The Impact of the Growth of Large, Multistate Banking Organizations on Community Bank Profitability

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Abstract

Especially since the passage of the Riegle-Neal Act in 1994, community banks increasingly face large, multistate holding company (MSHC) rivals in the local markets in which they operate. These large MSHCs more often operate through interstate branches, rather than through the offices of a separate subsidiary headquartered in-state. Disagreement persists about the likely effects of this trend on community banks. If large absolute size, or an interstate branch form, confer competitive advantages, the profitability of community banks should be lower in markets where they face such rivals. On the other hand, a number of observers cite possibly offsetting advantages associated with small size, such as a greater ability to offer valued personal service. To date, virtually no empirical studies have focussed on this issue.

A panel data set of community banks is constructed to investigate this issue. This data set consists basically of all "single market" banking organizations more than three years old, with total assets of $500 million or less, in each year over the 1995 - 1999 period. This analysis focuses on community banks in MSA markets, where the presence of larger, multistate competitors is significant. Pre-tax return on average assets is used as the measure of profitability. The intended aim of the analysis is to determine if and how community bank profitability is influenced by several different characteristics of competing MSHCs. The characteristics examined include their absolute size, the location of their headquarters (in-state or out-of-state), and the organizational form characterizing their out-of-state operations (interstate branches vs. in-state offices of out-of-state bank subsidiaries). The empirical results suggest that the profitability of community banks tends to be lower, the greater the market presence of MSHCs. This effect appears to vary with both MSHC absolute size and organizational form. In particular, the estimated coefficients on measures of out-of-state MSHC operations conducted through interstate branches are consistently negative and significant.

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I. Introduction

Increasingly since the passage of the Riegle-Neal Act in 1994, more community banks have come to face large, multistate holding company (MSHC) rivals in the local markets in which they operate.[1] These MSHCs more often operate through interstate branches, rather than through the offices of a separate subsidiary headquartered in-state. Disagreement about the likely effects of this trend on community banks persists. If large absolute size, or an interstate branch form, confer competitive advantages, the profitability of community banks should be lower in markets where they face such rivals. On the other hand, other observers cite compensating advantages associated with small size, such as a greater ability to offer valued personal service. To date, virtually no empirical studies have focussed on this issue.

A panel data set of community banks is constructed to investigate this issue. This data set consists basically of all "single market" banking organizations over three years old with total assets of $500 million or less, in each year over the 1995 - 1999 period. This analysis focuses on community banks in MSA markets since this is where larger, multistate competitors are a significant force. Pre-tax return on average assets is used as the measure of profitability. The primary aim of the analysis is to determine if, and how, community bank profitability is influenced by several different characteristics of competing multistate companies. The MSHC characteristics

[1] Riegle-Neal permitted interstate branching by banks through merger after June 1,1997, but allowed individual states to authorize this activity prior to this date. By April 1996, 24 states had done so. For additional details, see Holland, et.al. (1996).

examined are their absolute size, the location of their headquarters (in-state or out-of-state), and the organizational form characterizing out-of-state offices (interstate branches vs. in-state offices of out-of-state bank subsidiaries). Briefly, the empirical results suggest that the profitability of community banks tends to be lower, the greater the market presence of MSHCs. This effect appears to vary with both MSHC absolute size and organizational form. In particular, the estimated coefficients on measures of out-of-state MSHC operations conducted through interstate branches are consistently negative and significant.

The remainder of the paper is organized as follows. The second section contains a discussion of descriptive background data illustrating the growth of large, multistate, and more particularly interstate branch banking organizations from 1995 through 1999. A brief review of related literature is presented in the next section. Sample selection, model specification, and estimation issues are addressed in section IV. The results are presented and discussed in section V, followed by the summary and conclusions.

II. The Growth of Multistate Banking

Table 1 presents data for all banking organizations in existence on June 30 of 1995 and 1999. Table 2 repeats the same set of information, but only for institutions with total consolidated deposits of less than $500 million on each of these two dates and so approximate the community bank definition used in this paper. The numbers in tables

1 and 2 are based on annual deposit data drawn from the FDIC's Summary of Deposits report.[2]

In table 1, the deposit data show that in 1995, 280 organizations, or about 3.6 percent of the total number of banking companies, collectively had $640 billion or around 26 percent of their total deposits in offices outside their home office state. Most of the out-of-state deposits were held in in-state offices of bank subsidiaries owned by holding companies headquartered in another state. Only 16 organizations had interstate branches, and those branches collectively held $54 billion in deposits, only about 8 percent of the out-of-state total. By mid-1999, total deposits held in all out-of-state offices totaled $1124.5 billion, about 37 percent of consolidated total deposits. The number of companies with multistate operations rose by one third to 370. But over this relatively short time interval, the number of companies with interstate branches and the proportion of out-of-state deposits accounted for by interstate branches increased considerably. One hundred and sixty banking companies had interstate branches in 1999. Total deposits in interstate branches rose to $587 billion and accounted for 52 percent of all out-of-state deposits.

Comparison of corresponding numbers in tables 1 and 2 shows that, although 188 organizations with consolidated deposits of less than $500 million operated in more than one state in 1999, most of the multistate activity represents the operations of larger banking companies. For example, although the smaller banking organizations account for almost half of the total number of all multistate organizations, the

[2] This is the only data set that presents any bank financial information broken down by individual branch geographic location.

aggregate amount of deposits in their out-of-state offices represents roughly 1 percent of the comparable total for all banking organizations.

The extent to which multistate activity is dominated by a relatively small number of large organizations can be shown more clearly if several of the numbers presented in tables 1 and 2 are compared with those calculated for the largest organizations. For example, in June 1999, 18 banking companies with consolidated total deposits of $25 billion or more existed. Collectively, these large companies held about $880 billion in deposits in their out-of-state offices. This figure represents 78 percent of the comparable total for all banking organizations. These same large companies had deposits of approximately $479 billion in interstate branches, almost 82 percent of the total for all banking organizations.

Several other numbers in table 2 are worth noting, because they provide valuable insight on key characteristics of community banks. One is that they continue to be numerous. In mid-1999, despite the large number of acquisitions and mergers in the industry over the recent past, 6,425 banks with consolidated deposits of less than $500 million remained in operation. This number represents nearly 94 percent of the total number of banking organizations in existence on this date. Those numbers imply that the performance of this size class of banks is inevitably important to bank supervisors, as well as the managers and customers of smaller institutions.

Another point illustrated by the data in table 2 is that despite the dismantling of virtually all regulatory barriers to expansion within and across states, smaller banks remain relatively undiversified geographically. They tend to be basically single market banks. In particular, the mean number of local banking markets for smaller banking organizations in June 1999 is only 1.55; the median is 1. This geographic concentration is confirmed by the mean and median values of the Herfindahl diversification indexes included in the table.[3] This narrow geographic focus implies that the performance of most small banks is still likely to be influenced strongly by competitive and economic conditions in a single market.

The data just discussed suggest that smaller banks increasingly face multistate banking competitors, especially large ones operating through interstate branches, in their respective local markets. But those sorts of numbers paint an incomplete picture of "typical" local competitive conditions, because larger, multistate organizations could operate in a limited number of possibly common local markets. To determine the extent to which this is true, one must examine indicators of competitive conditions at the local market level.[4]

Table 3 contains data on several possible indicators of competitive conditions in urban banking markets at the beginning and end of the five-year period spanning mid-1995 and mid-1999. First note the mean and median values of two variables traditionally used to proxy the expected intensity of local market competition. These variables are the number of bank competitors in the market and a Herfindahl index of market concentration. Somewhat surprisingly, the differences in both the means and

[3] The local market-based deposit Herfindahl is calculated for each organization by summing the squared percentages of the organization's consolidated total deposits derived in each local market in which it operates. So organizations that operate in a single market have a local market based deposit Herfindahl of 1.0. An organization that derives 50 percent of its deposits in each of two markets would have an index of 0.5; an organization that derives 75 percent of its deposit in one market and 25 percent in another would have an index value of 0.625.

[4] Following standard practice, urban markets are assumed to be approximated by MSAs.

medians for both variables suggest increases in the number of competitors and decreases in concentration over the period, despite ongoing consolidation in the industry. These trends suggest stronger competitive pressure on all banking organizations in urban markets.

The remaining variables in table 3 illustrate changes in the market presence of multistate holding companies over this period.[5] They also show the extent to which this presence reflects home state vs. out-of-state operations, as well as the organizational form of the out-of-state activity. The numbers reveal that multistate holding companies (MSHCs), already important players in urban markets in 1995, became even more significant over the period. By mid-1999, the average number of such competitors was roughly 7, and their mean aggregate deposit share was nearly 72 percent. The data in the table also reveal the increasing importance of their out-of-state activity. For example, in 1995, the mean number of out-of-state MSHC competitors in MSA markets was roughly 3, and their mean aggregate market deposit share was nearly 32 percent. Five years later, in the typical urban market, roughly four out-of-state MSHC competitors collectively controlled about 40 percent of market deposits.

The data in table 3 also show the rapidly increasing fraction of out-of-state activity conducted through interstate branches. In 1995, almost all of the out-of-state activity of MSHCs was done through in-state branches of bank subsidiaries owned by nonlocal parent holding companies. By 1999, interstate branches of MSHCs accounted for roughly half of their total out-of-state activity. In that year, the mean

[5] In this table the multistate operations of independent banks are ignored because they are minimal.

number of MSHCs operating interstate branches was 2.5, and the mean aggregate market share represented by this organizational form was about 22 percent.

The numbers in the table also suggest that, although MSHCs play a relatively large role in urban markets, the type and extent of their presence varies considerably. The range for each indicator of their presence is relatively wide, and obvious differences are apparent in their mean and median values. This variation also is reflected in the differing numbers of markets that have each type of MSHC presence (the rightmost column of the table). Considerable numbers of urban markets obviously still lacked some particular type of MSHC activity in 1999. Some markets also obviously had multiple types of activity.

