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De Novo Banks and Lending to Small Businesses: An Empirical Analysis

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DE NOVO BANKS AND LENDING TO SMALL BUSINESSES:
AN EMPIRICAL ANALYSIS[*]

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I. Introduction

Recent widespread consolidation in the banking industry has elicited concern that lending to small businesses will be reduced by the banking industry. The consolidation, though, has stimulated an upsurge in new bank charters (Epstein 1996). Will de novo banks help satisfy the demand for small business loans? This study compares the loan behavior of de novo banks with the loan behavior of similarly sized incumbent banks to address both research and policy issues raised by these developments.

The U.S. political system devotes special attention (derived from American populism) to small businesses. The existence of the federal Small Business Administration and of specific set-asides for small businesses in various federal programs are testaments to this attention. Small business lending is one area in which banks still have a comparative advantage over other

lending institutions; the reciprocal side of this proposition is that small businesses are still largely dependent on banks for credit.

This nexus raises a number of policy concerns: whether "credit crunches," created when banks restrict lending, are real phenomena and whether they have special consequences for small businesses (Federal Reserve Bank of New York, 1994; Hancock and Wilcox, 1998); whether small businesses are adversely affected when banks grow larger, especially through mergers (Whalen, 1995; Keeton, 1995, 1996; Peek and Rosengren, 1996; Strahan and Weston, 1996; Berger et al., 1997); whether higher bank concentration in local markets (often, a consequence of mergers) has adverse consequences for small business lending (Hannan, 1991); and (somewhat paradoxically) whether the small business lending "franchise" for banks provides a basis for expecting banks, and even small banks, to be able to survive in the changing financial markets of the late 1990s and beyond (Nakamura, 1993a, 1994).

Little research attention has been paid to the relationship between de novo banks and small business lending. If new banks can help fill the lending gaps that may be created when incumbent banks merge and grow larger, policy concerns may be lessened.

This paper provides clear evidence that de novo banks make substantially more loans to small businesses (measured as the percentage of a bank's total assets that are devoted to such loans) as compared to incumbents of roughly comparable size. These differences are statistically significant and have important policy implications.

The paper will proceed as follows. Section II provides a brief review of the relevant literature. In Section III we establish some hypotheses concerning de novo banks and lending to small businesses, and we describe the data. The statistical results are presented and analyzed

in Section IV. Section V contains concluding comments and a future research agenda to address related issues.

II. Literature Review

The relevant literature falls neatly into two categories: the nexus between banks and small businesses; and the behavior of de novo banks.

A. Banks and Small-Business Lending

The essence of successful lending is overcoming the asymmetric information problems (adverse selection and moral hazard) between borrower and lender that would otherwise create incentives for borrowers to default on their loans and create losses for lenders. Financial intermediaries, and especially commercial banks, are designed to acquire the expertise to monitor business borrowers effectively. They also have the ability to take advantage of economies of scale and of portfolio diversification, thereby becoming efficient "delegated monitors" on behalf of their ultimate funding agents -- the holders of their deposit liabilities (Bhattacharya and Thakor, 1993; Nakamura, 1993b; Berlin, 1996).

This expertise is especially valuable with respect to loans to small businesses, since these enterprises are generally more informationally opaque than are larger businesses (Berger and Udell, 1993, 1996; Nakamura, 1993a, 1993b; Berlin, 1996).[1] Larger firms have greater information transparency and scale advantages and thus have wider access to securities markets. The local nature of most small enterprises makes the monitoring task easier for locally based

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[1] But the application of credit-scoring techniques to the lower range of small business loans may eliminate banks' comparative advantage in this range.

institutions. Information obtained from an enterprise's checking account activity may give an

important monitoring advantage to local banks (Nakamura, 1993a). In addition, smaller banks

may be better organizationally suited to dealing effectively with small enterprises than are larger

banks (Berger and Udell, 1996).[2]

The recent empirical literature finds a strong inverse relationship between size of bank

and the extent of lending to small enterprises, when this lending is expressed as a percentage of

a bank's assets (Nakamura, 1993a; Keeton, 1995; Berger et al., 1995; Levonian and Soller,

1995; Berger and Udell, 1996; Peek and Rosengren, 1996; Strahan and Weston, 1996, 1998);

similar results apply to rural banks' loans to agriculture (Levonian, 1996). These findings may

not be too surprising, since large banks have available to them lending opportunities to larger

enterprises that smaller banks do not have.[3] These findings may thus reflect the consequences

of both the wider opportunities for larger banks and their comparative disadvantage in making

small business loans.[4] Still, until recent data on small business loans became available, this

size-of-bank relationship could not be verified.

