the largest bank holds \$317.1 billion, a 6.9 percent annual geometric growth rate.¹⁶ But the growth process is not

branching and banking regulation.

¹⁵ The data here include both domestic and foreign banks.

¹⁶ While we refer to the largest or 10th largest bank between different years, it may not be the same bank.

smooth. Between 1976 and 1988, the largest bank grows to \$150.2 billion, a 6.2 percent annual growth rate. The largest bank grows by 2.2 percent annually between 1988 and 1992, and by 11.6 percent annually between 1992 and 1998. A similar pattern of growth occurs for the 10th, 50th, and 100th largest banks, moving from \$16.2, \$2.8, and \$1.4 billion in assets in 1976 to \$74.4, \$22.8, and \$9.9 billion in assets in 1998, or 7.2-, 10.0-, and 9.3-percent annual growth rates. While the 50th and 100th largest banks experience slower annual growth of 3.9 and 4.6 percent between 1988 and 1992, the 10th largest bank declines in size from \$35.2 to 32.3 billion, or –2.1-percent annual growth. Finally, while the 10th and 50th largest banks resume double-digit annual growth of 14.9 and 11.4 percent between 1992 and 1998, the 100th largest bank only experiences 5.2 percent annual growth.

Table 5 reports the percentages of total bank assets that the top-5, -10, -20, -50, and -100 banks hold in each year from 1976 through 1998.¹⁷ An interesting pattern emerges in that all categories depict U-shapes over time. The top-5, -10, -20, -50, and -100 banks hold higher percentages in 1976 than in 1991. Further, the percentage in 1998 exceeds that in 1976 for each category. For example, the top 100 banks hold 47 percent of all bank assets in 1976. This percentage remains at 47 percent through 1981 and then falls slowly to 43 percent in 1990 and 1991. Since then, the percentages increase slowly to 49 percent in 1995 and then more quickly to 62 percent in 1998.¹⁸ Similar patterns exist for the top-5, -10, -20, and -50 banks as well.

¹⁷ Rhodes (2000) using a different data source also provides information on the top 100 banking organizations, where all banks in a bank holding company are treated as an organization. In our data, such banks are treated as distinct.

¹⁸ Rhodes (2000) reports the concentration in bank deposits rather than assets for the top 100 organizations at 47, 61, 66, and 71 percent in 1980, 1990, 1994, and 1998, respectively. Our concentration of assets for the top 100 banks (not organizations) is 47, 43, 48, and 62 percent, respectively. Thus, using organizations paints a picture of more concentration. An important issue is whether decision-making authority resides more at the bank holding company or individual bank level.

While the concentration of banking at the national level is interesting, concentration on a state-by-state basis also provides useful information.¹⁹ We calculate the percent of total assets held by the top-5 and top-10 banks in each state. The average concentration across all states hovers around 45 percent for the top-5 banks from 1976 to 1983. It then rises gradually to 50 percent in 1990 and then 62 percent in 1998. For the top-10 banks, the average concentration hovers around 56 percent from 1976 to 1983. It then rises gradually to 61 percent in 1990 and to 71 percent in 1998. In sum, state-level concentration began rising in 1983 and continued through 1998.

Table 6 reports the ranking of the states in 1978, 1983, 1988, 1993, and 1998 from lowest concentration to highest. The median states in each respective year include Mississippi (36.2), Pennsylvania (40.3), Connecticut (46.8), Massachusetts (53.3), and New Jersey (63.1).²⁰ The median lies below the mean in 1978 (44.9), 1983 (45.6), 1988 (49.1), and 1993 (53.9) and lies above the median in only 1998 (61.6).

While the rankings possess some stability, movement does occur in the rankings. The correlation between the rankings in 1978 and 1983 is 0.96; between 1983 and 1988, 0.90; between 1988 and 1993, 0.93; and between 1993 and 1998, 0.82. Thus, the most movement occurred over the last five years. Moreover, the longer the time between observations the lower the correlation. For example, the correlation between the rankings in 1978 and 1998 is 0.63. In addition, we calculated the average ranking and its standard deviation for each state over the 1978, 1983, 1988, 1993, and 1998 observations. For example, Illinois ranked 22, on average,

¹⁹ Rhodes (2000) provides information on concentration at the MSA and non-MSA county level. He does not report concentration information at the state level.

²⁰ The numbers in parentheses are the percentage of assets held by the top-5 banks in the state. Similar information is available for the top-10 bank concentration ratio from the authors on request.

with a standard deviation of 13. Illinois moved from a rank of 36 in 1978 to 7 in 1993 before moving back to 12 in 1998. Those states with standard deviations above 10, indicating significant movement within the rankings, include Alabama, Delaware, Idaho, Illinois, Louisiana, New Hampshire, and Wyoming.

Figure 2 explores similar issues from a different perspective. In the map, the shading of states reflects the average top-5 concentration of assets over the 1976 to 1998 sample period. The map also reports the actual average top-5 concentration in assets. For example, California's top-5 concentration in assets equals 65.1 percent, within the second from the highest concentration shading on the map. In addition, the two columns associated with each state report the top-5 concentration in assets in 1976 and 1998 – the beginning and end of our sample period. Continuing our example, California's concentration ratio falls between 1976 and 1998. Several observations emerge. First, the far Western states are the most concentrated and the states in the upper-middle of the country, the least concentrated, on average. Second, concentration between 1976 and 1998 has generally increased in every state except many of those in the far West.

Deregulation and Bank Concentration

We now consider how deregulation affected bank concentration using the same set of independent variables – to capture changes in intrastate (bch/bn) and interstate (dr, dnr, and dnn) branching and banking regulation and to capture changes in the state's economy (unem) – in fixed- and random-effects regressions. Two concentration measures (discussed above) are the percentage of state bank assets held by the top five (top5) and top ten (top10) banks in each state.

The third concentration measure (not discussed above) is the Herfindahl index of bank assets in each state.

Table 7 reports the fixed- and random-effects results on bank concentration and deregulation. First, more permissive intrastate branching and banking regulation associates significantly with higher concentration across all three concentration measures. Second, more permissive interstate branching and banking regulation also significantly associates with higher concentration. The unemployment rate does not exhibit significant effects, although the sign is consistently negative such that a good economy associates with higher concentration. Thus, the deregulation of interstate and intrastate banking and branching correlates with higher concentration within a state.²¹

V. The Location of Megabanks

This section examines the geographic distribution of megabanks, defined as the top 100 banks by asset size. Table 8 reports the location of the top-5, -10, -20, -50, and -100 banks by state in 1978, 1983, 1988, 1993, and 1998, where we sort the states by average real gross state product (GSP) over the sample period. We observe that more mega-banks are located in states ranking high in average real GSP than in states with a lower average real GSP. But that association is less than perfect. California, for example, has the highest average real GSP, but falls far behind New York in the number of mega-banks within its borders.

New York and California split the top five banks – 4 in New York and 1 in California – in the first four years; then in 1998, North Carolina enters the picture with 2 top-5 banks, drawing New York down from 4 to 2. Moving to the top-10 banks boosts the numbers in New

²¹ Jeon and Miller (2001b) consider the correlation between bank concentration on a state-by-state basis and average bank profitability within a state, finding strong support for a positive correlation. They also test for temporal causality, finding that bank concentration leads bank profitability.

York and California with Illinois capturing up to 2. The top-20 list solidifies the position of New York, California, and Illinois. Now, however, Massachusetts, and Pennsylvania appear as permanent players. California, Illinois, Massachusetts, Michigan, New York, North Carolina, Pennsylvania, Texas, and Washington all have banks in the top 50 each year in Table 5. For the top-100 banks, we add Arizona, Connecticut, Georgia, Maryland, Minnesota, New Jersey, Ohio, Rhode Island, and Virginia to that list.

Table 9 locates the top-50 banks by city grouped by states, where we, once again, sort states by average real GSP. Boston, Buffalo, Charlotte, Chicago, Dallas, Detroit, New York, San Francisco, Seattle, and Winston-Salem are cities with a top-50 bank for each year in our sample. Boston, Chicago, Dallas, New York, and San Francisco all are home to Federal Reserve Banks. Further, Buffalo, Charlotte, Detroit, and Seattle are home to Federal Reserve Branches. Thus, only Winston-Salem is not home to a Federal Reserve Bank or Branch. Federal Reserve Bank cities were the home to about 30 top-50 banks while the Federal Reserve Branch cities were the home to just over 10 top-50 banks.

Viewed differently, only the home of the Federal Reserve Bank of Kansas City does not have a top-50 bank in any year during the sample period. In addition, the Federal Reserve Branch cities without a top-50 bank are enumerated in the note to Table 9. Finally, we also note that Los Angeles does not have a bank in the top 50 since 1995.²²

Examining the number of large banks by state and city prompts questions about unexpected outcomes, for example, the absence of top-50 banks in Los Angeles. Banks provide services to an economy that probably depends on the number of people and/or their income. To gain some insight here, we use each state's percentage of nominal U.S. gross domestic product to

allocate the top-100 banks. Those are then compared to the actual allocation of top-100 banks across the states. While crude, it does provide an evaluation of the existing distribution that has an economic basis.

We first distribute the number of top-100 banks where each state gets its share of the top-100 banks based on its share of nominal gross domestic product. We then compare those results to the actual location of top 100 banks by state. Furthermore, we distribute all commercial banks, not just the top 100, across states based on each state's share of the sum of all state's nominal gross state product. We then compare this benchmark to the actual number of banks by state. Table 10 provides the means across the sample period for the actual and benchmark number of banks in each state out of the top-100 and all banks.²³ Once again, we sort states by average real GSP over the sample period.

Several interesting observations emerge. First, California, New York, Pennsylvania, and Texas have actual top-100 banks that differ by 3 or more from their respective benchmarks. New York has 22 and Pennsylvania has 3 more top-100 banks than their benchmark while California has 6 and Texas has 3 fewer top-100 banks than their benchmark. Second, Alaska, Arizona, California, Connecticut, the District of Columbia, Hawaii, Idaho, Maryland, Nevada, New Jersey, New York, North Carolina, Oregon, Rhode Island, and Washington all have at least twice as many benchmark total banks as actual banks, suggesting that they are under banked. But, of course, the major part of the explanation is that these states are all statewide branching states. Similarly, Arkansas, Colorado, Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, West Virginia, Wisconsin, and Wyoming all have twice as

²² A similar table for the top 100 banks is not provided as the number of cities is inordinately long.

