How Dependent Are New England's Mid-Sized Firms on the Region's Largest Bank Holding Companies?

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The availability of credit to mid-sized firms—the "middle market"—has been a topic of concern and debate in recent years. It is widely believed that mid-sized firms obtain most of their financial services from a single commercial bank, usually a large bank headquartered within their region. In this traditional view, the firms tend to develop a long, close relationship with their chosen bank, depending on it heavily for a wide array of financial services, especially short-term credit.

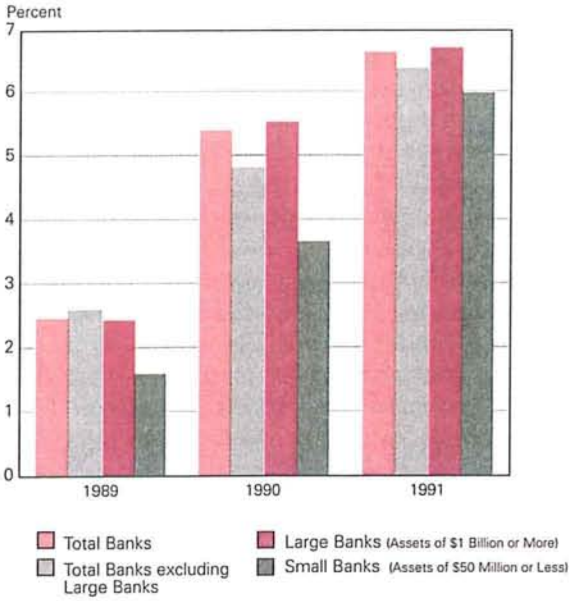
If this scenario is correct, this dependence has two important implications for public policy. First, New England's mid-sized firms, companies with revenues ranging from $10 million to $249 million, could suffer from the concentration that exists in the region's banking markets. At the time of this study, New England had only 14 bank holding companies with deposits of $1 billion or more. In 1992, three institutions controlled almost 65 percent of the deposits of this "group of 14" and granted almost 80 percent of its commercial and industrial loans. Given such high degrees of concentration, these three institutions could in theory raise prices for mid-sized business customers above the level of a more competitive market.

The second implication of this assumed dependence is that mid-sized businesses in New England may have had trouble obtaining adequate credit at any price during the past three years. Recent studies have shown that the difficulties plaguing the region's banks during this period reduced the supply of credit within the region. Short on capital and fearful of regulators, the region's banks curtailed lending. The resulting "credit crunch" is thought to have accentuated the region's economic contraction and retarded its recovery (Peek and Rosengren 1992).

This credit crunch may have hurt mid-sized businesses the most, if indeed they depend primarily on the region's large banks. Overall, New England's large banks had a higher incidence of problem loans during the 1989 to 1992 recession than did the other banks in the region

Figure 1

Nonperforming Loans as a Percentage of Total Assets of First District Commercial Banks, 1989 to 1991



Source: Federal Deposit Insurance Corporation, Condition of Income Report, 1989 to 1991.

(Figure 1). Bank of New England, the second largest bank holding company in the region in 1989, failed in 1990. Faced with reduced lending by their traditional credit sources, large firms could turn to financial institutions based outside the region or issue their own commercial paper. Small firms tend to rely more on small banks, which are more numerous and on the whole performed better than their larger counterparts.

The premise that mid-sized firms depend heavily on large banks headquartered within their region has not been adequately investigated. To help rectify this and to clarify the situation for policymakers, the Research Department of the Federal Reserve Bank of Boston conducted a survey investigating where New England's mid-sized firms obtain their short-term credit. The survey, conducted during the summer of 1992, covered more than 1,000 businesses in the region. This article is the first in a series analyzing the survey's results. Section I describes the extent to which federal bank regulators have taken the concentration of middle lending markets into account when considering bank mergers and enforcing antitrust laws. Section II discusses the view of middle-market firms that stresses their reliance on large commercial banks in their region for short-term credit, and the problems caused by concentration in such a market. Section III describes the Boston Fed survey that tested firms' dependence on New England's banks in general and on its largest banks. Section IV analyzes the survey results, and Section V summarizes the public policy implications of these findings.

Overall, the survey found that the region's mid-sized firms are not heavily dependent on its largest commercial bank holding companies for short-term credit. However, almost three-quarters of survey respondents actively participating in short-term credit markets obtain at least some of their short-term credit from a New England bank, a degree of dependence suggesting that the region's mid-sized firms may be vulnerable to sharp contractions in lending by the region's banking institutions.

I. Middle Lending Markets in the Enforcement of Antitrust Laws

Despite the popular perception that middle-market firms depend on large regional banks, antitrust analysis and oversight of bank mergers have generally ignored the middle market. Traditionally, regulators have viewed the effects of bank mergers on the competitiveness of middle lending markets according to three assumptions: 1) distinct markets for lending to mid-sized businesses do not exist; 2) even where such markets might exist, their competitiveness is not problematic and not likely to be affected by bank mergers; and 3) although bank mergers might significantly affect the competitiveness of such markets, currently available data are insufficient to evaluate such an effect.

Elements of all three assumptions in the regulatory perspective are either implied or explicitly stated in the opinion of the U.S. Supreme Court in *United States v. Philadelphia National Bank* (374 U.S. 321), the landmark 1963 case delineating competitive standards in bank merger cases. The Court effectively ruled out the existence of a separate market for lending to mid-sized businesses by asserting that "the cluster of products . . . and services" provided by commercial banks constitutes a distinct, indivisible line of commerce. In establishing this so-called "cluster of services" doctrine, the Court implied that subsets of products or services provided by commercial banks, such as the provision of credit, should not be considered separate product markets for the purpose of antitrust analysis.

