

## *Business Failures in New England*

**D**uring the 1980s, the New England economy prospered relative to the nation as a whole, with lower unemployment rates, more rapidly rising real estate prices, and lower rates of business failures. As the economic tide turned against New England at the end of the decade, the unemployment rate rose, real estate prices fell, and the rate of business failures soared, in absolute terms as well as relative to nationwide statistics. However, this recent wave of business failures appears to be far in excess of that attributable to the decline in New England economic activity.

The sharp rise in business failure rates in New England has several undesirable implications for the regional economy. Firms that cease to exist will not rehire workers as the economy recovers, so employees must seek alternative sources of employment. And, the buildings and equipment of failed businesses may not be easily converted for use by other businesses. Moreover, banks that have suffered from a spate of business bankruptcies among their loan customers may be less willing and less able to finance new ventures. Finally, entrepreneurs may be discouraged from undertaking new ventures if the chances of success appear remote. Each of these factors would tend to slow economic recovery.

One possible reason for the recent increase in business failures may be that New England has been disproportionately affected by the current economic downturn. But while the New England unemployment rate did rise substantially more (and New England payroll employment decline substantially more) than the national rate, the relative increase seems small in comparison to the rise in the New England business failure rate. Furthermore, the New England unemployment rate in this recession attained a peak only slightly higher than in the previous recession, while a business failure rate that more than doubled is far out of line with recent business cycle experience in New England. In fact, over the years the business failure rate in New England has

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shown surprisingly little response to business cycle movements. An alternative explanation might be an industry mix effect, with the industries most severely affected by the weak economy also being the major industries in New England. The evidence, however, indicates that most industries in New England experienced similar increases in their failure rates.

A third possible explanation could be problems with credit availability. Many businesses use real estate to secure loans, and this collateral diminished in value significantly during the real estate deflation of the late 1980s and early 1990s. The impact of this deflation on bank capital was considerable. The widespread loss of bank capital primarily associated with the real estate bust caused many banks to fall below required capital-to-asset ratios. As a consequence, many banks in New England failed, and many of the survivors were forced to raise their capital-to-asset ratios. They accomplished this primarily by shrinking liabilities and assets, in particular, loans. The combination of bank failures and bank shrinkage severed many historical lending relationships as old loans were called, credit lines were not renewed, and new loans often were unavailable from a firm's traditional lenders. This decline in credit availability was particularly troublesome for small and medium-sized firms that relied primarily on bank loans to satisfy their credit needs. The evidence presented in this article indicates that difficulties in the banking sector have contributed significantly to the very high rate of business failures in New England.

### *I. A Description of Business Failures*

A company gets into financial distress when it does not have sufficient cash flow to meet its obligations to creditors. When a company fails to make timely payment on a debt, creditors frequently will try to force the company to sell part or all of its assets to meet the debt payment. The distressed company may be able to avoid liquidating its assets while it tries to reorganize the business, either by privately renegotiating its financial obligations with its creditors or by filing for protection from its creditors under the 1978 Bankruptcy Code. Alternatively, the business can cease operations and liquidate its assets. This action may or may not be accompanied by a filing for bankruptcy. Since shareholders have limited liability as a result of incorporating, many smaller incorporated businesses with few or no assets choose not to file formally for bankruptcy. This study will

focus on total business failures, including not only firms that cease operations and file for bankruptcy but also those that liquidate their business (with losses to creditors) without the oversight of the courts.

If a company decides to file for bankruptcy, one option is to file under Chapter 7 of the Bankruptcy Code and liquidate company assets under the supervision of the court. Once the assets are sold, the court distributes the funds among the creditors according to the absolute priority rule, which states that creditors will be paid according to the seniority of their claims. According to summary tables for 1992 compiled by the Administrative Office of the United States Bankruptcy Courts, Chapter 7 filings represented 43 percent of total U.S. business bankruptcy filings.

Most large businesses and many small businesses initially file for bankruptcy under Chapter 11, however. This category represented 29 percent of all 1992 business bankruptcy filings. The underlying assumption of Chapter 11 is that the value of the business as a "going concern" is greater than the value of the liquidated assets. A company that files for bankruptcy under this chapter is provided temporary relief from its creditors while the debtor prepares a plan to reorganize. Moreover, the existing managers usually continue to operate the company after filing for Chapter 11 protection, although they are closely monitored by the creditors. To emerge from bankruptcy as a going concern, the company's reorganization plan must be approved by a majority of each class of creditors and by two-thirds of the book value of each class of creditors.<sup>1</sup>

Despite the fact that Chapter 11 offers the company the chance to remain a going concern, most companies that file under Chapter 11 ultimately choose to liquidate their assets, either because of their financial condition or because they cannot satisfy the competing claims of their creditors. Analyzing Chapter 11 cases filed from 1979 to 1986, Flynn (1989) found that, of the 78,911 Chapter 11 cases that were closed, only 7 percent of the companies emerged from bankruptcy as a going concern, while 36 percent of the cases were converted to Chapter 7 for liquidation.<sup>2</sup> Fifty-five percent of the cases did not have a reorganization plan confirmed, and the companies were liquidated within Chapter 11. The remaining 2

<sup>1</sup> In a reorganization plan, creditors are assigned to a class based on the similarity of their claims. For example, secured and unsecured creditors are in different classes, and a separate class can be established for small claims to be paid in full.

