The Geographic Boundaries of New England's Middle-Lending Markets

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Mid-sized companies—those with annual sales between $10 million and $250 million—produce a significant percentage of the nation's output. In 1987, their sales accounted for 28 percent of the total sales of all U.S. companies.[1] In light of the substantial contribution made by mid-sized firms to the economy, conditions impeding their performance should concern public policymakers. One such condition is insufficient access to short-term credit at competitive prices. The very existence and the severity of this problem are subject to considerable debate, however.

In general, enforcers of the nation's antitrust laws have devoted little attention to the competitiveness of short-term credit markets tapped by mid-sized firms (middle-lending markets). This inattention partially reflects doubt as to the existence of middle-lending markets, but also results from uncertainty about these markets' boundaries. Communications and transactions costs constrain the distances over which the buying and selling of credit to mid-sized firms take place. How these credit relationships cluster over space to form geographic markets has not been explored to any appreciable extent.

This article, the second in a series on middle-market lending, investigates the boundaries and concentration levels of middle-lending markets in New England.[2] It relies primarily on the results of a survey of mid-sized businesses conducted by the Federal Reserve Bank of Boston in 1992 (the Boston Fed survey), supplemented by interviews with CEOs and senior commercial lending officers at several of the region's largest banks. The article provides updated configurations of these markets that should provide new insights into the consequences of proposed bank mergers for an important group of commercial borrowers.

I. A Little Background

Horowitz (1977, p. 170) defines a market as

> a group of buyers and sellers that freely interact with each other in such fashion as to effect a unique price, net of transportation costs, at which a particular good . . . is exchanged.

To identify the members of such a group, analysts must first determine what good is being exchanged. Only then can they delineate the geographic areas in which buyers and sellers of the good interact to determine a unique price.

Do Middle-Lending Markets Exist?

The existence of middle-lending markets is not universally accepted. In particular, the Federal Reserve Board has relied upon a 1963 ruling by the U.S. Supreme Court in *United States v. Philadelphia National Bank* (374 U.S. 321). The Court maintained that the "cluster of products and services" provided by commercial banks constitutes an indivisible line of commerce. This view, known as the "cluster of services" doctrine, implied that subsets of products or services provided by commercial banks, such as the provision of short-term credit to mid-sized businesses, should not be considered separate products for the purpose of antitrust analysis.[3]

The U.S. Department of Justice, by contrast, has explicitly rejected the cluster of services doctrine. In analyses of bank merger cases, testimony before Congress, and other public statements, Justice Department officials have stated that commercial lending to small and mid-sized businesses should be considered a distinct market, separate from commercial banking as a whole. This viewpoint was reaffirmed in April 1994 by Robert Litan, Deputy Assistant Attorney General for Regulatory Policy.[4]

The debate concerning the existence of middle-lending markets is discussed in more detail in Tannenwald (1993). The following analysis assumes that middle-lending markets exist.

Previous Attempts to Map New England's Banking Markets

At first glance, a delineation of the geographic boundaries of markets for a particular banking service seems to require only the identification of those areas where the service's price is uniform. Market boundaries lie at those points where this price changes. Prices of many banking services, however, are difficult to observe. For example, lenders to mid-sized businesses tailor the terms of each loan to the characteristics of the borrower, such as profitability, size, and volume of debt outstanding. The terms of each loan involve many variables, such as interest rate, maturity, down payment, and collateral, so that measuring the price of any particular type of loan within a given geographic area is extremely difficult. Even if such a price were measurable, data needed to measure loan prices at different locations are not readily available. Finally, prices in credit markets are almost always in short-term disequilibrium, so that long-term equilibrium prices are rarely revealed.

In light of these empirical obstacles, analysts attempting to map markets for banking services have inferred their boundaries from observed geographic clusters of banks and banking relationships, assumptions about the geographic preferences of banks and their customers, and economic theory. A premise common to each mapping effort is that, other things equal, customers prefer to transact business with banks that are close by, and vice versa.

Delineation of Local Banking Markets by the Boston Fed. The Federal Reserve Bank of Boston maps banking markets in the First District and routinely updates their boundaries. Consistent with the Federal Reserve Board's cluster of services doctrine, the Boston Federal Reserve Bank maps only markets for commercial banking services as a whole. Nevertheless, by analyzing the underlying assumptions and the specifics of its methodology, one can gain insights into the principal issues that must be addressed in the mapping of middle-lending markets.

Two key assumptions underlie the Boston Fed's methodology: 1) depositors play a key role in determining prices for commercial banking services and, 2) in choosing where to bank, they usually consider depositories located near where they live or work. The transactions costs of conducting business with

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[1] U.S. Bureau of the Census (1991, Table 5). The year 1987 is the latest for which sales data are available by company size. Sales data by company size are not available on a state-by-state basis.

[2] The first article (Tannenwald 1993) examined the dependence of New England's mid-sized businesses on the region's largest bank holding companies. This previous article commented on the competitiveness of middle-market lending in the region, based on the assumption that such lending took place within one region-wide geographic market. This article relaxes this assumption and evaluates it empirically.

[3] See Tannenwald (1993, pp. 36–37) for further discussion of the Board's defense of the cluster of services doctrine.

[4] See the text of an interview with Mr. Litan published in the *American Banker*, April 8, 1994, p. 2.

An Example Illustrating How Depositors in One Town Can Influence the Prices of Banking Services Throughout a Local Banking Market

"Centerville" MSA is a fictitious, economically integrated metropolitan area 40 miles in diameter consisting of a central city and six suburbs arranged in two concentric rings (see Map 1). Workers living in the central city work exclusively in the central city; workers living in the inner ring work either in their own town or in the central city. Workers living in an outer-ring town work either in their own town or commute to the neighboring inner-ring suburb.

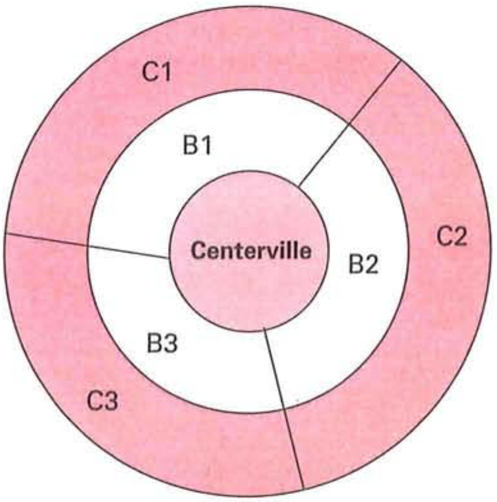
Suppose that banks in outer suburb C1 lower the interest rates they offer on deposits held in N.O.W. accounts. Some C1 commuters with a N.O.W. account in a C1 bank will switch their account to a bank in B1, where they work. Should B1 banks respond by lowering their interest rates, some B1 commuters with a N.O.W. account in a B1 bank will move their account to a bank in the central city. Should central city banks lower their interest rates, some residents of other suburbs who bank downtown will move their accounts to a bank in their town of residence. In this manner, a chain reaction of bank substitutions and price changes initiated by depositors residing in one town will affect demand conditions, and therefore prices of banking products, in all towns within the metropolitan area. The very threat of such a chain reaction will in many cases deter banks from offering interest rates on deposits that are "too low" relative to those offered by other banks in the same banking market.

banks in less convenient locations are assumed to be too high for them to be viable alternatives.

These assumptions, combined with elementary microeconomic theory, imply that geographic banking markets are economically integrated regions consisting of municipalities linked with each other mainly by commuters. The Boston Fed has identified 94 such banking markets in New England (Map 2). These areas generally consist of a central city and rings of surrounding suburbs. Many of them conform closely to Ranally Metro Areas (RMAs), defined by Rand McNally & Company, or to Metropolitan Statistical Areas (MSAs) defined by the U.S. Office of Management and Budget. Some of them are quite large. For example, the Boston banking market extends into southern New Hampshire to the north and almost as far as Cape Cod to the southeast.

Map 1

Centerville MSA



Because of the economic ties linking the municipalities in each of these markets, depositors and banks located in any one community can directly or indirectly influence the prices of banking services in all other communities within the market. As the example in the accompanying box illustrates, they can exert this influence by initiating a chain reaction of responses to price changes, by both depositors and banks, that ultimately spreads throughout the market. This occurs even if the depositors in one community do not consider all banks within the market to be viable alternatives. Thus, depositors in Nashua, New Hampshire, living on the northern border of the Boston market can indirectly influence the price of banking services offered by banks in Plymouth, Massachusetts, more than 60 miles away.