²³ Tables for the benchmark location of the top-100 banks, and the benchmark and actual location for all banks by

many actual total banks as benchmark banks, suggesting that these states are over banked. But, once again, these states except South Dakota²⁴ have unit or limited branching.

VI. Entry and Exit of Banks

As noted in Section II, the fall in the actual number of banks hides significant events on the number of entries and exits to the industry. Exits from the industry may occur because of mergers, charter conversions, or relocations across state lines; entries may occur because of *de novo* entries, charter conversions, or relocations across state lines.

Our data on exits and entries compare bank identification numbers between two adjacent years and divide banks into three categories – banks in the first year and not in the second (exits), banks in the second year but not in the first (entries), and banks in both years (survivors). Focusing on the 50 states and the District of Columbia, the total number of banks fell from 14,842 in 1976 to 9,653 in 1998. That decrease of 5,389 banks was accomplished with 11,921 exits and 6,532 entries.

Table 11 reports the average number of entries, exits, and net entries (entries minus exits) by state for 1977 to 1979, 1980 to 1984, 1985 to 1989, 1990 to 1994, and 1995 to 1998. We now sort states by the average number of banks over the sample period. Several observations emerge. First, the quantity of new entries achieves its highest levels between 1980 and 1984 where new entries averaged 446 per year. A number of states average over 20 new banks per year from 1977 through 1998 – California, Florida, New York, and Texas. Texas has the highest average of over 40 new banks per year followed by California of over 32 banks per year.²⁵ If we consider the

state are available from the authors.

²⁴ While South Dakota is classified as a statewide branching state, Kaparakis, Miller, and Noulas (1994, Table 5, p. 888) classify it as limited since each bank had an average of only 1.5 branches.

²⁵ Once again, the Tables for the number of entries, exits, net entries, as well as the percentages of total banks are available from the authors.

number of new entries as a fraction of the number of banks in the state, then the states with the highest fractions include Arizona, California, Delaware, Nevada, North Carolina, and Oregon. Arizona leads the list with new entries each year at 10 percent of existing banks; Nevada and Delaware follow with 9 percent and 8 percent, respectively.

The pattern for exits paints a different picture. The data suggest a regime change between 1983 and 1984. Before 1984, the number of exits averages just fewer than 260 while after 1983 it averages almost 675. For exits, several states average over 20 per year – California, Colorado, Florida, Illinois, Missouri, New York, and Texas. Texas has the highest number of exits per year at over 63 followed by Florida at over 42 per year. Relative to the number of banks in a state, Arizona, Colorado, Massachusetts, New Hampshire, New Jersey, and Rhode Island have the highest percentage of exits per year. Florida and Rhode Island lead the pack with 9 percent exits per year followed by New Hampshire with 8 percent per year.

The pattern for net entries (i.e., entries minus exits) mirrors the pattern uncovered for the exits. That is, a regime change seems to have occurred between 1983 and 1984. Prior to 1984, net entries average plus 101 while after 1983 they average minus 406. That is, net entries are positive between 1977 and 1983 and negative (with the exception of 1985) between 1984 and 1998. Several states have positive net entries over the whole sample period – Arizona, California, Delaware, Hawaii, North Carolina, Nevada, and New York. Several other states experience net entries of minus 300 or lower – Florida, Illinois, Missouri, and Texas. Once again, some states make these lists because of the large number of banks in the state. Based on net entries as a fraction of total banks in a state, the states with the highest percentage of net entries are Nevada at 5 percent followed by Delaware at 3 percent. New Hampshire has the

distinction of the lowest percentage of net entries (highest percentage of net exits) at minus 6 percent followed by Rhode Island at minus 5 percent.

Figure 3 provides a visual impression of the patterns of net entry. The shading in the map reflects the average net entry over the entire 1977 to 1998 period. The actual average net entries also appear in each state under the state abbreviation. Moreover, the two columns report the average net entry over the two subperiods noted above – 1977 to 1983 and 1984 to 1998 – reflecting the observation that a regime change in exits and net entries occurred between 1983 and 1984. Several observations emerge. First, the far Western states experienced the highest net entry, on average. When net entry was positive, however, it means that the net entry between 1977 and 1983 more than offset the net exit between 1984 and 1998. Second, the upper-Midwestern states saw the most net exit, on average. Third, generally states East of the Mississippi experienced net exits, on average, both before 1984 and after 1983 while those states West of the Mississippi river experienced net entries before 1984 and net exits after 1983.

In sum, we find that those states with a large number of banks generally experience a large number of entries, exits, and net entries. Using fractions of banks in a state, the results suggest that those areas with growing population and booming economies (e.g., Arizona and North Carolina) experience larger percentages of entries of banks while those states with slow population growth and stagnant economies (e.g., Rhode Island and New Hampshire) experience larger percentages of exits.²⁶

Deregulation and Net Entry Activity

Once again, we use the same set of independent variables on intrastate and interstate branching and banking regulation and the state of the state's economy in fixed- and random-effects

²⁶ Jeon and Miller (2001a) examine entries, exits, and mergers in U.S. banking from 1976 to 1998 on a state-by-

regressions of the number of net entries to the total number of banks (nent) in a state. Table 12 reports the findings. First, the intrastate branching and banking variable does not significantly affect the net entry rate and switches sign between the fixed- and random-effects specifications. Second, all interstate branching and banking regulatory dummy variables are significant. More permissive interstate branching and banking regulation associates with a lower rate of net entries – which could reflect fewer entries or more exits. Finally, a stronger state economy – a lower unemployment rate – associates significantly with a higher rate of net entries. If one interprets higher net entry rates as signaling more competitive banking, then deregulation (and a weaker state economy) leads to less competition.

VII. Conclusion

In the early 1980s, the U.S. banking industry began an unprecedented regulatory and structural change from a dual banking system with banks chartered at the state and the national levels, but prohibited from operating across state lines even for those banks with national charters. Several regulatory and legislative decisions opened the door to across-state banking operations, first by bank holding companies and most recently by banks themselves. The Interstate Banking and Branching Efficiency Act of 1994 permitted banks to acquire banks in other states.

We examine the changes in the structure of the banking industry using the Report on Condition and Income (Call Report) and merger data recently posted on web by the Federal Reserve Bank of Chicago. Several general conclusions follow from our analysis. First, consolidation in the banking industry has begun and the pace of consolidation has increased in recent years. That pace, however, seems slower than expected, reflecting the larger than anticipated number of new entries.

state using FDIC data.

Second, the major part of consolidation within the banking industry, with some notable exceptions, has been within states and not between states. Even after the recent passage of the Interstate Banking and Branching Efficiency Act of 1994, still about 70 percent of the merger activity between banks occurs within states. Of course, as the consolidation process continues, eventually the opportunities for intrastate mergers will exhaust themselves and by necessity the action will shift to the interstate level. Some few individual bank organizations, prompted probably by the entrepreneurial instincts of their chief executive officers, have already pursued an aggressive strategy of interstate mergers and acquisitions. Those few banks have made major movements up in the rankings of largest banks based on total assets.

Interestingly, fixed- and random-effects regressions that explain the rate of merger activity within a state show that the merger rate increases with more permissive interstate branching and banking regulation. The merger rate does not respond significantly to our measure of intrastate branching and banking regulation.²⁷ So even though most merger activity remains within state boundaries, the rate of merger activity is affected by the permissiveness of interstate branching and banking regulation. Those findings may suggest that banks merge within a state in an attempt to reduce the possibility of a takeover (merger) by an out-of-state bank.

Third, some groups raise concerns about the potential concentration of power amongst a few megabanks. The facts belie this concern to some extent. For example, the percent of total bank assets controlled by the top-5, -10, -20, -50, and -100 banks in the U.S. declined from 1976 through about 1990, depending on the top-bank category considered. Their share of total assets has risen in recent years, but that movement does not yet seem like a serious issue.

²⁷ We also experimented with the traditional dummy variables for unit, limited, and state-wide branching and banking regulation, using the same specification as in Kaparakis, Miller, and Noulas (1994, Table 5, p. 888), finding the same results as for our continuous measure (bch/bn).

Such concerns about concentration of power generate a bit more support at the state level. The top-5 bank concentration ratio averages about 45 percent until 1983 and then rises gradually to 62 percent in 1998. And the average top-10 concentration ratio averages about 56 percent until 1983, then rises to 71 percent in 1998. At what point, however, do increases in concentration become relevant for policy makers.

Still on this point, the concerns about concentration of power at the state level gain more credence in our fixed- and random-effects regressions. Here, both more permissive intrastate and interstate branching and banking regulation associates significantly with higher concentration.²⁸ Thus, the recent deregulation associates with higher concentration.

Fourth, another concern of some analysts is the availability of credit to small- and medium-sized firms. Those firms, by and large, do not have access to other sources of credit. Moreover, smaller community banks are major players in the extension of credit to small- and medium-sized firms. The large and frequent entry of new banks provides some comfort that smaller community banks are not an endangered species. Nonetheless, as the share of bank assets held by smaller community banks falls, reasonable concerns emerge about the availability of credit to small- and medium-sized firms.

Finally, clear evidence exists that the deregulation begun in the early 1980s began to have an effect on the relationship between entries and exits to the banking industry. Net entries were positive through 1983. From 1984 onward, net entries have been negative. That is, the banking industry has been contracting. The overall decline in over 5,000 banks between 1976

²⁸ As noted above, Jeon and Miller (2001b) demonstrate that higher concentration in banking at the state level associates significantly with higher profitability. Moreover, simple temporal (Granger) causality tests imply that the timing is one-way from concentration to profitability.

and 1998 hides the fact that the decline occurred because of over 11,000 exits and over 6,000 entrances.