<sup>2</sup> Of the 28,640 Chapter 11 cases that were converted to Chapter 7, 70 percent had no assets to liquidate.

percent of the closed Chapter 11 cases were converted to Chapters 12 or 13.<sup>3</sup>

The principal source of data on business failures is the Dun & Bradstreet Corporation. Business failures are defined as those businesses that ceased operations with the result that creditors suffered losses. That is, companies that pay their creditors in full when they go out of business are not included. The data are compiled from bankruptcy court filings, credit management groups, boards of trade, and notices of business closings. Because Dun & Bradstreet expanded its coverage of business failures in 1984 to include additional industries, the post-1984 data on the number of failures are not directly comparable with the pre-1984 data.<sup>4</sup>

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For the purposes of this study, the Dun & Bradstreet business failure data have a number of advantages over the bankruptcy filings collected by the Administrative Office of the United States Courts. The primary advantage is that the business failure data are more comprehensive than the bankruptcy filing data. In addition, because the Dun & Bradstreet data include only firms that cease operations, they count firms at the time they discontinue operations, not when they file for bankruptcy protection. The data do exclude financially troubled firms that successfully reorganize privately or through Chapter 11, but this exclusion is not a serious problem for this study. While social costs are associated with successfully reorganizing a company, either privately or under Chapter 11, the firms that successfully reorganize represent only a small fraction of the businesses that get into serious financial difficulty. Moreover, the costs to the economy of a successful reorganization are not as large as those of a business failure.<sup>5</sup> Companies that go out of business also incur some of the same direct and indirect costs of distress and, as noted above, failed companies impose additional costs on society because they do not rehire

workers or reemploy their capital as the economy recovers.

The Dun & Bradstreet data have two additional advantages. First, they can be disaggregated by industry, while the bankruptcy filings data cannot. Second, because the Bankruptcy Code was changed in 1978, the business failure data provide a longer time series of consistently measured data.<sup>6</sup>

Figure 1 shows the business failure rate for New England, the number of business failures expressed as a percent of the total number of businesses, from 1950 to 1992. Because Dun & Bradstreet expanded its coverage in 1984, the data were compared with the bankruptcy statistics compiled by the Administrative Office of the United States Bankruptcy Courts for the period after the 1978 change in the Bankruptcy Code. The two series generally move together, suggesting that, for the purposes of this study, the change in coverage in the business failure data is not a serious drawback.<sup>7</sup> For this reason, Dun & Bradstreet data were used for the remainder of this study.

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<sup>3</sup> Chapter 12 bankruptcies pertain to farms and represent only 2 percent of 1992 business filings. Chapter 13 is for individuals who have regular incomes and also own a business. Chapter 13 filings represent 16 percent of 1992 business filings.

<sup>4</sup> In 1984, Dun & Bradstreet expanded coverage of business failures to include the following additional industry sectors: agriculture, forestry and fishing; finance, insurance and real estate; and the services sector. In addition, over time Dun & Bradstreet has continued to identify and add to its coverage of existing businesses, especially over the past three years. Thus, the time series for the number of business failures would tend to overstate the actual growth rate of business failures.

<sup>5</sup> Both direct costs and indirect costs are associated with business reorganization. Direct costs include legal fees, accountant fees, consultant fees, and filing fees in the case of Chapter 11 reorganizations. Indirect costs include the cost of sales lost because consumers are concerned about doing business with a company that may be out of business in a short period of time, the increased operating costs associated with the loss of employees and the increased cost of capital, and costs that occur because the firm can become less competitive when it is in financial distress.

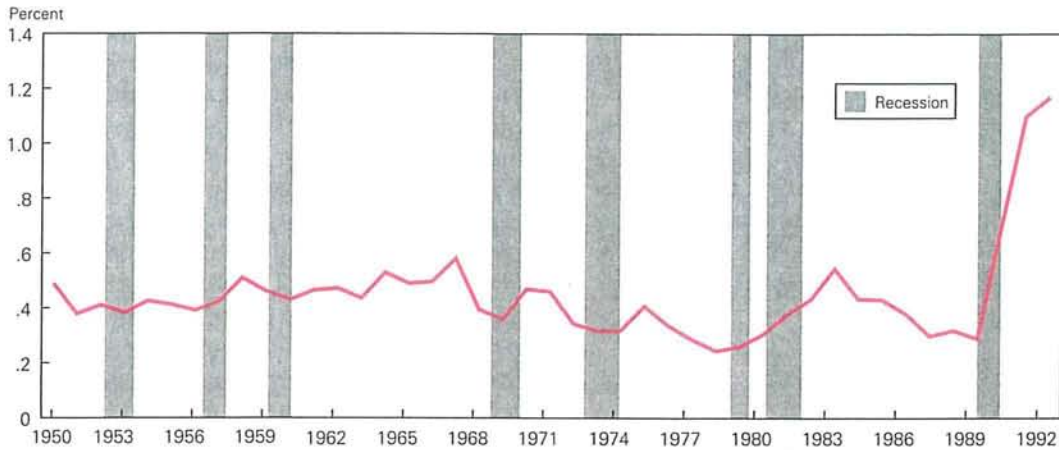
<sup>6</sup> Failure rates are preferable to bankruptcy rates because they are less susceptible to legal changes. The changes in the 1978 Bankruptcy Code encouraged firms to file for bankruptcy (see Bradley and Rosenzweig 1992). However, most business failures with creditor losses probably would have occurred regardless of the Bankruptcy Code provisions.