The Court also implied, however, that geographic boundaries of commercial banking markets can vary by the size of the customer, even though commercial banking services should not be "unbundled." Specifically, markets for commercial banking services provided to small borrowers and depositors are local in nature, while markets for such services provided to "larger borrowers and depositors" could include "competition from outside the [local] area." The Court concentrated its analysis on the local markets in the case because of "Congress' evident concern . . . with preserving small business" and the lack of "evidence of the amount of business done in the [local] area by banks with offices outside the area."

Regulators have focused mostly on local banking markets and have generally affirmed the cluster of services doctrine.

Since the *Philadelphia National Bank* decision, the primary concern of bank regulators in antitrust cases has been the access of small business customers to banking services at competitive prices. Regulators assume that large businesses and middle-market firms have access to credit sources outside their geographic region. As a result, they have focused mostly on local banking markets, despite the reference in the Supreme Court's majority opinion to possible competition from nonlocal banks. They have also generally affirmed the cluster of services doctrine; the Board of Governors of the Federal Reserve System did so recently in analyzing the impact of the merger of BankAmerica Corporation with Security Pacific Corporation in 1992.[1]

Since 1991, however, the U.S. Department of Justice has rejected the cluster of services doctrine in three cases: the merger of Society Corporation and Ameritrust Corporation, the acquisition by Fleet/Norstar Financial Group of the banking subsidiaries of the failed Bank of New England Corporation, and the acquisition of First Interstate Bank of Hawaii by First Hawaiian, Inc.[2] In all three cases, the Department ruled that the market whose competitiveness was most affected by the proposed transaction (the "relevant product market") was commercial lending other than commercial mortgages, not commercial banking as a whole. In the First Hawaiian case, the Department also explicitly rejected the traditional focus on local banking markets, claiming that the relevant geographic market in the case was the state of Hawaii in its entirety. As a result of its unconventional characterization of the relevant market, the Department of Justice concluded that the proposed acquisition would significantly reduce competition, and forced the parties to the transaction to divest branches in order to mitigate the transaction's adverse effects.

In testimony before Congress, top antitrust officials in the Justice Department have explicitly argued that the cluster of services doctrine is no longer valid, and that the impact of bank mergers and acquisitions on the competitiveness of commercial lending markets should be taken into account (U.S. Department of Justice 1991). The status of the cluster of services doctrine has significant implications for middle-market lending in New England. If middle-market firms more than others depend heavily on a few banks in the region, then antitrust concerns might be well founded, and the cluster doctrine may be a significant hurdle in these firms' access to credit.

But the Federal Reserve's Board of Governors disagreed with the Department of Justice in all three cases mentioned above, citing the inability of the Department to muster sufficient evidence to support its challenge to the cluster of services doctrine and the primacy of local markets. The Board has stated that the cluster of services doctrine and the local nature of banking markets have been substantiated by a survey it conducted in 1989 on the borrowing habits of small and medium-sized businesses.[3] That survey used a

[1] For BankAmerica Corporation, see the *Federal Reserve Bulletin*, vol. 78, pp. 338–69 (1992). See also Sunwest Financial Services, Inc., in the *Federal Reserve Bulletin*, vol. 73, pp. 463–69 (1987), in which the Board noted that "In delineating the relevant product market in which to assess the probable competitive effects of a bank acquisition or merger, the Supreme Court has determined that 'commercial banking is the appropriate line of commerce' on the basis that the 'cluster of products . . . and services' provided by commercial banks is unique relative to other institutions."

[2] See Society Corporation in the *Federal Reserve Bulletin*, vol. 78, pp. 302–8 (1992), Fleet/Norstar Financial Group, Inc., in vol. 77, pp. 750–58 (1991), and First Hawaiian, Inc., in vol. 77, pp. 52–59 (1991).

[3] See First Hawaiian, Inc., in the *Federal Reserve Bulletin*, vol. 77, pp. 52–59 (1991). The study (Elliehausen and Wolken 1990), sponsored jointly by the Board of Governors and the U.S. Small Business Administration, was a survey of a nationally representative sample of 3,405 small (0–49 employees) and medium-sized (50–499 employees) for-profit, nonagricultural, nonfinancial enterprises. The study found that "overwhelmingly, the single most

Middle Lending Markets in New England in 1984

Constance Dunham (1986) is the only analyst to have investigated New England's middle lending markets in any empirical detail. She found that in 1984 New England had four such markets—one based in Boston and including Maine, New Hampshire, northern Vermont, and most of eastern Massachusetts; one based in Providence and including Rhode Island, a part of eastern Massachusetts, and a part of western Connecticut; one based in Hartford and including most of Connecticut, western Massachusetts, and southern Vermont; and one based in New York City and including the southeastern part of Connecticut. She determined these boundaries by matching the location of the headquarters of a large sample of New England's middle-market firms with the location of their "primary bank," as indicated in Standard & Poor's *Register*.

Dunham suggested that treatment of banking markets as either local or national, and the assumption that banks that are not locally limited have access to the national banking market, are both questionable. At the time of her study, however, the three regional markets with centers in Boston, Hartford, and Providence did not exhibit a high degree of concentration. The Hartford and Providence regions were moderately concentrated, while the Boston region appeared to be either unconcentrated or moderately concentrated.

Dunham did note that mergers and acquisitions occurring prior to her study were responsible for increases in regional deposit concentration. She argued that the identification of regional markets suggests that "there exist combinations of banking organizations that would not harm local banking competition but would have significantly adverse effects on regional competition." Lastly, Dunham stressed that the traditional method of relieving anticompetitive concentration in local markets, the selective divestiture of branches, has little effect on overconcentration in regional markets.

