86220-6

ORIGINAL

RECEIVED
SUPREME COURT
STATE OF WASHINGTON
2011 AUG 31 P 2:08
BY RONALD R. CARPENTER
CLERK

No. 86220-6

SUPREME COURT

~~OF THE STATE~~ OF WASHINGTON

MICHAEL and THERESA ANNECHINO, husband and wife,

Petitioners,

v.

MICHAEL C. WORTHY and SUSAN WORTHY, husband and wife and the marital community composed thereof; JOAN COOPER; KELLI REYNOLDS; UMPQUA BANK, successor in interest to Bank of Clark County; and CLARK COUNTY BANCORPORATION,

Respondents.

FILED
SEP - 8 2011
CLERK OF THE SUPREME COURT
STATE OF WASHINGTON

BRIEF OF AMICUS CURIAE OF RICHARD AND KAREN APPLEGATE IN SUPPORT OF PETITION FOR REVIEW

Philip A. Talmadge, WSBA #6973
Sidney Tribe, WSBA #33160
Talmadge/Fitzpatrick
18010 Southcenter Parkway
Tukwila, WA 98188-4630
(206) 574-6661

Justin Bristol, WSBA #29820
Attorney at Law
8235 South Park Avenue
Tacoma, WA 98412
(253) 272-2206

Attorneys for Amicus Curiae
Richard and Karen Applegate

TABLE OF CONTENTS

Page

Table of Authorities .....ii-iii

A. IDENTITY/INTEREST OF AMICUS CURIAE 1

B. STATEMENT OF THE CASE.....1

C. SUMMARY OF ARGUMENT 1

D. ARGUMENT WHY REVIEW SHOULD BE ACCEPTED.....2

(1) This Court Has Never Ruled on What Legal Principles Guide the Establishment of a Fiduciary Duty Between a Bank and Its Customer.....3

(2) There Is No Nationwide Consensus on the Issues Raised Here, Thus No Black-Letter Law on the Subject.....4

(3) The Court of Appeals Analysis Is Flawed Because It Did Not Apply Legal Principles but Simply Compared Facts.....6

(4) Washington Has Repeatedly Affirmed a Strong Public Policy Interest in Protecting Consumers, Including Consumers of Financial Services 7

(5) Review Is Appropriate Under RAP 13.4(b)(4) to Definitively Resolve an Issue of First Impression for This Court.....8

E. CONCLUSION.....10

Appendix

TABLE OF AUTHORITIES

Page

Table of Cases

Washington Cases

Annechino v. Worthy, 162 Wn. App. 138, 252 P.3d 415 (2011) ..... *passim*
Bohme v. PEMCO Mut. Ins. Co., 127 Wn.2d 409, 899 P.2d 787 (1995) 9
Cathcart-Maltby-Clearview Cmty. Council v. Snohomish County, 96 Wn.2d 201, 634 P.2d 853 (1981) 9
Dix v. ICT Group, Inc., 160 Wn.2d 826, 161 P.3d 1016 (2007) 7
Dwyer v. J.I. Kislak Mortg. Corp. 103 Wn. App. 542, 13 P.3d 240, *review denied*, 143 Wn.2d 1024, 29 P.3d 717 (2000) 7-8
Hutson v. Wenatchee Federal Savings & Loan Ass'n, 22 Wn. App. 91, 588 P.2d 1192 (1978) 3, 5, 6, 7
In re Marriage of Ortiz, 108 Wn.2d 643, 740 P.2d 843 (1987) 8
Liebergesell v. Evans, 93 Wn.2d 881, 613 P.2d 1170 (1980) 3
McKee v. AT & T Corp., 164 Wn.2d 372, 191 P.3d 845 (2008) 7
Scott v. Cingular Wireless, 160 Wn.2d 843, 161 P.3d 1000 (2007) 7
State v. Gunwall, 106 Wn.2d 54, 720 P.2d 808 (1986) 9
State v. Haner, 95 Wn.2d 858, 631 P.2d 381 (1981) 9
State v. Watson, 155 Wn.2d 574, 122 P.3d 903 (2005) 8, 9
Tokarz v. Frontier Savings & Loan Ass'n, 33 Wn. App. 456, 656 P.2d 1089 (1982) 3, 6, 7
Wagenblast v. Odessa Sch. Dist. No. 105-157-166J, 110 Wn.2d 845, 758 P.2d 968 (1988) 9

Statutes

RCW 19.86.920 7

Rules and Regulations

RAP 4.2 9
RAP 13.4(b) 2
RAP 13.4(b)(4) 2, 4, 8, 10

Other Authorities

Cecil J. Hunt, II, *The Price of Trust: An Examination of Fiduciary Duty and the Lender-Borrower Relationship*, 29 Wake Forest L. Rev. 719 (1994) 4-5
David Erkens, Mingyi Hung, and Pedro Matos, "Corporate Governance in the 2007-2008 Financial Crisis: Evidence from Financial Institutions Worldwide," August 2009 4
http://www.fdic.gov/bank/historical/history/vol1.html 4
"The Banking Crises of the 1980s and Early 1990s: Summary and Implications," Federal Deposit Insurance Corporation 3

A. IDENTITY/INTEREST OF AMICUS CURIAE

The present case involves the extent of the fiduciary duty created when bank customers affirmatively rely upon the particular financial expertise of a bank, and the advice and expertise of its employees.

The Applegates were victims of a breach of fiduciary duty by a bank that was administering the funds for their construction loan. Their case is currently proceeding at the trial court, but the issue relating to this case has been resolved on summary judgment. They have a specific interest in this case given its potential application to their dispute. This Court's guidance will be invaluable to the Court of Appeals in properly resolving their case, when it is appealed.

The Applegates also have a general interest in this topic on behalf of similarly situated Washington citizens. Because they have personally experienced hardship resulting from bank malfeasance, they are interested in this Court's opinion. It will affect a great many Washingtonians who have disputes involving the modern banking industry.

B. STATEMENT OF THE CASE

The Applegates acknowledge the statements of the case in the parties' briefs and in the opinion of the Court of Appeals, *Annechino v. Worthy*, 162 Wn. App. 138, 140-42, 252 P.3d 415, 418 (2011).

C. SUMMARY OF ARGUMENT

This Court has never before announced the appropriate rule on the circumstances that give rise to a fiduciary relationship between a bank and a customer. There is no "black letter law" on the subject, jurisdictions vary greatly on the rule: some hold there can *never* be a fiduciary relationship between a bank and a customer; others hold that there is *always* such a fiduciary relationship.

The Court of Appeals opinion in this case has not clarified or advanced the analysis of this important area of law that has not been addressed by any court in Washington for 30 years. This has left a hole in the important area of consumer protection laws in Washington.

This Court should accept review and address this critical area of law. Its ruling will finally provide definitive guidance on the controversial and difficult issue of how a bank's practices may create a fiduciary duty to a customer.

D. ARGUMENT WHY REVIEW SHOULD BE ACCEPTED

This Court's decision to grant review is governed by the criteria in RAP 13.4(b). RAP 13.4(b)(4) controls here, as this is a significant issue of public importance that should be resolved by this Court.

There is a gaping hole in Washington case law regarding the common law relationship between banks and their customers. Fundamental public policy issues surround consumer protection and the

business practices of the banking industry. This Court should accept review.

(1) This Court Has Never Ruled on What Legal Principles Guide the Establishment of a Fiduciary Duty Between a Bank and Its Customer

Incredibly, this Court has never decided what legal principles apply to the question of whether a bank has, through its actions, created a fiduciary duty to a customer. As the Court of Appeals here observed, the only Washington authority on this question is *Tokarz v. Frontier Savings & Loan Ass'n,* 33 Wn. App. 456, 656 P.2d 1089 (1982), and *Hutson v. Wenatchee Federal Savings & Loan Ass'n,* 22 Wn. App. 91, 588 P.2d 1192 (1978). *Tokarz,* the most recent Court of Appeals case on the subject, was filed in 1982, nearly 30 years ago. The Court of Appeals here analogized this case to *Liebergesell v. Evans,* 93 Wn.2d 881, 613 P.2d 1170 (1980), but *Liebergesell* involved a transaction between a borrower and a private businessman, not a bank. *Annechino,* 162 Wn. App. at 143.

The passage of so much time is significant. Banking law since 1982 has not been static, nor have the economic realities of modern banking practice. Since that time, there have been a number of banking crises, beginning with the savings and loan crisis of the mid-1980's. *See* "The Banking Crises of the 1980s and Early 1990s: Summary and Implications," Federal Deposit Insurance Corporation,

http://www.fdic.gov/bank/historical/history/vol1.html, (attached hereto at Appendix A).

Recently, the question of good banking practices has been of particular interest to individual and institutional customers alike. *See* David Erkens, Mingyi Hung, and Pedro Matos, "Corporate Governance in the 2007-2008 Financial Crisis: Evidence from Financial Institutions Worldwide," August 2009 (attached hereto at Appendix B).

Simply put, good banking practices are currently at the forefront of public policy decisions in legislative and judicial circles. Although some of these issues can be addressed at the federal level, banks are also highly regulated at the state level. State law is still the first line of defense for consumers of banking services. Therefore, clarity about a crucial common law issue that can frequently arise between banks and their customers is needed. This case meets the test of RAP 13.4(b)(4) as raising a question of substantial public interest that this Court should resolve.

(2) There Is No Nationwide Consensus on the Issues Raised Here, Thus No Black-Letter Law on the Subject

Review is important here because other jurisdictions are sharply divided on this issue. Courts do generally hold that the basic relationship between lenders and borrowers must be an arm's-length transaction, as is present between creditors and debtors. Cecil J. Hunt, II, *The Price of*

Trust: An Examination of Fiduciary Duty and the Lender-Borrower Relationship, 29 Wake Forest L. Rev. 719, 736 (1994). However, courts sharply diverge regarding the extent to which this nominal relationship can, or should, ever give rise to fiduciary obligations by the bank.

The decisions of other jurisdictions fall into four distinct categories: (1) a small minority of courts hold that fiduciary obligations are fundamentally inconsistent with the very nature of a lender-borrower relationship and thus should never be imposed; (2) a substantial majority hold that fiduciary obligations can arise under "special circumstances" or where there is a "special relationship" between the parties; (3) a small and highly controversial minority of courts hold that the lender-borrow relationship is at least "quasi-fiduciary"; and (4) a small but highly regarded minority of courts hold that there are a number of usual, normal and discrete aspects of the lender-borrower relationship which give rise to fiduciary obligations by their very nature. *Id.*

The Court of Appeals has put Washington into the second category; agreeing with the majority of jurisdictions holding that special circumstances can give rise to a fiduciary duty between a bank and a customer. *Hutson,* 22 Wn. App. at 105; *Annechino,* 162 Wn. App. at 143.

However, because this Court has never reached the issue, the question has never been definitively resolved. This Court may review the

current legal and factual landscape and conclude that it wants to strengthen consumer protections in the banking industry, rather than relying on 30-year-old pronouncements on the issue by the Court of Appeals.

(3) The Court of Appeals Analysis Is Flawed Because It Did Not Apply Legal Principles but Simply Compared Facts

Clear guidance on this issue is lacking, increasing this need for this Court's review. Even using the limited guidance it had available, the Court of Appeals application of *Hutson* here is faulty. Rather than applying the guiding legal principles as articulated in both *Hutson* and *Tokarz*, the Court of Appeals here simply compares the facts of *Hutson* to the facts here and draws conclusions. *Annechino,* 162 Wn. App. at 145-46. It did not walk through the *Hutson* and *Tokarz* legal factors and apply them to the facts here.

In basing its decision on the facts presented in *Huston*, rather than the principles of law, the Court of Appeals here creates confusing new requirements for holding banks liable under a theory of negligence. The Court seems to hold that an indeterminate number of factual issues presented in *Hutson* are required, before a negligence duty can be established. First, the bank must offer an "extra service" (i.e., extra-contractual service), as in *Hutson. Id.* The bank must also (a) knowingly

withhold information relevant to the extra service; (b) exercise extensive control over the transaction; (c) receive greater than customary economic benefit from the transaction; or (d) have a close personal relationship, or (e) superior business expertise. *Id.* However, the *Annechino* Court does not specify how many additional factual requirements must be established. Therefore, *Annechino* not only makes it more difficult to establish a duty, it is uncertain which requirements must be met before a duty can be established.

Annechino does not clarify these issues for other courts, it merely adds to the confusion created by *Hutson* and *Tokarz.* The final word on these questions is this Court. It should accept review.

(4) Washington Has Repeatedly Affirmed a Strong Public Policy Interest in Protecting Consumers, Including Consumers of Financial Services

A substantial issue of public importance is raised here, increasing the need for this Court's review. Washington has a "fundamental public policy to protect consumers...." *McKee v. AT & T Corp.*, 164 Wn.2d 372, 385, 191 P.3d 845, 852 (2008), citing *Scott v. Cingular Wireless,* 160 Wn.2d 843, 854, 161 P.3d 1000 (2007), *see also, Dix v. ICT Group, Inc.*, 160 Wn.2d 826, 841, 161 P.3d 1016, 1024 (2007); RCW 19.86.920.

Consumers of financial services are shielded under this public policy umbrella. *See, e.g., Dwyer v. J.I. Kislak Mortg. Corp.* 103 Wn.

App. 542, 13 P.3d 240, *review denied*, 143 Wn.2d 1024, 29 P.3d 717 (2000) (mortgagee's practice of including miscellaneous service charges along with secured sums due on its mortgage payoff statement violated Consumer Protection Act).

In furtherance of this public policy of protecting consumers, it is important to uphold consumers' ability to bring common law negligence actions against banks and their officers when they assume, and then violate, a fiduciary duty to their customers.

(5) Review Is Appropriate Under RAP 13.4(b)(4) to Definitively Resolve an Issue of First Impression for This Court

This Court has granted review under RAP 13.4(b)(4) in similar cases in order to provide the definitive interpretation of Washington law on an issue that has the potential to affect a substantial portion of the public. *See, e.g., In re Marriage of Ortiz*, 108 Wn.2d 643, 645-46, 740 P.2d 843, 845 (1987) (review under RAP 13.4(b)(4) warranted on issue of automatic escalation clauses in child support decrees); *State v. Watson*, 155 Wn.2d 574, 577, 122 P.3d 903, 904 (2005) (Review under RAP 13.4(b)(4) warranted on issue of whether memorandum on sentencing guidelines was improper ex parte communication).

In *Watson,* this Court noted that a substantial public interest is implicated when the issue "immediately affects significant segments of the

population, and has a direct bearing on commerce, finance, labor, industry, or agriculture...." *Watson*, 155 Wn.2d at 578. This Court has also described a case of "substantial public interest as one presenting "a question of a public nature which is likely to recur, and it is desirable to provide an authoritative determination for the future guidance of public officials." *Cathcart-Maltby-Clearview Cmty. Council v. Snohomish County,* 96 Wn.2d 201, 208, 634 P.2d 853 (1981).

This Court has also noted the importance of resolving issues of first *impression.* For example, issues of first impression are often grounds for granting direct review under RAP 4.2. *Bohme v. PEMCO Mut. Ins. Co.*, 127 Wn.2d 409, 412, 899 P.2d 787, 789 (1995); *State v. Haner*, 95 Wn.2d 858, 861, 631 P.2d 381, 384 (1981); *Wagenblast v. Odessa Sch. Dist. No. 105-157-166J*, 110 Wn.2d 845, 846, 758 P.2d 968, 969 (1988); *State v. Gunwall*, 106 Wn.2d 54, 56, 720 P.2d 808, 809 (1986).

Given the importance of the issues at stake, and the need for guidance from this Court, review is warranted. This case has the potential to affect a majority of the public: anyone who does business with a bank. It has a direct bearing on commerce and finance, as in *Watson.* There is a need for an authoritative determination from this Court on the subject, because this is an issue of first impression for this Court. This Court should accept review.

E. CONCLUSION

It is rare that such a fundamental issue of common law has never been addressed by this Court. This case has broad-ranging implications and the Court of Appeals' previous pronouncements on the subject have been inadequate. This Court should address the issue, as have the high courts of other jurisdictions, and provide guidance on this critical issue.

Review is warranted and should be granted under RAP 13.4(b)(4).

DATED this 31ST day of August, 2011.

Respectfully submitted,

Philip A. Talmadge, WSBA #6973
Sidney Tribe, WSBA #33160
Talmadge/Fitzpatrick
18010 Southcenter Parkway
Tukwila, WA 98188-4630
(206) 574-6661

Justin Bristol, WSBA #29820
Attorney at Law
8235 South Park Avenue
Tacoma, WA 98412
(253) 272-2206

Attorneys for Amicus Curiae
Richard and Karen Applegate

APPENDIX

Chapter 1

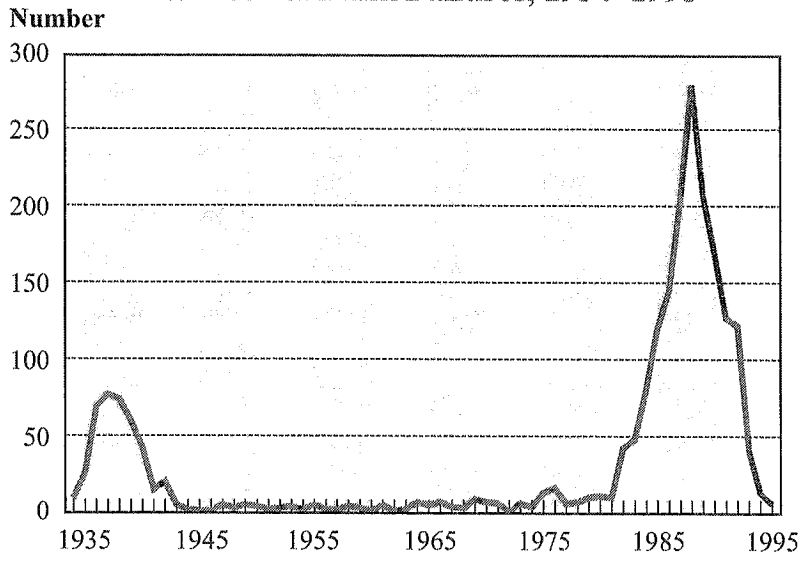
The Banking Crises of the 1980s and Early 1990s: Summary and Implications

Introduction

The distinguishing feature of the history of banking in the 1980s was the extraordinary upsurge in the number of bank failures. Between 1980 and 1994 more than 1,600 banks insured by the Federal Deposit Insurance Corporation (FDIC) were closed or received FDIC financial assistance—far more than in any other period since the advent of federal deposit insurance in the 1930s (see figure 1.1). The magnitude of bank failures dur-

Figure 1.1

Number of Bank Failures, 1934–1995



Note: Data refer to FDIC-insured commercial and savings banks that were closed or received FDIC assistance.

ing the 1980s put severe, though temporary, strains on the FDIC insurance fund; raised basic questions about the effectiveness of the bank regulatory and deposit insurance systems; and led to far-reaching legislative and regulatory actions.[1]

This chapter summarizes the findings and implications of *History of the Eighties—Lessons for the Future: An Examination of the Banking Crises of the 1980s and Early 1990s*, a study conducted by the FDIC's Division of Research and Statistics to analyze various aspects of the 1980–94 experience. The four sections of this summary deal with (1) the factors underlying the rapid rise in the number of bank failures; (2) the regulatory issues raised by this experience; (3) questions that remain open despite the legislative and regulatory remedies adopted between 1980 and 1994; and (4) concluding comments.

The Rise in the Number of Bank Failures in the 1980s: The Economic, Legislative, and Regulatory Background

The rise in the number of bank failures in the 1980s had no single cause or short list of causes. Rather, it resulted from a concurrence of various forces working together to produce a decade of banking crises. First, broad national forces—economic, financial, legislative, and regulatory—established the preconditions for the increased number of bank failures. Second, a series of severe regional and sectoral recessions hit banks in a number of banking markets and led to a majority of the failures. Third, some of the banks in these markets assumed excessive risks and were insufficiently restrained by supervisory authorities, with the result that they failed in disproportionate numbers.

Economic and Financial Market Environment

During most of the 1980s, the performance of the national economy, as measured by broad economic aggregates, seemed favorable for banking. After the 1980–82 recession the national economy continued to grow, the rate of inflation slowed, and unemployment and interest rates declined. However, in the 1970s a number of factors, both national and international, had injected greater instability into the environment for banking, and these earlier developments were directly or indirectly generating challenges to which not all banks would be able to adapt successfully. In the 1970s, exchange rates among the world's major currencies became volatile after they were allowed to float; price levels underwent major increases in response to oil embargoes and other external shocks; and interest rates varied widely in response to inflation, inflationary expectations, and anti-inflationary Federal Reserve monetary policy actions.

---

[1] Although this study is devoted to banking, it is appropriate to recall that the thrift industry suffered an even greater catastrophe. In 1980 there were 4,039 savings institutions; approximately 1,300 savings institutions failed during the 1980–94 period. This high proportion of failures led to the demise of the fund that insured savings institution deposits, and imposed heavy costs on surviving institutions and on taxpayers.

Developments in the financial markets in the late 1970s and 1980s also tested the banking industry. Intrastate banking restrictions were lifted, allowing new players to enter once-sheltered markets; regional banking compacts were established; and direct credit markets expanded.[2] In an environment of high market rates, the development of money market funds and the deregulation of deposit interest rates exerted upward pressures on interest expenses—particularly for smaller institutions that were heavily dependent on deposit funding. Competition increased from several directions: within the U.S. banking industry itself and from thrift institutions, foreign banks, and the commercial paper and junk bond markets. The banking industry's share of the market for loans to large business borrowers declined, partly because of technological innovations and innovations in financial products.[3] As a result, many banks shifted funds to commercial real estate lending—an area involving greater risk. Some large banks also shifted funds to less-developed countries and leveraged buyouts, and increased their off-balance-sheet activities.

Condition of Banking on the Eve of the 1980s

Yet on the eve of the 1980s most banks gave few obvious signs that the competitive environment was becoming more demanding or that serious troubles lay ahead. At banks with less than $100 million in assets (the vast majority of banks), net returns on assets (ROA) rose during the late 1970s and averaged approximately 1.1 percent in 1980—a level that would not be reached again until 1993, after the wave of bank failures had receded (see figure 1.2).[4] For this group of banks, net returns on equity (ROE) in 1980 were also high by historical standards, equity/asset ratios were moving gradually upward, and charge-offs on loans averaged approximately what they would again in the early 1990s. The fact that key performance ratios in 1980 compared favorably with those in 1993–94—a period of extraordinary health and profitability in banking that has continued to the present (mid-1997)—emphasizes the absence of obvious problems at most banks at the beginning of the eighties.

Large banks, however, showed clearer signs of weakness. In 1980 ROA and equity/assets ratios were much lower for banks with more than $1 billion in assets than for small

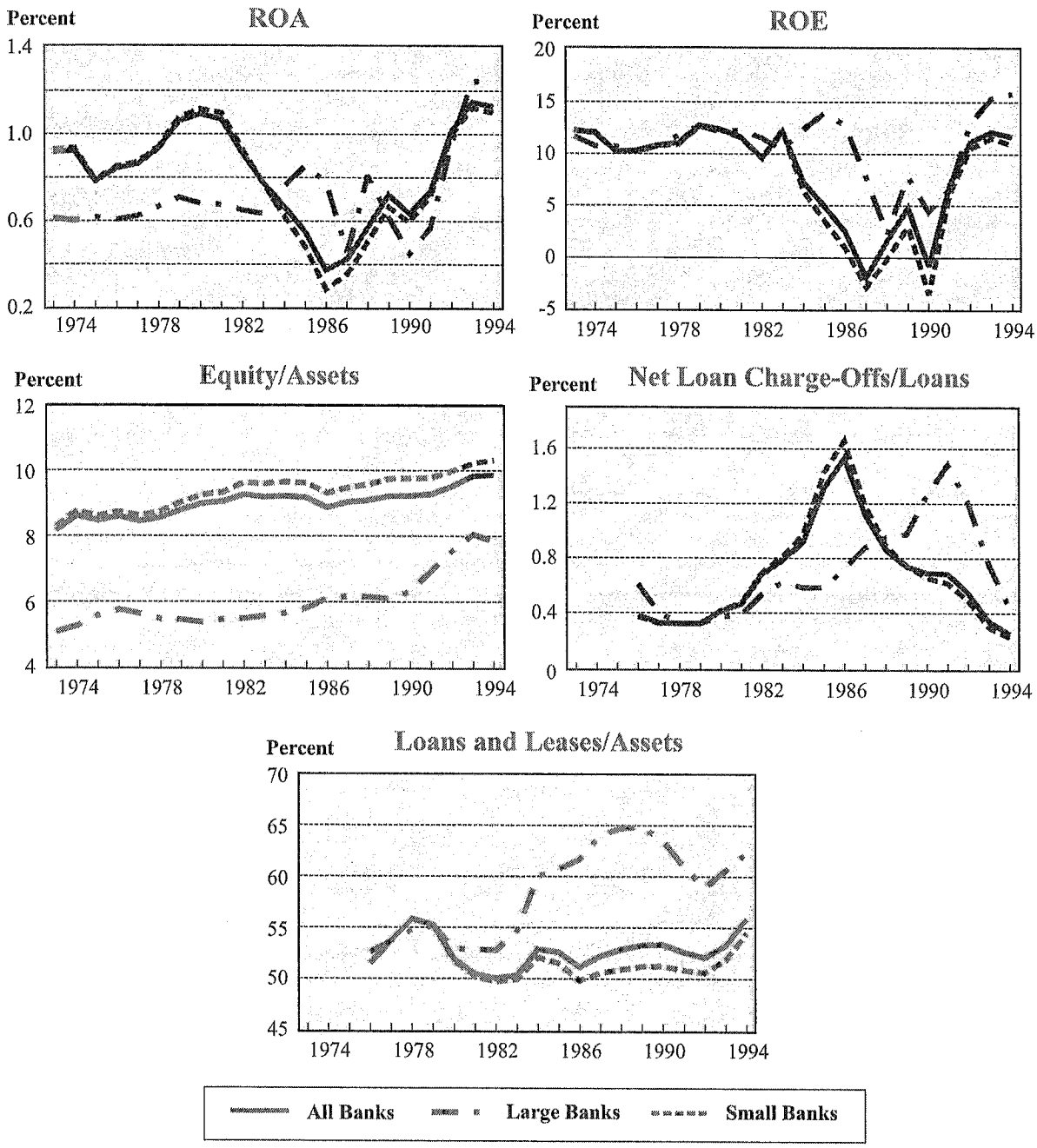
---

[2] Many of these developments are discussed in Allen N. Berger, Anil K. Kashyap, and Joseph M. Scalise, "The Transformation of the U.S. Banking Industry: What a Long, Strange Trip It's Been," *Brookings Papers on Economic Activity* 2 (1995).

[3] Between 1980 and 1990, commercial paper outstanding increased from 7 percent of bank commercial and industrial loans (C&I) to 19 percent.

[4] Data in figure 1.2 are unweighted averages of individual bank ratios. Use of median values or averages weighted by assets reveals broadly similar trends, except that medians are less affected by extreme values and tend to be less volatile than unweighted averages, while weighted averages are dominated by larger banks in each size group. The data in figure 1.2 are for banks with assets greater than $1 billion (large banks) or less than $100 million (small banks) in each year; thus, the number of banks included in the two size groups varies from year to year. In 1980, there were 192 banks with assets greater than $1 billion and 12,735 banks with assets less than $100 million. In 1994, the comparable figures were 392 banks and 7,259 banks. Asset data are not adjusted for inflation.

Figure 1.2
Bank Performance Ratios, 1973–1994

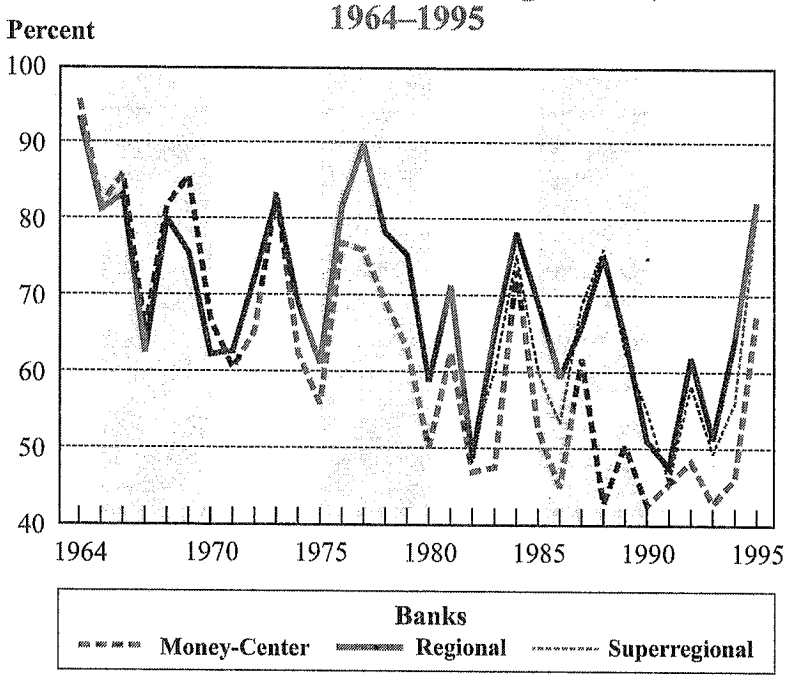


Note: Data are unweighted averages of individual FDIC-insured commercial and savings bank ratios. Large banks are those with assets greater than $1 billion in any given year. Small banks are those with assets less than $100 million in any given year.

banks and were also well below the large-bank levels they would reach in the early 1990s. Market data for large, publicly traded banking organizations suggest that investors were valuing these institutions with reduced favor. During the 1960s and 1970s price-earnings ratios for money-center banks trended generally downward relative to S&P 500 price-earnings ratios, although for regional banks the decline was much less pronounced (see figure 1.3). For the 25 largest bank holding companies in the late 1970s and early 1980s, the market value of capital decreased relative to—and fell below—its book value, suggesting that to investors, the franchise value of large banks was declining.[5]

Differences in performance between large and small banks in 1980 are not surprising. At that time, because of branching restrictions and deposit interest-rate controls, many small institutions operated in still-protected markets. Accordingly, they were affected more slowly by external forces such as increased competition and increased market volatility.

Figure 1.3
Bank Price-Earnings Ratios as a Percentage of S&P 500 Price-Earnings Ratios, 1964–1995



Source: Salomon Brothers, *Bank Annual*, 1992 and 1996 editions.
Note: Data for superregional bank price-earnings ratios begin in 1982.

[5] Michael C. Keeley, "Deposit Insurance, Risk, and Market Power in Banking," *American Economic Review* (December 1990): 1185. Data are for the 25 largest bank holding companies as of 1985.

During the 1980s, of course, performance ratios of banks of all sizes weakened and exhibited increased risk. Profitability declined and became more volatile, while loan charge-offs rose dramatically.[6] Large banks assumed greater risk in order to boost profits, as is indicated by the sharp rise in the ratio of loans and leases to total assets for these banks. In contrast, equity ratios increased over the period, particularly for large banks, in line with increased regulatory capital requirements and perhaps also in response to market concerns about distress in the banking system.

Then in the 1990s the performance of banking improved markedly. This is apparent not only from the accounting data presented in figure 1.2 but also from the market data presented in figures 1.3 and 1.4, which suggest that to investors, the value of publicly traded banks improved greatly in the 1990s. From 1993 to 1995, bank price-earnings ratios rose relative to S&P 500 price-earnings ratios, although the movements in this measure were extremely volatile. After the early 1980s market prices per share of money-center and regional banks increased from below book value per share to well above book value, except for a sharp and temporary drop in 1990 (figure 1.4). The major improvement in the performance and investor perceptions of banking in the 1990s, albeit of limited duration so far, does not support earlier concerns that banking was a declining industry or the view that banking was characterized by widespread and persistent overcapacity that would lead to increased failures.[7]

Although the overall performance of the banking industry varied greatly during the 1980–94 period, in its structure the industry showed a strong trend in one direction—toward consolidation into fewer banking organizations. This trend was partly due to the relaxation of branching restrictions.[8] From the end of 1983 through the end of 1994, the number of insured commercial banks declined by 28 percent, from 14,461 to 10,451. The number of separate corporate units—bank holding companies plus independent commercial banks—

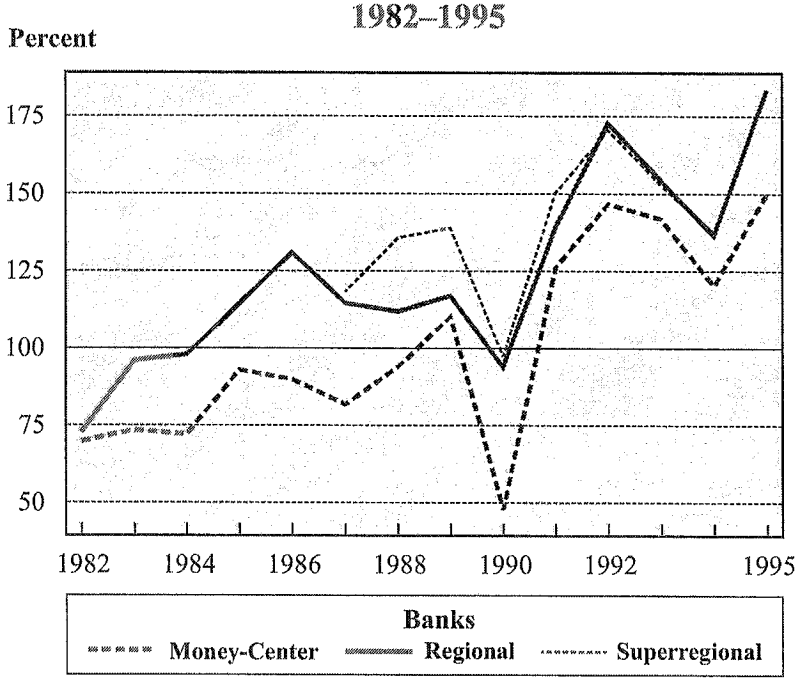
---

[6] The 1986 peak in net loan charge-offs for small banks was associated with the agricultural, energy, and real estate problems of the Southwest; the 1991 peak for large banks was associated with the real estate problems in the Northeast.