While the impact of the expanded coverage of the Dun & Bradstreet data, particularly in 1984 and again in the past few years, can be seen in both the number of failures and the number of businesses, any distortion of their ratio, the failure rate, should be minor. To guard against distortions in the failure rate due to the increasing breadth of coverage, Dun & Bradstreet calculates the failure rate using only the failures of businesses listed in its census of businesses.

<sup>7</sup> The bankruptcy statistics include businesses that filed under Chapters 7, 11, 12, or 13. The timing of the two series differs because the Bankruptcy Courts' data are compiled by fiscal year, while the Dun & Bradstreet data are compiled by calendar year.

Figure 1

*Business Failure Rate in New England*



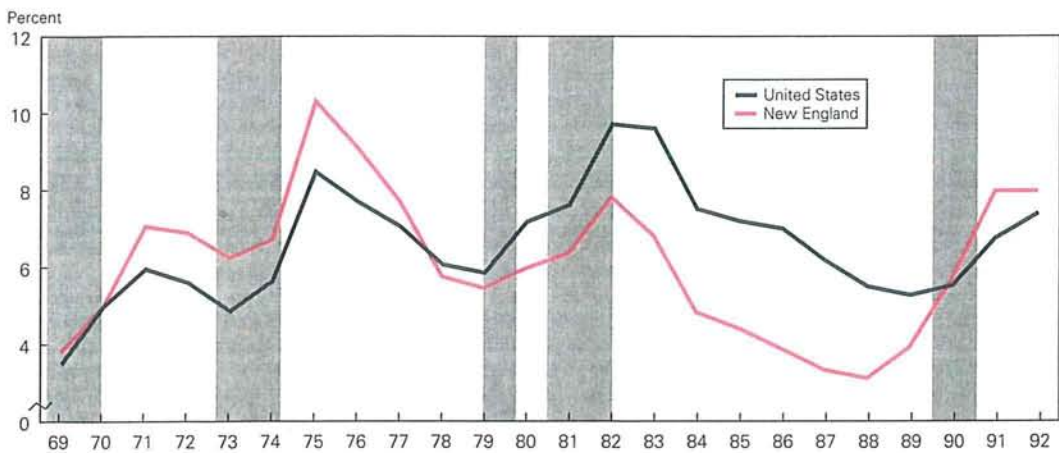
Source: Dun & Bradstreet Corporation.

For the past three years, the failure rate for New England businesses has been dramatically higher than at any time in the previous 40 years (Figure 1). The absence of a pronounced business cycle movement in the series is striking. Unemployment rates in

New England and in the United States also provide some evidence that the higher failure rate in New England is not due solely to the recent recession (Figure 2). While the unemployment rate in New England did rise substantially between 1988 and

Figure 2

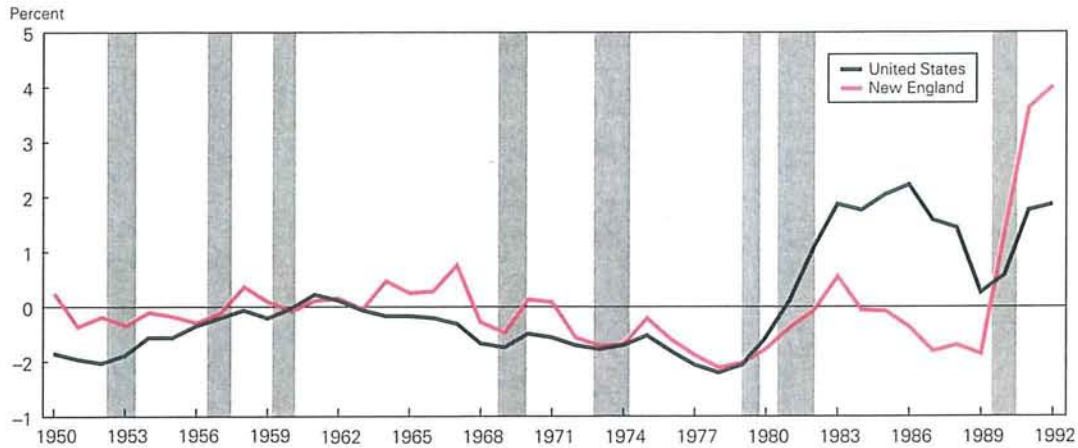
*Unemployment Rates*



Source: U.S. Bureau of Labor Statistics.

Figure 3

### Standardized<sup>a</sup> Business Failure Rates



a) Rates adjusted for differences in their means and standard deviations. Source: Dun & Bradstreet Corporation.