Mergers among large banks do seem to reduce lending to small businesses, expressed as

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[2] Even the small local branches of larger banks may not be as effective at small business
lending, either because of the organizational-bureaucratic rigidities of their larger organizations
or because the periodic rotation of branch managers among branches creates a void of locally
oriented knowledge about loan customers.

[3] Generally, federal safety-and-soundness regulation restricts a bank from making loans to
any single borrower that are larger than 15% of the bank's capital (net worth). Accordingly,
size effectively prevents small banks from lending to large businesses, except to the extent that
a small bank might take a fraction of a syndicated loan. A small bank can lend to a large
enterprise by investing in the latter's publicly traded bonds or privately placed debt, but this
takes us away from direct relationship lending.

[4] The findings of an inverse relationship between size and small-business lending does not
by itself allow us to distinguish between the two possible causes.

a percentage of a bank's assets (Peek and Rosengren, 1996; Berger et al., 1997; but see Strahan and Weston, 1996, 1998 for contrary evidence); however, mergers between smaller banks do not seem to reduce small business lending (Peek and Rosengren, 1996, 1998; Strahan and Weston, 1996, 1998; Berger et al. 1997); and the small-business lending proclivities of the acquirer in a merger can positively affect the lending of the combined entity (Peek and Rosengren, 1998). Bank acquisitions that leave the acquired bank as a free-standing entity tend generally to have a negative effect when the acquired bank is small (Keeton, 1996; Berger et al., 1997) but a positive effect when the acquired bank is large (Berger et al., 1997).

B. De Novo Banks

As a first approximation, we would expect entry by de novo banks to be motivated and influenced by the same factors and to have the same consequences for banking markets as is true for entry by firms into industrial and commercial markets. Thus, we would expect de novo entry to be motivated by the prospects of profitable banking opportunities and to be inhibited by any barriers to entry; we would expect that actual entry would make banking markets more competitive;[5] and (following Bain, 1956) we would expect that low entry barriers would cause the prospects of entry ("potential entry") to serve as a check on the potential exercise of market power by incumbents in banking markets.[6] Recent empirical work on de novo entry (including

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[5] As is pointed out by Peterson and Rajan (1995) and Berlin (1996), under some circumstances more competition in lending markets may have perverse consequences for borrowers, because of the problems of asymmetric information.

[6] The issue of the appropriate delineation of banking markets is an important one for testing hypotheses concerning entry and competition. The generally accepted market delineation for locally oriented bank services (e.g., small business loans, deposits) is a metropolitan statistical area (MSA) boundary for urban markets and an individual county boundary for rural markets; but see White (1996) for some questions.

the establishment of de novo branches by banks located in other markets) generally supports these hypotheses (Amel and Liang, 1997).[7]

Beyond these traditional "industrial organization" analyses of banking, the special roles of banks as providers of finance to some business borrowers and as providers of payment services and deposits more generally have generated extensive public policy concerns about the structure, behavior, and performance of banks considered individually and as a class. These concerns, in turn, have spawned extensive regulatory and deposit insurance regimes that govern virtually all aspects of banking. Of special concern is the avoidance of insolvency failures of banks, since their special lending relationships may be difficult to replace and depositors and/or government-sponsored deposit insurance funds must cover the insolvency losses. Since new enterprises generally have higher failure rates than incumbents (Geroski, 1995), the fates of de novo banks are therefore of heightened policy concern and research interest.

We would expect that many of the "usual" determinants of a new enterprise's success or failure -- e.g., management quality, strategies, adaptability, market environments, etc. -- should apply equally well to de novo banks.[8] In addition, the moral hazard risk-taking problems created by a limited legal liability framework (Jensen and Meckling, 1976) are heightened by the relatively low equity/assets ratios (or, equivalently, high debt/equity ratios) at which banks generally operate[9] and the government guarantees of deposit insurance, which eliminate the incentives for insured depositors to monitor banks' managements. Consequently, the proclivities

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[7] A summary of earlier work is found in DeYoung and Hasan (1996).

[8] A general review of the processes of entry is found in Geroski (1995).