Moreover, our fixed- and random-effects regressions indicate that more permissive interstate branching and banking regulation associates significantly with a lower rate of net entry, even allowing for differences in the state of the state's economy. And, as we noted above, the more permissive interstate branching and banking regulation also associates with a higher merger rate.

References:

- Berger, A. N., S. D. Bonime, L. J. Goldberg, and L. J. White. "The Dynamics of Market Entry: The Effects of Mergers and Acquisitions on *De Novo* Entry and Small Business Lending in the Banking Industry." Finance and Economics Discussion Series #1999-41 (July 1999), Board of Governors of the Federal Reserve System, Washington, DC.
- Berger, A. N., A. K. Kashyap, and J. M. Scalise. "The Transformation of the U.S. Banking Industry: What a Long, Strange Trip It's Been." *Brookings Papers on Economic Activity* (2 1995), 55-201.
- Hannan, T. H., and S. A. Rhoades. "Future U.S. Banking Structure: 1990 to 2010." *Antitrust Bulletin* 37 (Fall 1992), 737-98.
- Jeon, Y., and S. M. Miller. "Births, Deaths, and Marriages in the U.S. Commercial Banking Industry." Working Paper, University of Connecticut, (May 2001a).
- Jeon, Y., and S. M. Miller. "Bank Concentration and Performance." Working Paper, University of Nevada, Las Vegas, (July 2001b).
- Kane, E. J. "De Jure Interstate Banking: Why Only Now?" *Journal of Money, Credit and Banking* 28 (May 1996), 141-61.
- Kaparakis, E. I., S. M. Miller, and A. G. Noulas. "Short-Run Cost Inefficiency of United States Commercial Banks: A Flexible Stochastic Frontier Approach." *Journal of Money, Credit and Banking* 26 (November 1994), 873-93.
- Keeton, W. R., "Are Mergers Responsible for the Surge in New Bank Charters?" Federal Reserve Bank of Kansas City *Economic Review* 85 (First Quarter 2000), 21-41.
- Kroszner, R. S., and P. E. Strahan. "What Drives Deregulation? Economics and Politics of the Relaxation of Bank Branching Restrictions." *Quarterly Journal of Economics* 114 (November 1999), 1437-67.
- Miller, S. M. "Counterfactual Experiments of Deregulation on Banking Structure." *Quarterly Review of Economics and Business* 28 (Winter 1988), 38-49.
- Rhodes, S. A. "Bank Mergers and Banking Structure in the United States, 1980-98." Staff Studies 174, Washington, DC, Board of Governors of the Federal Reserve System, August 2000.
- Seelig, S. A., and T. Critchfield. "Determinants of *De Novo* Entry in Banking." Working Paper Series, #99-1, Federal Deposit Insurance Corporation, Washington, DC.

Table 1: Commercial Bank Mergers: 1976-1998

Year	Commercial Banks					
	Merger				Mergers between Different States	Total Number of banks
	Charter Discontinued	Involving Government Assistance	Other	Total		
1976	121	16	0	137	1	15,264
1977	152	6	0	158	0	15,294
1978	166	6	0	172	0	15,418
1979	220	8	0	228	0	15,417
1980	130	6	0	136	1	15,849
1981	206	8	0	214	0	15,856
1982	272	25	0	297	1	16,062
1983	320	38	0	358	0	16,095
1984	346	74	1	421	3	15,657
1985	347	94	0	441	0	15,659
1986	343	118	1	462	1	15,340
1987	563	175	0	738	5	14,846
1988	620	198	0	818	7	14,280
1989	422	200	1	623	4	13,887
1990	394	251	2	647	17	13,518
1991	435	176	2	613	20	13,094
1992	471	144	3	618	18	12,689
1993	569	61	3	633	17	12,238
1994	614	68	9	691	15	11,698
1995	678	9	7	694	41	11,153
1996	612	5	13	630	64	10,803
1997	674	2	4	680	206	10,268
1998	638	3	5	646	193	9,839
Total	9,313	1,691	51	11,055	614	

Note: Data include mutual savings banks, commercial banks, and non-deposit trust companies, including both state and national charters. The data are posted at http://www.frbchi.org/rcr/rcr_database.html

Table 2: Survivor and Non-Survivor Entity Types: 1976-1998

		Entity Type for Survivor						Total
		MSB	NAT	STM	NON	MTC	TRC	
Entity Type for Non-Survivor	MSB	270	211	81	214	0	0	776
	NAT	19	2743	312	858	1	1	3934
	STM	6	378	293	245	0	0	922
	NON	55	2073	501	2648	0	0	5277
	MTC	6	37	1	1	8	0	53
	TRC	0	43	10	17	6	17	93
Total		356	5485	1198	3983	15	18	11055

Note: See Table 1. The entity types are defined as follows: MSB: mutual saving banks and federal savings bank; NAT: national bank; STM: state member bank; NON: non-member bank; MTC: member, non-deposit trust company; and TRC: non-member, non-deposit trust company.

Table 3: Mergers Within and Between States: 1976-1998 (Ranked by the Average Number of Banks)

State	Within State Merger	Between-State Merger		State	Within State Merger	Between-State Merger	
		Survivor in Other State	Survivor in State			Survivor in Other State	Survivor in State
Texas	1,370	20	4	North Dakota	80	5	13
Illinois	655	41	17	New Jersey	207	20	12
Minnesota	317	7	17	Montana	106	0	0
Missouri	420	38	26	Mississippi	116	10	12
Iowa	275	29	6	South Dakota	80	5	3
Kansas	266	18	8	Washington	90	11	3
Wisconsin	357	4	4	Connecticut	69	7	1
New York	202	24	26	Maryland	88	19	12
Florida	901	53	16	North Carolina	124	4	95
California	374	17	42	New Mexico	46	17	2
Oklahoma	275	3	0	Wyoming	70	3	0
Georgia	299	27	6	South Carolina	69	10	1
Nebraska	217	2	18	New Hampshire	46	4	0
Colorado	407	11	3	Oregon	71	6	17
Ohio	368	8	59	Utah	73	12	5
Pennsylvania	265	12	18	Maine	33	1	1
Indiana	272	20	6	Delaware	16	14	7
Kentucky	153	15	5	Arizona	47	5	3
Michigan	263	18	19	Vermont	16	1	0
Tennessee	244	12	33	Idaho	17	8	0
Massachusetts	157	0	7	Dis. Columbia	10	9	5
Arkansas	85	39	1	Hawaii	10	2	0
Alabama	238	11	92	Rhode Island	12	4	3
Louisiana	200	10	6	Nevada	9	6	3
Virginia	285	22	14	Alaska	12	2	0
West Virginia	184	6	4				

Note: See Table 1.

Table 4: Bank Mergers and Deregulation

	Fixed-Effects Models	Random-Effects Models
constant	0.0138 (1.63)	0.0112 (1.62)
bch/bn	0.0004 (0.68)	0.0008** (2.28)
dr	0.0168* (3.75)	0.0195* (4.54)
dnr	0.0447* (9.08)	0.0421* (9.94)
dnn	0.0288* (5.68)	0.0261 (5.50)
unem	0.0011 (1.15)	0.0012 (1.49)
R²: Within	0.1284	0.1273
R²: Between	0.0610	0.1046
R²: Overall	0.1163	0.1218

Note: The dependent variable is the number of mergers per bank in each state. The independent variables include the number of branches per bank (bch/bn), a dummy variable for states that enacted legislation that allows out-of-state bank holding companies from a proscribed region to operate within its boundaries – either with or without reciprocity from the home state of that bank holding company (dr), a dummy variable for states that enacted legislation that allows out-of-state bank holding companies irrespective of their headquarters' locations to operate within its boundaries, but only if the states where their headquarters are located have similar (reciprocal) legislation (dnr), a dummy variable for states that enacted legislation that allow out-of-state bank holding companies irrespective of their headquarters' locations to operate within their boundaries without any requirement for reciprocity from the other states (dnn), and the unemployment rate (unem).

* means significantly different from zero at the 1-percent level

** means significantly different from zero at the 5-percent level

Table 5: Top Bank Fractional Holding of Total Assets

Year	Top-5 Banks	Top-10 Banks	Top-20 Banks	Top-50 Banks	Top-100 Banks
1976	0.18	0.25	0.32	0.40	0.47
1977	0.18	0.26	0.32	0.40	0.47
1978	0.18	0.25	0.32	0.40	0.48
1979	0.19	0.27	0.34	0.42	0.49
1980	0.17	0.25	0.32	0.40	0.47
1981	0.17	0.25	0.31	0.39	0.47
1982	0.16	0.24	0.30	0.39	0.46
1983	0.15	0.22	0.29	0.37	0.45
1984	0.14	0.21	0.28	0.36	0.45
1985	0.14	0.21	0.27	0.36	0.44
1986	0.13	0.20	0.26	0.35	0.44
1987	0.12	0.18	0.24	0.35	0.44
1988	0.11	0.17	0.23	0.34	0.44
1989	0.11	0.17	0.23	0.33	0.44
1990	0.11	0.17	0.23	0.33	0.43
1991	0.11	0.16	0.23	0.33	0.43
1992	0.13	0.17	0.23	0.34	0.44
1993	0.13	0.18	0.24	0.35	0.46
1994	0.14	0.19	0.26	0.37	0.48
1995	0.14	0.20	0.27	0.38	0.49
1996	0.17	0.23	0.30	0.42	0.53
1997	0.19	0.27	0.36	0.49	0.60
1998	0.21	0.29	0.38	0.51	0.62

Note: See Table 1. The columns report the percentage of total bank assets in each year held by the top-5, -10, -20, -50, -100 banks based on assets.