1992, it did not exceed the national rate by enough to correspond to the much higher business failure rate in New England. Furthermore, the New England unemployment rate for 1992 was only slightly higher than its 1982 value and substantially below the rate in 1975. Given that neither 1975 nor 1982 were years with substantial numbers of business failures in New England, the very high rate associated with the past recession stands out as being atypical of recent business cycle experience.

In Figure 3, the business failure rates for New England and the United States have been adjusted for differences in their means and standard deviations. (The mean failure rate over the period 1950 to 1990 is subtracted from the annual failure rate and the result is then divided by the standard deviation of the failure rate.) This adjustment permits an evaluation of whether recent failure rates were unusually high relative to historical experience, as well as comparisons of two failure rates with different means and standard deviations.<sup>8</sup>

The adjusted business failure rate for the United States over the past two years is high relative to its average over the past 40 years, but it is lower than it was in the periods associated with the 1980 and 1982 recessions and the problems in the farm and oil sectors in the mid 1980s. The adjusted New England failure rate is nearly twice that of the nation over the

past three years, while the New England unemployment rate is only slightly higher than the national average. The recent New England failure rate is also very high relative to its own values in previous business cycle troughs.

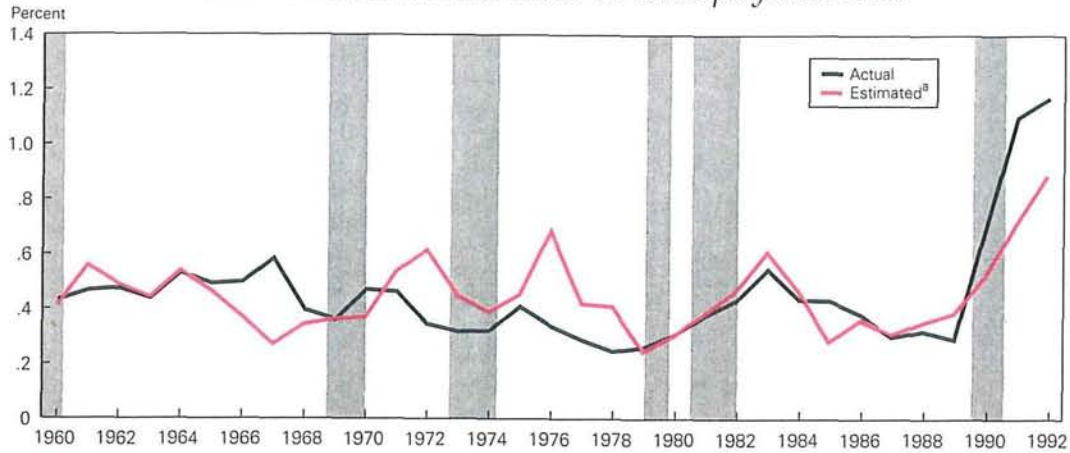
## II. New England Business Failures and the Economy

While more business failures occur during a general economic downturn, the increase in the New England failure rate in previous recession periods was not striking. This may reflect the ability of most businesses and creditors to weather general recessions, so long as economic problems are not unusually severe or do not last for an extended period. The mid 1980s' bulge in the national business failure rate

<sup>8</sup> Failure rates may exhibit different means and standard deviations because of differences in the composition of businesses (size, sensitivity to business cycles, new incorporations), differences in the willingness to declare bankruptcy, and differences in the pattern of economic shocks. For example, regions of the country experiencing frequent and sizable economic downturns are likely to structure their business (and its financing) to withstand the normal range of shocks because borrowers, lenders, and employees are aware of the business risks. In that case, only unusually severe shocks would result in abnormally high failure rates for that region.

Figure 4

*Actual Business Failure Rate in New England  
and the Estimated Rate Based on Unemployment Data*



a) Based on regressions using three lagged values of the rate of growth in payroll employment. See Table 1. Source: Dun & Bradstreet Corporation (actual data).

(Figure 3) was primarily the result of business failures in oil-dependent and farm states. The decrease in oil prices was particularly dramatic, and recovery from the oil shock extended over several years. Similarly, the effects of the sharp declines in prices of agricultural land and crops showed up prominently in the national data because these effects were widespread.

The New England unemployment rate during the most recent recession, while high, was not dramatically higher than in earlier recessions. However, this high unemployment rate has persisted since 1990 and has yet to show any dramatic decline. Even so, it may understate the extent of the problems in the New England economy. Regional unemployment rates may mask the extent of the regional decline in jobs, as unemployed workers migrate to other areas of the country where job prospects are better; for this reason, the change in payroll employment may better capture the depth and extent of the economic downturn. In fact, nonfarm payroll employment for New England has declined far more dramatically in the recent recession than unemployment rates have risen. Regional payroll employment data are also available over a longer period of time than are regional unemployment rates, with the annual growth rate in New England payroll employment available back to 1956.