[7] The issue of whether banking is a declining industry and the related question of overcapacity in banking are explored in Federal Reserve Bank of Chicago, *The (Declining?) Role of Banking, Proceedings of the 30th Annual Conference on Bank Structure and Competition* (May 1994). In the *Proceedings*, see particularly Alan Greenspan, "Optimal Bank Supervision in a Changing World," 1–8; John H. Boyd and Mark Gertler, "Are Banks Dead? Or, Are the Reports Greatly Exaggerated?" 85–117; and Sherrill Shaffer, "Inferring Viability of the U.S. Banking Industry from Shifts in Conduct and Excess Capacity," 130–144. Shaffer concludes that a small amount of excess capacity in bank loans was eliminated in the mid-1980s.

[8] Some observers have argued that bank failures in the 1980s were partly due to restrictions on bank ownership (geographic restrictions within the banking industry, and prohibition of acquisitions by nonbank organizations), which prevented weak or inefficient banks from being taken over before they failed. Although such restrictions on ownership probably contributed to the rise in the number of bank failures, particularly in the early 1980s, the large number of voluntary mergers and consolidations within the industry may have averted some other failures by eliminating weaker institutions while they still had some value.

Figure 1.4
Price-to-Book Value per Share, 1982–1995



Source: Salomon Brothers, *Bank Annual*, 1992 and 1996 editions.
Note: Values are industry composite medians. Data for superregional bank price-to-book ratios begin in 1987.

decreased somewhat more, by 31 percent. The 4,010 reduction in the number of insured commercial banks was due primarily to the consolidation of bank affiliates of multibank holding companies and to unassisted mergers of unaffiliated banks (4,803). The net effect of failures, new charters, conversions, and other changes was an addition of 793 banks.

Legislative Developments

Banking legislation also played a large role in the bank-failure experience of the 1980s and early 1990s.[9] This legislation was largely shaped by two broad factors: widespread recognition that banking statutes should be modernized and adapted to new marketplace realities, and the need to respond to the outbreak of bank and thrift failures. In the early 1980s the focus was on the attempt to modernize, and congressional activity was dominated by actions to deregulate the product and service powers of thrifts and to a lesser extent of banks.

[9] See Chapter 2, "Banking Legislation and Regulation." Tax legislation was also a significant influence. After-tax yields on real estate investment were enhanced by the Economic Recovery Act of 1981 and then reduced by the Tax Reform Act of 1986 (see the appendix to Chapter 3).

These deregulatory actions were generally unaccompanied by actions to restrict the increased risk taking they made possible, and so they contributed to bank and thrift failures. As the number of failures mounted, the legislative emphasis then shifted to recapitalizing the depleted deposit insurance funds and providing regulators with stronger tools, while at the same time restricting their discretion. As a group, the various legislative actions addressed a variety of issues, but only the provisions most relevant to the increased number of bank failures are discussed here.

The Depository Institutions Deregulation and Monetary Control Act of 1980 (DIDMCA) phased out deposit interest-rate ceilings, broadened the powers of thrift institutions, and raised the deposit insurance limit from $40,000 to $100,000. Two years later the most pressing problem was the crisis of thrift institutions in an environment of high interest rates. Accordingly, the **Garn–St Germain Depository Institutions Act of 1982** (1) authorized money market deposit accounts for banks and thrifts to stem disintermediation, (2) authorized net worth certificates to implement capital forbearance for thrifts facing insolvency in the short term, and (3) increased the authority of thrifts to invest in commercial loans to strengthen the institutions' viability over the long term. In the case of national banks, Garn–St Germain removed statutory restrictions on real estate lending, and relaxed loans-to-one-borrower limits. With respect to commercial mortgage markets, this legislation set the stage for a rapid expansion of lending, an increase in competition between thrifts and banks, overbuilding, and the subsequent commercial real estate market collapse in many regions.

As the thrift crisis deepened and commercial bank problems were developing, Congress passed the **Competitive Equality Banking Act of 1987 (CEBA)**. It provided for recapitalizing the fund of the Federal Savings and Loan Insurance Corporation (FSLIC) through the Financing Corporation (FICO), authorized a forbearance program for farm banks, extended the full-faith-and-credit protection of the U.S. government to federally insured deposits, and authorized bridge banks. Two years later, again grappling with the thrift debacle, Congress passed the **Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA),** which authorized the use of taxpayer funds to resolve failed thrifts. Other provisions reflected congressional dissatisfaction with the regulation of thrifts: the act abolished the existing thrift regulatory structure, moved thrift deposit insurance to the FDIC, and mandated that bank and thrift insurance fund reserves be increased to 1.25 percent of insured deposits.

The belief that regulators had not acted promptly to head off problems was again evident in the **Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA)**. This act was aimed largely at limiting regulatory discretion in monitoring and resolving industry problems. It prescribed a series of specific "prompt corrective actions" to be taken as capital ratios of banks and thrifts declined to certain levels; mandated annual

examinations and audits; prohibited the use of brokered deposits by undercapitalized institutions; restricted state bank activities; tightened least-cost standards for failure resolutions; and mandated a risk-based deposit insurance assessment system.

Two years after the enactment of FDICIA, the **Omnibus Budget Reconciliation Act of 1993** included a national depositor preference provision, which provided that a failed bank's depositors (and the FDIC standing in the place of insured depositors it has already paid) have priority over nondepositors' claims. It was believed that national depositor preference would make failure transactions simpler and less expensive to the insurance fund and would encourage nondeposit creditors to monitor bank risk more closely.

The final chapter of the savings and loan emergency legislation was completed in October 1996 with the enactment of the **Deposit Insurance Funds Act,** which provided for the capitalization of the Savings Association Insurance Fund, phased in pro rata bank and thrift payments of interest on FICO bonds, and required merger of the bank and thrift insurance funds in 1999 if no savings associations are in existence at that time. Given Congress's past reluctance to address promptly the need to fund thrift deposit insurance, enactment of this legislation at a time when no major thrift failure was on the horizon suggests the extent to which safety-and-soundness considerations had come to dominate banking legislation.[10]

Legislation addressed not only the thrift and banking crises of the 1980s but also, after those crises had ended, the question of interstate banking. By the end of the 1980s the risks posed by geographic lending concentrations were well understood, so attempts were made to eliminate the remaining legal impediments to full interstate banking. Already state action had enabled many banking firms to use bank holding company affiliations to circumvent geographic restrictions. Interstate banking was enacted in the **Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994**, which enables banks to diversify loan portfolios more effectively. (As noted below, it also requires existing regulatory risk-monitoring systems to adapt to the changing nature of individual bank loan portfolios.)

Regulation

The tension between the two objectives of deregulating depository institutions and preventing or containing failures was manifest not only in legislative activity but also in policy differences among the federal bank regulators.[11] Of course, all three agencies were sensitive to issues of safety and soundness as well as to the importance of modernizing bank powers. On specific issues, however, the Office of the Comptroller of the Currency (OCC)

---

[10] Passage of the Deposit Insurance Funds Act was helped along by (1) the possibility of a FICO default if deposits were to shift from the Savings Association Insurance Fund, with higher assessment rates, to the Bank Insurance Fund, with lower assessment rates, and (2) the budgetary treatment of deposit insurance assessments, $3 billion of which was to be counted as revenue to "pay" for nonbanking spending programs.

[11] See Chapter 2, "Banking Legislation and Regulation."

tended to emphasize the need to allow banks more freedom to compete and seek profit opportunities, the FDIC leaned toward protecting the deposit insurance fund, and the Federal Reserve often took a middle-of-the-road position.

Differences between the FDIC and the OCC reflected the different responsibilities of an insurer and a chartering agency. They also reflected a problem that may potentially arise in bank regulation regardless of the agency involved: how to strike the correct balance between encouraging increased competition and preserving stability and safety. To be sure, no such conflict is likely to exist in the long run: depository institutions must be able to compete and to participate in market innovations if they are to be viable in the long term. At any particular time, however, a short-term conflict may arise. The classic case is that of the savings and loan industry. Broadened nonmortgage powers were deemed essential to the long-term viability of thrift institutions, but the very act of providing these powers (without appropriate safeguards and at a time when thrifts were undercapitalized) contributed to the collapse of many thrift institutions and the weakening of many banks in the 1980s.[12]

In varying degree, differences among regulators were evident in the development of policies relating to chartering new banks, the use of brokered funds, and capital requirements. With respect to the entry of new banks, both the OCC and the states sharply increased chartering in the 1980s. (Texas—where branching was restricted—accounted for particularly large shares of total new state and national bank charters.) In 1980, when the OCC sought to foster increased competition by allowing new entrants into banking markets, the agency revised its requirements for approving new charters. But when a disproportionate number of new banks became troubled and failed, the FDIC expressed its concern about the OCC's policy. A basic issue was the FDIC's ability to deny insurance coverage to newly chartered institutions. FDIC approval of insurance was, for all practical purposes, necessary before a state would grant a new charter, but national banks and Federal Reserve member banks received insurance upon being chartered as a matter of law. Congress settled this issue in FDICIA by requiring that all institutions seeking insurance formally apply to the FDIC, thereby assuring the deposit insurer a role in new bank chartering. Meanwhile, the number of new commercial bank charters reached a peak in 1984, then gradually declined until 1994.[13]

---

[12] With respect to the potential short-term conflict between pro-competitive and safety-and-soundness objectives, the following statement on S&L deregulation, made by the National Commission on Financial Institution Reform, Recovery and Enforcement, is instructive: "[C]ommon sense and prudence should have dictated that the industry be required to wait out the high interest rates, regain net worth, and then gradually shift into new activities. This is what well-managed and responsible S&Ls did on their own, and they were largely successful" (*Origins and Causes of the S&L Debacle: A Blueprint for Reform* [1993], 32).

[13] In 1984, 356 new commercial banks were chartered. By 1994 the number had declined to 47, but it then increased to 97 in 1995 and 140 in 1996.

The regulators also differed on the appropriate treatment of brokered deposits. (Brokered deposits had a largely indirect influence on bank failures in that many weak savings institutions used them to fund rapid loan expansion in competition with healthier banks and thrift institutions.) In 1984, the FDIC and the Federal Home Loan Bank Board proposed that brokered deposits be insured only up to $100,000 per broker per bank, whereas the OCC favored a less-stringent approach. Safety-and-soundness considerations seemed to be pitted against the objective of permitting evolution to proceed in the financial markets. In the end Congress stepped in, and both FIRREA and FDICIA limited the use of brokered deposits by troubled institutions.

A third instance of regulatory disagreement concerned the adoption of formal capital requirements with uniform standards for minimum capital levels. In view of the relatively low capital ratios at many large banks and the rise in the number of failures, all of the agencies favored the objective of explicit capital standards, but initially they differed on the specifics; the FDIC generally favored higher capital requirements than the OCC, and the Federal Reserve offered a compromise in at least one instance. In 1985, with congressional encouragement, the regulators agreed on a uniform system covering all banks. In 1990 a further, major change came with the adoption of interim risk-based capital requirements, supplemented by leverage requirements. Capital standards became part of the triggering mechanism for the Prompt Corrective Action (PCA) prescribed by FDICIA in 1991. Final risk-based requirements took effect in 1992.

Geographic Pattern of Bank Failures

The national economic, legislative, and regulatory factors discussed above affected potentially all banks. A variety of other factors affected banks differently in particular regions of the country, as indicated by the geographic pattern of bank failures. During the 1980–94 period, 1,617 FDIC-insured commercial and savings banks were closed or received FDIC financial assistance (see table 1.1). This number was 9.14 percent of the sum of all banks existing at the end of 1979 plus all banks chartered during the subsequent 15 years. The comparable figure for the preceding 15-year period (1965–79) was 0.3 percent.

The geographic pattern of bank failures can be expressed in a number of ways—by number of failed banks, amount of failed-bank assets, proportion of failed banks and failed-bank assets relative to all banks in individual states, or particular states' shares in national totals for bank failures and failed-bank assets. But by any of these measures, it is evident that bank failures during the 1980–94 period were highly concentrated in relatively few regions—which, however, included some of the country's largest banking markets in terms of number of institutions and dollar resources. Thus, geographically confined crises were translated into a national problem. At one end of the scale, in 7 states the number of bank

Table 1.1

Bank Failures by State, 1980–1994

	Number of Bank Failures	Percent of Total Number of Banks	Assets of Failed Banks ($Thousands)	Percent of Total Bank Assets
Alabama	9	2.47	$ 215,589	1.18
Alaska	8	44.44	1,083,417	41.58
Arizona	17	26.15	331,059	1.66
Arkansas	11	4.03	160,797	1.47
California	87	15.26	4,222,302	1.69
Colorado	59	12.39	1,035,553	5.24
Connecticut	32	18.39	6,818,223	22.17
Delaware	1	1.61	582,350	0.74
District of Columbia	5	17.86	1,135,066	13.39
Florida	39	4.56	4,524,461	4.30
Georgia	3	0.53	60,922	0.17
Hawaii	2	20.00	13,941	0.29
Idaho	1	3.13	42,931	0.84
Illinois	33	2.52	35,031,196	25.75
Indiana	10	2.40	241,463	0.76
Iowa	40	6.07	652,681	3.25
Kansas	69	10.71	1,233,874	7.26
Kentucky	7	1.91	97,742	0.48
Louisiana	70	22.44	4,105,621	17.39
Maine	2	2.63	875,303	13.51
Maryland	2	1.45	43,827	0.06
Massachusetts	44	10.63	10,240,719	12.90
Michigan	3	0.75	159,917	0.29
Minnesota	38	4.87	1,491,250	4.95
Mississippi	3	1.63	338,680	3.18
Missouri	41	5.24	1,043,379	2.25
Montana	10	5.75	172,739	3.32
Nebraska	33	6.88	323,646	2.91
Nevada	1	4.17	18,036	0.10
New Hampshire	16	12.60	3,320,916	31.98
New Jersey	14	5.71	4,695,156	9.49
New Mexico	11	11.00	568,326	9.47
New York	34	8.79	31,701,442	6.22
North Carolina	2	1.59	74,553	0.27
North Dakota	9	5.00	77,565	1.76
Ohio	5	1.14	171,765	0.29
Oklahoma	122	22.02	5,838,273	23.85
Oregon	17	17.00	599,703	4.34
Pennsylvania	5	1.19	17,454,150	16.99
Puerto Rico	5	33.33	527,375	8.94

Table 1.1 (continued)
Bank Failures by State, 1980–1994

	Number of Bank Failures	Percent of Total Number of Banks	Assets of Failed Banks ($Thousands)	Percent of Total Bank Assets
Rhode Island	2	8.33	323,861	3.29
South Carolina	1	0.87	64,629	0.67
South Dakota	8	4.73	711,345	4.04
Tennessee	36	9.05	1,730,076	6.34
Texas	599	29.41	60,192,424	43.84
Utah	11	11.58	339,237	4.04
Vermont	2	5.41	93,802	2.94
Virginia	7	2.45	133,529	0.47
Washington	4	2.63	713,803	2.42
West Virginia	5	1.98	123,829	1.25
Wisconsin	2	0.30	50,882	0.19
Wyoming	20	16.67	375,332	10.30
U.S.	**1,617**	**9.14%**	**$206,178,657**	**8.98%**

Note: Data refer to FDIC-insured commercial and savings banks that were closed or received FDIC assistance. Total number of banks is the number of banks on December 31, 1979, plus banks newly chartered in 1980–94. Asset data are assets of banks existing on December 31, 1979, plus assets of newly chartered banks as of date of failure, merger, or December 31, 1994, whichever is applicable, and first available assets for Massachusetts banks that became FDIC-insured in the mid-1980s. Data exclude 13 newly chartered banks that reported no asset figures and 4 banks in U.S. territories.

failures constituted at least 20 percent of the total number of existing and new banks (Alaska, Arizona, Hawaii, Louisiana, Oklahoma, Puerto Rico, and Texas). At the other end of the scale, in 24 states bank failures represented less than 5 percent of the total number of existing and new banks. Of the total 1,617 failures during the entire 1980–94 period, nearly 60 percent were in only 5 states: California, Kansas, Louisiana, Oklahoma, and Texas. Included in these numbers are failures of bank holding company subsidiaries; in Texas and other states with branching restrictions, these were more like branches than independent institutions.

An alternative measure of the severity of bank failures is based on assets. Assets of banks failing in 1980–94 constituted 8.98 percent of the sum of total bank assets at the end of 1979 plus the assets of banks chartered during the 1980–94 period.[14] In 6 states (Alaska, Connecticut, Illinois, New Hampshire, Oklahoma, and Texas), failed-bank assets consti-

[14] The 8.98 percent figure refers to the failed-bank portion of the following: assets of all banks existing as of December 31, 1979, plus assets of banks chartered in 1980–94 as of the date of merger, failure, or December 31, 1994, whichever is applicable, and first available assets for Massachusetts banks that became FDIC-insured in the mid-1980s. Data are not adjusted for inflation.

tuted at least 20 percent of total assets at year-end 1979 plus new-bank assets. On the other hand, in 33 states the failed-bank share was less than 5 percent. Of all banks that failed during the 1980–94 period, 59 percent of assets at the quarter before failure were accounted for by 3 states: Illinois, New York, and Texas. (See table 1.2.)[15]

Although widespread bank failures were limited to a few areas of the country, even a relatively "small" number of failures could cause serious strains on the deposit insurance fund. In 1988, for example, the number of failures and the amount of failed-bank assets reached post-Depression records of 279 and $54 billion (nominal dollars), respectively, but still represented in each case less than 2 percent of the total number of banks and total bank assets at the beginning of the year. Nevertheless, in that year the FDIC sustained the first operating loss in its history, and operating losses continued through 1991, after which, provisions for insurance losses were sharply reduced. And even the smaller number of failures before 1988 had an evident effect on the FDIC's income and expense position. Beginning in 1984, provisions for insurance losses exceeded annual deposit insurance assessments, and this shortfall continued through 1990.[16]

The figures by state illustrate some of the factors associated with bank failures. The incidence of failure was particularly high in states characterized by

- severe economic downturns related to the collapse in energy prices (Alaska, Louisiana, Oklahoma, Texas, and Wyoming);
- real estate–related downturns (California, the Northeast, and the Southwest);
- the agricultural recession of the early 1980s (Iowa, Kansas, Nebraska, Oklahoma, and Texas);
- an influx of banks chartered in the 1980s (California and Texas) and the parallel phenomenon of mutual-to-stock conversions (Massachusetts);
- prohibitions against branching that limited banks' ability to diversify their loan portfolios geographically and to fund growth through core deposits (Colorado, Illinois, Kansas, Texas, and Wyoming);[17]
- the failure of a single large bank (Illinois) or of a small number of relatively large banks (New York and Pennsylvania).

---

[15] Comparisons based on assets of failed banks are subject to distortion because of the effect of inflation, differences in the timing of failures among the states, and differences in asset dates between new banks and banks existing at year-end 1979.

[16] Beginning in 1989, data refer to the Bank Insurance Fund (FDIC, *Annual Report*, various years).

[17] Information on state branching provisions is as of September 30, 1985, as compiled by the Conference of State Bank Supervisors. CSBS listed 7 states as having unit banking as of September 30, 1985, 6 as a result of legal prohibitions (Colorado, Illinois, Kansas, Montana, North Dakota, and Texas). One (Wyoming) had no statute, but unit banking was prevalent.

Table 1.2

Assets of Failed Banks at the Quarter before Failure, by State, 1980–1994

State	Assets of Failed Banks ($Thousands)	Percent Distribution
Alabama	$ 266,443	0.08
Alaska	3,049,573	0.96
Arizona	453,522	0.14
Arkansas	229,700	0.07
California	6,018,036	1.90
Colorado	1,072,556	0.34
Connecticut	17,717,959	5.59
Delaware	582,350	0.18
District of Columbia	2,189,658	0.69
Florida	15,471,515	4.88
Georgia	104,607	0.03
Hawaii	11,486	0.00
Idaho	55,867	0.02
Illinois	40,765,430	12.87
Indiana	311,825	0.10
Iowa	809,089	0.26
Kansas	1,697,588	0.54
Kentucky	114,931	0.04
Louisiana	4,616,370	1.46
Maine	2,228,177	0.70
Maryland	57,000	0.02
Massachusetts	26,632,401	8.41
Michigan	160,300	0.05
Minnesota	1,669,974	0.53
Mississippi	288,949	0.09
Missouri	3,096,719	0.98
Montana	212,896	0.07
Nebraska	402,185	0.13
Nevada	18,036	0.01
New Hampshire	5,393,842	1.70
New Jersey	6,919,198	2.18
New Mexico	723,576	0.23
New York	51,577,291	16.28
North Carolina	74,553	0.02
North Dakota	120,109	0.04
Ohio	152,254	0.05
Oklahoma	6,712,651	2.12
Oregon	622,091	0.20
Pennsylvania	14,265,742	4.50

(continued)

Table 1.2 (continued)

Assets of Failed Banks at the Quarter before Failure, by State, 1980–1994

State	Assets of Failed Banks ($Thousands)	Percent Distribution
Puerto Rico	543,748	0.17
Rhode Island	600,706	0.19
South Carolina	64,629	0.02
South Dakota	743,698	0.23
Tennessee	2,446,083	0.77
Texas	93,061,510	29.37
Utah	469,637	0.15
Vermont	329,478	0.10
Virginia	296,368	0.09
Washington	769,109	0.24
West Virginia	123,139	0.04
Wisconsin	70,757	0.02
Wyoming	428,606	0.14
U.S.	**$316,813,917**	**100.00%**

Note: Failed-bank assets are assets as of the quarter before failure or assistance, or assets as of the last available Call Report before failure or assistance.

In some states bank failures were affected by more than one of these factors. For example, the particularly high incidence of failures in Texas reflected the rapid rise and subsequent collapse in oil prices, the commercial real estate boom and bust, the effects of the agricultural recession, the large number of new banks chartered in the state during the 1980s, and state prohibitions against branching. (The high proportion of bank failures in Texas also reflected supervisory developments. As noted below, declines in the number and frequency of on-site examinations in the 1983–86 period were particularly pronounced in Texas; earlier identification of troubled banks might have prevented some failures.)[18] By the same token, some states that exhibited only one or two of the factors associated with bank failures had relatively few failures. Montana and North Dakota, for example, had prohibitions against branching, but their failure rates were below the national average, whether measured by number of institutions or by assets. Differences among the states in failure rates and in the presence or absence of factors associated with failures illustrate the conclusion that the rise in the number of bank failures cannot be ascribed to any single cause.

[18] Texas was also a leading state for S&L failures. Texas S&Ls accounted for 18 percent of all of the failures resolved by the Resolution Trust Corporation (RTC), 14 percent of S&L assets at time of takeover, and 29 percent of total estimated RTC resolution costs. See RTC, *Statistical Abstract* (August 1989/September 1995).

Regional and Sectoral Recessions

Although the interplay of broad economic, legislative, and regulatory forces helped make the environment for banking increasingly demanding, the more immediate cause of bank failures was a series of regional and sectoral recessions. Because most U.S. banks served relatively narrow geographic markets, these regional and sectoral recessions had a severe impact on local banks. It should be noted, however, that not all regional recessions of the magnitude experienced during the 1980–94 period resulted in a major increase in the number of bank failures. Rather, bank failures were generally associated with regional recessions that had been preceded by rapid regional expansions—that is, they were associated with "boom-and-bust" patterns of economic activity. Bank loans helped to fuel the boom phase of the cycle, and when economic activity turned down, some of these loans went sour, with the result that banks holding these loans were weakened. By contrast, recessions that were preceded by relatively slow economic activity, such as those in the Rust Belt, generally did not lead to widespread bank failures.

This relationship between the number of bank failures and regional boom-and-bust patterns of economic activity is illustrated by the data in tables 1.3 and 1.4, which show that bank failure rates were generally high in states where, in the five years preceding state recessions, real personal income grew faster than it did for the nation as a whole. Conversely, bank failure rates were relatively low in states where, in the five years preceding state recessions, real personal income grew more slowly than it did for the nation as a whole.[19]

There were four major regional and sectoral economic recessions that were associated with widespread bank failures during the 1980–94 period. The first accompanied the downturn in farm prices in the early and middle 1980s after years of rapid increases during the late 1970s (see figure 1.5). The downturn in prices led to reductions in net farm income and farm real estate values and a rise in the number of failures of banks with heavy concentrations of agricultural loans. The second recession occurred in Texas and other energy-producing southwestern states, where gross state product dropped after oil prices turned down in 1981 and again in 1985 (see figure 1.6). The 1981 oil price reduction was followed by a regional boom and bust in commercial real estate activity. The third recession was in the northeastern states, which experienced negative growth in gross state product in 1990–91. The final episode was a recession in California, as growth in gross state product turned negative in 1991–92.

Of the 1,617 bank failure and assistance cases from 1980 to 1994, 78 percent were located in the regions suffering these economic downturns—the Southwest, the Northeast,

[19] In some high-growth states the number of bank failures rose sharply after the states' recessions, but the increase fell outside the three-year periods shown in table 1.3. For example, Arizona experienced especially rapid growth before the state's 1982 recession and also saw a high rate of bank failures (tables 1.1 and 1.2), but most of them occurred in 1989–90.

Table 1.3

Bank Failures and Growth Rates of Real Personal Income, by State, 1980–1994 (Percent)

		Growth Rates of Real Personal Income			
			Five Years before Recession		
State*	Recession Years†	State Growth Rate, Recession Years	State Growth Rate	State Minus U.S. Growth Rate	Percent of Banks Failing in Recession and Next 2 Years‡
Wyoming	1982–87	–3.03	8.26	5.05	18.52
Nevada	1982	–0.17	7.83	4.62	8.33
Oklahoma	1983–87	–1.42	6.05	3.78	20.83
Alaska	1986–87	–5.46	6.63	3.75	50.00
Arizona	1982	–0.18	6.69	3.49	0.00
New Hampshire	1990–91	–0.43	5.69	2.50	19.51
Louisiana	1983–87	–0.75	4.69	2.41	21.22
Washington	1982	–0.24	4.97	1.76	0.93
Maryland	1991	–0.33	4.49	1.61	1.92
Texas	1986–87	–0.98	4.43	1.55	20.45
Maine	1991	–2.15	4.42	1.54	5.13
Vermont	1991	–1.45	4.32	1.44	6.25
Connecticut	1991	–1.94	4.30	1.42	22.05
California	1991	–1.04	4.20	1.32	7.26
Oregon	1981–82	–2.40	5.03	1.21	14.63
New Jersey	1991	–1.13	3.89	1.01	6.00
Rhode Island	1991	–1.82	3.79	0.91	13.33
Massachusetts	1991	–1.87	3.79	0.91	9.77
New York	1991	–0.88	3.71	0.83	3.86
Mississippi	1980	–1.09	4.15	0.42	0.00
Arkansas	1980–82	0.27	4.14	0.42	2.33
Kentucky	1980–83	0.17	4.08	0.36	0.58
Tennessee	1982	–0.05	3.12	–0.09	7.41
West Virginia	1981–83	–0.73	3.63	–0.19	0.84
Illinois	1991	–0.09	2.64	–0.24	0.55
Missouri	1980–82	0.55	3.41	–0.32	0.69
Wisconsin	1981–82	–0.22	3.49	–0.33	0.00
North Dakota	1985–88	–3.54	2.28	–0.38	4.52
Kansas	1980	–0.30	3.32	–0.41	0.49
Idaho	1982	–1.91	2.79	–0.41	0.00
Michigan	1991	–0.58	2.41	–0.47	0.00
Alabama	1982	–0.24	2.72	–0.48	0.97
Michigan	1980–82	–2.73	3.12	–0.60	0.54
Hawaii	1981	–0.63	3.20	–0.62	0.00
Indiana	1980–82	–1.39	3.03	–0.69	0.49
Iowa	1979–85	–0.31	1.83	–0.79	4.92
Iowa	1991	–0.39	2.04	–0.84	0.18

Table 1.3 (continued)

Bank Failures and Growth Rates of Real Personal Income, by State, 1980–1994 (Percent)

State*	Recession Years†	Growth Rates of Real Personal Income: State Growth Rate, Recession Years	Five Years before Recession: State Growth Rate	Five Years before Recession: State Minus U.S. Growth Rate	Percent of Banks Failing in Recession and Next 2 Years‡
Montana	1980–82	1.21	2.87	–0.86	0.62
Nebraska	1979–83	0.24	1.67	–0.96	4.20
Montana	1985–88	–0.17	1.39	–1.28	4.79
Ohio	1980–82	–0.73	2.41	–1.31	0.00
Illinois	1980–82	–0.28	2.34	–1.38	1.60
South Dakota	1980–82	–1.38	2.09	–1.63	1.30
West Virginia	1987	–1.33	0.51	–2.65	0.47
North Dakota	1991	–2.50	0.08	–2.80	0.00
Iowa	1988	–1.11	1.01	–3.09	1.17
District of Columbia	1980	–2.94	–0.08	–3.80	0.00
North Dakota	1979–80	–3.54	–1.59	–4.21	0.58

Note: Data refer to all states that experienced a decrease in real personal income in any year from 1980 to 1992.

*States are ranked according to the magnitude of the difference between state growth rates and the U.S. growth rate in real personal income during the five years before state recessions.

†Recessions are defined as years in which personal income deflated by GDP deflator decreased. Recoveries are counted as having at least two consecutive years of growth in real personal income. In some states, therefore, personal income increased during a single year sufficiently to produce positive growth for the recession as a whole.

‡Percent of banks failing is based on the number of banks existing as of December of the year preceding the recession.

Table 1.4

Bank Failures and Growth Rates of Real Personal Income, by State Recession Quartile (Percent)

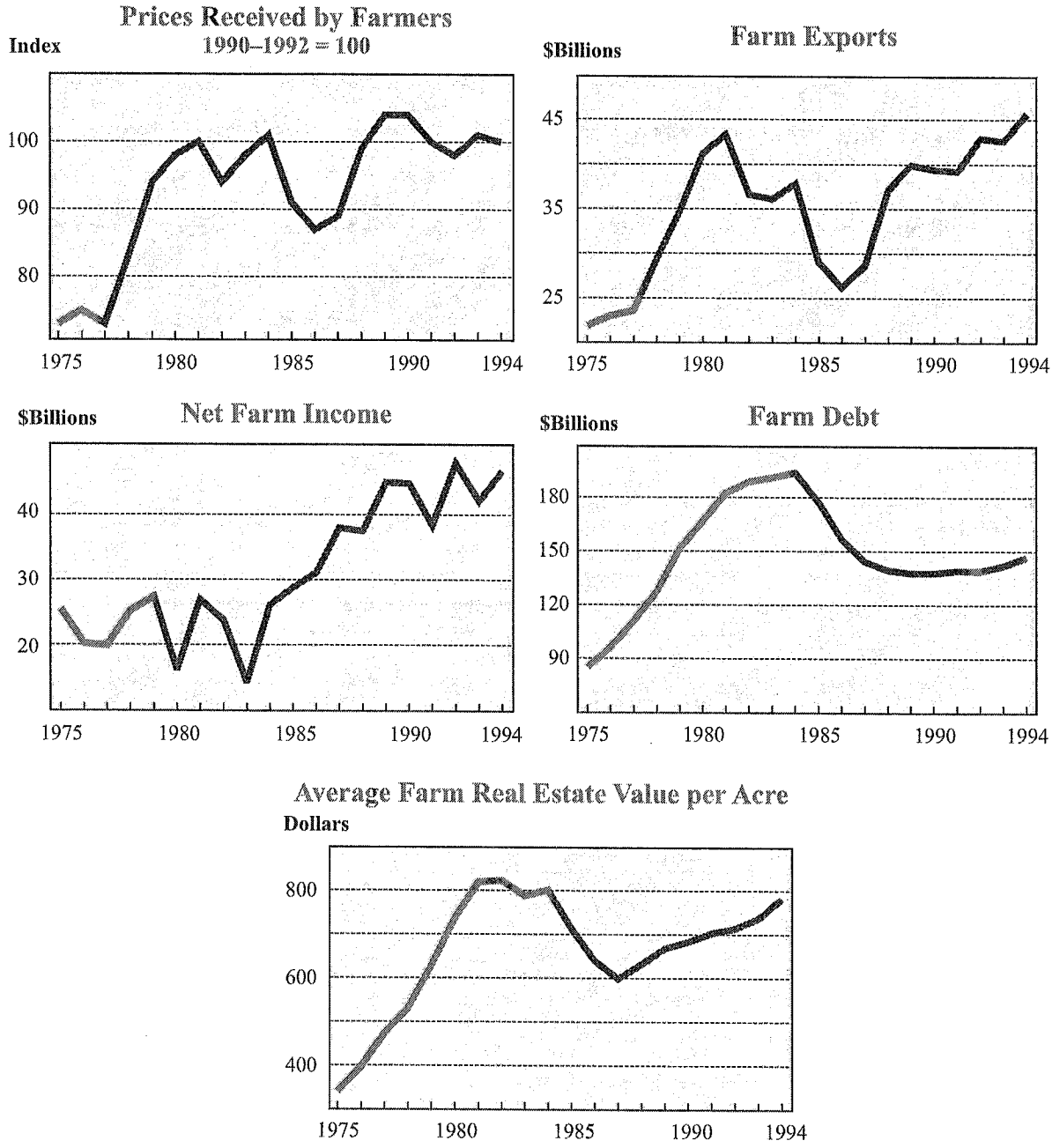
State Recession Quartile*	Average Difference between State Growth Rate and U.S. Growth Rate, 5 Years before Recession†	Average State Bank Failure Rate in Recession and Next 2 Years
1	2.79	14.42
2	0.71	7.34
3	–0.48	1.06
4	–2.07	1.28

*State recessions are grouped in quartiles according to the magnitude of the difference between state growth rate and U.S. growth rate in real personal income from table 1.3.