Whether Dunham's results are valid today is uncertain. New England's middle lending markets may have integrated since 1984, given the relaxation of constraints on interstate banking that occurred over the last decade. Moreover, the limitations on the data available to her were significant. For example, all that she could identify was a firm's "primary bank," as reported in Standard & Poor's *Register*. Credit market analysts use this term to describe the bank that supplies a mid-sized firm with most of its credit. Yet firms might interpret the term differently, perhaps as the bank that handles their checking account. These distinctions are irrelevant only if one accepts the theory that mid-sized businesses purchase their banking services in a cluster. Furthermore, firms listed in Standard & Poor's *Register* were not given the option of listing a nonbank financial institution as their "primary bank."

nationwide sample consisting mostly of small businesses, however, and the number of medium-sized New England businesses in the sample was too small to draw conclusions about the characteristics of the middle lending market in New England. For the regional perspective, the Box describes economist Constance Dunham's 1986 study of the middle markets for lending in New England.

II. Caught in the Middle—the Dilemma of the Mid-Sized Firm

The traditional perception of middle lending markets described at the outset of this article clearly contrasts with the Federal Reserve Board's position. In the former, mid-sized firms are seen as too large to obtain credit from small banks but too small to shop for credit nationwide. In addition, they are seen as large enough to need a wide range of interrelated financial services but too small to provide them in-house or to procure them from an array of financial institutions over a broad geographic area. Both conditions would reinforce the firms' dependence on large commercial banks in their region.

Legal limits on the amount of credit that a bank can extend to any one borrower make it difficult for

important financial institution for nearly every product and service used by small and medium-sized businesses is a local commercial bank." Almost all firms in the sample consider a local commercial bank to be their primary institution, and tend to cluster their purchase of financial services there around the checking account; on average, respondents use 2.29 products from the financial institution that provides them with their checking account, compared to only 1.08 services from institutions supplying them with services other than checking. For a summary of the study, see the *Federal Reserve Bulletin*, vol. 76, pp. 726–27 (1990).

mid-sized firms to borrow from small banks. Federal law prohibits national banks from extending to any one borrower unsecured credit whose value exceeds 10 percent of their "unimpaired capital."[4] Suppose that a bank's capital-to-loan ratio is 0.05. Under federal law, the bank could lend only 0.5 percent, or 0.005 (.10 × .05) of its loan portfolio to a single borrower. In order to make a $1 million loan to a single business, the bank would need a total loan portfolio of $200 million ($1 million / 0.005). In the first quarter of 1993, only 32 commercial banks in the First Federal Reserve District, 20 percent of the total number, had a loan portfolio of $200 million or more.[5]

Legal limits on the amount of credit that a bank can extend to any one borrower make it difficult for mid-sized firms to borrow from small banks.

In addition to being unable to provide loans of sufficient size, small banks are also unable to offer mid-sized firms the range of services that they need. These include financial planning, deposit services, cash management, advice on short-term investments, specialized credit services, foreign exchange, and international banking services.

In theory, mid-sized firms could obtain some of these services from a constellation of nonbank financial firms. More middle-market firms have availed themselves of nonbank sources during the past decade, as deregulation has intensified the competition between bank and nonbank financial institutions. Yet it is still easier for mid-sized firms to obtain these services in a cluster from their primary supplier of credit. Mid-sized firms, the traditional view argues, still tend to establish extensive relationships with that supplier, who often plays a major role in advising and even directing the firm.

Large banks outside New England could provide the region's middle-market businesses with the financial services and volume of credit that they need. Indeed, such banks do have many New England middle-market customers. Moreover, during the past 15 to 20 years money-center banks have become increasingly interested in lending to mid-sized firms as their larger customers, the so-called "blue chip" market, have gained access to credit markets without the help of bank intermediation.

However, the costs of transacting business over long distances can still deter large banks from catering extensively to middle-market firms located in regions where they lack a substantial presence. Large banks find evaluating the creditworthiness of distant mid-sized businesses to be especially difficult and costly. The financial condition of middle-market firms generally is not researched by credit rating agencies. The banks are not familiar with the regional and local economic environment in which the firms operate. Conversely, it is expensive for mid-sized firms to search for credit sources outside of their region. Moreover, the top management of a large, distant bank with a global clientele may not give mid-sized clients the timely, considered advice and quick feedback on loan applications that they desire.[6]

III. Description of the 1992 Survey Sample

The Boston Fed's survey was designed to measure current credit availability for middle-market firms, and also to gauge the likely impact on such firms of future reductions in credit availability. The sample of businesses interviewed for the 1992 survey was drawn from the approximately 6,000 private, for-profit firms that in 1991 were headquartered in the First District, reported gross revenues greater than or equal to $10 million and less than $250 million, and were listed in Dun & Bradstreet's 1991 *Middle Market Directory*.

The sample of interviewed firms was not randomly drawn from this population of 6,000. Rather, the population was first divided, or "stratified," into size and industry groups. A random sample was then drawn from each of these groups.[7] Groups with small populations were sampled at high rates in order to ensure representation of a broad array of industry

[4] 12 *Code of Federal Regulations*, 3.5–3.13.

[5] In addition to commercial banks, many savings banks do make some commercial and industrial loans. At the end of 1992, the First District had 70 state-chartered savings banks with loans and leases greater than $200 million.

[6] See Burnside (undated), Koch (1991), and Dunham (1986) for further elaboration of the view that middle-market lending is a distinct financial market.