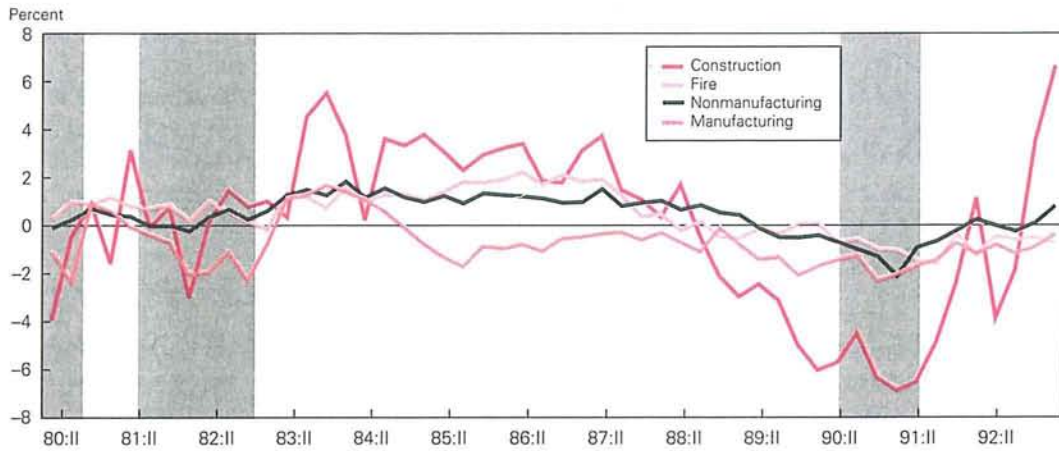
Can the duration and severity of the effects of this recession in New England account for the region's high rate of business failures? That is, can cyclical economic variables explain most of the increase in business failures? To answer this question, the study regressed the New England business failure rate on three lagged values of the rate of growth in payroll employment in New England (column 1 in Table 1, below). The business failure rate predicted by this regression is compared with the actual failure rate in Figure 4. The business failure rate is overpredicted in the 1975 and 1982 recessions and substantially underpredicted for the past three years. This suggests that additional factors, not captured by the employment series alone, may be needed to explain the recent extremely high rate of business failures in New England.

### *III. Industrial Composition of Business Failures*

Not only did New England experience economic difficulties as a result of the nationwide recession, but the region also suffered from a substantial decline in real estate prices. This particularly affected industries directly related to real estate, such as construction.

Figure 5

*New England Unemployment Growth, by Industry*



Source: U.S. Bureau of Labor Statistics.

Growth rates for payroll employment by major industry grouping in New England are shown in Figure 5. While construction accounted for only 3 percent of nonfarm employment in New England at the end of 1992, it has shown great volatility over the past decade. During the early and mid 1980s, construction employment grew more rapidly than employment in other New England industries. After the sharp drop in real estate prices, construction employment decreased sharply and continued to drop for an extended period. By 1989, most other industries also exhibited decreases in employment, which persisted over the following two years. (One exception to this pattern is the much earlier decline in manufacturing employment, which began in 1984 and continues to the present.) Thus, the decline in New England employment associated with the most recent recession was spread across all industries, with only the decrease in the construction industry standing out.

Figure 6 shows the pattern of New England business failures starting in 1984, when Dun & Bradstreet first began publishing regional data on failures by industry. While the construction industry does have the highest failure rate, it is not dramatically higher than those in other industries. The similarity of failure rates across industries may reflect the ability of some industries to reduce their labor force to

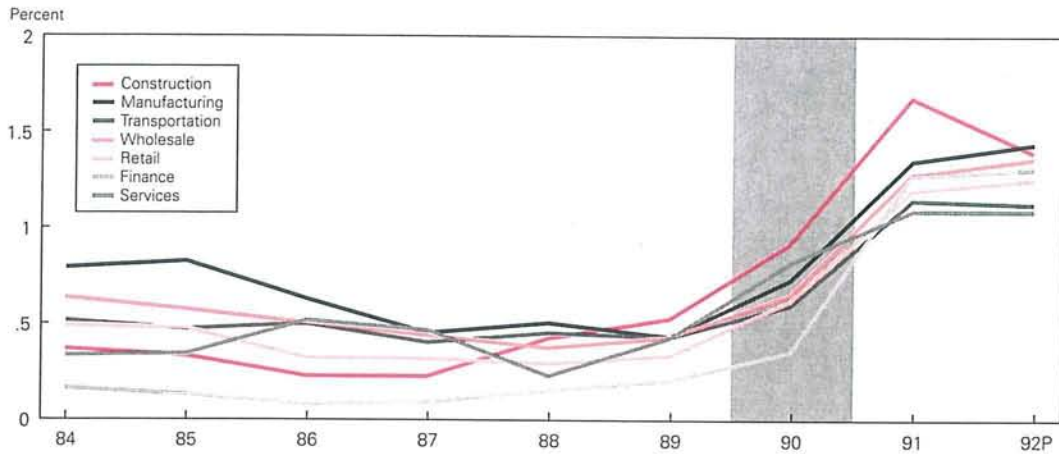
prevent, or at least delay, failure. For example, if construction firms can react to a severe downturn by relying on skeleton crews until conditions improve, the firms may not fail even though construction employment declines dramatically. In addition, firms in highly cyclical industries may structure themselves so as to reduce the probability of firm failure over a typical business cycle, for example, by being better capitalized.<sup>9</sup>

The severe decline in real estate prices may have affected most types of businesses, rather than simply those directly related to real estate, because of the general dependence on real estate to collateralize loans. Much business financing is asset based, and a general decline in real estate prices reduces the value of collateral, making it more difficult for all businesses to obtain new financing and perhaps even to retain credit lines already in place. If businesses in noncyclical industries had assumed in their long-term financial planning that nominal prices of collateral would remain constant or grow, decreases in the

<sup>9</sup> In addition to the ways a firm might structure its finances, it could also structure labor contracts, supplier agreements, proportions of fixed versus variable costs, and lease versus ownership decisions to give the firm the maximum flexibility during an economic downturn.

