Banks' Venture into Real Estate: High Rollers, or Lemmings?

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At a conference on real estate and the credit crunch in the fall of 1992 sponsored by the Federal Reserve Bank of Boston, participants hotly debated whether banks "knew what they were doing" when they became so deeply committed to real estate loans in the mid 1980s (Browne and Rosengren 1992). Some argued that banks had aggressively pursued real estate loans in a high-risk, high-return strategy intended to offset competitive pressures in more traditional lending areas. While banks may have underestimated the risks of real estate lending, they were aware that the risks were substantial. Other participants countered that banks truly did not appreciate the magnitude of the risks they were taking; to paraphrase Robert Litan's description, "lemming-like," they followed one another to destruction. Advocates of the lemming theory pointed to the pervasiveness of banks' involvement in real estate as evidence supporting their argument: pursuit of real estate loans was not limited to institutions so financially troubled that they had nothing to lose.

This article attempts to shed light on the debate by examining the factors responsible for variations in commercial banks' real estate lending in the mid 1980s. The issue is shown to be complicated by the difficulty of defining—in advance—what constitutes a risky strategy. Also, bank motivations are not limited to the alternatives of lemming-like behavior and "betting the bank" in a desperate gamble to survive. Regression analysis provides some support for the argument that banks looked to real estate loans to bolster their financial performance: increases in real estate lending between 1984 and 1988 tended to be larger for banks with low capital ratios at the start of the period. In addition, in New England, where banks were particularly aggressive in increasing their real estate lending and suffered a much higher failure rate than banks nationwide, pursuit of real estate loans was also pursuit of growth. While rapid growth elsewhere was not problematic, in New England, where most banks grew rapidly, those that grew fastest proved most vulnerable to failure.

Bank Pursuit of Real Estate Loans

During the 1980s, the nation's mortgage debt outstanding increased more than 10 percent per year, while nominal GDP rose at an annual rate of less than 7 percent. Growth was most rapid between 1984 and 1988, especially for commercial mortgages. The primary sources of mortgage funds were commercial banks, thrift institutions, insurance companies, and federally related mortgage pools (Figure 1). The last, which purchase primarily home mortgages, were not much of a factor at the start of the decade but grew rapidly. Much of the pools' growth was funded by banks, thrift institutions, and insurance companies' purchases of the pass-through securities issued by the pools.[1] In other words, banks, thrifts, and insurance companies not only financed the expansion in mortgage debt directly, but also did so indirectly through the mortgage pools.

Excluding the mortgage pools, commercial banks expanded their mortgage lending more rapidly than other financial institutions. Commercial banks were particularly aggressive in making loans on commercial property. Their share of commercial mortgages outstanding rose from just over 30 percent in 1980 to 37 percent in 1984 and to 44 percent in 1988. Commercial banks also added to their holdings of home mortgages, maintaining their share of this market even as the mortgage pools expanded.

Commercial banks' pursuit of real estate loans was reflected in the composition of their portfolios. Based on call report data, the share of U.S. commercial bank assets consisting of loans backed by real estate rose from 15 percent to 21 percent in just four years, from 1984 to 1988 (Table 1).[2] New England banks were even more aggressive in pursuit of real

Figure 1A

Total U.S. Mortgage Holdings

Figure 1B

U.S. Home Mortgage Holdings, excluding Mortgage Pools

Figure 1C

U.S. Commercial Mortgage Holdings, excluding Mortgage Pools

Note: Data represent levels at the end of the period.
Source: Board of Governors of the Federal Reserve System, *Flow of Funds, Accounts Flows and Outstandings,* First Quarter 1993.

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[1] The Flow of Funds Accounts combine the securities of the mortgage pools with those of other government-sponsored agencies when showing agency securities as assets held by different sectors. Together, banks, thrift institutions, and insurance companies held about one-half of total agency debt through most of the 1980s. The bank share exceeded 20 percent at the start of the 1980s, fell to 15 percent in the years 1984 to 1988, then rose to 20 percent at the end of the decade. The mortgage pools represent the greater part of these agency securities; they accounted for over 70 percent of total sponsored agency issues at the end of 1990 compared to 40 percent in 1980.

[2] The increase in real estate concentrations may be somewhat overstated by the tendency in the 1980s to reclassify some business loans backed by real estate as real estate loans. Bank acquisitions of thrift institutions, which generally have high residential real estate concentrations, would also tend to raise the share of bank assets devoted to real estate. In deciding to acquire a thrift institution, however, a bank would be making a conscious decision to enlarge the real estate component of its portfolio.
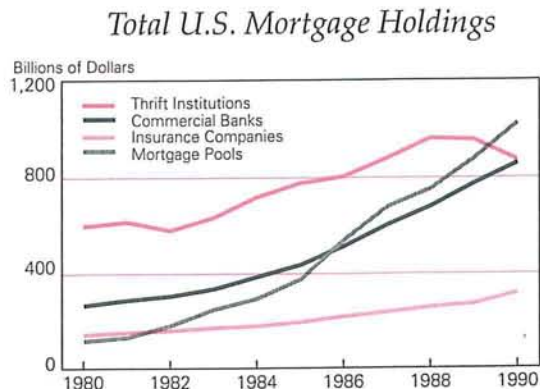
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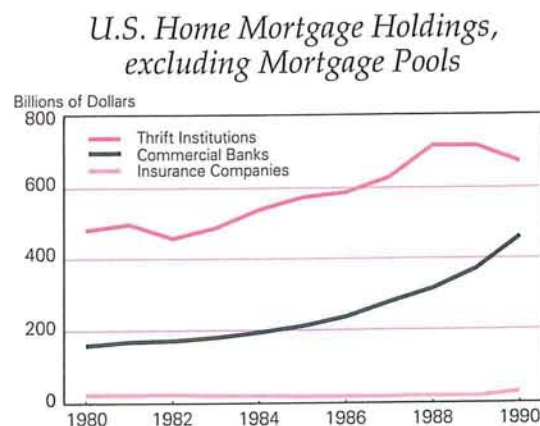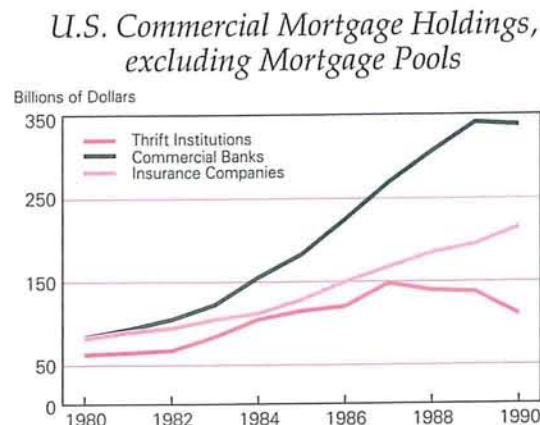## Commercial Banks' Real Estate Lending
Percent of Assets

Loans	1980	1984	1988	1990	1992
United States					
All Loans Backed by					
Real Estate	14.1	14.9	20.9	23.7	24.1
One- to Four-Family	7.9	7.2	9.6	11.7	13.1
Multifamily	.3	.4	.6	.6	.8
Land Acquisition					
and Construction	2.0	3.0	4.2	3.8	2.3
Nonresidential	3.4	3.8	6.1	7.1	7.4
New England					
All Loans Backed by					
Real Estate	17.2	17.0	30.8	30.3	28.0
One- to Four-Family	9.9	8.3	12.8	13.5	15.6
Multifamily	.5	.3	.8	.9	.8
Land Acquisition					
and Construction	1.3	3.0	7.3	4.5	1.8
Nonresidential	5.4	5.3	9.9	11.3	9.8

Source: Federal Deposit Insurance Corporation, call reports.

estate loans than their national counterparts. Loans backed by real estate rose from 17 percent of New England commercial bank assets in 1984 to 31 percent in 1988. Residential mortgages, nonresidential real estate loans, and land acquisition and construction loans all grew as shares of New England commercial bank assets. Compared to banks nationwide, the increase in lending for land acquisition and construction, generally considered the riskiest category of real estate loans, was especially striking. In 1984, these loans accounted for 3 percent of New England bank assets; four years later they represented over 7 percent of bank assets.

This enthusiasm for real estate loans, particularly nonresidential and construction loans, proved to have dire consequences for New England banks. In a recent article, Richard Randall argues that real estate lending was the cause of most of the bank failures in New England (Randall 1993). Of 87 failures of New England commercial and savings banks, he attributes 77 primarily to excessive nonresidential real estate and construction lending.