[7] A letter from Boston Fed president Richard F. Syron was sent to the chief executive of each of the firms, introducing the survey and announcing that they might be contacted by phone.

Table 1
Description of Survey Sample and Interview Results, by Size and Industry

Industrial Stratification[a]	Sample Size	Target Completions	Actual Completions	Percent of Target Completed
A. Small Firms Subsample, $10 Million to $49 Million in Annual Sales				
Agriculture and Forestry Services	5	5	2	40.0
Heavy Construction Contractors	67	43	25	58.1
Builders and Special Trade	135	78	58	74.4
Printing and Publishing	97	54	53	98.1
Apparel Products	45	32	23	71.9
Leather Products	25	20	13	65.0
Retail Apparel	29	23	12	52.2
Other Mining, Construction, Manufacturing, and Durable Trade[b]	170	99	95	96.0
Transportation, Communications, and Public Utilities	120	71	64	90.1
Real Estate	115	65	35	53.8
Insurance and Securities Brokers and Agents	115	66	65	98.5
Investment Companies and Nonbank Holding Companies[c]	11	10	5	50.0
Services	165	91	91	100.0
Small Firms with Low Bank Dependency[d]	165	96	95	99.0
Totals	1,264	753	636	84.5
B. Medium-Sized Firms Subsample, $50 Million to $99 Million in Annual Sales				
Heavy Construction Contractors and Special Trade	6	6	3	50.0
Builders	10	8	6	75.0
Coal Mining and Nonmetallic Mining	1	1	1	100.0
Printing and Publishing	8	8	6	75.0
Apparel Products	2	2	1	50.0
Miscellaneous Retail	13	12	7	58.3
Leather Products	5	5	4	80.0
Retail Apparel	4	4	2	50.0
Eating and Drinking Places	4	4	3	75.0
Other Mining, Construction, Manufacturing, and Durable Trade[e]	124	71	74	104.2
Transportation, Communications, and Public Utilities	25	20	14	70.0
Real Estate	7	7	2	28.6
Insurance and Securities Brokers and Agents	22	20	12	60.0
Investment Companies and Nonbank Holding Companies	4	4	1	25.0
Services	106	61	64	104.9
Medium-Sized Firms with Low Bank Dependency[f]	90	60	59	98.3
Totals	431	293	259	88.4

[a]Industry groups differ by size subsample because, in each size subsample, an attempt was made to aggregate 2-digit industries into groups exhibiting a similar degree of dependence on banks for short-term credit. Measures of this dependence indicate that 2-digit industries exhibiting a similar degree of "bank dependence" in one size group do not necessarily indicate a similar degree of bank dependence in another size group. See the text and forthcoming working paper for further details.

[b]Includes metal mining; coal mining; mining and quarrying of nonmetallic minerals (except fuels); textile mill products; lumber and wood products (except furniture); furniture and fixtures; paper and allied products; chemicals and allied products; petroleum refining and related industries; rubber and miscellaneous plastics products; stone, clay, glass, and concrete products; primary metal industries; fabricated metal products (except machinery and transportation equipment); industrial and commercial machinery and computer equipment; electronic and other electrical equipment and components (except computer equipment); transportation equipment; measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks; miscellaneous manufacturing industries; wholesale trade—durable goods; building materials, hardware, garden supply, and mobile home dealers; general merchandise stores; home furniture, furnishings, and equipment stores; eating and drinking places and miscellaneous retail.

[c]Includes offices of holding companies, not elsewhere classified (SIC 6719); investment offices (SIC 672) and investors, not elsewhere classified (SIC 679).

[d]Includes food and kindred products; tobacco products, wholesale trade—nondurable goods, food stores, automotive dealers and gasoline service stations, and insurance carriers.

Table 1 *continued*
Description of Survey Sample and Interview Results, by Size and Industry

Industrial Stratification	Sample Size	Target Completions	Actual Completions	Percent of Target Completed
C. Large Firms Subsample, $100 Million to $249 Million in Annual Sales				
Builders and Special Trade	3	3	3	100.0
Heavy Construction	7	7	4	57.1
Printing and Publishing	4	4	1	25.0
Oil and Coal Products	1	1	1	100.0
Food and Tobacco Products	13	12	8	66.7
Leather Products	7	7	3	42.9
Durable Wholesale	21	19	11	57.9
Automobile Dealers	3	3	2	66.7
Other Mining, Construction, Manufacturing, and Durable Trade[g]	108	59	60	101.7
Transportation, Communications, and Public Utilities	21	19	11	57.9
Nondurable Wholesale	30	23	13	56.5
Eating and Drinking Places	2	2	2	100.0
Food Stores	3	3	3	100.0
Real Estate	5	5	3	60.0
Insurance Carriers and Insurance and Securities Brokers and Agents	20	18	10	55.6
Investment Companies and Nonbank Holding Companies	2	2	0	0.0
Services other than Amusement and Recreation	47	33	18	54.5
Totals	297	220	153	69.5
Total Sample	1,992	1,266	1,048	82.8

[e]Includes metal mining; oil and gas extraction; textile mill products; lumber and wood products (except furniture); furniture and fixtures; paper and allied products; chemicals and allied products; petroleum refining and related industries; rubber and miscellaneous plastics products; stone, clay, glass, and concrete products; primary metal industries; fabricated metal products (except machinery and transportation equipment); industrial and commercial machinery and computer equipment; electronic and other electrical equipment and components (except computer equipment); transportation equipment; measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks; miscellaneous manufacturing industries; wholesale trade—durable goods; building materials, hardware, garden supply, and mobile home dealers; general merchandise stores; home furniture, furnishings, and equipment stores.