Table 6: States Ranked by Top-5 Bank Concentration of Assets (Lowest to Highest)

Rank	1978	1983	1988	1993	1998
1	Florida	Iowa	Kansas	Arkansas	Arkansas
2	Iowa	Kansas	Iowa	Iowa	Florida
3	Kansas	West Virginia	Arkansas	Kansas	Kansas
4	West Virginia	North Dakota	Montana	Wisconsin	Iowa
5	Arkansas	Montana	West Virginia	West Virginia	Nebraska
6	Montana	Arkansas	Wyoming	Oklahoma	Oklahoma
7	New Jersey	Wisconsin	Oklahoma	Illinois	Texas
8	Wisconsin	Nebraska	Wisconsin	North Dakota	Wisconsin
9	North Dakota	Wyoming	Indiana	Missouri	West Virginia
10	Louisiana	Louisiana	Missouri	Colorado	Kentucky
11	Indiana	Florida	New Hampshire	Nebraska	North Dakota
12	New Hampshire	Indiana	Nebraska	Florida	Illinois
13	Nebraska	New Jersey	Colorado	Kentucky	Georgia
14	Wyoming	New Hampshire	North Dakota	Indiana	Colorado
15	Ohio	Missouri	New Jersey	Montana	New York
16	Texas	Oklahoma	Texas	New York	Missouri
17	Missouri	Texas	Florida	Ohio	Montana
18	Oklahoma	Tennessee	Ohio	New Jersey	Indiana
19	Tennessee	Ohio	New York	Louisiana	New Mexico
20	Alabama	Kentucky	Kentucky	New Mexico	Mississippi
21	Maine	Colorado	Illinois	Delaware	Idaho
22	Kentucky	New Mexico	Tennessee	Texas	Maine
23	Massachusetts	Mississippi	Pennsylvania	Wyoming	Maryland
24	Colorado	Maine	New Mexico	Tennessee	Virginia
25	Minnesota	Massachusetts	Louisiana	Pennsylvania	Pennsylvania
26	Mississippi	Pennsylvania	Connecticut	Massachusetts	New Jersey
27	South Dakota	Michigan	Massachusetts	Georgia	South Carolina
28	Connecticut	Minnesota	Delaware	Minnesota	Vermont
29	New Mexico	Alabama	Minnesota	Connecticut	Ohio
30	Pennsylvania	Delaware	Georgia	Mississippi	Massachusetts
31	Virginia	New York	Vermont	Vermont	Wyoming
32	Michigan	Connecticut	Michigan	Maryland	California
33	Georgia	Georgia	Mississippi	California	Delaware
34	New York	Illinois	Maryland	New Hampshire	South Dakota
35	Vermont	Vermont	California	Alabama	Oregon
36	Illinois	Virginia	Alabama	Michigan	Louisiana
37	Maryland	Maryland	Virginia	Maine	Washington
38	South Carolina	South Dakota	Maine	South Dakota	Michigan
39	Washington	California	Washington	Washington	Tennessee
40	North Carolina	Washington	Utah	Virginia	Connecticut
41	Alaska	Alaska	South Carolina	South Carolina	Minnesota
42	Utah	South Carolina	Oregon	North Carolina	Nevada
43	Delaware	Utah	South Dakota	Utah	New Hampshire
44	Oregon	Oregon	North Carolina	Oregon	Utah
45	Rhode Island	North Carolina	Rhode Island	Arizona	Arizona
46	California	Rhode Island	D. Columbia	D. Columbia	Alabama
47	Idaho	Idaho	Idaho	Idaho	D. Columbia
48	D. Columbia	D. Columbia	Hawaii	Nevada	North Carolina
49	Hawaii	Hawaii	Alaska	Hawaii	Alaska
50	Nevada	Arizona	Arizona	Rhode Island	Hawaii
51	Arizona	Nevada	Nevada	Alaska	Rhode Island

Table 7: Bank Concentration and Deregulation

	Fixed-Effects Models			Random-Effects Models		
	top5	top10	hhi	top5	top10	hhi
constant	0.3949* (28.92)	0.5112* (42.03)	0.0475* (6.90)	0.3887* (15.72)	0.5043* (21.13)	0.0470* (4.24)
bch/bn	0.0135* (12.60)	0.0115* (12.10)	0.0070* (13.03)	0.0143* (13.93)	0.0124* (13.47)	0.0071* (14.02)
dr	0.0314* (4.36)	0.0372* (5.80)	0.0019 (0.51)	0.0306* (4.24)	0.0363* (5.62)	0.0015 (0.42)
dnr	0.0661* (8.36)	0.0704* (9.99)	0.0167* (4.18)	0.0641* (8.17)	0.0679* (9.65)	0.0167* (4.25)
dnn	0.0315* (3.86)	0.0423* (5.82)	-0.0014 (-0.34)	0.0300* (3.68)	0.0408* (5.59)	-0.0017 (-0.41)
unem	-0.0023 (-1.50)	-0.0028** (-2.00)	-0.0009 (-1.19)	-0.0021 (-1.37)	-0.0026 (-1.85)	-0.0009 (-1.18)
R²: Within	0.3687	0.4034	0.2841	0.3685	0.4031	0.2841
R²: Between	0.5023	0.5453	0.3825	0.5002	0.5420	0.3827
R²: Overall	0.4582	0.4794	0.3599	0.4598	0.4841	0.3601

Note: The dependent variables include the percentage of assets in each state held by the top-five and top-ten banks (top5 and top10), and the Herfindahl index of bank assets in each state. See Table 4 for the definitions of the independent variables.

* means significantly different from zero at the 1-percent level

** means significantly different from zero at the 5-percent level

Table 8: Location of Top Banks by State (Ranked by Average Real GSP)

State	year	top 5 banks					top 10 banks					top 20 banks					top 50 banks					top 100 banks				
		78	83	88	93	98	78	83	88	93	98	78	83	88	93	98	78	83	88	93	98	78	83	88	93	98
California		1	1	1	1	1	2	2	3	2	2	5	5	4	2	2	6	6	5	4	3	9	9	8	4	3
New York		4	4	4	4	2	6	6	6	6	4	9	9	11	9	7	17	19	21	20	14	31	31	31	30	33
Texas										1			1	1	1		4	4	2	3	2	5	6	5	4	2
Illinois							2	2	1		1	2	2	2	1	1	4	4	2	3	3	5	4	4	6	8
Florida															1			1	1	2		1	2	4	2	
Pennsylvania										1		2	2	1	2	2	6	4	5	3	2	10	8	8	6	3
Ohio																1	1	1		1	4	3	4	3	3	6
New Jersey																			1	1	2	1	1	1	2	2
Michigan											1				2		3	1	1	2	2	3	3	4	3	4
Georgia																	1	1	1	1		2	2	2	4	1
North Carolina						2					2				1	3	2	3	3	3	4	3	3	3	4	4
Massachusetts												1	1	1	1	2	1	1	3	3	2	3	3	5	5	2
Virginia																		1	1		1	2	3	3	5	1
Washington																	2	2	1	1	1	3	2	2	2	1
Indiana																						2			1	1
Missouri																					1	2	1		1	1
Maryland																						1	1	1	1	1
Wisconsin																						1	1			
Minnesota																1		1	1	2	2	3	3	2	2	2
Tennessee																					1				1	3
Connecticut																			1	1	1	2	3	3	2	2
Colorado																										1
Arizona																	1	1				2	2	2	2	1
Louisiana																										2
Alabama																					2		1	1	1	5
Kentucky																										1
Oregon																	2					2	2	1	1	
South Carolina																									1	
Utah																										2
Dis. Columbia																						2	2	1		
Hawaii																								1	1	1
Delaware																					2			3	3	4
Rhode Island											1					1					1	1	1	1	1	1
South Dakota																			1				1	1	1	1

Note: See Table 5. Several states do not have any top-ranked banks: Alaska, Arkansas, Idaho, Indiana, Iowa, Maine, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Vermont, West Virginia and Wyoming. Also, Puerto Rico has a top-100 bank in several years.

Table 9: Location of Top-50 Banks by City

State	City Name	FRB City	78	83	88	93	98	State	City Name	FRB City	78	83	88	93	98
California	Los Angeles	Branch	3	3	2	1		New Jersey	Jersey City						1
California	San Francisco	Bank	3	3	3	3	3	New Jersey	Newark				1	1	
New York	Albany					1		Michigan	Detroit	Branch	3	1	1	2	2
New York	Brooklyn		1	2				Georgia	Atlanta	Bank	1	1	1	1	
New York	Buffalo	Branch	1	2	2	1	1	Georgia	Augusta						
New York	Jamaica		1					North Carolina	Charlotte	Branch	1	2	2	2	2
New York	New York	Bank	14	15	19	18	13	North Carolina	Winston-Salem		1	1	1	1	2
Texas	Dallas	Bank	2	2	1	2	1	Massachusetts	Boston	Bank	1	1	3	3	2
Texas	Houston	Branch	2	2	1	1	1	Massachusetts	Springfield						
Illinois	Chicago	Bank	4	4	2	3	3	Virginia	Richmond	Bank		1	1		1
Florida	Jacksonville	Branch				1		Virginia	Vienna						
Florida	Miami	Branch		1	1			Washington	Seattle	Branch	2	2	1	1	1
Florida	Tampa					1		Missouri	Saint Louis	Bank					1
Pennsylvania	Jeannette		1	1				Maryland	Baltimore	Branch					
Pennsylvania	Ardmore		2	1	1			Maryland	Bethesda						
Pennsylvania	Avondale							Maryland	Elkton						
Pennsylvania	Bala-Cynwyd		2					Minnesota	Minneapolis	Bank		1	1	2	2
Pennsylvania	Greensburg			1	1	1		Tennessee	Memphis	Branch					1
Pennsylvania	Horsham Twp			1				Connecticut	Hartford				1	1	
Pennsylvania	Malvern				1			Connecticut	Stamford						1
Pennsylvania	Philadelphia	Bank			1	1		Arizona	Phoenix		1	1			
Pennsylvania	Pittsburgh	Branch	1		1	1	2	Alabama	Birmingham	Branch					2
Pennsylvania	Rosemont							Oregon	Portland	Branch	2				
Ohio	Cleveland	Bank	1			1	2	Delaware	Wilmington						2
Ohio	Columbus			1			2	Rhode Island	Providence						1
New Jersey	Hackensack						1	South Dakota	Sioux Falls				1		