Possible Explanations

Why did banks pursue real estate loans so vigorously? The obvious answer is that they thought real

estate loans offered better returns than alternative investments. Banks were not alone in viewing real estate as a good investment. A number of scholarly studies appeared in the 1970s and early 1980s showing that real estate investments had outperformed both stocks and bonds over extended periods (Sirmans and Sirmans 1987; Zerbst and Cambon 1984). Also, changes in federal tax laws in 1981 had stimulated the demand for rental real estate for tax shelter purposes, increasing the pool of potential buyers of rental properties. Finally, in New England and other eastern states, rapidly rising home prices fostered a general impression that real estate was a good investment. Bankers, like almost every one else, may have been caught up in the enthusiasm for real estate.

In his paper for the Fed conference, Robert Litan suggests that this last was the principal reason for banks' involvement in real estate. They increased real estate lending because "everyone" was doing it. In particular, banks saw their peers investing successfully in real estate and blindly followed their lead.

The alternative view, voiced by Peter Aldrich, is that banks pursued a high-risk strategy in an effort to achieve high returns. Many experts attribute an extreme version of such a strategy to the thrift institutions in the Southwest. The argument runs as follows: high interest rates in the early 1980s drove up the cost of funds for many savings and loan associations, leaving them insolvent or close to insolvency. Faced with a high probability of failure if they followed business as usual, these financially troubled institutions took advantage of legislation expanding their lending powers to pursue a strategy of rapid growth and risky but potentially high-return investments.

While the failure of such a strategy could result in even higher losses and a quicker demise of the institution, success offered the possibility of restoring the institution to financial health. Moreover, the gains from success would flow primarily to shareholders; managers would retain their positions. In contrast, the larger losses arising from the strategy's failure would fall primarily on the deposit insurance funds, as shareholders' losses were limited to their equity stake.[3] And for management, the consequences of a big failure versus a small one probably seemed the same—dismissal.[4]

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[3] Uninsured depositors were also at risk, although past practice may have fostered the impression that they would be protected.

[4] The magnitude of the savings and loan collapse has resulted in criminal charges against some managements for fraudulent practices, so that the consequences of a larger failure may have been more severe than a small failure after all.

The term "moral hazard" is commonly applied to the temptations facing decision-makers in such circumstances. And it is this moral hazard version of the high-risk, high-return strategy that Litan and others emphasize—and dismiss—when they argue that banks were lemmings. In support of their view, they observe that increased real estate lending was not confined to deeply troubled institutions that had little to lose and everything to gain from taking large risks.

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The problem in assessing bank motivations is that the alternatives are not limited to lemming-like behavior and betting the bank. Aldrich and others do not argue that commercial banks were desperate; rather, they see banks facing a long-term need to find higher-return investments because of the loss of their large industrial borrowers to the commercial paper market and foreign banks. Such an argument would apply primarily to the larger banks, which served the larger borrower. Problems with foreign, energy, and farm loans have also been cited as factors pushing banks towards real estate lending (Downs 1991).

It is also possible that a high-risk strategy might have been followed by managements who did not face unusual competitive pressures but who were simply more aggressive in pursuit of high returns than their fellows. The 1980s was a period of financial innovation and expansion. Wall Street flourished for much of the decade. People spoke with (grudging) admiration of financial gunslingers and junk bond kings. A wave of mergers and acquisitions in banking, as in other sectors, told managers to acquire or be acquired. The result may have been that a macho mentality slipped into banking, resulting in some managements and directors who were a little less fearful of risks than their predecessors. And in a world in which most actors are averse to risk, such institutions would be expected to earn higher returns, on average, to compensate their shareholders for the higher risks. Thus, if a move into real estate was part of an aggressive institution's search for high returns, increased real estate lending could be associated with a stronger-than-average financial performance, rather than weaker.

The bottom line is that the question "Did the banks know what they were doing?" is not so simple as it first appears. Behavior that began with careful evaluations of risk and return on the part of some institutions could degenerate into follow-the-leader as other institutions observed the initial successes. An added factor in New England was the conversion of many mutual savings banks to stock charters, endowing these institutions with very high levels of equity that then had to be put to work. These newly converted thrifts looked to real estate to generate the returns needed to satisfy their new shareholders. The infusion of funds bolstered an already buoyant New England real estate market, and the aggressive pursuit of deals is thought to have contributed to a general relaxation in lending standards.

Risks of Real Estate

Complicating the question of whether banks understood the risks they were taking is the fact that the risks of a particular investment or a particular portfolio are not adequately captured along simple dimensions such as industry or asset type. The general perception among bankers and regulators is that a spectrum of credit risk exists, with one- to four-family mortgages at the low end of the risk spectrum and construction and development loans and highly leveraged transactions at the high-risk end. But for the most part, no rules of thumb evaluate small business loans as, say, twice as risky as commercial mortgages, or construction loans as three times as risky as loans backed by existing properties.

The exception that proves the rule is the Basle Accord, which establishes international standards for capital adequacy. In calculating banks' required capital, consideration is given to the riskiness of bank assets. But the evaluation of risk developed to implement the Accord is very simplistic. Loans backed by one- to four-family homes are assigned to the 50 percent risk category, meaning they are multiplied by a risk weight of 0.5, while almost all other loans are assigned to the 100 percent risk category. Thus, residential mortgages are judged to be less risky than other loans, but no distinctions are made between nonresidential real estate loans and commercial and

industrial loans, or between a mortgage on mom and pop's grocery store and a loan to IBM.

Upon reflection, the absence of easily quantified measures of risk is not surprising. Risk depends upon time and place as well as type of loan. A loan to a small business is less risky in a cyclical expansion than in a recession. A construction loan for an office building in Boston in 1980 was much less risky than a loan at the end of the decade when the office market was saturated. And a nonresidential loan in Minneapolis today is probably less risky than one in Los Angeles.

Concentrations of loans of a particular kind are frequently viewed with concern because of the possibility that an adverse shock could affect a large fraction of the bank's loans in the same way at the same time (Tannenwald 1991). A diversified portfolio of individually risky investments might be less risky overall than a portfolio dominated by one relatively safe asset, if the risks to the elements of the diversified portfolio are offsetting or at least unrelated. Indeed, the whole concept of hedging is based on offsetting one risk by assuming another risk that is activated by the same circumstances but in the opposite direction.

While concentrations may be risky, exceptions can be found. The thrift industry's primary reason for existence is to provide home mortgages and, thus, most savings banks and savings and loan associations have very high concentrations of residential mortgages in their portfolios. Thrift institutions have had their difficulties ever since the high inflation rates of the 1970s drove their cost of funds above the return on their long-term assets, but before then they prospered despite their high real estate concentrations. Moreover, among the factors blamed for the savings and loan failures of the 1980s was the attempt by many of these institutions to move into lines of business about which they knew little. While diversification may be desirable, getting there also carries risks.

Regardless of the inherent risk of a particular investment, a careless lender is more vulnerable than one who carefully evaluates the borrower's character and guarantees, sets terms and conditions to reflect the loan's risks, and monitors performance closely. A sufficiently careful lender might operate successfully in areas traditionally regarded as risky, while a less diligent lender could run into difficulty despite investing in supposedly safer assets.[5]

Partly for this reason, rapid growth is sometimes viewed as evidence of risky behavior. An institution that is expanding very rapidly will not be able to review loan applications carefully or monitor the performance of its outstanding loans closely. Loan production staff will be stretched too thin or will be too new on the job. This applies more to institutions that are growing rapidly through internal expansion than to institutions growing through mergers and acquisitions. But acquisitions can also be disruptive. Combining different cultures can take much of senior management's attention, and even if acquired institutions are left largely intact, turnover may occur at the top.

What Do the Data Show?

The hypothesis that banks' increased real estate concentrations in the 1980s represented a knowing assumption of greater risk does not lend itself readily to testing. The extreme version, that greater real estate concentrations were a desperate gamble to survive on the part of weak institutions, would imply a negative relationship between banks' financial performance *at the start of the period* and their subsequent increase in real estate lending. In contrast, if some banks were simply a little more willing to assume higher risk for the prospect of higher return, one might observe no relationship between beginning period financial performance and increased real estate lending—or even a positive one if the banks had successfully pursued high-risk, high-return policies in the past.

The expected link between banks' expansion into real estate and their non-real-estate lending is also ambiguous. The argument that banks were forced into greater risk-taking because of increased competition in serving their traditional, non-real-estate customers suggests a negative relationship between the changes in real estate and other types of lending.[6] However, rapid growth in both real estate and other lending could be consistent with a bank pursuing an aggressive policy of expansion.