In order to specify the geographic boundaries of banking markets, Boston Fed analysts employ the "15 and 20 percent rule":

1) For each municipality abutting a central city, they compute from Census data the percentage of the municipality's workers commuting into the central city. If this percentage exceeds 20 percent, the municipality is presumed to be in the same banking market as the central city. If this percentage is greater than 15 percent but less than or equal to 20 percent, then the municipality may be in the same banking market, depending on the strength of other evidence that it is economically integrated with the central city. If this percentage is less than or equal to 15 percent, the municipality is presumed not to be in the same banking market as the central city, unless it has strong alternative economic ties with the central city.[5]

2) Analysts then move outward to the next ring of municipalities. They compute the percentage of each municipality's workers commuting to either the central city or a suburb closer to the central city. They use the same 15-percent and 20-percent benchmarks to determine whether the municipality belongs in the banking market.

As rings of communities further and further away from the central city are examined, analysts eventually find towns whose workers tend not to commute or who commute to municipalities further away from the central city. These communities are presumed to belong in another banking market.[6]

Dunham's Regional Banking Markets. Dunham (1986) attempted to discern the geographic boundaries of New England's middle-lending markets, which she called "regional banking markets." She adopted the widely held view that such credit is the central component of a cluster of complementary services, often referred to as "primary banking services," uniquely demanded by mid-sized firms. In addition to short-term credit, this cluster also often includes, but is not limited to, deposit services, financial planning, cash management, the provision of specialized credit, and international banking services. The reasons why mid-sized firms are believed to have a unique need for this particular set of services are discussed in Tannenwald (1993) and Dunham (1986).

In order to generate hypotheses concerning the configuration of regional banking markets, Dunham analyzed the banking relationships of a sample of 278 mid-sized nonfinancial firms (annual sales between $10 million and $150 million) drawn mostly from Standard & Poor's 1984 *Register of Corporations, Directors, and Executives*. Each year, Standard & Poor's asks each firm in its *Register* to name its "primary bank."

Dunham identified all of the "bank organizations"—bank holding companies and independent banks—represented in the list of primary banks named by the firms in her sample. Twenty-two banking organizations were represented among those primary banks listed by more than one firm. Most of these organizations were bank holding companies headquartered in the metropolitan areas of either New York, Hartford, Providence, or Boston (the "Big Four"). Only three of these 22 banking organizations had less than $1 billion in deposits, consistent with the widespread belief that only large depository institutions have the capacity to provide mid-sized firms with the primary banking services they require (see Dunham 1986 and Tannenwald 1993). Dunham concluded that these 22 banking organizations were the main competitors in the provision of primary banking services to New England's mid-sized firms.

In sorting these primary banking relationships into discrete geographic markets, Dunham embraced the view, supported by a 1985 study (Peter Merrill Associates, Inc. 1985), that the typical middle-market firm prefers to deal directly with the lead bank of a bank holding company rather than one of its subsidiaries. Mid-sized firms allegedly do so because their requests for loans, especially large ones, must be approved at the bank holding company level. Dunham concluded that, in choosing a primary bank, most of the region's mid-sized firms narrowed the field to organizations headquartered in one of the Big Four.

Dunham reasoned that the biggest factor in selecting one of these banking organizations was geographic distance, given its importance in determining communications and transactions costs. Consequently, she hypothesized the existence of four middle-lending markets within New England, each organized around one of the Big Four financial centers. She defined the Boston geographic market as all points within the region located closer to Boston than any of the other three cities. In a similar fashion she defined the geographic boundaries of markets organized around Providence, Hartford, and New York City (Map 2).

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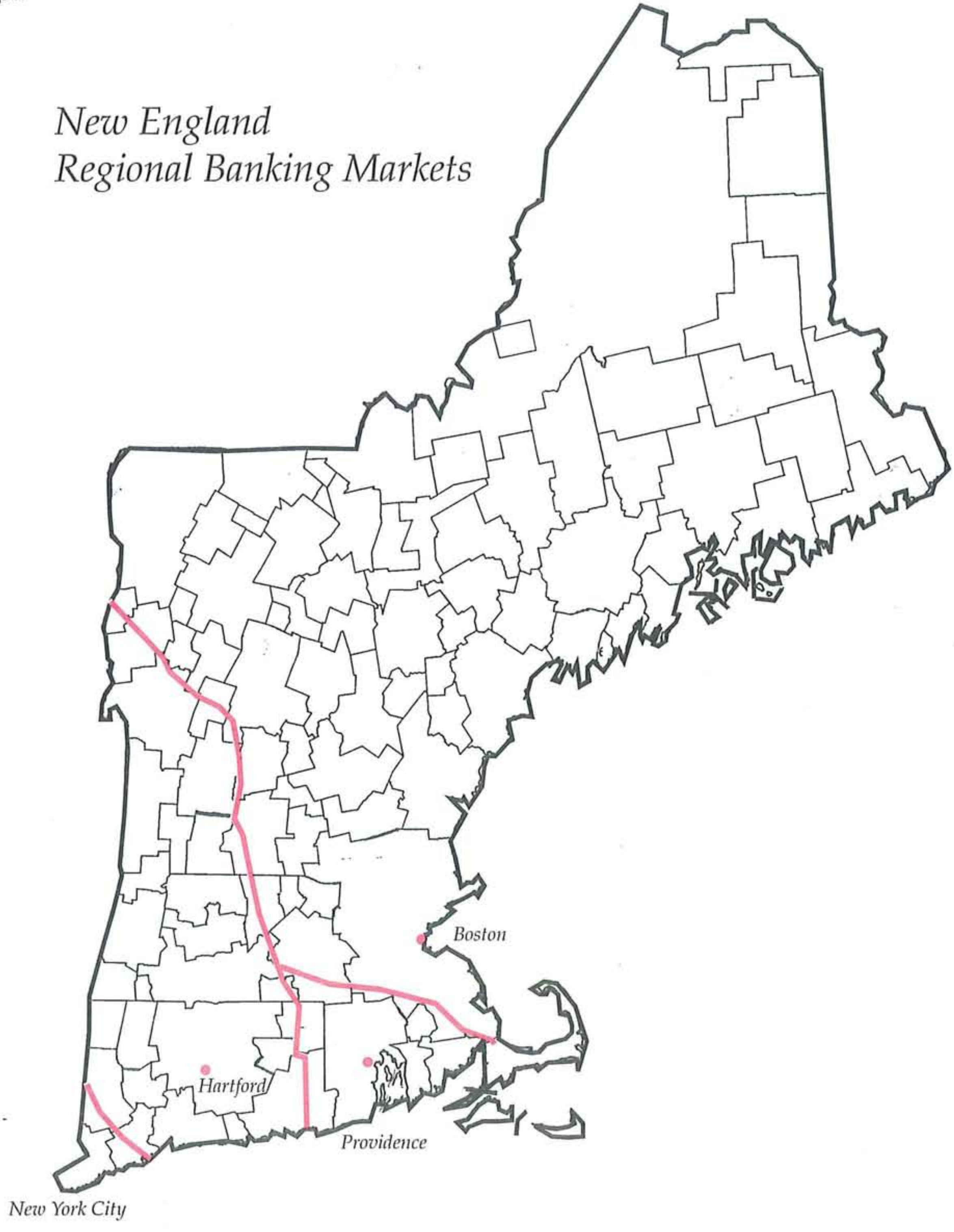
[5] Evidence of such ties is gleaned from a variety of sources. Some examples include the extent of advertising by businesses in one town in the newspapers of other towns, the geographic circulation of newspapers, the broadcasting radiuses of radio and TV stations, geographic shopping patterns, and the clientele of hospitals and other large medical facilities.

[6] This method does not always satisfactorily delineate the boundaries of banking markets in rural areas. Alternative benchmarks, such as county seats and agricultural distribution centers, sometimes must be used in these cases.

Map 2



Note: Fine lines indicate boundaries of local banking markets; heavy solid lines indicate boundaries of regional banking markets.
Source: Reproduced from Dunham (1986). Map of local banking markets taken from Sansons and Storm (1993).

Table 1
Primary Banking Relationships of Middle-Market Firms, 1984

Region in Which Firm Is Located	Region in Which Bank Is Located (1) NYC (part)	(2) Boston	(3) Hartford	(4) Providence	(5) Other	(6) Total	(7) Percent in Own Region
(1) NYC (part)	**16**	0	11	0	0	27	59.3
(2) Boston	9	**143**	2	5	1	160	89.4
(3) Hartford	10	11	**42**	0	3	66	63.6
(4) Providence	1	5	2	**17**	0	25	68.0
(5) Total	36	159	57	22	4	278	78.4

Note: Percentage of markets where percentage of firms choosing an in-market bank exceeds 80 percent: 25%. Percentage of markets where percentage of firms choosing an in-market bank is less than 70 percent: 75%.
Source: Dunham (1986).