[9] Although de novo banks generally have higher capital levels than do incumbents.

of de novo banks to undertake risky strategies (and the deliberate or inadvertent approval by bank regulators of such strategies) may also influence outcomes. Also, the relative efficiencies or inefficiencies of de novo banks (compared to incumbents) and the time from start-up necessary for a de novo bank to reach full efficiency are of interest.

As reviewed by DeYoung and Hasan (1996), the empirical evidence indicates that management factors and risk-taking strategies do seem to matter for the success of de novo banks, but general market conditions do not appear to be very important. The ownership structure of the de novo bank (e.g., whether it is part of a multi-bank holding company) may also influence performance. Surprisingly, the failure probabilities of de novo banks appear to be no greater than for similarly situated incumbents; this result, which runs contrary to the general experiences of new enterprises, may be due to regulators' screening of de novo applicants and the regulators' heightened monitoring of the de novo banks that are established.[10]

DeYoung and Hasan (1996) also find that de novo banks begin their operations at a substantial disadvantage relative to incumbents and require three years to close most of the gap. Even in years four through eight the gap is significant (though still narrowing), and only at year nine does the efficiency gap disappear. Surprisingly, the de novo affiliates of multi-bank holding companies are initially less efficient than independent de novo banks.

To the best of our knowledge, there has been no research conducted on the relative proclivities of de novo banks with respect to small business lending. It is to our efforts in this respect that we now turn.

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[10] Hunter et al. (1996) find a similar result of no significant difference between de novo institutions and incumbents for thrift failure rates in the 1980s.

III. The Hypotheses and the Data

A. The Hypotheses

The owners and managers of de novo banks presumably enter banking markets because of profitable opportunities. Specific advantages may be derived from the liability side of the bank's balance sheet (i.e., deposit gathering), from the asset side of the balance sheet (i.e., loans to businesses, farms, consumers, etc., or investments in debt securities), or from fee-based services (e.g., trust management). Since de novo banks (like other start-up enterprises) are likely to be relatively small, their business loans to any single borrower will be limited in size, and such loans are highly likely to be to small businesses. If their comparative advantage is in business lending, then they will concentrate on small business lending.

Why might a de novo bank's comparative advantage be in small business lending? Its top executives might be ambitious loan officers from a neighboring bank (or the downsized "refugees" from a recent bank merger) who believe that they can identify the good risks among local small business borrowers (and who may even bring some of those loan customers with them from their former bank). For the reasons discussed in Section II, recent bank mergers might create new opportunities for smaller banks to replace the merged bank as a lender to small businesses, and the incumbents may be sluggish in responding. Also, rapid growth of the local economy may create additional lending opportunities that the incumbent banks might be too sluggish to embrace.

Even if a de novo bank's managers do not believe that they have a special advantage in business lending but do believe that commercial lending should be part of their asset portfolio, they may conclude that successful business lending will require an extra effort to establish

8

themselves as "players" in the local market. This strategy would imply a higher ratio of business loans to assets than would be true for an otherwise similar incumbent bank.

However, since the de novo bank's loan applicants might be largely those who have been rejected as bad risks by the incumbent banks, an adverse selection problem might arise. To protect against adverse selection, the de novo bank's managers might decide to de-emphasize business lending until they had the experience to learn more about the potential borrowers, and thus they would make fewer business loans.[11] Consequently, there are no unambiguous predictions as to whether de novo banks will be more heavily or less heavily involved in small business lending than comparably sized incumbents.

B. The Data

The data that we use in this paper come from FDIC sources. Our main data base is the FDIC Call Reports for the years 1984-1994. We also use a separate list of newly chartered banks for those same years provided by the FDIC.[12]

Prior to 1993 the call reports had no information on sizes of loans, and only the end-of-June quarterly reports contain some size data since 1993. Since we desired to use a longer data set, we have captured small business lending by focusing on banks in the asset size category $5

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[11] The de novo bank might also compensate by charging higher interest rates and/or other fees and/or setting tighter lending restrictions. Higher interest rates, however, may create a separate adverse selection problem (Stiglitz and Weiss, 1981).