[f]Includes food and kindred products; tobacco products; wholesale trade—nondurable goods, food stores, automotive dealers and gasoline service stations, and insurance carriers.

[g]Includes metal mining; mining and quarrying of nonmetallic minerals (except fuels); textile mill products; apparel and other finished products made from fabrics and similar materials; lumber and wood products (except furniture); furniture and fixtures; paper and allied products; chemical and allied products; rubber and miscellaneous plastics products; stone, clay, glass and concrete products; primary metal industries; fabricated metal products (except machinery and transportation equipment); industrial and commercial machinery and computer equipment; electronic and other electrical equipment and components (except computer equipment); transportation equipment; measuring, analyzing, and controlling instruments, photographic, medical, and optical goods, watches and clocks; miscellaneous manufacturing industries; building materials, hardware, garden supply, and mobile home dealers; general merchandise stores; apparel and accessory stores; miscellaneous retail.

and size groups and thereby permit an analysis of how short-term borrowing characteristics of middle-market firms vary by size and industry.

It is reasonable to hypothesize that such variation exists. For example, smaller middle-market businesses may tend to exhibit some small-firm borrowing traits, such as dependence on local banks. Conversely, firms at the high end may tend to exhibit some large-firm traits, such as issuance of commercial paper and borrowing from large banks headquartered outside of New England. Within a given size group, other things equal, one would expect firms in industries with high ratios of notes and accounts receivable to sales, inventories to sales, and depreciable assets to sales to have a relatively strong need for a reliable source of short-term credit. As a result, these firms might have a greater need to establish a primary banking relationship.

The population was arbitrarily divided into three size groups, based on annual sales: $10 million to $49 million, $50 million to $99 million, and $100 million to $249 million. Over 80 percent of the population fell into the small size category, while less than 8 percent fell into the large one.

Stratification by industry proved more troublesome. Given the limited resources available for the survey, too detailed a stratification would have resulted in inadequate sample sizes for many industry/size groups. On the other hand, if the stratification by industry had been too coarse, significant intra-industry variation in borrowing characteristics would have been overlooked. To give an example, 62 percent of all retail establishments in the $10 million to $49 million range were either automobile dealerships or service stations. Auto dealerships and service stations often enjoy atypical financial arrangements with automobile manufacturers and gasoline companies, respectively. Any conclusions drawn about the retail sector as a whole would clearly have been biased unless auto dealers and service stations were broken out and sampled separately.

The following compromise strategy was adopted. Firms in each size group were classified into industries defined by the U.S. Office of Management and Budget's 2-digit Standard Industrial Classification (SIC) Code. Each size/industry group was evaluated in terms of its hypothesized dependence on banks for short-term credit. Criteria for identifying groups with low likely "bank dependence" were low ratios of 1) notes and accounts receivable to sales, 2) inventories to sales, and 3) depreciable assets to sales. (Examples of industries exhibiting low bank dependence throughout the middle market range were producers of food products, wholesale traders of nondurable goods, and insurance carriers.) Within each size group, industries exhibiting a similar degree of hypothesized bank dependence were lumped together, creating in total 47 industry/size groups for stratification purposes (Table 1).

Each industry/size group was sampled at a different rate, determined in a way that would maximize the chance, given the estimated total number of telephone calls possible, that each group would be adequately represented in the sample of firms ultimately interviewed. The minimum sample considered to be adequate depended on the size of the group in the target population, the minimum acceptable margin of error in the survey, hypothesized response rates, and probability theory. Data on sample sizes and survey completions are also found in Table 1.[8]

[8] Further details of the considerations governing the sampling strategy, along with a copy of the survey instrument, will be provided in a working paper, available from the author.

IV. Survey Results

The survey probed the characteristics of New England's middle lending markets by asking each respondent to group its sources of short-term credit into four categories: banks, nonbank financial institutions, its parent company (if the respondent was not an independent firm), and the issuance of commercial paper. The respondent was asked the name and location of each bank and nonbank institution from which it currently obtains short-term credit, and the reasons for selecting each institution as a credit source. If the respondent had no short-term credit arrangements, it was asked whether it lacked such arrangements because it did not need them or because they had recently been terminated. This question was designed explicitly to investigate the extent of the region's credit crunch.

Because the survey included questions about the location of lenders, its results will eventually provide insights into the geographic boundaries of New England's middle lending markets. In order to share as many of the survey's results as soon as possible, however, this article assumes that the region's mid-sized businesses generally obtain their short-term credit in one region-wide market.

Evidence Concerning the Dependence of Mid-Sized Firms on New England's Largest Commercial Banking Organizations

The results of the survey suggest that the region's largest commercial banking organizations would have difficulty raising prices affecting mid-sized firms above competitive levels. As Table 2 indicates, only 23 percent of all respondents indicated that they depend solely on one of the region's three largest commercial banking organizations for short-term credit. Only 33 percent reported obtaining any of their short-term credit from one of these organizations. These percentages did not vary significantly by size group, and fall below the level of concentration that the Board of Governors uses as a benchmark for potential problems, beyond which they retain authority to rule on bank merger applications.[9]

[9] When the Federal Reserve System processes a bank merger application, it first decides whether the case is likely to pose problems. If so, the Board of Governors must decide the case. If not, the Board delegates the authority to decide the case to the appropriate regional Federal Reserve Bank. Several measures are used to determine whether the Board must retain this authority. One of them is the impact of the proposed merger on the

Table 2
Sources of Short-Term Credit by Size Group, All Survey Participants
Percent of Respondents in Size Group

