Explaining U.S. Commercial Bank Births, Deaths, and Marriages

Yongil Jeon
Central Michigan University
e-mail: yjeon@mail.cmich.edu

and

Stephen M. Miller*
University of Nevada, Las Vegas
Las Vegas, NV 89154-6005
USA
e-mail: stephen.miller@ccmail.nevada.edu
fax: (702)-895-1354
telephone: (702)-895-3969

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Abstract:

The last twenty years of the twentieth century witnessed regulatory change not seen since the Great Depression. That regulatory change, culminating with the Interstate Banking and Branching Efficiency Act of 1994, produced a significant consolidation within the banking industry, resulting from mergers and failures, that accelerated near the end of the century. Unlike the mergers and failures, the large numbers of new entrants did not receive the same attention. Nonetheless, the new entrants tempered the decline in the overall number of banking institutions. This paper examines correlates with the number of bank new-charters, failures, and mergers during the 1980s and 1990s. We employ the fixed- and random-effect regression technique – employing a normal, Poisson, and negative binomial distributions. Among the results, we find that increases in the number of branches relative to the number of banks significantly associate with fewer new charters (births) and more mergers (marriages). Interestingly, increasing the number of offices (banks plus branches) significantly associates with more deaths (failures).

Key Words: commercial banks, new charters, failures, mergers

JEL Classification: G2, L2

* Assistant Professor of Economics, Central Michigan University, and Professor and Chair of Economics, University of Nevada, Las Vegas. Prepared for the Eastern Economic Association meetings in Boston, March 2002.

1. Introduction

The Great Depression and the last two decades of the twentieth century witnessed two periods of dramatic regulatory and structural change in the U.S. banking industry. While many important regulations were enacted during the Great Depression, the 1980s and 1990s experienced the repeal and/or reversal of most depression-era financial regulations. Moreover, the 1980s and 1990s also experienced significant change from a system with much geographic limitation on banking and branching to one now characterized by interstate banking and branching.

Severe financial turbulence – the savings and loan debacle followed by the crisis in the commercial banking industry – also characterized the last 20 years of the twentieth century. Those crises produced failure rates among financial institutions not seen since the Great Depression. In addition, the regulatory changes that occurred in the 1980s and 1990s were triggered by those financial crises and problems. Conventional wisdom suggests that the emergence of interstate banking and branching generated a significant increase in mergers and acquisitions (Rhodes 2000, and Jeon and Miller 2001a). Together, a large exodus of institutions from the banking industry resulted from the large number of mergers and failures. Less well documented, but equally important, new charters counterbalanced that movement to some extent.

This paper focuses on important elements of those events – births (new charters), deaths (failures), and marriages (mergers) -- in the U.S. commercial banking industry. We consider the effects, if any, of the existing banking structure, the number of banks and branches, on the evolution of the U.S. banking industry by examining births, deaths, and marriages in each state. Moreover, our findings are conditioned on private business decisions such as portfolio and income statement. Two findings stand out. One, increases in the number of branches relative to the number of banks significantly associate with fewer new charters (births) and more mergers (marriages). Interestingly, increasing the number of offices (banks plus branches) significantly associates with more deaths (failures). Two, an increase in the non-interest proportion of total expenses significantly associates with fewer births, fewer marriages, but with fewer deaths.[1]

The paper progresses as follows. Section 2 provides an overview of regulatory and structural change over the past 25 years. Section 3 examines the existing literature that considers new charters, failures, and mergers. Section 4 describes the database and outlines the empirical tests. Section 5 concludes.

2. Regulatory and Structural Change: An Overview

The U.S. commercial banking industry has undergone significant regulatory adjustment in the last twenty years, including, but not limited to, the Depository Institution Deregulation and Monetary Control Act of 1980, the Depository Institution Act of 1982, and the Interstate Banking and Branching efficiency Act of 1994.[2]

Early in U.S. banking history, commercial banks received their charters from individual states and could not operate across state lines. The National Banking Act of 1864 permitted chartering of national banks by the Comptroller of the Currency, but this new legislation, although silent on the issue of branching by the national banks, was interpreted as conforming to existing prohibitions against branching across state borders. The McFadden Act of 1927 and the Banking Act of 1933 generally prohibited branching across state lines. Because of its regulatory

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[1] Jeon and Miller (2001b) examine possible causes of birth, death, and marriage rates, using ordinary least squares and Tobit analysis and a pooled data set. Our current paper uses the same database, but employs fixed and random-effects regression techniques under normal, Poisson, and negative binomial distribution assumptions with a panel data structure.