[12] The list of newly chartered banks includes banks that were newly formed to take over the assets and operations of failed banks. An earlier version of the paper included these banks among our group of "de novo" banks; after consideration, we have decided to exclude them, so as to keep a tighter focus on start-up institutions. (Our empirical results do not differ substantially with their inclusion or exclusion.)

million[13] to $100 million.[14] Because of the regulatory limits on the size of loan to any single borrower, these banks' business loans are largely or entirely focused on small businesses. Banks within these size limitations accounted for 72% of all banks in 1987 and 68% in 1994.[15]

We use two measures to indicate a bank's involvement in small business lending. The first is simply the ratio (expressed as a percentage) of the bank's commercial and industrial loans to its total assets (C&IL/A), as of the end of each calendar year. Second, remembering that leases can be close substitutes for loans and that farms and real estate enterprises are also businesses, we add leases, agricultural loans, and nonresidential real estate loans to the C&I loans and use the ratio (percentage) of these total business loans to the bank's total assets (TBL/A). These two measures serve as the dependent variables in the regressions described in Section IV.

For explanatory variables, our primary focus is on whether or not the bank is a de novo institution or an incumbent. We define a de novo bank as a bank that has received a charter and started operations in the year of observation or in any of the previous three years. A bank that

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[13] We excluded banks with less than $5 million in assets primarily because we feared that these "micro" banks might be anomalous for reasons that are irrelevant to the focus of this study. In any event, their exclusion is not quantitatively important, either by numbers or by assets. For example, in 1994 there were only 49 such banks (less than 0.5% of all banks), with aggregate assets of approximately $200 million (about 0.005% of the industry total).

[14] In order to express these size boundaries in real terms over the years of our study, we used the $5-$100 million boundaries in 1994 and then used the GDP deflator to decrease both boundaries in previous years. Thus, in 1987 the nominal boundaries were $4.0 million and $79.2 million. We also expressed the $5-$100 million boundaries in terms of 1987 dollars and used the GDP deflator to inflate these boundaries forward to 1994; the empirical results for this latter exercise (not reported) were quite similar to the results reported in the text below.

[15] They accounted, of course, for much smaller percentages of bank assets -- 17% in the former year and 8% in the latter year.

has been in operation for a longer period is treated as an incumbent. We identify the de novo banks with dummy variables (DNVL0, DNVL1, DNVL2, DNVL3) that take the value 1 if the bank is a de novo bank that began operation in the year of observation (or one year earlier, or two years earlier, or three years earlier) and zero otherwise.[16] Since de novo banks need some "seasoning" as reported by DeYoung and Hasan (1996) and discussed above, we place special emphasis on de novo banks started three years earlier.

Since we concentrate on three-year-old de novo banks and use a restricted size class, we lose a fraction of the banks from the original group that were chartered in any given year.[17] Nevertheless, the three-year-old de novo banks in our sample consistently account for around two-thirds of all of the de novo banks that were originally chartered.

Additional explanatory variables are derived from our earlier discussion. First, the size of the bank may matter, even within the size-class of banks that we have chosen; accordingly, we use the assets of the bank (SIZE), as of the end of the year of observation. Second, the average size of the banks surrounding an observed bank may indicate whether those banks are generally large (and thus leaving more opportunities for profitable loans to small businesses) or not; for this purpose we use the average size of bank in the state (AVBKST) in which the

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[16] These coarse age categories pose obvious problems, since banks that began operations on January 1 and December 31 of the year of observation will receive the same designations (DNVL0 = 1), whereas a bank that began observations on December 31 of the previous year will receive a different designation (DNVL1 = 1). Short of constructing a continuous variable (e.g., the number of days between start-up and December 31 of the year of observation), there seems to be no good solution to this problem.

[17] The focus on three-year-old de novo banks means that we lose some banks because of acquisitions or failures. Also, we have excluded de novo banks and incumbents located in Puerto Rico and Guam from our analyses.

observed bank is located, as of the end of the year of observation. Third, the recent growth of bank assets in an area may be indicative of new opportunities for lending; for this we use the percentage growth in all bank assets (corrected for inflation) in the bank's state (GRBKAS) over the previous three years. Finally, the location of the bank -- whether it is in an urban or rural area -- should influence its mix of loans; to capture this effect, we use a dummy variable (DMSA) that takes the value 1 if the bank is located in an urban area and 0 otherwise.[18]

Table 1 summarizes the variables used, their acronyms, and their mean values for 1994. It is worth noting that the value shown for C&IL/A -- 8.44% -- is strikingly similar to the 8.85% ratio reported by Berger et al. (1997) for small business loans by banks with assets less than $100 million, drawn from the loan-size data contained in the end-of-June 1995 Call Report. Our indirect means of focusing on small business lending does seem to have hit the mark.