Dunham's analysis implies that if a Boston-based banking organization raised the price of short-term credit offered to mid-sized firms located within the Boston regional market, it could not be undercut by banking organizations headquartered in one of the other three financial centers. The costs of transacting business over long distances would deter banking organizations headquartered in Providence, Hartford, or New York from doing so. According to this view, such costs also deter firms located in the Boston market from entering into a primary banking relationship with an out-of-market banking organization.

Dunham found that almost four-fifths of the firms in her sample were headquartered in the same market as their primary bank (Table 1). She interpreted this correlation as evidence of "strong ties of these firms to banks headquartered in the nearest major financial center" (Dunham 1986, p. 12). However, the correlation between bank and firm location was much weaker in the Hartford market, the Providence market, and the New England portion of the New York City market, raising doubts about the accuracy of her boundaries. In addition, she found that one-sixth of all firms located in her Hartford market identified a depository headquartered in the Boston market as their primary bank. The comparable fraction for firms in the Providence market was one-fifth. If Massachusetts-based depositories had such a large presence in both the Hartford and Providence markets, perhaps these depositories exerted a significant influence on the price of primary bank services in those markets. If so, a more accurate delineation of market boundaries would have put most of New England into a single regional market.

II. Evidence from Existing Data That the Boundaries of New England's Middle-Lending Markets Have Changed since 1984

Whether Dunham's boundaries were accurate in 1984, a good case can be made that New England's geographic middle-lending markets have changed during the past 10 years. This case rests on two trends evident in bank data. First, large commercial banks and large thrifts that actively participate in commercial lending markets have expanded geographically and increased assets since 1984. Consequently, New England's mid-sized businesses may no longer have to shop in one of the Big Four in order to find a bank large enough to satisfy their short-term credit needs. Second, those institutions that are subsidiaries of one of the region's large bank holding companies have gained substantial authority to rule on commercial loan applications independent of their parent bank. Consequently, mid-sized businesses may feel less compelled to deal directly with the lead bank of a bank holding company.

The Geographic Dispersion of Large Depository Institutions in New England

In 1984, all but two of the commercial banks with more than $1 billion in deposits doing business in New England were located in the Big Four. The two that were not, both located in eastern Connecticut,[7] had combined deposits totaling less than $2.5 billion.

[7] These two banks were Union Trust, New Haven, and Colonial Bank, Waterbury.

A commercial bank holding company, headquartered in Worcester, Massachusetts, held $1.2 billion in total deposits. This bank holding company consisted of seven commercial bank affiliates, none of which had deposits in excess of $500 million. One thrift institution, located in Bridgeport, Connecticut, with deposits totalling $3 billion, was somewhat commercially active.[8] Consequently, most of New England's mid-sized firms had to go either to one of the Big Four or out of the region in order to find a bank large enough to satisfy their primary banking needs.

At the end of 1992, New England had six commercial banks with deposits exceeding $1 billion headquartered outside of the Big Four, with combined deposits of almost $11 billion.[9] More important, the headquarters of these banks were (and still are) geographically dispersed throughout the region. Three of them, Fleet Bank of Maine, Key Bank of Maine, and Casco Northern Bank, are headquartered in Portland, Maine; two, Bank of Boston Connecticut and Chase Manhattan Bank of Connecticut, are headquartered in eastern Connecticut; and one, Fleet Bank of New Hampshire, is headquartered in southern New Hampshire.

Burlington, Vermont, is the headquarters location of Banknorth Group, a bank holding company controlling deposits of $1.4 billion. (The largest bank controlled by Banknorth Group, however, Howard Bank, has only $500 million in deposits.) Also headquartered in Burlington is Chittenden Trust Company, a commercial bank with total deposits just under $1 billion.

Large, commercially active thrift institutions have also become more numerous, expanded geographically, and increased assets since 1984. At the end of 1992, 10 thrifts with more than $1 billion in deposits were headquartered outside of the Big Four. Five of them were headquartered in eastern Connecticut, two in Massachusetts, two in southern New Hampshire, and one in Portland, Maine.[10] The combined deposits of these nine institutions totalled $20.8 billion.

Are These Depositories Independent Enough to Be Viable Alternatives for Mid-Sized Businesses?

All six of New England's $1 billion-plus commercial banks located outside of the Big Four are subsidiaries of either Fleet Financial Group, Bank of Boston Corporation, Chase Manhattan Corporation, or Keycorp. The region's second largest thrift, First New Hampshire Bank, is a subsidiary of the Bank of Ireland, headquartered in Dublin, Ireland. Are these seven depository institutions sufficiently independent to supplant their parent banks as providers of primary banking services to mid-sized firms? If not, these firms probably still prefer parent banks over subsidiaries, other things equal, and the boundaries of the region's middle-lending markets probably have changed very little over the past decade.

In order to evaluate the degree of independence enjoyed by subsidiaries of large bank holding companies, the author interviewed several CEOs and senior lending officers at large New England bank holding companies.[11] They stated that the subsidiaries of their bank holding companies have substantial authority to choose their commercial customers and to decide how much they lend to each and on what terms. Each bank holding company gives the lending officers at its subsidiaries a ceiling on the amount of money that the subsidiary can lend to any particular borrower. According to the interviewees, the ceiling is high enough to accommodate most of the short-term credit needs of mid-sized firms below a certain size. According to some, this limit is $50 million; according to others, it is closer to $100 million. Only the larger mid-sized firms are likely to need loans large enough to require clearance at the bank holding company level.

Subsidiaries of bank holding companies now have substantial authority to choose their commercial customers and to decide how much they lend to each and on what terms.

[8] People's Bank. The source of all 1984 deposit data cited in the text is Heaton (1984).

[9] The source of all deposit data for the end of 1992 is Sansons and Storm (1993).

[10] The 10 thrifts headquartered outside of the Big Four are People's Bank, Bridgeport, CT; First NH Bank, Manchester, NH; Centerbank, Waterbury, CT; New Bedford Institution for Savings, New Bedford, MA; People's Heritage Savings Bank, Portland, ME; First Federal Bank, Waterbury, CT; New Haven Savings Bank, New Haven, CT; New Dartmouth Bank, Manchester, NH; Worcester County Institution for Savings, Worcester, MA; and Derby Savings Bank, Derby, CT.

[11] Their names and affiliations are not revealed here to protect their confidentiality.

Hypotheses Concerning How the Boundaries of Middle-Lending Markets Have Changed

The increase in the number, geographic dispersion, and operational independence of New England's large depositories suggests that the region's mid-sized businesses are now served by eight financial centers. In addition to Boston, Providence, and Hartford, these centers now include Burlington, Vermont; Portland, Maine; Manchester-Nashua, New Hampshire; Waterbury, Connecticut; and Bridgeport, Connecticut. Each of these eight urban centers except Burlington is home to the headquarters of at least two large depositories (total deposits in excess of $1 billion).

The increase in number, geographic dispersion, and operational independence of New England's large depositories suggests that the region's mid-sized businesses are now served by eight financial centers instead of four.

According to this "financial center" hypothesis, each of these cities serves as the focal point of a new middle-lending market (Map 3). Following Dunham's methodology, every point within each market is closer to one of the financial centers than it is to the other seven. For example, each point within the Bridgeport, Connecticut market is closer to Bridgeport than to any of the other seven centers. In contrast to Dunham's conclusions, no part of New England would lie within New York City's middle-lending market because every point in eastern Connecticut would lie closer to Bridgeport, Waterbury, or Hartford.

The financial center hypothesis rests on two additional assumptions. The first is the standard one that the cost of transactions between a business and its bank increases proportionately with the distance between the two. It implies that, other things equal, the typical mid-sized firm prefers to borrow from a bank whose headquarters is close rather than far away.

According to the second assumption, the typical mid-sized firm strongly prefers to do most of its business with the headquarters branch of its primary bank, as opposed to the branch closest to it, in order to assure timely consideration of its loan applications. However, as discussed above, if the firm's primary bank is a subsidiary of a bank holding company, the firm no longer feels compelled to deal directly with the parent bank's management. This assumption implies, for example, that a mid-sized firm located in Bangor, Maine and banking with Fleet Bank of Maine prefers to conduct most of its business with the bank's headquarters office in Portland, rather than with one of the bank's branches in Bangor. However, the firm feels no need to conduct the bulk of its business with Fleet Financial Group's headquarters, in Providence.