Note: See Table 5. Cities that do not have top-50 banks in years 1978, 1983, 1988, 1993, and 1998 have some top-50 banks in other years between 1978 and 1998. Other Federal Reserve Bank cities include Kansas City. Other Federal Reserve Branch cities include Cincinnati, Nashville, New Orleans, Little Rock, Louisville, Helena, Denver, Oklahoma City, Omaha, El Paso, San Antonio, and Salt Lake City

**Table 10: Actual and Benchmark Banks by State
(Ranked by Average Real GSP)**

State	Top 100 Banks		Total Banks	
	Actual	Benchmark	Actual	Benchmark
California	7	13	507	1,754
New York	31	9	522	1,195
Texas	4	7	1,379	997
Illinois	5	5	1,175	710
Florida	2	4	508	577
Pennsylvania	7	4	334	627
Ohio	4	4	337	594
New Jersey	2	4	151	495
Michigan	4	4	294	509
Georgia	3	2	413	332
North Carolina	3	2	90	336
Massachusetts	4	3	290	373
Virginia	3	2	194	339
Washington	2	2	115	269
Indiana	1	2	328	287
Missouri	1	2	600	270
Maryland	1	2	101	258
Wisconsin	0	2	531	258
Minnesota	2	2	669	250
Tennessee	1	2	289	238
Connecticut	2	2	111	223
Colorado	0	1	389	194
Arizona	2	1	38	167
Louisiana	0	2	243	260
Alabama	1	1	245	180
Kentucky	0	1	321	178
Oregon	1	1	66	147
South Carolina	0	1	79	153
Iowa	0	1	584	152
Oklahoma	0	1	444	161
Kansas	0	1	554	134
Arkansas	0	1	254	100
Mississippi	0	1	142	104
Nevada	0	1	17	70
Utah	0	1	59	80
Nebraska	0	1	412	87
D. Columbia	1	1	20	98
New Mexico	0	1	84	76
West Virginia	0	1	188	81
N. Hampshire	0	0	75	55
Hawaii	1	1	18	70
Delaware	2	0	43	46
Idaho	0	0	23	47
Maine	0	0	48	54
Rhode Island	1	0	18	50
Alaska	0	0	12	64
South Dakota	1	0	135	34
Montana	0	0	146	39
Wyoming	0	0	83	40
North Dakota	0	0	158	34
Vermont	0	0	31	26
USA	99	100	13,870	13,870

Note: Actual total of top-100 banks equals 99 because of rounding.

Table 11: Average Bank Entry, Exit, and Net Entry by State (Ranked by the Average Number of Banks)

	Bank Entries					Bank Exits					Net Bank Entries				
Year	77-79	80-84	85-89	90-94	95-98	77-79	80-84	85-89	90-94	95-98	77-79	80-84	85-89	90-94	95-98
Texas	26.7	100.4	33	10	14.3	1	9.8	189.8	76.6	57.5	25.7	90.6	-156.8	-66.6	-43.3
Illinois	17	11.4	8.8	16.8	17.8	3	9.6	36.8	52.4	59.8	14	1.8	-28	-35.6	-42
Minnesota	4	2.8	3.3	2.8	6	0.3	6.8	28.3	17.8	18.3	3.7	-4	-25	-15	-12.3
Missouri	6.3	7.6	6	2	7.8	0.3	10.2	36.8	17.2	31	6	-2.6	-30.8	-15.2	-23.3
Iowa	0.3	1.4	1.8	1.2	6.5	1	6.8	13.8	13	25	-0.7	-5.4	-12	-11.8	-18.5
Kansas	1	5	2.8	1.8	2.5	0.7	2.8	15.5	24.6	18.8	0.3	2.2	-12.8	-22.8	-16.3
Wisconsin	3.3	2.6	2.3	6.4	5.3	1.3	11.6	18.5	24.2	19	2	-9	-16.3	-17.8	-13.8
New York	30	43.2	22	11.6	10	10.7	29.2	17.3	25.2	29.3	19.3	14	4.8	-13.6	-19.3
Florida	13.3	41.6	37.3	9.2	14	65.3	56.2	40.5	23.4	41.3	-52	-14.6	-3.3	-14.2	-27.3
California	24	83.8	21.8	13.8	13.8	6.3	16.8	21.5	32.8	40.5	17.7	67	0.3	-19	-26.8
Oklahoma	7	12.6	3.8	0.2	1.5	0.3	4.2	29.8	16.2	11.8	6.7	8.4	-26	-16	-10.3
Georgia	1.3	6	22	10	11	1.7	13.8	15.8	12.4	21.5	-0.3	-7.8	6.3	-2.4	-10.5
Nebraska	1.7	6	1	3	2.5	0.3	3.4	16.3	11	11.8	1.3	2.6	-15.3	-8	-9.3
Colorado	16.7	36	14.3	4.2	6	0.3	26.2	19.5	38.6	26.5	16.3	9.8	-5.3	-34.4	-20.5
Ohio	3	2.8	3.3	8.6	6.8	28.7	20.2	10.5	10.6	16	-25.7	-17.4	-7.3	-2	-9.3
Pennsylvania	3.7	2.2	9	12.2	5.5	6.3	11.8	12.3	15.4	18.8	-2.7	-9.6	-3.3	-3.2	-13.3
Indiana	2.3	0.6	1	3.2	3.8	2	6.4	16.3	19.8	17.5	0.3	-5.8	-15.3	-16.6	-13.8
Kentucky	0.7	1.6	2	3.4	6.5	0.7	3	1.5	13	12.8	0	-1.4	0.5	-9.6	-6.3
Michigan	6.3	3.4	2.3	2.2	6.8	1.3	4.6	25.3	15.8	14.3	5	-1.2	-23	-13.6	-7.5
Tennessee	2.7	2.8	5.3	5.4	5.5	1.3	14.6	10.5	8.8	17	1.3	-11.8	-5.3	-3.4	-11.5
Massachusetts	3	2.6	27	1	3	2.3	29.4	11.8	19.2	10.5	0.7	-26.8	15.3	-18.2	-7.5
Arkansas	0.7	2.2	0.8	2.4	4.8	0.3	2.4	1.8	2.4	18.3	0.3	-0.2	-1	0	-13.5
Alabama	6.3	3.6	6.5	1.2	2.3	1.7	12.6	11.8	3.8	14.3	4.7	-9	-5.3	-2.6	-12
Louisiana	3.7	9	3	2.8	2.5	0.7	0.8	20.5	8.2	15.5	3	8.2	-17.5	-5.4	-13
Virginia	6.3	2.8	7	2.2	6	22.3	13.8	4.3	5.8	9	-16	-11	2.8	-3.6	-3
West Virginia	4.3	2.8	1	0.4	2.5	0	4.4	8.3	13.6	10.8	4.3	-1.6	-7.3	-13.2	-8.3
North Dakota	2	1.4	0.3	0.4	0.8	0.7	0.6	5.5	4.2	7	1.3	0.8	-5.3	-3.8	-6.3
New Jersey	1.3	1.2	8.3	7.2	6.3	7.7	12	7.5	12	11.3	-6.3	-10.8	0.8	-4.8	-5
Montana	2.7	1.2	1.5	0.4	2.8	0	0.6	2.3	11.4	8.5	2.7	0.6	-0.8	-11	-5.8
Mississippi	2	0.2	0	1.2	2	2.3	6.2	5.8	3.2	6	-0.3	-6	-5.8	-2	-4
South Dakota	0.7	0.6	2.8	0.4	1.8	1.3	3.4	5	2.2	5.8	-0.7	-2.8	-2.3	-1.8	-4
Washington	8.3	5.4	4.8	5.6	5.8	0.7	3.8	6.8	6.2	9.3	7.7	1.6	-2	-0.6	-3.5
Connecticut	1	0.8	7.8	0.8	2.5	3.7	5.8	3.3	8.8	8.8	-2.7	-5	4.5	-8	-6.3
Maryland	2	2.2	5	2.2	2.5	4.3	4.2	1.3	4.8	6.3	-2.3	-2	3.8	-2.6	-3.8
North Carolina	1	2.8	5.5	15.4	6.8	3.7	6	1.8	7.2	10.5	-2.7	-3.2	3.8	8.2	-3.8
New Mexico	1.3	2.2	0	0.6	1.8	0	0.6	0.8	5.2	5	1.3	1.6	-0.8	-4.6	-3.3
Wyoming	5.3	5.4	0.5	0.2	0.8	0	1	11	4	1	5.3	4.4	-10.5	-3.8	-0.3
South Carolina	0	1	5	0.8	5.5	1.7	3.4	3.3	2	5	-1.7	-2.4	1.8	-1.2	0.5
N. Hampshire	1.3	0.8	3.3	1.4	1.5	1.3	4.8	3.5	8.6	5	0	-4	-0.3	-7.2	-3.5
Oregon	12.3	5.6	0.8	1.2	3	0.7	6	6	2.4	4	11.7	-0.4	-5.3	-1.2	-1
Utah	7.7	1.8	4	1.2	3.5	4.3	5	4	3.8	1.8	3.3	-3.2	0	-2.6	1.8
Maine	0	0.4	0.5	0.6	0.5	1.3	5.2	2	0.8	1.3	-1.3	-4.8	-1.5	-0.2	-0.8
Delaware	1.7	5	4.5	2.2	2.5	0	1.2	2.5	3.6	3.8	1.7	3.8	2	-1.4	-1.3
Arizona	2.3	6.8	2	1.4	5.3	1.3	2.8	4.3	3.2	3	1	4	-2.3	-1.8	2.3
Vermont	0.7	0	0.5	0	0.8	0.7	0.8	0	1.4	1	0	-0.8	0.5	-1.4	-0.3
Idaho	1.7	0.4	0.3	0.8	2.3	0.3	0.6	1.3	1.6	2.8	1.3	-0.2	-1	-0.8	-0.5
D. Columbia	0.7	1.6	1.5	0.6	0.3	0	0.2	0	2.4	2.8	0.7	1.4	1.5	-1.8	-2.5
Hawaii	1	3.2	0.3	0	0.3	0	0.8	0.5	1.2	1.3	1	2.4	-0.3	-1.2	-1
Rhode Island	0	0.6	0.8	0.4	0.8	0	1.4	1.8	1.4	1.5	0	-0.8	-1	-1	-0.8
Nevada	0.7	2	0.5	1.4	3.3	0.3	0.6	0.5	0.4	2	0.3	1.4	0	1	1.3
Alaska	0	0.4	0.5	0.4	0	0	0	2.5	0	0.5	0	0.4	-2	0.4	-0.5
USA	247	446	302	184	235	197	408	717	624	701	50	38	-415	-440	-466

Table 12: Bank Net Entries and Deregulation

	Fixed-Effects Models	Random-Effects Models
constant	0.0507* (4.26)	0.0239* (2.61)
bch/bn	-0.0017 (-1.84)	0.0007 (1.61)
dr	-0.0191* (-3.05)	-0.0218* (-3.66)
dnr	-0.0545* (-7.91)	-0.0568* (-9.78)
dnn	-0.0364* (-5.13)	-0.0387* (-5.90)
unem	-0.0057* (-4.26)	-0.0040* (-3.57)
R²: Within	0.1030	0.0958
R²: Between	0.0066	0.0691
R²: Overall	0.0495	0.0878

Note: The dependent variable is the ratio of net entries to total banks in each state. See table 4 for the definitions of the independent variables.