Table 4 shows a breakout of the MSHC indicators by the consolidated deposit size of the parent holding company. More specifically, the table presents MSHC data for four subjectively chosen size groupings of "large" holding companies.[6] This exercise illustrates the extent to which MSHC activity in urban markets is dominated by the largest banking companies.

The data in table 4 show that larger MSHCs are an important competitive force in MSA markets. For example, the mean and median number of MSHCs larger than $50 billion are roughly two in 1999, and the mean aggregate market share for this size class is nearly 29 percent. At least one such large competitor operates in more than 90 percent of all MSA markets. Most of their activity represents out-of-state operations. The combined mean market share for both types of out-of-state

[6] For some additional perspective, in June, 1999, the number of holding companies in each size class were 27, 29, 10 and 8, respectively.

organizational forms for companies in this size category is approximately 24 percent. The largest MSHCs operated through interstate branches in 171 (51.7 percent) of all MSA markets in 1999, up from only 12 markets five years earlier. The mean aggregate market share in interstate branches for this class of competitor was nearly 11 percent in 1999. Substantial variation in the market share held by this type of competitor is evident, however, since mean and median aggregate market shares differs considerably.

Similar patterns in the numbers generally are apparent for MSHCs in the second ($25 to $50 billion) and to a lesser extent, the third ($10 to $25 billion) largest size categories. In particular, these sorts of companies operate in a large fraction of all urban markets. The typical market share represented by their out-of-state operations is substantial. Taken together, the mean aggregate market share for the out-of-state component of their operations totals roughly 12 percent in 1999. The portion of their out-of-state activity, conducted through interstate branches also increased markedly over the period, and this structure now appears to be the preferable organizational form. The sum of the means of the aggregate interstate branch deposit shares for those two size classes of MSHCs was roughly 10 percent in 1999. More than 100 MSA markets have at least one competitor in each of those size classes operating interstate branches. But again, the numbers in the table indicate that the fraction of the market held by organizations in each size class with particular organizational forms differs greatly across MSA markets.

III. A Brief Review of the Literature

There have been few, recent empirical studies of the effects of interstate banking and branching by large organizations on community bank performance. The relatively recent elimination of restrictions on the ability of banking organizations to branch across state lines is a major reason for the absence of evidence on this issue.

Several studies have attempted to provide some insight on this issue by examining changes in the fortunes of smaller banks in the wake of the removal of intrastate restrictions on branching and restrictions on interstate banking, reasoning that the elimination of interstate branching restrictions will produce the same type of effects. None of these studies investigate differences related to the size of the institutions competing against small banks.

One example of existing studies is Calem (1994). He compares changes in the state-level asset shares of small banks in states that liberalized their intrastate branching restrictions over his period of observation (1986 - 1992) vs. those that did not.[7] He finds evidence of a greater decline in small-bank asset share in states where intrastate branching restrictions were removed. He does not find evidence that the removal of interstate banking restrictions has had much effect on small-bank asset share. He concludes, however, that the removal of interstate branching restrictions is not likely to have effects analogous to the dismantling of intrastate barriers, because he believes that barriers to minimum efficient scale no longer exist in the current environment.

[7] He defines small banks as those banking organizations with assets less than $1 billion in constant 1992 dollars.

The study by Moore (1995) is similar, and also contains a discussion of the validity of the results reported by Calem. Moore also looks at state-level changes in small-bank asset share over the 1982 - 1995:Q1 interval.[8] He finds declines in small- bank share in many states prior to, as well as after intrastate branching deregulation. This result also is evident when he uses Calem's methodology. He also finds little impact attributable to interstate banking. Moore concludes that the relaxation of geographic restrictions on bank expansion in the 1980s generally did not affect small- bank market share adversely, and Riegle-Neal is likely to have similar effects.

A recent study by Jayaratne and Strahan (1997) examines the effects of the removal of intrastate branching restrictions prior to the 1990s on alternative measures of bank performance from 1978 through 1992. Using state-level data, they find evidence that bank efficiency improved greatly after the removal of branching restrictions, and that cost savings were passed on to borrowers in the form of lower rates. Loan losses also tended to be lower. They attribute their results to the expansion of better performing organizations. They found smaller positive effects associated with the removal of restrictions on interstate banking.

The authors also repeat the analysis for different size classes of banks, but do not report these findings in detail. They do, however, note that this analysis revealed larger performance improvements in the wake of branching deregulation for banks with total assets or more than $100 million.

[8] Moore mostly uses a state-specific size cutoff to define small banks, the asset size which results in banks below this size controlling one-third of the assets in the state.

In another recent study, DeYoung, et.al. examine the effects of out-of-state entry through acquisition on the cost inefficiency of local banks in urban markets.[9] The main result is that this type of entry initially increases, but ultimately decreases the cost inefficiency of local banks in markets experiencing entry.

These studies generally do not examine explicitly whether any performance effects manifest for smaller banks in the wake of geographic deregulation are related to the size or organizational form of competing banking organizations. But several other studies suggest that this might be the case. For example, recent evidence suggests that large, multistate banking organizations are more efficient.[10] Also when states removed intrastate branching restrictions in the past, multibank holding companies typically merged their subsidiary banks presumably to obtain performance benefits.[11] Another study finds significant abnormal positive stock returns for holding companies that have altered their organizational form in this way, presumably stemming from expected gains in efficiency.[12] The trend away from the use of separate out-of-state bank subsidiaries and toward greater use of interstate branches documented in the tables reveals a general preference by multistate banking companies for the latter form, when a choice is permitted. Given the removal of a variety of regulatory and technological barriers to competition over this period, expected efficiency gains are likely to be a primary factor driving banking organizations to exercise the structural option.

[9] See DeYoung, Hasan, and Kirchoff (1997).
[10] See Hughes, Lang, Mester, and Moon (1999).
[11] See McLaughlin (1995).
[12] See Whalen (1997).

Taken together, this group of studies suggests that smaller, community banks are likely to face more intense competition in markets, the greater the number or market share held by large, multistate branch banking organizations. Other studies, however, suggest the opposite might be true.

For example, survey evidence shows that multistate banking companies generally charge significantly higher rather than lower prices for banking services than single state banks do, even controlling for other important factors, such as size and location.[13] Another recent study reports that large banking companies increasingly set uniform rates for deposits and retail loans across geographic areas that are considerably larger than MSAs.[14] The author attributes the spread of broad-area uniform pricing largely to the consolidation of decision making at the parent company level that typically occurs when formerly separate subsidiary banks are merged and transformed into branches. Although company price uniformity did not generally extend beyond the state level during the time period examined, the possibility that companies might extend uniform pricing to multiple states as they increasingly adopt the interstate branch form is mentioned explicitly.

Regression analysis presented in the paper using 1996 data suggests that large company pricing may be influenced by different factors than in the past. For example, significant negative correlations between concentration and deposit rates are found at the state, but not the local market level. This finding implies that the practice of uniform pricing by larger banks could either increase or decrease

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[13] See Board of Governors (1999).
[14] See Radecki (1998).

competition in sub-state local markets depending upon the values of variables, such as statewide concentration that appear to be significant determinants of large bank prices.

The presence of large, interstate branch organizations might also be associated with a reduction in local market competition through a linked oligopoly effect. The growth of large interstate branch organizations could imply significant increases in the number of local markets in which such rivals meet one another. The linked oligopoly hypothesis predicts that larger numbers of local market contacts increase the likelihood that large competitors recognize their mutual interdependence, and so collude rather than compete. This type of behavior might be facilitated by the generally greater centralized control over pricing exercised by larger branch banking organizations.

Theoretical work, however, reveals that the prediction of direct relationship between linkages, and the likelihood of collusion specified in the linked oligopoly hypothesis is sensitive to the assumptions made about dominant firm behavior.[15] Not surprisingly, the existing empirical evidence about the validity of the hypothesis is mixed, and reflects mostly bank behavior in an environment prior to the removal of interstate branching restrictions.[16]

An example of one recent study that does focus specifically on the effects of interstate branching is Whalen (2000). In this study, data pooled over the 1995-1999 period are used to determine if and how competitive rivalry in urban markets is related to the

[15] See Mester (1987).
[16] For example, evidence supporting a pro-competitive relationship is presented in Whitehead and Luytjes (1984).

market presence of multistate banking companies. The results show that a positive relationship exists between large multistate multibank holding company deposit share and rivalry when a simple linear specification is used. There is also some evidence indicating that the positive effect rises with market concentration. This result appears to be attributable largely to the behavior of MSHCs operating outside their home state. When the separate effects of interstate branches and out-of-state bank subs are examined, only the former is found to be significantly related to rivalry. These results do not change, and in fact, are typically stronger when the deposit shares are calculated using only large multistate holding companies.

In sum, a review of available evidence does not support an unambiguous prediction on the likely effect of large, multistate, branch banking organizations on smaller, community banks.

IV. The Sample, Model Specification and Variable Definitions

a.) The Sample

The unbalanced panel data set of "community banks" used in this study consists of all "single market" banking organizations with less than $500 million in total assets in existence in each year from 1995 through 1999.[17] A banking company is defined as a "single market" organization if it derived at least 67 percent of its consolidated

[17] Given the relatively short time period examined and modest inflation over the period, the size cutoff was not adjusted for the effects of price level changes.

deposits from a single local banking market in June of each year.[18] Banks in operation less than three full years, credit card banks, and subsidiaries owned by out-of-state holding companies are excluded. This definition is somewhat arbitrary, but is viewed as a reasonable approximation to the notion of a community banking organization.