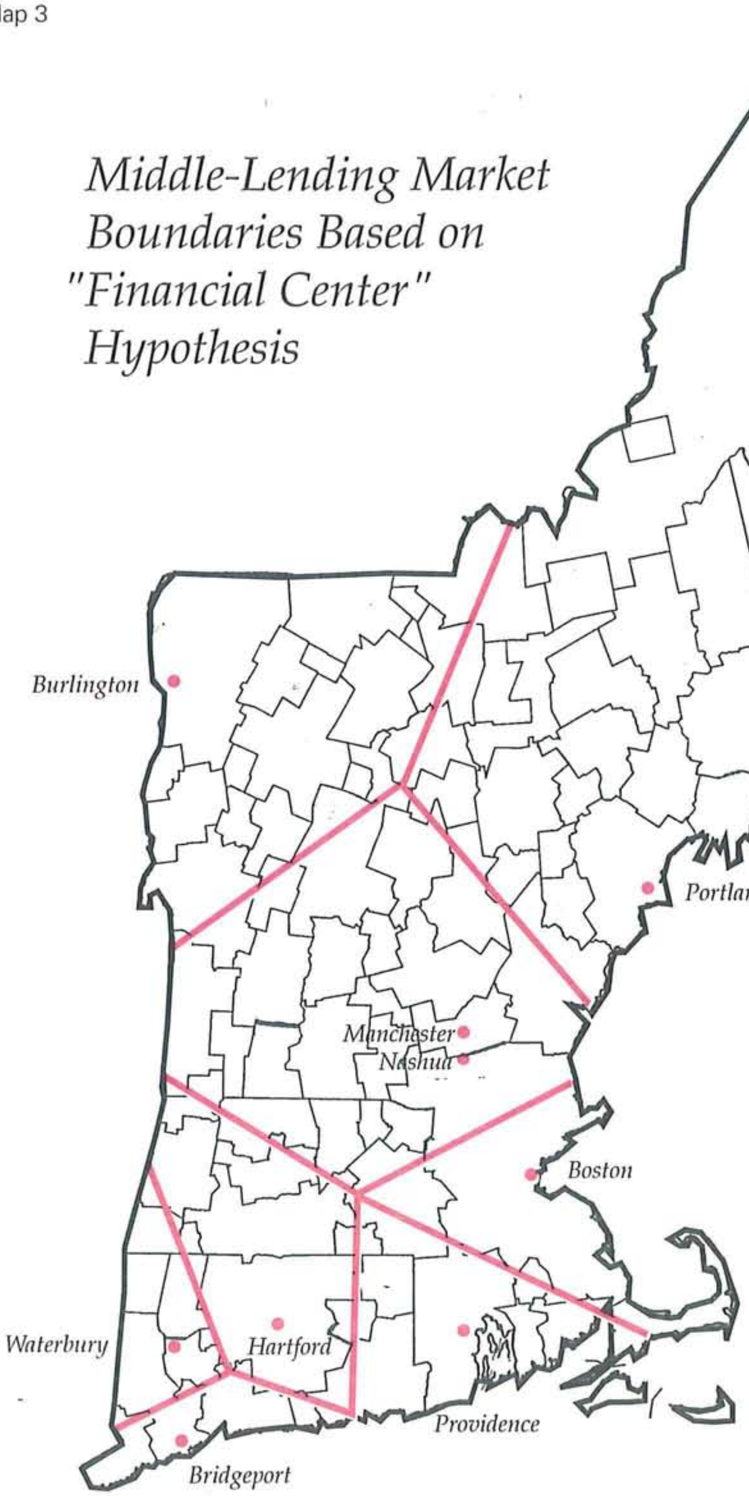
The assumption that mid-sized firms strongly prefer to conduct their business with the headquarters branch of their primary bank may be invalid. Most of New England's large depositories, even those headquartered outside of Boston, Hartford, and Providence, have an extensive system of branches throughout the state in which they are headquartered. Many of these branches are equipped to deliver services to businesses, such as receiving deposits and dispensing cash, that cannot be provided electronically. At the same time, many services usually provided exclusively by a headquarters branch, such as cash management, can be delivered electronically over long distances.

Under current law, a depository generally can operate full-service branches only in the state in which it is headquartered. Consequently, today's typical mid-sized business may prefer to bank with an in-state institution operating nearby branches over an out-of-state institution without nearby branches but with a closer headquarters site. If so, then the boundaries of New England's middle-lending markets may coincide with state boundaries (the "state-by-state" hypothesis), not the boundaries shown in Map 3.

III. New Evidence on the Geographic Boundaries of Middle-Lending Markets: Results of the Boston Fed Middle-Market Survey

In order to test these, as well as other, hypotheses concerning how the boundaries of New England's mid-sized firms may have changed since Dunham performed her analysis, the author analyzed data from the Boston Fed's 1992 middle-market survey. As

Map 3



Source: Author's calculations and map of local banking markets taken from Sansons and Storm (1993).

described in Tannenwald (1993), the firms participating in the survey were asked, among other things, to identify their principal supplier of short-term credit. The survey included telephone interviews of 1,051 businesses in New England whose 1992 annual sales ranged from $10 million to $250 million per year. The characteristics of the sample of firms interviewed, the manner in which the sample was selected, the questions posed during the interviews, and a complete tabulation of the survey results are presented in Tannenwald (1993 and 1994 forthcoming).

Of the 1,051 respondents, 363 did not identify a bank as their primary source of short-term credit because they had no short-term credit, because they obtained it primarily from a nonbank source, or because they were subsidiaries of a multicorporate entity and received their credit primarily from their parent company. Of the remaining 688 firms, 125 were subsidiaries of multicorporate entities that obtained most of their short-term credit from a bank, as opposed to their parent company. For the purposes of this article, these firms were eliminated from the sample because their primary credit source, even though a bank, was usually determined by their parent company, which often was not a mid-sized market firm and almost always had a different location. The remaining 563 firms constituted the subsample used to test hypotheses concerning the current geographic boundaries of New England's middle-lending markets.

Two tables based on the survey data were constructed to determine whether the financial center hypothesis or the state-by-state hypothesis is more accurate. Table 2 assumes that the geographic boundaries of New England's middle-lending markets are those implied by the financial center hypothesis.

Table 2
Primary Banking Relationships of Middle-Market Firms, by "Financial Center" Market[a]

Market in Which Firm Is Located	Market in Which Firm's Primary Bank Is Headquartered: (1) Boston, MA	(2) Bridgeport, CT	(3) Burlington, VT	(4) Hartford, CT	(5) Manchester/ Nashua, NH	(6) Portland, ME	(7) Providence, RI	(8) Waterbury, CT	(9) New York, NY	(10) Other	(11) Total	(12) Percent in Own Market
(1) Boston, MA	**223**	0	0	1	5	0	5	0	15	11	260	85.8
	(85.8)	(0.0)	(0.0)	(0.4)	(1.9)	(0.0)	(1.9)	(0.0)	(5.8)	(4.2)	(100.0)	
(2) Bridgeport, CT	0	**22**	0	2	1	0	1	0	5	2	33	66.7
	(0.0)	**(66.7)**	(0.0)	(6.1)	(3.0)	(0.0)	(3.0)	(0.0)	(15.2)	(6.1)	(100.1)	
(3) Burlington, VT	5	0	**12**	0	1	0	1	0	1	0	20	60.0
	(25.0)	(0.0)	**(60.0)**	(0.0)	(5.0)	(0.0)	(5.0)	(0.0)	(5.0)	(0.0)	(100.0)	
(4) Hartford, CT	9	1	0	**46**	0	0	1	0	5	1	63	73.0
	(14.3)	(1.6)	(0.0)	**(73.0)**	(0.0)	(0.0)	(1.6)	(0.0)	(7.9)	(1.6)	(100.0)	
(5) Manchester/ Nashua, NH	23	0	1	0	**31**	1	1	0	5	3	65	47.7
	(35.4)	(0.0)	(15.0)	(0.0)	**(47.7)**	(1.5)	(1.5)	(0.0)	(7.7)	(4.6)	(99.9)	
(6) Portland, ME	2	0	0	0	3	**29**	1	0	0	5	40	72.5
	(5.0)	(0.0)	(0.0)	(0.0)	(7.5)	**(72.5)**	(2.5)	(0.0)	(0.0)	(12.5)	(100.0)	
(7) Providence, RI	11	0	0	1	1	0	**48**	0	4	1	66	72.7
	(16.7)	(0.0)	(0.0)	(1.5)	(1.5)	(0.0)	**(72.7)**	(0.0)	(6.1)	(1.5)	(100.0)	
(8) Waterbury, CT	1	1	0	1	0	0	0	**10**	2	1	16	62.5
	(6.3)	(6.3)	(0.0)	(6.3)	(0.0)	(0.0)	(0.0)	**(62.5)**	(12.5)	(6.3)	(100.2)	
(9) Total	274	24	13	51	42	30	58	10	37	24	563	74.8
	(48.7)	(4.3)	(2.3)	(9.1)	(7.5)	(5.2)	(10.3)	(1.8)	(6.6)	(4.3)	(100.1)	

[a]Markets correspond to those delineated in Map 3.