* means significantly different from zero at the 1-percent level
 ** means significantly different from zero at the 5-percent level

Figure1. Mergers Within and Between States: 1976 - 1998

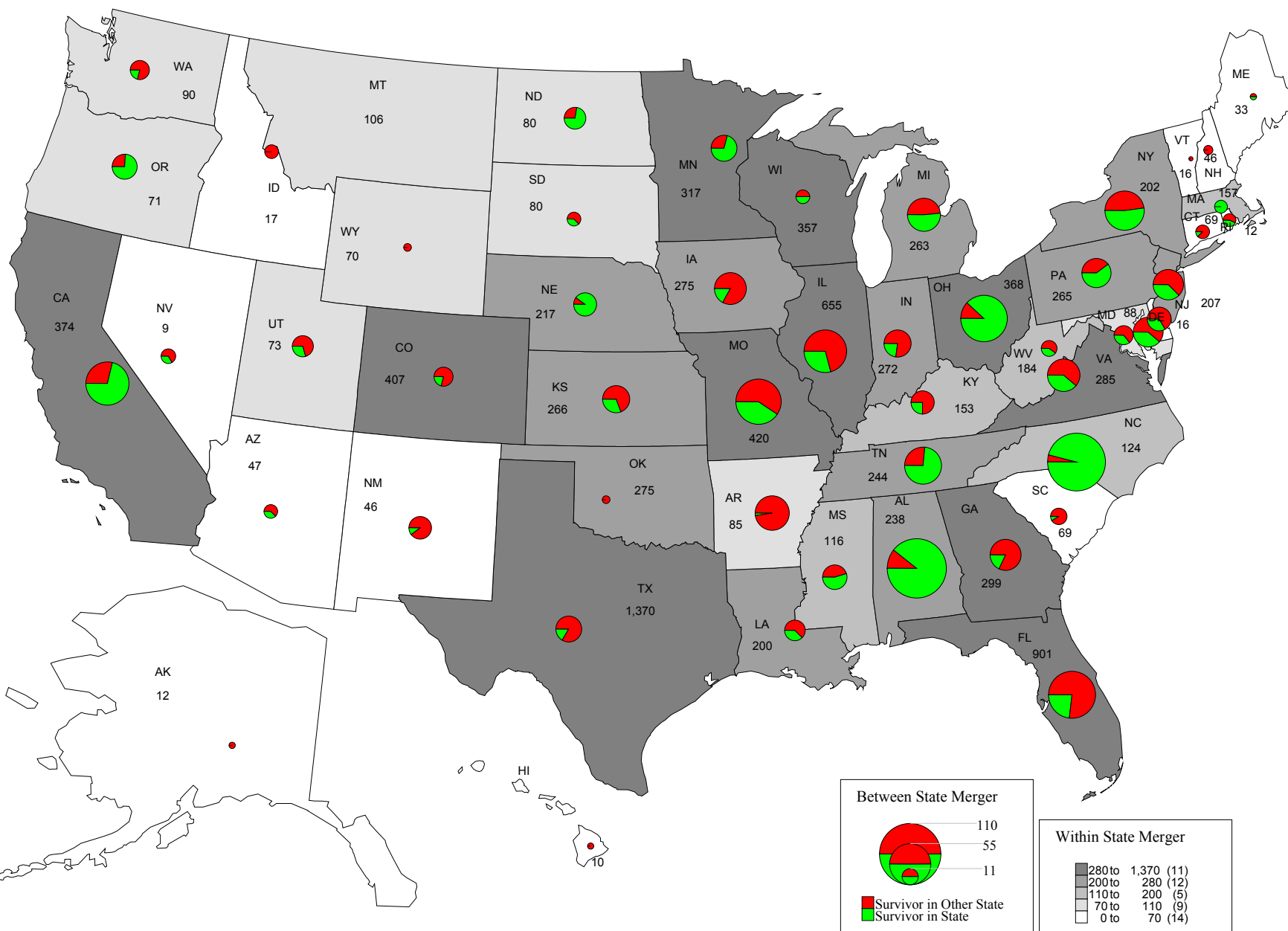


Figure 2. States Ranked by Top-5 Bank Concentration of Assets

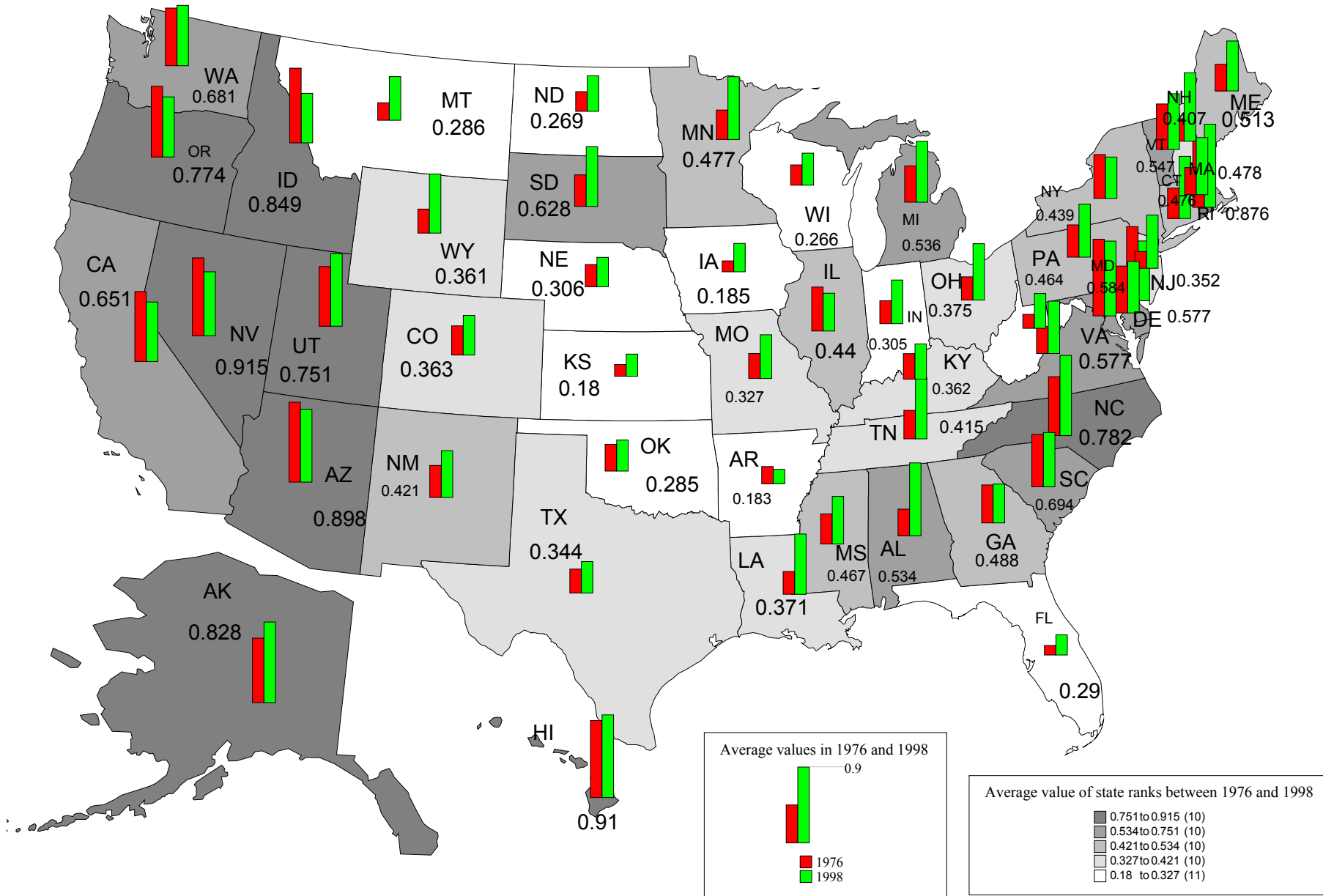


Figure3. Net Bank Entries

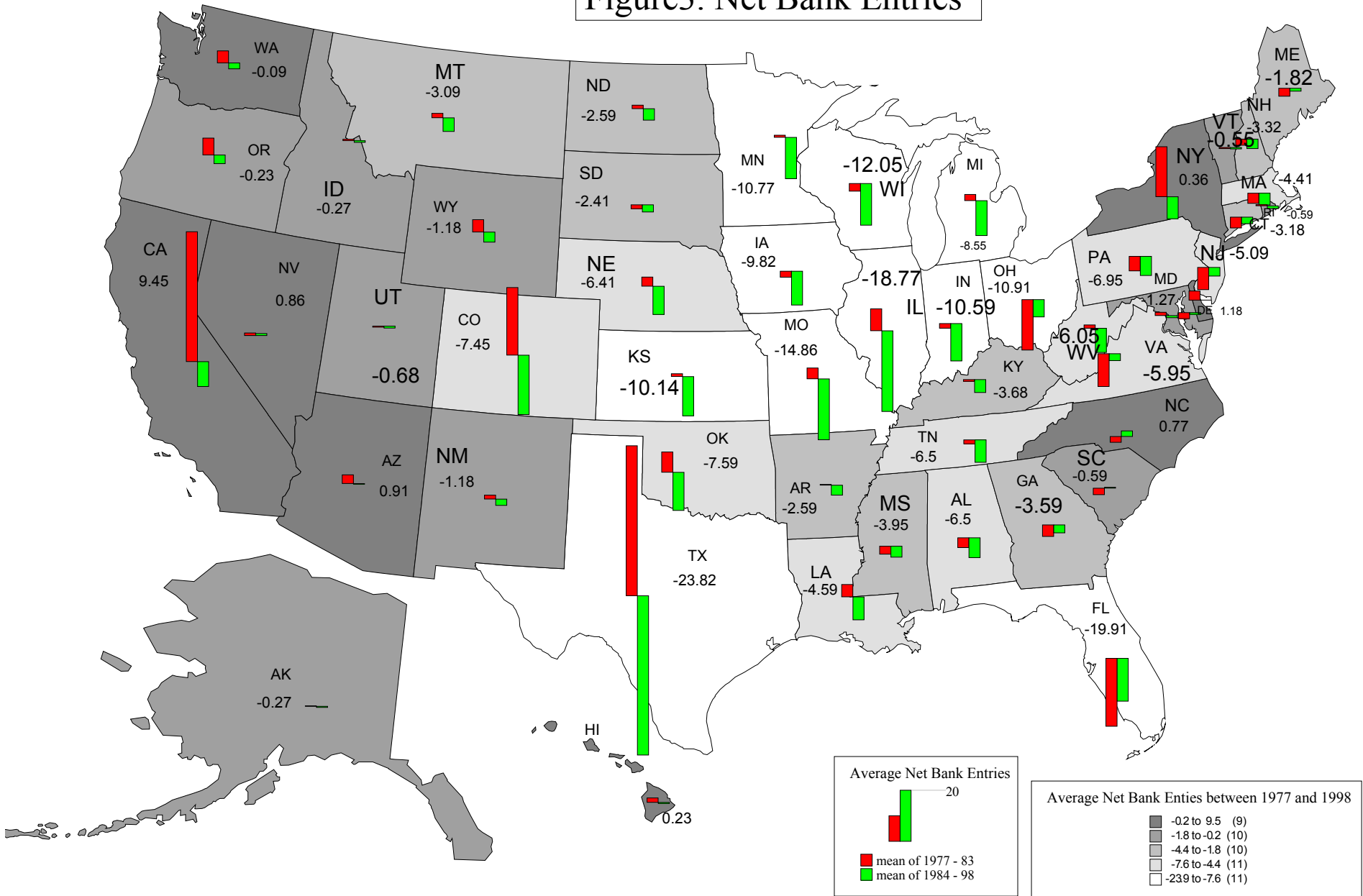


Table 3o: Mergers Within and Between States: 1976-1998

State	Within State Merger	Between-State Merger		State	Within State Merger	Between-State Merger	
		Survivor in Other State	Survivor in State			Survivor in Other State	Survivor in State
Alabama	238	11	92	Montana	106	0	0
Alaska	12	2	0	Nebraska	217	2	18
Arizona	47	5	3	Nevada	9	6	3
Arkansas	85	39	1	New Hampshire	46	4	0
California	374	17	42	New Jersey	207	20	12
Colorado	407	11	3	New Mexico	46	17	2
Connecticut	69	7	1	New York	202	24	26
Delaware	16	14	7	North Carolina	124	4	95
Dis. Columbia	10	9	5	North Dakota	80	5	13
Florida	901	53	16	Ohio	368	8	59
Georgia	299	27	6	Oklahoma	275	3	0
Hawaii	10	2	0	Oregon	71	6	17
Idaho	17	8	0	Pennsylvania	265	12	18
Illinois	655	41	17	Rhode Island	12	4	3
Indiana	272	20	6	South Carolina	69	10	1
Iowa	275	29	6	South Dakota	80	5	3
Kansas	266	18	8	Tennessee	244	12	33
Kentucky	153	15	5	Texas	1,370	20	4
Louisiana	200	10	6	Utah	73	12	5
Maine	33	1	1	Vermont	16	1	0
Maryland	88	19	12	Virginia	285	22	14
Massachusetts	157	0	7	Washington	90	11	3
Michigan	263	18	19	West Virginia	184	6	4
Minnesota	317	7	17	Wisconsin	357	4	4
Mississippi	116	10	12	Wyoming	70	3	0
Missouri	420	38	26				

Note: See Table 1.

Table 8o: Location of Top Banks by State

		top 5 banks					top 10 banks					top 20 banks					top 50 banks					top 100 banks					
State	year	78	83	88	93	98	78	83	88	93	98	78	83	88	93	98	78	83	88	93	98	78	83	88	93	98	
Alabama																					2		1	1	1	5	
Arizona																	1	1				2	2	2	2	1	
California		1	1	1	1	1	2	2	3	2	2	5	5	4	2	2	6	6	5	4	3	9	9	8	4	3	
Colorado																										1	
Connecticut																			1	1	1	2	3	3	2	2	
Delaware																					2			3	3	4	
Dis. Columbia																						2	2	1			
Florida															1				1	1	2		1	2	4	2	
Georgia																	1	1	1	1		2	2	2	4	1	
Hawaii																								1	1	1	
Illinois							2	2	1		1	2	2	2	1	1	4	4	2	3	3	5	4	4	6	8	
Indiana																						2			1	1	
Kentucky																										1	
Louisiana																										2	
Maryland																						1	1	1	1	1	
Massachusetts												1	1	1	1	2	1	1	3	3	2	3	3	5	5	2	
Michigan												1			2		3	1	1	2	2	3	3	4	3	4	
Minnesota																1			1	1	2	2	3	3	2	2	
Missouri																					1	2	1		1	1	
New Jersey																			1	1	2	1	1	1	2	2	
New York		4	4	4	4	2	6	6	6	6	4	9	9	11	9	7	17	19	21	20	14	31	31	31	30	33	
North Carolina						2					2				1	3	2	3	3	3	4	3	3	3	4	4	
Ohio																1	1	1		1	4	3	4	3	3	6	
Oregon																	2					2	2	1	1		
Pennsylvania										1		2	2	1	2	2	6	4	5	3	2	10	8	8	6	3	
Rhode Island											1						1				1	1	1	1	1	1	
South Carolina																										1	
South Dakota																			1				1	1	1	1	
Tennessee																					1				1	3	
Texas										1				1	1	1		4	4	2	3	2	5	6	5	4	2
Utah																										2	