†Data are unweighted averages of individual state data.

Figure 1.5

Farm Prices, Exports, Income, Debt, and Real Estate Value, 1975–1994

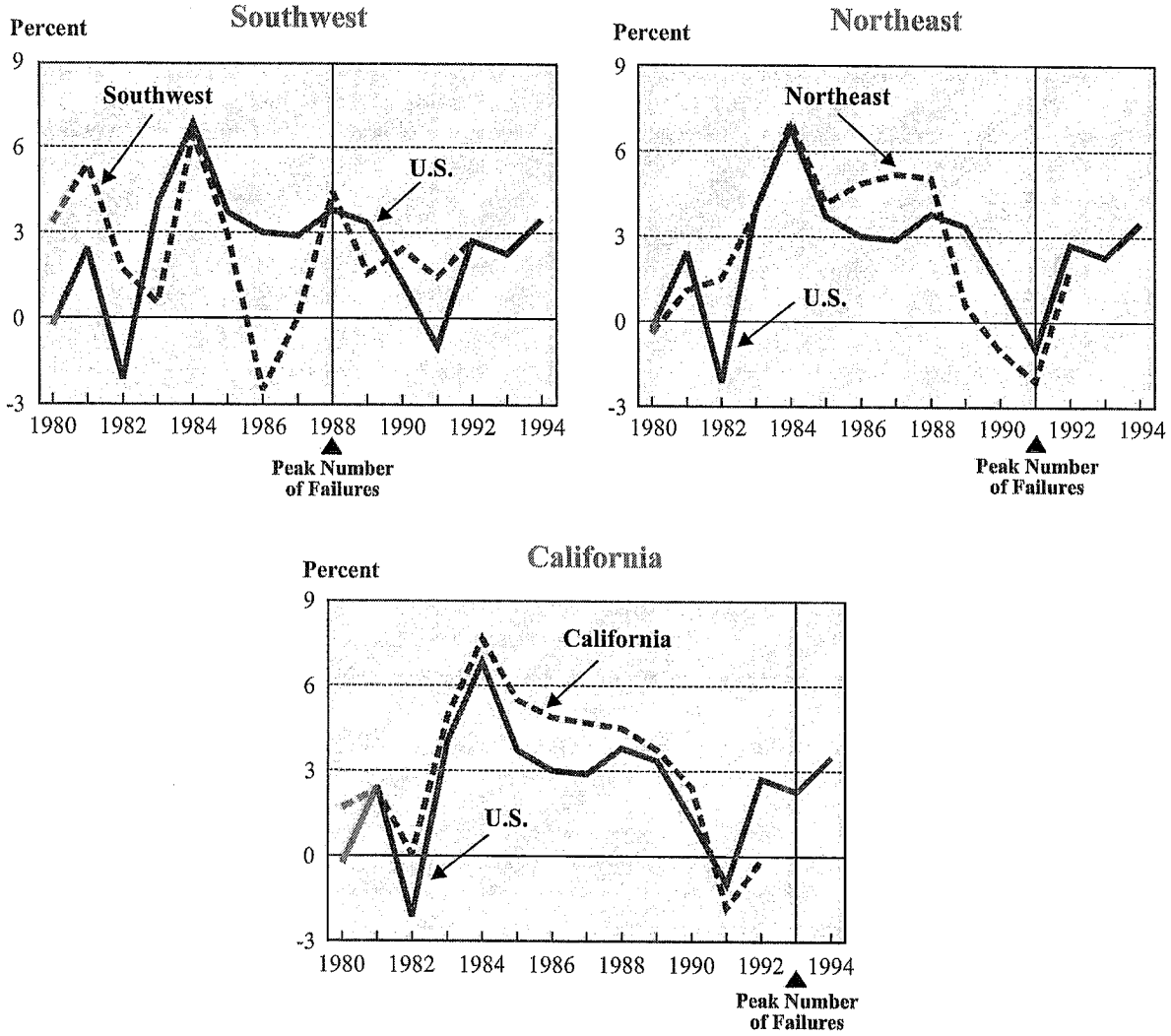


Source: Economic Report of the President, 1986, 1996.

and California—or were agricultural banks outside of these three regions.[20] These failures accounted for 71 percent of the assets of failed banks over the period. Although all four of

Figure 1.6

Changes in Gross State Product and Gross Domestic Product, 1980–1994



Source: U.S. Department of Commerce, Bureau of Economic Analysis.

[20] Agricultural banks are defined as banks with 25 percent or more of total loans in agricultural loans. Data on assets of failed banks are as of the quarter before the date of failure. The Southwest includes Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. The Northeast includes New Jersey, New York, and the six New England states (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont). The bulk of the agricultural bank failures, other than those in the two southwestern states of Oklahoma and Texas, were in Iowa, Kansas, Minnesota, Missouri, and Nebraska.

the recessions associated with bank failures were partly shaped by their own distinct circumstances, certain common elements were present:

1. **Each followed a period of rapid expansion; in most cases, cyclical forces were accentuated by external factors.**
2. **In all four recessions, speculative activity was evident. "Expert" opinion often gave support to overly optimistic expectations.**
3. **In all four cases there were wide swings in real estate activity, and these contributed to the severity of the regional recessions.**
4. **Commercial real estate markets in particular deserve attention because boom and bust activity in these markets was one of the main causes of losses at both failed and surviving banks.**

Rapid expansion. In the agricultural belt, increased farm production and purchases of farmland were stimulated by rapid inflation during the 1970s in the prices of farm products, a sharp run-up in farm exports, and widespread expectations of strong worldwide demand in the 1980s. But as farm exports declined and higher interest rates increased farm costs, the expansion gave way to a downturn.[21] Similarly, in the Southwest (as well as other oil-producing areas around the world) strong worldwide demand for oil plus OPEC restrictions on supply led to a major rise in oil prices and strong economic expansion—but the weakening in oil prices after 1981 and their rapid drop in 1985 (brought on partly by the collapse of discipline in the international oil cartel) resulted in two economic downturns during the 1980s in the Southwest.[22] California enjoyed a rate of economic growth above the national average during the 1980s but was hit particularly hard during the 1991–92 national recession, partly because of cutbacks in defense spending.[23] In the Northeast, growth rates in overall production were above the national average during 1982–88; the subsequent decline came about mainly because a local economic slowdown was followed—and aggravated—by the 1991–92 national economic recession and by a boom and bust in northeastern residential and commercial real estate activity.[24]

Speculative activity with "expert" support. Speculative activity was reflected in a number of developments. Farm real estate values showed an uninterrupted rise in the late 1970s and early 1980s, even though gross returns per acre for major crops were tracing a

---

[21] See Chapter 8, "Banking and the Agricultural Problems of the 1980s."

[22] See John O'Keefe, "The Texas Banking Crisis: Causes and Consequences, 1980–1989," *FDIC Banking Review* 3, no. 2 (1990); and Chapter 9, "Banking Problems in the Southwest."

[23] See Chapter 11, "Banking Problems in California."

[24] See Chapter 10, "Banking Problems in the Northeast."

highly variable and generally downward trend.[25] In the Southwest, commercial construction and lending activity continued in major markets after vacancy rates began to soar. In many commercial real estate mortgage markets, underwriting standards were relaxed.[26] The presence of speculative activity was frequently mentioned in interviews conducted in 1995 by staff of the FDIC's Division of Research and Statistics as part of the research for this study.[27] (In all, approximately 150 bankers and regulators were interviewed in Atlanta, Boston, Dallas, Kansas City, New York, San Francisco, and Washington). Numerous interviewees cited a belief common in the 1980s that the boom economies of this period had unlimited viability. They also noted that in many cases bankers were engaged in asset-based lending, relying on collateral values supported by inflationary expectations rather than by cash flows.

Examples of "expert" opinion that supported optimism included statements attributed to two secretaries of agriculture[28] and comments by many observers in the Northeast that the area's economy was diversified, mature, and largely immune to Texas-style real estate problems.[29] Another example is provided by economists and other analysts, who as late as 1990 and 1991 were discounting the prospect of a bust in California home prices.[30]

Wide swings in real estate activity. In the agricultural belt, prices of farmland were bid up during the 1970s by farmers and investors, who were responding to increases in the prices of farm products as well as expectations of continued strong foreign demand. Farmland values continued to rise until 1982, remained at high levels until 1984, and then collapsed (figure 1.5). In the Southwest, both residential and nonresidential construction rose sharply during the early 1980s before falling precipitously later in the decade; these wide real estate swings followed the earlier oil-generated cycle and contributed to the second Southwest recession in the 1980s. In both the northeastern states and California, boom-and-bust real estate activity aggravated general state recessions in the early 1990s.

---

[25] In 1982, when land values reached their zenith, gross rates of return for corn and soybeans were less than two-thirds their 1970 levels and approximately one-third their 1973 levels. See Chapter 8, "Banking and the Agricultural Problems of the 1980s."

[26] See Chapter 3, "Commercial Real Estate and the Banking Crises"; and O'Keefe, "The Texas Banking Crisis."

[27] "Speculative activity" in this context is synonymous with economic "bubbles" defined as follows: "if the reason that the price is high today is *only* because investors believe that the selling price will be high tomorrow—when "fundamental" factors do not seem to justify such a price—then a bubble exists." See Joseph E. Stiglitz, "Symposium on Bubbles," *Journal of Economic Perspectives* 4, no. 2 (spring 1990): 13.

[28] Robert Bergland, secretary of agriculture in 1980, said, "The era of chronic overproduction...is over." In 1972, then-Secretary of Agriculture Earl Butz is said to have advised farmers to plant "from fencerow to fencerow." (Both quotations are from Gregg Easterbrook, "Making Sense of Agriculture: A Revisionist Look at Farm Policy," *The Atlantic* 256 (July 1985): 63. See Chapter 8, "Banking and the Agricultural Problems of the 1980s."

[29] Interviews with regulators and bankers. See Chapter 10, "Banking Problems in the Northeast."

[30] See citations in Chapter 11, "Banking Problems in California."

Commercial real estate markets and bank losses. Commercial real estate development is inherently risky, partly because of the long gestation period of many commercial construction projects. When completed projects finally come to market, demand conditions may have changed considerably from what they were at the time of conception. Another cause of risk is that many firms seeking commercial floor space are geographically mobile, so developers are affected by economic events not only in the project's proximity but in far-distant areas as well. In addition, commercial real estate projects tend to be highly leveraged, a condition that increases the volatility of returns. Relevant data on commercial real estate are often difficult to obtain because these markets are not highly organized and because transactions are often "private deals" whose crucial elements may not be publicly available. Finally, commercial loan contracts usually have nonrecourse provisions prohibiting lenders from satisfying losses from other borrower assets.

In the early 1980s, booming activity in commercial construction was supported by rapidly increased bank and thrift commercial mortgage lending. A major stimulus for this activity was provided by public policy actions: tax breaks enacted as part of the Economic Recovery Act of 1981 greatly enhanced the after-tax returns on real estate investment, and the Garn–St Germain Act expanded the nonresidential lending powers of savings associations. Competitive pressures, including those reflected in the reduced bank share of the market for business loans to large companies, also provided an important stimulus.

Many banks and thrifts moved aggressively into commercial real estate lending. During the 1980s, when total real estate loans of banks more than tripled, commercial real estate loans nearly quadrupled. As a percentage of total bank assets, total real estate loans rose from 18 to 27 percent between 1980 and 1990, while the ratio for nonresidential and construction loans nearly doubled, from 6 to 11 percent. A pervasive relaxation of underwriting standards took place, unchecked either by the real estate appraisal system or by supervisory restraints. Overly optimistic appraisals, together with the relaxation of debt coverage, of maximum loan-to-value ratios, and of other underwriting constraints, meant that borrowers frequently had no equity at stake, and lenders bore all of the risk.[31]

Overbuilding occurred in many markets, and when the bubble burst, real estate values collapsed. (The downturn was aggravated by the Tax Reform Act of 1986, which removed tax breaks for real estate investment and caused a reduction in after-tax returns on such investment.) At many financial institutions loan quality deteriorated significantly, and the deterioration caused serious problems. As discussed in detail below, banks that failed in the 1980s had higher ratios of commercial real estate loans to total assets than surviving banks.

---

[31] These observations on underwriting practices, taken from Chapter 3, reflect the comments of, and have been reviewed by, a number of FDIC examiners and supervisory personnel who were actively engaged in bank examination and supervision during the 1980s.

Failing banks also had higher ratios of commercial real estate loans to total real estate loans, of real estate charge-offs to total charge-offs, and of nonperforming real estate assets to total nonperforming assets.

Bank Performance in Regional and Sectoral Recessions

The behavior of banks in the regions and sectors that suffered recessions during the 1980s also exhibited some common elements:

1. In the economic expansions that preceded these recessions, banks generally responded aggressively to rising credit demands.
2. Banks that failed during the regional recessions generally had assumed greater risks, on average, than those that survived, as measured by ratios of total loans and commercial real estate loans to total assets. Banks that failed had generally not been in a seriously weak condition (as measured by equity-to-assets ratios) in the years preceding the regional recessions.
3. Banks chartered in the 1980s and mutual institutions converting to the stock form of ownership failed with greater frequency than comparable banks.

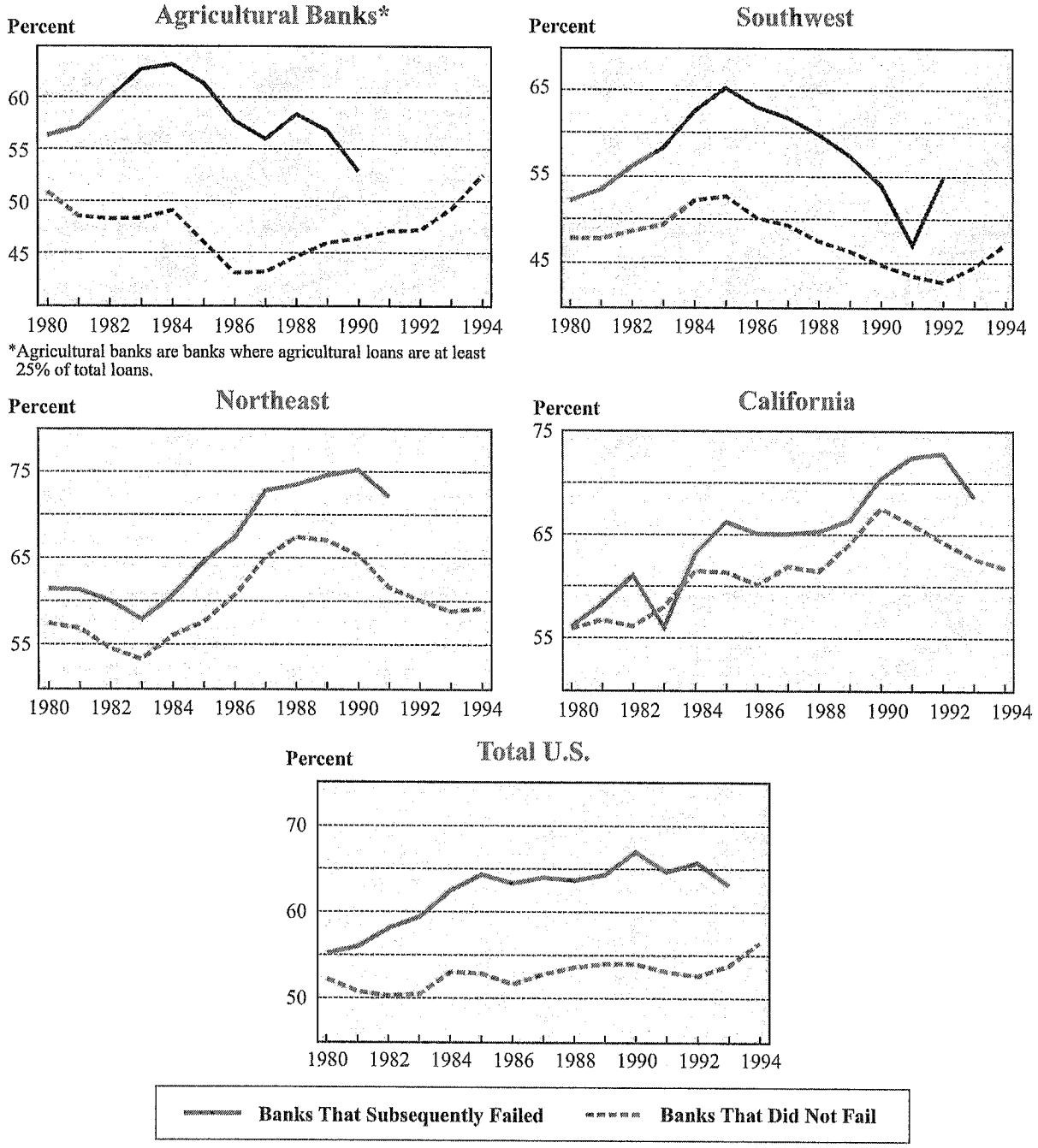
Aggressive response. In the case of agricultural banks, aggressive response is evident in the growth of farm loans, which increased rapidly and reached a peak in 1984, after the 1981 highs in prices received by farmers and net farm income and the 1982 high in farmland values. In Texas, banks responded to the rise in oil prices by rapidly increasing not only their commercial and industrial loans (including loans to oil and gas producers) but also the share of commercial and industrial loans in total bank assets. In most of the regions that underwent recessions, the aggressiveness of bank lending is evident as well in the rapid expansion in nonresidential mortgage lending and in the increased share of commercial mortgages in total bank assets.

Risk taking and failure. Banks that would fail during the 1980–94 period generally had higher ratios of total loans to assets and commercial real estate loans to assets throughout most of the period (see figures 1.7 and 1.8). (In this context, commercial real estate loans include construction loans, nonfarm nonresidential loans, and multifamily mortgages.) This was true for banks in the agricultural belt, the Southwest, the Northeast, California, and the total United States. In the agricultural belt, the Southwest, and the Northeast, banks that would fail during the regional recessions had significantly higher loans-to-assets ratios in the year before the recessions began (see table 1.5).[32] In the Northeast and Southwest, com-

[32] Regional recessions are considered to have begun in the agricultural belt in 1982 (following the 1981 high in prices received by farmers), in the Southwest in 1982 (after oil prices reached a peak in 1981), and in the Northeast and California in the first year of negative gross state product (figure 1.6).

Figure 1.7

Ratio of Gross Loans to Total Assets, Failed and Nonfailed Banks, 1980–1994

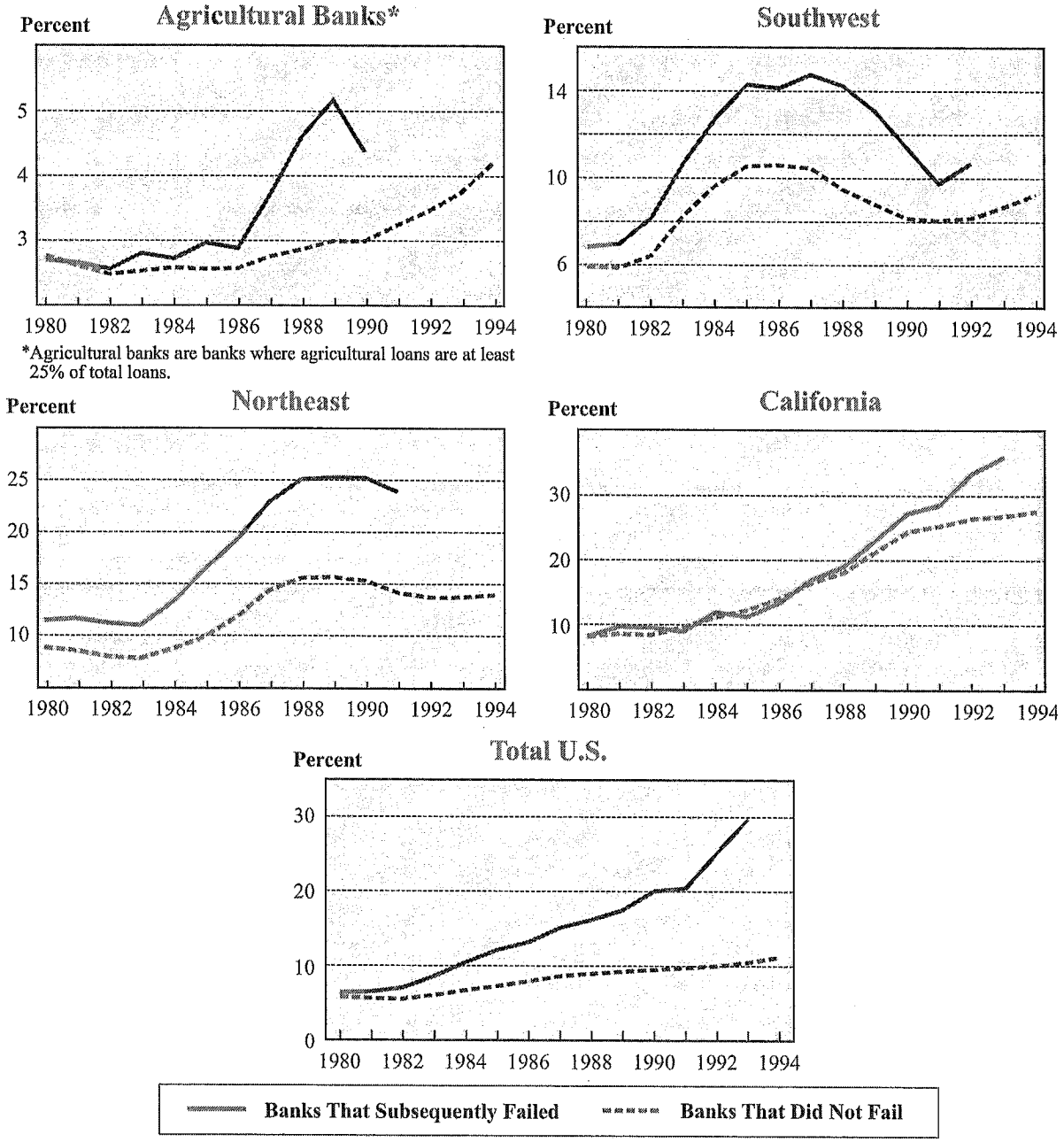


*Agricultural banks are banks where agricultural loans are at least 25% of total loans.

Note: Data are unweighted averages of individual bank ratios. Data for banks that subsequently failed are not shown for years when there were fewer than ten banks that would fail in subsequent years. Open-bank assistance cases are not counted as failures.

Figure 1.8

Ratio of Commercial Real Estate Loans to Total Assets, Failed and Nonfailed Banks, 1980–1994



*Agricultural banks are banks where agricultural loans are at least 25% of total loans.

Note: Commercial real estate loans = construction loans + multifamily loans + nonfarm, nonresidential loans. Data are unweighted averages of individual bank ratios of commercial real estate loans to total assets. Data for banks that subsequently failed are not shown for years when there were fewer than ten banks that would fail in subsequent years. Open-bank assistance cases are not counted as failures.

mercial mortgages were higher relative to total assets for failed banks. Banks that would fail also had lower equity-to-assets ratios than survivors in the year before the recession.[33]

Table 1.5
Selected Financial Ratios

A. Failed and Nonfailed Banks 1 Year before Regional Recession

	1981				1989		1990	
	Agricultural Banks		Southwest Banks		Northeast Banks		California Banks	
Ratio	Failed	Nonfailed	Failed	Nonfailed	Failed	Nonfailed	Failed	Nonfailed
Equity/Assets	7.91%	8.30%*	7.00%	7.63%*	6.67%	9.21%*	5.71%	10.47%*
Eq.+Loss Res./Assets	9.11	9.77*	8.64	9.25*	8.34	9.93	7.20	11.46*
Nonprfm Lns/Tot Lns	NA	NA	NA	NA	8.60	2.95*	6.23	2.39*
ROA	1.26	1.33	1.22	1.38*	-1.68	0.67*	-0.63	0.36
ROE	16.90	16.44	18.98	18.99	-23.65	6.73*	-7.78	9.88*
Loans/Assets	56.30	48.48*	53.94	47.72*	75.16	68.05*	73.12	69.63
Comm. Mtgs/Assets	2.08	2.19	3.92	3.42*	13.91	9.44*	10.79	11.91

B. Failed and Nonfailed Banks 3 Years before Regional Recession

	1979				1987		1988	
	Agricultural Banks		Southwest Banks		Northeast Banks		California Banks	
Ratio	Failed	Nonfailed	Failed	Nonfailed	Failed	Nonfailed	Failed	Nonfailed
Equity/Assets	7.39%	7.87%*	6.94%	7.45%*	7.96%	8.86%*	6.95%	9.58%
Eq.+Loss Res./Assets	8.85	9.45*	8.45	9.08*	8.53	9.37	8.02	10.52
Nonprfm Lns/Tot Lns	NA	NA	NA	NA	1.70	1.14*	4.86	2.28*
ROA	1.15	1.28*	1.00	1.28*	0.62	1.04*	0.08	0.78*
ROE	16.10	16.64	15.55	17.80*	11.66	14.32	2.29	10.85
Loans/Assets	58.40	55.56*	53.42	50.02*	74.31	66.33*	68.72	63.01*
Comm. Mtgs/Assets	2.13	2.42*	3.99	3.71	13.08	8.25*	7.78	8.76

Note: Data are unweighted averages of individual bank ratios. Asset and loan figures are year-end values of the given year, and equity figures are year-end of the previous year. Excluded were banks chartered within the specified year, banks that failed before the recession, and banks participating in the Net Worth Certificate Program. Nonperforming loans were not reported before 1982.

*Significant at 95 percent level

[33] The comparison in California is between failing and surviving banks with assets below $300 million. All but one of the state's bank failures were in that asset-size group, while the total state data are dominated by California's four megabanks (see Chapter 11).

Three years before the onset of the regional recessions, banks that would fail likewise had significantly higher ratios of loans to assets, but these banks' equity-to-assets ratios—although somewhat lower than those of banks that would survive—were in the generally healthy range of nearly 7 percent to nearly 8 percent (table 1.5).

These results are generally consistent with the findings on measures of risk and condition summarized below in the section on off-site surveillance. As noted in that section, five years before their failure, banks that would subsequently fail differed little from banks that would survive in terms of equity-to-assets ratios and other measures of current condition. On the other hand, banks that would fail had higher loans-to-assets ratios than survivors, and high loans-to-assets ratios were the risk factor with the strongest statistical relationship to incidence of failure five years later.

Although high loan volumes were a prominent feature of failing banks from 1980 to 1994, they obviously were not an automatic route to failure. Banks earn income by managing risk, including risk of loan defaults. The averages of individual bank ratios discussed above obscure the fact that some banks that survived also had high concentrations of assets in total loans and/or commercial mortgages. Similarly, as noted below in the section on off-site surveillance, only a fraction of the banks with high loans-to-assets ratios would fail five years later. The conditions enabling many banks with high-risk financial characteristics to survive the recessions and avoid failure may include the following, among others: strong equity and reserve positions to absorb losses, more-favorable risk/return trade-offs, superior lending and risk-management skills, changes in policies before high risk was translated into severe losses, improvements in local economic conditions, and timely supervisory actions. High lending volumes may lead to trouble if a bank achieves them by relaxing credit standards, entering markets where management lacks expertise, or making large loans to single borrowers, or if loan growth strains the bank's internal control systems or back-office operations. That such factors were present at many banks that failed from 1980 to 1994 has been suggested by numerous observers, including those interviewed during the research for this study.

New and converted banks. Approximately 2,800 new banks were chartered in the period covered by this study, 39 percent of them in the Southwest (notably Texas) and California. Of all the institutions chartered in 1980–90,[34] 16.2 percent failed through 1994, compared with a 7.6 percent failure rate for banks that were already in existence on De-

[34] The 1980–90 period was selected in this comparison to compensate roughly for the fact that banks chartered between 1991 and 1994 did not have as much chance to fail during the period through 1994.

cember 31, 1979 (see table 1.6).[35] Although the data are dominated by the Texas experience, in most areas banks chartered in the 1980s generally had a higher failure rate than banks existing at the beginning of the 1980s.[36]

In the Northeast, mutual savings banks that converted to the stock form of ownership represented a somewhat comparable phenomenon.[37] Of the mutuals that converted in the middle and late 1980s after state legislation permitted such action, 21 percent of the institutions existing at the end of 1989 failed in 1990–94. This compared with 8 percent of the

Table 1.6
Failure Rates, Newly Chartered and Existing Banks

Banks Chartered, 1980–1990		
	Number Failed	**Percent Failed**
Region	1980–1994	1980–1994
Southwest	248	33.3
Southeast	26	4.3
Northeast	38	19.3
California	41	13.1
U.S.	420	16.2

Banks Existing on December 31, 1979		
	Number Failed	**Percent Failed**
Region	1980–1994	1980–1994
Southwest	538	21.4
Southeast	77	3.1
Northeast	89	8.5
California	31	12.8
U.S.	1,114	7.6

[35] A study of the Texas experience concluded that "the relatively high failure rate for newly established Texas banks can be explained by high-risk financial policies" (Jeffery W. Gunther, "Financial Strategies and Performance of Newly Established Texas Banks," Federal Reserve Bank of Dallas *Financial Industry Studies* [December 1990]: 13).

[36] In the Southwest and Northeast, newly chartered banks failed with greater frequency than preexisting banks, whether "newly chartered" includes all banks chartered during the 1980–90 period or only those that were in existence for five years or less. In Southern California, however, failure rates for banks in existence for five years or less were lower than those for preexisting banks, whereas failure rates for all banks chartered in the entire 1980–90 period were higher.

[37] Jennifer L. Eccles and John P. O'Keefe, "Understanding the Experience of Converted New England Savings Banks," *FDIC Banking Review* 8, no. 1 (1995): 1–18.

mutuals that existed as of the end of 1989 and had not converted, and 11 percent of the region's commercial banks (see table 1.7). New banks and converted mutuals highlighted in extreme fashion the problems confronting many other banks in the 1980s. These institutions had strong incentives to expand loan portfolios rapidly in order to leverage high initial capital positions, increase earnings per share, and meet stockholder expectations.[38] In so doing, these institutions rapidly increased their lending in markets already experiencing vigorous competition and deteriorating credit standards. They combined powerful competitive pressures to assume greater risk with relative inexperience in a demanding new environment. Newly chartered banks began operations at a time when inexperience was a distinct liability, while many converted mutuals responded to internal and external pressures by entering unfamiliar markets or geographic areas. As a result, a disproportionate number of new and converted banks failed.

Table 1.7
Failure Rates of Converted Mutual Savings Banks and Other Banks, Northeastern States

	Commercial Banks	Savings Banks		Cooperative Banks*	Total
		Stock	Mutual		
Number Existing 12/31/89	588	149	211	101	1,049
Number of Failures, 1990–94	65	32	16	5	118
Percent Failed	11	21	8	5	11

Note: Data are for Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.
* "Cooperative banks" is the term used for state-chartered savings and loan associations in Massachusetts.

Fraud and Financial Misconduct

The precise role of fraud and financial misconduct as a cause of bank failures is difficult to assess. The consensus of a number of studies is that fraud and financial misconduct (1) were present in a large proportion of bank and thrift failures in the 1980–94 period, (2) contributed significantly to some of these failures, and (3) were able to take root because of the same managerial deficiencies and inadequate internal controls that contributed to the financial problems of many failed and problem institutions (apparently internal weaknesses left some institutions vulnerable not only to adverse economic developments but also to

[38] Managers of savings banks that converted may also have been willing to take greater risks with their personal compensation than managers of banks that retained the mutual form.

abuse and fraud). The studies also agree that the dollar impact of such activity is extremely difficult to estimate.

A 1988 OCC study of 162 national bank failures between 1979 and 1987 concluded that insider abuse was a significant contributing factor in 35 percent of the failures, and fraud in 11 percent.[39] As for problem banks that recovered and survived, the OCC found that 24 percent of these banks had suffered from significant insider abuse, while none had significant problems with fraud. Another study, which drew on a number of analyses and reports prepared by Congress and the regulators, concluded that fraud and insider abuse contributed to between 33 and 50 percent of commercial bank failures and from 25 to 75 percent of thrift failures in 1980–88.[40] A 1993 U.S. General Accounting Office (GAO) report pointed to the difficulties of quantifying the effects of fraud and to the wide variations in estimates of its impact.[41] Whereas the OCC study found that fraud played a significant role in 11 percent of national bank failures, the FDIC found that fraud and insider abuse were present in 25 percent of 1989 bank failures; and the Resolution Trust Corporation (RTC) reported in 1992 that potential criminal abuses by insiders contributed to 33 percent of RTC failed thrift cases. Finally, a 1994 GAO report indicated that FDIC investigators had found insider fraud to be a major cause of failure in 26 percent of a sample of 286 banks that failed in 1990–91 and insider "problems" (fraud, noncriminal abuses, and loan losses on insider loans) to be present in 61 percent.[42]

A number of factors make it difficult to measure the effect of fraud and abuse. First, some cases of fraud go undetected. Second, sometimes the line between poor business judgment and fraud is difficult to draw, as is the line between criminal and noncriminal activities. Third, the regulators and the Federal Bureau of Investigation do not maintain complete or consistent records on fraud convictions, reported incidents of fraud, and financial misconduct. Fourth, new legislation had effects that make comparisons over time difficult to draw: FIRREA and the Crime Control Act of 1990 increased the resources for detecting and reporting fraud and broadened the agencies' powers to deal with bank and thrift fraud. For all of these reasons, any attempt at precision would be unwarranted. However, it seems reasonable to infer that fraud and abuse not only were present in a large number of bank and thrift failures in the 1980–94 period but also contributed to some of them.

---

[39] Office of the Comptroller of the Currency, *Bank Failure: An Evaluation of the Factors Contributing to the Failure of National Banks* (1988).

[40] Benton E. Gup, *Bank Fraud: Exposing the Hidden Threat to Financial Institutions* (1990).

[41] U.S. General Accounting Office, *Bank and Thrift Criminal Fraud: The Federal Commitment Could Be Broadened* (GAO/GGD-93-48, January 1993).