Note: First row of numbers for each market shows number of firms. Numbers in parentheses are percentages. (Percentages may not sum to 100.0 because of rounding.)

Percentage of markets where percentage of firms choosing an in-market bank exceeds 80 percent: 12.5%. Percentage of markets where percentage of firms choosing an in-market bank is less than 70 percent: 50%.

Source: Author's calculations and Federal Reserve Bank of Boston Middle-Market Survey.

Table 3
Primary Banking Relationships of Middle-Market Firms, by State Banking Market

Market in Which Firm Is Located	Market in Which Primary Bank Is Headquartered: (1) Connecticut	(2) Maine	(3) Massachusetts	(4) New Hampshire	(5) Rhode Island	(6) Vermont	(7) New York	(8) Other	(9) Total	(10) Percent in Own Market
(1) Connecticut	**76**	0	5	0	2	1	11	4	99	76.8
	(76.8)	(0.0)	(5.1)	(0.0)	(2.0)	(1.0)	(11.1)	(4.0)	(100.0)	
(2) Maine	0	**29**	2	3	0	0	0	5	39	74.4
	(0.0)	**(74.4)**	(5.1)	(7.7)	(0.0)	(0.0)	(0.0)	(12.8)	(100.0)	
(3) Massachusetts	0	0	**276**	2	6	1	20	12	317	87.1
	(0.0)	(0.0)	**(87.1)**	(0.6)	(1.9)	(0.3)	(6.3)	(3.8)	(100.0)	
(4) New Hampshire	0	1	12	**23**	1	1	3	2	43	53.5
	(0.0)	(2.3)	(27.9)	**(53.5)**	(2.3)	(2.3)	(7.0)	(4.7)	(100.0)	
(5) Rhode Island	0	0	0	0	**37**	0	1	1	39	94.9
	(0.0)	(0.0)	(0.0)	(0.0)	**(94.9)**	(0.0)	(2.6)	(2.6)	(100.0)	
(6) Vermont	0	0	5	0	2	**17**	2	0	26	65.4
	(0.0)	(0.0)	(19.2)	(0.0)	(7.7)	**(65.4)**	(7.7)	(0.0)	(100.0)	
(7) Total	76	30	300	28	48	20	37	24	563	81.3
	(13.5)	(5.3)	(53.3)	(4.9)	(8.5)	(3.6)	(6.6)	(4.3)	(100.0)	

Note: First row of numbers for each market shows number of firms. Numbers in parentheses are percentages.

Percentage of markets where percentage of firms choosing an in-market bank exceeds 80 percent: 33.3%. Percentage of markets where percentage of firms choosing an in-market bank is less than 70 percent: 33.3%.

Source: Author's calculations and Federal Reserve Bank of Boston Middle-Market Survey.

Each row distributes firms located in a given market by the market in which the headquarters of their primary bank is located. For example, row 1 of Table 2 presents the market-by-market distribution of the primary banks of all firms located in the Boston market.[12] Table 3 presents the same analysis under the assumptions that each state is a separate geographic market. The diagonals of each table in bold print indicate the number and percentage of firms located in each market whose primary bank is headquartered in that market.

The state-by-state market configuration gives a closer "topographic fit" than the financial center configuration. In Table 3, 81 percent of respondents are assigned to the bold diagonal boxes, compared to 75 percent in Table 2. More important, the percentage of markets in which in-market banks have a market share above 80 percent is higher in Table 3, and the percentage of markets in which in-market banks have a market share below 70 percent is lower.

Alternative Hypotheses

While the state-by-state hypothesis provides a better fit than the financial center hypothesis, alternative hypotheses may provide fits superior to both. In particular, geographic markets may differ for various size groups within the middle-market range. Smaller middle-market firms may be more likely than their larger counterparts to be satisfied with in-state banks, because the amount of short-term credit and the range of services that they require are on average smaller. Most of the bank CEOs and senior commercial lending officers interviewed by the author agreed with this hypothesis.

In order to test this possibility, the author divided his sample of mid-sized businesses into two size segments, those with annual sales between $10 million and $50 million (the "small" segment) and those with annual sales over $50 million and below $250 million (the "large" segment).[13] Table 4 analyzes

[12] Each column indicates the number of times depositories located in a given geographic market are identified as primary banks, broken down by the location of the identifying firm. For example, Table 2, column 1, row 2 indicates the number of times that a depository located in the Boston market is identified as a primary bank by firms located in the Bridgeport, Connecticut market.

[13] Comments by the bank CEOs and commercial lending officers interviewed suggested that the demarcation between the small and large segments should fall somewhere in the $50 million–$100 million dollar range. If the demarcation point were

Table 4
Primary Banking Relationships of Small-Segment Middle-Market Firms,[a] by State Banking Market

Market in Which Firm Is Located	Market in Which Primary Bank Is Headquartered									
	(1) Connecticut	(2) Maine	(3) Massachusetts	(4) New Hampshire	(5) Rhode Island	(6) Vermont	(7) New York	(8) Other	(9) Total	(10) Percent in Own Market
(1) Connecticut	**62**	0	3	0	2	1	6	1	75	82.7
	(82.7)	(0.0)	(4.0)	(0.0)	(2.7)	(1.3)	(8.0)	(1.3)	(101.0)	
(2) Maine	0	**22**	0	3	0	0	0	3	28	78.6
	(0.0)	**(78.6)**	(0.0)	(10.7)	(0.0)	(0.0)	(0.0)	(10.7)	(100.0)	
(3) Massachusetts	0	0	**169**	2	2	0	10	10	193	87.6
	(0.0)	(0.0)	**(87.6)**	(1.0)	(1.0)	(0.0)	(5.2)	(5.2)	(100.0)	
(4) New Hampshire	0	1	5	**21**	1	1	1	1	31	67.7
	(0.0)	(3.2)	(16.1)	**(67.7)**	(3.2)	(3.2)	(3.2)	(3.2)	(99.8)	
(5) Rhode Island	0	0	0	0	**26**	0	0	0	26	100.0
	(0.0)	(0.0)	(0.0)	(0.0)	**(100.0)**	(0.0)	(0.0)	(0.0)	(100.0)	
(6) Vermont	0	0	1	0	2	**15**	1	0	19	79.0
	(0.0)	(0.0)	(5.3)	(0.0)	(10.5)	**(79.0)**	(5.3)	(0.0)	(100.1)	
(7) Total	62	23	178	26	33	17	18	15	372	84.7
	(16.7)	(6.2)	(47.9)	(7.0)	(8.9)	(4.6)	(4.8)	(4.0)	(100.1)	

[a]Small-segment middle-market firms are defined as those firms with reported annual sales in 1991 greater than $10 million and less than or equal to $50 million.

Note: First row of numbers for each market shows number of firms. Numbers in parentheses are percentages. (Percentages may not sum to 100.0 because of rounding.)

Percentage of markets where percentage of firms choosing an in-market bank exceeds 80 percent: 50%. Percentage of markets where percentage of firms choosing an in-market bank is less than 70 percent: 16.7%.

Source: Author's calculations and Federal Reserve Bank of Boston Middle-Market Survey.

the extent to which small-segment businesses located within a particular state choose a depository headquartered within that state as their primary bank. Table 5 performs the same analysis for the large-segment firms.

The smaller firms are, in fact, considerably more likely to rely on an in-state bank than are their larger counterparts. Almost 85 percent of the small-segment businesses chose an in-state bank. The percentage was greater than 75 percent in five of the six New England states; in New Hampshire it was 68 percent (Table 4).[14] By contrast, only 75 percent of large-segment banks chose an in-state bank (Table 5). The topographic fit was especially poor in New Hampshire and Vermont, where only 17 percent and 29 percent of large-segment firms, respectively, chose an in-state bank.

A possibly more accurate set of market boundaries for the small segment would combine Massachusetts and New Hampshire into a single market. Over 16 percent of New Hampshire firms in this segment listed a Massachusetts-based bank as their most important source of short-term credit. Unfortunately, no clear-cut standard exists for determining the point at which banks from one area do so much lending in another area that the two areas should be considered part of the same geographic market. One possibly relevant set of guidelines is the 15 and 20 percent rule used by the Boston Fed in delineating the boundaries of local banking markets (Section I,

$100 million, there would be very few observations for each state in the $100 million–$250 million range. As discussed later in this article, small sample size is still a problem in the large segment, even with a lower bound of over $50 million.