Despite these ambiguities, regressions relating the change in real estate lending to various financial

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[5] If loans have long terms, a careful lender may be adversely affected by the actions of careless latecomers. In this regard, it is often pointed out that the overbuilding of office space in New England drove up vacancy rates and reduced values for all properties, not just the last to be completed or those in the most marginal locations.

[6] Extensive reclassification of business loans with real estate collateral as real estate loans would also tend to produce a negative relationship between real estate and other lending activity.

variables and to banks' non-real-estate lending permit some inferences about whether banks knew what they were doing when they expanded real estate loans rapidly—or at least whether they should have. While regressions are usually interpreted as implying causal relationships, these results might be more accurately characterized as suggestive associations.

The regressions were run over all commercial banks in the United States with more than $10 million in 1984 assets (1987 dollars) that had some real estate loans in 1984 and that were continuously in existence between 1982 and 1988. The data were not adjusted for mergers and acquisitions. Such an adjustment is very difficult and requires a great deal of judgment on the part of the researcher.[7] Moreover, for the question at hand, whether banks were engaged in deliberate risk-taking, it is not clear that adjusting for past mergers is the preferred approach. To do so gives the impression that the organization has not changed, whereas it may have changed quite markedly and in ways that could expose the institution to risk.

The regressions took two forms. In the first, the dependent variable was the change in the ratio of real estate loans to assets, between 1984 and 1988. This was expressed as a function of:

1) equity/total assets in 1984;
2) real estate loans/assets in 1984;[8]
3) net income/assets in 1984;
4) growth in total assets, 1984 to 1988;
5) dummy variables for the institution's size, according to 1984 assets (1987 dollars);[9]
6) dummy variables indicating the extent of other real estate owned (OREO)/real estate loans in 1984 (note that the base is institutions that did not have any OREO in 1984); and
7) a dummy variable for the state in which the bank was located.

Regressions were also run with the dependent variable as the change in real estate loans between 1984 and 1988 relative to 1984 assets, substituting the change in non-real-estate loans between 1984 and 1988 relative to 1984 assets for the growth in total assets. Thus, the first set of regressions looks at increases in real estate concentrations, while the second looks at the actual expansion in real estate loans. Although one would expect increases in real estate loans outstanding and increases in the proportion of assets devoted to real estate to go together, this need not be the case. An institution might increase its real estate lending very rapidly but not experience an increase in its real estate concentration, if non-real-estate assets also grew rapidly.

For both specifications of the dependent variable, separate regressions were run for one- to four-family real estate loans and for real estate loans backed by other than one- to four-family properties. These are subsequently referred to as residential and nonresidential real estate loans, respectively, although the latter includes loans for multifamily properties and construction loans. Regressions were also run excluding those banks for which the increase in either real estate or non-real-estate loans relative to 1984 assets exceeded 100 percent (referred to as rapid-growth banks).

The results are presented in Tables 2 and 4, with the regressions for the change in real estate concentration ratios appearing in Table 2 and the regressions for the changes in real estate lending in Table 4. Tables 3 and 5 present the corresponding regressions for banks of three different sizes; to the degree that banks of different sizes serve different markets, the relationships among the variables may differ. As can be seen from these tables, most banks are small.

The first thing to recognize about the regressions in Table 2 is that they explain less than one-fifth of the variation in the change in concentration ratios. This low explanatory power may reflect the extreme variation in the changes. Although banks, on average, increased their real estate concentrations by 6 percentage points, changes ranged from a decrease of 49 percentage points to an increase of 66 percentage points.

With the caveat that factors not appearing in the equations had a major influence on real estate concentrations, increases in the proportion of assets backed by real estate loans were associated with lower 1984 real estate concentrations and lower 1984 equity-to-asset ratios (also referred to as capital ra-

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[7] Researchers must either put together a detailed paper trail of mergers and acquisitions or examine quarterly call report data for unusual jumps in size and the disappearance of institutions and then attempt to reconcile them.

[8] The regressions were also run with $(1 - \text{real estate loans}/\text{assets})$ squared replacing the ratio of real estate loans to assets. Such a formulation recognizes that real estate concentrations cannot exceed 1 and implies that the effect of higher real estate concentrations on subsequent increases in concentration diminishes as concentration approaches 1. Using just the ratio of real estate loans to assets assumes that an increase in initial concentration from 0.1 to 0.2 has the same effect as an increase from 0.4 to 0.5. Although the alternative version has some theoretical appeal, the regression results were not materially improved or changed and, thus, the simpler version appears in the tables.

[9] Regressions were also run in which the dummy variables for size were replaced by continuous variables. Assets, assets squared, and the log of assets were examined and found not to have a material effect on the results.

Table 2

Change in Real Estate Loan Concentrations at U.S. Commercial Banks,[a] 1984 to 1988

				Excluding Rapid Growth Banks[b]		
Variable	Total Real Estate	One- to Four-Family Real Estate	Excluding One- to Four-Family Real Estate	Total Real Estate	One- to Four-Family Real Estate	Excluding One- to Four-Family Real Estate
Constant	17.0 (23.9)	9.7 (19.0)	7.6 (15.2)	16.6 (23.5)	9.5 (18.7)	7.3 (14.8)
Equity/Assets, 1984	−.5 (−14.4)	−.3 (−10.0)	−.3 (−10.5)	−.5 (−14.9)	−.3 (−10.9)	−.3 (−10.1)
Real Estate Loans/Assets, 1984[c]	−.2 (−24.2)	−.2 (−23.0)	−.3 (−28.9)	−.2 (−24.8)	−.2 (−22.6)	−.3 (−29.9)
Income/Assets, 1984	.3 (3.1)	.1 (2.1)	.1 (2.3)	.3 (3.1)	.2 (2.6)	.1 (1.7)
Percent Change in Total Assets, 1984–88	−.0003 (−1.2)	−.001 (−5.5)	.0008 (3.8)	.01 (6.1)	.005 (3.0)	.01 (5.5)
Dummy if 1984 Assets:						
> $1 billion	−3.2 (−5.1)	−2.5 (−5.6)	−.8 (−1.7)	−3.2 (−5.1)	−2.5 (−5.5)	−.7 (−1.7)
≥ $100 million and < $300 million	1.5 (3.4)	1.4 (4.4)	.04 (.1)	1.6 (3.5)	1.6 (4.9)	−.09 (−.3)
< $100 million	2.0 (4.7)	2.5 (8.2)	−.7 (−2.2)	2.0 (4.8)	2.6 (8.6)	−.8 (−2.7)
Dummy if OREO/Real Estate, 1984						
> 0 and ≤ 1.0	−.3 (−1.4)	−.3 (−2.0)	.1 (.7)	−.2 (−1.0)	−.2 (−1.6)	.1 (.8)
> 1.0 and ≤ 2.5	−.3 (−1.3)	−.1 (−.9)	−.06 (−.3)	−.3 (−1.2)	−.1 (−.8)	−.06 (−.4)
> 2.5 and ≤ 5.0	.1 (.5)	−.1 (−.7)	.3 (1.8)	.3 (1.0)	−.05 (−.3)	.4 (2.1)
> 5.0	.3 (1.2)	−.3 (−1.5)	.6 (3.1)	.4 (1.6)	−.2 (−1.2)	.6 (3.4)
Dummy Variables for States	yes	yes	yes	yes	yes	yes
$\bar{R}^2$	.18	.14	.17	.18	.14	.17
Observations	10,602	10,602	10,602	10,472	10,472	10,472

[a]Banks with over $10 million in 1984 assets (1987 dollars) and continually in existence between 1982 and 1988.
[b]Banks at which increase in either real estate or other loans exceeded 100 percent between 1984 and 1988.
[c]Measure of 1984 concentration is consistent with dependent variable.
Note: All dollar figures, including size cutoffs, are in 1987 dollars.
t-statistics appear in parentheses.

tios). This negative link to capital might be seen as supporting the hypothesis that increased real estate concentrations were part of a strategy to bolster weak financial positions by assuming greater risk. The similarity of the coefficients for the capital ratios in the residential and nonresidential equations raises questions about such an interpretation, however.

Since nonresidential loans are generally regarded as riskier than residential, one would expect a conscious strategy of greater risk-taking to be reflected in a stronger negative link to capital for nonresidential real estate than for residential. Also, increased real estate lending was not associated with low 1984 earnings; if financial difficulties were a motivation for

increased real estate concentrations, they had their roots before 1984.