IV. Empirical Results

A. Simple t-tests

We begin by performing simple t-tests on the differences between the mean percentages for three-year-old de novo banks versus incumbents for the C&IL/A category and then for the TBL/A category. As can be seen in Table 2, for both measures and for all years the de novo banks consistently provide more loans to small businesses than do incumbent banks. In all but two instances (TBL/A for 1989 and 1994) the differences are statistically significant (at the 5% level). Also noteworthy from this table is the downward trend as time progressed in C&I loans

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[18] De facto, this criterion focuses on the headquarters location of a bank with a branch network.

for both de novo banks and incumbents.

These gross differences in means between the de novo banks and the incumbents might, however, be due to some of the other potential influences on a bank's proclivity toward small business loans. Consequently, we turn to regression analysis.

B. OLS Regressions

Table 3 presents the results of simple OLS regressions for each year using C&IL/A as the dependent variable, and Table 4 does the same using TBL/A as the dependent variable. (The figures in parentheses are t-statistics.) As can be seen, in all years and for both dependent variables (except for TBL/A in 1994) the dummy variable for the three-year-old de novo banks (DNVL3) is positive and statistically significant. Further, the coefficients on the dummy variables are generally consistent with the magnitudes of the differences in means shown in Table 2. The regression results also show that even the younger de novo banks generally make more business loans as a percentage of their assets than do incumbents.[19]

As for the other explanatory variables, the clearest and most consistent story is told by the coefficient on the MSA dummy variable: It is always significantly positive for the C&IL/A regressions and significantly negative for the TBL/A regressions, exactly as would be expected (recall that TBL/A includes agricultural loans). The bank's own size (SIZE) seems to have a consistently positive and significant effect on C&I loans but an insignificant or negative effect

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[19] The de novo banks that are less than a year old (DNVL0) show a mixed pattern in Table 3 and are consistently negative in Table 4. Brislin and Santomero (1991) find that the balance sheets of the newest de novo banks are unstable and contain a great deal of noise; our findings are consistent with theirs.

13

on total business lending;[20] the latter effect is consistent with the general picture of the effects of a bank's size on small business lending, but the former is not. A larger average size of banks in the same state (AVBKST) has a consistently positive effect on C&I loans by a bank, supporting the "large banks lend less to small borrowers, thereby leaving profitable opportunities to their smaller brethren" findings; but the same variable generally has a negative effect on total business lending.[21] Finally, faster growth of a state's banking assets has a generally negative effect on both measures of small business lending (which is contrary to the "more opportunities" hypothesis).[22]

The overall explanatory power of these regressions is consistently much higher for the C&IL/A regressions than for the TBL/A regressions. Apparently, the inclusion of agricultural and nonresidential real estate loans adds a considerable amount of noise to the cross-sectional

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[20] Since SIZE (the bank's assets) is also the denominator of the dependent variable, there may be a bias toward a negative coefficient since, if a bank found itself with an unexpectedly large amount of assets at year end, the surplus would likely be placed in securities, not in business loans -- i.e., the dependent variable would tend to become a little smaller when the SIZE variable was unexpectedly a little larger. However, when alternative measures of a bank's size --e.g., revenues, number of employees, total loans -- were used as RHS measures of size, no fundamental changes in the empirical results were found.

[21] These results are consistent with those of Berger et al. (1997), who find that larger banks make comparatively fewer C&I loans to small businesses (leaving more opportunities for de novo banks) but also make comparatively more of all kinds of loans (leaving fewer opportunities).

[22] In an earlier draft we also included logit regressions, since the dependent variables are bounded by 0.0 and 1.0. These logit results were similar to the OLS results that are reported, although their overall explanatory power was weaker. At the suggestion of a referee, we do not report the logit results from this draft.

lending pattern.[23]

C. Combined Regressions

In order to approximate a summary set of results for the entire period, we combined all of the observations for the years 1987-1994 into a single data set and ran OLS regressions using C&IL/A and TBL/A as the dependent variables. A set of year dummy variables (e.g., all observations for year-end 1988 receive a value of 1 for D1988 and 0 otherwise) are added to control for potential year-specific effects. These regressions are reported in Table 5.