In general, all of the bank-specific variables are constructed from financial data contained in their year-end reports of income and condition. The bank-specific market share measure, and all other structure data for each year are calculated as of June 30, rather than year-end, since this is the only date on which the Summary of Deposit data are reported. The local market population data are drawn from year-end Census Department reports.

b.) Model Specification

Reduced form performance equations are estimated in this paper, using single equation methods. The key measure of community bank performance, used as the dependent variable in the estimated equations, is the pre-tax rate of return on average assets (PTROAA). Pre-tax, rather than after-tax profitability, is used to avoid any biases related to the adoption of Subchapter S status by growing numbers of smaller institutions over the period.[19] Admittedly, community bank performance is multi-dimensional, and alternative measures also could be used as dependent variables in alternative single-equation or multiple equation specifications that investigate critical determinants. But PTROAA is one of, if not the best single indicator of the overall

[18] Use of single market institutions allows these companies to be unambiguously matched to local market structural and economic variables that may be important determinants of their performance.
[19] Banks began to report their Subchapter S status in 1997.

health of community banks and any competitive effect stemming from large, MSHC rivals.[20]

The explanatory variables used in the estimated PTROAA equations can be divided into a number of classes. One set consists of bank-specific characteristics that might influence profitability. These include the log of total assets (LASSET); the age of the bank in years (AGE); a binary charter variable equal to one for national banks and 0 otherwise (NB); the number of mergers in which the bank has been involved during the previous 4 quarters (NM4Q); the total number of local markets in which the bank operates (TNMKTS); its market deposit share (MKTDSHR); the ratio of interest bearing deposits to average assets (IBDEPR); the ratio of average loans and leases to average assets (ALLSR); and two organizational form binary variables (HCTMULT, HCTONE): equal to 1, if a bank is part of a multibank or one bank holding company, respectively, and equal to 0 otherwise.

Strong a priori expectations about the signs exist for only some of these variables. Research suggests that a positive relationship is likely to exist between age and profitability, although the relationship might not necessarily be monotonic.[21] A number of past studies have found a positive relationship between market share and bank profitability. Mergers may be disruptive, and so one might expect a negative sign on NM4Q. IBDEPR is used to control for the extent to which banks have differential access to relatively cheap noninterest bearing funds. Accordingly,

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[20] Alternative versions of equations also were estimated using post-1996 data. After-tax ROAA was used as the dependent variable and a Subchapter-S dummy added to the list of right hand side variables. Since the key results were not affected and so these regressions are not reported.
[21] See DeYoung (1999).

IBDEPR should be negatively related to profitability. ALLSR can be viewed either as an indicator of local market loan demand, or a proxy for risk. In either case, this variable should be positively related to PTROAA.

The remaining set of independent variables capture various structural and economic characteristics of the local market in which the community bank operates, especially the presence of MSHC competitors. The variables include a market Herfindahl concentration index (HB); the log of total market deposits (LCBTD); the one-year percentage change in total market deposits (CBDGR); population per bank office (POPBO); the percentage of market deposits controlled by S&Ls (SLDR); the number of de novo banks entering the market over the interval beginning four years ago and ending six years ago (TDN46); and one or more measures of the extent of MSHC local market presence.

Two different basic sets of a variety of MSHC market-presence variables are employed. One set uses the number of MSHC competitors, the other uses the aggregate market deposit shares of MSHC competitors. Both are used because it is unclear which of the two types of indicators is superior. For example, the effects of two MSHCs on community bank performance in a given market might differ dramatically, depending on whether they collectively controlled 5 percent as opposed to 50 percent of market deposits.

The market presence variables used in the equations correspond to those listed in tables 3 and 4. So the most basic measures are the number (NMSHC) and deposit share of all MSHCs (MSHCDR) in the market. The next set of measures breaks these indicators into two basic components: the number and deposit share of home state MSHCs (NMSHCH, MSHCHDR) and out-of-state MSHCs (NMSHCO, MSHCODR). The third set of measures includes the home-state MSHC variables and the out-of-state component broken down into two parts, based on the organizational form used by the out-of-state holding company: the number and deposit share of out-of-state MSHCs operating in-state bank subsidiaries (NOSHCBS, OSHCBSDR) and the number and deposit share of out-of-state MSHCs operating interstate branches (NISBR, ISBRDR). In addition, to determine whether the effects differ depending on the absolute size of the MSHC competitor, versions of each of those variables are also constructed, using only the MSHC competitors from a specific size class. In these cases, suffixes identifying each size class are appended to the variable names previously defined.[22]

Again, only some of the anticipated signs of the estimated coefficients of this collection of variables can be predicted confidently a priori. One such variable is the measure of local market concentration. Higher concentration generally is expected to decrease the intensity of competition, and so the expected sign of this variable is positive.

Market size (LCBTD), market deposit growth (CBDGR) and population per bank office (POPBO) are used to indicate market attractiveness. Presumably, larger, more rapidly growing, and less-banked markets are more economically attractive, and so the signs of those variables should be positive.

[22] Thus, the number of out-of-state MSHCs with total deposits of $50 billion or more operating interstate branches is represented by NISBR50.

The market presence of thrift institutions could influence community bank performance and varies greatly across local markets. Accordingly, the ratio of total S&L market deposits to total bank plus S&L deposits is also included as a right-hand side variable in the estimated equations (SLDR). Competition may be more intense, the greater the percentage of market deposits controlled by S&Ls, and so the estimated coefficient on this variable should be negative.

Entry by de novo banks, trending upward over the period examined, could also influence community bank performance. To minimize any problems related to simultaneity, and because any competitive effects stemming from de novo bank entry may occur only with some lag, the number of de novo bank entrants over the t-4 to t-6 is used in the estimated equation. More entry should increase competition, and so the expected sign of TDN46 is negative.

The expected signs of the MSHC presence variables are unclear. If large size confers significant competitive advantages, the estimated coefficients of at least the MSHC variables defined for the largest size classes of organizations should be negative. If the interstate branch form is associated with greater efficiency, the estimated coefficients of this type of variable might be negative and significant and could differ from the coefficients on the bank subsidiary variables. If, on the other hand, community banks have and use offsetting advantages, the MSHC variables could be insignificant. Alternatively, if MSHCs tend to reduce competition in local markets, through a linked oligopoly effect for example, positive estimated coefficients would be observed.

Descriptive statistics for the variables used in the analysis are included in appendix A at the end of the paper.

IV. Estimation Procedure and Results

Since the data set is an unbalanced panel, the equations are estimated using a random effects model. The estimation results for community banks located in urban markets appear in three pairs of tables numbered 5 through 10, each containing three slightly different specifications of the same basic equation.

Basically, the equations in each pair of tables differ in terms of absolute size distinctions made in the MSHC definition employed. In the first pair of urban market tables, for example, differences in the size of MSHC competitors are ignored. In the second pair of urban market tables, only MSHC competitors in the largest size class (consolidated deposits in excess of $50 billion) are counted. In the third pair of tables for urban markets, separate variables are constructed for MSHCs in four different relatively large size categories.

The basic difference in the two tables forming each pair is in the metric that measures the market presence of MSHCs. In the first table of each pair, the MSHC variable is defined in terms of the number of such competitors. In the second table of each pair, the MSHC variable is measured by aggregate market deposit share.

Three alternative specifications of the PTROAA equation appear in each table. In equation 1 in each table, a comprehensive MSHC market presence variable is employed. In the second equation, two MSHC presence variables are used to distinguish home state from out-of-state operations in an attempt to see if the competitive effects of MSHCs vary with the location of the MSHC parent company. In the third equation in each table, the out-of-state MSHC presence variable is split into two components depending on the organizational form employed.

The overall explanatory power of the estimated equations is generally good. The estimated coefficients and statistical significance of the non-MSHC explanatory variables are not of primary interest and so are only discussed briefly. Bank size is positively related to profitability and is significant. The estimated coefficient on age is positive but insignificant. Bank charter type has an insignificant effect on PTROAA. The estimated coefficient on NM4Q is negative as anticipated but insignificant. The total number of local markets in which a community bank has offices has a negative and significant effect on profitability. This result suggests that geographic diversification by smaller institutions does not tend to enhance performance and could explain the modest increase in diversification by community banks over the 1995-1999 interval previously noted. The negative, significant coefficient on bank market share is somewhat surprising, and the precise reason for this result is not clear.

The signs and statistical significance of IBDEPR and ALLSR are both in line with a priori expectations (negative and positive respectively). Neither of the holding company indicator variables was found to be significant suggesting that independent community banks are not at a competitive disadvantage relative to holding company peers.

The estimated coefficient on the size of market variable (LCBTD) is negative and significant. This might reflect more intense competition from nonbanks and nonlocal competitors in larger urban markets. As expected, profitability is significantly and positively related to market growth and population relative to the number of bank offices. Profitability is lower, the greater the market presence of S&Ls, in line with expectations. The lagged entry variable also exhibits an anticipated negative coefficient and is significant.

A cursory look at the coefficients and statistical significance of the MSHC variables in the first pair of tables reveals several basic findings. First, the results differ in some cases depending on whether numbers or aggregate deposit share is used to measure MSHC presence. Second, differences in the effects associated with interstate branches and in-state offices of subsidiaries controlled by out-of-state holding companies are apparent.

For example, the estimated coefficient on NMSHC and its deposit share counterpart MSHCDR are both negative in equation 1, but only the latter is significant. In equation 2, when measures of home-state and out-of-state MSHC operations are separately included, only the deposit share variables are significant and both MSHCHDR and MSHCODR have negative coefficients. In equation 3, when the out-of-state MSHC component is split further into two variables based on organizational form, the competitive effects of interstate branches and in-state bank subs owned by out-of-state MSHCs differ in both tables 5 and 6. The interstate branch variables are negative and significant in both cases, while the bank sub variable is positive and significant in table 5 and negative and insignificant in table 6.