[42] U.S. General Accounting Office, *Bank Insider Activities: Insider Problems and Violations Indicate Broader Management Deficiencies* (GAO/GGD-94-88, March 1994).

Factors Associated with Bank Failures: Conclusion

The preceding discussion points to a variety of factors—economic, financial, legislative, regulatory, supervisory, managerial—that contributed to bank failures during the 1980s. Not all observers subscribe to a multiple-cause interpretation of bank-failure history or to the particular set of multiple causes described in this study. Some place particular emphasis on one or two specific causes that they believe were especially influential. For example, bank regulators tend to place heavy weight on deficiencies in bank management.[43] Bankers tend to blame government policy and adverse changes in the economy. Journalists point to cases of malfeasance. Academic writers have placed special emphasis on the financial incentives facing bank owners and managers.

With respect to these last, a considerable body of academic literature has stressed the effect that flat-rate deposit insurance (whose cost is unrelated to the level of risk assumed by individual institutions) had in encouraging moral-hazard risk taking and leading to depository-institution failures.[44] There seems little question that excessive risk taking by then-solvent banks contributed to bank failures and that flat-rate deposit insurance contributed to risk taking. However, singling out deposit insurance pricing as the principal explanation of bank failures seems unwarranted. Deposit insurance was available at fixed rates throughout most of the FDIC's history, but before the 1980s bank failures were few in number and were often caused by fraud rather than by financial risk taking. It was changes in the marketplace (increased competition, downward pressure on profits, lifting of legal restraints, and so forth) that created the environment in which increased risk taking (including exploitation of flat-rate deposit insurance) became advantageous or necessary for many banks.

Furthermore, as mentioned above, although banks that failed had generally assumed greater risk before their failure, many other banks with similar risk profiles did not fail. In the case of these surviving banks, the effects of risk taking, including risk taking stimulated by underpriced deposit insurance, were apparently offset by other factors, including superior risk-management skills. The absence of these offsetting factors should therefore be considered more important causes of bank failures. Moral-hazard risks appear to have had greater significance in the savings and loan industry than in the banking industry; this was mainly because thrift regulators permitted (or were forced by a depleted insurance fund to permit) a large number of thrifts to operate for lengthy periods with little or no equity, a situation that produced extraordinary incentives for risk taking.

---

[43] See OCC, *Bank Failure,* 5, 10: "The study showed that deficiencies within boards of directors and management were the primary internal problems of problem and failed banks . . . The evidence from healthy and rehabilitated banks also supports our hypothesis that economic conditions are rarely the primary factor in determining a bank's condition." See also Richard Duwe and James Harvey, "Problem Banks: Their Characteristics and Possible Causes of Deterioration," Federal Reserve Bank of Kansas City *Banking Studies* (1988): 3–11.

[44] See discussion below of moral hazard ("Role of Deposit Insurance").

The academic literature has also produced a second, alternative explanation of the incentives facing solvent banks, focusing on issues related to the control of banks exercised by owners and managers.[45] According to this view, managers rather than owners make lending decisions. If managers are entrenched (imperfectly controlled by owners), they may make decisions that are at odds with the interests of stockholders. According to this view, in periods (such as the 1980s) when the lending opportunities for banks were reduced as a result of the loss of market share in financing large businesses, some managers sought to preserve their perquisites by shifting lending to risky loans—a shift that led to loan losses and reductions in capital. Focusing on the sometimes different incentives of managers and owners is useful for understanding variations in the behavior of different institutions. However, it is not clear that such differences played a leading role in the increased number of bank failures. Many managers may have believed that maintaining their reputations and future employment prospects would best be served by risk-averse policies that avoided the failure of their institution. Furthermore, some "entrenched" managers of solvent institutions (for example, managers of savings banks that retained the mutual form) seem to have operated their institutions relatively conservatively in the late 1980s.[46]

A third view of the role of incentives in explaining risk taking by banks draws an analogy between federal deposit insurance and a trilateral performance bond in which the insurance agency provides a bond that protects depositors against poor performance by the bank.[47] This view emphasizes incentive conflicts between various parties: for example, bank owners and managers, stakeholders in insured institutions and managers of the insurance agency, insurance agency managers and elected government officials, elected government officials and taxpayers. In this setting, regulators lack the incentives to enforce effective loss-control measures (capital requirements, monitoring, etc.) that are opposed by the regulated industry or "threaten a regulator's ability to mask poor performance."[48]

---

[45] Gary Gorton and Richard Rosen, "Corporate Control, Portfolio Choice, and the Decline of Banking," *Journal of Finance* (December 1995): 1377–410. Gorton and Rosen conclude that issues of corporate control are more important than moral hazard in determining the behavior of solvent institutions. In the case of insolvent institutions, managers and owners have identical interests and behave in the manner suggested by the moral-hazard principle. Another study, based on experience in the 1990s, concluded that the relationship between corporate structure and risk is significant only at low-franchise-value banks where moral hazard problems are most severe and conflicts between owner and manager risk preferences are therefore the strongest. See Rebecca S. Demsetz, Marc R. Saidenberg, and Philip E. Strahan, "Agency Problems and Risk Taking at Banks," Staff Report, Federal Reserve Bank of New York, September 1997.

[46] As noted before, mutual savings banks that converted to the stock form failed with greater frequency in the late 1980s and early 1990s than mutuals that retained the mutual form. Mutual savings banks had no stockholders and were governed by self-perpetuating boards of trustees or directors, which in some cases were dominated by their chief executive officers; managers of such institutions might reasonably be considered entrenched in the sense of being imperfectly controlled.

[47] Edward J. Kane, "Three Paradigms for the Role of Capitalization Requirements in Insured Financial Institutions," *Journal of Banking and Finance* 19 (1995): 431–59.

[48] Ibid., 447.

These academic views share an emphasis on the sometimes conflicting incentives of bank owners, managers, regulators, and others as the principal explanation of insufficiently restrained bank risk taking. They also share the view that bank risk is essentially endogenous, arising from factors internal to the banking and regulatory systems, including mispriced deposit insurance, inadequate owner-control of bank managers, or more general principal-agent problems among various parties involved in or affected by deposit insurance and bank regulation. The importance of exogenous factors (the economy, financial markets, etc.) is correspondingly diminished in explaining bank risk taking and failures.

Ultimately, the role of financial incentives in bank failures is inseparable from the role of broader economic, financial, legislative, and regulatory factors; the extent to which flat-rate deposit insurance pricing, for example, led to excessive risk taking and widespread failures apparently depended on the circumstances. The multiple-cause explanation appears to be a more plausible reading of the history of the 1980s. According to this view, the rise in the number of bank failures was caused by a variety of factors internal and external to the industry.[49] This is not to say that failures were due merely to "bad luck," with everything going wrong at the same time. More realistically, the preconditions for a rise in the number of bank failures were present well before the 1980s. These preconditions included, among others, a structure of banking laws that inhibited competition, geographic diversification of risks, and consolidation of units. They also included managerial attitudes and regulatory provisions that reflected the relatively benign pre-1980 environment for banking when failures were rare, and a system of flat-rate deposit insurance premiums that was tenable when other incentives and opportunities for risk taking were weak. The localized nature of many banks and a lack of experience with hard times left them vulnerable to external shocks and regional and sectoral recessions. Under the pressure of increased competition, many banks assumed greater risks, and as long as they remained solvent and profitable they were insufficiently restrained by the supervisory authorities. When the economic, financial-market, and competitive environment turned markedly less favorable for banks and some government policy actions (principally ill-timed deregulation and tax changes) exacerbated the situation, the preconditions were translated into increased numbers of bank failures. Which banks failed and which banks survived in an increasingly demanding environment was largely determined by an individual bank's circumstances, particularly variations in the levels of risk it assumed, its success (or lack thereof) in operating with high risk levels, the

[49] A study by the FDIC Office of Inspector General (OIG) of the 13 bank failures in 1994, when conditions for banking were much different from in the 1980s, concluded that in a majority of cases problems were evident in loan underwriting, credit concentrations, high overhead, imprudent management, and external economic factors. Less common or critical factors were financial derivatives, volatile deposits, cross-guarantee assessments, and newly chartered banks. See FDIC Office of Inspector General, *1994 Failed Banks Trend Analysis* (1995), 2. Similar results were found for 6 failures in the OIG's *1995 Failed Banks Trend Analysis* (1996).

overall strength of its management, good or bad fortune, and (in some cases) the presence or absence of fraud and misconduct.

Regulatory and Supervisory Issues Raised by the Experience of the 1980s

The principal regulatory and supervisory issues arising from the experience of the 1980s include the role of deposit insurance, the treatment of large-bank failures, the use of forbearance, the impact of Prompt Corrective Action, and the effectiveness of supervisory tools—examination, enforcement, and off-site surveillance.

Role of Deposit Insurance

Deposit insurance has often been described as involving a trade-off between stability and moral hazard.[50] On the one hand, by protecting depositors against loss, deposit insurance virtually eliminates the risk of bank runs and disruptive breakdowns in bank lending. On the other hand, by assuming the risk of losses that would otherwise be borne by depositors, deposit insurance eliminates any incentive for insured depositors to monitor bank risk and permits bank managements to take increased risks. Because of deposit insurance, banks are able to raise funds for risky projects at costs that are not commensurate with the risk of the projects, a situation that may lead to the misallocation of resources and to failures.[51] Moral hazard is a particularly serious concern if the bank is insolvent or close to insolvency, in which case the owners have strong incentives to make risky investments because profits accrue to the owners, whereas losses fall on the insurer. (On the other hand, risk taking may be restricted if the bank has sufficient franchise value, defined as the present value of future income expected to be earned by the bank as a going concern.) In principle, the insuring agency can protect itself by requiring deductibles (equity positions) so that owners have their own funds at risk and by charging premiums commensurate with the risk assumed by the various banks. However, because it is difficult to identify indicators that give accurate advance warning of future distress, moral-hazard problems are inherent in deposit insurance, as in other types of insurance.[52] Deposit insurance suffers from the additional prob-

---

[50] Arthur J. Murton, "Bank Intermediation, Bank Runs, and Deposit Insurance," *FDIC Banking Review* 2, no. 1 (1989): 1–10. The term "moral hazard" has been defined as "a description of the incentive created by insurance that induces those insured to undertake greater risk than if they were uninsured because the negative consequences are passed through to the insurer" (Congressional Budget Office, *Reforming Federal Deposit Insurance* [September 1990], 163).

[51] In principle, owners of marginally solvent nonbank firms may also have incentives to take greater risk, but they are generally constrained by uninsured creditors.

[52] The unreliability of ex ante risk measures has been attributed to information asymmetries between the insured and the insurer, whereby the former is seen to be better informed about his or her risky behavior.

lem that it insures against losses that are not independent but are interrelated through the effects of cyclical economic activity and the possibility of contagious bank runs.

During the 1980s, the balance in this trade-off was generally tipped in favor of stability. In this respect, regulatory policy was eminently successful; despite an unprecedented number of bank and thrift failures, there was no evidence of serious runs or credit-flow disruption at federally insured institutions. Stability was achieved, it should be noted, at substantial cost to surviving institutions and to their customers (assuming the institutions passed on at least part of the burden of increased assessments). In the case of thrift-institution failures, some of the costs were borne by taxpayers as well. The estimated total cost of FDIC failed-bank resolutions in 1980–94 is $36.3 billion. The estimated cost of the savings and loan debacle is $160.1 billion, of which an estimated $132.1 billion was borne by taxpayers.[53]

In contrast, the record of regulators with respect to controlling risk taking was mixed—and in the case of still-profitable and solvent banks, often unfavorable. Here a distinction must be made between controlling the risky behavior of profitable, solvent banks and controlling risk taking by problem banks that already face the near-term prospect of insolvency and failure. The record of the 1980s seems clear on this point. The regulators were reasonably successful in modifying the behavior of officially designated problem banks so as to reduce the prospects of their failure or the cost to the insurance fund if failure occurred. The regulators were less successful in constraining risk taking by still-profitable and healthy banks, partly because there were no reliable, generally accepted, forward-looking measures of risk.

There are three traditional means of controlling moral hazard: (1) examination and supervision; (2) regulatory capital requirements and risk-based deposit insurance premiums; and (3) uninsured depositor and creditor discipline.[54] In varying degrees and at various times, all three of these means were operating imperfectly in the 1980s. As discussed below, examination of many banks was infrequent in the early and middle 1980s, with the result that the consequences of risky behavior and other problems were not always identified on a

---

[53] The savings and loan cost figure includes the costs of the FSLIC and the RTC plus tax benefits under FSLIC assistance agreements, but excludes potential costs from supervisory goodwill claims. See U.S. General Accounting Office, *Resolution Trust Corporation's 1995 and 1994 Financial Statements* (July 1996), 13.

[54] See Murton, "Bank Intermediation." A study of Texas banks concluded that "the propensity to engage in risky activities depends on more than just changes in capital. A bank's current risk influences the response of bank lending to changes in capital. As long as banks possessed the ability to expand their lending, lower growth rates of capital were associated with larger increases in lending, as moral hazard would suggest. However, once banks were more exposed to risk, those institutions with lower capital growth recorded statistically insignificant differences in lending compared to those banks with greater increases in capital. While this latter finding is inconsistent with moral hazard, it points out the potential importance of both regulatory and liquidity constraints at work" (Jeffery W. Gunther and Kenneth J. Robinson, "Moral Hazard and Texas Banking in the 1980s," Federal Reserve Bank of Dallas *Financial Industry Studies* [December 1990]: 6).

timely basis. Although for some time regulators had been using capital standards to assess the condition of banks, uniform minimum capital requirements covering all banks were not adopted until 1985, and risk-based capital requirements not until 1990. Most bank failures were resolved through purchase-and-assumption transactions or open-bank assistance agreements that protected uninsured depositors and nondeposit creditors and therefore fostered the belief that all deposits of large banks were 100 percent insured. This belief severely limited the discipline that depositors might otherwise have exerted on the behavior of banks.

More specifically, supervisory restraints did not prevent the speculative binge of commercial real estate and other risky lending by solvent banks in many regions of the country in the 1980s. Regulators apparently believed that as long as risky behavior was profitable, they had limited leverage to restrain such behavior. Examiners interviewed for this study stated that as long as the banks were profitable, it was difficult to persuade bank managements or their own superiors in the regulatory agencies that problems could lie ahead. When risky behavior resulted in actual losses, regulators were more effective, but often by that time the damage had been done.

Part of the problem was the absence of explicit penalties or costs to make risky behavior less attractive—penalties and costs such as risk-based premiums and capital requirements that, as stated, were not adopted until late in the period. Earlier adoption of uniform capital requirements and risk-based premiums would have improved the position of the bank regulators but might still have been insufficient to curb the excessive risk taking in the 1980s. As noted, capital regulation is a principal means of restraining risky behavior, but equity-to-assets positions are lagging indicators of a bank's risk profile and therefore poor indicators of the risk of failure several years before the fact. Current risk-based capital standards, which differentiate among broad asset categories, permit considerable shifting toward riskier lending within categories without requiring additional capital, while higher risk-based premiums are charged to banks whose condition has already deteriorated.[55] In short, regulators' ability to restrain the risky behavior of currently profitable banks was limited by the absence of penalties or costs based on reliable and generally accepted early-warning signals.[56]

---

[55] The shift in bank lending from business loans to commercial mortgages during the 1980s would not have required increased capital under present risk-based capital standards. Risk-based premiums vary according to capital positions and supervisory ratings.

[56] Some would argue that problems of controlling risky behavior would be solved by the adoption of market value accounting. This argument assumes that market participants, utilizing publicly available data, would be better able than regulators to correctly recognize advance warning signs of risk, even though regulators have access to information developed through on-site examinations. This assumption remains unproven. See section below on "Treatment of Big Banks: Systemic Risk and Market Discipline."

The problems faced by regulators in controlling the risky behavior of profitable banks as compared with troubled banks illustrate differences between ex ante and ex post measures of risk. Common measures of ex ante risk (for example, loans-to-assets and other asset-composition ratios) measure risk taking independent of the current condition of the bank. They tend to be limited in their reliability—for example, many banks with high-risk profiles were able to avoid failure in the 1980s. Thus, regulators may be reluctant to apply stringent restraints and penalties on the basis of ex ante risk measures. On the other hand, ex post measures of risk (for example, capital-to-assets ratios) are the most proximate measures of risk to the insurance fund and measure the consequences of risk taking after it has materially weakened the condition of the bank. Supervisory restraints and penalties can be more confidently applied on the basis of ex post risk measures, but they may be less effective than those based on reliable ex ante measures in curbing risk taking before it weakens the condition of the bank. Moreover, the weakened condition of banks identified on the basis of ex post risk limits the magnitude of penalties that can actually be applied.[57]

Whereas bank regulators may have lacked the tools to restrain solvent banks from excessive risk taking, thrift regulators were in a far different position. The Federal Home Loan Bank Board was not confronted by the problem of limiting risk taking by healthy institutions but by a large number of savings and loan associations that were insolvent or barely solvent in the early 1980s. The course that thrift regulators followed may in retrospect be termed high risk, featuring reduced capital standards, liberalized ownership restrictions for stockholder-owned thrifts, and capital and accounting forbearance that allowed savings and loan associations to operate with minimal or no equity while their true condition was obscured.[58] This course was followed partly because the financial resources of the FSLIC fund were inadequate. It was apparently motivated by the belief (or hope) that thrifts could grow out of their problems by acquiring new assets, that external capital could be attracted to shore up the industry, and that thrift institutions should be permitted to operate with minimal capital until they were able to improve earnings by using new asset powers. In contrast to banks, in the first half of the 1980s undercapitalized thrifts were allowed and even encouraged to grow.[59] Apart from differences in regulatory philosophy, FHLBB policies reflected the depleted state of the FSLIC insurance fund. The closure of all thrifts as they reached or approached insolvency was not a viable option. One obvious conclusion from the experience of the 1980s is that an adequate insurance fund is a prerequisite for any attempt to control moral hazard.

---

[57] For discussions of this topic, see two FDIC studies: *Deposit Insurance for the Nineties: Meeting the Challenge* (1989) and *A Study of the Desirability and Feasibility of a Risk-Based Deposit Insurance System* (1990).

[58] See Chapter 4, "The Savings and Loan Crisis and Its Relationship to Banking."

[59] See "Use of Forbearance" below.

Treatment of Large Banks

Regulators' preference for solutions that promoted stability rather than market discipline is apparent in the treatment of large banks (mutual savings banks, money-center banks, and Continental Illinois). At various times and for various reasons, regulators generally concluded that good public policy required that big banks in trouble be shielded from the full impact of market forces and that their uninsured depositors be protected. This policy contributed to the overall record of stability achieved by the deposit insurance system in the 1980s. At the same time, however, it weakened any incentive for uninsured depositors to monitor and restrain risk taking by the banks. The first big bank to fail in the 1980s was First Pennsylvania Bank, N.A., of Philadelphia, with $8 billion in assets in early 1980.[60] In this case the FDIC provided open-bank assistance, and the agency's determination of the bank's "essentiality" was based mainly on First Pennsylvania's size as the city's largest bank and on the possibility that its failure would have local and national repercussions.

Large mutual savings banks. The issue of systemic risk was raised more explicitly by the threatened insolvency of mutual savings banks. Located mainly in New York and other northeastern states, these institutions suffered a severe earnings squeeze because of the rapid rise in interest rates in the late 1970s and early 1980s, pushing interest costs on short-term deposits above interest rates on the institutions' long-term, fixed-rate mortgage loans and bond holdings. Earnings were also held down by usury ceilings applicable to residential mortgage loans in New York. Although asset quality was not generally a problem at this time, the net worth shortfall at market values was so large, according to one estimate, that if the banks had failed, the liability facing the FDIC would have exceeded the size of the insurance fund.[61]

The first savings bank to fail was the Greenwich Savings Bank with $2.5 billion in assets—at the time, the third-largest bank failure in the FDIC's history. The initial estimated cost of the Greenwich failure was more than the recorded total cost of all previous failures of insured banks. Federal action was precipitated by the bank's inability to roll over foreign borrowings. Among the FDIC's first acts was to announce that no depositors, insured or uninsured, would lose any principal or interest, a move designed to preserve confidence in other savings banks that were also suffering severe interest-rate pressures. The bank was resolved through an FDIC-assisted merger transaction with another savings bank, a transaction assisted through an Income Maintenance Agreement, and this became the prototype for

---

[60] FDIC, *The First Fifty Years: A History of the FDIC, 1933–1983* (1984), 95.

[61] See Chapter 6, "The Mutual Savings Bank Crisis."

other savings bank transactions. In all, 17 mutual savings banks with $24 billion in assets were resolved through assisted mergers during 1981–85.[62]

Money-center banks with LDC (less-developed-country) loans. The case of money-center banks with large concentrations of loans to developing countries also illustrates the regulators' preference for stability (as well as other public policy objectives) over market discipline.[63] Between year-end 1978 and year-end 1982, total LDC debt held by the eight largest money-center banks expanded from $36 billion to $55 billion. Total LDC portfolios held by these banks averaged more than double the banks' aggregate capital and reserves at the end of 1982, a ratio that put some of the largest banks at risk. Bank regulators made some attempt to curtail LDC lending activity and ensure diversification of foreign lending risk, doing this partly through the Interagency Country Exposure Review Committee, composed of officials of the OCC, the FDIC, and the Federal Reserve. These efforts apparently had little effect on the growth of LDC loans. Conversely, LDC lending may have been encouraged by the OCC's 1979 interpretation of the loans-to-one-borrower rule, an interpretation according to which public sector borrowers that met certain conditions did not have to be counted as parts of a single entity. On balance, it may be said that government policy supported LDC lending activity by the banks.

In August 1982, the government of Mexico announced it could no longer meet interest payments, and by the end of the year 40 nations were in arrears. By the end of 1983, 27 countries were in negotiations to restructure their existing loans. Following the Mexican default, U.S. banking officials did not require that large reserves be immediately set aside for the restructured LDC loans, apparently believing that some large banks might have been deemed insolvent and that an economic and political crisis might have been precipitated.[64] Although loss reserves did increase, at the end of 1986 they still averaged only approximately 13 percent of the total LDC exposure of the money-center banks. Starting in 1987, however, the money-center banks began to recognize massive losses on LDC loans that in some instances had been carried on the banks' books at par for more than a decade. By the

[62] The assisted merger transaction was chosen over a purchase and assumption or a deposit payoff so that the FDIC could avoid the immediate outlays necessary to offset the full amount of asset depreciation and because these institutions had no stockholders to benefit from the transactions (and, in most cases, few uninsured depositors to share the cost with the FDIC). Most of the transactions were accomplished before the Net Worth Certificate Program was adopted as part of the Garn–St Germain Act (see the section below on forbearance).

[63] See Chapter 5, "The LDC Debt Crisis."

[64] L. William Seidman, *Full Faith and Credit: The Great S&L Debacle and Other Washington Sagas* (1993), 127. According to former FDIC Chairman Seidman, "U.S. bank regulators, given the choice between creating panic in the banking system or going easy on requiring our banks to set aside reserves for Latin American debt, had chosen the latter course. It would appear that the regulators made the right choice."

end of 1989, total reserves at the money-center banks were nearly 50 percent of total LDC loans.

The LDC experience illustrates the high priority given to maintaining financial market stability in the treatment of large banks. It also represents a case of regulatory forbearance. The OCC's 1979 interpretation of the loans-to-one-borrower rule permitted banks to continue lending in the face of signs that Latin American nations were having increasing difficulty meeting their obligations. Regulatory forbearance also enabled money-center banks to delay recognizing the losses and thereby avoid repercussions that might have threatened their solvency. In time, loss reserves and charge-offs were greatly increased, and no money-center bank failed because of LDC loans.[65] The creation of the Brady Plan in 1989 reflected recognition that banks would not recover the full principal value of existing loans and turned international efforts from debt rescheduling to debt relief. As part of the process, substantial funds were raised from the International Monetary Fund and the World Bank to facilitate debt reduction. Ultimately, the shareholders of the world's largest banks assumed the losses under the Brady Plan, which brought the crisis to an end.

Continental Illinois. The failure of Continental Illinois—a bank with $45 billion in assets in 1981 and one of the ten largest in the nation—was the large-bank transaction that set the terms for the ensuing "too-big-to-fail" debate.[66] The $4.5 billion rescue package devised by the regulators in May 1984 was prompted by a high-speed electronic bank run that followed a period of deteriorating performance. Problems in Continental's loan portfolio had been highlighted in July 1982, when Penn Square Bank failed; Continental Illinois had had a heavy concentration of loan participations with Penn Square. The rescue package included the promise to protect uninsured depositors fully, and it brought to an end the FDIC's modified payoff program, in which only a portion of the amount owed to uninsured depositors was paid; that portion was based on the estimated recovery value of the failed institution's assets. The reversal in FDIC policy reflected concerns that other large banks might be subject to bank runs and that Continental's correspondent banks would suffer losses if the FDIC resolved the bank through a deposit payoff or otherwise failed to protect uninsured deposits.

The justification for the Continental Illinois transaction has been debated at length. For example, a 1993 article criticizing the transaction and its rationale concluded that in

---

[65] One analysis concluded that "had these institutions been required to mark their sometimes substantial holdings of underwater debt to market or to increase loan-loss reserves to levels close to the expected losses on this debt (as measured by secondary market prices), then institutions such as Manufacturers Hanover, Bank of America, and perhaps Citicorp would have been insolvent" (Robert A. Eisenbeis and Paul M. Horvitz, "The Role of Forbearance and Its Costs in Handling Troubled and Failed Depository Institutions," in *Reforming Financial Institutions in the United States,* ed. George G. Kaufman [1993], 60).

[66] See Chapter 7, "Continental Illinois and 'Too Big to Fail.'"

most cases losses on deposits held by correspondent banks at Continental would have been relatively small and that these banks probably would have been able to meet any liquidity strains through the Federal Reserve's discount window.[67] As for the possibility that problems at Continental Illinois might have caused contagious runs on otherwise viable banks, the essential question is whether the market would have been able to distinguish between viable and nonviable banks (so that it would be able to end quickly any run on the former). Uncertainties on this point have made decisions on the resolution of large-bank failures difficult and will continue to make them difficult in the future. (See "Open Questions" below.)

* * *

These transactions in the early 1980s involving mutual savings banks, money-center banks, and Continental Illinois generally set the pattern for the treatment of large banks throughout the rest of the decade. In large-bank resolutions in the Southwest and Northeast as well as in other regions, the FDIC used purchase-and-assumption transactions, bridge banks, and open-bank assistance agreements that provided full protection for uninsured depositors. These methods eliminated the need for uninsured depositors to monitor the performance of large banks and raised questions of fairness, since numerous small-bank failures were resolved through deposit payoffs, in which uninsured depositors suffered losses.[68]

The treatment of some large-bank failures has also been criticized on the ground that regulators were not assertive or prompt enough in curbing the risky behavior that led to the failures. It is clear that some years before its failure in May 1984, Continental Illinois had embarked on a rapid-growth strategy built on decentralized loan management that was unconstrained by an adequate system of internal controls and was heavily reliant on volatile funds. It is also clear that supervisory restraints were insufficient to modify the bank's behavior. A House subcommittee report in 1985 criticized a lack of "decisive action" on the part of the OCC and also found fault with the Federal Reserve's supervision of the parent holding company. Some of the regulators who participated in the Continental Illinois transaction have indicated that while the bank was profitable, regulators were reluctant to take early action in opposition to the bank's board of directors.

---

[67] Larry D. Wall, "Too-Big-to-Fail after FDICIA," Federal Reserve Bank of Atlanta *Economic Review* (January/February 1993): 1–14.

[68] It is likely that even without the too-big-to-fail policy, large banks would have been resolved less frequently through deposit payoffs because they tended to have greater franchise value and marketability. The greater marketability of large banks may have been due to their greater flexibility in seeking new markets and offering new product lines, their location in states where the absence of restrictions on geographic expansion meant a greater number of qualified bidders, and the earlier resolution action (to the extent that disclosure requirements applicable to publicly traded companies alerted regulators to problems at an earlier stage).

Criticism has also been leveled against the supervisory treatment of the Bank of New England in the years before its failure in January 1991.[69] According to the General Accounting Office, problems in the bank's operations were identified through the examination process several years before its failure. The firm grew rapidly from 1985 to 1989, primarily through acquisitions and aggressive real estate lending. During this high-growth period, OCC examiners repeatedly identified and reported problems with the bank's controls over lending operations and strategies. However, not until 1989 were any enforcement actions taken against the bank to compel corrective measures. The GAO concluded that the OCC relied on management's assurances that it would address the problems; it also concluded that more vigilant supervision could have reduced losses.

Use of Forbearance

Forbearance has taken on such pejorative connotations that various uses of the term need to be distinguished.[70] At one extreme, forbearance may be said to occur when supervisory authorities permit an insured depository institution to operate without meeting established safety-and-soundness standards for a limited period of time while taking remedial actions to reduce risk exposure and correct other weaknesses. Forbearance in this sense has often been applied by bank regulators on a case-by-case basis. As an example, problem banks that face near-term insolvency and closure frequently attempt, under pressure from regulators, to acquire additional capital. The success or failure of such efforts often determines whether the bank survives or is closed. Decisions as to whether, and for how long, to allow these efforts to continue are in fact decisions as to whether, and for how long, forbearance of this limited type should be granted. Whether regulators make the correct decisions in these situations cannot be tested with any precision. However, such limited, case-by-case forbearance seems to be an integral part of the overall supervision of problem banks, and its usefulness is best judged by the degree of success of such supervisory efforts.[71]

At the other extreme is the type of forbearance practiced by the FSLIC, as a result of which a large number of insolvent or marginally solvent savings and loan associations were permitted to operate as open institutions for lengthy periods.[72] The difference between the extremes is more than a difference of degree. Limited, case-by-case forbearance is designed to provide an opportunity to reduce risk exposure and correct weaknesses. Longer-term,

---

[69] See Chapter 10, "Banking Problems in the Northeast."

[70] Bank forbearance programs are discussed by Dean Forrester Cobos, "Forbearance: Practices and Proposed Standards," *FDIC Banking Review* 2, no. 1 (1989): 20–28.

[71] See "Effectiveness of Supervisory Tools: Examination and Enforcement" below.

[72] In 1984, 687 FSLIC-insured thrifts with $358 billion in assets, constituting 22 percent of the number of thrifts and 37 percent of total industry assets, were insolvent on the basis of tangible net worth. See Lawrence J. White, *The S&L Debacle: Public Policy Lessons for Bank and Thrift Regulation* (1991), 114.

wholesale forbearance as practiced by the FSLIC was a high-risk regulatory policy whose main chances of success were that the economic environment for thrifts would improve before their condition deteriorated beyond repair or that the new, riskier investment powers they had been granted would pay off. The latter type of forbearance, which the FSLIC adopted against the background of a depleted insurance fund, is widely judged to have increased the cost of thrift failures.[73] Because of the state of the FSLIC fund, forbearance became a necessity for the thrift regulators rather than a matter of choice[74] and continued to be widely granted after interest-rate reductions in the early and middle 1980s had alleviated maturity mismatches in thrift portfolios, and poor-quality assets had become the chief problem of S&Ls. Generally, the bank regulators did not practice such wholesale, protracted, and risky forbearance.

The bank regulators did, however, allow several large banks that subsequently failed to operate for long periods with minimal capital (see "Impact of Prompt Corrective Action" below). As noted above, bank regulators also eased the problems of money-center banks with large holdings of LDC loans by not requiring prompt establishment of reserves against such loans. This was a form of temporary forbearance; eventually money-center banks substantially increased their reserves.[75] Finally, bank regulators administered three forbearance programs that were applied to classes of banks rather than to individual institutions (see table 1.8). These programs were initiated or inspired by Congress rather than by the bank regulators.

The first such program was the Net Worth Certificate Program for thrifts that was adopted, despite FDIC reservations, as part of the Garn–St Germain Act.[76] This program was applied mainly to FDIC-insured mutual savings banks in New York and other northeastern states that were suffering extreme earnings pressures in a period of high and rising

---

[73] See, for example, Edward J. Kane, *The S&L Insurance Mess: How Did It Happen?* (1989); Eisenbeis and Horvitz, "Forbearance and Its Costs," 49–68; Edward J. Kane and Min-Teh Yu, "Opportunity Cost of Capital Forbearance during the Final Years of the FSLIC Mess," *Quarterly Review of Economics and Finance* 36, no. 3 (fall 1996): 271–90; and Ramon P. DeGennaro and James B. Thompson, "Capital Forbearance and Thrifts: An Ex Post Examination of Regulatory Gambling," in *Proceedings of the 29th Conference on Bank Structure and Competition,* Federal Reserve Bank of Chicago, May 1993, 406–20. However, one analysis concluded that "[F]orbearance was not a major culprit in the taxpayer bill for the thrift crisis." See George J. Benston and Mike Carhill, "FSLIC Forbearance and the Thrift Debacle" in *Credit Markets in Transition, Proceedings of the 28th Annual Conference on Bank Structure and Competition,* Federal Reserve Bank of Chicago, 1992: 131.

[74] One analysis concluded that the FSLIC's ability to dispose of insolvent thrifts was constrained by S&L industry pressures, by the extent of past cover-ups of thrift insolvencies, and by the actions of elected officials (Kane, *The S&L Mess,* 97, 98).

[75] According to some authors, the case for forbearance rests on the existence of market imperfections (such as legal impediments to diversification), deadweight bankruptcy costs, inefficient markets for bank assets, information asymmetries whereby assets have greater value when managed by the banks that originated them than when managed by FDIC liquidators, and macroeconomic considerations (Eisenbeis and Horvitz, "Forbearance and Its Costs," 52, 64, 65).

[76] FDIC, *The First Fifty Years*, 102.