These results are basically similar to those reported in the previous tables. The coefficients on the three-year-old de novo bank dummy variable (DNVL3) are rough approximations of the annual results. The coefficients -- 7.02 for C&IL/A and 5.73 for TBL/A -- imply that the small business loan component of the asset portfolio of a "seasoned" de novo bank would have been about 5.73-7.02 percentage points higher than an otherwise similar incumbent bank over the 1987-1994 period.

D. A Summing Up

The empirical results described in this section are powerful and consistent: Regardless of method or time period chosen, the evidence shows a sizable difference between the asset portfolios of "seasoned" de novo banks and incumbents, with the former group consistently showing significantly larger fractions of their portfolios devoted to small business lending.[24]

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[23] Examination of regression results (not reported) that involve these individual components as LHS variables indicates that de novo banks consistently make more nonresidential real estate loans but fewer agricultural loans than do incumbents; the combination of the two effects appears mostly to add statistical noise.

[24] A subsequent study by DeYoung (1998) supports these results. He also shows that the de novo banks' higher levels of small-business lending persists well past three years of

15

V. Conclusion and Directions for Further Research

How do de novo banks behave with respect to small business lending, as compared to otherwise similar incumbent banks? This paper provides a definitive answer: "Seasoned" (three-year-old) de novo banks' asset portfolios contain a substantially higher percentage of small business loans than do incumbents. For the overall 1987-1994 period, this difference was in the range of 573-702 basis points.

These results have immediate policy implications. In the antitrust treatment of bank mergers, the consequences of these mergers for lending to small businesses is an important consideration. If local banks can exercise market power vis-à-vis their local small business loan customers, then mergers that create high local bank concentration may be of concern. Our results show that entry by de novo banks can be part of the solution. Table 6 reproduces the findings of Berger et al. (1997) with respect to the asset percentages devoted to small business lending by banks of various sizes. It is clear that incumbent small banks perform better in this dimension than do larger banks. Our results show that de novo banks perform substantially better than even the incumbent small banks.

Our results should not be interpreted as arguing that antitrust enforcers can relax and allow the processes of entry (and potential entry) to discipline concentrated banking markets. Our results provide no information about the lags between the exercise of market power (say, as the consequence of a merger in a concentrated market) and the subsequent entry nor about the quantitative strength of that entry. Further, our results focus on the performance of the de novo banks three years after they enter. The combined lags of entry itself and then of

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seasoning, though at a declining rate.

16

"seasoning" could well be longer than antitrust policy should countenance.[25] Nevertheless, the pressures from entrants are clearly in the right direction.

We can think of a number of directions in which future research might proceed in this area. First, some of the variables in this study might be refined. The average size of surrounding banks and the growth rates of surrounding banks might be more localized than the statewide variables used in this study. Second, additional variables might be added to the regressions. Local measures of bank concentration (e.g., Herfindahl-Hirschman Indexes) might be used to test whether banks' proclivities toward small business lending are influenced by the likely exercise of market power;[26] also, the potential influence of recent mergers on banks' lending behavior might be tested. Third, an effort should be made to differentiate between the behavior of "independent" de novo banks and the de novo banks that are a new subsidiary of an existing multi-bank holding company, to see if this structural difference is important. Fourth, the subsequent behavior of "toehold" purchases of small incumbent banks by existing bank holding companies should be compared with the behavior of the de novo banks, to see if this difference is important.[27] Fifth, the pricing of business loans by de novo banks as compared to the pricing by incumbents should be examined, to see if the de novos banks' managers tend

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[25] The DOJ-FTC "Horizontal Merger Guidelines" focus on effective entry within two years as the relevant consideration.

[26] Our DMSA variable is a crude indicator of bank concentration, since concentration tends to be much higher in rural areas than in MSAs; but for our purposes in this paper, the potential effect of higher concentration in rural areas is confounded by the agricultural-loans effect.

[27] There is an older literature on "toehold" mergers (Goldberg, 1976, 1979) that indicated that the resulting banks were not especially aggressive. Though these results were reassuring to policy makers who were concerned about potential predatory behavior on the part of the larger bank holding companies, the results should be re-examined on newer data and in the light of more enlightened views as to the value of aggressive behavior by even toehold entrants.

17

to practice "make a splash in the market" pricing or whether they seem to be trying to protect themselves against the adverse selection problems that could arise. Sixth, the persistence of de novo banks' higher rates of small-business lending, past the three years of seasoning that we used, should be explored.