Virginia																			1	1		1	2	3	3	5	1
Washington																	2	2	1	1	1	3	2	2	2	1	
Wisconsin																						1	1				

Note: See Table 4. There are several states who do not have any top-ranked banks: Alaska, Arkansas, Idaho, Indiana, Iowa, Maine, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Vermont, West Virginia and Wyoming. Also, Puerto Rico has a top-100 bank in several years.

Table 9o: Location of Top-50 Banks by City

City Name	FRB city	78	83	88	93	98	City Name	FRB city	78	83	88	93	98
Albany					1		Jeannette		1	1			
Ardmore		2	1	1			Jersey City						1
Atlanta	Bank	1	1	1	1		Los Angeles	Branch	3	3	2	1	
Augusta							Malvern				1		
Avondale							Memphis	Branch					1
Bala-Cynwyd		2					Miami	Branch		1	1		
Baltimore	Branch						Minneapolis	Bank		1	1	2	2
Bethesda							New York	Bank	14	15	19	18	13
Birmingham	Branch					2	Newark				1	1	
Boston	Bank	1	1	3	3	2	Philadelphia	Bank			1	1	
Brooklyn		1	2				Phoenix		1	1			
Buffalo	Branch	1	2	2	1	1	Pittsburgh	Branch	1		1	1	2
Charlotte	Branch	1	2	2	2	2	Portland	Branch	2				
Chicago	Bank	4	4	2	3	3	Providence						1
Cleveland	Bank	1			1	2	Richmond	Bank		1	1		1
Columbus			1			2	Rosemont						
Dallas	Bank	2	2	1	2	1	Saint Louis	Bank					1
Detroit	Branch	3	1	1	2	2	San Francisco	Bank	3	3	3	3	3
Elkton							Seattle	Branch	2	2	1	1	1
Greensburg			1	1	1		Sioux Falls				1		
Hackensack						1	Springfield						
Hartford				1	1		Stamford						1
Horsham Twp			1				Tampa					1	
Houston	Branch	2	2	1	1	1	Vienna						
Jacksonville	Branch				1		Wilmington						2
Jamaica		1					Winston-Salem		1	1	1	1	2

Note: See Table 4. Cities that do not have top-50 banks in years 1978, 1983, 1988, 1993, and 1998 have some top-50 banks in other years between 1978 and 1998. Other Federal Reserve Bank cities include Kansas City. Other Federal Reserve Branch cities include Cincinnati, Nashville, New Orleans, Little Rock, Louisville, Helena, Denver, Oklahoma City, Omaha, El Paso, San Antonio, and Salt Lake City

Table 10o: Actual and Benchmark Banks by State

State	Top 100 Banks		Total Banks	
	Actual	Benchmark	Actual	Benchmark
Alabama	1	1	245	180
Alaska	0	0	12	64
Arizona	2	1	38	167
Arkansas	0	1	254	100
California	7	13	507	1,754
Colorado	0	1	389	194
Connecticut	2	2	111	223
Delaware	2	0	43	46
D. Columbia	1	1	20	98
Florida	2	4	508	577
Georgia	3	2	413	332
Hawaii	1	1	18	70
Idaho	0	0	23	47
Illinois	5	5	1,175	710
Indiana	1	2	328	287
Iowa	0	1	584	152
Kansas	0	1	554	134
Kentucky	0	1	321	178
Louisiana	0	2	243	260
Maine	0	0	48	54
Maryland	1	2	101	258
Massachusetts	4	3	290	373
Michigan	4	4	294	509
Minnesota	2	2	669	250
Mississippi	0	1	142	104
Missouri	1	2	600	270
Montana	0	0	146	39
Nebraska	0	1	412	87
Nevada	0	1	17	70
N. Hampshire	0	0	75	55
New Jersey	2	4	151	495
New Mexico	0	1	84	76
New York	31	9	522	1,195
North Carolina	3	2	90	336
North Dakota	0	0	158	34
Ohio	4	4	337	594
Oklahoma	0	1	444	161
Oregon	1	1	66	147
Pennsylvania	7	4	334	627
Rhode Island	1	0	18	50
South Carolina	0	1	79	153
South Dakota	1	0	135	34
Tennessee	1	2	289	238
Texas	4	7	1,379	997
Utah	0	1	59	80
Vermont	0	0	31	26
Virginia	3	2	194	339
Washington	2	2	115	269
West Virginia	0	1	188	81
Wisconsin	0	2	531	258
Wyoming	0	0	83	40
USA	99	100	13,870	13,870

Note: Actual total of top-100 banks equals 99 because of rounding.