[2] Our historical discussion of banking regulation relies heavily on Kane (1996) and Kroszner and Strahan (1999).

history, the U.S. banking industry possesses many more independent institutions than is the norm in the rest of the world.[3]

Several loopholes existed, however, in the legal landscape. First, seven bank holding companies, who already operated across state lines at the time of the McFadden Act legislation, were grandfathered. But second, and more important, bank holding companies were permitted to acquire banks across state lines, if such actions were explicitly permitted by the states involved. That second loophole was first mined in 1975 when Maine adopted legislation that permitted out-of-state bank holding companies to acquire Maine banks, if reciprocity existed in the states of the acquiring holding companies. But substantial movement did not really begin until 1982 when New York passed similar reciprocity legislation and Massachusetts passed regional reciprocity legislation restricted to the New England states. The overture by New York led to a patchwork of regional reciprocity pacts over the next few years. Most states participated in one or more regional packs with California, New York, and Texas as notable exceptions (exclusions).

Although banks were allowed to acquire failed thrift institutions across state lines as a result of the savings and loan crisis, the bulk of bank mergers across state lines still proceeded through bank holding companies. Finally, and most recently, the Interstate Banking and Branching Efficiency Act of 1994 permitted banks to acquire banks in other states.[4]

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[3] At the other extreme, Canada currently has 8 domestic banks and 43 foreign banks. The domestic banks experienced a recent fall from 11 to 8 with the loss of the three smallest banks. Although relative large in number, foreign banks held just over 1 percent of total Canadian bank assets at the end of 1998. Information on the number and size of banking operations comes from the web site of the Office of the Superintendent of Financial Institutions at http://www.osfi-bsif.gc.ca/AndreE/Index.htm. The U.S., on the other hand, had 8,774 banks at the end of 1998. The U.S. banking data used come from the Federal Deposit Insurance Corporation on-line data posted at http://www2.fdic.gov/hsob.

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

Focusing our attention on intrastate, rather than interstate, banking, states were historically divided into three groups: (i) those states that allowed statewide branching with few restrictions, (ii) those states that allowed limited statewide branching with numerous restrictions, and (iii) those states that allowed only unit banking with essentially no branching activity. Legislative activity has gradually reduced the number of states to a very few that have unit banking or limited branching.

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

In sum, economic events and regulatory change have produced merger and failure activity in the U.S. commercial banking industry not seen since the Great Depression. Furthermore, many new commercial banks entered the market with new charters, tending to moderate the decline in the number of banking institutions.

3. Literature Review

Several papers explore the recent activity in new charters, failures, and mergers, although few consider all three activities together. Amos (1992) examines the regional pattern of commercial bank failure rates during the 1980s (i.e., 1982 to 1988). He uses the state as his level of observation and generates a cross-section sample of 50 observations by averaging the bank failure rate data across the 1982 to 1988 period. He introduces regulatory (e.g., dummy variables for branching regulation) and state-level macroeconomic variables (e.g., gross state product, sectoral composition of gross state product) to explain the pattern of bank closings. He concludes that states experience higher failure rates when the state's economy possesses a larger share in oil and gas extraction and more volatility in economic variables. He finds little evidence suggesting that failures correlate with the branching status dummy variables or states with higher concentrations of farming or manufacturing.

Cebula (1994) modifies and improves Amos's (1992) analysis in three ways. He introduces bank financial variables in addition to the state-level economic and regulatory variables. He also extends the sample through 1992 and adjusts the regression analysis for heteroskedasticity. He follows Amos (1992) and averages the data over the 1982 to 1992 period and performs cross-section regressions with 50 observations. He derives several additional general conclusions. States with higher capital ratios and lower net charge-offs to loans correlate with lower failure rates. More limited evidence emerges that easier regulation on branching and a higher average cost of funds associates with a higher bank-closing rate.