Formal statistical tests were also conducted to determine if the coefficients on the MSHC variables in equation 3 in tables 5 and 6 were significantly different from one another. The null hypothesis that the three coefficients were equal to one another was rejected in both cases.[23] In tables 5 and 6, in two of the three possible two-way tests of coefficient equality (home state vs. interstate branch and bank sub vs. interstate branch), the null hypothesis was also rejected.[24]

Tables 7 and 8 contain the same set of estimated equations but in these tables the MSHC variables reflect only the local market presence of MSHCs with consolidated total deposits of $50 billion or more. In equation 1 in each of these tables both comprehensive measures of MSHC market presence exhibit negative, significant coefficients. In equation 2, both out-of-state MSHC variables also have negative, significant coefficients. The pattern for the home state portion of MSHC operations is similar to that evident in the previous pair of tables. The coefficient is negative and significant only when deposit share is used to construct the MSHC variable. Once again, in equation 3 in each table, the interstate branch variable has a negative, significant coefficient. The estimated coefficient on the non-locally controlled bank sub variable is negative in both cases, but significant only in the deposit share version in table 8. The MSHC home state variable is also negative and significant only in table 8.

Once again, formal statistical tests lead to a rejection of the hypothesis that the three MSHC variable coefficients in equation 3 are equal to one another in both tables.[25] In

[23] The X^2 test statistics were 66.4 and 42.9, respectively, both significant at the 1 percent level.
[24] The X^2 test statistics were 10.1 and 66.2 for table 5, and 11.2 and 42.9 for table 6.
[25] The X^2 test statistics were 23.3 and 16.3 in tables 7 and 8, respectively.

both tables, the two-way tests reveal that the coefficients on the bank subsidiary and interstate branch variables are significantly different from one another at the one percent level.[26]

Tables 9 and 10 contain the results when MSHC variables defined for four separate size classes of large MSHCs are included in each equation. Once again the results differ somewhat depending on the metric used to measure MSHC presence. When equation 1 is estimated using the comprehensive number of MSHC competitors, significant coefficients are found only for two size classes (MSHCs from $5 - $10 billion and MSHCs of $50 billion or more). In both cases, the coefficients are negative. In the table 10 version of equation 1, three negative, significant coefficients are observed. But in this case, the significant coefficients are evident for the three largest size categories of MSHCs.

When home state and out-of-state variables are employed, the results differ depending on the metric used to define the MSHC variables. In table 9, the estimated coefficient on the home state operations variable for the smallest MSHC size class is positive and significant, but this result is not evident in table 10. The estimated coefficient is negative and significant only for the largest size class of MSHCs in table 9. In the comparable versions of equation 2 in table 10, the estimated coefficient on the home state variable is negative and significant in 3 of 4 cases. With the exception of MSHCs in the $25-$50 billion size category, the estimated coefficients on the out-of-state variables are all negative and significant when MSHC competition is measured in terms of numbers. This result persists, however, only for two size classes ($10-$25

[26] The test statistics were 23.3 and 16.0 in tables 7 and 8, respectively. The home state and interstate

billion and $50 billion plus) in table 10. The estimated coefficient on out-of-state operations is positive and significant for MSHCs in the $25-$50 billion size class, but only in table 9.

In table 9, when the two separate out-of-state organizational form variables are employed, the estimated coefficients on the home state variable vary in sign across size classes and are significant (and negative) only for MSHCs in the $25-$50 billion size class. When MSHC deposit share variables are used, the estimated coefficients on the home state variable are negative and significant for all but the smallest size class of MSHC.

The estimated coefficients on the non-locally controlled in-state bank sub variable are negative and significant for two MSHCs size classes in table 9 ($5 - $10 billion and $50 billion plus), and these results persist in table 10. In one case (MSHCs in the $25-$50 billion size class), the estimated coefficient is positive and significant in table 9, but the significance disappears when deposit share measures are used.

Finally, in three of four cases in table 9, the estimated coefficients on the interstate branch variables are negative and significant (the exception again is the $25-$50 billion size class). This result is robust for MSHCs in two size classes when the deposit share metric is used ($10-$25 billion and $50 billion plus).

Three-way statistical tests of coefficient equality lead to a rejection of the null hypothesis in most cases for the versions of equation 3 in tables 9 and 10.[27] In five of the eight cases, the test statistics are significant at the one percent level. The two-way

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branch coefficients also differ significantly but at the 5 percent (4.20) and 10 percent levels (3.5).

[27] In table 9, the X^2 values are 5.20, 33.2, 20.3, and 3.90. In table 10, they are 2.48, 28.8, 14.5, and 10.9.

tests of coefficient equality also reveal significant differences in the effects of the bank sub and interstate variables in a number of cases.[28]

Certainly the previous specification and methodology used could influence the reported coefficients and statistical significance of some of the explanatory variables, including the indicators of MSHC market presence. To examine the robustness of the results, a number of alternative specifications of the PTROAA equation were estimated. In addition, the sensitivity of the findings to changes in the estimation sample and the time period examined was also investigated.

For example, the specification was changed to obtain insight on the sensitivity of the sign and significance of the coefficients on MKTDSHR and HB. The coefficient on MKTDSHR and its significance did not change if HB was excluded from the estimated equation. Similarly, the results with respect to HB did not change if MKTDSHR was excluded from the equation.

The inclusion of MKTDSHR, IBDEPR, and ALLSR as right-hand side variables in a single profitability equation reflects the assumption that these variables are exogenous. If they are not, the estimation results could be biased. Exclusion of all three of these variables reduced the overall explanatory power of the estimated equations somewhat, but did not alter the findings with respect to the effects of MSHCs in any material way.

[28] The respective X^2 values in table 9 are .04, 27.8, 4.4 and 3.5. In table 10 they are .09, 28.2, 5.12 and 9.2.

The inclusion of possibly immature banks in the sample could bias the estimated competitive effect of MSHCs, especially larger ones. Banks in operation less than three full years were excluded from the original sample. But there is some evidence that banks in operation for more than three years tend to be relatively unprofitable relative to their peers for up to a decade.[29] The heavy concentration of such banks and larger MSHCs in the same urban markets could explain negative coefficients on the MSHC variable in the tables above.[30] But in this case, the negative coefficients would reflect the disproportionate presence of younger banks rather than more intense competition on local community banks from MSHCs. The age variable was included in the estimated equation to control for this possibility. But to further examine this issue, the equations were re-estimated after successively dropping banks in operation less than five years and less than ten years from the estimation sample. This exercise did not change the key results in any material way.

Another possibility is that the negative coefficients on certain of the MSHC variables could reflect the effects of omitted trend variables. For example, the market presence of MSHCs, especially larger ones, and their use of interstate branches has trended upward in urban markets over the 1995-1999 period. Concurrent changes in some other factor (such as a growing competitive disadvantage stemming from technological change) over this same time period may have resulted in downward pressure on community bank profitability. This pressure could influence the signs,

[29] DeYoung (1999), op.cit.

[30] For evidence of a relationship between de novo entry and merger activity see Keeton (2000).

magnitudes and statistical significance of the estimated coefficients on the MSHC variables.

To try to determine whether that was occurring, the various versions of equation 3 reported in the tables above were re-estimated, first dropping observations for the first two years of the period, and again after dropping each successive year. In addition, year dummies were also added to each specification when the sample consisted of observations from more than a single year.[31] Since the equations that have the MSHC variables defined for the largest size class of holding companies are viewed as the most likely to be influenced by this type of bias, this specification was the focus of the analysis and is the only one reported. Table 11 contains results using the number of $50 billion plus MSHC competitors. Table 12 contains similar equations with corresponding aggregate market deposit share variables.

In general, the results with respect to the MSHC variables are similar to those found for the entire period.[32] Regardless of the metric used to measure the market presence of the largest MSHC competitors, the estimated coefficients are invariably negative for both the home state and out-of-state variables, for all of the sub-periods examined, with and without year dummies included. But only the interstate branch variables are consistently significant.

[31] Random effects specifications were used when the panel included multi-year observations (equations 1 through 4). When data for the single year 1999 were employed (equation 5), the equation was estimated using least squares regression with an adjustment to produce robust standard errors.
[32] The relevant comparisons are equation 3 in tables 7 and 8.

V. Summary and Conclusions

Increasingly community banks in urban markets face large competitors operating interstate branches, rather than a separate subsidiary headquartered in-state. If large absolute size, or an interstate branch form, confer significant competitive advantages, community bank profitability will suffer where they face such rivals. Although this structural change is quite obvious, little recent empirical evidence exists on the linkage between this change in structure and community bank performance.

This study uses a recent panel data set of community banks to try to provide empirical evidence on this issue. This data set basically consists of all "single market" banking organizations with total assets of $500 million or less, in existence for at least three years, in each year from 1995 through 1999. This analysis focuses on community banks in MSA markets since the presence of larger, multistate competitors is significant there. Pre-tax return on average assets is used as the measure of profitability. This analysis seeks to determine if and how community bank profitability is influenced by several different characteristics of competing MSHCs. The characteristics examined include their absolute size, the location of their headquarters (in-state or out-of-state), and the organizational form characterizing their out-of-state operations (interstate branches vs. in-state offices of out-of-state bank subsidiaries).

The empirical results suggest that the profitability of community banks tends to be lower, the greater the market presence of MSHCs. This effect appears to vary with MSHC absolute size, although not in a straightforward way. That is, when the market presence of large MSHCs is divided into four separate size classes, not all of the estimated coefficients on the MSHC variables are negative and significant. The results suggest that increases in the market presence of the largest size class ($50 billion plus) of MSHCs are associated with significantly lower community bank profitability.

The influence of MSHCs on community bank profitability also appears to vary with organizational form. In particular, the estimated coefficients on measures of out-of-state MSHC operations, conducted through interstate branches, are consistently negative and significant. The signs and significance of the coefficients on the other MSHC presence measures (home state and out-of-state bank subsidiary operations) exhibit greater variation. Formal statistical tests typically lead to a rejection of the hypothesis that the estimated coefficients on the various MSHC market presence variables are equal to one another when a three-way breakdown (home state, bank subsidiary and interstate branch) is used. Most of the key results appear to be robust with respect to changes in the estimation sample and time period examined.