To clarify the relationship between banks' initial capital position and their subsequent movement into real estate, Appendix Tables A1 and A2 replace the continuous equity-to-asset variable with a series of dummy variables. These equations suggest that at least a small number of poorly capitalized banks may have been engaged in deliberate risk-taking along the lines associated with the thrifts in the Southwest. The banks with the lowest capital ratios (below 3.5 percent) had the largest increases in nonresidential real estate concentrations, but did not increase the fraction of their assets in the relatively safer residential loans more than other banks. Fewer than 1 percent of the banks had such low capital ratios, however, and the increase in nonresidential concentrations was significant only among the smallest banks.

The equations shed less light on the more general question of whether the vast majority of banks that increased their real estate lending did so as part of a higher-risk, higher-return strategy. Except for the most poorly capitalized banks, enthusiasm for both residential and nonresidential lending diminished as capital ratios increased. Such a pattern could be consistent with the view that banks went into real estate because of competitive pressures in other lines of business: the banks with higher capital ratios may have had more attractive non-real-estate lending opportunities than less well capitalized institutions. It is also possible that the banks with very high capital ratios were more conservatively managed than other banks and that they did, indeed, view real estate as risky. If so, their attitudes towards residential and nonresidential lending were similar and might, therefore, reflect a general aversion to the new or faddish as much as a careful weighing of the risks of real estate.[10]

Other real estate owned (OREO), which includes foreclosed properties, is an indicator of past problems with real estate loans and, thus, one might expect OREO to be a deterrent to further real estate lending. For residential real estate, the relationship between the ratio of OREO to real estate loans in 1984 and the subsequent increase in the share of assets devoted to real estate was negative, but generally statistically insignificant. OREO was not a deterrent to nonresidential lending, however; and very high ratios of OREO to real estate loans were positively, rather than negatively, associated with increases in nonresidential lending. This positive link between the riskier nonresidential real estate lending and an indicator of

past real estate problems again seems consistent with some institutions following a higher-risk strategy to extricate themselves from past difficulties. As can be seen from Table 3, this pattern applies only to small banks. OREO was not a significant factor in large banks' shift to real estate.

Competitive pressures arising from the loss of large industrial borrowers do not appear to have been the main factor behind banks' movement into real estate. Large industrial borrowers are primarily served by large banks, but large banks did not move into real estate more aggressively than smaller institutions. Indeed, increases in residential real estate concentrations were largest for the smallest institutions and smallest for the largest banks. For nonresidential lending, the link to size was not so strong; but the largest banks were again the least enthusiastic about real estate. (The question of whether banks were pushed into real estate by competitive pressures is explored further in the box on page 22.)

The state in which a bank was located generally had a significant effect on the increase in its real estate concentration. Banks in the New England states were especially aggressive real estate investors. Banks in other East Coast states also increased their real estate concentrations more than average, while banks in the oil-producing and Mountain states had the smallest increases in real estate in this period.

This state effect is attributable, in large part, to local construction and real estate conditions, although it could also reflect a local lemming effect. Regressions presented in Appendix Tables A3 and A4 replace the state dummies with the change in state construction employment relative to total employment and the rise in housing prices. The change in construction employment was strongly significant. It should be recognized that a circular relationship exists between construction and real estate activity and banks' collective willingness to lend in the local area. The influence of any one bank's activities on state construction employment is likely to be too small to bias the results; but if all banks in a state are enthusiastic about real estate loans, the availability of funding will buoy the market and encourage additional construction.

Lastly, increases in nonresidential real estate

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[10] Bank enthusiasm for real estate diminished as 1984 equity capital increased for banks with less than $100 million (1987 dollars) in 1984 assets and for banks with $100 million to $300 million in assets. Large banks exhibited a similar pattern but the differences among banks with different equity capital ratios were generally not statistically significant.

Table 3

Change in Real Estate Concentrations at Three Size Groups of U.S. Commercial Banks,[a] 1984 to 1988, Excluding Rapid Growth Banks[b]

Variable	1984 Assets ≥ $300 million			1984 Assets ≥ $100 million and < $300 million			1984 Assets < $100 million		
	Total Real Estate	One- to Four- Family	Excl. One- to Four- Family	Total Real Estate	One- to Four- Family	Excl. One- to Four- Family	Total Real Estate	One- to Four- Family	Excl. One- to Four- Family
Constant	14.8	6.8	8.0	20.1	12.9	7.8	18.8	12.7	6.1
	(7.3)	(5.4)	(5.5)	(12.1)	(11.5)	(6.6)	(23.3)	(21.6)	(11.3)
Equity/Assets, 1984	−.5	−.3	−.3	−.7	−.4	−.4	−.5	−.3	−.3
	(−2.9)	(−2.4)	(−2.0)	(−5.1)	(−3.8)	(−3.5)	(−13.7)	(−10.0)	(−9.4)
Real Estate Loans/ Assets, 1984[c]	−.2	−.2	−.2	−.2	−.2	−.2	−.2	−.2	−.3
	(−4.8)	(−4.4)	(−4.9)	(−8.3)	(−10.1)	(−7.5)	(−22.9)	(−20.4)	(−29.1)
Income/Assets, 1984	−.1	.2	−.3	.8	.5	.3	.2	.1	.1
	(−.2)	(.5)	(−.7)	(2.1)	(1.8)	(1.1)	(2.6)	(1.9)	(1.7)
Percent Change in Total Assets, 1984–88	.02	.004	.01	.002	−.006	.008	.02	.007	.009
	(2.1)	(.7)	(2.1)	(.3)	(−1.2)	(1.5)	(5.8)	(3.4)	(4.6)
Dummy if 1984 Assets > $1 billion	−3.1	−2.0	−1.0						
	(−4.7)	(−4.9)	(−2.1)						
Dummy if OREO/ Real Estate, 1984									
> 0 and ≤ 1.0	−.4	−.6	.2	−.3	−.5	.2	−.2	−.2	.1
	(−.4)	(−.9)	(.3)	(−.6)	(−1.2)	(.4)	(−.7)	(−1.0)	(.7)
> 1.0 and ≤ 2.5	−.2	−.2	.008	−.6	−.7	.2	−.2	−.04	−.03
	(−.2)	(−.3)	(.01)	(−.8)	(−1.5)	(.3)	(−.7)	(−.2)	(−.1)
> 2.5 and ≤ 5.0	.05	.07	−.02	−.3	−1.1	.8	.4	.06	.4
	(.04)	(.09)	(−.02)	(−.3)	(−2.1)	(1.4)	(1.4)	(.3)	(2.1)
> 5.0	−.5	−.05	−.5	.01	−.6	.5	.6	−.2	.7
	(−.4)	(−.05)	(−.4)	(−.02)	(−.9)	(.7)	(2.0)	(−.9)	(3.8)
Dummy Variables for States	yes	yes	yes	yes	yes	yes	yes	yes	yes
R̄²	.26	.17	.22	.23	.20	.18	.17	.14	.16
Observations	642	642	642	1,421	1,421	1,421	8,409	8,409	8,409

[a]Banks with over $10 million in 1984 assets (1987 dollars) and continually in existence between 1982 and 1988.
[b]Banks at which increase in either real estate or other loans exceeded 100 percent between 1984 and 1988.
[c]Measure of 1984 concentration is consistent with dependent variable.
Note: All dollar figures, including size cutoffs, are in 1987 dollars.
t-statistics appear in parentheses.

loan concentrations were associated with higher rates of total asset growth between 1984 and 1988. Increased nonresidential lending could, by generating high returns, enable an institution to fund a higher rate of overall growth. It is also possible that the banks that had the greatest propensity to engage in nonresidential real estate lending had the greatest propensity to grow in other aspects of their business as well. The links between real estate lending and growth are explored in Tables 4 and 5, which present regressions for the change in real estate loans relative to 1984 assets. Among the independent variables, the

Pushed or Pulled into Real Estate?

Those who argue that banks "knew what they were doing" when they moved into real estate see banks as pressured to engage in riskier activity by the loss of market share in other lines of business. Reference is often made to the loss of large industrial customers to the commercial paper market and to problems with farm, energy, and overseas loans. Implicit in the lemming hypothesis, in contrast, is the view that banks pursued real estate loans because they were caught up in a general enthusiasm for what they perceived as attractive investments. In other words, they were pulled into real estate expecting high returns, rather than pushed by a lack of other opportunities.

The table in this box attempts to distinguish between the push and pull motivations by comparing changes in real estate concentrations with changes in the fractions of assets devoted to non-real-estate lending and securities holdings. Specifically, the table shows the mean values of the changes in concentration ratios for each quintile of banks, ranked according to the change in real estate concentrations. (The banks are those used in the regression analysis.)