Source of Short-Term Credit	Large Firms ($100 Million to $249 Million)[a] (1)	Medium-Sized Firms ($50 Million to $99 Million)[a] (2)	Small Firms ($10 Million to $49 Million)[a] (3)	All Firms (4)
1. Some or all from New England-based banks	49.4	54.5	57.5	55.6
2. All from New England-based banks	39.3	41.5	50.8	47.0
3. Some or all from one or more subsidiaries of the three largest bank holding companies in New England[b]	38.7	37.5	29.4	32.6
4. All from one or more subsidiaries of the three largest bank holding companies in New England[b]	19.0	24.6	22.9	22.6
5. Some or all from domestic banks based outside of New England	11.9	8.0	6.2	7.5
6. Some or all from parent company	15.5	8.5	5.9	8.0
7. Some or all from nonbank source other than parent company	3.0	14.7	9.9	9.8
8. No short-term credit because credit arrangements terminated within past two years	1.2	3.6	4.4	3.7
9. No short-term credit and no need for it	16.7	16.5	17.9	17.4

[a]1991 annual sales.
[b]As of June 30, 1992, the three largest New England banking organizations, by deposits, are:
1. Fleet Financial Group, Providence, Rhode Island
2. Bank of Boston Corporation, Boston, Massachusetts
3. Shawmut National Corporation, Hartford, Connecticut

Table 2 is misleading, however, because some respondents do not participate in New England's short-term credit markets. More than 17 percent stated that they do not need short-term credit. (Again, virtually no significant variation in this percentage occurs across size groups.) Another 8 percent (16 percent of respondents in the $100 million to $249 million range) indicated that they are subsidiaries and their parent company provides them with some or all of their short-term credit. Since neither of these two groups of businesses has a demand for short-term credit, they are, in effect, "dormant" players in the region's short-term credit markets. As such, analyses of these markets' characteristics should exclude these businesses from the sample.

concentration of deposits in local banking markets where the parties to the proposed merger have branches. The impact on concentration is measured by the percentage of deposits in each market that the parties would control upon consummation of the merger. The Board of Governors must retain authority to rule on the application if any of these percentages exceed 35 percent. Given that only 33 percent of the surveyed firms obtained credit from the three largest commercial banking organizations, the Board's standard suggests that competitiveness of middle-market lending in New England is sufficient to alleviate antitrust concerns.

Even when these two groups are excluded, however, the remaining subsample shows no evidence of excessive market concentration. Fewer than 30 percent of the firms in the subsample obtain all of their short-term credit from one or more subsidiaries of one of the region's three largest bank holding companies (Table 3, line 4, column 4). Among the three size groups, the $50 million to $99 million group showed the highest degree of dependence on the "big three." Yet less than 32 percent of the firms in this size group rely solely on these institutions for their short-term credit (line 4, column 2).

Evidence of Vulnerability to Regional Credit Crunches

The respondents' overall lack of dependence on the region's large commercial banking organizations casts doubt on the hypothesis advanced earlier that the credit crunch harmed the region's mid-sized firms more than their smaller or larger counterparts. (As stated in the introduction, this hypothesis rested on the poor performance of the region's large banking organizations relative to its banking industry as a whole.)

Table 3
Sources of Short-Term Credit by Size Group, Subsample of Survey Participants[a]
Percent of Respondents in Size Group

Source of Short-Term Credit	Large Firms ($100 Million to $249 Million)[b] (1)	Medium-Sized Firms ($50 Million to $99 Million)[b] (2)	Small Firms ($10 Million to $49 Million)[b] (3)	All Firms (4)
1. Some or all from New England-based banks	70.3	70.1	74.8	73.1
2. All from New England-based banks	55.0	52.8	65.6	61.2
3. Some or all from one or more subsidiaries of the three largest bank holding companies in New England[c]	55.1	48.3	38.3	42.9
4. All from one or more subsidiaries of the three largest bank holding companies in New England[c]	26.9	31.6	29.7	29.7
5. Some or all from domestic banks based outside of New England	16.9	10.3	8.1	9.9
6. Some from parent company	3.4	3.4	1.0	1.9
7. Some or all from nonbank source other than parent company	4.2	19.0	12.8	12.9
8. No short-term credit because credit arrangements terminated within past two years	1.7	4.6	5.7	4.9

[a]Excludes firms not needing credit and firms obtaining credit solely from their parent company.
[b]1991 annual sales.
[c]As of June 30, 1992, the three largest New England banking organizations, by deposits, include:
1. Fleet Financial Group, Providence, Rhode Island
2. Bank of Boston Corporation, Boston, Massachusetts
3. Shawmut National Corporation, Hartford, Connecticut

Yet the survey was conducted too late in the regional business cycle to estimate the full extent of this hardship. The region's credit availability problems were probably at their worst during the last half of 1990 and the first half of 1991, several quarters after the performance of the region's banking industry hit its low point. By mid 1992, when this survey was administered, middle-market firms most affected by the scarcity of short-term credit may already have been pushed out of business. Consequently, to the extent that mid-sized businesses were forced to close their doors after losing their sources of short-term credit, a portion of them are probably not in the survey sample.

The survey instrument included one question explicitly investigating the credit crunch's impact. If a respondent reported having no short-term credit arrangement, the respondent was asked whether the firm's supplier (or suppliers) of credit had terminated such arrangements within the previous two years. About 4 percent of all respondents reported such an involuntary loss of credit (Table 2). Several other respondents with short-term credit arrangements volunteered that they had lost their credit lines in recent years but had managed to find alternate sources.