This research ultimately could be extended in several directions. The sources of the apparent community bank profitability disadvantage could be explored. For example, does the presence of larger MSHCs result in thinner lending margins? If so, does it stem from more intense competition for loans, deposits or both? Or does the presence of MSHCs make it more difficult for community banks to generate noninterest income? The presence of larger MSHCs might also influence community bank risk-taking and this might be explored in future work imbedding a variant of the profitability regression used here in a simultaneous equations framework.

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TABLE 1

Selected June 30 Data for all Banking Organizations

VARIABLES	1995 (N=7799)						1999 (N=6851)					
	Mean	Median	Min	Max	Sum	# > 0	Mean	Median	Min	Max	Sum	# > 0
Number of HC Bank Subs[3]	1.446	1	1	66	7611	5264	1.36	1	1	36	6825	5019
Consolidated Total Deposits($mil)	313.7	50.00	0.00003	119690	2446800		446.8	62.86	0.00002	288810	3061025	
%in MSA Markets	0.434	0	0	1		3846	0.443	0.126	0	1		3627
Deposits in Offices Outside Home State($mil)[1]	82.1	0	0	77822.7	640260	280	164.13	0	0	266480	112449	370
% of Total Deposits	0.017	0	0	1			0.021	0	0	1		
Deposits in Interstate Branches($mil)[2]	6.933	0	0	23055.8	54073.7	16	85.65	0	0	170400	586798	160
% of Total Deposits	0.0005	0	0	0.958			0.005	0	0	0.99		
Deposits in Offices of Out-of-State Bank Subs($mil)	75.16	0	0	60876.8	586180	272	78.48	0	0	103970	537683	262
% of Total Deposits	0.016	0	0	1			0.017	0	0	1		
Total Banking Offices	8.305	2	1	1982	64770		10.16	2	1	4578	69607	
% in MSA Markets	0.435	0	0	1		3849	0.447	0.25	0	1		3632
Offices Outside Home State[1]	2.07	0	0	1738	16133	281	3.6	0	0	4361	24647	373
% of Total Offices	0.018	0	0	1			0.024	0	0	1		
Interstate Branches[2]	0.187	0	0	592	1459	18	2.08	0	0	3360	14246	164
% of Total Offices	0.0005	0	0	0.822			0.006	0	0	0.982		
Offices of Out-of-State Bank Subs	1.882	0	0	1207	14674	273	1.52	0	0	1731	10401	262
% of Total Offices	0.017	0	0	1			0.018	0	0	1		
Number of States w/ Offices	1.055	1	1	15			1.1	1	1	25		
Number of Local Markets	2.031	1	1	204			2.45	1	1	408		
Number of Local Markets Outside Home State	0.31	0	0	164			0.548	0	0	376		
Local Market-Based Deposit Herfindahl	0.8879	1	0.0345	1			0.8854	1	0.0208	1		
Local Market-Based Office Herfindahl	0.8612	1	0.0217	1			0.8185	1	0.0168	1		
State-Based Deposit Herfindahl	0.9903	1	0.1302	1			0.9846	1	0.1258	1		
State-Based Office Herfindahl	0.9893	1	0.0996	1			0.9813	1	0.1077	1		

[1]Includes interstate deposits or branches of independent banks and foreign-owned holding companies, out-of-state interstate branches of domestic holding companies, and branches of out-of-state bank subs of domestic holding companies.
[2]Excludes deposits or branches of domestic holding companies that are not outside the home office state of the parent holding company.
[3]Statistics are calculated using only holding company organizations.

TABLE 2

Selected June 30 Data for Banking Organizations
w/ Consolidated Total Deposits of Less Than $500 Million

	1995 (N=7449)						1999 (N=6425)					
VARIABLES	Mean	Median	Min	Max	Sum	# > 0	Mean	Median	Min	Max	Sum	# > 0
Number of HC Bank Subs[3]	1.189	1	1	9	5878	4942	1.166	1	1	8	5388	4621
Consolidated Total Deposits($mil)	73.5	46.9	0.000003	498.7	547510		89.04	57.34	0.00002	499.74	572090	
%in MSA Markets	0.416	0	0	1		3502	0.421	0	0	1		3209
Deposits in Offices Outside Home State($mil)[1]	1.132	0	0	343	8434.8	145	1.707	0	0	354.6	10972.2	188
% of Total Deposits	0.012	0	0	1			0.014	0	0	1		
Deposits in Interstate Branches($mil)[2]	0.02	0	0	71.5	148.3	4	0.313	0	0	204	2012.6	49
% of Total Deposits	0.0002	0	0	0.958			0.002	0	0	0.95		
Deposits in Offices of Out-of-State Bank Subs($mil)	1.112	0	0	343	8286.6	141	1.394	0	0	354.6	8959.6	142
% of Total Deposits	0.012	0	0	1			0.012	0	0	1		
Total Banking Offices	3.009	2	1	42	22416		3.413	2	1	39	21929	
% in MSA Markets	0.419	0	0	1		3505	0.426	0.038	0	1		3213
Offices Outside Home State[1]	0.054	0	0	13	399	146	0.082	0	0	19	527	189
% of Total Offices	0.013	0	0	1			0.016	0	0	1		
Interstate Branches[2]	0.001	0	0	3	8	4	0.018	0	0	7	114	50
% of Total Offices	0.0002	0	0	0.75			0.003	0	0	0.833		
Offices of Out-of-State Bank Subs	0.052	0	0	13	391	142	0.064	0	0	19	413	142
% of Total Offices	0.012	0	0	1			0.013	0	0	1		
Number of States w/ Offices	1.011	1	1	3			1.02	1	1	5		
Number of Local Markets	1.398	1	1	23			1.55	1	1	17		
Number of Local Markets Outside Home State	0.031	0	0	6			0.047	0	0	9		
Local Market-Based Deposit Herfindahl	0.9067	1	0.0943	1			0.8792	1	0.0971	1		
Local Market-Based Office Herfindahl	0.8818	1	0.076	1			0.8443	1	0.0830	1		
State-Based Deposit Herfindahl	0.9960	1	0.4430	1			0.9933	1	0.3649	1		
State-Based Office Herfindahl	0.9957	1	0.5000	1			0.9914	1	0.3600	1		

[1]Includes interstate deposits or branches of independent banks and foreign-owned holding companies, out-of-state interstate branches of domestic holding companies, and branches of out-of-state bank subs of domestic holding companies.
[2]Excludes deposits or branches of domestic holding companies that are not outside the home office state of the parent holding company.
[3]Statistics are calculated using only holding company organizations.

TABLE 3

Key Measures of Local Market Structure

MSA Markets

Variables	June, 1995 (N=328)					June, 1999 (N=331)				
	Mean	Median	Min	Max	# Mkts > 0	Mean	Median	Min	Max	# Mkts > 0
Bank-Only Market Deposits	6055.6	2161.4	278.8	158960	n.m.	7585.7	2422.8	184.2	235400	n.m.
Bank-Only Herfindahl	0.1982	0.1866	0.064	0.6587	n.m.	0.1965	0.1813	0.0704	0.7377	n.m.
Number of Bank Orgs	18.88	13	4	193	n.m.	19.61	14	2	192	n.m.
Number of Multi-State BHCs	5.375	5	0	29	325	7.003	6	1	28	331
Share of Market Deposits	0.644	0.688	0	1		0.715	0.759	0.068	1	
Number of Home State Multi-State BHCs	2.363	2	0	11	243	2.63	2	0	16	253
Share of Market Deposits	0.322	0.304	0	0.962		0.294	0.25	0	0.97	
Number of Out-of-State Multi-State BHCs	3.012	2.5	0	18	274	4.538	4	0	24	314
Share of Market Deposits	0.316	0.266	0	1		0.418	0.384	0	1	
Number of OOS MSHCs w/ In-State Bank Subs	2.966	2	0	17	274	2.29	2	0	19	260
Share of Bank Market Deposits	0.307	0.254	0	0.983		0.201	0.168	0	0.854	
Number of OOS MSHCs w/ Interstate Br	0.091	0	0	3	28	2.468	2	0	21	270
Share of Bank Market Deposits	0.009	0	0	0.341		0.217	0.129	0	0.986	