[14] Note that three of Maine's 28 small-segment middle-market firms use a New Hampshire bank as their primary source of credit (Table 4, row 2, column 4). In each case the bank is First New Hampshire of Manchester, NH. In 1992, First New Hampshire acquired First Maine Bank, Portland, ME, and then promptly closed it down (Sansons and Storm 1993). First New Hampshire maintained several of First Maine Bank's former borrowers, servicing them out of Manchester. Were it not for this set of circumstances, the percentage of small-segment Maine firms banking with an in-state depository probably would have been well over 80 percent.

Table 5
Primary Banking Relationships of Large-Segment Middle-Market Firms,[a] by State Banking Market

	Market in Which Primary Bank Is Headquartered									
Market in Which Firm Is Located	(1) Connecticut	(2) Maine	(3) Massachusetts	(4) New Hampshire	(5) Rhode Island	(6) Vermont	(7) New York	(8) Other	(9) Total	(10) Percent in Own Market
(1) Connecticut	**14**	0	2	0	0	0	5	3	24	58.3
	(58.3)	(0.0)	(8.3)	(0.0)	(0.0)	(0.0)	(20.8)	(12.5)	(99.9)	
(2) Maine	0	**7**	2	0	0	0	0	2	11	63.6
	(0.0)	**(63.6)**	(18.2)	(0.0)	(0.0)	(0.0)	(0.0)	(18.2)	(100.0)	
(3) Massachusetts	0	0	**107**	0	4	1	10	2	124	86.3
	(0.0)	(0.0)	**(86.3)**	(0.0)	(3.2)	(0.8)	(8.1)	(1.6)	(100.0)	
(4) New Hampshire	0	0	7	**2**	0	0	2	1	12	16.7
	(0.0)	(0.0)	(58.3)	**(16.7)**	(0.0)	(0.0)	(16.7)	(8.3)	(100.0)	
(5) Rhode Island	0	0	0	0	**11**	0	1	1	13	84.6
	(0.0)	(0.0)	(0.0)	(0.0)	**(84.6)**	(0.0)	(7.7)	(7.7)	(100.0)	
(6) Vermont	0	0	4	0	0	**2**	1	0	7	28.6
	(0.0)	(0.0)	(57.1)	(0.0)	(0.0)	**(28.6)**	(14.3)	(0.0)	(100.0)	
(7) Total	14	7	122	2	15	3	19	9	191	74.9
	(7.3)	(3.7)	(63.9)	(1.1)	(7.9)	(1.6)	(10.0)	(4.7)	(100.2)	

[a]Large-segment middle-market firms are defined as those firms with reported annual sales in 1991 greater than $50 million and less than or equal to $250 million.

Note: First row of numbers for each market shows number of firms. Numbers in parentheses are percentages. (Percentages may not sum to 100.0 because of rounding.)

Percentage of markets where percentage of firms choosing an in-market bank exceeds 80 percent: 33.3%. Percentage of markets where percentage of firms choosing an in-market bank is less than 70 percent: 66.7%.

Source: Author's calculations and Federal Reserve Bank of Boston Middle-Market Survey.

above). The percentage of New Hampshire firms in the smaller middle-market segment listing a Massachusetts depository as their primary bank falls within the "gray" 15 and 20 percent range. Consequently, according to this rule, one should consider Massachusetts and New Hampshire as one lending market if supplementary evidence corroborates strong economic links between the two states.

In support of the hypothesis that New Hampshire is not an autonomous middle-lending market, the CEO of a New Hampshire bank interviewed by the author pointed out that a large percentage of the state's residents are migrants from other states, especially Massachusetts. As a result, they are familiar with out-of-state financial institutions and feel relatively comfortable doing business with them. The CEO also pointed out that a large portion of New Hampshire's population resides within an hour's drive of Boston.

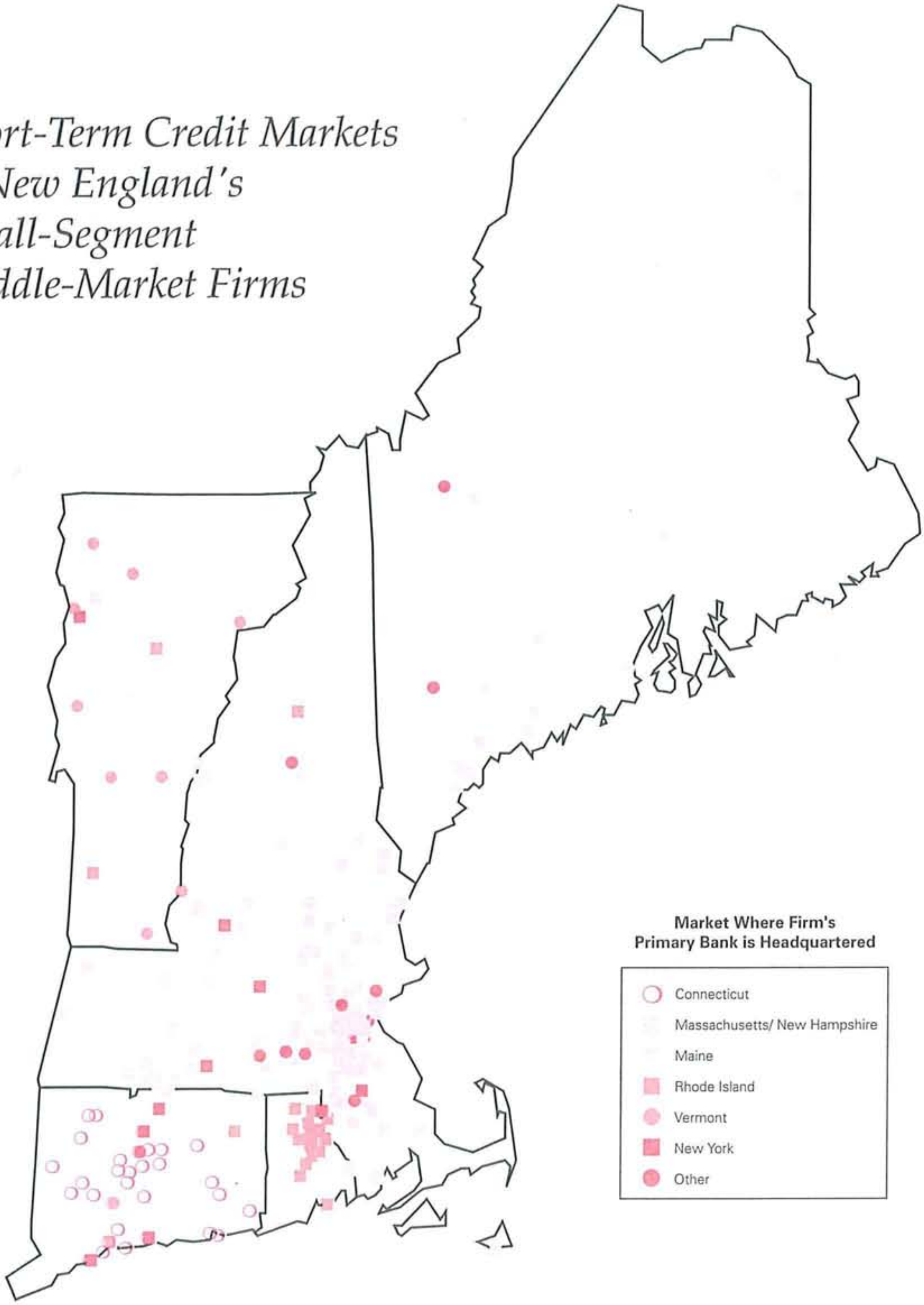
Interstate migration data collected by the U.S. Census Bureau confirm that a large percentage of New Hampshire residents are migrants. The latest available statistics show that more than one in six of New Hampshire's residents in 1980 lived in another state in 1975. More than 1 in 14 lived in Massachusetts (U.S. Bureau of the Census 1985).

Combining Massachusetts and New Hampshire into a single, small-segment middle-lending market improves the "topographic fit" between market delineations and actual geographic clusters of banking relationships (Map 4). As shown in Table 6, with this configuration 87 percent of all small-segment firms rely on an in-state bank as their primary source of short-term credit. This percentage exceeds 78 percent in all five markets.