Chou and Cebula (1996) perform a similar analysis of the failure rates across states for the savings and loan industry. They consider savings and loan failures in each state over the 1985 to 1988 period relative to the average number of savings and loans in operation from 1984 to 1988. Since some of the observations on the failure rate are zero, they use the Tobit model with heteroskedastic errors. They find that four types of variables correlate significantly with the failure rate – regional economic conditions (e.g., the average growth rate of GSP), financial variables (e.g., the average cost of funds), regulatory structure (e.g., federally chartered stock institutions to all FSLIC-insured institutions), and political variables (e.g., dummy variables indicating that states had representation on the Senate Banking, Housing, and Urban Affairs

Committee or the House Banking, Finance, and Urban Affairs Committee). Their most robust findings include the following: failure rates associate negatively with the growth rate of gross state product, positively with the average cost of funds, positively with the proportion of stock (rather than mutual) associations, and negatively with federally chartered (rather than state chartered) stock associations.

Jeon and Miller (2001b) consider the correlates with new charters (birth) rates, failure (death) rates, and merger (marriage) rates for the fifty states and the District of Columbia for 1978 to 1998. They employ pooled ordinary least squares, homogeneous Tobit, and heterogeneous Tobit specifications. They report several findings. Other things constant, higher failures per bank occur in those states with more restrictive branching regulation. At the same time, less-restrictive state-level branching regulation correlates with more new charters and mergers. Interestingly, and counter to conventional wisdom, interstate branching and banking possess few significant effects on birth, death, and marriage rates. Coupling that lack of significant effects with the significant effects for the variable capturing intrastate branching effects cause Jeon and Miller to conclude that the birth, death, and marriage rates responded more to intrastate deregulation than to interstate deregulation.

DeYoung (1999) explores the life cycle of *de novo* banks in the U.S. since 1980. He finds that newly chartered banks possess lower failure rates than existing commercial banks during the first few years of operation. But, their failure rates rise to exceed that of existing banks after those first few years and then converge back to the failure rate of established banks over time. DeYoung then proposes a simple life-cycle model of *de novo* bank failure and tests that theory with a hazard model for a sample of 303 newly chartered banks. The initial capitalization of *de novo* banks explains their initial lower failure rates when they earn negative net incomes. The capital cushion, however, disappears before net income becomes positive and stable enough to stave off failure for those *de novo* banks that do fail. DeYoung concludes that if the policy objective focuses on eliminating the failure of newly chartered commercial banks, then regulators should increase the initial capital requirements for *de novo* entry. Significant increases of capital requirements, however, may too severely restrict the number of *de novo* entries in DeYoung's view. That is, regulators should not prevent all bank failures.

Amel and Liang (1997) apply a two-equation model of entry and performance (profitability) to the U.S. commercial banking industry. They examine the hypothesis that bank entry limits the persistence of above-average profits in a competitive environment. By entry, they mean new banks (new charters) or new branches. Their database includes the entry of new banks and new branches into local banking markets from 1977 to 1988 – over 4,000 entries into 2,300 local banking markets. They conclude that the competitive process exists in the U.S. commercial banking industry. That is, higher profits attract entry and entry reduces profits, if slowly. Moreover, market size and growth, measured by population and its growth, correlate positively with bank entry. Finally, legal branching restrictions do not play a major role in explaining bank entry.

4. Database and Empirical Tests

Database

The Federal Deposit Insurance Corporation reports balance sheet and income statement data aggregated for each state and the District of Columbia.[5] Our cross-section time-series database includes the 50 states and the District of Columbia over 23 years from 1966 to 1998 – a panel data set of 1652 observations.

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[5] The commercial bank balance sheet and income data on a state-by-state basis come from the Federal Deposit

Our analysis examines the determinants of births, deaths, and marriages as measured by new charters, failures, and mergers in each state (and the District of Columbia) for each year. Our explanatory variables in each state fall into two categories – financial information on the banks and banking structure variables.

The financial variables fall into three categories – portfolio allocation decisions, income and expense factors, and risk variables. The portfolio allocation decisions include equity to assets, loans to assets, and deposits to assets. The income and expense variables include net income to total assets, non-interest expense to total (interest and non-interest) expense, and non-interest revenue to total (interest and non-interest) income. Provisions for loan losses to total loans, reserves for loan losses to total loans, and net charge-offs to loans measure the riskiness of the portfolio.

Finally, two variables capture the baking structure within states – the number of banks and the number of branches.