Table 1.8
Results of Bank Forbearance Programs

	Mutual Savings Banks, Net Worth Certificates	Agricultural and Energy Sector Banks
Number of banks in program	29	301
Assets of banks in program ($billions)	40	13
Number of banks that survived	22	236
Number of banks that failed	7	65
Losses as percent of assets at failure		
Banks in forbearance program	4	21*
Comparable banks not in program	12	22*

* Data refer to banks with less than $100 million in assets.

interest rates. Between 1982 and 1986, 29 mutual savings banks with approximately $40 billion in assets participated. Of these, 22 banks were restored to profitability as falling interest rates in the early and middle 1980s enabled these institutions to improve equity positions and retire their net worth certificates. Seven savings banks that participated in the program failed as a result of interest-rate pressures and were resolved at a cost of $420 million, or approximately 4 percent of total assets at the time they entered the program.[77] This loss rate was substantially less than the average loss rate of 12 percent for savings banks resolved before the Net Worth Certificate Program was adopted.[78]

The effectiveness of the Net Worth Certificate Program was due largely to the drop in interest rates after 1981. In effect, Congress required that action against insolvent savings banks be deferred until after interest rates had come down, by which time, it was thought, profitability and equity positions would be restored, and in fact in most cases they were.[79] Also important was the fact that the FDIC was generally able to contain moral-hazard risks associated with the continued operation of banks having little or no equity. Most of the sav-

[77] See Chapter 6, "The Mutual Savings Bank Crisis." Two of the 22 savings banks failed subsequently, four to six years after having retired their net worth certificates. These failures were probably the result of actions taken after the two banks left the program.

[78] The lower loss rate of banks that failed while in the Net Worth Certificate Program was probably due in part to the fact that after the program was introduced, interest rates were generally declining. In addition, the first savings banks to fail might have been in a more serious condition than those that failed later.

[79] By comparison, many insolvent savings and loan associations did not recover as a result of the drop in interest rates. At the end of 1982, there were 222 GAAP-insolvent FSLIC-insured thrifts. In September 1986, despite a nearly 500 basis-point drop in 90-day Treasury bill rates from 1982 to 1986, only 29 percent of these institutions were now GAAP-solvent, whereas 36 percent were still GAAP-insolvent and 35 percent had ceased to exist. See U.S. General Accounting Office, *Thrift Industry: Forbearance for Troubled Institutions, 1982–1986* (GAO/GGD-87-78BR, May 1987), appendix 1.

ings banks were free of serious credit-quality problems (as mutual institutions, they might have had less incentive than stockholder-owned institutions to make risky investments), and the relatively small number of savings banks in the program simplified supervision and facilitated control of risky behavior.

The second instance of class-of-bank forbearance was the 1986 temporary capital forbearance program for banks that were weakened as a result of lending to the troubled agricultural and energy sectors; this program was later extended to all banks that were experiencing difficulties because of economic factors beyond their control. Bank regulators developed the program at a time when support for forbearance was building in Congress. By developing their own program, bank regulators sought to include a strong safety-and-soundness focus and to avoid being required to use measures like the Net Worth Certificate Program or those the thrift regulators employed.[80] Of the 301 banks in the capital forbearance program, 201 were operating as independent institutions one year after leaving the program, another 35 had been merged without FDIC assistance, while 65 had failed. As these results indicate, after a period of forbearance a large majority of the institutions in the program either were able to recover as independent institutions or had sufficient value to be acquired by merger partners without FDIC assistance. Losses of the 65 banks that failed were similar to those of comparable failed banks, a fact suggesting that the period of forbearance did not result in serious deterioration. Of the 65 failed banks in the program, 59 were under $100 million in assets and had losses of 21 percent of assets. In comparison, 965 banks with assets less than $100 million that were not in the forbearance program and failed during 1986–94 had a 22 percent loss rate. As in the case of the Net Worth Certificate Program, the effectiveness of the 1986 regulators' program was largely due to its temporary nature and to cyclical economic forces, in this case, a recovery in the agricultural sector.

A third instance of class-of-bank forbearance was the Agricultural Loan-Loss Amortization Program adopted by Congress in 1987 as part of CEBA, apparently because Congress concluded that the regulators' program was inadequate. Of 33 banks in the program, 27 survived as independent institutions one year after leaving it, another 2 had merged, while 4 had failed.[81] Essentially the same conclusions apply to this program as to the 1986 regulators' agricultural and energy forbearance program.

In assessing the effectiveness of class-of-bank forbearance programs, one needs to consider how banks are chosen to participate when the regulators are allowed to exercise discretion. Ideally, the regulators must be able to distinguish between institutions that will recover after a period of forbearance and those that will not recover and should therefore

---

[80] See Chapter 2, "Banking Legislation and Regulation"; and Cobos, "Forbearance: Practices and Proposed Standards," 23.

[81] Data exclude banks that were in both the CEBA and the 1986 regulators' programs. These banks are included only in data for the latter program.

not be granted forbearance. The ability to make such distinctions accurately is important for reasons of fairness and because of moral hazard. In making such distinctions, the regulators have the benefit of information derived from examination reports—information that is not available in financial reports or other public records. Nevertheless, picking winners and losers is difficult, and some writers have concluded that regulators were unsuccessful in their attempts.[82]

Furthermore, applying forbearance to a group of banks may have adverse competitive effects on institutions outside the program. Unless restrained by the supervisory authorities, insolvent banks may offer above-market deposit rates and submarket loan rates, thereby weakening healthy competitors. Such behavior by many thrift institutions during the 1980s generated frequent complaints, but it was apparently less of a problem in the bank forbearance programs because a smaller number of institutions were involved and the participants were closely monitored and supervised. In other words, while forbearance may provide an opportunity to correct weaknesses, without effective oversight it may also permit further deterioration. As noted below ("The Impact of Prompt Corrective Action"), allowing unprofitable banks to continue operating can increase resolution costs as operating losses accumulate. Even if it is successfully applied to some banks, forbearance may have undesirable effects if it encourages other banks to expect similar treatment. Moreover, if forbearance is granted to a large number of institutions, it may have adverse effects on the economy.[83]

Thus, forbearance programs may have a number of disadvantages—and, when practiced on the scale and with the purposes of the FSLIC program, they can be a disaster. While survival of the institution is not the only criterion for the success of forbearance programs, it remains significant that most of the banks in class-of-bank forbearance programs survived,[84] and the minority that failed had losses comparable to, or lower than, those of failed banks not included in the programs. The more favorable results of bank forbearance programs as compared with the FSLIC strategy reflect the smaller number of banks involved, the closer monitoring of banks, the fact that the problems addressed by bank forbearance programs were temporary and cyclical in nature,[85] and (most important) the fact that bank

---

[82] See, for example, Emile J. Brinkmann, Paul M. Horvitz, and Ying-Lin Huang, "Forbearance: An Empirical Analysis," *Journal of Financial Services Research* (1996): 39–40.

[83] See the discussion in Congressional Budget Office, *The Economic Effects of the Savings and Loan Crisis* (1992).

[84] One analysis states that "the cost to taxpayers of FDIC gambling lies in offering the equivalent of dividend-free equity capital to undercapitalized banks. The success of *these* gambles must not be measured by whether assisted banks recovered, but by whether societal returns on taxpayer funding proved high enough to justify the waiver of dividends." See Kane, "Three Paradigms," 444.

[85] One view of S&L forbearance programs is that as a result of deregulation, these institutions were undergoing a permanent change that could not be addressed by an essentially temporary measure. See Congressional Budget Office, *Reforming Federal Deposit Insurance*, xiv.

regulators sought to control risk taking by participating institutions rather than encourage it.[86] In the absence of the class-of-bank forbearance programs, more of the banks that actually survived might have been closed: for example, as shown in the next section, if the provisions of Prompt Corrective Action had been in effect throughout the 1980s, 12 of the 22 mutual savings banks that participated in the Net Worth Certificate Program and recovered would have faced the prospect of closure, while 50 of the 236 surviving farm and energy banks in the regulators' 1986 temporary program might also have been closed.

Impact of Prompt Corrective Action

The Prompt Corrective Action (PCA) provisions of FDICIA were designed to limit regulatory forbearance by requiring more-timely and less-discretionary intervention, with the objective of reducing failure costs. FDICIA mandated that the regulatory authorities adopt five capitalization categories, ranging from "well capitalized" to "critically undercapitalized," to serve as the basis for Prompt Corrective Action. As an institution's capital position declines, the appropriate regulator is required to increase the severity of its actions. These actions range from restricting asset growth (for undercapitalized institutions) to closing banks (those that are critically undercapitalized for a prescribed period). The top four capital categories are defined in terms of risk-based capital and leverage ratios. Critically undercapitalized institutions are those with tangible capital ratios of 2 percent or less. In general, a receiver must be appointed for any institution that is critically undercapitalized for up to 270 days.[87]

It is difficult to judge what would have happened if PCA had been in effect during the 1980s, for the behavior of both banks and bank regulators would have been altered. However, it appears that some banks that failed might have been closed earlier than they actually were, whereas some banks that survived might have faced the prospect of being

---

[86] The difference between the FDIC forbearance program for mutual savings banks and the FSLIC program for savings and loan associations has been described as follows: "[A]ccounting gimmicks were limited—and the mutual savings banks were not allowed to grow. With a conservative policy of temporary forbearance in place, many mutual savings banks recovered, and those ultimately shut down or merged did not put an intolerable burden on the FDIC . . . the S&Ls that followed the incentives and implicit advice of government policy to enter new areas rapidly and grow their way out of the problems became part of the S&L debacle" (National Commission on Financial Institution Reform, Recovery and Enforcement, *Origins and Causes,* 32–33).

[87] Under FDICIA, when an institution is critically undercapitalized for 90 days a receiver or conservator must be appointed or some other action must be taken to achieve the purpose of the provision. The 90-day delay may be extended, provided that the regulator and the FDIC concur and document why extension would better serve the purposes of the provision. After the institution has been critically undercapitalized for 270 days, a receiver or conservator must be appointed unless the regulator and the FDIC certify that the institution is viable and not expected to fail. Under the conditions existing in the 1980s when failures were bunched and the market for failed institutions was often saturated, it seems reasonable to suppose that taking more than 90 days to spread out marketing efforts for failed banks would have been an acceptable reason for delay up to the 270-day limit.

unnecessarily or erroneously closed. Alternatively, banks in the latter group might have been compelled to try either to recapitalize earlier than they actually did or to merge with healthier banks. A large majority of banks that failed were closed within the time frame specified by FDICIA for critically undercapitalized banks. However, 343 banks that failed (21 percent of all failures from 1980 to 1992) with $88 billion in assets would have faced earlier closure because they were critically undercapitalized for more than 270 days.[88] For the same reason, 143 problem banks (those with CAMEL ratings of 4 or 5) with $11 billion in assets that did not fail would have faced the possibility of unnecessary closure because of the 2 percent rule.

Of the 343 failed banks that would have been closed earlier under the PCA rule, 201 (59 percent) were national banks, 131 (38 percent) were state nonmember banks, and 11 (3 percent) were state member banks. In the case of national banks, closure is the responsibility of the OCC; in the case of state-chartered institutions, of state banking departments. In the states that had the most closings and the most late closings, the state authorities closed problem banks more quickly than the OCC did.[89] The difference was especially apparent in Texas and Oklahoma, which accounted for a disproportionate number of bank failures. Part of the difference was due to the fact that state banking authorities had greater flexibility under applicable law. The OCC had statutory authority to close a national bank "whenever the Comptroller shall become satisfied of the insolvency of the bank" (12 U.S.C. 191). Thus, the OCC had to wait until the bank was insolvent before being able to close it. On the other hand, the six states had the authority to close banks when capital was "impaired," when the bank faced "imminent insolvency" or was in an "unsafe" or "unsound" condition. These more flexible standards made it possible for the states to close banks earlier.[90] However, although the OCC's closing policy was constrained by the statutory-insolvency rule, the agency had wide latitude to define insolvency and presumably could have adopted a more flexible standard than was actually in effect during most of the 1980s. Until December 1989, the OCC's definition of insolvency was the exhaustion of primary capital (equity plus loan-loss reserves). In December 1989, after approximately a year of study, the OCC shifted to equity capital alone, without loss reserves, and the new definition permitted more expeditious closing of national banks.[91] This change was made after most of the failures of the 1980s had already been resolved.

---

[88] Excluded from this analysis are banks that participated in forbearance programs mandated or inspired by Congress.

[89] In six states (California, Colorado, Louisiana, New York, Oklahoma, and Texas) the OCC closed 473 banks during the 1980–92 period, 38 percent of which were closed later than would have been required under PCA. The state authorities closed 459 banks, 17 percent of which were closed later than would have been required under PCA.

[90] Information on the statutory authority of the six state banking departments is based on conversations with representatives of each of the six departments.

[91] OCC, *Bulletin BB-89-39* (December 13, 1989).

Estimates of the cost savings that would have resulted from the earlier closure of failed institutions are necessarily very rough.[92] For most of the 343 banks that would have faced earlier closure if PCA had been in effect, the interval between the date that closure would have been required by PCA and the actual closure date was approximately two quarters.[93] During this interval, these banks experienced a reduction in equity from $220 million to a negative $1.6 billion. But a large part of this reduction was due to the recognition of losses that were already embedded in loan portfolios and would not have been affected by more-timely closure. Another portion—chiefly operating losses associated with higher private-sector funding costs and the cost of operating retail bank branch systems—could have been avoided by earlier closure. This avoidable cost for the 343 banks is estimated to be on the order of $825 million and constituted 8 percent of the actual estimated resolution costs of the 343 banks and approximately 2 percent of the cost of all bank failures during the 1980–92 period.[94] Approximately 60 percent of the $825 million estimated cost savings is attributable to six large banks.

An alternative estimate of the avoidable cost, based on net operating losses, produced essentially the same aggregate result. For the 343 banks, net operating losses before loan-loss provisions, gains/losses on asset transactions, taxes, and extraordinary items totaled $815 million for the intervals between closure dates required by PCA and actual closure dates. As with the previous estimate, these losses were concentrated in a few large banks.

A number of caveats are in order when one considers these estimates. Regulators' bank closure policies would have been different if PCA had been in effect in the 1980s, and such policy changes might have reduced projected cost savings. For example, for the large number of banks that were allowed to operate with tangible capital below the 2 percent level for only a few months beyond the interval allowed by PCA, earlier closure might have

---

[92] The calculations are described in note 94. R. Alton Gilbert concluded, contrary to the implications of this study, that FDIC resolution costs were not positively related to the length of time that banks operated with relatively low capital ratios before their failure. See "The Effects of Legislating Prompt Corrective Action on the Bank Insurance Fund," Federal Reserve Bank of St. Louis *Review* 74, no. 4 (July/August 1992): 3–22.

[93] The unweighted average interval was two quarters. Weighted by assets, the average interval was three quarters, reflecting the especially long intervals for a few large banks.

[94] The avoidable cost is estimated as the sum of (1) the actual funding costs of these banks minus the one-year Treasury rate and (2) the operating expenses of transactions and nontransactions deposit accounts as estimated by the 1990 Functional Cost Analysis of the Federal Reserve Board. The avoidable cost was computed for the period of time beyond 270 days that the bank's tangible capital ratio was below 2 percent. In cases where the tangible capital ratio fluctuated below and above 2 percent, the bank was considered to be critically undercapitalized for the entire period after the ratio first fell below 2 percent, except when the ratio subsequently rose above 3 percent. In the latter case, that bank was counted as critically undercapitalized only for the period it was below 2 percent subsequent to having reached the 3 percent level. Two large savings banks that had entered into Income Maintenance Agreements with the FDIC in connection with the acquisition of other failed institutions were counted as critically undercapitalized from the time the bank's agreement was terminated (in one case) and (in the other case) from the date the FDIC formally permitted the bank to miss capital targets prescribed in its agreement.

meant that, because of insufficient time to market the institutions among potential acquirers, more institutions would have been resolved through insured-deposit payoffs.[95] This likelihood would have been greatest in periods when failures were bunched, temporarily saturating the market for failed bank and thrift deposit franchises and assets. Spreading closings over a longer period of time might have attracted better bids and offset some of the additional costs resulting from delayed closings. Thus for many of the 343 banks, the cost savings resulting from earlier implementation of PCA might have been smaller than the estimates set forth above suggest. For the six large banks that operated for extended periods of time with minimal capital, earlier closure would probably have achieved cost savings. For some of these banks, fairly lengthy marketing periods might have been needed and, because of PCA, regulators might have had to start the marketing process while the banks had capital above the 2 percent tangible level. In any event, whatever savings might have been achieved through earlier closure would apparently have been concentrated largely in a few large banks that were permitted to operate with little or no equity for relatively long periods of time.

During the interval between the actual and the PCA-required closure dates, problem institutions were generally under close supervision and many of them were subjects of enforcement actions aimed at reducing losses to the insurance fund. Of the 343 failed banks that would have faced earlier closure under PCA, 127 were FDIC-supervised state nonmember banks for which enforcement data are available. Of the 127 banks, 101 (approximately 80 percent) had been issued formal enforcement actions before the closure date required by PCA—in fact, an average of 14 months before—and the remaining 26 banks might have had informal enforcement actions.[96]

The consequences of unnecessarily closing some of the 143 problem banks that were below the 2 percent level but did not fail must be weighed against the cost savings of closing failed banks earlier. As noted above, some of these banks would have recapitalized or would have merged sooner to avoid closure.[97] However, any unnecessary or erroneous closure of these institutions would be difficult to justify and might have involved unnecessary

---

[95] This possibility was pointed out by R. Alton Gilbert. See his comments in volume 2 of this study.

[96] Data on formal enforcement actions (such as cease-and-desist orders and terminations of insurance) are presented here only for FDIC-supervised state nonmember banks. Comparable data are not available for OCC-supervised banks; relatively few banks were supervised by the Federal Reserve. Systematic data on informal enforcement actions are unavailable for the FDIC and the OCC.

[97] The cost of unnecessary or erroneous closure of banks that would otherwise have survived is likely to be large if bankruptcy costs are high and if investors undervalue the assets of the banks. As noted by Stanley C. Silverberg in volume 2 of this study, "Early resolution works very well when the market places reasonable or high valuations on bank franchises. However, in, say, 1990, the stock prices of several of the most conservatively run banks were well below book value. Investors and other banks were reluctant to pay positive prices for troubled banks without FDIC assistance. That has changed considerably during the past several years."

deadweight bankruptcy costs. In any future period of widespread failures, balancing the benefits of earlier closure against the consequences of closing some banks that otherwise would have survived may be difficult. Presumably banks will strive to avoid becoming subject to the 2 percent rule, or to any other similarly binding rule, by maintaining capital levels higher than they otherwise would or by seeking merger partners while they still have value. However, the history of the 1980s shows that capital levels may decline quickly in the face of external shocks or other unforeseen events. Or at times the market may temporarily undervalue a bank franchise, making it difficult for some banks to secure external capital when they are in danger of failing the 2 percent rule. Thus, in some future period of widespread depository-institution failures, the issue of erroneously closing salvageable institutions may be unavoidable and critical in implementing statutory closure rules.

The computations that produced the estimates that 343 failing banks would have been closed earlier and 143 banks might have been unnecessarily closed as a result of the application of PCA in the 1980s did not include banks in the class-of-bank forbearance programs, because the assumptions underlying these programs were obviously at variance with the later views of Congress as expressed by the PCA provision of FDICIA. However, for the sake of completeness, separate calculations using the same methodology were made for the banks that participated in these forbearance programs. The results show that (1) 48 banks with $11 billion in assets that actually failed would have been closed earlier as a result of PCA, and (2) 66 banks with $16 billion in assets that actually survived would have been closed.

In addition to the closure of critically undercapitalized banks, FDICIA requires specific regulatory intervention geared to capital positions of open banks. For example, in the case of undercapitalized banks, FDICIA requires regulators to have the bank submit a capital restoration plan, restrict asset growth, and get prior approval for expansion. For significantly undercapitalized banks, more-stringent actions are prescribed. In this regard, a study of the New England banking crisis, which occurred before the adoption of FDICIA in 1991, found that regulators were already imposing formal actions on banks before they became undercapitalized as defined by PCA. Moreover, according to the study, the regulators imposed restrictions more comprehensive than those prescribed in the PCA legislation.[98] The reason given for this result is that capital ratios prescribed in PCA are lagging indicators of the health of the institution and will trigger enforcement action well after problems are identified in examinations. Examiners analyze considerably more information than capital ratios to determine a bank's likelihood of failure. Therefore, more-timely intervention would

[98] Joe Peek and Eric S. Rosengren, "The Use of Capital Ratios to Trigger Intervention in Problem Banks: Too Little, Too Late," Federal Reserve Bank of Boston *New England Economic Review* (September/October 1996). See also Peek and Rosengren, "Will Legislated Early Intervention Prevent the Next Banking Crisis?" working paper series no. 96-5, Federal Reserve Bank of Boston, September 1996.

result from triggers that mimic the timing of problem-bank identification by examiners. This view of the lagging nature of capital ratios is consistent with the findings summarized below in the section on off-site monitoring.

Effectiveness of Supervisory Tools: Examination and Enforcement

The increased number of bank failures in the 1980s raised questions about the effectiveness of bank regulators' systems of identifying problem banks and then influencing their behavior in order to prevent failures and reduce insurance losses. The evidence suggests that bank examination ratings provided a reasonably accurate indication of the prospect of failure *if* the ratings were based on recent examinations. But in the early and middle 1980s many banks were not examined frequently, and the ratings available for them at any point tended to be obsolete. Troubled banks that were properly identified, however, were generally subject to enforcement actions that appear to have been effective in reducing insurance losses. The critical issues, therefore, are the frequency and use of examinations, the effectiveness and limitations of CAMEL ratings, and the effectiveness of follow-up enforcement actions.[99]

Evolution in the frequency and use of examinations. In the late 1970s and early 1980s, the bank examination process was affected by two key policy changes embraced particularly by the OCC and the FDIC: (1) relatively more reliance was placed on off-site monitoring and relatively less on on-site examination, and (2) examination resources were concentrated on those institutions that posed the greatest threat to the insurance fund and to the stability of the financial system. These changes were made partly because it was believed that comprehensive Call Report data and the use of computer technology would enhance off-site surveillance and enable the agencies to reduce the examination burdens on banks and on their own staffs. Further, the decision to concentrate resources on the larger and the more-troubled banks was seen as an efficient allocation of resources. (Both the FDIC and the Federal Reserve also made increasing use of state bank examinations for non-problem institutions.) Another important change took place at the OCC, where the traditional emphasis on a detailed audit and verification system was replaced by a focus on the quality of management and internal policies. The OCC also placed increased weight on targeted examinations, which focused on a particular aspect of a bank's operations, rather than full-scope examinations.

These policy changes implied that fewer examiners would be needed. In addition, both the Carter and Reagan administrations restricted federal hiring in an attempt to reduce the size of the federal government. In this climate, the FDIC and the OCC froze examiner staffing levels in 1981. As a result, between 1979 and 1984 the total number of examiners

[99] This section is based on Chapter 12, "Bank Examination and Enforcement."

in federal and state banking agencies declined by 14 percent (see table 1.9). Among the agencies, the reductions varied in size: examiner staffing at the FDIC declined by 19 percent, at the OCC by 20 percent, and at state agencies by 12 percent. At the Federal Reserve, examiner staffing was largely unchanged. While examination forces were being reduced, the total number of troubled banks was increasing from 217 in 1980 to 1,140 in 1985. In the mid-1980s, therefore, the FDIC and the OCC began to rebuild examiner staffs—but several years of training are required to produce qualified examiners, so it was not until the late 1980s that the examiner forces at those two agencies were restored to 1980 levels in number and experience.[100]

Table 1.9
Number of Bank Examiners, Federal and State Banking Agencies, 1979–1994

Year	FDIC	FRS	OCC	States	Total
1979	1,713	805	2,151	2,496	7,165
1984*	1,389	820	1,722	2,201	6,132
1990	2,645	1,025	1,907	2,470	8,047
1994	2,547	1,529	2,376	2,564	9,016

Source: Compiled by FDIC on the basis of information from FRS, OCC, and Conference of State Bank Supervisors.

*Trough in total number of examiners.

These trends in examiner staffing contributed to marked changes in the number and frequency of examinations. Between 1981 and the low point of 1985, the number of examinations declined from approximately 12,300 to 8,300. The decline was particularly sharp for state nonmember banks; for national banks and state member banks it was less severe. In 1979, the average length of time between examinations was 379 days, or 13 months (see table 1.10). By 1986, the average interval had increased to 609 days, or 20 months. The greatest change was for CAMEL 1-rated banks, whose average interval increased from 392 days to 845, or from 13 to 28 months. The increase in examination intervals was greatest at the OCC and the FDIC and smallest at the Federal Reserve. As the agencies built up their examination staffs in the late 1980s, intervals between examinations shortened once again, and by 1990, the average interval was 411 days (14 months) for all banks; for all banks with CAMEL ratings below 2, it was one year or less. In 1991 FDICIA reinforced the return to greater frequency of examinations by requiring annual full-scope examinations for all

[100] The demands on the shrunken examiner staffs extended to training new hires and taking on duties related to settlement and asset liquidation for failed banks.

Table 1.10
Mean Examination Interval, by Initial Composite CAMEL Rating (in days)

Year	1	2	3	4	5	All Banks
1979	392	396	338	285	257	379
1986*	845	656	407	363	313	609
1990	463	436	331	303	270	411
1994	380	357	296	279	245	354

Source: FDIC, FRS, and OCC.
*Peak of mean intervals.

banks, except that for small banks with satisfactory ratings an 18-month interval could be substituted.[101]

For some banks during the mid-1980s, these changes meant that CAMEL ratings and other information derived from examinations were sometimes obsolete and unrepresentative. CAMEL ratings are a measure of the condition of a bank essentially at the time it is examined; as a bank's condition changes, old ratings become increasingly inaccurate as indicators of its current health.[102] Problems developing at some banks in the 1980s were not identified on a timely basis; this view is supported by examiners interviewed for this study, who indicated that extended examination intervals and increased demands on staff resources meant that some banks received insufficient attention. For example, banks that were well rated but deteriorating might not receive attention until it was too late to prevent serious losses. In Texas, which had the largest concentration of bank failures and losses to the insurance fund, the problem of extended examination intervals was particularly acute. The severe problems of some Texas banks might have been recognized sooner if examinations had been more frequent.[103]

The reduced frequency of examinations limited the usefulness not only of information derived from the examinations but also of the financial reports used in off-site monitoring. On-site examiners are able to evaluate the quality of the loan portfolio and verify the data

[101] John O'Keefe and Drew Dahl, "The Scheduling and Reliability of Bank Examinations: The Effects of FDICIA" (unpublished paper presented at the Financial Management Association conference, October 1995).

[102] Rebel A. Cole and Jeffery W. Gunther, "A CAMEL Rating's Shelf Life," Federal Reserve Bank of Dallas *Financial Industry Studies* (December 1995). Cole and Gunther concluded that the information content of CAMEL ratings decays rapidly; examination ratings indicate bank survivability more accurately than off-site monitoring does for two quarters after examinations; for periods longer than two quarters, examinations are less accurate than off-site monitoring.

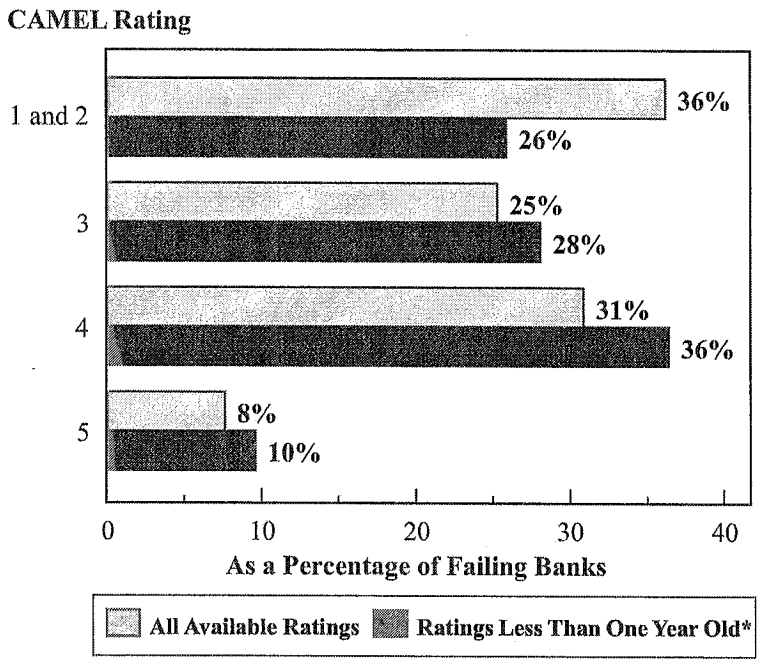
[103] O'Keefe, "The Texas Banking Crisis."

on nonperforming loans and loan charge-offs that banks report in Call Reports.[104] In other words, on-site examinations are needed to ensure the accuracy of bank financial reports. If examinations are less frequent, the accuracy of off-site monitoring systems using Call Report data suffers.

Effectiveness of CAMEL ratings. When examination ratings were up-to-date, they generally identified most of the banks that required increased supervisory attention well before the banks actually failed. As shown in figure 1.9, of the more than 1,600 banks that failed in 1980–94, 36 percent had CAMEL 1 and 2 ratings two years before failure; 25 percent had ratings of 3, 31 percent had ratings of 4, and 8 percent had ratings of 5. But these

Figure 1.9

Composite CAMEL Ratings Two Years before Failure for Banks Failing between 1980 and 1994



*Ratings that were less than one year old as of the two-years-before-failure date; that is, ratings based on examinations dated between two and three years before failure.

[104] R. Alton Gilbert, "Implications of Annual Examinations for the Bank Insurance Fund," Federal Reserve Bank of St. Louis *Review* 75, no. 1 (January/February 1993); and Drew Dahl, Gerald A. Hanweck, and John O'Keefe, "The Influence of Auditors and Examiners on Accounting Discretion in the Banking Industry," unpublished paper presented at Academy of Financial Services conference (October 1995).

data refer to examination ratings *available* two years before failure, whereas some of the examinations had actually been conducted considerably more than two years before failure. Also included in these data are banks that failed for types of reasons that cannot be anticipated well in advance by safety-and-soundness examinations: cross-guarantee failures; failures due to fraud; and failures of affiliates of certain Texas holding companies that were essentially operating as branches of the parent institution, were tracked outside the CAMEL system, and were resolved through procedures that had much the same effect as cross-guarantees.[105] If we exclude examinations for these banks as well as examinations that are more than one year old,[106] the percentage of failed banks that had CAMEL 1 and 2 ratings two years before failure drops to 16 percent of the total number of failures (see table 1.11).[107] In other words, the proportion of failed banks that were not identified as requiring increased scrutiny two years before their failure was 16 percent.[108]

Table 1.11
Failing Banks with CAMEL Ratings of 1 or 2 Two Years before Failure, 1980–1994

	Number	Percent of Total Failures
Total 1- and 2-rated future failures	**565**	**35%**
Specific types:		
Cross-guarantee cases	25	
Failures associated with fraud	24	
First City Bancorporation affiliates	36	
First RepublicBank Corporation affiliates	26	
CAMEL ratings more than one year old*	194	
Total of above	**305**	**19**
Remaining 1- and 2-rated future failures	**260**	**16**

* Failures of banks with ratings more than one year old (two years before failure) do not include cross-guarantee cases, failures associated with fraud, First City Bancorporation affiliates, or First RepublicBank Corporation affiliates.

[105] In the case of First RepublicBank Corporation, the FDIC's demand that affiliate banks honor their pledge to back the agency's assistance to the lead bank caused the affiliates to fail. In the case of First City Bancorporation, the FDIC provided assistance to the holding company and required that it be downstreamed to the affiliates. One may argue that examiners should consider what the condition of the lead bank implies for the condition of affiliated banks in the holding company. However, examiners could not have known two years in advance the nature of the resolution arrangements that would be adopted in these two cases and in post-FIRREA cross-guarantee cases and their effects on other banks in the company.

[106] Exclusion of banks with ratings that were more than one year old two years before failure means, in effect, that the data refer to examinations conducted between two and three years before failure.

[107] Banks with CAMEL 1 and 2 ratings are treated here as a separate category from banks with worse ratings. CAMEL 1- and 2-rated banks are defined as "basically sound in every respect" or "fundamentally sound, but may reflect modest weaknesses correctable in the normal course of business." Banks with a CAMEL 3 rating "give cause for supervisory concern and require more than normal supervision," while CAMEL 4 and 5 ratings are reserved for progressively weaker banks.

[108] For banks with assets of more than $250 million, the proportion was 15 percent. This suggests that the effectiveness of CAMEL ratings in anticipating failures was about the same for large and small banks.

Over the course of the 1980–94 period, the record of CAMEL ratings in anticipating failures improved as the frequency of examinations increased and problems were apparently better identified. From the period 1980–86 to the period 1987–94, the proportion of failed banks that had CAMEL 1 and 2 ratings two years before failure declined from 28 to 12 percent. Similarly, the proportion of failed banks that had CAMEL 4 and 5 ratings two years before failure rose from 25 to 46 percent.[109]

Limitations of examination ratings. Although CAMEL ratings were reasonably successful in identifying banks that required greater supervisory attention, they also had limitations. First, they did not necessarily capture the severity of the situation of the banks that subsequently failed. Second, they are based on the internal operations of the bank and therefore do not take into account local economic developments that may pose future problems and are not yet reflected in the bank's condition. Third, as noted above, they are generally a measure of the condition of the bank at the time it is examined. They do not systematically track risk factors that may produce future losses.[110] Fourth, frequent use of on-site examinations imposes a burden on depository institutions. Examinations may seem particularly burdensome during good economic times, when the condition of most banks is healthy and examination ratings change relatively little. An average of 85 percent of all banks examined each year during the 1980–94 period experienced either no change or an improvement in ratings; only 15 percent, on average, experienced ratings downgrades. However, examination ratings changed considerably more often in particular regions of the country and during periods of regional recessions.