Alternative configurations providing a better topographic fit than state boundaries can be drawn for large-segment geographic lending markets as well. One such configuration, presented in Map 5 and Table 7, consists of three such markets: Rhode Island, Maine-Massachusetts-New Hampshire-Vermont, and Connecticut (which is part of the New

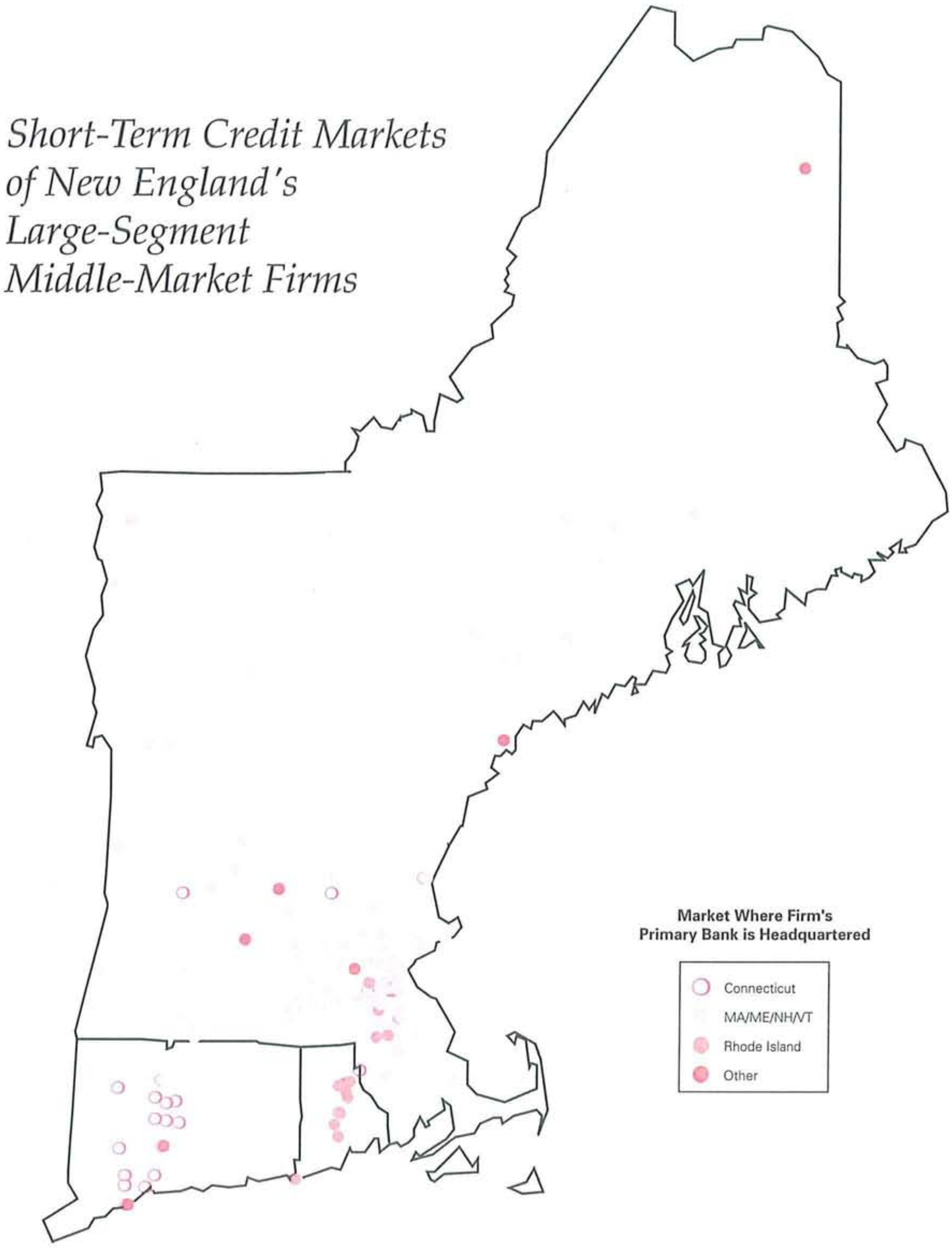
Map 4

Short-Term Credit Markets of New England's Small-Segment Middle-Market Firms



Note: Dots represent headquarters of firms in sample of Boston Fed Middle-Market Survey with $10 million to $50 million in 1991 sales.
Source: Boston Fed Middle-Market Survey.

Map 5



Note: Dots represent headquarters of firms in sample of Boston Fed Middle-Market Survey with $50 million to $250 million in 1991 sales.
Source: Boston Fed Middle-Market Survey.

Table 6

Primary Banking Relationships of Small-Segment Middle-Market Firms,[a] by Modified State Banking Market

Market in Which Firm Is Located	Market in Which Primary Bank Is Headquartered: (1) Connecticut	(2) Maine	(3) Massachusetts/ New Hampshire	(4) Rhode Island	(5) Vermont	(6) New York	(7) Other	(8) Total	(9) Percent in Own Market
(1) Connecticut	**62**	0	3	2	1	6	1	75	82.7
	(82.7)	(0.0)	(4.0)	(2.7)	(1.3)	(8.0)	(1.3)	(100.0)	
(2) Maine	0	**22**	3	0	0	0	3	28	78.6
	(0.0)	**(78.6)**	(10.7)	(0.0)	(0.0)	(0.0)	(10.7)	(100.0)	
(3) Massachusetts/ New Hampshire	0	1	**197**	3	1	11	11	224	87.9
	(0.0)	(0.5)	**(87.9)**	(1.3)	(0.5)	(4.9)	(4.9)	(100.1)	
(4) Rhode Island	0	0	0	**26**	0	0	0	26	100.0
	(0.0)	(0.0)	(0.0)	**(100.0)**	(0.0)	(0.0)	(0.0)	(100.0)	
(5) Vermont	0	0	1	2	**15**	1	0	19	79.0
	(0.0)	(0.0)	(5.3)	(10.5)	**(79.0)**	(5.3)	(0.0)	(100.1)	
(6) Total	62	23	204	33	17	18	15	372	86.6
	(16.7)	(6.2)	(54.8)	(8.9)	(4.6)	(4.8)	(4.0)	(100.0)	

[a]Small-segment middle-market firms are defined as those firms with reported annual sales in 1991 greater than $10 million and less than or equal to $50 million.

Note: First row of numbers for each market shows number of firms. Numbers in parentheses are percentages. (Percentages may not sum to 100.0 because of rounding.)

Percentage of markets where percentage of firms choosing an in-market bank exceeds 80 percent: 60%. Percentage of markets where percentage of firms choosing an in-market bank is less than 70 percent: 0%.

Source: Author's calculations and Federal Reserve Bank of Boston Middle-Market Survey.

Table 7

Primary Banking Relationships of Large-Segment Middle-Market Firms,[a] by Modified State Banking Market

Market in Which Firm Is Located	Market in Which Primary Bank Is Located: (1) Connecticut/ New York	(2) Maine/ Massachusetts/ New Hampshire/ Vermont	(3) Rhode Island	(4) Other	(5) Total	(6) Percent in Own Market
(1) Connecticut	**19**	2	0	3	24	79.2
	(79.2)	(8.3)	(0.0)	(12.5)	(100.0)	
(2) Maine/ Massachusetts/ New Hampshire/ Vermont	13	**132**	4	5	154	85.7
	(8.4)	**(85.7)**	(2.6)	(3.25)	(99.95)	
(3) Rhode Island	1	0	**11**	1	13	84.6
	(7.7)	(0.0)	**(84.6)**	(7.7)		
(4) Total	33	134	15	9	191	84.8
	(17.3)	(70.2)	(7.9)	(4.7)	(100.1)	

[a]Large-segment middle-market firms are defined as those firms with reported annual sales in 1991 greater than $50 million and less than or equal to $250 million.

Note: First row of numbers for each market shows number of firms. Numbers in parentheses are percentages. (Percentages may not sum to 100.0 because of rounding.)

Percentage of markets where percentage of firms choosing an in-market bank exceeds 80 percent: 66.7%. Percentage of markets where percentage of firms choosing an in-market bank is less than 70 percent: 0%.

Source: Author's calculations and Federal Reserve Bank of Boston Middle-Market Survey.

Evidence Used in Identifying Boundaries of Large-Segment Markets

Evidence from both the Boston Fed middle-market survey and Standard & Poor's *1994 Register of Corporations, Directors, and Executives* was used to identify the boundaries of the region's large-segment middle-lending markets. Both sources of data suggest that Rhode Island is a separate market. Among the 13 large-segment Rhode Island firms in the survey sample, 11 bank with an in-state depository.[15] However, four of the firms are hospitals, which are more likely than other enterprises to bank with an in-state institution because of their exceptionally close community ties. Nevertheless, 12 of the 13 independent Rhode Island firms in Standard & Poor's *Register* with annual sales between $50 million and $250 million (none of which are hospitals) identified a Rhode Island depository as their primary bank.

Connecticut apparently belongs in the same market as New York City. A high percentage (21 percent) of the large-segment Connecticut survey subsample identified a depository headquartered in New York City as their primary bank.