Empirical Tests

The dependent variables in our regression analysis include the number of births (new charters), deaths (failures), and marriages (mergers).[6] For each dependent variable, we look for correlates with the dependent variables from state-level balance sheet and income statement data as well as banking structure data in each year from 1968 to 1998. For the regression analysis, we include the same set of independent variables for each dependent variable. We include portfolio allocation variables – loans to assets (*lta*), deposits to assets (*dta*), and equity to assets (*eta*); risk

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Insurance Corporation (http://www2.fdic.gov/hsob/).

[6] New charters include all new charters. In addition to *de novo* entry, the data also contain the combining of several existing charters, the conversion of one charter type to another, the absorption of banks from another charter, and so on. The reader needs to keep that point in mind when interpreting our results.

variables – provisions for loan losses to total loans (*plltl*), reserves for loan losses to total loans (*rlltl*), and net charge-offs to loans (*ncofftl*); income and expense variables – non-interest income to total income (*niiti*), non-interest expense to total expense (*niete*), and banking structure variables – the number of banks (*banks*) and branches (*branch*).

Finally, since the dependent variables are nonnegative integers including zero entries, we perform fixed- and random-effect Poisson and negative binomial regressions in addition to regular fixed- and random-effect ordinary least squares regressions.

Before proceeding to a discussion of the specific findings, we offer a few comments about the evolution of our research design. Jeon and Miller (2001b) considered birth, death, and marriage rates. While most observations were positive, some observations possessed zero values. Thus, for a cross-section, time-series pooled data set, they followed the path in the existing literature and adopted ordinary least squares (i.e., Amos 1992), homogeneous Tobit (Cebula 1994), and heterogeneous Tobit (Chou and Cebula 1996) specifications. Instead, this paper follows an alternative path. Focusing on the number of births, deaths, and marriages rather than on the birth, death, and marriage rates, we adopt counting regression techniques for the longitudinal data set. As such, we can then employ both the fixed- and random-effects regression techniques, providing an interesting dimension to the analysis.

A well-known problem with the Poisson specification is that it imposes the condition that the mean of the dependent variable equals its variance. If not true, then the Poisson regressions will provide biased estimates of the standard error and subsequent significance tests. Moreover, the problem usually arises as "over dispersion," where the estimated standard errors are too low causing the identification of erroneous significant coefficients. One potential solution to the over dispersion problem is the use of the negative binomial regression.[7]

Correlates with Bank New-Charters, Failures, and Merger

Results from Bank New-Charter Regressions. Table 1 reports the regression results for bank charters.[8] Note first that significant coefficients within a fixed-effect specification also come with the same-signed significant coefficients in the paired random-effects specification. The standard fixed- and random-effects specifications possess 3 significant coefficients – the coefficients of the number of banks, non-interest expense to total expense and loans to total assets. The Poisson specification jumps the number of significant coefficients to 8, adding 5 new coefficients – the coefficients of the number of branches, net income to total assets, provisions for loan losses to total loans, reserves for loan losses to total loans, and net charge-offs to total loans. The over dispersion problem contained in the Poisson specification leads to the negative binomial specification. Because the standard errors increase, two coefficients that were significant under the Poisson specification, once again are no longer significant – the coefficients of net income to total assets and reserves for loan losses to total loans.

More new charters significantly associate with more banks, given the number of branches, but fewer branches, given the number of banks. Both changes mean that the average number of branches to bank falls. That is, when the average number of branches to bank falls within a state, that state experiences more new charters.

Next, a higher level of net charge-offs to total loans, implying a higher fraction of

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[7] The STATA package provides conditional fixed-effects and random-effects Poisson and negative binomial routines, which we employ in our econometric analysis.

[8] Our discussion of results focuses primarily on those independent variables whose coefficients are significant at the 5-percent level of significance, or better. When the coefficient changes sign across the regular, Poisson, and negative binomial fixed- and random-effects specifications, we refer to the negative binomial results in our discussion.

problem loans in a state, significantly associates with fewer new charters. At the same time, a higher level of provisions for loan losses to total loans significantly associates with more new charters. Net charge-offs probably provide a better measure of the state banking systems risk level as it captures actual right-offs of loans held by banks in the state. Provisions for loan losses, on the other hand, reflect the ability of banks to set aside current income. When the banking system experiences stress, banks may not have the income that they can allocate toward provisions for loan losses.