Whether pushed or pulled, one would expect the banks that increased their real estate concentrations most to be the ones with the greatest shrinkage in non-real-estate loan concentrations. But one would not necessarily expect banks that were pushed into real estate because of a lack of alternative loan opportunities to reduce the fraction of their assets devoted to securities. Indeed, increased securities holdings could be an alterna-

tive way of coping with a dearth of lending opportunities. In contrast, banks that were drawn to real estate loans as attractive investments might be expected to reduce the proportions of their assets in securities as well as in non-real-estate loans.

Mean Change in Asset Concentration Ratios at U.S. Commercial Banks, 1984 to 1988
Percentage Points

Quintiles Ranked by Enthusiasm for Real Estate	Real Estate Loans	Non-Real-Estate Loans	Securities
Least 1	−4.7	−2.6	5.3
2	1.3	−5.1	3.8
3	4.8	−5.1	1.3
4	9.0	−5.8	−1.4
Most 5	18.5	−8.7	−5.8

As the table shows, the banks with the largest increases in real estate loans relative to assets had the greatest contractions in both the fraction of assets in non-real-estate loans and the fraction held in securities. And in comparison with banks that did not increase their real estate concentrations or increased them only slightly, the movement out of securities was actually more pronounced than the shift from non-real-estate lending. This pattern suggests that banks were pulled into real estate more than they were pushed. Since securities are generally the safest investment, banks' shift from securities to real estate does suggest an increased propensity to incur risk.

change in non-real-estate loans relative to 1984 assets replaces the growth in total assets.

As in the regressions in Table 2, increases in real estate lending were negatively related to 1984 equity capital ratios, although positively related to 1984 income. Referring to Appendix Table A2, which replaces the ratio of equity to assets with a series of dummy variables, one sees a pattern similar to that observed for real estate concentrations. Bank enthusiasm for expanding both residential and nonresidential real estate loans fell off with higher capital ratios, although the very small number of banks with equity capital ratios below 3.5 percent seem to have been

more interested in nonresidential real estate than residential.

The smallest banks tended to have the largest increases in residential real estate loans (relative to their size), while the largest banks had the smallest; but again, size had little bearing on banks' propensity to expand nonresidential lending. Banks with some OREO in 1984 tended to increase their residential real estate lending less than banks with no OREO. A little OREO was as much a deterrent as a lot, however; and OREO was not a deterrent to increases in nonresidential real estate loans. That OREO was more a deterrent to increases in residential real estate *loans*

Table 4
Change in Real Estate Lending at U.S. Commercial Banks,[a] 1984 to 1988, Relative to 1984 Assets

Variable	Total Real Estate	One- to Four-Family Real Estate	Excluding One- to Four-Family Real Estate	Excluding Rapid Growth Banks[b]		
				Total Real Estate	One- to Four-Family Real Estate	Excluding One- to Four-Family Real Estate
Constant	16.1	11.4	3.9	21.9	12.8	9.5
	(7.8)	(8.2)	(2.2)	(18.6)	(16.6)	(12.9)
Equity/Assets, 1984	−.7	−.3	−.3	−.7	−.4	−.4
	(−6.2)	(−4.0)	(−3.6)	(−12.0)	(−9.8)	(−9.1)
Real Estate Loans/Assets, 1984[c]	−.009	.03	.01	−.05	−.009	−.2
	(−.3)	(1.1)	(.3)	(−3.0)	(−.7)	(−11.1)
Income/Assets, 1984	−.006	−.3	.3	.8	.4	.4
	(−.02)	(−1.8)	(1.3)	(5.7)	(4.4)	(4.4)
Change in Non-Real-Estate Loans 1984–88/1984 Assets	.7	.3	.5	.2	.1	.1
	(318.0)	(166.0)	(225.3)	(27.2)	(19.7)	(21.9)
Dummy if 1984 Assets:						
> $1 billion	−6.5	−4.4	−2.0	−5.0	−3.7	−1.4
	(−3.6)	(−3.6)	(−1.2)	(−4.9)	(−5.4)	(−2.1)
≥ $100 million and < $300 million	3.5	2.0	1.3	1.8	1.9	−.2
	(2.7)	(2.3)	(1.1)	(2.5)	(4.0)	(−.4)
< $100 million	6.4	4.2	2.1	3.3	3.7	−.7
	(5.3)	(5.1)	(1.9)	(4.7)	(7.9)	(−1.5)
Dummy if OREO/Real Estate, 1984:						
> 0 and ≤ 1.0	−2.7	−1.3	−1.4	−1.1	−.9	−.09
	(−4.3)	(−3.2)	(−2.6)	(−3.1)	(−3.6)	(−.4)
> 1.0 and ≤ 2.5	−1.9	−1.6	−.4	−1.9	−1.0	−.7
	(−2.8)	(−3.5)	(−.7)	(−5.0)	(−4.1)	(−2.9)
> 2.5 and ≤ 5.0	−1.4	−1.5	.1	−1.7	−1.2	−.3
	(−1.9)	(−3.0)	(.1)	(−3.9)	(−4.3)	(−1.2)
> 5.0	.8	−.7	1.6	−.9	−.9	.07
	(1.1)	(−1.5)	(2.4)	(−2.0)	(−3.3)	(.3)
Dummy Variables for States	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	.91	.73	.83	.33	.25	.25
Observations	10,602	10,602	10,602	10,472	10,472	10,472

[a]Banks with over $10 million in 1984 assets (1987 dollars) and continually in existence between 1982 and 1988.
[b]Banks at which increase in either real estate or other loans exceeded 100 percent between 1984 and 1988.
[c]Measure of 1984 concentration is consistent with dependent variable.
Note: All dollar figures, including size cutoffs, are in 1987 dollars.
t-statistics appear in parentheses.

than to increases in residential real estate *concentrations* may be attributable to banks burdened with high levels of OREO in 1984 being constrained from subsequently expanding their non-real-estate activity and total assets, and thus being unable to reduce the proportion of their assets in real estate.[11]

The most striking feature of Table 4 is the very strong association between increases in real estate lending and increases in non-real-estate lending. Some institutions grew very rapidly—in some cases, very, very rapidly—and, thus, had very large in-

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[11] Banks with high OREO would probably not have been permitted to acquire other banks by their regulators and, thus, would not have any expansion in their real estate loans attributable to acquisitions.

Table 5
Change in Real Estate Lending at Three Size Groups of U.S. Commercial Banks,[a] 1984 to 1988, Relative to 1984 Assets, Excluding Rapid Growth Banks[b]

Variable	1984 Assets ≥ $300 million			1984 Assets $100 million and < $300 million			1984 Assets < $100 million		
	Total Real Estate	One- to Four-Family	Excl. One- to Four-Family	Total Real Estate	One- to Four-Family	Excl. One- to Four-Family	Total Real Estate	One- to Four-Family	Excl. One- to Four-Family
Constant	16.3	7.9	9.1	26.2	16.2	11.0	26.1	18.0	8.1
	(4.4)	(3.7)	(3.8)	(9.7)	(9.9)	(6.2)	(19.7)	(20.2)	(10.4)
Equity/Assets, 1984	−.9	−.4	−.6	−1.5	−.7	−.8	−.7	−.4	−.3
	(−2.8)	(−2.0)	(−2.6)	(−6.4)	(−5.0)	(−5.0)	(−10.4)	(−8.7)	(−7.6)
Real Estate Loans/ Assets, 1984[c]	−.1	.1	−.008	.009	−.01	−.04	−.07	−.03	−.2
	(1.3)	(1.7)	(−.1)	(.2)	(−.3)	(−1.0)	(−4.3)	(−2.1)	(−12.4)
Income/Assets, 1984	1.7	.6	1.1	3.6	1.6	2.0	.6	.3	.3
	(1.6)	(.9)	(1.5)	(5.9)	(4.3)	(4.7)	(4.0)	(3.0)	(3.1)
Percent Change in Non-Real-Estate Loans 1984–88/1984 Assets	.3	.1	.2	.1	.07	.08	.2	.1	.1
	(11.3)	(6.8)	(10.9)	(6.2)	(4.6)	(4.8)	(24.6)	(18.7)	(19.0)
Dummy if 1984 Assets > $1 billion	−4.6	−2.7	−2.0						
	(−3.8)	(−3.9)	(−2.6)						
Dummy if OREO/ Real Estate, 1984:									
> 0 and ≤ 1.0	−1.6	−1.5	.03	.2	−.6	.9	−1.3	−.8	−.3
	(−.9)	(−1.4)	(.02)	(.2)	(−.9)	(1.3)	(−3.2)	(−3.0)	(−1.2)
> 1.0 and ≤ 2.5	−1.9	−1.3	−.5	−.8	−1.2	.5	−1.9	−.9	−.8
	(−.9)	(−1.1)	(−.4)	(−.7)	(−1.7)	(.6)	(−4.5)	(−3.4)	(−2.9)
> 2.5 and ≤ 5.0	−1.9	−1.2	−.7	−1.0	−1.9	1.0	−1.5	−1.1	−.3
	(−.8)	(−.8)	(−.4)	(−.7)	(−2.3)	(1.0)	(−3.2)	(−3.5)	(−.9)
> 5.0	−3.4	−1.9	−1.5	.3	−.4	.7	−.7	.9	.2
	(−1.2)	(−1.2)	(−.8)	(.2)	(−.5)	(.7)	(−1.5)	(−2.9)	(.7)
Dummy Variables for States	yes	yes	yes	yes	yes	yes	yes	yes	yes
$\bar{R}^2$	.50	.33	.45	.40	.31	.29	.31	.26	.21
Observations	642	642	642	1,421	1,421	1,421	8,409	8,409	8,409