The survey was also designed to gauge the likely impact of future credit crunches on New England's middle market. Vulnerability to future constrictions in the availability of credit depends on the degree of reliance on the region's banks. Only 47 percent of all respondents obtained their short-term credit solely from a New England-based bank; only 56 percent obtained any of their short-term credit from such a bank (Table 2).[10]

[10] The survey did not include questions probing differences in the price of credit by source. Credit from sources other than New England-based banks may be relatively expensive in part because the amount of credit supplied by the region's banks may be limited. If so, the survey's results may understate the impact of future credit crunches on the region's mid-sized firms. On the other hand, firms relying solely on New England-based banks may have access to other sources of credit but have chosen not to utilize them. If so, the survey's results may exaggerate the vulnerability of the region's mid-sized businesses to future credit crunches.

The survey shows that the region's mid-sized firms were able to obtain short-term credit from sources other than New England-based banks *at some terms*, no matter how expensive. This finding, in and of itself, has surprised many observers of New England's commercial banking markets.

As noted earlier, however, several of the respondents have no need for an independent source of short-term credit because they do not need such credit or obtain it from the parent company of a multicorporate entity with which they are affiliated. When these two "dormant" groups are eliminated from the sample, the percentage of the remaining subsample totally dependent on New England-based banks for short-term credit rises to 61 percent; the percentage obtaining any short-term credit from such banks rises to 73 percent (Table 3).[11]

Very little variation was found across size groups in the percentage of respondents obtaining any of their short-term credit from a bank based in New England. By contrast, the variation in sole reliance on New England banks was significant. Large and medium-sized respondents exhibited a significantly lower propensity toward complete reliance than small respondents. The large and medium-sized respondents are more likely to need a consortium of banks that includes a non-New England bank or a nonbank institution. Some of the large firms supplement their bank credit by issuing their own commercial paper.

What are the policy implications of the percentages presented in line 2 of Table 3, the percentage of firms that depend on banks based in New England for all their credit? What do they imply about the ramifications for New England's economy of future restrictions on the availability of bank credit within the region? This question is difficult to answer given the absence of quantitative standards defining "excessive" dependence on regional banks. On the one hand, the survey indicates that almost 40 percent of the region's middle-market firms needing independent sources of short-term credit obtain at least some of it from a source other than a New England-based bank. On the other hand, the survey indicates that almost three-quarters of middle-market firms actively participating in short-term credit markets get at least some of their short-term credit from such a bank. This latter fraction suggests that future constraints on the supply of credit could harm a significant number of borrowers in the region's middle market.

The survey probed the characteristics of New England's middle lending markets, asking each respondent to describe its sources of short-term credit.

Detail by Industry/Size Group

As alluded to in Section III, the dependence of New England's mid-sized businesses on the region's large commercial banks may vary by industry as well as size group within the middle-market range. If so, regulators analyzing the antitrust implications of bank mergers may need to evaluate the concentration of particular segments of middle lending markets as well as the markets as a whole. Similarly, significant variation by industry/size group may exist. If so, mid-sized New England businesses in heavily bank-dependent industry and size groups may be especially vulnerable to regional credit crunches.

Differences across industry/size groups in respondents' sources of short-term credit are analyzed in Tables 4 through 6. Results are presented only for several of the largest industry groups. Results for large industry/size groups that exhibited a poor rate of response to the survey (a large percentage refused to be interviewed or could not be reached) are not reported.

With one exception, none of the industry/size groups exhibited a degree of dependence on the region's largest commercial banking organizations that was dramatically higher than that exhibited by

[11] Firms indicating no need for short-term credit in fact may want it but have decided to forgo it because they have been unsuccessful in obtaining it or think that they cannot obtain it. Similar perceptions may have led some subsidiaries of multicorporate entities to rely on their parent company for credit. Spontaneous comments made by respondents suggest that this is not the case. Moreover, even if such perceptions did influence the credit arrangements of these firms, they have been able to adjust their arrangements without borrowing from New England-based banks. Thus, the survey indicates yet two more alternative financial arrangements available and utilized by some mid-sized firms.

Nevertheless, suppose that a perceived absence of credit sources was the reason why some firms either "go it alone" or borrow from a parent company. The percentage of all respondents 1) obtaining some or all of their credit from New England-based banks, or 2) indicating that they do not need credit, or 3) obtaining some or all of their credit from their parent company, is 81 percent (Table 2, column 4, line 1 + line 9 + line 6). Consequently, if one assumes that the "dormant" players were influenced by a perceived shortage of credit, the survey's results point to a similar conclusion when one assumes the opposite: New England's mid-sized businesses may be vulnerable to future constrictions in credit offered by the region's banks.

Table 4
Sources of Short-Term Credit, Industry Detail, Small Firms[a]
Percent of Respondents in Group

Source of Short-Term Credit	Other Manufacturing, Mining, Construction, and Durable Trade	Low Bank Dependency	Printing and Publishing	Insurance and Securities	Services Other than Personal	Transportation
A. All Respondents in Group of Small Firms						
All from New England-based banks	47.2	47.6	54.0	43.9	53.9	47.0
All from one or more subsidiaries of the three largest bank holding companies in New England[b]	24.0	19.4	22.0	17.5	26.5	28.8
Some or all from domestic banks based outside of New England	9.6	4.9	4.0	7.0	3.9	7.6
Some or all from parent company	4.0	7.8	14.0	3.5	8.8	6.1
Some or all from nonbank source other than parent company	12.8	27.2	6.0	8.8	8.8	7.6
No short-term credit because credit arrangements terminated within past two years	5.6	1.0	2.0	1.8	5.9	4.5
No short-term credit and no need for it	16.8	15.5	18.0	31.6	18.6	27.3
B. Respondents in Group of Small Firms, excluding Firms Not Needing Credit and Firms Obtaining Credit Solely from Their Parent Company						
All from New England-based banks	56.7	56.3	65.9	64.1	66.3	64.6
All from one or more subsidiaries of the three largest bank holding companies in New England[b]	28.8	23.0	26.8	25.6	32.5	39.6
Some or all from domestic banks based outside of New England	11.5	5.7	4.9	10.3	4.8	10.4
Some or all from parent company	1.0	3.4	2.4	2.6	1.2	0.0
Some or all from nonbank source other than parent company	15.4	32.2	7.3	12.8	10.8	10.4
No short-term credit because credit arrangements terminated within past two years	6.7	1.1	2.4	2.6	7.2	6.3
No short-term credit and no need for it	0.0	0.0	0.0	0.0	0.0	0.0