Figure 6

*New England Business Failure Rate, by Industry*



Source: Dun & Bradstreet Corporation.

amount of available collateral could place a severe strain on the firm. Thus, while the failure rate is not concentrated in any particular industry, the extent of business failures still may be tied to credit availability.

**IV. Credit Availability and Business Failures**

Business failures among loan customers cause severe problems for banks, reducing loan loss reserves and, usually, bank capital as banks replenish their depleted loan loss reserves. Thus, business failures would contribute to subsequent bank failures. It is possible, however, that the causation could run in the opposite direction as well, with lender problems being transmitted to borrowers. To the extent that banks with depleted capital reduce or deny credit to borrowers reliant on banks for financing, these credit availability problems might be expected to lead to more business failures.

Much attention has been focused recently on whether problems with credit availability may be thwarting the economic recovery. A number of recent studies have found that banks whose capital has become depleted have reduced their holdings of loans.<sup>10</sup> Of particular relevance is the evidence that

bank capital problems in the New England region have been widespread and particularly severe. Furthermore, Peek and Rosengren (1993b) have shown that, as a consequence of signing regulatory agreements that require them to improve bank capital ratios, New England banks have reduced lending to bank-dependent borrowers such as small and medium-sized businesses.

While reducing loans to satisfy capital requirements at one particular bank can disrupt historical lending relationships, the disruptions should be short-lived so long as some well-capitalized banks are available as lending alternatives. If, however, the capital problems in a region are widespread, as was the case in New England, no immediate alternative source of funds may be available. This is particularly true for small and medium-sized businesses that are not large enough to be customers either of large banks outside the region or of nonbank lenders such as insurance companies or pension funds, and not large enough to access capital markets directly (Gertler and Gilchrist 1993; Elliehausen and Wolken 1990).

Banks play a critical role in financing small businesses. Through their long-term relationship, a bank

<sup>10</sup> See, for example, Hancock and Wilcox (1992), Baer and McElravey (1992), and Peek and Rosengren (1993a, 1993b, 1993c).



and a firm develop specialized knowledge about each other's operations. If this relationship is severed, other intermediaries without this specialized knowledge may be reluctant to provide loans to a firm under the same conditions as its previous lender. This is particularly true in situations where both businesses and banks are failing. A potential lender may be unsure whether it is the financial difficulties of the borrower or of the previous lender that caused the borrower to search for a new lender. Thus, for a

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bank-dependent borrower, the failure or shrinkage of its primary lender can cause financial distress and even financial collapse associated with the problems of the lender rather than problems of the borrower.

Because the direction of causation between bank failures and business failures may run both ways, attributing causation may be problematic. The timing of the effect is further complicated because troubled banks typically reduce loans well before the bank becomes insolvent (Peek and Rosengren 1993b) and because banks have often been closed well after the point of insolvency (Brumbaugh and Litan 1991). A contemporaneous effect of bank failures on business failures, as well as a lagged effect, can be taken as being consistent with the hypothesis that restricted bank lending contributes to business failures. Thus, financial variables that capture problems in the banking sector that are transmitted to the business sector could help explain the unusually high rate of business failures in New England.

Several variables could serve as proxies for banking problems that may be transmitted to the business sector. The bank failure rate can indicate banking problems so severe that they result in failure, severing the traditional lending relationship a borrower had with the bank. Another proxy for banking problems is a decrease in lending. If banks are calling loans or reducing credit availability, outstanding

loans decrease. Such decreases in loans may occur when banking problems are causing banks to re-trench, even though they are not so severe as to cause bank failures. Of course, one difficulty with using decreases in loans as a proxy for banking problems is that demand as well as supply disturbances can account for decreases in loans outstanding. Other variables tied to the performance of the loan portfolio, such as loan loss provisions, could also serve as appropriate indicators of bank problems. However, they are available only since 1984, not a long enough time series to be of use for this study.

Table 1 provides the results of including financial variables in regressions explaining the New England business failure rate. The base estimation period is 1960 to 1992, using annual data. The beginning date is limited by the availability of regional data on employment growth. The availability of published regional business failure rates limits the analysis to annual observations.