[a]Banks with over $10 million in 1984 assets (1987 dollars) and continually in existence between 1982 and 1988.
[b]Banks at which increase in either real estate or other loans exceeded 100 percent between 1984 and 1988.
[c]Measure of 1984 concentration is consistent with dependent variable.
Note: All dollar figures, including size cutoffs, are in 1987 dollars.
t-statistics appear in parentheses.

creases in both real estate and non-real-estate loans. This linkage raises the question of whether banks were pursuing real estate loans purely for their own sake or whether their goal was growth.

Growth can be internally generated or achieved through mergers and acquisitions. Although moderately high rates of internal growth could be a mark of superior management and service quality, very high rates of internal growth are often seen as a red flag by bank regulators. Mergers and acquisitions are an-

Table 6
Commercial Bank Failures, 1984 to 1988

Item	All Commercial Banks			Rapid-Growth Banks[a]			Excluding Rapid-Growth Banks		
	United States	New England	United States less New England	United States	New England	United States less New England	United States	New England	United States less New England
Failed Banks	343	28[b]	315	13	7	6	330	21[b]	309
Total Sample	10,602	206	10,396	130	19	111	10,472	187	10,285
Failed as a Percent of Total	3	14	3	10	37	5	3	11	3

[a]Rapid-Growth Banks are defined as those with an increase of over 100 percent in either real estate or other loans between 1984 and 1988.
[b]Six Massachusetts Bank of New England subsidiaries that were separate banks in 1988 are included individually as failures. They merged in 1991 into Bank of New England NA, which subsequently failed. Individually, they were not "rapid-growth banks."
Source: Failures for New England were taken from Randall (1993); failures for the country excluding New England are all banks classified as failures in the NIC (National Information Center, Board of Governors of the Federal Reserve System) data base with bank identification numbers matching those in the sample.

other story. In theory, the merging institutions could function as they always did; the surviving entity would appear to have grown but nothing would have changed operationally. Risks might even be reduced if the acquisition permitted geographic or product diversification or cost reductions because of economies of scale. But while mergers need not expose institutions to increased risk, they can. Monitoring large acquisitions can strain management capabilities, and organizations with different cultures and ways of doing business may not work well together, resulting in turnover and poor communications. Also, aggressive pursuit of mergers may be indicative of an expansionist mentality that could affect other aspects of bank operations.

To provide some insight into the riskiness of rapid growth, Table 6 compares the failure rates of banks that experienced very rapid growth with the failures of banks generally. Failure rates for New England banks are presented separately. Outside of New England, rapid growth was not associated with unusually high failure rates. The 5 percent failure rate for rapid-growth banks is not significantly different from the 3 percent rate for other banks. Within New England, however, very rapid growth did carry substantial risks. More than one-third of the region's most rapidly growing banks failed, compared to 11 percent of other banks—a statistically significant difference.

As will be shown below, growth rates in New England banks were generally much higher than those of banks in other parts of the country. Thus, one possible interpretation of the results in Table 6,

particularly given the relatively high failure rate experienced by all New England banks, is that any dangers arising from rapid growth are greatest when everyone is growing rapidly. One bank may be able to grow rapidly through acquisition, tapping underserved markets, or gaining market share through better customer service. But if many banks in a region are attempting to do the same thing at the same time, the outcome may be a general lowering of lending standards and a bidding up of the prices of acquired institutions. Under such circumstances, the most rapidly growing banks may be the most vulnerable.

Obviously, such a conclusion has to be tempered by considering local economic conditions. A prosperous region can support a more rapid expansion in credit without a relaxation of credit standards. But here the circularity between credit availability and local economic activity becomes problematic. Increased credit availability may provide a stimulus to the economy beyond that supported by economic fundamentals. And if lenders are unable to perceive their role in stimulating growth, they may conclude that further expansion is warranted.

What Set New England Banks Apart?

New England banks were particularly aggressive in making real estate loans during the mid 1980s. Table 7 presents the mean values of the dependent and independent variables of the equations in Tables 2 and 4, for both U.S. and New England banks.

New England banks, on average, increased both

Table 7

Comparison of Real Estate Lending Variables for Commercial Banks in the United States and New England

Variable	All Commercial Banks		Excluding Rapid Growth Banks[b]	
	United States[a]	New England	United States[a]	New England
Dependent Variables (mean values)				
Changes in Loan Concentrations, 1984 to 1988				
Total Real Estate	5.8	18.0	5.7	16.9
One- to Four-Family	2.8	7.5	2.8	7.2
Excluding One- to Four-Family	3.0	10.5	2.9	9.8
Changes in Real Estate Lending 1984 to 1988/ Assets 1984				
Total Real Estate	13.2	52.9	10.3	41.3
One- to Four-Family	6.6	24.6	5.3	20.1
Excluding One- to Four-Family	6.6	28.3	4.9	21.2
Independent Variables (mean values except where noted)				
Equity/Assets—1984	8.5	6.9	8.5	6.8
Total Real Estate/Assets—1984	18.6	26.1	18.6	25.9
One- to Four-Family/Assets—1984	10.6	15.8	10.5	15.9
Excluding One- to Four-Family/Assets—1984	8.1	10.2	8.0	10.0
Income/Assets—1984	.8	1.0	1.0	1.0
Change in Non-Real-Estate Loans 1984 to 1988/ Assets 1984	2.0	17.5	−1.4	14.5
Percent Change in Total Assets 1984 to 1988	23.6	75.2	14.4	58.3
Percent of Banks with 1984 Assets:				
> $1 billion	2.5	7.3	2.5	8.0
≥ $300 million and ≤ $1 billion	3.6	16.5	3.6	18.2
≥ $100 million and < $300 million	13.7	21.4	13.6	20.9
< $100 million	80.2	54.9	80.3	52.9
Percent of Banks with 1984 OREO/Real Estate:				
0	32.0	57.3	31.8	56.1
> 0 and ≤ 1.0	24.2	35.9	24.2	36.9
> 1.0 and ≤ 2.5	17.4	5.3	17.5	5.3
> 2.5 and ≤ 5.0	12.2	.5	12.3	.5
> 5.0	14.2	1.0	14.2	1.1
Percent Change in State Home Prices 1984 to 1988 (Deflated)	19.2	53.7	19.1	53.1
Change in Construction Employment 1984 to 1988/Total Employment 1984	.3	2.6	.3	2.6

[a]U.S. banks include New England banks.
[b]Rapid-growth banks had increases of over 100 percent in either real estate or other loans between 1984 and 1988.
Note: All dollar figures, including size cutoffs, are in 1987 dollars.

their volume of real estate lending and their concentrations in real estate more than banks nationwide. The expansion in non-real-estate loans and total assets was also much more rapid at New England banks than banks nationally. In other words, New England banks' pursuit of real estate was a pursuit of growth. They were not driven into real estate loans by a lack of opportunities in non-real-estate lending.

The average equity capital ratio of New England banks was lower than that of the average bank nationwide;[12] and according to the equations above,

[12] The low equity capital ratio for New England banks was partially attributable to size. Small banks tend to have higher capital ratios than large banks, and New England banks were larger, on average, than banks nationwide. Even so, within each of the size categories examined in this article, a much larger proportion of New England banks had capital ratios below the U.S. average of 8.5 percent than banks nationwide.

lower capital ratios were associated with larger increases in real estate loans and higher real estate concentrations. New England banks were not in serious trouble in 1984, however. The average bank would have been considered adequately capitalized at the time by bank supervisors and analysts; no New England bank had a capital ratio below 3.5 percent in 1984, while the lowest national values were negative. New England banks also had substantially lower ratios of OREO to real estate loans in 1984 than banks nationally. New England banks were not driven to take chances in real estate by fears of insolvency.