[a]1991 annual sales of $10 million to $49 million.
[b]As of June 30, 1992, the three largest New England banking organizations, by deposits:
1. Fleet Financial Group, Providence, Rhode Island.
2. Bank of Boston Corporation, Boston, Massachusetts.
3. Shawmut National Corporation, Hartford, Connecticut.

the survey sample as a whole or its size category as a whole. The one exception was medium-sized middle-market firms in the "services other than personal" industrial category, where 52 percent obtained short-term credit solely from a New England-based bank (Table 5), compared to 42 percent of all medium-sized respondents (Table 2). When firms not needing an independent source of short-term credit are removed, these percentages increase to 72 percent (Table 5) and 53 percent (Table 3), respectively. Firms in this industry/size group are also significantly more dependent on the region's "big three" than are all medium-sized firms.

In New England, hospitals and other health providers account for a large fraction of the middle-market firms in the "services other than personal" category. Perhaps the relatively heavy dependence of these firms on banks based within the region stems from the tendency of bank executives to serve on boards of directors of hospitals as part of their civic responsibilities. These firms' dependence might also reflect their persistent need for a stable source of

Table 5
Sources of Short-Term Credit, Industry Detail, Medium-Sized Firms[a]
Percent of Respondents in Group

Source of Short-Term Credit	Other Manufacturing, Mining, Construction, and Durable Trade	Low Bank Dependence	Services Other than Personal
A. All Respondents in Group of Medium-Sized Firms			
All from New England-based banks	36.8	38.0	52.0
All from one or more subsidiaries of the three largest bank holding companies in New England[b]	26.3	28.0	28.0
Some or all from domestic banks based outside of New England	22.8	4.0	8.0
Some or all from parent company	8.8	8.0	6.0
Some or all from nonbank source other than parent company	21.1	34.0	4.0
No short-term credit because credit arrangements terminated within past two years	1.8	4.0	4.0
No short-term credit and no need for it	7.0	14.0	28.0
B. Respondents in Group of Medium-Sized Firms, excluding Firms Not Needing Credit and Firms Obtaining Credit Solely from Their Parent Company			
All from New England-based banks	41.2	44.2	72.2
All from one or more subsidiaries of the three largest bank holding companies in New England[b]	29.4	32.6	38.9
Some or all from domestic banks based outside of New England	25.5	4.7	11.1
Some or all from parent company	7.8	2.3	0.0
Some or all from nonbank source other than parent company	23.5	39.5	5.6
No short-term credit because credit arrangements terminated within past two years	2.0	4.7	5.6
No short-term credit and no need for it	0.0	0.0	0.0

[a]1991 annual sales of $50 million to $99 million.
[b]As of June 30, 1992, the three largest New England banking organizations, by deposits:
1. Fleet Financial Group, Providence, Rhode Island.
2. Bank of Boston Corporation, Boston, Massachusetts.
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short-term credit due to long delays in obtaining reimbursements from health insurers.

V. Conclusion

The Boston Fed's survey of middle-market firms in New England attempted to measure their dependence both on the region's largest banks and on its banks in general. The survey found that mid-sized firms searching for short-term credit are by no means hostage to the pricing policies of the region's largest bank holding companies. This casts doubt on the theory that the region's credit crunch hurt mid-sized firms more than others, because of their presumed dependence on the large New England banks most affected by the recent banking cycle.

The survey also tested for reliance on the region's banks in general. Total dependence on New England banks exceeds 60 percent of surveyed firms active in short-term credit markets, and was highest for smaller firms. Partial reliance on the region's banks approaches 75 percent. These figures suggest that steep reductions in the availability of credit from the region's banks could have adverse consequences for New England's mid-sized businesses.

Table 6
Sources of Short-term Credit, Industry Detail, Large Firms[a]
Percent of Respondents in Group

Source of Short-Term Credit	Other Manufacturing, Mining, Construction, and Durable Trade: (A) All Respondents in Group of Large Firms	Other Manufacturing, Mining, Construction, and Durable Trade: (B) Respondents in Group of Large Firms, excluding Firms Not Needing Credit and Firms Obtaining Credit Solely from Their Parent Company
All from New England-based banks	27.9	31.5
All from one or more subsidiaries of the three largest bank holding companies in New England[b]	16.4	18.5
Some or all from domestic banks based outside of New England	21.3	24.1
Some or all from parent company	24.6	5.6
Some or all from nonbank source other than parent company	8.2	9.3
No short-term credit because credit arrangements terminated within past two years	.0	.0
No short-term credit and no need for it	9.8	.0

[a]1991 annual sales of $100 million to $249 million.
[b]As of June 30, 1992, the three largest New England banking organizations, by deposits:
1. Fleet Financial Group, Providence, Rhode Island.
2. Bank of Boston Corporation, Boston, Massachusetts.
3. Shawmut National Corporation, Hartford, Connecticut.

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