TABLE 4

Key Measures of Local Market Structure

MSA Markets

Variables	June, 1995 (N=328)					June, 1999 (N=331)				
	Mean	Median	Min	Max	# Mkts > 0	Mean	Median	Min	Max	# Mkts > 0
Number of MSHCs w/ Consol TD $5 - $10 bil.	0.595	0	0	4	148	0.68	0	0	4	15
Share of Market Deposits	0.062	0	0	0.735		0.05	0	0	0.564	
Number of Home St MSHCs w/ Consol TD $5 - $10 bil.	0.345	0	0	4	91	0.375	0	0	3	97
Share of Market Deposits	0.0464	0	0	0.58		0.036	0	0	0.564	
Number of OOS MSHCs w/ Consol TD $5 - $10 bil. w/ In-State Bank Subs	0.227	0	0	3	78	0.208	0	0	3	60
Share of Bank Market Deposits	0.0156	0	0	0.351		0.01	0	0	0.353	
Number of OOS MSHCs w/ Consol TD $5 - $10 bil. w/ Interstate Br	0	0	0	0	0	0.142	0	0	2	43
Share of Bank Market Deposits	0	0	0	0	0	0.004	0	0	0.418	
Number of Multi-State BHCs w/ Consol TD $10 - $25 bil.	1.338	1	0	7	245	1.468	1	0	7	238
Share of Market Deposits	0.175	0.132	0	0.795		0.135	0.089	0	0.715	
Number of Home St MSHCs w/ Consol TD $10 - $25 bil.	0.64	0	0	6	119	0.619	0	0	4	129
Share of Market Deposits	0.104	0	0	0.795		0.086	0	0	0.715	
Number of OOS MSHCs w/ Consol TD $10 - $25 bil. w/ In-State Bank Subs	0.744	0	0	6	163	0.335	0	0	4	81
Share of Bank Market Deposits	0.071	0	0	0.488		0.019	0	0	0.369	
Number of OOS MSHCs w/ Consol TD $10 - $25 bil. w/ Interstate Br	0.015	0	0	1	5	0.511	0	0	5	103
Share of Bank Market Deposits	0.0004	0	0	0.057		0.031	0	0	0.393	
Number of Multi-State BHCs w/ Consol TD $25 - $50 bil.	1.174	1	0	6	228	1.027	1	0	5	242
Share of Market Deposits	0.175	0.129	0	0.929		0.119	0.07	0	0.618	
Number of Home St MSHCs w/ Consol TD $25 - $50 bil.	0.433	0	0	3	110	0.272	0	0	2	79
Share of Market Deposits	0.066	0	0	0.506		0.045	0	0	0.618	
Number of OOS MSHCs w/ Consol TD $25 - $50 bil. w/ In-State Bank Subs	0.695	0	0	3	162	0.163	0	0	5	45
Share of Bank Market Deposits	0.106	0	0	0.929		0.008	0	0	0.33	
Number of OOS MSHCs w/ Consol TD $25 - $50 bil. w/ Interstate Br	0.021	0	0	1	7	0.653	0	0	3	164
Share of Bank Market Deposits	0.003	0	0	0.341		0.065	0	0	0.51	
Number of Multi-State BHCs w/ Consol TD > $50 bil.	0.909	1	0	4	201	1.779	2	0	5	300
Share of Bank Market Deposits	0.138	0.07	0	0.631		0.286	0.25	0	0.83	
Number of Home St MSHCs w/ Consol TD > $50 bil.	0.204	0	0	2	57	0.278	0	0	2	83
Share of Market Deposits	0.04	0	0	0.496		0.043	0	0	0.697	
Number of OOS MSHCs w/ Consol TD > $50 bil. w/ In-State Bank Subs	0.686	0	0	4	146	0.819	1	0	3	199
Share of Bank Market Deposits	0.093	0	0	0.631		0.134	0.09	0	0.712	
Number of OOS MSHCs w/ Consol TD > $50 bil. w/ Interstate Br	0.037	0	0	1	12	0.764	1	0	4	171
Share of Bank Market Deposits	0.005	0	0	0.267		0.109	0.004	0	0.8	

TABLE 5

Estimated PTROAA Equations

Number of MSHC Variables

MSA Markets

Pooled 1995 - 1999 Data
(N=11024)

	(1)		(2)		(3)	
Variables	COEFF	Z	COEFF	Z	COEFF	Z
LASSET	0.00191	5.91	0.00183	5.69	0.00243	7.40
AGE	0.00001	1.27	0.00001	1.21	0.00001	1.33
NB	0.00024	0.40	0.00025	0.42	0.00024	0.40
NM4Q	-0.00066	-1.23	-0.00065	-1.22	-0.00073	-1.38
TNMKTS	-0.00139	-5.09	-0.0014	-5.11	-0.00142	-5.22
MKTDSHR	-0.02812	-3.25	-0.02824	-3.26	-0.02915	-3.37
IBDEPR	-0.01455	-9.46	-0.0144	-9.30	-0.01567	-10.15
ALLSR	0.00336	2.83	0.00328	2.76	0.00402	3.39
HCTMULT	0.00045	0.62	0.00043	0.59	0.00057	0.79
HCTONE	-0.00036	-0.88	-0.00037	-0.92	-0.00032	-0.79
HB	-0.00324	-1.02	-0.00268	-0.84	0.00233	0.71
LCBTD	-0.00145	-4.39	-0.00163	-4.89	-0.00166	-5.00
CBDGR	0.00254	2.60	0.00261	2.68	0.00188	1.93
POPBO	9.99E-07	6.55	9.95E-07	6.48	7.05E-07	4.48
SLDR	-0.00779	-3.91	-0.00732	-3.66	-0.00844	-4.24
TDN46	-0.00019	-3.65	-0.00017	-3.37	-0.00024	-4.60
CONSTANT	0.02511	4.72	0.02814	5.29	0.02223	4.19
NMSHC	-0.00004	-0.99				
NMSHCH			-0.00003	-0.40	0.00008	1.13
NMSHCO			0.00003	0.55		
NOSHCBS					0.0002	3.90
NISBR					-0.00021	-4.25
Sigma u	0.01669		0.01668		0.01668	
Sigma v	0.00617		0.00617		0.00617	
Wald Chi Square	230.3		229.8		297.1	

TABLE 6

Estimated PTROAA Equations

Aggregate Market Share MSHC Variables

MSA Markets

Pooled 1995 - 1999 Data
(N=11024)

	(1)		(2)		(3)	
Variables	COEFF	Z	COEFF	Z	COEFF	Z
LASSET	0.00194	6.07	0.00193	6.01	0.00239	7.26
AGE	0.00001	1.15	0.00001	1.15	0.00001	1.37
NB	0.0002	0.34	0.00021	0.34	0.00017	0.28
NM4Q	-0.00066	-1.24	-0.00066	-1.24	-0.00072	-1.35
TNMKTS	-0.00137	-5.01	-0.00137	-5.02	-0.00137	-5.03
MKTDSHR	-0.03141	-3.61	-0.03107	-3.57	-0.03071	-3.53
IBDEPR	-0.0147	-9.58	-0.01466	-9.52	-0.01544	-10.01
ALLSR	0.00351	2.96	0.00349	2.94	0.00402	3.38
HCTMULT	0.00049	0.68	0.00049	0.67	0.00067	0.92
HCTONE	-0.00037	-0.91	-0.00036	-0.88	-0.00029	-0.71
HB	-0.00045	-0.14	-0.00059	-0.18	0.00172	0.52
LCBTD	-0.0015	-5.14	-0.00152	-5.19	-0.0013	-4.42
CBDGR	0.00257	2.64	0.00256	2.63	0.00176	1.79
POPBO	9.70E-07	6.36	9.79E-07	6.40	8.31E-07	5.38
SLDR	-0.00791	-4.01	-0.00794	-3.97	-0.00828	-4.15
TDN46	-0.00019	-3.76	-0.00019	-3.76	-0.00024	-4.62
CONSTANT	0.026959	5.76	0.02697	5.76	0.019093	3.96
MSHCDR	-0.00303	-3.13				
MSHCHDR			-0.00255	-2.63	-0.00296	-3.04
MSHCODR			-0.00265	-2.72		
OSHCBSDR					-0.00162	-1.65
ISBRDR					-0.00575	-5.31
Sigma u	0.01667		0.01667		0.01667	
Sigma v	0.00617		0.00617		0.00617	
Wald Chi Square	240.7		238.0		281.7	

TABLE 7

Estimated PTROAA Equations

Number of MSHC Variables
$50 Billion Plus MSHCs

MSA Markets

Pooled 1995 - 1999 Data
(N=11024)

	(1)		(2)		(3)	
Variables	COEFF	Z	COEFF	Z	COEFF	Z
LASSET	0.0021	6.48	0.00206	6.37	0.00233	7.13
AGE	9.87E-06	1.13	0.00001	1.15	0.00001	1.32
NB	0.00032	0.54	0.00032	0.54	0.00027	0.45
NM4Q	-0.00068	-1.28	-0.00069	-1.29	-0.0007	-1.31
TNMKTS	-0.00138	-5.06	-0.00138	-5.05	-0.00139	-5.08
MKTDSHR	-0.02728	-3.15	-0.0274	-3.17	-0.02723	-3.15
IBDEPR	-0.01516	-9.84	-0.01506	-9.77	-0.01561	-10.12
ALLSR	0.00341	2.87	0.00341	2.88	0.00369	3.11
HCTMULT	0.00038	0.53	0.00038	0.53	0.00041	0.57
HCTONE	-0.00037	-0.92	-0.00037	-0.92	-0.00035	-0.86
HB	-0.00259	-0.81	-0.00245	-0.77	0.00029	0.09
LCBTD	-0.00134	-4.49	-0.00136	-4.57	-0.00123	-4.13
CBDGR	0.00253	2.60	0.00256	2.63	0.00217	2.22
POPBO	9.90E-07	6.51	9.88E-07	6.50	8.83E-07	5.76
SLDR	-0.00847	-4.27	-0.00832	-4.19	-0.009	-4.53
TDN46	-0.00022	-4.22	-0.00021	-4.13	-0.00022	-4.31
CONSTANT	0.02205	4.53	0.0227	4.64	0.01782	3.59
NMSHC50	-0.00045	-4.04				
NMSHCH50			-0.00039	-1.58	-0.00028	-1.11
NMSHCO50			-0.0004	-3.46		
NOSHCBS50					-0.00016	-1.44
NISBR50					-0.00085	-6.10
Sigma u	0.01668		0.01669		0.01669	
Sigma v	0.00617		0.00617		0.00617	
Wald Chi Square	246.1		242.7		269.5	

TABLE 8

Estimated PTROAA Equations

Aggregate Market Share MSHC Variables
$50 Billion Plus MSHCs

MSA Markets

Pooled 1995 - 1999 Data
(N=11024)

	(1)		(2)		(3)	
Variables	COEFF	Z	COEFF	Z	COEFF	Z
LASSET	0.00222	6.86	0.00222	6.83	0.00243	7.39
AGE	8.63E-06	1.00	8.44E-06	0.97	9.43E-06	1.09
NB	0.00031	0.52	0.00031	0.53	0.00287	0.48
NM4Q	-0.00069	-1.29	-0.00069	-1.29	-0.00069	-1.29
TNMKTS	-0.00138	-5.04	-0.00138	-5.06	-0.0014	-5.14
MKTDSHR	-0.02864	-3.30	-0.02849	-3.30	-0.02945	-3.41
IBDEPR	-0.01562	-10.12	-0.01559	-10.82	-0.01587	-10.62
ALLSR	0.00359	3.03	0.00357	3.01	0.00373	3.15
HCTMULT	0.00038	0.52	0.00038	0.52	0.00048	0.66
HCTONE	-0.00041	0.52	-0.00042	-1.03	-0.00038	-0.91
HB	0.00132	0.40	0.00151	0.46	0.0032	0.97
LCBTD	-0.00131	-4.47	-0.0013	-4.40	-0.00124	-4.21
CBDGR	0.00239	2.45	0.0024	2.47	0.0019	1.93
POPBO	9.50E-07	6.24	9.45E-07	6.21	9.01E-07	5.90
SLDR	-0.00795	-4.03	-0.00784	-3.96	-0.00799	-4.04
TDN46	-0.00021	-4.08	-0.0002	-4.06	-0.00023	-4.53
CONSTANT	0.02025	4.18	0.02005	4.13	0.01689	3.43
MSHCDR50	-0.004	-5.66				
MSHCHDR50			-0.00445	-4.08	-0.00405	-3.69
MSHCODR50			-0.00387	-5.22		
OSHCBSDR50					-0.00286	-3.64
ISBRDR50					-0.00646	-6.57
Sigma u	0.01667		0.01665		0.01665	
Sigma v	0.00618		0.00618		0.00618	
Wald Chi Square	262.3		262.7		279.1	