The economic environment in New England was particularly conducive to real estate lending. Construction employment grew much more rapidly in the New England states than in the country as a whole and home prices soared in the region. Other things equal, banks in Massachusetts increased their real estate lending and real estate concentrations more than banks in any other state. Banks in Connecticut, New Hampshire, and another northeastern state, New Jersey, ranked second, depending on the equation.

Conclusions

Was the enthusiasm of banks for real estate in the 1980s a deliberate attempt to achieve higher returns by taking greater risks, or simply a case of banks blindly following one another to financial difficulty? An examination of some of the factors associated with banks' real estate lending provides some support for the view that at least a few banks followed higher-risk, higher-return strategies in order to improve their financial performance. Increases in real estate concentrations and loan growth were greater for banks that had low capital ratios at the beginning of the period. In addition, high levels of OREO, an indicator of past real estate difficulties, do not seem to have been a deterrent to increased nonresidential lending. The primary motivation for the movement into real estate was not the loss of large industrial customers, however; the large banks that would have served such customers did not increase their real estate lending as much as did the smaller institutions.

In addition, it is clear that the New England banks, which were particularly aggressive in increasing their real estate loans and subsequently paid the price in a very high failure rate, were not forced into real estate lending by poor financial performance or by a lack of lending opportunities in other lines of business. Rather, their real estate expansion was part and parcel of rapid growth overall.

Should rapid growth be viewed as an indication of risk-taking? In New England, the failure rate was considerably higher for the institutions with the fastest growth. Nationwide, however, the failure rate for rapid-growth institutions was not significantly different from that of other banks. Perhaps the lesson here is that the dangers of growth are greatest when everyone is growing. Perhaps, too, the dangers of real estate lending—or any other form of lending— are greatest when everyone is doing it.

And perhaps the problem with the banks' pursuit of real estate loans in the 1980s was not that they deliberately took on excessive risks or that they, lemming-like, ignored risks and blindly followed one another, but that they failed to recognize that the risks they incurred as individual banks were affected by the actions of their fellows. New England banks were not driven to real estate by fears of insolvency or by a lack of other opportunities. Rather they—along with many others—seem to have been seduced by the growth opportunities presented by the buoyant New England real estate market, not realizing that this buoyancy was partly a product of their own collective enthusiasm for real estate.

Appendix Table A1

Change in Real Estate Loan Concentrations at U.S. Commercial Banks,[a] 1984 to 1988

Variable	Total Real Estate	One- to Four-Family Real Estate	Excluding One- to Four-Family Real Estate	Excluding Rapid Growth Banks[b]		
				Total Real Estate	One- to Four-Family Real Estate	Excluding One- to Four-Family Real Estate
Constant	13.5	8.0	5.6	13.0	7.6	5.5
	(20.5)	(16.9)	(12.2)	(19.9)	(16.2)	(11.9)
Equity/Assets, 1984						
< 3.5	1.2	−1.1	2.2	1.4	−1.0	2.3
	(1.1)	(−1.4)	(2.9)	(1.3)	(−1.4)	(3.0)
≥ 3.5 and < 6.0	.6	.3	.3	.5	.3	.3
	(2.0)	(1.4)	(1.6)	(1.8)	(1.5)	(1.2)
≥ 8.5 and < 11.0	−1.8	−.9	−.9	−1.8	−1.0	−.9
	(−9.7)	(−6.8)	(−6.8)	(−9.9)	(−7.3)	(−6.6)
≥ 11.0 and < 14.5	−2.8	−1.6	−1.3	−2.9	−1.7	−1.2
	(−10.3)	(−8.2)	(−6.5)	(−10.7)	(−8.6)	(−6.4)
≥ 14.5	−4.4	−2.0	−2.5	−4.8	−2.5	−2.4
	(−8.7)	(−5.6)	(−6.8)	(−9.6)	(−6.8)	(−6.7)
Real Estate Loans/Assets, 1984[c]	−.2	−.2	−.3	−.2	−.2	−.3
	(−24.1)	(−23.0)	(−28.7)	(−24.7)	(−22.6)	(−29.7)
Income/Assets, 1984	.2	.05	.1	.2	.08	.1
	(1.9)	(.7)	(2.0)	(1.9)	(1.1)	(1.5)
Percent Change in Total Assets, 1984–88	−.0003	−.001	.0008	.01	.005	.01
	(−1.2)	(−5.5)	(3.8)	(6.2)	(3.0)	(5.5)
Dummy if 1984 Assets:						
> $1 billion	−3.0	−2.4	−.7	−2.9	−2.4	−.6
	(−4.8)	(−5.3)	(−1.4)	(−4.7)	(−5.3)	(−1.4)
≥ $100 million and < $300 million	1.5	1.4	.01	1.5	1.6	−.1
	(3.3)	(4.4)	(.05)	(3.4)	(4.8)	(−.4)
< $100 million	1.9	2.5	−.7	1.9	2.6	−.9
	(4.5)	(8.1)	(−2.4)	(4.5)	(8.5)	(−2.9)
Dummy if OREO/Real Estate, 1984						
> 0 and ≤ 1.0	−.3	−.3	.1	−.2	−.2	.1
	(−1.1)	(−2.0)	(.8)	(−.9)	(−1.6)	(.9)
> 1.0 and ≤ 2.5	−.3	−.1	−.03	−.3	−.1	−.04
	(−1.3)	(−.8)	(−.2)	(−1.1)	(−.7)	(−.2)
> 2.5 and ≤ 5.0	.1	−.1	.3	−.2	−.07	.4
	(.5)	(−.8)	(1.8)	(−1.0)	(−.4)	(2.1)
> 5.0	.3	−.3	.6	.4	−.2	.6
	(1.1)	(−1.6)	(3.1)	(1.5)	(−1.3)	(3.4)
Dummy Variables for States	yes	yes	yes	yes	yes	yes
R̄²	.18	.14	.17	.18	.14	.17
Observations	10,602	10,602	10,602	10,472	10,472	10,472

[a]Banks with over $10 million in 1984 assets (1987 dollars) and continually in existence between 1982 and 1988.
[b]Banks at which increase in either real estate or other loans exceeded 100 percent between 1984 and 1988.
[c]Measure of 1984 concentration is consistent with dependent variable.
Note: All dollar figures, including size cutoffs, are in 1987 dollars.
t-statistics appear in parentheses.

Appendix Table A2
Change in Real Estate Lending at U.S. Commercial Banks,[a] 1984 to 1988, Relative to 1984 Assets

Variable	Total Real Estate	One- to Four-Family Real Estate	Excluding One- to Four-Family Real Estate	Excluding Rapid Growth Banks[b]		
				Total Real Estate	One- to Four-Family Real Estate	Excluding One- to Four-Family Real Estate
Constant	11.0	9.3	1.2	16.8	10.1	6.9
	(5.8)	(7.3)	(.7)	(15.5)	(14.2)	(10.1)
Equity/Assets, 1984						
< 3.5	−.9	−2.5	1.5	.9	−1.8	2.6
	(−.3)	(−1.2)	(.6)	(.5)	(−1.6)	(2.2)
≥ 3.5 and < 6.0	2.8	1.2	1.6	1.5	.9	.7
	(3.3)	(2.0)	(2.1)	(3.0)	(2.7)	(2.1)
≥ 8.5 and < 11.0	−1.9	−.9	−.9	−2.5	−1.2	−1.3
	(−3.5)	(−2.4)	(−1.9)	(−8.2)	(−6.2)	(−6.5)
≥ 11.0 and < 14.5	−2.7	−1.5	−1.2	−3.6	−2.1	−1.5
	(−3.5)	(−2.7)	(−1.6)	(−8.0)	(−7.2)	(−5.4)
≥ 14.5	−5.8	−2.2	−3.4	−6.0	−3.2	−3.0
	(−3.9)	(−2.2)	(−2.6)	(−7.2)	(−5.8)	(−5.5)
Real Estate Loans/Assets, 1984[c]	−.005	.03	.01	−.04	−.008	−.2
	(−.2)	(1.1)	(.3)	(−2.9)	(−.6)	(−11.0)
Income/Assets, 1984	−.09	−.4	.3	.7	.3	.4
	(−.3)	(−2.2)	(1.3)	(4.8)	(3.2)	(4.1)
Change in Non-Real-Estate Loans 1984–88/1984 Assets	.7	.3	.5	.2	.1	.1
	(317.7)	(165.9)	(225.0)	(27.2)	(19.7)	(21.9)
Dummy if 1984 Assets:						
> $1 billion	−6.9	−4.6	−2.2	−5.0	−3.7	−1.4
	(−3.8)	(−3.7)	(−1.3)	(−4.8)	(−5.4)	(−2.0)
≥ $100 million and < $300 million	3.6	2.1	1.4	1.9	2.0	−.2
	(2.8)	(2.4)	(1.2)	(2.5)	(4.0)	(−.4)
< $100 million	6.6	4.3	2.2	3.3	3.7	−.7
	(5.4)	(5.2)	(1.9)	(4.7)	(7.9)	(−1.5)
Dummy if OREO/Real Estate, 1984						
> 0 and ≤ 1.0	−2.6	−1.3	−1.4	−1.1	−.8	−.05
	(−4.2)	(−3.2)	(−2.5)	(−3.0)	(−3.6)	(−.2)
> 1.0 and ≤ 2.5	−1.9	−1.6	−.4	−1.9	−1.0	−.7
	(−2.8)	(−3.4)	(−.6)	(−4.8)	(−4.0)	(−2.8)
> 2.5 and ≤ 5.0	−1.4	−1.5	.1	−1.7	−1.2	−.3
	(−1.8)	(−3.0)	(.2)	(−3.9)	(−4.3)	(−1.2)
> 5.0	.8	−.8	1.7	−.9	−.9	.09
	(1.1)	(−1.5)	(2.4)	(−2.0)	(−3.4)	(.3)
Dummy Variables for States	Yes	Yes	Yes	Yes	Yes	Yes
R̄²	.91	.73	.83	.33	.25	.25
Observations	10,602	10,602	10,602	10,472	10,472	10,472