Finally, states whose banks possess higher average loans to total assets or lower non-interest expenses to total expenses also experience significantly higher new charters. When evaluating these coefficients, we must remember that the effect holds net income per total assets constant. So an increase in loans to total assets holding net income to total assets constant means that the banking system relies more heavily on income from loans and less on income from securities when they book their net income. Thus, for a given net income to total assets, a higher ratio of loans to assets implies less productivity in generating loan income, since loan interest rates exceed interest rates on securities. At the same time, lower non-interest expenses to total expenses for a given level of net income total assets means that the state banking system relies less on labor and capital and more on deposits and other sources of funds to generate its income stream. So potential new entrants may see an opportunity to do well, since they will have lower non-interest expenses and some room may exist for improving the interest revenue from loans.

Results for Bank Failure Rate Regressions. Table 2 reports the regression results for bank failures. Note again that significant coefficients within a fixed-effect specification come with the same-signed significant coefficients in the paired random-effects specification, except for the coefficient of banks that is only significant in the regular random-effects specification and only significant for the conditional fixed-effect Poisson specification. Including banks in the calculation, the standard fixed- and random-effects specifications possess 5 significant coefficients – the coefficients of the number of banks, the number of branches, net income to total assets, non-interest income to total income and equity to total assets. The Poisson specification jumps the number of significant coefficients to 9, adding 4 new coefficients – the coefficients of non-interest expense to total expense, provisions for loan losses to total loans, reserves for loan losses to total loans, and net charge-offs to total loans. Using the negative binomial specification to address the potential over dispersion problem causes three coefficients that were significant under the Poisson specification to lose their significance because the standard errors increase – the coefficients of net income to total assets, provisions for loan losses to total loans, and net charge-offs losses to total loans. Finally, one new coefficient becomes significant – loans to total assets.

More mergers significantly associate with a fewer banks, given the number of branches, but more branches, given the number of banks. Both changes mean that the average number of branches to bank falls. That is, when the average number of branches to bank rises within a state, that state experiences more mergers.

Next, a higher level of reserves for loan losses to total loans associates, implying a higher accumulated stock of problem loans in a state, significantly associates with more mergers. Reserves for loan losses also probably provide a good measure of the state banking systems risk level as it captures the existing stock of possible write-offs in the near future held by banks in the state.

Finally, states whose banks possess higher average loans to total assets, higher average equity to total assets, higher average non-interest income to total income, or lower average non-interest expenses to total expenses also experience a significantly higher number of mergers. When evaluating these coefficients, we must, once again, remember that these effects hold net income per total assets constant. We discussed in the previous section the meaning of higher loans to total assets and lower non-interest expense to total expense. Here, we consider the other two coefficients. So an increase in equity to total assets holding net income to total assets constant means that the banking system relies more on capital and relies less on sources of funds to generate their net income. Thus, for a given net income to total assets, a higher ratio of equity to total assets implies more productivity in generating income from the resource base. At the same time, higher non-interest income to total income for a given level of net income to total assets means that the state banking system relies less on loan and security income and more on off-balance sheet income to generate its income stream.

Results for Bank Merger Rate Regressions. Table 3 reports the regression results for bank mergers. Note once again that significant coefficients within a fixed-effect specification come with the same-signed significant coefficients in the paired random-effects specification. The standard fixed- and random-effects specifications possess 5 significant coefficients – the coefficients of the number of banks, the number of branches, net income to total assets, non-interest income to total income and net charge-offs to total loans. The Poisson specification jumps the number of significant coefficients to 10, adding 5 new coefficients – the coefficients of non-interest expense to total expense, loans to total assets, equity to total assets, provisions for loan losses to total loans, and reserves for loan losses to total loans. Using the negative binomial specification to address the potential over dispersion problem causes one, maybe two, coefficients that were significant under the Poisson specification to lose their significance because the standard errors increase – the coefficients of net income to total assets and provisions for loan losses to total loans. The coefficient of net income to total assets is significant at the 5-percent level in the conditional fixed-effect negative binomial specification, but not in the random-effects negative binomial specification.

More failures significantly associate with a more banks, given the number of branches, and more branches, given the number of banks. Both changes mean that the average number of offices increases. That is, when the average number of offices rises within a state, that state experiences more failures.

Next, a higher level of reserves for loan losses to total loans or a higher level of net charge-offs to total loans significantly associates with more failures. As noted above, reserves for loan losses and net charge-offs probably provide good measures of the state banking systems risk level as they capture the existing stock of actual and possible future write-offs held by banks in the state.