Most banks that are designated as troubled banks (rated CAMEL 4 and 5) do not fail. This may be regarded as a deficiency of CAMEL ratings. On the other hand, examination ratings trigger the supervisory responses that may prevent troubled banks from failing or may reduce failure costs when the banks have to be closed. From this perspective, when supervisory efforts to cure bank problems as revealed by examinations have been successful, the failure forecasts based on these examinations will necessarily prove to have been inaccurate. Either way, the large number of troubled banks that do not fail and the large number of banks whose ratings do not change through repeated examinations are unavoidable consequences of frequent use of on-site examinations. However, on-site examinations provide

---

[109] Data are the numbers of failed banks that had the indicated CAMEL ratings two years before failure in each year, weighted by the total number of failures in that year. The data are based on 260 banks after exclusion of examinations more than one year old, failures due to fraud, cross-guarantees, and the subsidiaries of two Texas bank holding companies (table 1.11).

[110] A possible exception is the management rating, which encompasses technical competence, leadership qualities, adequacy of internal controls, and other factors that may determine the bank's ability to weather future adversity. However, examiners appear to be reluctant to rate management much below capital, asset quality, and other CAMEL components. In this regard, in only 6 percent of failed banks were the management ratings of two years before failure one full number worse than the average of other components.

information to the regulators that is otherwise unavailable,[111] and they also help ensure the accuracy of financial reports issued by the banks.[112] As a result, the burdens of frequent examinations must be borne if the condition of insured banks is to be monitored effectively. Recognizing these burdens, the FDIC has sought to reduce the time examiners spend in banks and is developing a program designed to allow individual loan files to be examined off-site.

Number, kinds, and effectiveness of enforcement actions. After troubled institutions were identified during the 1980–94 period, they were subject to supervisory and enforcement actions that appear to have been effective in reducing failures and losses to the insurance fund. This conclusion is based on evidence concerning the behavior of banks with respect to asset growth rates, dividend payouts, and equity infusions when the banks had been designated as problem institutions and been made subject to informal and formal enforcement actions.[113]

The FDIC used formal enforcement actions (for example, cease-and-desist orders) sparingly in the 1970s but more frequently in the early 1980s, as the number of troubled banks increased. Formal enforcement actions are legally enforceable in court, and noncompliance with such actions may lead to heavy fines. Most FDIC formal enforcement actions in the 1980s were issued against 4-rated banks, which are troubled but salvageable; most of the remainder were issued against 5-rated banks, which face a high probability of imminent or near-term failure. About one-half of all banks rated 4 and 5 by the FDIC in the 1980s were the subject of formal enforcement actions; many of the remaining banks received informal enforcement actions (for example, memoranda of understanding).[114] Enforcement actions require banks to take corrective actions in various areas: compliance with regulations, improvement in operating procedures, the raising of new capital, the cutting of dividend payments, replacement of managers, and so forth.

That supervisory and enforcement actions were effective in reducing failures and losses to the insurance fund is suggested by the following:

- Of all banks that were rated 4 and 5 sometime during the 1980–94 period, 73 percent recovered, while 27 percent failed. As noted above, one-half of the FDIC-supervised problem

---

[111] The view that examinations yield unique information is largely based on the belief that banks specialize in evaluating and monitoring idiosyncratic borrowers who do not have practical access to the capital markets. This view suggests that the best way to secure the private information banks have gathered about borrowers is by examining individual loan files.

[112] See Drew Dahl, Gerald A. Hanweck, and John O'Keefe, "The Influence of Auditors and Examiners on Accounting Discretion in the Banking Industry," and Gilbert, "Implications of Annual Examinations."

[113] Data on enforcement actions are available for FDIC- and Federal Reserve–supervised banks only.

[114] In a sample of 307 FDIC-supervised problem banks there were 209 with formal actions, 83 with informal actions only, and merely 15 with neither formal nor informal actions.

banks were the subject of formal enforcement actions, and many others received informal actions.

• For all insured banks rated 4 and 5, in the three years before failure or recovery their asset growth and dividend payout rates declined (see table 1.12).[115] (Recovery was defined as either a CAMEL rating upgrade to 1, 2, or 3 or merger without FDIC financial assistance.) Capital injections generally increased over the three years before recovery for the banks that recovered, and from the third to the second year before failure for the banks that failed.

Table 1.12
Asset Growth Rates, Dividend Payments, and Capital Injections, All Banks with CAMEL Ratings of 4 and 5, 1980–1994

Years before Failure, Recovery, or Merger	Failed Banks: Years of Failure 1980–85	Failed Banks: Years of Failure 1986–91	Failed Banks: Years of Failure 1992–94	Surviving Banks: Years of Recovery* or Merger 1980–85	Surviving Banks: Years of Recovery* or Merger 1986–91	Surviving Banks: Years of Recovery* or Merger 1992–94	Total Banks (Failed and Surviving): Years of Failure, Recovery,* or Merger 1980–85	Total Banks (Failed and Surviving): Years of Failure, Recovery,* or Merger 1986–91	Total Banks (Failed and Surviving): Years of Failure, Recovery,* or Merger 1992–94
Asset Growth Rate (Percent)									
3	14.60	15.65	18.77	10.39	13.38	4.42	11.91	14.09	5.93
2	10.72	1.71	–3.53	3.67	1.25	–0.61	6.21	1.40	–0.92
1	0.91	–10.17	–13.39	1.96	0.96	–0.64	1.58	–2.51	–1.98
Dividends to Average Assets (Percent)									
3	0.34	0.42	0.09	0.20	0.21	0.13	0.25	0.21	0.13
2	0.32	0.52	0.06	0.16	0.14	0.09	0.22	0.15	0.09
1	0.16	0.39	0.02	0.13	0.13	0.08	0.14	0.11	0.07
Capital Injections to Average Assets (Percent)									
3	0.18	0.42	0.45	0.19	0.46	0.42	0.19	0.45	0.42
2	0.22	0.52	0.54	0.39	0.56	0.42	0.33	0.55	0.43
1	0.65	0.39	0.40	0.44	0.45	0.49	0.51	0.43	0.48

Note: Data are unweighted averages of individual bank percentages.

*Recovery is either the date of a bank's unassisted merger, or if the bank survived as an independent institution, the date it received a CAMEL rating of 1, 2, or 3.

[115] For dividends, similar results are produced whether dividends are expressed as a percentage of net income or as a percentage of assets. Capital injections include stock transactions, capital contributed through merger, and capital transactions with parent holding companies.

• The data in table 1.12 suggest that in the later years of the banking crisis, supervisory efforts to reduce risk taking and insurance losses became increasingly aggressive. During 1992–94, for both failed banks and survivors, the levels to which asset growth rates and dividend payouts dropped in the final year before failure or recovery were considerably lower than had been the case during the 1980–85 period.[116]

Table 1.12 and the preceding pages summarize an analysis of the behavior of problem banks in relation to the dates of their failure or recovery. Problem-bank behavior was also analyzed in relation to the dates of regulatory intervention. For purposes of this second analysis, the dates of regulatory intervention were taken to be the dates of on-site examinations that led to either formal enforcement actions or downgrades in CAMEL ratings without such actions.[117] The purpose was to test more directly the effects of formal and informal enforcement actions on problem-bank behavior. (As noted before, most problem banks that did not receive formal enforcement actions received informal ones.) As shown in figure 1.10, at FDIC- and Federal Reserve–supervised banks with CAMEL ratings of 4, median quarterly asset growth rates declined before the date of regulatory intervention and generally remained negative in the four quarters immediately following the intervention.[118] This was true both for banks that were downgraded to a CAMEL 4 rating and had no formal enforcement action taken against them and for 4-rated banks that eventually did receive formal actions. Growth rates of banks with formal enforcement actions showed greater changes, on average, from before intervention to after intervention than growth rates of banks without such actions.[119] Similar results were produced by other measures of bank be-

---

[116] R. Alton Gilbert found that undercapitalized banks during the 1985–89 period generally did not grow rapidly, pay dividends, or make loans to insiders. See his "Supervision of Under-Capitalized Banks: Is There a Case for Change," Federal Reserve Bank of St. Louis *Review* 74, no. 4 (1992): 3–20.

[117] Enforcement data in this analysis are based on 2,398 formal actions issued by the FDIC and 362 by the Federal Reserve. Comparable data are not available for the OCC. Intervention dates are (1) the date of the examination that resulted in a downgrading of the bank to a CAMEL 3, 4, or 5 rating for the first time without a formal enforcement action or (2) the date of the last examination before the issuance of a formal enforcement action for banks receiving such actions. At the end of the examination the bank would normally be informed of conditions that were likely to result in such downgrades or of the likelihood of formal enforcement actions. Actual issuance of the formal enforcement actions would not take place until six to nine months after the examination. For FDIC-supervised banks, the median interval between the date of formal enforcement actions and the last examination before such actions was 261 days for 4-rated banks and 176 days for 5-rated banks.

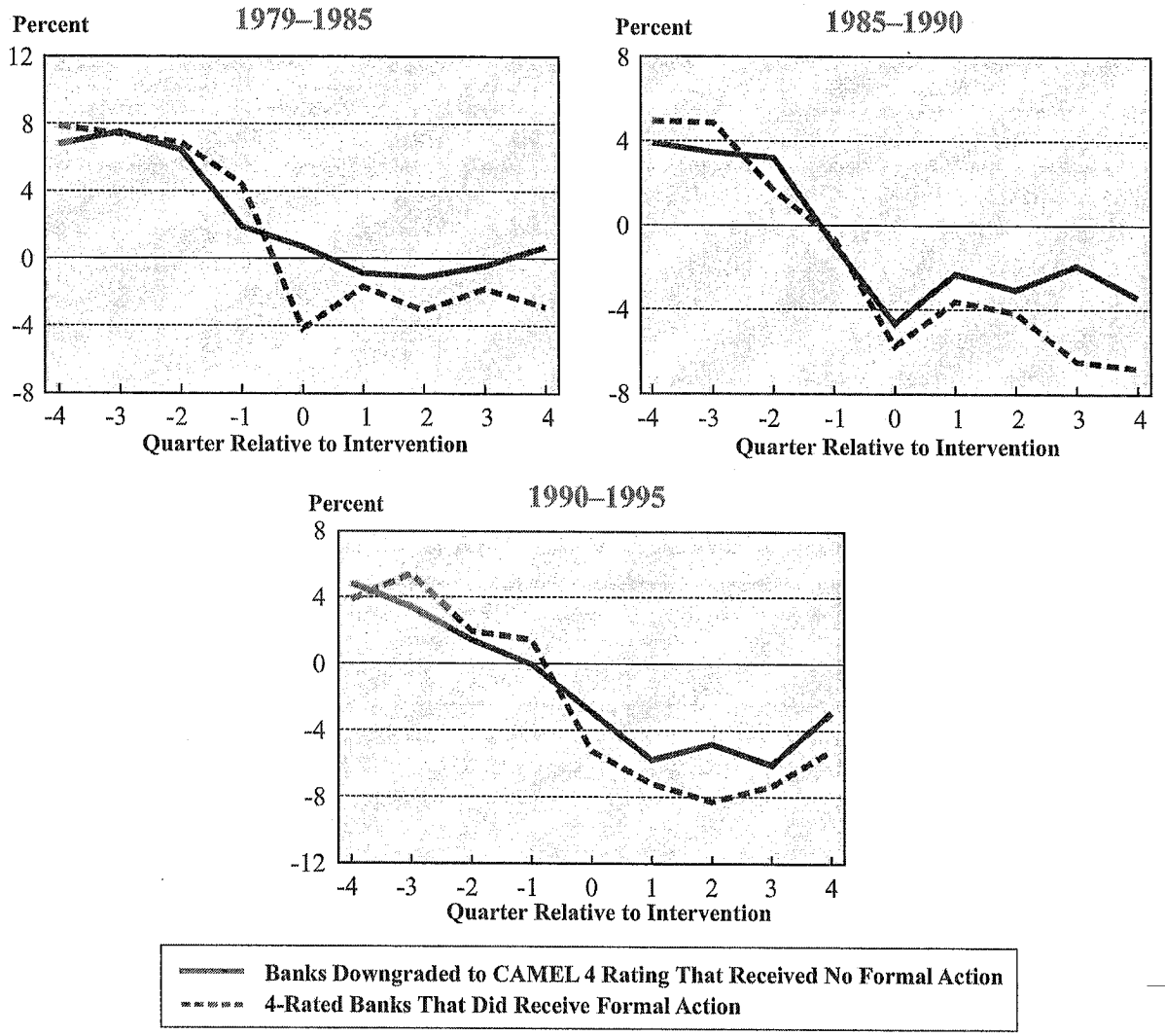
[118] It is not clear that the remedial actions taken by management before regulatory intervention were purely voluntary and would have been undertaken even if such intervention had not been expected. See also George E. French, "Early Action for Troubled Banks," *FDIC Banking Review* 4, no. 2 (1991): 1–12.

[119] Similar patterns in growth rates were found for banks with CAMEL 5 ratings. For banks with CAMEL ratings of 3 that were subject to formal enforcement actions, however, growth rates were highly variable, perhaps because for these banks the number of such actions was relatively small.

Figure 1.10

Median Asset Growth Rates of CAMEL 4-Rated Banks before and after Regulatory Intervention

(Annualized)



Note: Data are median asset growth rates of FDIC- and Federal Reserve–supervised banks before and after regulatory intervention. For this analysis, the intervention dates were dates of:

(1) examinations that resulted in the downgrading of the bank's CAMEL rating to 4 but did not result in a formal enforcement action, or

(2) the last examination before the issuance of a formal enforcement action against a bank with a CAMEL 4 rating.

Normally, a bank is informed at the time of the examination of the prospect of a CAMEL rating downgrade or a formal enforcement action. Data were run on a constant population sample for each period. The number of observations ranged from 200 to almost 500 for the different periods for banks downgraded to CAMEL 4 rating that did not receive formal enforcement actions, and from 200 to 300 for 4-rated banks that did receive formal enforcement actions.

havior (see figure 1.11). Dividend rate reductions and increases in external capital injections began before regulatory intervention and generally continued in the first year after intervention, and banks that became the subject of formal enforcement actions showed the greatest dividend cuts and capital injections.[120] Comparable behavior was also exhibited by loan-loss provisions (not shown in figure 1.11).

The foregoing analysis indicates that bank managements took remedial actions even before the examinations that triggered reductions in CAMEL ratings or led to formal enforcement actions. Whether these remedial actions were driven by market forces, by management's own objectives, or by expectations of future regulatory action cannot be readily ascertained. In any event, regulatory intervention apparently had the effect of reinforcing and accelerating these remedial actions. Changes in the behavior of problem banks were greater for banks that later received formal enforcement actions as compared with banks subject only to informal actions. However, it is not clear whether these differences in behavioral change were due primarily to the more demanding nature of formal actions or to the condition and behavior of the banks that received them. Formal actions are frequently taken when banks fail to comply with informal ones. Such failure may be due to the existence of more severe problems at the banks receiving formal actions or to less willingness on the part of their management to cure them.[121]

In general, the reduction in asset growth was an indication that moral hazard was being contained—that troubled banks were not attempting, or were not being allowed, to "grow out of their problems"; indeed, in many cases their assets were shrinking. In the case of the surviving banks, reduced dividend payouts and increased capital injections helped restore equity positions and were instrumental in facilitating recovery. In the case of the failing banks, dividend cuts and new capital had the direct effect of reducing failure costs.[122] These favorable results, no matter what the immediate stimulus, were consistent with the regulators' objectives of preventing the failure of troubled banks and reducing the insurance costs of banks that did fail.

The policy of encouraging or forcing problem banks to retrench and shrink has been criticized by some observers for inhibiting the banks' recovery and, in the context of the 1990s, for contributing to the "credit crunch." For example, it is sometimes argued that restrictions on asset growth may have deprived problem banks of attractive investment op-

---

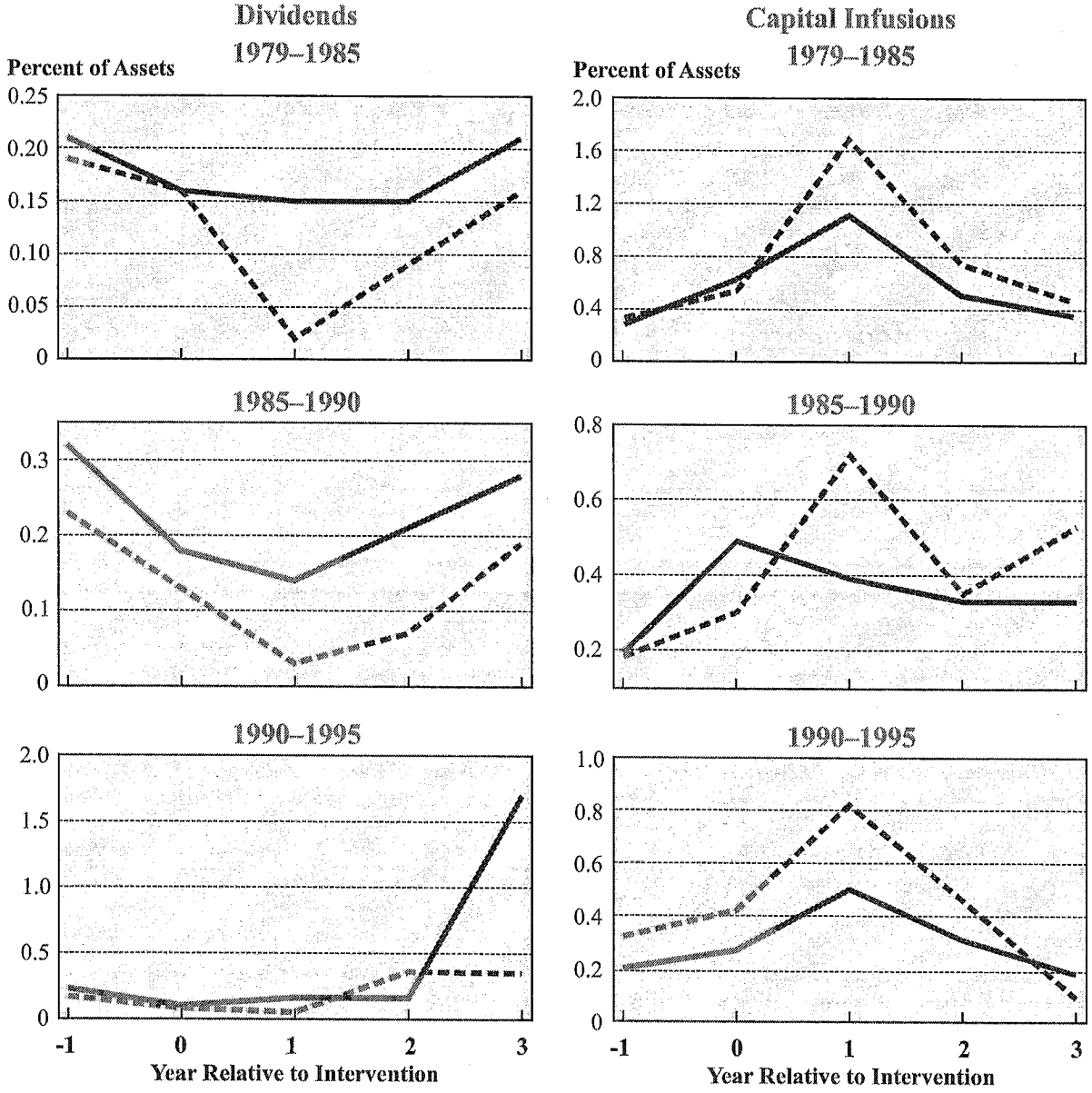
[120] Data for capital injections are annual in figure 1.11 because small banks do not report capital injections quarterly. The analysis was confined to 4-rated banks in order to have large samples of banks with similar conditions.

[121] As noted in Chapter 12, 71 percent of problem banks that failed had received formal enforcement actions, compared with 41 percent of problem banks that survived. This is consistent with the view that formal actions were taken against the most unhealthy banks.

[122] Although dividend payout ratios declined for troubled banks, a significant number of undercapitalized banks did pay dividends. See David K. Horne, "Bank Dividend Patterns," *FDIC Banking Review* 4, no. 2 (1991): 13–24.

Figure 1.11

Dividend Rates and Capital Infusions of CAMEL 4-Rated Banks before and after Regulatory Intervention



Note: Data are averages of individual bank ratios. See note to figure 1.10.

portunities and required them to sell high-quality assets they already owned.[123] Similarly, it is sometimes argued that cuts in dividends may have retarded the growth of external capital infusions. It should be remembered, however, that the range of choices available to regulators in dealing with problem banks was limited and permeated by uncertainty. Many problem banks had exhibited a tendency toward excessive risk taking and/or managerial and other weaknesses. A more relaxed supervisory posture might have resulted in the resumption of risk taking and an increase in losses when an institution failed. Continued dividend payments would also have increased insurance losses if failure occurred. It is not surprising that bank regulators generally chose the surer course of reducing risk-taking opportunities and insurance losses by seeking the retrenchment and shrinkage of problem banks.

Effectiveness of Supervisory Tools: Off-Site Surveillance

Off-site monitoring based on financial reports submitted by banks evolved during the 1980s in response to earlier developments in computer technology and to fundamental changes in the OCC's examination policies after two large national banks failed in the 1970s.[124] The evolution of off-site monitoring appeared to justify reductions in examination staffing and frequency. As the number of failures mounted during the 1980s, however, it became clear that off-site monitoring was not a substitute for, but potentially a useful complement to, on-site examinations. Compared with on-site examinations, off-site monitoring systems have a number of advantages: they are less intrusive and costly, they can be updated frequently when new information is received through quarterly Call Reports, they can provide the basis for a financial evaluation of the bank between examinations, and they are potentially able to isolate risk factors that may lead to future problems, whereas examinations are essentially a measure of the bank's current condition. Furthermore, Call Report data on which off-site monitoring systems are based are largely available to the public and can be used by investors and others as the basis for imposing market discipline on the banks. By identifying those banks that appear to have deteriorated since their last examinations, the systems can help regulators allocate examiner resources.

The disadvantages of off-site monitoring systems are that they provide no direct evaluation of management, of individual loan characteristics, of underwriting practices, or of internal controls and procedures. Moreover, the accuracy of the financial reports on which they are based, particularly the quality of loan portfolios, is dependent on periodic on-site examinations.

Off-site surveillance systems, despite their distinct advantages, did not play a very helpful role in the 1980s. On the contrary, belief in their usefulness and their potential

---

[123] See comments by Joe Peek in volume 2 of this study.

[124] This section is based on Chapter 13, "Off-Site Surveillance Systems." See also Jesse Stiller, OCC Bank Examination: A Historical Overview, (1995).

helped reinforce the idea that fewer on-site examinations were necessary. In addition, with the large number of failed and troubled banks already straining supervisory resources, targeting banks for additional examinations was not a high priority (staff limitations meant that resources were unavailable to examine any additional banks targeted by off-site systems). Off-site systems appear to have worked best when the number of problem institutions and failures was not large and when examination resources were sufficient for identified banks to be examined.

Condition and risk factors. Call Report data can be used to provide an indication of the condition of a bank and the level of risk it has undertaken. In this context, condition variables are indicators of the current strength or weakness of a bank. A bank in a weak condition would typically have low capital and net-income ratios and high nonperforming-loan ratios. Such a bank would face insolvency and failure in the near term. Risk factors, on the other hand, are indicators of a longer-term problem. A bank may be pursuing risky policies but still be in a currently healthy condition, with strong earnings and capital. In time, however, the risky policies could result in loan losses, reduced income, deterioration in capital, and eventual failure. (The distinction between condition and risk in this context is essentially the same as the distinction between ex post and ex ante risk measures discussed above.)

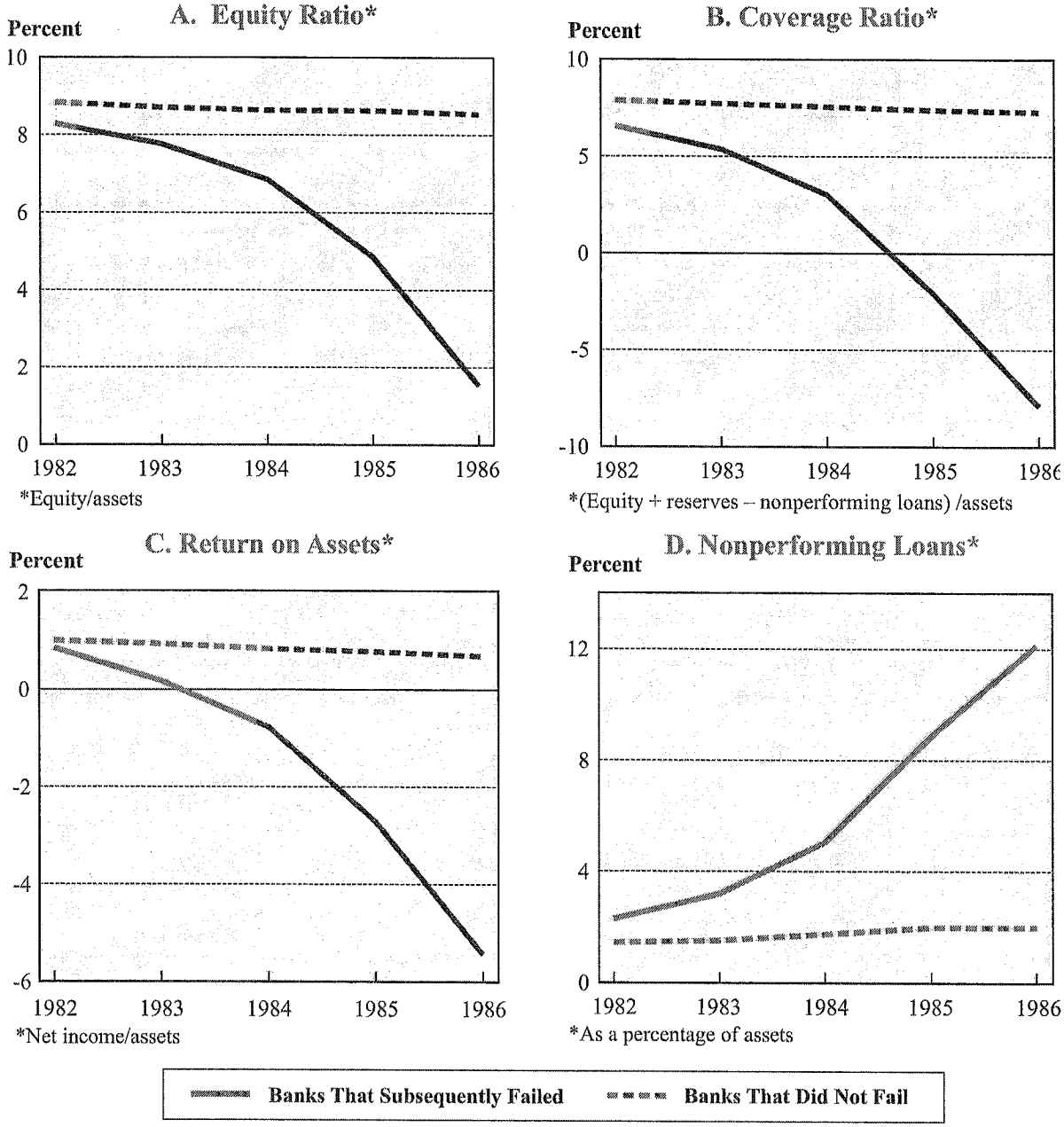
The possibilities of isolating condition and risk factors by analyzing banks' financial data are illustrated in figures 1.12 and 1.13. Figure 1.12 shows various measures of the current condition of banks—ratios to assets of equity, of equity plus reserves minus nonperforming loans (coverage), of net income, and of nonperforming loans—as of 1982 for banks that failed four to five years later (in 1986–87) and for banks that existed throughout the period and never failed. On the basis solely of these condition variables, there was little as of 1982 to distinguish banks that subsequently failed from those that did not.[125] Although the condition ratios for the future failures were slightly below those for the future survivors, they were nonetheless at levels that would normally be considered healthy; for example, in 1982 the average equity/assets ratio of banks that failed in 1986–87 was over 8 percent. As the banks that failed approached their dates of failure, their condition ratios deteriorated markedly compared with those of the nonfailures.

Comparisons of long-run risk factors show a considerably different picture (figure 1.13). In 1982 and throughout the subsequent four to five years, the risk profile of banks

[125] The data in figures 1.12 and 1.13 include, for 1982, all banks that existed in 1982 and failed in 1986–87 and all banks that existed throughout the 1982–87 period and did not fail after 1987. Certain failures are excluded: those due primarily to fraud, cross-guarantee failures subsequent to FIRREA, and bank affiliates of two Texas bank holding companies with CAMEL ratings of 1 and 2 that were essentially branches of the lead bank and were resolved through transactions whose effects were similar to cross-guarantees.

Figure 1.12

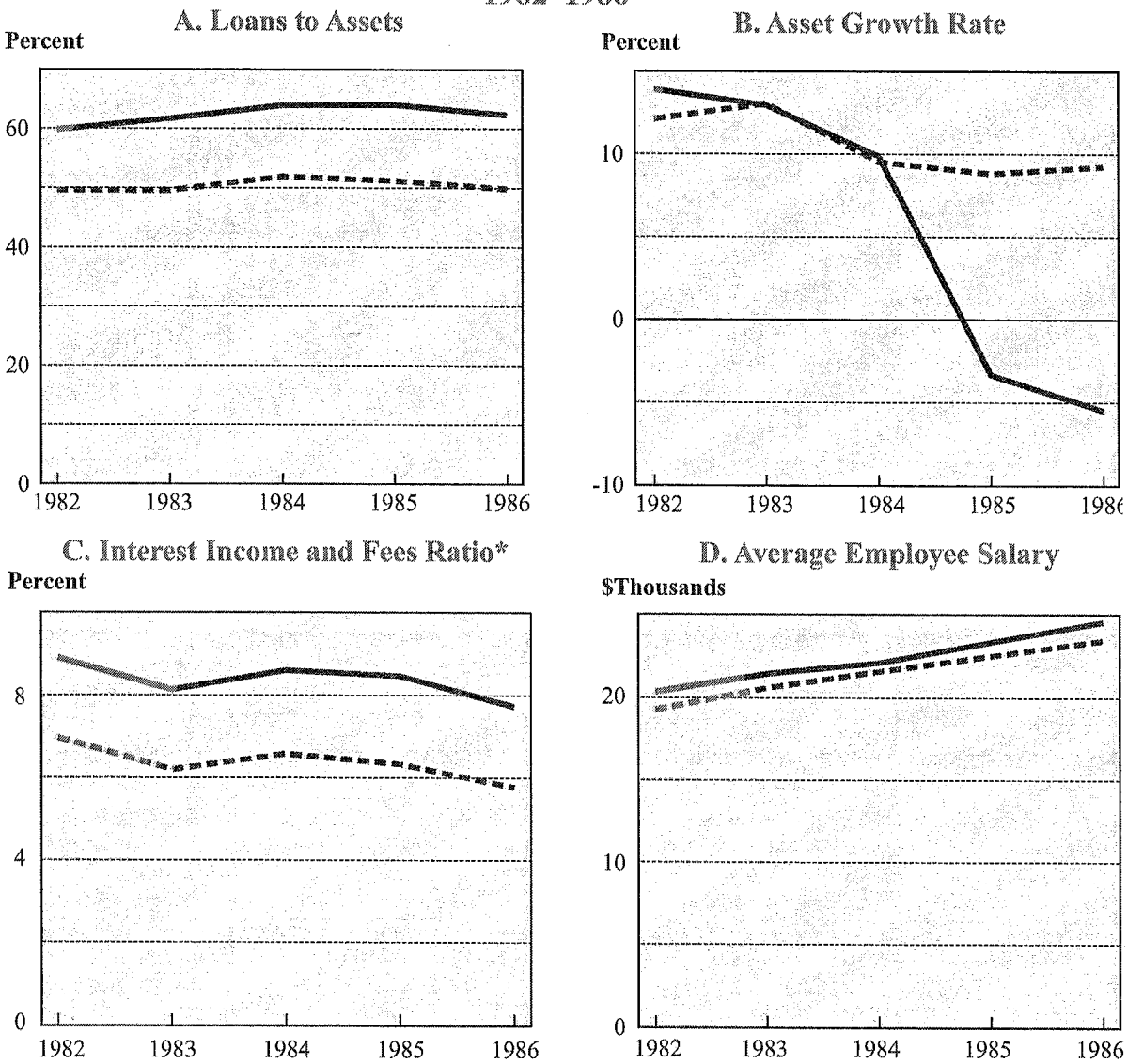
Bank Condition Ratios for Failed and Nonfailed Banks 1982–1986



Note: "Failed" means banks that existed in 1982 and failed in 1986 or 1987; "nonfailed" means banks that existed during the entire period and never failed.

Figure 1.13

Bank Risk Ratios for Failed and Nonfailed Banks 1982–1986



*Total interest and fees on loans and leases/total loans and leases

Note: "Failed" means banks that existed in 1982 and failed in 1986 or 1987; "nonfailed" means banks that existed during the entire period and never failed.

that failed in 1986–87 was distinctly higher than that of banks that did not fail. Banks that would fail had substantially higher loans-to-assets ratios than survivors did. They also had substantially higher ratios of interest and fee income on their loan and lease portfolios, which suggests that their loans were riskier. Finally, banks that subsequently failed had higher growth rates in 1982 than the banks that did not fail, but as the banks approached failure these growth rates were sharply cut back in a manner consistent with the findings cited above on FDIC enforcement actions.