Notes: See Appendix Table 1.

Appendix Table A3
Change in Real Estate Loan Concentrations at U.S. Commercial Banks,[a] 1984 to 1988, with State Economic Variables

Variable	Total Real Estate	One- to Four-Family Real Estate	Excluding One- to Four-Family Real Estate	Excluding Rapid Growth Banks[b] Total Real Estate	Excluding Rapid Growth Banks[b] One- to Four-Family Real Estate	Excluding Rapid Growth Banks[b] Excluding One- to Four-Family Real Estate
Constant	12.8 (23.0)	5.2 (13.3)	8.1 (20.7)	12.4 (22.6)	4.9 (12.6)	7.9 (20.4)
Equity/Assets—1984	−.6 (−14.9)	−.3 (−10.3)	−.3 (−10.9)	−.6 (−15.3)	−.3 (−11.0)	−.3 (−10.3)
Real Estate Loans/ Assets, 1984[c]	−.2 (−19.8)	−.2 (−18.2)	−.2 (−23.7)	−.2 (−21.5)	−.2 (−18.1)	−.3 (−25.7)
Income/Assets—1984	.3 (3.5)	.2 (3.4)	.1 (1.3)	.3 (3.1)	.2 (3.5)	.04 (.6)
Percent Change in Total Assets 1984–88	−.0001 (−.3)	−.001 (−4.6)	.0009 (4.2)	.03 (11.1)	.01 (6.0)	.02 (9.6)
Dummy if 1984 Assets: > $1 billion	−2.5 (−3.9)	−2.0 (−4.3)	−.5 (−1.2)	−2.5 (−4.0)	−2.0 (−4.2)	−.6 (−1.3)
≥ $100 million and < $300 million	.6 (1.2)	.9 (2.6)	−.4 (−1.2)	.7 (1.6)	1.1 (3.2)	−.5 (−1.4)
< $100 million	.5 (1.2)	1.5 (4.8)	−1.2 (−3.8)	.8 (1.8)	1.7 (5.5)	−1.2 (−3.9)
Dummy if OREO/ Real Estate, 1984 > 0 and ≤ 1.0	−.6 (−2.7)	−.1 (−.8)	−.4 (−2.5)	−.4 (−1.7)	−.02 (−.1)	−.3 (−2.0)
> 1.0 and 2.5	−1.1 (−4.6)	−.3 (−2.0)	−.7 (−4.0)	−.9 (−3.7)	−.3 (−1.5)	−.6 (−3.3)
> 2.5 and ≤ 5.0	−.7 (−2.6)	−.6 (−2.9)	−.06 (−.3)	−.3 (−1.2)	−.4 (−2.0)	.1 (.7)
> 5.0	−.5 (−2.0)	−.9 (−4.9)	.4 (2.1)	−.2 (−.7)	−.8 (−4.1)	.6 (3.3)
Change in Home Prices 1984 to 1988 (Deflated)	.006 (1.2)	.007 (2.1)	−.002 (−.6)	.002 (.5)	−.006 (1.8)	−.004 (−1.4)
Change in Construction Employment 1984 to 1988/ Total Employment 1984	2.1 (28.0)	1.0 (18.5)	1.0 (19.0)	1.8 (23.9)	.9 (16.1)	.8 (15.0)
R̄²	.11	.06	.11	.12	.06	.12
Observations	10,602	10,602	10,602	10,472	10,472	10,472

Notes: See Appendix Table 1.

Change in Real Estate Lending at U.S. Commercial Banks,[a] 1984 to 1988, Relative to 1984 Assets, with State Economic Variables

| Variable | Total Real Estate | One- to Four-Family Real Estate | Excluding One- to Four-Family Real Estate | Excluding Rapid Growth Banks[b] | | |
				Total Real Estate	One- to Four-Family Real Estate	Excluding One- to Four-Family Real Estate
Constant	16.0	7.2	8.2	16.8	7.1	10.5
	(10.1)	(7.0)	(5.9)	(18.0)	(12.0)	(17.7)
Equity/Assets—1984	−.8	−.4	−.4	−.8	−.4	−.4
	(−7.8)	(−5.3)	(−4.5)	(−12.7)	(−10.7)	(−9.4)
Real Estate Loans/Assets, 1984[c]	.04	.07	.08	.02	.04	−.06
	(1.8)	(3.0)	(2.2)	(1.5)	(3.1)	(−4.0)
Income/Assets—1984	.05	−.2	.2	.8	.5	.3
	(.2)	(−.9)	(.9)	(5.5)	(5.3)	(3.1)
Change in Nonreal Estate Loans 1984–88/1984 Assets	.7	.3	.5	.3	.1	.1
	(310.9)	(163.8)	(223.2)	(29.0)	(22.5)	(22.5)
Dummy if 1984 Assets:						
> $1 billion	−5.9	−3.6	−2.1	−3.1	−2.5	−.7
	(−3.2)	(−2.9)	(−1.3)	(−2.9)	(−3.5)	(−1.0)
≥ $100 million and < $300 million	1.5	1.0	.4	−.1	1.0	−1.2
	(1.1)	(1.2)	(.3)	(−.2)	(1.9)	(−2.3)
< $100 million	3.5	2.6	.8	.3	2.0	−1.9
	(2.8)	(3.2)	(.7)	(.4)	(4.2)	(−4.0)
Dummy if OREO/Real Estate, 1984						
> 0 and ≤ 1.0	−4.0	−1.5	−2.6	−2.2	−1.0	−1.1
	(−6.3)	(−3.6)	(−4.6)	(−5.9)	(−4.0)	(−4.6)
> 1.0 and ≤ 2.5	−4.0	−2.5	−1.6	−3.8	−1.8	−1.9
	(−6.0)	(−5.5)	(−2.6)	(−9.5)	(−6.9)	(−7.4)
> 2.5 and ≤ 5.0	−3.2	−2.6	−.6	−3.3	−2.1	−1.1
	(−4.3)	(−5.2)	(−.9)	(−7.3)	(−7.3)	(−3.7)
> 5.0	−.5	−1.9	1.5	−2.1	−2.0	−.2
	(−.7)	(−3.8)	(2.3)	(−4.9)	(−6.8)	(−.8)
Change in Home Prices 1984 to 1988 (Deflated)	.03	.02	.01	.01	.01	−.0008
	(2.3)	(2.2)	(1.0)	(1.7)	(2.5)	(−.2)
Change in Construction Employment 1984 to 1988/ Total Employment 1984	2.2	1.5	.7	3.7	1.8	1.8
	(10.3)	(10.0)	(3.7)	(28.2)	(20.7)	(21.7)
R̄²	.90	.72	.83	.24	.17	.16
Observations	10,602	10,602	10,602	10,472	10,472	10,472

Notes: See Appendix Table 1.

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