The first column of Table 1 reports the results of regressing the business failure rate on three lagged values of the nonfarm employment growth rate, the equation used to construct Figure 4.<sup>11</sup> Only the first lagged value makes a statistically significant contribution to the explanation of the business failure rate. However, the equation suffers from serial correlation of the error term. The second column adds the lagged value of the dependent variable. Now, the hypothesis of no serial correlation in the error term can no longer be rejected. The fit of the equation improves substantially, but the size of the effect of the first lagged value of the employment growth rate is halved, although it is still significant at the 5 percent confidence level. Alternatively, if the equation in column 1 is reestimated using a specification incorporating a first-order autoregressive correction, similar results for the significance of employment growth rates are obtained.<sup>12</sup> Thus, the evidence indicates that employment growth rates do make a contribution to the explanation of the variation in New England business failure rates.

The third column of Table 1 adds the contempo-

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<sup>11</sup> Here, and in later regressions, the initial regression contains three lagged values of an explanatory variable and, if the third lagged value has an estimated coefficient exceeding its estimated standard error, includes additional lags as long as the associated estimated coefficient exceeds its estimated standard error (that is, contributes to a reduction in the equation's standard error).

<sup>12</sup> The other equations in the table were also reestimated with a first-order autoregressive correction. In each instance, the results were quite similar (and conclusions identical) to those obtained from the specification including a lagged dependent variable.

Table 1  
*Determinants of the New England Business Failure Rate*  
 Period: Annual Data, 1960 to 1992

Estimation Method	(1) OLS	(2) OLS	(3) OLS	(4) <sup>a</sup> TOLS	(5) <sup>a</sup> OLS	(6) OLS
<i>Explanatory Variables</i>						
Constant	.589** (.044)	.134 (.103)	.163* (.086)	.177 (.105)	.148 (.112)	.141* (.073)
Business Failure Rate (-1)		.842*** (.180)	.631*** (.179)	.573** (.219)	.872*** (.186)	.652*** (.166)
Employment Growth (-1)	-.0562*** (.0131)	-.0261** (.0118)	-.0061 (.0081)	-.0028 (.0106)	-.0001 (.0164)	
Employment Growth (-2)	-.0039 (.0143)	.0076 (.0112)	.0033 (.0073)	.0037 (.0103)	.0027 (.0157)	
Employment Growth (-3)	-.0199 (.0144)	-.0075 (.0113)	-.0039 (.0074)	-.0024 (.0105)	-.0084 (.0161)	
Bank Failure Rate			.077*** (.014)	.095*** (.028)		.079*** (.013)
Bank Failure Rate (-1)			.014 (.042)	.011 (.048)		.017 (.038)
Bank Failure Rate (-2)			-.304 (.181)	-.316 (.213)		-.320* (.165)
Bank Failure Rate (-3)			.443** (.209)	.422 (.250)		.466** (.193)
Bank Failure Rate (-4)			-.299 (.233)	-.466 (.347)		-.295 (.213)
Loan Growth (-1)					-.0124** (.0045)	
Loan Growth (-2)					.0069 (.0058)	
Loan Growth (-3)					-.0009 (.0051)	
R <sup>2</sup>	0.465	.701	.903	.898	.784	.900
S.E.E.	0.156	.119	.074	.084	.116	.071
Durbin Watson	0.844					
Durbin-h		b	b	b	b	1.73

Notes: OLS = ordinary least squares; TOLS = two-stage least squares. Standard errors in parentheses.

<sup>a</sup>Because earlier loan data were unavailable, the estimation period is limited to 1964-1992.

<sup>b</sup>The Durbin-h test statistic could not be calculated. Using Durbin's suggested alternative test, the hypothesis of no serially correlated errors can be rejected at the 5 percent confidence level.

\* significant at the 10% confidence level

\*\*significant at the 5% confidence level

\*\*\*significant at the 1% confidence level

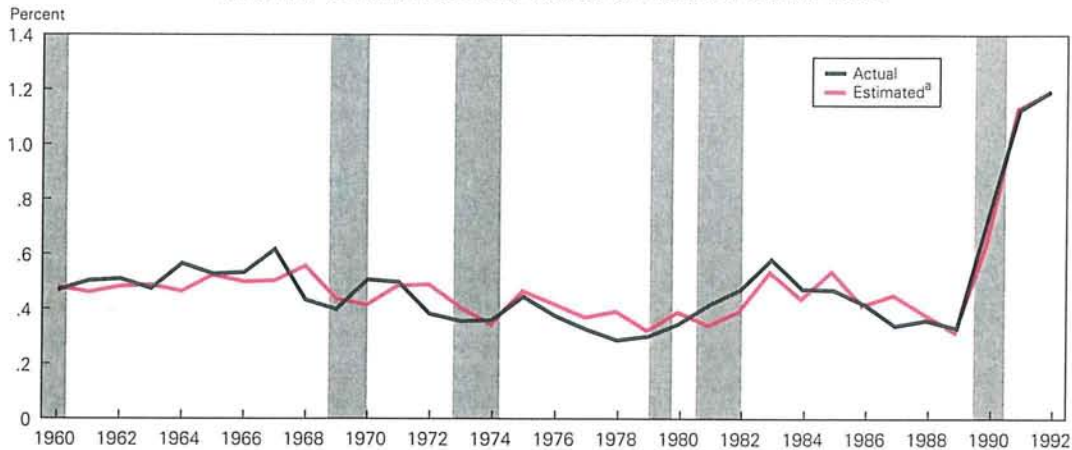
aneous and four lagged values of the New England bank failure rate to the variables included in column 2. The bank failure rate is that for FDIC-insured institutions (both commercial and savings banks), taken from the annual reports of the Federal Deposit Insurance Corporation. Lagged values as well as contemporaneous bank failure rates are included, because bank failures frequently lag bank insolvency, as described above. The contemporaneous and third lagged values of the bank failure rate each have estimated coefficients that are positive and statistically significant at the 5 percent or better confidence