Many prediction models constructed for the purpose of predicting bank failures use measures of current condition (or ex post risk) as independent variables. Thus, the accuracy of failure predictions falls off considerably for predictions of failures more than one year ahead. As part of the research for this book, an attempt was made to use ex ante risk measurements to identify groups of banks that had a high *long-term* risk of failure. For this purpose, nine risk ratios were tested: loans to assets, deposits over $100,000 to liabilities, ROA, asset growth rate, loan growth rate, operating expenses to total expenses, salary expenses per employee, interest yield on loans and leases, interest and fee income on loans and leases. The banks were divided into quintiles according to these ratios. The periods of analysis were four and five years from 1980, 1982, 1984, 1986, and 1988. In each period the risk ratio with the strongest statistical relationship to failures turned out to be the ratio of loans to assets.[126] For example, 8.20 percent of the banks that were in the highest loans-to-assets ratio quintile in 1984 failed in 1988–89, compared with 2.89 percent of all banks in the sample, for an increase of 184 percent in the incidence of failure (see table 1.13).[127]

The same statistical procedure was applied to the "low-risk" group (the lowest four quintiles) as measured by the loans-to-assets ratio, and different risk factors proved to be the best predictors of failure in four to five years (see table 1.14). ROA was the best predictor of failure for the "low-risk" group in 1984; of the "low-risk" loans-to-assets group in 1984, 3.96 percent of the banks in the highest-risk ROA quintile failed in 1988–89.

A number of observations are in order. First, the risk factors do not predict which individual banks will fail; rather, they identify a group of banks with the highest incidence of failure. Second, the risk group encompassing the highest loans-to-assets ratio quintile plus

---

[126] Logit regressions were performed on each of the risk variables where the dependent variable was whether the bank failed or not. The risk variable with the highest predictive power for failure was determined by a Chi-Square test score for each regression. The coefficients for each quintile of the variable were then compared, and a Chi-Square test was performed to determine which quintile or group of quintiles was the best predictor of failure. The analysis was then repeated on the high- and low-risk quintiles to determine which was the next-best predictor of failure in both groups. See Chapter 13, "Off-Site Surveillance Systems."

[127] In an initial inquiry, the ratio of large deposits to total liabilities was found to be the best predictor of failures in 1984 and 1986. However, this ratio was found to be essentially a proxy for location in Texas, where large-scale use of large deposits occurred in part because of restrictions on branching. Once the large-deposit ratio was excluded, the loans-to-assets ratio was the best predictor of failure in all years.

the high-risk ROA group in the remainder of the banks in 1984 accounted for 76 percent of all failures in the entire sample.[128] Third, to capture 76 percent of the total number of failures in 1988–89, the two risk groups "flagged" a large proportion (34 percent) of the total

Table 1.13
Probability of Failure
Banks in the Highest Loans-to-Assets Quintile

	All Sample Banks		Highest Loans-to-Assets Quintile			
Beginning Year	Probability of of Failure	Number of Failures	Probability of Failure	Number of Failures	Percent of Total Failures	Increase in Probability of Failure
1980	1.51%	184	3.62%	88	47.8%	140%
1982	2.45	291	6.75	160	55.0	175
1984	2.89	332	8.20	188	56.6	184
1986	2.25	253	6.46	145	57.3	187
1988	1.24	133	3.36	72	54.1	171

Table 1.14
Probability of Failure for "Low-Risk" Banks
(Banks Not in the Highest Loans-to-Assets Quintile)

		Failures in Highest-Risk Group of "Low-Risk" Banks		
Beginning Year	Highest-Risk Indicator for "Low-Risk" Group	Probability of Failure*	Number of Failures	Percent of Total Failures in "Low-Risk" Group†
1980	Loan Growth	2.32%	40	41.7%
1982	Interest Yield	3.76	53	40.4
1984	ROA	3.96	65	45.1
1986	ROA	3.74	62	57.4
1988	ROA	2.12	35	57.4

* This is the probability of failure in the 80 percent of banks that are not in the high-risk loans-to-assets quintile.

† Excludes failures in the high-risk loans-to-assets quintile.

[128] The 76 percent was derived as follows: 188 failures in the high-risk loans-to-assets ratio quintile plus 65 failures in the high-risk ROA group in the four "low-risk" loans-to-assets quintiles, for a total of 253, or 76 percent of all the 332 failures in the sample. See Chapter 13, table 13-A.3.

number of banks in the sample.[129] Fourth, most banks in the high-risk groups did not fail. For example, nearly 92 percent of the banks in the high-risk loans-to-assets ratio quintile in 1984 did not fail four to five years later, in 1988–89.

These findings suggest that failing banks shared a common characteristic: they followed a relatively high-risk strategy, as indicated particularly by the ratio of loans to assets, and could be identified well in advance of their failure dates. The findings also indicate that many other banks had similar risk characteristics but were able to avoid failure. As indicated above, the success or failure of banks depends on many factors, so predicting failures far in advance on the basis of the institutions' risk characteristics is difficult.

Specific off-site surveillance systems. The original off-site surveillance systems used in the 1970s were a collection of commonly used financial ratios. The OCC's system eventually evolved into the Uniform Bank Surveillance System, whose best-known product is the Uniform Bank Performance Report (UBPR). The UBPR is a bank-specific report that allows an analyst to compare the financial characteristics of an individual bank with the characteristics of comparable (peer) banks. The Federal Reserve and the FDIC developed similar systems. In 1985 the FDIC developed the CAEL system (Capital, Assets, Earnings, Liquidity—Management is not modeled). This was designed to replicate the examination rating that an "expert examiner" would give an institution solely on the basis of Call Report data. Banks were flagged for attention if their CAMEL rating was 2 or worse and their CAEL rating was more than one rating worse than their current CAMEL rating.[130]

The CAEL system was adopted in the mid-1980s and has been used to help achieve and maintain efficient allocation of supervisory resources, primarily by detecting at an early date banks that appear to have a high probability of receiving a CAMEL downgrade at their next on-site examination. CAEL uses 19 financial ratios by which a bank is matched against its peer group. From 1987 to 1994, the CAEL system was reasonably correct in its predictions; approximately one-half of all CAMEL downgrades predicted by the system actually occurred within six months. The CAEL system identified approximately 25 percent of total rating downgrades in the relevant group (banks downgraded from CAMEL 2 or worse). By design, CAEL misses a large number of actual downgrades in order to avoid targeting many banks that are in fact in a stable condition. This appears to be appropriate in a regime of frequent on-site examinations, for banks whose conditions have deteriorated since their last examinations but that were not identified by the CAEL system will in any event be examined without too much delay.

---

[129] The 34 percent figure refers to the highest loans-to-assets quintile plus the highest ROA group of the "low-risk" loans-to-assets quintiles, or 3,935 (2,292 + 1,643) banks. This was 34 percent of the 11,479 banks in the sample. See Chapter 13, table 13-A.3.

[130] The various systems of off-site surveillance are treated in detail in Chapter 13.

In the mid-1980s the FDIC also developed the Growth Monitoring System (GMS). Banks flagged by GMS as rapid-growth institutions are identified for off-site review and may receive increased supervisory attention. The system is based on the levels and quarterly trends of five summary measures: asset growth rate, growth rate of loans and leases, and ratios to assets of equity capital, volatile liabilities, and loans and leases plus securities with maturities of five years or more. The system's premise is that rapid growth in total assets or loans represents a risky activity. Through the 1980s banks that generated high growth scores in the model had a higher-than-average incidence of failure up to four years later.

In the years since the CAEL and GMS systems were developed, there has been a substantial body of economic research related to modeling bank failures and financial distress. The Federal Reserve has based its off-site surveillance methods on statistical modeling techniques, beginning with the Financial Institutions Monitoring System (FIMS), which was adopted in 1993 and predicted CAEL-like ratings and bank failures. As of mid-1997 the FDIC was considering substantial modifications in GMS and adoption of a statistical model for predicting CAMEL rating downgrades for banks and thrifts.

Open Questions

Many of the weaknesses revealed in bank statutes, regulations, and supervisory practices in the 1980s were subsequently addressed and corrected. However, some issues remain open—two in particular: the potential impact of resolving large-bank failures in accordance with FDICIA, and the adequacy of present systems of identifying and pricing risk.

Treatment of Large Banks: Systemic Risk and Market Discipline

FDICIA shifted the balance between stability and market discipline toward market discipline. It accomplished this by requiring that the methods used to resolve bank failures produce the least cost to the FDIC and by prohibiting the protection of uninsured deposits when such action would increase the cost to the insurance fund. Under the pre-FDICIA cost test, either the FDIC could choose to sell the failed bank if the estimated resolution cost was less than that of a deposit payoff or the FDIC could provide open-bank assistance, regardless of cost considerations, if the bank's services were determined to be "essential" to the community. Failures of big banks were generally resolved in ways that protected all deposits against loss because of fears of depositor runs on other banks, systemwide crises through correspondent accounts, or disruption of the payments system.

FDICIA also limits the ability of the Federal Reserve to provide liquidity to problem banks (defined in terms of capital position) through its discount window. For critically undercapitalized banks, repayment must be demanded within no more than 5 days, and if that limit is violated, the Federal Reserve is liable to the FDIC for any additional cost. In the

case of undercapitalized banks, Federal Reserve advances can remain outstanding for no more than 60 days in any 120-day period.[131]

FDICIA increases the likelihood that large banks will be resolved with losses to uninsured depositors and reduces the likelihood that open-bank assistance will be used to deal with large troubled banks. An exception to the least-cost test is allowed in cases of systemic risk: two-thirds of the FDIC Board and two-thirds of the Federal Reserve Board would have to recommend that an exception be made, with the final decision in the hands of the secretary of the treasury in consultation with the president. Any loss incurred by the FDIC as a result of using the systemic-risk exception would have to be made up by a special assessment on all institutions insured by the same fund. These provisions were designed to discourage use of the exception and to increase accountability.

The 1980–94 experience provides only limited guidance as to how the rules prescribed by FDICIA will affect future large-bank resolutions. On the one hand, there are the well-known troubles of Continental Illinois, which in 1984 sustained enormous withdrawals of foreign deposits through high-speed electronic transfers. At the time there was concern that if uninsured deposits were not protected, Continental's correspondent banks would sustain serious losses, possibly with "ripple" effects on other major banks that were perceived to be vulnerable. Action by the regulators in assisting Continental Illinois forestalled the possibility of such effects on other major banks.

On the other hand, in numerous cases the FDIC resolved banks through methods that left uninsured depositors unprotected yet had no serious repercussions.[132] These were generally smaller banks that did not pose problems of systemic risk.[133] Another instance was the modified payoff method used to resolve 13 banks in 1983–84, a method that caused uninsured depositors to suffer losses: at closure uninsured depositors were paid a portion of their money based on the value of the bank's assets that it was estimated would be recovered in liquidation. At the time of these resolutions there were no flights of deposits from other institutions. Similarly, in the period since FDICIA, resolutions with losses to uninsured depositors have not produced large-scale withdrawals at other institutions. From 1992

---

[131] A decision by the FDIC to act in the Federal Reserve's stead by providing open-bank assistance might have rendered this provision less substantial. However, this avenue was essentially closed by the Resolution Trust Corporation Completion Act of 1993, which effectively prohibited—unless the systemic-risk exception had been invoked—the use of BIF or SAIF funds to benefit the shareholders of insured depository institutions, a likely outcome of FDIC open-bank assistance.

[132] From 1986 through 1991, 199 banks (representing 19 percent of all bank failures) were resolved through means that did not protect uninsured depositors. Average assets of these banks amounted to $57 million. See FDIC, *Failed Bank Cost Analysis, 1986–1995*.

[133] A possible exception was Penn Square Bank, which was closed through a deposit payoff in 1982. Because of Penn Square, "Some banks had difficulty rolling over large CDs. The business of brokers, who divide up large deposits and participate them to several banks, was significantly boosted. Depositors generally became more selective in their choice of banks" (FDIC, *The First Fifty Years,* 98).

to 1995, uninsured depositors were unprotected in 63 percent of all failures, compared with 19 percent in 1986–91. The experience since the adoption of FDICIA is, of course, hardly a rigorous test. In this period bank profits have increased to record levels, failures have slowed to a trickle, and no major bank has been threatened.

Some studies, published mostly in the post-FDICIA period, present evidence suggesting that investors recognize the risk of loss on uninsured deposits and that the market responds appropriately to new information about risk in banking firms. For example, one study found that when banks' subordinated debt claims were downgraded by Moody's rating service, the stock prices of banks with larger proportions of insured deposits declined less, and downgraded banks then increased their reliance on insured deposits.[134] Another study found that stock prices reacted negatively after a downgrade in a bank's CAMEL rating, and suggested that such information may be transmitted to the market through the bank's Call Reports.[135] A study of subordinated debt concluded that yields on such instruments rationally reflected changes in the government's policy toward protecting large bank holding company creditors.[136] Still another concluded that bond rating agencies convey new information to the market and thereby enhance market discipline, since banks that experience downgrades suffer negative stock returns.[137]

Studies have also been done to compare the accuracy of "inside" information developed through on-site examinations with that of "outside" information available to market participants. For example, one study of problem banks concluded that stock returns had failed to anticipate downgrades in CAMEL ratings; neither the market nor the banks' managements seemed to have been aware of the banks' problems before the examinations took place.[138] Another study concluded that both regulators and market participants price credit risk, but only regulators price capital strength; the results seem to reflect, on the one hand, the supervisors' concern with preventing bank failures and protecting the deposit insurance fund and, on the other hand, the market's emphasis on risk/return trade-offs.[139] But a third study concluded that CAMEL ratings are primarily proxies for available market informa-

---

[134] Matthew T. Billet, Jon A. Garfinkel, and Edward S. O'Neill, "Insured Deposits, Market Discipline, and the Price of Risk in Banking," unpublished paper (November 28, 1995).

[135] Allen N. Berger and Sally M. Davies, "The Information Content of Bank Examinations," working paper 94-24, Wharton Financial Institutions Center, 1994.

[136] Mark J. Flannery and Sorin M. Sorescu, "Evidence of Bank Market Discipline in Subordinated Debenture Yields: 1983–1991," *Journal of Finance* 51, no. 4 (September 1996): 1347–77.

[137] Robert Schweitzer, Samuel H. Szewczyk, and Raj Varma, "Bond Rating Agencies and Their Role in Bank Market Discipline," *Journal of Financial Services Research* 6 (1992): 249–63.

[138] Katerina Simons and Stephen Cross, "Do Capital Markets Predict Problems in Large Commercial Banks?" Federal Reserve Bank of Boston *New England Economic Review* (May/June 1991): 51–56.

[139] John R. Hall, Andrew P. Meyer, and Mark D. Vaughan, "Do Markets and Regulators View Bank Risk Similarly?" Federal Reserve Bank of St. Louis, supervisory policy analysis working paper no. 1-97, February 1997.

tion about the condition of banks; the additional informational content of CAMEL ratings did not appear large.[140]

These studies often address the issue of whether, in monitoring large, publicly traded banks, market discipline and supervision are interchangeable. However, their results also have a bearing on the issue of the future treatment of large problem banks. If it appears that the market exercises appropriate discipline and readily obtains relevant information, then there are grounds for optimism that, in the future, major surprises at large banks may be avoided because weaknesses will become public knowledge at an early stage, the market will have sufficient information to make realistic assessments of bank risk, and investors will be able to distinguish accurately between viable and nonviable banks. Under these conditions, the likelihood that contagious runs will cause systemic problems would be reduced. There would be fewer grounds for optimism if it appeared that the market had inadequate or obsolete information (as compared, for example, with information produced by examinations) about a bank's condition.

With respect to contagious runs, the evidence is not clear; some failures apparently have not affected other banks, whereas others seemingly have.[141] Testing for contagious runs on large banks is obviously problematic: federal deposit insurance and the practice of protecting uninsured depositors of large banks eliminated the possibility of such runs during the 1980s, and an environment highly favorable to banking has minimized their likelihood in the 1990s. Experience from the pre-FDIC era or from countries that have no formal deposit insurance system is not always consistent or clearly applicable to present-day U.S. conditions.[142]

The most likely scenario in the event of a future large-bank problem is that the FDIC, the Federal Reserve, and the administration will have to make difficult judgment calls on whether use of the systemic-risk exception is justified. Such decisions will probably have

---

[140] Thomas F. Cargill, "CAMEL Ratings and the CD Market," *Journal of Financial Services Research* 3, no. 4 (September 1989): 347–58.

[141] However, one study concluded that "analysis suggests that bank contagion is largely firm-specific and rational, as it appears to be in other industries, and that the costs are not as great as they are perceived to be" (George G. Kaufman, "Bank Contagion: A Review of the Theory and Evidence," *Journal of Financial Services Research* 8, no. 2 [April 1994]: 123–50).

[142] Among the studies of this issue are Charles W. Calomiris and Joseph R. Mason, "Contagion and Bank Failures during the Great Depression: The June 1932 Chicago Banking Panic," 110–22; and Fred R. Kaen and Dag Michalsen, "The Effects of the Norwegian Banking Crisis on Norwegian Bank and Nonbank Stocks," both in *Proceedings of the 31st Conference on Bank Structure and Competition,* Federal Reserve Bank of Chicago, May 1995, 123–61; Gerald D. Gay, Stephen G. Timme, and Kenneth Yung, "Bank Failure and Contagion Effects: Evidence from Hong Kong," *Journal of Financial Research* (summer 1991): 153–65; George G. Kaufman, "Bank Contagion: A Review of the Theory and the Evidence," *Journal of Financial Services Research* 8, no. 2 (April 1994): 123–50; Charles W. Calomiris and Gary Gorton, "The Origin of Banking Panics: Models, Facts and Bank Regulation," in *Financial Markets and Financial Crises,* ed. R. Glenn Hubbard (1991), 109–74; and Wall, "Too-Big-to-Fail after FDICIA," 7–9.

to be made more quickly than were decisions relating to large-bank failures in the 1980s. In any event, the combination of least-cost resolutions, PCA, and limitations on Federal Reserve advances will no doubt increase market discipline and reduce regulatory discretion. These, of course, are what the supporters of these measures sought to achieve. Additional and unintended effects of the new requirements may be that some regulatory decisions will have to be made in haste and that the range of potential solutions to large-bank problems will be narrowed.

Adequacy of Present Systems for Identifying and Pricing Risk

Banking operations became more complex during the 1980s and deviated increasingly from the traditional loan and deposit-taking model (the increase in various types of off-balance-sheet activity is one example). These developments pose new risks and have required adaptations in capital standards and reporting requirements to ensure that major types of risk are addressed.[143]

Another development that has important implications for assessing risk is the continued geographic diversification of the banking industry through consolidation. As more banks spread their activities across state boundaries, they will have increased opportunities to diversify their loan portfolios. But as a result of consolidation of multibank holding companies into out-of-state branch systems, financial reports under current reporting procedures will provide increasingly uncertain indications of the geographic concentrations of credit risk.[144] For example, if multibank holding companies were to consolidate all their bank and thrift affiliates into a single lead bank, 38 states would show an apparent decline in bank loans outstanding, whereas a few states would show substantial gains.[145] Currently (as of mid-1997) a number of efforts are being made to ensure that meaningful data on geographic concentrations of lending risk are available.

As these remarks suggest, bank regulators are attempting to adapt systems for identifying and pricing risk in order to keep up with developments in the banking industry, and one of the principal tools for restraining risk is capital requirements that also serve to trigger increasingly severe regulatory action under PCA. As emphasized repeatedly in this chapter,

---

[143] The revisions in risk-based capital rules are discussed and evaluated in U.S. General Accounting Office, *Financial Derivatives: Actions Taken or Proposed since May 1994* (November 1996).

[144] "Minimum Data Needs in an Interstate Banking Environment," FDIC staff analysis, September 16, 1996.

[145] To the extent that out-of-state affiliates were consolidated into a local lead bank, a particular state would show an increase in loans. To the extent that locally based affiliates were consolidated into an out-of-state lead bank, a particular state would show a decrease in loans.

however, bank capital positions are poor predictors of failure several years before the fact. If regulatory action were based solely on capital positions, in many cases such action might come too late to do much good. Yet a policy of basing costs or penalties on more-forward-looking measures would have its own problems. Although ex ante measures of risk—such as the ratio of loans to assets—correctly flagged a large majority of the institutions that failed several years later, they also flagged a much larger number of banks that did not fail. The latter group of banks was presumably being compensated—by earning higher returns, at least for a time—for the greater risk it was assuming. Imposing restrictions on this group of banks might unnecessarily restrain potentially profitable activities. Basing penalties on ex ante measures of long-term risk might also expose the regulators to charges of credit allocation, since they might be restraining banks' efforts to meet rising credit demands in particular regions or sectors of the economy. And basing regulatory restraints on unreliable ex ante risk measures might increase the prospect of a regulator-induced "credit crunch." All these difficulties may make regulators loath to base supervisory restraints on, or levy penalties on the basis of, ex ante risk measures, a situation raising the possibility that some future episode of high-risk activity will go unrestrained until the risky behavior is translated into actual losses and erosion of capital positions. In other words, identifying and restraining risky bank behavior on a timely basis will continue to be a difficult task for bank regulators.

Some observers would address the issue by placing greater reliance on bank owners and the marketplace, and less on regulators, to monitor and restrain risky behavior. Thus, raising regulatory capital requirements considerably above present standards would increase stockholders' stake in the banks, increase their incentive to enforce conservative policies, and provide greater protection for the deposit insurance fund, taxpayers, and the economy against the risk of bank failures. However, if capital requirements are set too high, entry into the industry will be discouraged, competition within the industry will be weakened, and credit flows through bank and thrift intermediation will be reduced. A trade-off exists between the objective of restraining risk through regulatory capital requirements and the consequences of reduced competition among, and credit flows through, depository institutions.

Market value accounting has been proposed as a means of substituting the judgment of the marketplace for that of regulators in assessing bank risk. This assumes that market participants are better able (or willing) to evaluate the risk characteristics of depository institutions on the basis of publicly available data than regulators who have access to internal information gained through examination of loan files. As has been frequently pointed out, there are serious problems in assigning market values to bank loans that have no secondary markets and have little or no inherent marketability because of the difficulty of assessing information developed by the banks on the characteristics and behavior of their borrowers. Aside from implementation problems, market value accounting may reduce longer-term

bank lending, restrict credit flows during periods of falling asset prices, and inject greater instability in the banking system as a result of fluctuations in net worth positions of depository institutions. In short, whether risky behavior is monitored by regulators, bank owners, or the market, the objective of greater ex ante restraints on risky behavior may conflict with other public policy objectives.[146]

Concluding Comment

An eminent philosopher once offered this discouraging view of the lessons policymakers learn from history: "[P]eople and governments never have learned anything from history, or acted on principles deduced from it."[147] The present study is based on the view that history can be used constructively by policy makers. The lessons to be learned from this history concern the effectiveness of the federal bank regulatory and deposit insurance systems during a period of extraordinary stress. How well did they perform in the 1980s, and how can a study of their performance benefit future policymakers?

Despite bank and thrift failures in numbers not seen since the Great Depression, the government's promise to protect insured depositors was fully honored: no depositor lost a penny on federally insured deposits, there was no significant disruption of the financial intermediation process, and a high degree of financial market stability was maintained. These results did not come cheap, but the financial cost for the banking industry was borne by the banks themselves and by their customers rather than by taxpayers, who ended up bearing most of the much greater cost of the S&L debacle. There were also other, less-quantifiable costs, particularly those associated with the moral-hazard risk taking inherent in deposit insurance. A chief example was the misallocation of resources when banks and thrifts poured funds into high-risk commercial real estate lending, although other factors besides moral hazard contributed to this outcome, including poorly conceived deregulation and disruptive tax-law changes. In view of these overall results, several lessons can be drawn about the performance of bank regulators in the 1980s.

1. Problems in the operations of depository institutions must be identified at an early stage if serious deterioration in the institutions' condition is to be prevented, and early identification requires continuous and sometimes burdensome monitoring of the institutions' activities. Partly to support the objective of reducing the federal work force and partly because of presumed efficacy of off-site monitoring, the number of bank exam-

---

[146] See Allen N. Berger, Kathleen Kuester King, and James M. O'Brien, "The Limitations of Market Value Accounting and a More Realistic Alternative," *Journal of Banking and Finance* 15 (1991): 753–83; and Allen N. Berger, Richard J. Herring, and Giorgio P. Szego, "The Role of Capital in Financial Institutions," *Journal of Banking and Finance* 19 (1995): 393-430.

[147] Georg Wilhelm Friedrich Hegel, *Philosophy of History* (1832), quoted in John Bartlett, *Familiar Quotations*, 14th edition.

iners and the frequency of on-site examinations were reduced in the first half of the 1980s, at the very time when the number of troubled banks and bank failures began to rise rapidly. As a result, emerging problems were not always identified on a timely basis, some failures occurred that might have been averted, and losses to the insurance fund were probably increased. Examination forces were rebuilt and the frequency of examinations was increased in the second half of the 1980s, even before legislation requiring such action was passed by Congress in 1991. Up-to-date, on-site examination results appear to yield information on banks not available through other means, and they help maintain the integrity of Call Report and other publicly available bank data. In the 1980s, they provided reasonably accurate advance warning of future banking problems, and their accuracy increased during the period.

2. Adequate funding of the deposit insurance agency is essential to effective regulatory control of risk taking by insured institutions. The FSLIC suffered from a number of defects, but among the most serious was the lack of funding (and the reluctance of the S&L industry and Congress to provide it). As a result, the FSLIC was unable to close large numbers of insolvent S&Ls, which were allowed to continue operating in the hope that higher-risk investments would pay off. FDIC resources, although strained during the late 1980s, were sufficient to close failed banks. Bank regulators generally forced or encouraged problem banks to cut asset growth, reduce dividend payments, and attract external capital. Problem banks were generally not permitted to "throw the long bomb," and most of them survived as independent institutions or were merged without FDIC financial assistance. With some significant exceptions, most problem banks that failed were closed within the time frame later prescribed by the PCA provisions of FDICIA for critically undercapitalized banks. Forbearance programs mandated or inspired by Congress were administered in a generally effective manner by the bank regulators, in contrast to the unfavorable S&L experience with forbearance. Although other factors obviously affected the quality of regulation, the availability of the financial resources needed to close insolvent institutions was central to the bank regulators' ability to control bank risk and moral-hazard problems and reduce losses to the insurance fund when failure occurred.

3. The treatment of large-bank failures had undesirable side effects, but it is unclear whether alternative resolution methods would have been successful in the environment of the 1980s. Protecting uninsured depositors of large failed banks weakened market discipline and exposed regulators to charges of treating small banks unfairly. Imposing losses on uninsured depositors and liquidating a few large banks might have had salutary effects on market discipline, and some observers suggest that the regulators should have been more willing to take the risk involved in such actions. However, no such experi-

ment was undertaken, and therefore the experience of the 1980s provides little guidance on whether these actions would have led to runs on other large banks and to more-general financial market instability.

In other respects, it is clear that the treatment of large banks could have been improved. While still profitable and solvent, some large banks that eventually failed were engaging in risky behavior that was not sufficiently restrained by bank regulators. In addition, a few large banks continued to operate with little equity for extended periods before being closed; these banks generated avoidable losses that increased total resolution costs. In these instances, more-effective regulatory action was feasible and could have reduced losses to the insurance fund.

4. Statutory rules limiting regulatory discretion may help prevent a repetition of the regulatory lapses that occurred in the 1980s, but it remains to be seen whether such rules will be maintained in a future period of widespread banking distress. Limits on the discretionary authority of bank regulators were adopted as part of FDICIA after the banking crisis had largely passed, and they have raised few problems in the benign banking climate that has since prevailed. However, the tension between rules and discretion in bank regulation may reappear in some future period of widespread banking problems. In the early 1980s, Congress responded to the concerns of the banking and thrift industries and limited the ability of regulators to close weakened institutions. In that instance, Congress mandated forbearance for thrifts and some banks, delayed recapitalization of the FSLIC's insurance fund, and then declined to provide the amount requested by the Reagan administration.[148] Given this experience, it is difficult to predict the effect of current statutory rules in some future banking crisis, or the willingness of legislators to retain them. In such a crisis, numerous banks might be suffering substantial operating losses and capital reductions resulting from external shocks and other unforeseen developments. Will it then be politically feasible, for example, to liquidate a significant number of large banks in accordance with least-cost resolution requirements or to close many small and large banks because they fail a statutory solvency test? If so, will such actions be compatible with the objective of maintaining financial market stability? Experience in the 1980s provides little basis for confident answers to these questions.

5. Bank regulation can limit the scope and cost of bank failures but is unlikely to prevent failures that have systemic causes. The rise in the number of bank failures in the

[148] National Commission on Financial Institution Reform, Recovery and Enforcement, *Origins and Causes*, 73.

1980s had many causes that were beyond the regulators' power to influence or offset. These included broad economic and financial market changes, ill-considered government policy actions, and structural weaknesses that inhibited geographic diversification and made many banks vulnerable to regional and sectoral recessions. Earlier implementation of uniform capital standards and other improvements in regulation might have reduced the number of failures in the 1980s, but it could not have prevented a great many of them. Legislation permitting geographic consolidation was a major step toward correcting existing structural weaknesses in the banking system. However, if significant new structural weaknesses or serious economic problems are allowed to develop in the future, bank regulation alone will not be able to prevent a major increase in the number of bank failures.

6. The ability of regulators to curb excessive risk taking on the part of currently healthy banks was (and continues to be) limited by the problem of identifying risky activities before they produce serious losses and by competing public policy objectives. As noted, bank regulators were reasonably successful in curbing risk taking on the part of officially designated problem banks whose condition had already deteriorated. However, in dealing with ostensibly healthy banks, regulators had difficulty restricting risky behavior before the fact, while the banks were still solvent and the risky behavior was widely practiced and currently profitable. It was (and remains) hard to distinguish such behavior from acceptable risk/return trade-offs, innovation, and other appropriate activity, or to modify the behavior of banks while they were (and are) still apparently healthy. Current risk-based capital requirements are forward-looking in the sense that they apply different weights to different asset categories, but the categories are so broad that they permit major increases in high-risk loans without requiring more capital. On the other hand, current risk-based premium schedules penalize banks after the fact, when losses have already weakened their condition. In addition to problems of identification, conflicting public policy objectives are also a limiting factor; this was evident during the "credit crunch" of the early 1990s, when bank regulators were criticized by legislators and administration officials for retarding economic recovery through their excessive zeal in applying the very supervisory restraints they had previously been urged to implement.

An alternative approach, proposed mainly by academic writers, would be to rely more heavily on bank owners and investors, rather than on regulators, to restrain risky behavior on the part of profitable banks; this would be done by raising overall capital standards to considerably higher levels than at present in order to increase shareholders' stake or by adopting market value accounting. Aside from problems of implementation, the potential efficacy of this alternative is also limited by conflicts with other public policy objectives, such as maintaining financial stability and meeting private sector credit demands.

7. Differences in perspective among federal bank regulators may have delayed recognition of the nature of the problems of the 1980s. Differences among the regulators are to be expected, given their various primary responsibilities, and the resulting checks and balances are frequently cited as one of the main advantages of the present regulatory structure. However, conflicts among regulators on the issue of brokered funds persisted until 1985, and on new bank charters until 1989. Arguably, it should have been clear before then that bank failures were the most pressing problem, outweighing such considerations as encouraging innovations in deposit gathering and easing the entry of new institutions into banking markets. While the present system of divided regulatory responsibilities is believed to have important advantages, in the early 1980s it may have delayed recognition of the seriousness of a new crisis.

* * *

Finally, it is appropriate to emphasize that the lessons of the 1980s need to be applied to future problems judiciously. As noted by one of the participants in the FDIC's symposium at which an earlier version of this chapter was presented, the problems of the past may bear little or no resemblance to those of the future.[149] Therefore, it is important to keep in mind those lessons of the 1980s that appear to be relevant while remaining alert to emerging problems that have few or no precedents in the past.

[149] See comments by Carter H. Golembe in volume 2 of this study.

Corporate Governance in the 2007-2008 Financial Crisis: Evidence from Financial Institutions Worldwide

by

David Erkens[1], Mingyi Hung[2], and Pedro Matos[3, *]

August 2009

[1]University of Southern California, Marshall School of Business, Los Angeles, CA 90089, email: erkens@marshall.usc.edu
[2]University of Southern California, Marshall School of Business, Los Angeles, CA 90089, email: mhung@marshall.usc.edu
[3] University of Southern California, Marshall School of Business, Los Angeles, CA 90089, email: pmatos@marshall.usc.edu

*: The authors thank the following for their helpful comments: Harry DeAngelo, Miguel Ferreira, Jarrad Harford, Andrew Karolyi, Victoria Ivashina, Frank Moers, Kevin Murphy, Oguzhan Ozbas and David Yermack and workshop participants at Maastricht University, UBC Finance Summer Conference 2009, and University of Southern California. We also gratefully acknowledge the help from Yalman Onaran of Bloomberg and Shisheng Qu from Moody's KMV.

Corporate Governance in the 2007-2008 Financial Crisis: Evidence from Financial Institutions Worldwide

Abstract

This paper investigates the role of corporate governance in the 2007-2008 credit crisis, using a unique dataset of 306 financial firms from 31 countries that were at the center of the crisis. We find that CEOs were more likely to be replaced following large losses if firms had more independent boards, higher institutional ownership, and lower insider ownership. In addition, consistent with the notion that the crisis is partially attributable to pressure for short-term results from outside board members and investors, we find that firms with more independent boards and institutional ownership experienced larger losses during the crisis, and that firms with more institutional ownership took more risk before the crisis. Moreover, we find that firms that used CEO compensation contracts with a heavier emphasis on annual bonuses (as opposed to equity-based compensation) experienced larger losses during the crisis and took more risk before the crisis. Overall, our findings suggest that while governance is positively associated with the disciplining of executives for losses incurred during the crisis period, it did not prevent these losses, but instead exacerbated them by encouraging executives to focus on short-term performance.

1. Introduction

An unprecedented large number of financial institutions have collapsed or were bailed out by governments worldwide since the onset of the global financial crisis in 2007.[1] Many observers attribute these events to failures in corporate governance, such as lax board oversight and flawed executive compensation practices that encouraged aggressive risk taking. For example, Kashyap, Rajan, and Stein (2008) argue that while the failure to offload subprime risk has resulted in the credit crisis, the root cause of the crisis lies in the breakdown of shareholder monitoring and ill conceived managerial incentives. While governance reforms are being considered to restore the stability of global financial systems, there is little empirical evidence on whether governance mechanisms indeed failed in financial institutions.[2] The purpose of this paper is to empirically examine the role of corporate governance in the disciplining of CEOs for the losses during the crisis, as well as its role on risk taking by financial institutions before the crisis.