TABLE 9

Estimated PTROAA Equations

Number of MSHC Variables
$5 Billion Plus MSHCs

MSA Markets

Pooled 1995 - 1999 Data
(N=11024)

	(1)		(2)		(3)	
Variables	COEFF	Z	COEFF	Z	COEFF	Z
LASSET	0.00215	6.57	0.00201	6.18	0.00257	7.75
AGE	1.00E-05	1.19	8.00E-06	0.92	0.00001	1.38
NB	0.00026	0.43	0.00043	0.72	0.00034	0.57
NM4Q	-0.00066	-1.24	-0.00064	-1.20	-0.00073	-1.36
TNMKTS	-0.00138	-5.05	-0.00139	-5.12	-0.0014	-5.13
MKTDSHR	-0.02785	-3.22	-0.0276	-3.19	-0.02791	-3.24
IBDEPR	-0.01521	-9.85	-0.01506	-9.76	-0.0164	-10.59
ALLSR	0.00338	2.85	0.00347	2.93	0.00428	3.60
HCTMULT	0.00042	0.58	0.00035	0.48	0.00057	0.78
HCTONE	-0.00036	-0.92	-0.00045	-1.10	-0.00035	-0.86
HB	-0.00348	-1.08	-0.00324	-1.00	0.00018	0.06
LCBTD	-0.00128	-4.16	-0.00132	-4.10	-0.00102	-3.19
CBDGR	0.00266	2.73	0.00245	2.51	0.00184	1.88
POPBO	1.01E-06	6.51	8.49E-07	5.40	5.89E-07	3.67
SLDR	-0.00871	-4.36	-0.00746	-3.71	-0.00925	-4.60
TDN46	-0.00021	-4.12	-0.00014	-2.66	-0.0002	-3.81
CONSTANT	0.021	4.15	0.02321	4.46	0.0136	2.57
NMSHC510	-0.00023	-2.02				
NMSHCH510			0.00034	2.11	0.00004	0.25
NMSHCO510			-0.00059	-4.01		
NOSHCBS510					-0.00047	-2.89
NISBR510					-0.00053	-2.19
NMSHC1025	-0.00013	-1.52				
NMSHCH1025			0.00021	1.36	0.00007	0.42
NMSHCO1025			-0.00025	-2.39		
NOSHCBS1025					0.00002	0.18
NISBR1025					-0.00074	-5.39
NMSHC2550	0.00014	1.11				
NMSHCH2550			-0.00025	-1.21	-0.0004	-1.94
NMSHCO2550			0.00047	3.40		
NOSHCBS2550					0.00057	4.14
NISBR2550					0.00017	0.96
NMSHC50	-0.00042	-3.43				
NMSHCH50			-0.00057	-2.04	-0.00045	-1.61
NMSHCO50			-0.00033	-2.63		
NOSHCBS50					-0.00023	-1.84
NISBR50					-0.00054	-3.42
Sigma u	0.01664		0.0166		0.01652	
Sigma v	0.00617		0.00617		0.00617	
Wald Chi Square	255.8		282.6		342.7	

TABLE 10

Estimated PTROAA Equations

Aggregate Market Share MSHC Variables
$5 Billion Plus MSHCs

MSA Markets

Pooled 1995 - 1999 Data
(N=11024)

	(1)		(2)		(3)	
Variables	COEFF	Z	COEFF	Z	COEFF	Z
LASSET	0.00231	7.09	0.00226	6.95	0.00264	8.02
AGE	7.03E-06	0.81	7.35E-06	0.87	9.51E-06	1.12
NB	0.00029	0.48	0.00035	0.58	0.00036	0.60
NM4Q	-0.00071	-1.33	-0.00074	-1.39	-0.00078	-1.42
TNMKTS	-0.00136	-4.99	-0.00137	-5.01	-0.00136	-5.03
MKTDSHR	-0.03104	-3.58	-0.03034	-3.50	-0.03003	-3.47
IBDEPR	-0.01569	-10.17	-0.0156	-10.08	-0.01631	-10.54
ALLSR	0.00367	3.09	0.00369	3.10	0.00425	3.62
HCTMULT	0.00041	0.57	0.00034	0.47	0.00052	0.77
HCTONE	-0.0004	-0.98	-0.00045	-1.10	-0.00039	-0.96
HB	0.00317	0.94	0.00358	1.02	0.00413	1.20
LCBTD	-0.0012	-4.03	-0.0011	-3.65	-0.00095	-3.09
CBDGR	0.00228	2.34	0.00221	2.33	0.00152	1.54
POPBO	9.51E-07	6.24	8.97E-07	5.84	7.52E-07	4.85
SLDR	-0.00818	-4.15	-0.00781	-3.87	-0.00848	-4.23
TDN46	-0.00022	-4.40	-0.0002	-3.92	-0.00024	-4.63
CONSTANT	0.01864	3.80	0.01755	3.51	0.01137	2.26
MSHCDR510	-0.00069	-0.65				
MSHCHDR510			-0.00081	-0.71	-0.00105	-0.91
MSHCODR510			-0.00366	-1.27		
OSHCBSDR510					-0.00544	-1.73
ISBRDR1025					-0.00737	-1.25
MSHCDR1025	-0.00283	-2.90				
MSHCHDR1025			-0.0036	-3.26	-0.0037	-3.33
MSHCODR1025			-0.00272	-1.80		
OSHCBSDR1025					0.00017	0.10
ISBRDR1025					-0.01253	-5.14
MSHCDR2550	-0.00252	-2.41				
MSHCHDR2550			-0.0044	-3.58	-0.00523	-4.21
MSHCODR2550			-0.00054	-0.42		
OSHCBSDR2550					0.00025	0.19
ISBRDR2550					-6.60E-04	-0.35
MSHCDR50	-0.00619	-5.86				
MSHCHDR50			-0.00727	-5.16	-0.00654	-4.63
MSHCODR50			-0.00606	-5.68		
OSHCBSDR50					-0.00464	-4.23
ISBRDR50					-0.00758	-5.59
Sigma u	0.01663		0.01658		0.01654	
Sigma v	0.00617		0.00617		0.00617	
Wald Chi Square	272.2		282.3		333.7	

TABLE 11

Estimated PTROAA Equations

Number of MSHC Variables
$50 Billion Plus MSHCs

MSA Markets

	Pooled 1997 - 1999 Data (N=6132)				Pooled 1998 - 1999 Data (N=3963)				1999 Data (N=1916)	
	(1)		(2)		(3)		(4)		(5)	
Variables	COEFF	Z	COEFF	Z	COEFF	Z	COEFF	Z	COEFF	Z
LASSET	0.00148	3.46	0.00268	6.10	0.00317	8.51	0.00339	9.14	0.00331	5.79
AGE	-1.10E-05	-1.05	3.03E-06	0.30	0.00001	1.71	2.00E-05	2.09	1.00E-05	1.62
NB	0.00078	1.07	0.00063	0.88	0.00034	0.57	0.00037	0.62	-0.00004	-0.06
NM4Q	-0.00076	-1.18	-0.00091	-1.42	-0.00073	-0.80	-0.00076	-0.83	-0.00461	-3.66
TNMKTS	-0.00101	-2.78	-0.0008	-2.21	-0.00131	-3.26	-0.00116	-2.89	-0.00175	-3.41
MKTDSHR	-0.00929	-0.82	-0.00705	-0.63	-0.018902	-1.95	-0.01816	-1.89	-0.0075	-0.65
IBDEPR	-0.01543	-7.76	-0.01996	-9.89	-0.016148	-7.27	-0.02026	-8.94	-0.01933	-2.10
ALLSR	0.00282	1.83	0.00492	3.18	0.00052	0.31	0.00314	1.83	-0.00218	-0.70
HCTMULT	-0.00008	-0.09	0.00017	0.18	0.00192	1.85	0.00183	1.77	0.00389	1.58
HCTONE	-2.23E-06	-0.01	0.00006	0.11	0.0004	0.71	0.00027	0.48	0.00003	0.06
HB	0.00214	0.51	0.00063	0.15	0.01048	2.43	0.00649	1.51	-0.00316	-0.73
LCBTD	-0.00029	-0.79	-0.00014	-0.40	-0.00063	-2.11	-0.00057	-1.92	-0.00052	-1.76
CBDGR	0.0016	1.44	-0.00078	-0.69	0.00057	0.40	-0.00078	-0.55	-0.00255	-0.77
POPBO	-8.84E-08	-0.37	-1.21E-07	-0.51	6.60E-09	0.03	1.20E-07	0.57	1.81E-07	0.79
SLDR	0.00063	0.23	-0.00664	-2.34	-0.00589	-2.14	-0.00763	-2.80	-0.00758	-2.95
TDN46	-0.0009	-1.17	-0.00002	-0.27	-0.00007	-0.90	0.00001	0.13	0.00006	0.66
CONSTANT	0.01611	2.60	0.00285	0.46	-0.00008	-0.02	-0.00075	-0.15	0.00322	0.42
NMSHCH50	-0.00092	-3.14	-0.00102	-3.32	0.00029	0.90	-0.00055	-1.59	-0.00109	-1.69
NOSHCBS50	-0.00043	-3.13	-0.00024	-1.62	0.00017	1.02	-0.00015	-0.85	-0.00007	-0.17
NISBR50	-0.00142	-7.39	-0.00063	-2.83	-0.0005	-1.86	-0.00057	-2.15	-0.00122	-2.70
YR99D			-0.00235	-10.58			-0.00142	-7.84		
YR98D			-0.00093	-4.56						
Sigma u	0.01751		0.01745		0.011827		0.01181			
Sigma v	0.00491		0.00491		0.00466		0.00465			
Wald Chi Square	141.4		264.2		163.3		227.7			
F									10.5	