level. With the addition of the bank failure rates, none of the three lagged values of the employment growth rate has an estimated coefficient as large as its estimated standard error, indicating that financial difficulties rather than slow employment growth best describe the business failure rate.<sup>13</sup>

<sup>13</sup> Including additional lagged values of the business failure rate does not alter the general results. When Granger-causality tests were run with three or four lagged values, the hypothesis that the business failure rate is not Granger-caused by the bank failure rate could be rejected at the 5 percent confidence level.

Figure 7

*Actual Business Failure Rate in New England  
and the Estimated Rate Based on Bank Failure Data*



a) Based on regressions using contemporary and lagged values of the bank failure rate.  
Source: Dun & Bradstreet Corporation (actual data).

Given the use of annual rather than quarterly data, including the contemporaneous bank failure rate as an explanatory variable might present a simultaneity problem. For this reason, the column 3 regression was reestimated using a two-stage least squares procedure. Four lagged values of the bank failure rate, and three lagged values each of the bank loan growth rate, the business failure rate, and the employment growth rate, are used as the instruments for the contemporaneous value of the bank failure rate. Because the rate of loan growth is available only from 1961, the estimation period is now restricted to 1964 to 1992. The two-stage least squares results in column 4 are very similar to the results in column 3. Although the estimated coefficient on the third lagged value of the bank failure rate is no longer statistically significant, the contemporaneous value remains significant at the 1 percent confidence level. In addition, the coefficients on lagged employment growth rates remain insignificant.<sup>14</sup> Thus, it does not appear that the explanatory value of the bank failure rate can be attributed to simultaneity bias.

An alternative specification to test for the effect of bank problems on business failure rates replaces the bank failure rate with the growth rate for bank loans. Loan growth rates should capture problems

with loan supply that occur even when banking problems are not so severe as to cause bank failures. As noted earlier, this variable has its own problems with respect to differentiating the separate influences of the supply of and the demand for loans. However, to the extent declines in loan growth precede increases in business failure rates, the evidence is consistent with the hypothesis that the availability of bank credit affects the business failure rate. The results in column 5 indicate that the first lagged value of the bank loan growth rate variable does make a statistically significant contribution (with the expected negative sign) to the explanation of the business failure rate.<sup>15</sup> Again, the employment growth rate variables are not significant.

Because the employment growth rate variables are dominated by the bank failure rate (and the bank loan growth rate) variables, the final column in Table 1 shows the results when the column 3 specification is reestimated omitting the employment growth rate

<sup>14</sup> Even if the contemporaneous value of the bank failure rate is omitted, the coefficients on the lagged employment growth rate remain insignificant.

<sup>15</sup> Other lending categories, such as real estate loans (excluding one- to four-family residences) and commercial and industrial loans tell much the same story, although their explanatory power is not as great as that of total loans.

variables. Now the second and third lagged values of the bank failure rate, as well as the contemporaneous value, are statistically significant.<sup>16</sup> Figure 7 shows the actual business failure rate and the fitted failure rate based on the column 6 estimates. The fit is a substantial improvement over that obtained when

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*Problems in the banking sector help explain the recent unusually high business failure rates in New England.*

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only lagged employment growth rates (column 1) are included in the equation, as in Figure 4. While fitted equations using only employment growth rates as explanatory variables substantially underestimate the failure rate for the past three years, the regression using financial variables fits the recent failure rate quite well. Thus, problems in the banking sector do help explain the recent unusually high business failure rates in New England.

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## V. Conclusion

The business failure rate in New England over the past three years has been dramatically higher than it was during the two previous recessions. While New England has been severely affected by this last recession, neither employment variables nor the industrial concentration of failures can explain its high rate of business failures. One hypothesis consistent with the high failure rate is that business problems in New England have been magnified by problems in the banking industry. Statistical evidence supports the view that the business failure rate has been associated with the bank failure rate and decreases in lending. To the extent that firms rely on local banks to provide financing, small and medium-sized firms denied credit by their banks may have no alternative to failing. As New England banks recapitalize, however, they can be expected to be more aggressive in seeking new borrowers, and their efforts may help reduce the business failure rate in the future.

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<sup>16</sup> To answer concerns about the possible endogeneity of contemporaneous bank failures, one can either run two-stage least squares or omit the contemporaneous value of the bank failure rate. In the former case, the contemporaneous, second, and third lagged values of the bank failure rates remain significant at the same confidence levels. In the latter case, the third and fourth lagged values of the bank failure rate are significant at the 5 percent confidence level.