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TABLE 1: VARIABLES USED: ACRONYMS, DEFINITIONS, AND 1994 MEAN VALUES

Acronym	Definition	Mean
C&IL/A	A bank's commercial and industrial loans expressed as a percentage of the bank's assets at year end	8.44%
TBL/A	A bank's total business loans (C&I plus leases plus agricultural plus nonresidential real estate) expressed as a percentage of the bank's assets at year end	27.58%
DNVL0	A 0,1 dummy variable for a de novo bank that has begun operations in the year of observation	0.005
DNVL1	A 0,1 dummy variable for a de novo bank that began operations in the year previous to the year of observation	0.005
DNVL2	A 0,1 dummy variable for a de novo bank that began operations two years before the year of observation	0.005
DNVL3	A 0,1 dummy variable for a de novo bank that began operations three years before the year of observation	0.009
SIZE	A bank's total assets at year end	$43.8
AVBKST	The average size of banks in the same state as an observed bank	$292.8
GRBKAS	The percentage growth of the same state's banks' assets (in constant dollars) during the previous three years	7.24%
DMSA	A 0,1 dummy variable for a bank located in a metropolitan statistical area	0.34

TABLE 2: MEAN VALUES FOR C&IL/A AND TBL/A, FOR 3 YEAR OLD DE NOVO BANKS
AND INCUMBENT BANKS
(t-statistics are in parentheses)

	C&IL/A			TBL/A		
	De Novos	Incumbents	Diff.	De Novos	Incumbents	Diff.
1987	21.25	9.88	11.37 (17.17)	32.19	24.33	7.76 (10.76)
1988	17.27	9.67	6.60 (9.66)	28.04	24.75	3.29 (3.82)
1989	16.21	9.27	6.94 (7.64)	26.42	24.90	1.52 (1.36)
1990	18.47	8.90	9.57 (9.52)	29.45	24.75	4.70 (4.24)
1991	16.77	8.32	8.45 (8.87)	30.48	24.96	5.42 (5.05)
1992	16.03	7.93	8.10 (8.66)	31.38	25.06	6.44 (5.72)
1993	14.64	7.96	6.68 (6.77)	30.04	26.06	3.98 (3.13)
1994	12.90	8.38	4.52 (3.58)	28.57	27.67	0.90 (0.44)

TABLE 3: OLS REGRESSION RESULTS WITH C&IL/A AS THE DEPENDENT VARIABLE
(t-statistics in parentheses)

	1987	1988	1989	1990	1991	1992	1993	1994
Constant	6.83 (39.34)	6.34 (37.06)	6.12 (34.91)	6.23 (37.59)	6.02 (37.80)	5.90 (37.44)	6.19 (39.12)	6.53 (38.21)
DNVL0	3.87 (5.95)	4.27 (6.84)	3.96 (5.91)	0.93 (1.39)	0.65 (0.75)	4.03 (3.74)	-1.09 (1.03)	-1.91 (1.75)
DNVL1	5.93 (9.50)	7.24 (11.75)	9.12 (15.38)	7.27 (11.39)	6.17 (9.82)	3.18 (3.95)	5.46 (5.25)	0.93 (0.89)
DNVL2	7.57 (13.60)	4.67 (7.52)	7.86 (12.64)	8.66 (14.93)	6.99 (11.61)	6.31 (10.46)	3.07 (3.90)	3.94 (3.46)
DNVL3	9.11 (17.85)	5.58 (10.04)	5.21 (8.29)	8.06 (13.26)	6.58 (11.58)	6.46 (10.94)	5.44 (8.81)	3.14 (3.79)
SIZE	0.04 (10.54)	0.04 (11.05)	0.04 (11.36)	0.03 (9.87)	0.03 (8.42)	0.02 (7.06)	0.02 (6.41)	0.02 (6.64)
AVBKST	0.0007 (3.25)	0.0009 (4.37)	0.0005 (2.62)	0.0004 (1.92)	0.0003 (1.49)	0.0004 (1.91)	0.0002 (1.34)	0.0001 (0.39)
GRBKAS	-0.07 (11.54)	-0.05 (8.67)	-0.03 (4.23)	-0.005 (0.60)	0.01 (1.00)	-0.01 (0.78)	-0.03 (3.04)	-0.001 (0.13)
DMSA	4.26 (23.92)	4.15 (23.77)	3.69 (21.32)	1.69 (20.19)	3.22 (19.69)	2.93 (18.28)	2.77 (17.41)	2.69 (16.13)
R-sq.	0.16	0.13	0.14	0.14	0.12	0.10	0.08	0.05
n	9,920	9,437	9,012	8,696	8,335	7,921	7,508	7,079