Finally, states whose banks possess lower average loans to total assets, higher average equity to total assets, higher average non-interest income to total income, or lower average non-interest expenses to total expenses also experience a significantly higher number of failures. When evaluating these coefficients, we must, once again, remember that these effects holds net income per total assets constant. We discussed in the previous sections the meaning of each of these coefficients. Here, we note that the coefficients of non-interest income to total income, non-interest expense to total expense have the same effects on mergers and failures. That may not provide a conundrum, since within U.S. commercial banking, the bright line between mergers and failures is not well drawn. That is, many mergers may have eventually led to failure if the merger had not intervened. The coefficient on equity to total assets in this regression seems counterintuitive. Some reverse causality may offer a compelling explanation. That is, if a state experiences a higher number of failures, then it probably lost banks that had lower equity to assets, on average. If accurate, then the average level of equity to assets should increase in that state.

5. Conclusion

Regulatory change not seen since the Great Depression swept the U.S. banking industry beginning in the early 1980s and culminating with the Interstate Banking and Branching Efficiency Act of 1994. Banking analysts anticipated dramatic consolidation with large numbers of mergers and acquisitions. Less well documented, but equally important, was the continuing entry of new banks, tempering the decline in the overall number of banking institutions.

This paper examines births, deaths, and marriages in the commercial banking industry. We test for the correlates with the number of births, deaths, and marriages from a set of balance sheet and income variables and banking structure variables. We employ fixed- and random-effects regressions under the normal, Poisson, and negative binomial distribution assumptions.

Several general findings deserve mention. First, as the number of branches relative to the number of banks increases, a significant decrease in new charters (births) and increase in mergers (marriages) occurs. Interestingly, as the number of offices (banks plus branches) rises, a significant rise in deaths (failures) occurs.

Second, an increase in the non-interest proportion of total expenses significantly associates with fewer births, fewer marriages, but with fewer deaths. At the same time, an increase in non-interest income to total income significantly associates with more marriages and more deaths. Increases in loans to total assets significantly associates with higher numbers of marriages and lower numbers of deaths. On the other hand, increases in equity to total assets significantly associates with a higher number of marriages and deaths.

Finally, higher provisions for loan losses to total loans significantly associates with more births. Higher reserves for loan losses significantly associates with more marriages and more deaths. Then higher net charge-offs to total loans significantly associates with fewer births, but more deaths. That is, the results suggest that reserves for loan losses and net charge-offs provide better measures of risk in the banking system than provisions for loan losses. Since provisions for loan losses reflect an ability to offset other profits, provisions are set aside when the bank is not experiencing very difficult situations.

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Table 1: Regression Results with New Charters as the Dependent Variable

Inde-pendent Variable	(1) Fixed-Effects Regression Model			(2) Random-Effects Regression Model			(3) Conditional Fixed-Effects Poisson Model			(4) Random-Effects Poisson Model			(5) Conditional Fixed-Effects Negative Binominal Model			(6) Random-Effects Negative Binomial Model		
	Coef.	t	P>|t|	Coef.	t	P>|t|	Coef.	t	P>|t|	Coef.	t	P>|t|	Coef.	t	P>|t|	Coef.	t	P>|t|
banks	0.0444	16.21	0.000	0.0251	17.21	0.000	0.0011	8.82	0.000	0.0013	10.21	0.000	0.0006	3.14	0.002	0.0009	4.72	0.000
branch	-0.0004	-0.67	0.504	-0.0011	-2.82	0.005	-0.0004	-11.21	0.000	-0.0003	-9.60	0.000	-0.0003	-5.33	0.000	-0.0002	-4.14	0.000
nita	30.7244	0.48	0.633	48.3476	0.74	0.459	19.3557	3.00	0.003	20.8387	3.24	0.001	11.0633	1.12	0.261	13.4870	1.38	0.167
niiti	6.7623	1.01	0.311	-3.0423	-0.46	0.649	-0.5969	-0.80	0.426	-0.7363	-0.98	0.325	-0.7893	-0.76	0.448	-0.9603	-0.93	0.354
niete	-10.6772	-3.67	0.000	-7.9930	-2.71	0.007	-2.5212	-8.20	0.000	-2.3858	-7.78	0.000	-1.7488	-3.89	0.000	-1.6194	-3.62	0.000
lta	21.0046	6.13	0.000	20.5000	6.08	0.000	4.1556	12.07	0.000	3.8384	11.21	0.000	3.5246	6.97	0.000	3.2850	6.58	0.000
dta	-1.4769	-0.38	0.703	-3.0491	-0.78	0.436	-0.7146	-1.56	0.119	-0.7456	-1.64	0.101	-0.8613	-1.37	0.172	-0.8197	-1.31	0.189
eta	6.3033	0.35	0.725	-12.1933	-0.68	0.495	2.1254	1.15	0.251	1.3701	0.75	0.456	3.3612	1.15	0.250	2.8297	0.98	0.328
plltl	-16.7293	-0.29	0.773	21.5728	0.36	0.719	29.9281	4.61	0.000	29.5885	4.56	0.000	26.7946	2.71	0.007	27.0582	2.75	0.006
rlltl	6.4896	0.18	0.858	2.9980	0.08	0.936	-9.4284	-2.43	0.015	-9.0864	-2.36	0.018	-1.1828	-0.19	0.849	-1.2702	-0.21	0.837
ncofftl	-70.9068	-1.16	0.246	-44.2510	-0.70	0.487	-27.8910	-3.96	0.000	-28.6157	-4.06	0.000	-26.6448	-2.41	0.016	-26.9535	-2.45	0.014
cons				-6.1567	-1.35	0.176				0.7383	1.52	0.129				0.0363	0.05	0.958