Table 11o: Average Bank Entry, Exit, and Net Entry by State

	Bank Entries					Bank Exits					Net Bank Entries				
Year	77-79	80-84	85-89	90-94	95-98	77-79	80-84	85-89	90-94	95-98	77-79	80-84	85-89	90-94	95-98
Alabama	6.3	3.6	6.5	1.2	2.3	1.7	12.6	11.8	3.8	14.3	4.7	-9.0	-5.3	-2.6	-12.0
Alaska	0.0	0.4	0.5	0.4	0.0	0.0	0.0	2.5	0.0	0.5	0.0	0.4	-2.0	0.4	-0.5
Arizona	2.3	6.8	2.0	1.4	5.3	1.3	2.8	4.3	3.2	3.0	1.0	4.0	-2.3	-1.8	2.3
Arkansas	0.7	2.2	0.8	2.4	4.8	0.3	2.4	1.8	2.4	18.3	0.3	-0.2	-1.0	0.0	-13.5
California	24.0	83.8	21.8	13.8	13.8	6.3	16.8	21.5	32.8	40.5	17.7	67.0	0.3	-19.0	-26.8
Colorado	16.7	36.0	14.3	4.2	6.0	0.3	26.2	19.5	38.6	26.5	16.3	9.8	-5.3	-34.4	-20.5
Connecticut	1.0	0.8	7.8	0.8	2.5	3.7	5.8	3.3	8.8	8.8	-2.7	-5.0	4.5	-8.0	-6.3
Delaware	1.7	5.0	4.5	2.2	2.5	0.0	1.2	2.5	3.6	3.8	1.7	3.8	2.0	-1.4	-1.3
D. Columbia	0.7	1.6	1.5	0.6	0.3	0.0	0.2	0.0	2.4	2.8	0.7	1.4	1.5	-1.8	-2.5
Florida	13.3	41.6	37.3	9.2	14.0	65.3	56.2	40.5	23.4	41.3	-52.0	-14.6	-3.3	-14.2	-27.3
Georgia	1.3	6.0	22.0	10.0	11.0	1.7	13.8	15.8	12.4	21.5	-0.3	-7.8	6.3	-2.4	-10.5
Hawaii	1.0	3.2	0.3	0.0	0.3	0.0	0.8	0.5	1.2	1.3	1.0	2.4	-0.3	-1.2	-1.0
Idaho	1.7	0.4	0.3	0.8	2.3	0.3	0.6	1.3	1.6	2.8	1.3	-0.2	-1.0	-0.8	-0.5
Illinois	17.0	11.4	8.8	16.8	17.8	3.0	9.6	36.8	52.4	59.8	14.0	1.8	-28.0	-35.6	-42.0
Indiana	2.3	0.6	1.0	3.2	3.8	2.0	6.4	16.3	19.8	17.5	0.3	-5.8	-15.3	-16.6	-13.8
Iowa	0.3	1.4	1.8	1.2	6.5	1.0	6.8	13.8	13.0	25.0	-0.7	-5.4	-12.0	-11.8	-18.5
Kansas	1.0	5.0	2.8	1.8	2.5	0.7	2.8	15.5	24.6	18.8	0.3	2.2	-12.8	-22.8	-16.3
Kentucky	0.7	1.6	2.0	3.4	6.5	0.7	3.0	1.5	13.0	12.8	0.0	-1.4	0.5	-9.6	-6.3
Louisiana	3.7	9.0	3.0	2.8	2.5	0.7	0.8	20.5	8.2	15.5	3.0	8.2	-17.5	-5.4	-13.0
Maine	0.0	0.4	0.5	0.6	0.5	1.3	5.2	2.0	0.8	1.3	-1.3	-4.8	-1.5	-0.2	-0.8
Maryland	2.0	2.2	5.0	2.2	2.5	4.3	4.2	1.3	4.8	6.3	-2.3	-2.0	3.8	-2.6	-3.8
Massachusetts	3.0	2.6	27.0	1.0	3.0	2.3	29.4	11.8	19.2	10.5	0.7	-26.8	15.3	-18.2	-7.5
Michigan	6.3	3.4	2.3	2.2	6.8	1.3	4.6	25.3	15.8	14.3	5.0	-1.2	-23.0	-13.6	-7.5
Minnesota	4.0	2.8	3.3	2.8	6.0	0.3	6.8	28.3	17.8	18.3	3.7	-4.0	-25.0	-15.0	-12.3
Mississippi	2.0	0.2	0.0	1.2	2.0	2.3	6.2	5.8	3.2	6.0	-0.3	-6.0	-5.8	-2.0	-4.0
Missouri	6.3	7.6	6.0	2.0	7.8	0.3	10.2	36.8	17.2	31.0	6.0	-2.6	-30.8	-15.2	-23.3
Montana	2.7	1.2	1.5	0.4	2.8	0.0	0.6	2.3	11.4	8.5	2.7	0.6	-0.8	-11.0	-5.8
Nebraska	1.7	6.0	1.0	3.0	2.5	0.3	3.4	16.3	11.0	11.8	1.3	2.6	-15.3	-8.0	-9.3
Nevada	0.7	2.0	0.5	1.4	3.3	0.3	0.6	0.5	0.4	2.0	0.3	1.4	0.0	1.0	1.3
N. Hampshire	1.3	0.8	3.3	1.4	1.5	1.3	4.8	3.5	8.6	5.0	0.0	-4.0	-0.3	-7.2	-3.5
New Jersey	1.3	1.2	8.3	7.2	6.3	7.7	12.0	7.5	12.0	11.3	-6.3	-10.8	0.8	-4.8	-5.0
New Mexico	1.3	2.2	0.0	0.6	1.8	0.0	0.6	0.8	5.2	5.0	1.3	1.6	-0.8	-4.6	-3.3
New York	30.0	43.2	22.0	11.6	10.0	10.7	29.2	17.3	25.2	29.3	19.3	14.0	4.8	-13.6	-19.3
North Carolina	1.0	2.8	5.5	15.4	6.8	3.7	6.0	1.8	7.2	10.5	-2.7	-3.2	3.8	8.2	-3.8
North Dakota	2.0	1.4	0.3	0.4	0.8	0.7	0.6	5.5	4.2	7.0	1.3	0.8	-5.3	-3.8	-6.3
Ohio	3.0	2.8	3.3	8.6	6.8	28.7	20.2	10.5	10.6	16.0	-25.7	-17.4	-7.3	-2.0	-9.3
Oklahoma	7.0	12.6	3.8	0.2	1.5	0.3	4.2	29.8	16.2	11.8	6.7	8.4	-26.0	-16.0	-10.3
Oregon	12.3	5.6	0.8	1.2	3.0	0.7	6.0	6.0	2.4	4.0	11.7	-0.4	-5.3	-1.2	-1.0
Pennsylvania	3.7	2.2	9.0	12.2	5.5	6.3	11.8	12.3	15.4	18.8	-2.7	-9.6	-3.3	-3.2	-13.3
Rhode Island	0.0	0.6	0.8	0.4	0.8	0.0	1.4	1.8	1.4	1.5	0.0	-0.8	-1.0	-1.0	-0.8
South Carolina	0.0	1.0	5.0	0.8	5.5	1.7	3.4	3.3	2.0	5.0	-1.7	-2.4	1.8	-1.2	0.5
South Dakota	0.7	0.6	2.8	0.4	1.8	1.3	3.4	5.0	2.2	5.8	-0.7	-2.8	-2.3	-1.8	-4.0
Tennessee	2.7	2.8	5.3	5.4	5.5	1.3	14.6	10.5	8.8	17.0	1.3	-11.8	-5.3	-3.4	-11.5
Texas	26.7	100.4	33.0	10.0	14.3	1.0	9.8	189.8	76.6	57.5	25.7	90.6	-156.8	-66.6	-43.3
Utah	7.7	1.8	4.0	1.2	3.5	4.3	5.0	4.0	3.8	1.8	3.3	-3.2	0.0	-2.6	1.8
Vermont	0.7	0.0	0.5	0.0	0.8	0.7	0.8	0.0	1.4	1.0	0.0	-0.8	0.5	-1.4	-0.3
Virginia	6.3	2.8	7.0	2.2	6.0	22.3	13.8	4.3	5.8	9.0	-16.0	-11.0	2.8	-3.6	-3.0
Washington	8.3	5.4	4.8	5.6	5.8	0.7	3.8	6.8	6.2	9.3	7.7	1.6	-2.0	-0.6	-3.5
West Virginia	4.3	2.8	1.0	0.4	2.5	0.0	4.4	8.3	13.6	10.8	4.3	-1.6	-7.3	-13.2	-8.3
Wisconsin	3.3	2.6	2.3	6.4	5.3	1.3	11.6	18.5	24.2	19.0	2.0	-9.0	-16.3	-17.8	-13.8
Wyoming	5.3	5.4	0.5	0.2	0.8	0.0	1.0	11.0	4.0	1.0	5.3	4.4	-10.5	-3.8	-0.3
USA	247	446	302	184	235	197	408	717	624	701	50	38	-415	-440	-466