TABLE 4: OLS REGRESSION RESULTS WITH TBL/A AS THE DEPENDENT VARIABLE
(t-statistics in parentheses)

	1987	1988	1989	1990	1991	1992	1993	1994
Constant	25.28 (99.23)	25.31 (96.13)	25.77 (91.87)	26.33 (94.41)	27.08 (92.71)	27.28 (88.69)	29.20 (89.37)	31.30 (86.80)
DNVL0	-1.81 (1.89)	-2.50 (2.60)	-2.66 (2.47)	-6.05 (5.38)	-4.74 (3.00)	-3.36 (1.59)	-11.59 (5.31)	-12.73 (5.52)
DNVL1	4.31 (4.70)	4.01 (4.23)	7.29 (7.68)	5.02 (4.68)	4.21 (3.66)	1.93 (1.23)	3.13 (1.46)	-7.74 (3.50)
DNVL2	6.08 (7.44)	3.11 (3.26)	5.01 (5.04)	8.27 (8.48)	6.68 (6.05)	6.44 (5.46)	3.12 (1.94)	2.64 (1.10)
DNVL3	8.01 (10.69)	4.04 (4.73)	3.03 (3.01)	5.92 (5.80)	7.24 (6.95)	7.77 (6.73)	5.56 (4.36)	2.48 (1.42)
SIZE	-0.002 (0.38)	-0.003 (0.51)	-0.006 (1.15)	-0.01 (2.32)	-0.02 (3.84)	-0.03 (4.82)	-0.03 (5.54)	-0.04 (5.79)
AVBKST	-0.001 (4.39)	-0.001 (3.50)	-0.002 (4.93)	-0.002 (5.80)	-0.002 (5.98)	-0.002 (4.23)	-0.002 (5.45)	-0.001 (3.59)
GRBKST	-0.10 (11.10)	-0.07 (8.54)	-0.08 (7.11)	-0.01 (0.65)	0.02 (1.15)	0.03 (1.47)	-0.20 (9.30)	-0.12 (6.67)
DMSA	-1.10 (4.19)	-1.10 (4.09)	-1.76 (6.36)	-1.77 (6.25)	-1.95 (6.51)	-1.76 (5.61)	-2.10 (6.42)	-2.18 (6.18)
R-sq.	0.04	0.02	0.02	0.02	0.02	0.02	0.03	0.03
n	9,920	9,437	9,012	8,696	8,335	7,921	7,506	7,079

TABLE 5: OLS REGRESSIONS, FULL SAMPLE 1987-1994
(t-statistics in parentheses)

	C&IL/A	TBL/A
Constant	7.19 (86.42)	25.87 (180.02)
DNVL0	2.66 (10.00)	-4.24 (9.22)
DNVL1	7.03 (28.52)	3.70 (8.67)
DNVL2	7.12 (31.23)	5.39 (13.66)
DNVL3	7.02 (33.16)	5.73 (15.65)
SIZE	0.03 (25.43)	-0.02 (8.67)
AVBKST	0.0003 (5.00)	-0.002 (14.51)
GRBKAS	-0.03 (11.56)	-0.06 (14.26)
DMSA	3.46 (57.28)	1.68 (16.06)
D1988	0.08 (0.80)	0.70 (4.19)
D1989	-0.40 (3.95)	0.62 (3.62)
D1990	-0.79 (7.91)	0.58 (3.38)
D1991	-1.53 (15.07)	0.67 (3.81)
D1992	-1.85 (17.96)	0.89 (5.00)
D1993	-1.80 (17.17)	1.92 (10.60)
D1994	-1.23 (11.37)	3.88 (20.80)
R-sq.	0.13	0.03
n	67,908	67,908

TABLE 6: SMALL BUSINESS LENDING BY SIZE OF BANK, JUNE 1995
(Data are in 1994 dollars)

Asset Size of Bank	Small Business Loans as a % of Assets
$0 - $100m	8.85%
$100m - $1b	7.71
$1b - $10b	4.18
$10b -	1.95

Source: Berger, et al. (1997).