Note: The Table reports results of panel data regressions of fixed- and random-effects regressions for normal, Poisson, and negative exponential distributions. The dependent variable is the number of new bank charters in each state and the District of Columbia from 1966 to 1998. The independent variables include the number of banks (*bank*), the number of branches (*branches*), net income to total assets (*nita*), non-interest income to total income (*niiti*), non-interest expense to total expense (*niete*), loans to total assets (*lta*), deposits to total assets (*dta*), equity to total assets (*eta*), provisions for loan losses to total loans (*plltl*), reserves for loan losses to total loans (*rlltl*), net charge-offs to total loans (*plltl*), and a constant (*cons*). In the column headings, Coef. means the coefficient estimate; t means the t-statistic; and P > |t| means the probability that the coefficient estimate is significantly different from zero.

Table 2: Regression Results with Mergers as the Dependent Variable

Inde-pendent Variable	(1) Fixed-Effects Regression Model			(2) Random-Effects Regression Model			(3) Conditional Fixed-Effects Poisson Model			(4) Random-Effects Poisson Model			(5) Conditional Fixed-Effects Negative Binominal Model			(6) Random-Effects Negative Binomial Model		
	Coef.	t	P>|t|	Coef.	t	P>|t|	Coef.	t	P>|t|	Coef.	t	P>|t|	Coef.	t	P>|t|	Coef.	t	P>|t|
banks	-0.0067	-1.56	0.118	0.0104	7.40	0.000	-0.0005	-3.29	0.001	-0.0002	-1.36	0.172	-0.0010	-5.80	0.000	-0.0008	-4.78	0.000
branch	0.0093	10.52	0.000	0.0051	12.05	0.000	0.0003	10.60	0.000	0.0004	12.22	0.000	0.0004	9.23	0.000	0.0004	10.41	0.000
nita	-356.6096	-3.56	0.000	-372.1415	-3.92	0.000	-73.5068	-13.94	0.000	-72.0924	-13.75	0.000	-19.5379	-1.90	0.057	-18.0669	-1.78	0.075
niiti	28.0891	2.71	0.007	46.5766	4.80	0.000	6.5481	12.67	0.000	6.6575	12.94	0.000	2.8245	2.78	0.005	2.9789	2.94	0.003
niete	-2.6736	-0.59	0.555	-6.7670	-1.54	0.123	-2.5771	-11.37	0.000	-2.5478	-11.27	0.000	-1.5374	-3.21	0.001	-1.5784	-3.30	0.001
lta	-6.6061	-1.24	0.216	1.9944	0.42	0.674	-0.2733	-1.13	0.258	-0.3936	-1.64	0.102	1.5842	3.10	0.002	1.4521	2.88	0.004
dta	5.7102	0.95	0.343	14.6853	2.58	0.010	-0.0428	-0.13	0.900	0.0818	0.24	0.810	0.0347	0.06	0.956	0.3176	0.51	0.609
eta	65.4271	2.35	0.019	124.7606	4.81	0.000	20.9971	15.26	0.000	20.7876	15.21	0.000	16.9222	6.38	0.000	17.0503	6.52	0.000
plltl	-71.5677	-0.79	0.428	-54.2620	-0.60	0.551	-27.8284	-6.34	0.000	-27.5990	-6.30	0.000	-5.5010	-0.62	0.535	-4.9361	-0.56	0.575
rlltl	51.6905	0.92	0.358	-18.5307	-0.33	0.743	23.4321	8.53	0.000	22.9422	8.38	0.000	20.3871	3.75	0.000	19.4201	3.62	0.000
ncofftl	-16.1895	-0.17	0.865	-33.0195	-0.34	0.737	10.4739	2.31	0.021	9.2604	2.05	0.040	-7.2033	-0.73	0.463	-8.0067	-0.82	0.410
_cons				-21.4242	-3.32	0.001				0.7401	1.91	0.056				-2.2987	-3.56	0.000