Since more than one-half of the survey sample's large-segment firms in both New Hampshire and Vermont bank with a Massachusetts-based bank, these three states were combined into another single market (Massachusetts-New Hampshire-Vermont). Maine was added to this three-state market because two, or 18 percent, of the 11 large-segment firms in the state's subsample reported a Massachusetts-based bank as their primary bank. This percentage falls within the "gray" 15 and 20 percent range, suggesting that corroborating evidence of strong economic ties is needed to link Maine conclusively to the other three states. A similar case could be made for assigning New Hampshire to the same large-segment market as New York City and Connecticut, since two of the 12 large-segment firms in the New Hampshire subsample, or 17 percent, reported banking with a depository headquartered in New York City. (As a result, New Hampshire would be assigned simultaneously to two markets.) Because the large-segment samples for Maine and New Hampshire are so small, conclusions about these states' geographic large-segment market affiliations are fraught with uncertainty, however.

Maine was assigned to the MA-NH-VT market to form a ME-MA-NH-VT market. New Hampshire was not assigned to the New York City-Connecticut market, however. These decisions were made partially on the basis of geography: the most densely populated areas of Maine are closer to the financial centers of Massachusetts, New Hampshire, and Vermont (Boston; Burlington, VT.; Manchester, NH; and Nashua, NH) than the most densely populated areas of New Hampshire are to New York City. Standard & Poor's *Register* listed 26 independent corporations in New Hampshire with annual sales between $50 million and $250 million. Of these, only one, or 4 percent, listed a depository headquartered in New York City as its primary bank. The *Register* listed 18 such corporations located in Maine. Of these, five, or 28 percent, reported a Massachusetts-based depository as their primary bank.

York City market).Evidence used in identifying these three markets is discussed in the accompanying box. Given this configuration, 85 percent of all large-segment firms bank with an institution headquartered within their market. Market-specific deviations from this average are small; the percentage of firms banking with an in-market depository ranges from 79 percent in Connecticut to 86 percent in Maine-Massachusetts-New Hampshire-Vermont.

IV. Concentration of Middle-Lending Markets

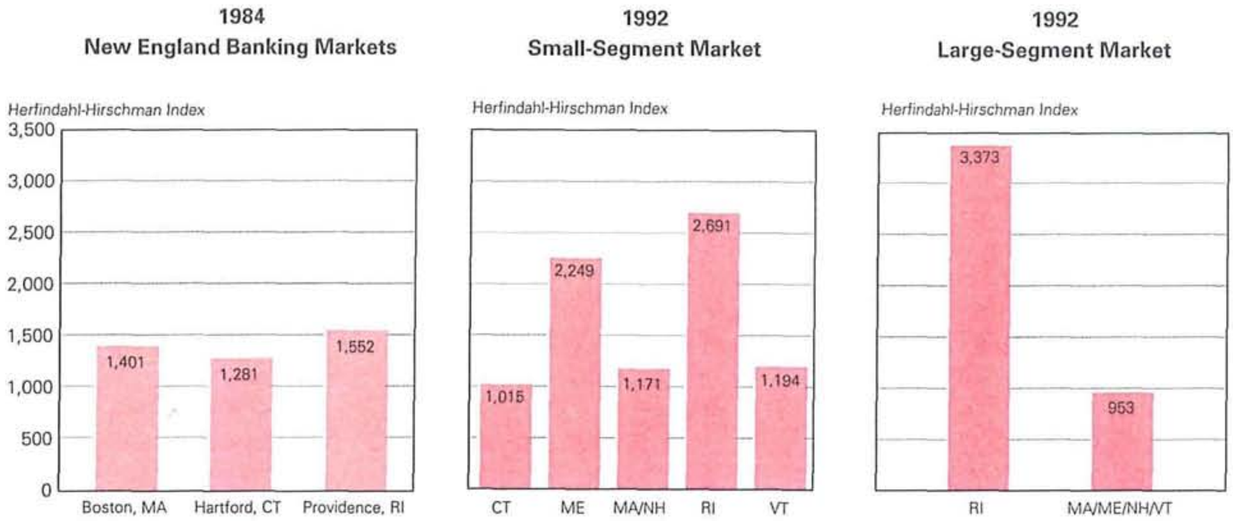
Dunham (1986) used the Herfindahl-Hirschman Index (HHI) to measure the concentration of her Boston, Providence, and Hartford middle-lending markets.[16] According to Justice Department guide-

[15] One of the out-of-state depositories is headquartered in New York, the other in Virginia.

[16] The first step in the computation of a market's Herfindahl-Hirschman Index of concentration is to compute the market share of each participant, expressed as a percentage. The Index value equals the sum of the squared percentage shares. Dunham could

Figure 1

Middle-Lending Market Concentration Ratios, 1984 and 1992



Note: Below 1,000, a market is considered unconcentrated; 1,000 to 1,800, moderately concentrated; over 1,800, highly concentrated.
Sources: Dunham (1986); and author's calculations based on Federal Reserve Bank of Boston Middle-Market Survey.

lines, markets with HHI values over 1800 are considered highly concentrated, those with values between 1000 and 1800 moderately concentrated, and those with values less than 1000 are considered unconcentrated (Sansons and Storm 1993). Dunham computed an HHI for each market based on each lender's share of middle market customers. Her results, displayed in the first bar chart in Figure 1, indicate that her three New England markets were moderately concentrated in 1984.

HHI indices for the five small-segment markets identified in this article are also shown in Figure 1. Three markets—Connecticut, Vermont, and Massachusetts-New Hampshire—are somewhat less concentrated than Dunham's but still fall within the moderately concentrated range. These three markets contain over 85 percent of all small-segment firms. The other two small-segment markets, Maine and Rhode Island, are highly concentrated. The HHIs for the two large-segment middle-lending markets that lie wholly within New England are also shown. Rhode Island, which contains 8 percent of the firms in these two markets, is highly concentrated, while the ME-MA-NH-VT market is unconcentrated.

Thus, most of New England's mid-sized firms apparently are located in middle-lending markets where sufficient numbers of lenders exist to ensure the availability of short-term credit on competitive terms. Firms located in the small-segment market in Maine and both the small-segment and large-segment markets in Rhode Island are more vulnerable to uncompetitive terms.

Since the local banking markets of Maine and Rhode Island also tend to be highly concentrated, any merger likely to increase the concentration levels of these three middle-lending markets significantly would probably raise competitive concerns at the local-market level as well.[17] However, parties to a proposed merger of large banks often can alleviate the anticompetitive impact of their transaction on local banking markets by selling off bank branches. This strategy is less likely to be successful in mitigat-

not measure the concentration of her New York City market because she had information only on those banks in this market located in Connecticut.

[17] At the end of 1992, 25 of Maine's 29 local banking markets were highly concentrated, assuming that all depositories, thrifts as well as commercial banks, were market participants (thrifts weighted at 100 percent). Both of Rhode Island's local banking markets were highly concentrated. See Sansons and Storm (1993).

ing anticompetitive impacts on middle-lending markets. If branches are sold to small competitors, the number of viable lenders for mid-sized businesses that need the resources of large depositories does not increase, and the degree of concentration in middle-lending markets is not changed. Consequently, modifying mergers to satisfy antitrust concerns at the local level might fail to mitigate concerns about their anticompetitive impact on middle-lending markets.

V. Summary and Conclusion

This article attempts to identify the geographic boundaries of New England's middle-lending markets and to evaluate their concentration levels. It relies primarily on evidence gleaned from a survey of mid-sized businesses conducted by the Boston Fed in 1992. This evidence suggests that the boundaries of New England's middle-lending markets have changed during the past 10 years, as large depositories capable of satisfying the credit needs of mid-sized firms have become more numerous and more geographically dispersed. Such businesses no longer feel compelled to bank with a depository headquartered in New York City, Hartford, Providence, or Boston. Viable alternatives outside these financial centers are now more plentiful, especially for firms with annual sales between $10 million and $50 million.

The Boston Fed Survey suggests that the credit markets tapped by mid-sized firms in this range have different characteristics than those tapped by firms with annual sales over $50 million and below $250 million. Market boundaries for the smaller range (small-segment firms) conform closely to state boundaries, although Massachusetts and New Hampshire seem to comprise a single market. By contrast, only two lending markets for mid-sized firms in the higher range (large-segment firms) lie wholly within New England, one coterminous with Rhode Island, the other consisting of Maine, New Hampshire, Massachusetts, and Vermont. For large-segment firms, Connecticut is part of the same market as New York City.

Most of New England's mid-sized firms are located in middle-lending markets that are only moderately concentrated. All of Rhode Island's firms and Maine's small-segment firms, which together account for approximately 10 percent of the region's mid-sized businesses, are located in markets that are highly concentrated.

Further analysis is needed to confirm the existence of middle-lending markets, to identify their boundaries, and to evaluate their competitiveness. These issues should continue to be investigated, as they raise important public policy concerns.

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