TABLE 12

Estimated PTROAA Equations

Aggregate Market Share MSHC Variables
$50 Billion Plus MSHCs

MSA Markets

	Pooled 1997 - 1999 Data (N=6132)				Pooled 1998 - 1999 Data (N=3963)				1999 Data (N=1916)	
	(1)		(2)		(3)		(4)		(5)	
Variables	COEFF	Z	COEFF	Z	COEFF	Z	COEFF	Z	COEFF	Z
LASSET	0.00161	3.75	0.00271	6.17	0.00322	8.64	0.00342	9.24	0.00332	5.71
AGE	-1.00E-05	-1.18	2.08E-06	0.21	8.77E-06	1.18	1.00E-05	1.79	1.00E-05	1.43
NB	0.00077	1.06	0.00062	0.86	0.00047	0.77	0.0004	0.68	-0.00003	-0.06
NM4Q	-0.00079	-1.22	-0.00094	-1.47	-0.00085	-0.93	-0.00086	-0.94	-0.00473	-3.79
TNMKTS	-0.00102	-2.79	-0.00083	-2.28	-0.0013	-3.22	-0.00117	-2.92	-0.00178	-3.45
MKTDSHR	-0.01467	-1.30	-0.00916	-0.82	-0.02122	-2.19	-0.0201	-2.09	-0.00915	-0.76
IBDEPR	-0.01592	-7.99	-0.01994	-9.89	-0.01655	-7.44	-0.02029	-8.96	-0.01928	-2.09
ALLSR	0.00321	2.09	0.0049	3.17	0.00047	0.28	0.00312	1.82	-0.00212	-0.68
HCTMULT	0.00012	0.13	0.00029	0.31	0.0019	1.83	0.00189	1.83	0.00398	1.62
HCTONE	4.00E-05	0.07	0.00011	0.19	0.00036	0.65	0.00026	0.48	0.00002	0.04
HB	0.00647	1.53	0.00317	0.75	0.01064	2.51	0.00873	2.07	0.00069	0.13
LCBTD	-0.00036	-1.01	-0.00019	-0.52	-0.00048	-1.67	-0.00055	-1.89	-0.00052	-1.74
CBDGR	0.001	0.89	-0.00105	-0.93	0.00036	0.26	-0.00091	-0.64	-0.00236	-0.70
POPBO	7.99E-09	0.03	-1.18E-07	-0.50	-4.80E-04	0.03	9.23E-08	0.43	8.19E-08	0.37
SLDR	0.00184	0.66	-0.00562	-1.96	-0.00491	-1.79	-0.0071	-2.60	-0.0061	-2.38
TDN46	-0.0002	-2.77	-0.00006	-0.78	-1.80E-04	-2.51	-0.00004	-0.52	-3.84E-06	-0.04
CONSTANT	0.01526	2.47	0.0027	0.43	-0.00126	-0.25	-0.00131	-0.26	0.00231	0.32
MSHCHDR50	-0.00676	-5.13	-0.00535	-3.92	-0.00185	-1.00	-0.0035	-1.89	-0.00693	-1.60
OSHCBSDR50	-0.00485	-4.98	-0.00128	-1.23	-0.00223	-1.40	-0.00142	-0.89	0.00163	0.65
ISBRDR50	-0.01138	-7.97	-0.00432	-2.72	-0.008	-4.22	-0.00606	-3.20	-0.0073	-2.53
YR99D			-0.00242	-10.58			-0.00131	-7.49		
YR98D			-0.00104	-5.48						
Sigma u	0.01748		0.01743		0.011825		0.01181			
Sigma v	0.0049		0.0049		0.00465		0.00466			
Wald Chi Square	153.3		270.6		175.9		234.8			
F									10.5	

APPENDIX A

Descriptive Statistics for Sample MSA Community Banks

Variable	1995 (N=2554) Mean	Median	Min	Max	1999 (N=1933) Mean	Median	Min	Max
PTROAA	0.0152	0.0155	-0.0993	0.282	0.0141	0.0145	-0.0652	0.252
LASSET	11.23	11.24	8.183	13.121	11.49	11.53	8.32	13.12
AGE	47.67	32.76	3.027	193.65	52.613	40.279	3.033	197.65
NB	0.293				0.271			
NM4Q	0.02	0	0	2	0.014	0	0	2
TNMKTS	1.166	1	1	11	1.245	1	1	9
MKTDSHR	0.021	0.007	0.0001	0.387	0.022	0.007	0.0001	0.362
IBDEPR	0.725	0.737	0.002	1.551	0.704	0.715	0.0003	1.207
ALLSR	0.57	0.589	0.001	0.918	0.61	0.621	0.002	1.052
HCTMULT	0.0489				0.0528			
HCTONE	0.5521				0.631			
HB	0.1529	0.1462	0.064	0.6589	0.1548	0.1448	0.0704	0.7377
LCBTD	16.021	16.075	12.693	18.88	19.19	16.19	12.25	19.28
CBDGR	0.0379	0.0319	-0.219	2.679	0.0484	0.0413	-0.626	0.385
POPBO	4916	4549	2123	23846	4449	3971	1772	18572
SLDR	0.204	0.202	0	0.881	0.153	0.16	0	0.844
TDN46	1.972	0	0	11	1.453	0	0	14
NMSHC	8.062	7	0	21	11.13	9	1	28
NMSHCH	3.387	3	0	11	4.11	3	0	16
NMSHCO	5.415	5	0	18	7.72	7	0	24
NOSHCBS	5.365	5	0	17	4.432	3	0	19
NISBR	0.16	0	0	3	3.755	3	0	21
NMSHC510	0.941	1	0	4	1.173	1	0	4
NMSHCH510	0.477	0	0	4	0.509	0	0	3
NMSHCO510	0.567	0	0	3	0.785	1	0	4
NOSHCBS510	0.567	0	0	3	0.569	0	0	3
NISBR510	0	0	0	0	0.261	0	0	2
NMSHC1025	1.724	1	0	7	1.961	2	0	7
NMSHCH1025	0.667	0	0	6	0.718	0	0	4
NMSHCO1025	1.273	1	0	6	1.287	1	0	7
NOSHCBS1025	1.262	1	0	6	0.589	0	0	4
NISBR1025	0.031	0	0	1	0.757	0	0	5
NMSHC2550	1.238	1	0	6	1.2	1	0	5
NMSHCH2550	0.512	0	0	3	0.271	0	0	2
NMSHCO2550	0.669	1	0	3	0.974	1	0	5
NOSHCBS2550	0.682	1	0	3	0.321	0	0	5
NISBR2550	0.0164	0	0	1	0.791	1	0	3
NMSHC50	1.221	1	0	4	2.12	2	0	5
NMSHCH50	0.171	0	0	2	0.292	0	0	2
NMSHCO50	1.065	1	0	4	1.834	2	0	5
NOSHCBS50	1.049	1	0	4	0.989	1	0	3
NISBR50	0.032	0	0	1	0.946	1	0	4
MSHCDR	0.638	0.68	0	0.987	0.687	0.717	0.068	0.976
MSHCHDR	0.334	0.297	0	0.919	0.28	0.285	0	0.954
MSHCODR	0.298	0.222	0	0.983	0.404	0.372	0	0.976
OSHCBSDR	0.291	0.212	0	0.983	0.206	0.17	0	0.845
ISBRDR	0.007	0	0	0.341	0.198	0.131	0	0.977
MSHCDR510	0.063	0.014	0	0.735	0.056	0.021	0	0.547
MSHCHDR510	0.047	0	0	0.58	0.04	0	0	0.494
MSHCODR510	0.016	0	0	0.242	0.016	0.001	0	0.304
OSHCBSDR510	0.0161	0	0	0.242	0.013	0	0	0.304
ISBRDR1025	0	0	0	0	0.003	0	0	0.128
MSHCDR1025	0.167	0.135	0	0.728	0.13	0.091	0	0.715
MSHCHDR1025	0.102	0	0	0.72	0.081	0	0	0.715
MSHCODR1025	0.065	0.036	0	0.488	0.049	0.025	0	0.506
OSHCBSDR1025	0.0644	0.0359	0	0.488	0.0178	0	0	0.369
ISBRDR1025	0.001	0	0	0.0571	0.031	0	0	0.393
MSHCDR2550	0.148	0.1	0	0.929	0.098	0.021	0	0.618
MSHCHDR2550	0.081	0	0	0.506	0.047	0	0	0.618
MSHCODR2550	0.066	7.84E-06	0	0.929	0.052	1.20E-02	0	0.51
OSHCBSDR2550	0.0655	7.84E-06	0	0.929	0.009	0.00E+00	0	0.33
ISBRDR2550	0.001	0	0	0.341	0.043	0.002	0	0.51
MSHCDR50	0.174	0.08	0	0.631	0.314	0.276	0	0.83
MSHCHDR50	0.044	0	0	0.496	0.05	0	0	0.697
MSHCODR50	0.13	0.02	0	0.631	0.264	0.234	0	0.83
OSHCBSDR50	0.125	0.0165	0	0.631	0.149	0.108	0	0.712
ISBRDR50	0.005	0	0	0.267	0.115	0.048	0	0.761