Note: See table 1. The dependent variable is the number of mergers in each state and the District of Columbia from 1966 to 1998.

Table 3: Regression Results with Failures as the Dependent Variable

Inde-pendent Variable	(1) Fixed-Effects Regression Model			(2) Random-Effects Regression Model			(3) Conditional Fixed-Effects Poisson Model			(4) Random-Effects Poisson Model			(5) Conditional Fixed-Effects Negative Binominal Model			(6) Random-Effects Negative Binomial Model		
	Coef.	t	P>|t|	Coef.	t	P>|t|	Coef.	t	P>|t|	Coef.	t	P>|t|	Coef.	t	P>|t|	Coef.	t	P>|t|
banks	0.0156	6.77	0.000	0.0060	7.05	0.000	0.0014	4.80	0.000	0.0014	6.19	0.000	0.0004	2.00	0.046	0.0007	3.59	0.000
branch	0.0037	7.78	0.000	0.0008	3.25	0.001	0.0010	10.47	0.000	0.0009	12.02	0.000	0.0004	5.41	0.000	0.0005	6.68	0.000
nita	-248.1555	-4.58	0.000	-234.0711	-4.54	0.000	-36.6174	-3.81	0.000	-35.1943	-3.71	0.000	-34.4116	-2.46	0.014	-25.2241	-1.88	0.060
niiti	18.6357	3.32	0.001	18.5123	3.52	0.000	6.0593	5.06	0.000	6.5533	5.63	0.000	3.5454	2.07	0.038	4.2077	2.55	0.011
niete	-1.2498	-0.51	0.610	-3.0480	-1.29	0.196	-4.2804	-7.57	0.000	-4.3491	-7.83	0.000	-3.7460	-4.43	0.000	-3.9030	-4.77	0.000
lta	-4.6955	-1.63	0.103	-0.6135	-0.24	0.813	-5.4015	-7.77	0.000	-5.3215	-8.32	0.000	-2.0077	-2.10	0.036	-1.9226	-2.10	0.035
dta	4.7966	1.47	0.141	7.6521	2.48	0.013	-0.3584	-0.40	0.686	0.6342	0.73	0.468	-1.6101	-1.38	0.168	0.2768	0.24	0.810
eta	-39.8029	-2.65	0.008	-18.1185	-1.29	0.197	8.9819	2.18	0.029	9.8971	2.50	0.012	18.8900	3.51	0.000	17.2397	3.41	0.001
plltl	-112.4796	-2.30	0.021	-82.0769	-1.69	0.091	-34.9076	-4.50	0.000	-30.1056	-3.93	0.000	-5.3649	-0.49	0.623	2.1624	0.21	0.833
rlltl	49.2175	1.62	0.106	31.1802	1.04	0.301	32.2542	5.80	0.000	30.3545	5.56	0.000	26.5579	3.37	0.001	24.7902	3.30	0.001
ncofftl	193.2202	3.76	0.000	212.3618	4.08	0.000	108.8493	13.75	0.000	103.9073	13.26	0.000	59.4630	5.86	0.000	51.2563	5.68	0.000
_cons				-5.6603	-1.61	0.109				0.4965	0.50	0.615				-1.2051	-0.92	0.358

Note: See Table 1. The dependent variable is the number of failures in each state and the District of Columbia from 1966 to 1998.