We argue that the focus of independent boards and institutional investors on short-term profitability has not only led to the replacement of poorly performing CEOs during the crisis, but has also encouraged risk taking of firms before the crisis, which exacerbated the losses suffered during the crisis. Prior literature suggests that CEO turnover is more sensitive to shareholder losses for firms with greater board independence and larger institutional ownership (as opposed to insider ownership) because these external monitors' fiduciary duty is to focus on the creation of shareholder

[1] The list of casualties includes Bear Stearns, Citigroup, Lehman Brothers, Merrill Lynch (in the U.S.), HBOS and RBS (in the U.K.), and Dexia, Fortis, Hypo Real Estate and UBS (in continental Europe). See Brunnermeier (2009) for a detailed account of the 2007-2008 crisis.

[2] See "SEC to examine boards' role in financial crisis" (*Washington Post*, February 20, 2009), "Fed chief calls for scrutiny of executive pay policies" (*New York Times*, March 21, 2009)

value (e.g., Weisbach 1988; Volpin, 2002; Parrino, Sias and Starks, 2003). However, recent studies argue that pressure from boards and investors, in particular institutional investors, for short-term profitability encourages managers to sacrifice long-term investments (such as R&D) to meet short-term earnings targets (e.g., Bushee, 1998). If pressure from boards and investors for short-term performance has induced managers of financial firms to investment in risky assets, such as subprime mortgages, we expect firms with more independent boards and institutional ownership (as opposed to insider ownership) to have suffered larger losses during the crisis, and to have taken more risk in the period leading up to the crisis.

In addition, we argue that compensation contracts with a heavier emphasis on annual bonuses (as opposed to equity-based compensation) encourage executives to focus on short-term results. If annual bonuses have encouraged managers of financial firms to invest in risky assets, we expect firms with CEO compensation contracts that rely more on annual bonuses (as opposed to equity grants) to have suffered larger losses during the crisis and to have taken more risk before the crisis.

Our sample comprises 306 publicly-listed financial firms from 31 countries for which we gather unique data on CEO turnover, board composition, ownership structure, CEO compensation, and accounting writedowns surrounding the 2007-2008 crisis. We focus our analysis on the largest financial firms worldwide because the crisis had a global scale and affected financial firms across many countries with diverse governance arrangements. For example, the majority of publicly-listed financial firms in the U.S. are widely held whereas in continental Europe many companies are closely held. Our sample also offers a unique laboratory setting to test the role of corporate governance

mechanisms because the size and the source of the enormous shareholder losses are well documented and the actions of the boards and executives are heavily scrutinized.

We find that CEO replacements in financial institutions during the crisis period exceeded the norm. Figure 1 shows that financial firms exhibited higher CEO turnover rates than those of non-financial firms in the 2007-2008 crisis period, while in the 2004-2006 period the pattern was the opposite. Interestingly, there is a wide variation in CEO turnover rates across countries. Examples of CEO turnover include Citigroup, Merrill Lynch, and Wachovia (in the U.S.), UBS (in Switzerland), and IKB Deutsche Industriebank (in Germany). However, CEOs of many other firms suffering substantial losses maintained their positions.[3] For example, despite large losses none of the French firms in our sample replaced their CEO during the sample period.

To test our prediction on CEO turnover, we use a logit model regressing CEO turnover on shareholder losses, corporate governance, and a term interacting shareholder losses with corporate governance (Weisbach, 1988). We use three variables to proxy for shareholder losses (accounting writedowns, new capital raisings, and cumulative stock returns) and focus on three corporate governance mechanisms (board independence, institutional ownership, and ownership by corporate insiders). We measure corporate governance factors as of December 2006 (i.e., pre-crisis) and shareholder losses from the first quarter of 2007 until the earlier of the end of the quarter in which the CEO is replaced, or the end of our sample period (third quarter of 2008). Consistent with our prediction, we find that CEO turnover is more sensitive to shareholder losses for firms with more independent boards, larger institutional ownership, and smaller insider ownership.

[3] See Hall of shame" (*The Economist*, August 7, 2008).

Next, we test our predictions on the relation between corporate governance and risk taking. Specifically, we regress shareholder losses and risk taking on board independence, institutional ownership, and ownership by corporate insiders. We use firms' equity-to-assets ratios, and expected default frequencies (EDF) as measures of risk taking. Consistent with our predictions, we find that board independence and institutional ownership (but not insider ownership) are associated with larger losses during the crisis. In addition, we find that firms with higher institutional ownership have higher expected default risk. However, contrary to our prediction, we find that firms with more independent boards have higher equity-to-assets ratios.

Finally, we examine our predictions on CEO pay by regressing shareholder losses and risk taking on the structure of CEO pay. We measure bonus pay as a CEO's annual bonus scaled by the sum of salary and other annual compensation, and equity-based compensation as the sum of restricted shares, long-term incentive plans (LTIP), and stock option awards scaled by the sum of salary and other annual compensation. Consistent with our predictions, we find that while bonus pay is associated with larger losses during the crisis, and more risk taking before the crisis, equity-based compensation is associated with smaller losses and less risk taking.

Taken together, these results are consistent with pressure from institutional investors for short-term performance and bonus plans (as opposed to long-term incentives) having induced corporate managers to increase risk taking, thereby resulting in larger losses during the crisis period. In addition, while independent directors appear to have been successful in curbing risk taking observable to market participants, they seem to have been unsuccessful in reducing, and appear to even have encouraged, investments in the

types of assets that are the underlying source of the financial crisis (e.g., mortgage-backed securities).

Although not the main focus of our paper, we also examine whether losses during the crisis had negative repercussions for independent board members. Consistent with independent directors being held accountable for the losses, we find that independent directors at firms that experienced larger losses are more likely to leave their boards, in particular when they are responsible for overseeing risk management. Moreover, consistent with institutional investors playing a disciplinary role in director turnover, we find that the director turnover-performance sensitivity is higher for firms with greater institutional ownership.

Our paper adds to the current debate on the regulatory reform of financial institutions and contributes to the literature on international corporate governance in two important ways. First, our study provides a timely investigation of a momentous economic event (Gorton, 2008). To our knowledge, ours is the first study that examines the role of corporate governance and CEO pay structures in the 2007-2008 financial crisis using a global sample. We take a comprehensive view on the role of corporate governance by examining both the disciplining of CEOs during the crisis and risk taking of firms prior to the crisis. In a contemporaneous study, Fahlenbrach and Stulz (2009) focus on the relation between CEO incentives and performance of U.S. banks during the crisis. Beltratti and Stulz (2009) use a sample of 98 banks from 20 countries, but examine only how various governance indices and bank regulation relate to bank performance during the crisis.

Second, our results contribute to the literature on the influence of corporate governance on financial institutions (Laeven and Levine, 2008; Mehran and Rosenberg, 2008) and the importance of market discipline as a complement to regulation (Flannery, 1998; Berger, Davies, and Flannery, 2000; Ashcraft, 2008). Prior studies on risk taking by financial institutions generally focus on only a subset of governance mechanisms and compensation structures examined in our study. For example, Laeven and Levine (2008) find that risk taking by banks is higher in those with large and diversified blockholders. Mehran and Rosenberg (2008) find that CEO stock option grants are associated with lower debt and higher capital ratios but riskier investments. In contrast, we also investigate other key governance and compensation attributes such as board independence, institutional ownership, and the use of bonus compensation.

The remainder of the study proceeds as follows. Section 2 presents our hypotheses on CEO turnover and firm risk taking. Section 3 describes the data. Section 4 reports the main results. Section 5 describes the results on turnover of independent directors. Section 6 concludes and discusses policy implications of our study.

2. Hypotheses

This section discusses our predictions on the role of corporate governance mechanisms in the credit crisis. We first posit our hypothesis on the termination of poorly performing CEOs during the crisis period. Based on prior literature, we expect CEO turnover to be more sensitive to shareholder losses for firms with greater board independence (Weisbach, 1988) and larger institutional ownership (Parrino, Sias and Starks, 2003), but less sensitive to shareholder losses for firms with larger insider ownership (Volpin, 2002). This is because independent boards and institutional investors

should focus on shareholder returns and be more willing to challenge the CEO in light of company losses, and remove the CEO if necessary. Institutional investors can exercise their influence on corporate decisions through direct activism (Gillan and Starks, 2007) or indirect discipline by "voting with their feet" (Parrino, Sias and Starks, 2003). In contrast, insider blockholders likely enjoy large private benefits of control, participate in management, or make top managers more entrenched (LaPorta, Lopez-de-Silanes, and Shleifer, 1999; Denis and McConnell, 2003). For example, Volpin (2002) finds that top management performance turnover sensitivity is the lowest when control is in the hands of one shareholder. Consequently, we test the following hypothesis:

H1 (CEO Turnover)*: CEO turnover is more sensitive to poor performance for firms with more independent boards of directors and larger institutional ownership. CEO turnover is less sensitive to poor performance for firms with greater insider ownership.*

Next, we consider the influence of corporate governance mechanisms on risk taking by financial firms in the period leading up to the crisis. Critics often argue that pressure from boards and investors, in particular institutional investors, induced firms to focus on short-term profitability, and as a result motivated managers to increase their investment in risky assets such as subprime mortgages which subsequently lead to large losses. Bushee (1998) suggest that short-term oriented institutional investors may encourage managers to sacrifice long-term investments (such as R&D) to meet short-term earnings targets. Since shareholders hold a call option on firm assets, companies with more independent boards and higher institutional ownership may be more likely to react to

investor pressure by taking greater risks to increase profits (Jensen and Meckling, 1976).[4] Similarly, John, Saunders and Senbet (2000) suggest that risk taking may be optimal for bank shareholders because of the put option granted to banks by governmental deposit insurance. In contrast, since corporate insiders, such as controlling families, tend to be more risk averse (because they are less diversified by holding a large fraction of their wealth in the firm), firms with larger insider ownership may be less inclined to take large risks.

H2a (Corporate governance and ex-post losses)*: Shareholder losses are larger for firms with more independent boards and greater institutional ownership, and smaller for firms with higher insider ownership.*

H2b (Corporate governance and ex-ante risk taking)*: Risk taking is higher for firms with more independent boards and greater institutional ownership, and lower for firms with higher insider ownership.*

We note that our H2 hypotheses assume that corporate boards yield to investor pressure for short-term profits. One countervailing argument to these hypotheses is that board members, unlike institutional investors, are subject to threats of lawsuits and reputational penalties if firms engage in excessive risk taking.

Finally, we draw on the literature on compensation of bank CEOs. Previous literature has studied the effects of CEO pay on risk taking (Houston and James, 1995), bank leverage (John and Qian, 2003), and bank performance (Hubbard and Palia, 1995). The structure of compensation of CEOs is likely to also play a role on risk taking in our

[4] Citigroup CEO Chuck Prince famously said "When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you've got to get up and dance. We're still dancing." (*Financial Times*, July 9, 2007)

context. Pay packages that rely more on bonus compensation may encourage executives to focus on short-term results and overlook potential long-term losses because bonuses are typically based on annual profit targets and paid in cash. In contrast, a greater use of equity compensation may not lead to greater risk taking because stock options or restricted shares can align incentives of executives with the long-term interest of shareholders. Although some studies argue that stock options increase management's willingness to take risk, Ross (2004) shows that this is generally not the case.

***H3a (Pay structure and ex-post losses)**: Shareholder losses are larger for firms with a greater reliance on bonus pay and smaller for firms with a greater reliance on equity compensation.*

***H3b (Pay structure and ex-ante risk taking)**: Risk taking is higher for firms with a greater reliance on bonus pay and lower for firms with a greater reliance on equity compensation.*

3. Data

3.1 Time line

We conduct our empirical analysis using data from January 2007 to September 2008. We begin our investigation period at the start of 2007 because this is generally regarded as the period when the market first realized the severity of the losses related to subprime mortgages (Ryan, 2008). We end our investigation period in the third quarter of 2008 for three main reasons: (1) The massive government bailouts were initiated from October 2008 onwards, therefore we examine CEO turnover over the prior period in which it is

driven mostly by internal corporate governance mechanisms.[5] (2) In October 2008, changes in the International Financial Reporting Standards (IFRS) allowed financial institutions to avoid recognizing asset writedowns.[6] (3) At the end of the third quarter of 2008, regulators in several countries imposed short-selling bans on the stocks of many financial institutions.

3.2 Sample of financial firms

Our sample consists of 306 publicly-listed financial firms (banks, brokerage firms, and insurance companies) that were publicly listed at the end of December 2006 across 31 countries. We use the following three criteria to compile our sample. First, we require firms to be covered in the *Compustat/CRSP (North America)* or *Compustat Global* databases and have data on total assets, total shareholder's equity, earnings, and stock returns. Second, we limit our sample to firms that are covered by the *BoardEx* database. Third, we restrict our sample to firms from industries that are covered by Bloomberg and with total assets greater than US $10 billion because Bloomberg limits its coverage to firms with cumulative writedowns exceeding US $100 million. Due to its special coverage on the financial crisis, Bloomberg (WDCI menu) collected data on accounting writedowns and new capital raisings during the crisis period.

3.3 Main variables

We now discuss our key variables of interest. Appendix A provides definitions of all variables used in our empirical analysis.

---

[5] For example, the Troubled Asset Relief Program (TARP) was signed in October 2008. In some cases, governments insist on changes in top management as a condition for a company to receive a government bailout. See "RBS chiefs to be forced out under bailout deal" (*Telegraph*, October 8, 2008).

[6] The International Accounting Standards Board (IASB) issued amendments to the use of fair value accounting on financial instruments in October 2008 that allow companies to reclassify financial assets from market value based to historical cost based valuation.

Measuring CEO turnover

We use biographic information on individual executives from *BoardEx* to determine the identity of the CEO for each firm. *BoardEx* contains detailed biographic information on individual executives and board members of approximately 12,000 publicly listed firms in nearly 50 countries and its coverage for international firms is unparalleled by any other data provider. Following DeFond and Hung (2004) and Fernandes, Ferreira, Matos, and Murphy (2008), we use the term "CEO" (Chief Executive Officer) to refer to the top executive of financial institutions, even though firms in some countries tend to use other titles (such as "managing director" or "chairman of the management board"). To ensure that we selected the top executive for each firm, we verified the data in *BoardEx* using annual reports and other company reports obtained from *Mergent Online*.

We code a firm as having experienced CEO turnover if the top executive left the firm during the period January 2007 to December 2008.[7,8] We exclude 21 cases in which the CEO remained at the firm until the firm delisted, because it is not clear whether these observations should be coded as turnover or non-turnover cases. Thus our final sample for the CEO turnover tests consists of 285 firms.

Appendix B provides details on CEO information for the top ten financial firms (in terms of assets) from five sample countries (U.S., U.K., Germany, Switzerland, and France). It shows that six CEOs of the top ten financial firms in the U.S. were replaced during the sample period – namely, the CEOs of Citigroup, AIG, Fannie Mae, Merrill

[7] We extend the period in which we measure CEO replacements to the end of 2008 because there may be a lag between the announcement of accounting writedowns and CEO turnover.

[8] We use executive departures as an indicator of CEO turnover, instead of CEO role changes, because we believe this to be a less ambiguous measure of forced turnover. In fact, 73% of the executives that lost the top positions also left the firm during our measurement period.

Lynch, Freddie Mac, and Wachovia. In contrast, Appendix B shows there is no recorded CEO turnover among the top ten firms in France during this period.

Measuring shareholder losses

A unique feature of our setting is that losses of financial firms are well publicized during the crisis period. We use three variables to capture shareholder losses: (1) cumulative accounting writedowns scaled by total assets, (2) capital raisings, a dummy variable that equals 1 when a firm raised new capital (including both equity and debt securities), and 0 otherwise, and (3) cumulative stock returns. We measure these variables from the first quarter of 2007 until the earlier of the quarter in which the CEO leaves the firm, or the third quarter of 2008. Our data source for accounting writedowns and new capital raisings is the Bloomberg WDCI menu and it covers financial firms, namely banks, brokers, insurance companies, and government sponsored entities (Freddie Mac and Fannie Mae). Bloomberg collects the writedown data from regulatory filings, news articles, and company press releases (such as quarterly earnings announcements). We measure writedowns as negative figures so that the coefficients on this variable in our regressions can be compared to those on stock returns. Data on stock returns are from Compustat Global and CRSP. .

Figure 2 plots the magnitude of accounting writedowns (in US $billions) per quarter for all financial firms covered in Bloomberg. We break down writedowns into three categories: (1) losses related to mortgage-backed securities ("Mortgage-backed securities" – Bloomberg codes CDO, CMBS, MTGE, and SUB), (2) losses related to loan portfolios ("Loan portfolios" - COST), and (3) losses related to investments in other firms

("Investment in other firms" – CORP and OCI).[9] The figure shows a spike in writedowns related to mortgage-backed securities in the fourth quarter of 2007, followed later on by an increase in writedowns related to investment in other firms (such as in Lehman Brothers or in Icelandic banks). It also shows a steady increase in credit losses related to loan portfolios from the second quarter of 2007 to the third quarter of 2008.

Appendix B shows significant shareholder losses for top financial firms from several countries. For example, Citigroup had accounting writedowns totaling -3.6% of its assets (approximately $68 billion) and AIG had writedowns totaling -6.2% of its assets during our sample period.

There are advantages and disadvantages to the use of each of the loss measures. Accounting writedowns are potentially a direct measure of how severe the crisis has impacted the firm, but it is imperfect, because management has discretion over how much it recognizes in a period. Stock returns are a better measure in this respect as it captures the full extent to which the market believes the crisis has impacted shareholders. Unfortunately, stock returns have the disadvantage that these include the expectation of future events (such as government intervention) that may disguise the true cost of the crisis. Capital raisings are a good proxy for the extent of losses, in that the firm had a need to raise distressed capital. However, for these security issues to be successful new

[9] The total magnitude of losses in all firms covered by Bloomberg is US $ 1,073 billion for the period from the first quarter of 2007 to the third quarter of 2008. Bloomberg classifies writedowns into various groups based on company disclosure. The top thirteen groups (in terms of total magnitude of writedowns) are: *ABS* - Non-mortgage asset-backed securities, *CDO* - Collateralized debt obligations, *CDS* - Credit default swaps, *CMBS* - Commercial mortgage-backed securities, *CORP* - Corporate investment, *COST* - Credit costs/ loan charge offs, *LEV* - leveraged loans, *MTGE* - Mortgage-related securities, *MONO* - Monolines, *OCI* - Revaluation reserve/ other comprehensive income, *RES* - Uncategorized residential mortgage asset writedowns, *SUB* - Subprime residential mortgage backed securities, and *TRA* - Trading losses. In Figure 2, under "Mortgage-backed Securities" we only include the four major groups that are likely to be most directly related to mortgage-backed securities (CDO, CMBS, MTGE, and SUB). However, Figure 2 is a conservative estimate of losses related to mortgage-backed securities because other groups (such as *CDS, RES,* and *TRA*) can also include writedowns related to mortgage-backed securities.

investors need to have confidence in a firm and therefore only firms with good prospects will successfully raise new capital. Consequently, capital raisings could be a sign of limited (but not insurmountable) losses. Given the pros and cons of each measure we conduct our analysis using all three measures.

Measuring ex-ante risk taking

As a measure of ex-ante risk taking, we use a firm's equity-to-assets ratio, measured as book value of equity divided by total assets as of December 2006 (i.e., prior to the crisis period). For banks, the equity-to-assets ratio represents the capital adequacy ratio, which is regulated and has been used by Laeven and Levine (2008) and others to capture banks' risk taking. The equity-to-assets ratio, a measure inversely related to leverage, is a key issue in the current debate on regulatory reform of financial institutions. The ratio is also relatively easy for independent directors and outside investors to monitor, which makes it well suited for testing our hypotheses related to risk taking. In contrast, it is much more difficult for external monitors to assess the actual risk associated with different types of assets the firm invests in (e.g., subprime mortgage versus commercial loans) or off-balance sheet items.[10]

Our second measure of risk taking is the estimate of default probability (Expected Default Frequency or EDF) produced by Moody's KMV CreditMonitor implementation of Merton's (1974) structural model. This measure uses equity market information to estimate the probability that a firm will default within one year, which in Moody's KMV

[10] The equity-to-assets ratio may not reflect real business risk. Kashyap, Rajan, and Stein (2008) illustrate this argument with the case of traders that have incentives to write insurance on infrequent events, taking on what is termed "tail" risk, and treating the insurance premium as income, but not setting aside reserves for eventual payouts.

scale by construction ranges from 0.01% to 35%.[11] We measure EDF as of December 2006 and, following Covitz and Downing (2007), we use the log of EDF in our analysis. EDF is a forward looking measure but it is subject to the criticism that the market may have underestimated the extent of mortgage and subprime risks taken by financial firms before the crisis as evidenced by the sharp market correction that took place in 2007-2008.

Measuring corporate governance

We use three variables to capture corporate governance: (1) board independence, (2) institutional ownership, and (3) insider ownership. We measure these corporate governance mechanisms as of December 2006 (i.e., prior to the onset of the crisis).

We focus on board independence because this is one of the most extensively studied board characteristics (Denis and McConnell, 2002).[12] We define *Board independence* as the percentage of independent directors. Using *BoardEx* data, we classify directors as "independent" if they are non-executive directors (i.e. not full-time employees).

In addition, we focus on ownership structure because there is significant variation across and within countries (La Porta, Lopez-de-Silanes, and Shleifer, 1999). We measure *Institutional ownership* as the percentage of shares held by institutional money managers (e.g. mutual funds, pension plans, and bank trusts) using *FactSet/Lionshares* (Ferreira and Matos, 2008). We measure *Insider ownership* as the percentage of "closely held" shares in the hands of shareholders who hold over 5% of shares using

[11] We thank Shisheng Qu at Moody's KMV for providing us the EDF data.

[12] While board size is another commonly studied board characteristic, we do not focus on this measure because board sizes differ considerably for regulatory reasons around the world. For example, board sizes are generally larger in Germany because firms are required to have a two-tiered board structure.

Datastream/Worldscope (Dahlquist, Pinkowitz, Stulz, and Williamson, 2003). Unfortunately, the data do not isolate equity ownership by executives or directors.

Appendix C provides examples of the corporate governance measures for top financial firms for five selected countries. There is significant variation in corporate governance among financial firms around the world. For example, Citigroup has mostly independent directors on its board (88% board independence) and is largely owned by institutional investors (84% institutional ownership). Crédit Agricole has a more independent board (96% board independence) but is largely owned by insiders (55% insider ownership).

Measuring CEO compensation structure

We examine the structure of compensation for the top executive (CEO) in each financial firm in our sample. We gather information on compensation structure for fiscal year 2006 from SEC filings for U.S. firms and *BoardEx* for non-U.S. firms. *BoardEx* provides detailed compensation data – including salaries, bonuses, payouts from long-term incentives plans, and option grants – for top executives in companies where such data are publicly disclosed. We supplement these data by manual collection from the annual reports as used in Fernandes, Ferreira, Matos, and Murphy (2008).

We measure CEO compensation structure as the relative importance of incentives versus fixed pay in a CEO's pay package. We define *Total incentives* as the ratio of the sum of annual bonus and equity grants (options, LTIP, and restricted shares) divided by the sum of salary and other annual compensation (e.g., pension benefits). We scale incentive pay by salary and other annual compensation because total compensation is not disclosed in many countries.

We then use two variables to capture the type of incentives: (1) *Bonus*, defined as bonus scaled by the sum of salary and other annual compensation,[13] and (2) *Equity compensation*, defined as the sum of options, long-term incentive plans (LTIP), and restricted shares scaled by the sum of salary and other annual compensation.[14]

Appendix D provides examples of CEO compensation structures for the top financial firms in selected countries. It shows that bonus pay constitutes a significant portion of CEO compensation for many large financial firms. For example, the 2006 bonus for Citigroup's CEO (Chuck Prince III) is nine times larger than the sum of his salary and other compensation, and is larger than his equity grants in that year.

3.4 Summary statistics

Table 1 presents summary descriptive statistics by country. Panel A of Table 1 discloses the number of financial firms in our sample by geographic region. It shows that the sample of 306 firms is relatively balanced between U.S. (125) and European (137) firms, and also reports a few firms from other regions. In addition, the panel reports the frequency of CEO and director turnover, as well as average shareholder losses during the crisis period for our full sample. It shows that approximately 24% of our sample firms experienced CEO turnover and 24% of the directors in our sample left their firms. It also reports that both U.S. and European firms were significantly affected by accounting writedowns, although the average losses were substantially higher in the U.S. (at 4% of

[13] In 2006, executive compensation disclosures changed for U.S. firms. Since the new disclosure rule does not require firms to disclose annual cash bonuses in a separate column of the executive compensation table, bonuses in 2006 data can include deferred compensation such as restricted shares, and long-term incentive plan payouts. To ensure that our bonus variable captures annual cash incentives (as is the case for most international firms), we examine the footnotes to the compensation tables for U.S. firms and classify bonus payouts in the form of deferred compensation (e.g., restricted shares) as equity compensation.

[14] Similar to stock options and restricted shares, LTIP plans are long-term oriented regardless of whether the payout is in cash or stock. Thus, we do not make a distinction between LTIP plans that pay out in cash and stocks, as in Fernandes, Ferreira, Matos, and Murphy (2008).

assets) than in Europe (only 1% of assets, on average). In addition, the panel shows that firms in both regions had to resort to capital raisings. Finally, it shows a large decrease in share prices affected financial firms in the U.S. (-32%) and Europe (-33%).

Panel B of Table 1 presents sample averages of the governance and compensation variables per country. Consistent with Adams and Mehran (2003) and Adams (2009), we find that the percentage of independent directors in U.S. financial firms is high (85%) relative to other studies that have typically focused on manufacturing firms. In Europe, board independence is generally lower. The panel also shows that while U.S. and Canadian firms tend to have high institutional ownership and low insider ownership, continental European firms tend to have low institutional ownership and high insider ownership. In terms of CEO compensation, Panel B shows that CEO compensation in the U.S. is much more tilted towards incentive pay than in other countries.

Panel A of Table 2 shows summary statistics for variables used in our main analysis. Panel B of Table 2 reports the correlation matrix. The panel shows that our three proxies of shareholder losses are all significantly correlated with each other. For example, stock returns are positively associated with accounting writedowns and negatively associated with the need to raise capital during the crisis period. Panel C of Table 2 provides univariate tests of differences in average shareholder losses between financial firms that experienced CEO turnover and those that did not. Although there is no difference in average stock returns, firms with CEO turnover have significantly higher magnitudes of accounting writedowns and more frequent capital raising activities than firms without CEO turnover. This finding is consistent with prior literature that finds an inverse relation

between performance and CEO turnover (Barro and Barro, 1990; Houston and James, 1995; Hubbard and Palia, 1995).

4. Main analysis

4.1 Corporate governance mechanisms and the termination of poorly performing CEOs during the crisis period

As shown in Figure 1, there was a remarkable increase in CEO turnover for financial firms during the crisis period. To test our hypothesis on CEO turnover (H1), we examine the effect of corporate governance on CEO turnover-performance sensitivities. Following Weisbach (1988) and Lel and Miller (2008), we use a logit model regressing CEO turnover on shareholder losses, corporate governance, and a term interacting shareholder losses and corporate governance. Specifically, we run the following logit regression:

$$\begin{aligned} \textit{CEO turnover} = {} & \alpha_0 + \beta_1 (\textit{Shareholder losses}) + \beta_2 (\textit{Corporate governance}) + \\ & \beta_3 (\textit{Shareholder losses} * \textit{Corporate governance}) + \\ & \beta_4 (\textit{Age dummy}) + \beta_5 (\textit{Firm size}) + \varepsilon \end{aligned} \qquad (1)$$

The dependent variable is a binary variable equal to 1 if the CEO left the firm from January 2007 to December 2008 (i.e. during the crisis period). We use three variables to proxy for shareholder losses: cumulative accounting writedowns, capital raisings, and cumulative stock returns. These are all measured from the first quarter of 2007 until the earlier of the quarter of the CEO's departure or the third quarter of 2008 (the end of the sample period).[15] We measure the corporate governance factors as of December 2006, i.e. just prior to the start of our sample period. We include controls for CEO age (age

[15] We use a different accumulation window for shareholder losses for each firm with CEO turnover because using the same accumulation window across all firms (from January 2007 to September 2008) would bias our results towards finding support for the prediction that corporate governance helps discipline poorly performing CEOs. This is because incoming CEOs are likely to be more aggressive with recognizing writedowns, right after they assume their new position.

dummy equal to one when the executive is 60 years and older, and zero otherwise) and firm size (natural log of total assets). In addition, we include dummy variables indicating country and industry membership (3-digit SIC) to ensure that our results are not driven by unobservable country and industry fixed effects. Finally, we use robust standard errors clustered by country in all our regression specifications.

Our main variables of interest are the interactions between shareholder losses and corporate governance. Because of the problems with interpreting interaction terms in non-linear models described by Ai and Norton (2003), we compute the corrected marginal effect for every observation and then report the average interactive effect and its significance.

Table 3 presents the results on the CEO turnover-performance analysis. Columns (1)-(3) show the baseline regression without interaction terms between shareholder losses and the governance factor. The results show that out of our three shareholder loss measures only the writedown measure is associated with an increased probability of CEO turnover. This suggests that accounting writedowns were linked to CEO dismissals irrespective of the corporate governance mechanisms in place.

Columns (4)-(6) show the regression models including interaction terms between shareholder losses and board independence. For the sake of clarity, we include the predicted signs of the coefficients on the interaction variables according to the H1 hypothesis. The average interactive effects between shareholder losses and board independence in columns (5) and (6) are significant and in the predicted direction, suggesting that more outsider-dominated boards fulfilled their duty of replacing

management for poor performance as measured by the need to raise external capital and the loss in market value during the crisis.

We next examine the role of ownership. Columns (7)-(9) of Table 3 show the regression models including interaction terms between shareholder losses and institutional ownership, whereas columns (10)-(12) show the models with interaction terms between shareholder losses and insider ownership. The average interactive effect is negative and significant in column (9), suggesting that CEO turnover is more sensitive to negative stock returns for firms with larger institutional ownership. In contrast, the average interactive effect is positive and significant in column (10), suggesting that CEO turnover is less sensitive to poor performance for firms with larger insider ownership.

Overall, our results are consistent with hypothesis H1 that predicts that corporate boards and institutional ownership, but not insider ownership, served as a disciplinary mechanism in terminating poorly performing CEOs during the crisis period. These findings are in line with Weisbach (1988) for the U.S., Dahya, McConnell, and Travlos (2002) for the U.K., and Renneboog (2000) for Belgium. However, they differ from other studies on CEO turnover for the U.K. (Franks, Mayer, and Renneboog, 2001) and Japan (Kang and Shivdasani, 1995).

4.2 Governance factors and the level of ex-post losses and ex-ante risk taking

We test our H2 hypotheses on corporate governance and risk taking by first examining whether shareholder losses during the crisis are related to corporate governance mechanisms. If boards or investors have put pressure on firms to focus on short-term profits and as a result encouraged managers to increase investment in risky

assets, we expect these factors to be associated with larger shareholder losses during the crisis. Our regression model is as follows:

$$\textit{Ex-post shareholder losses} = \alpha_0 + \beta_1(\textit{Corporate governance}) + \beta_2(\textit{Firm size}) + \varepsilon \qquad (2)$$

We use two proxies for shareholder losses: (1) accounting writedowns, and (2) stock returns.[16] In contrast to our CEO turnover tests, we now measure cumulative shareholder losses from the first quarter of 2007 until the third quarter of 2008 for all firms in our sample. As in our previous analysis, we control for firm size and include industry and country dummies.

Panel A of Table 4 shows the results of regressing ex-post losses on the corporate governance factors. We find that board independence and institutional ownership are associated with larger shareholder losses during the crisis, for both in terms of larger accounting writedowns (column (1)) and for institutional investors also in terms of stock returns (column (5)). This evidence is consistent with hypothesis H2a that pressure from outside directors and investors has encouraged managers to make larger investments in risky assets that have lead to greater losses during the crisis.

Next, we examine the effect of corporate governance on the risk exposure of financial firms before the crisis (ex-ante risk taking). We test whether independent directors and outside investors curbed or increased risk taking by estimating the following model:

$$\textit{Ex-ante risk taking} = \alpha_0 + \beta_1(\textit{Corporate governance}) + \beta_2(\textit{Firm size}) + \varepsilon \qquad (3)$$

[16] We do not include capital raisings as a measure of shareholder losses in this test because the effect is ambiguous. While the need to raise capital is an indication of significant shareholder losses during the crisis period, a significantly positive coefficient on corporate governance can also be interpreted as boards or investors providing a monitoring role by pushing firms to line up financing to prepare for the credit crunch.

We use two measures to capture ex-ante risk taking: equity-to-assets ratio (which corresponds to capital adequacy ratios for banks) and expected default frequency (probability the firm will default within one year) as measured at the end of 2006. We control for firm size by including the log of total assets. As in our previous analysis on CEO turnover, we include country and industry dummies.

Panel B of Table 4 presents the results of regressing ex-ante risk taking on the corporate governance factors. It shows that firms with greater institutional ownership are associated with higher default risk (column (5)). However, inconsistent with our prediction, column (1) of this panel shows that firms with more independent boards are associated with higher equity-to-assets ratios (i.e., lower leverage). This finding suggests that directors, likely due to the threat of lawsuits and reputational penalties, curbed the type of risk taking that was observable to market participants.

Overall, the results suggest that outside board members and investors failed, at least partially, to curb risk taking before the crisis.

4.3 CEO pay structure and the level of ex-post losses and ex-ante risk taking

Finally, we examine the role of CEO pay, a crucial governance mechanism. We test the H3 hypotheses on whether ex-post shareholder losses and ex-ante risk taking are related to the incentive structure of CEOs' compensation packages by estimating the following models:

$$\textit{Ex-post shareholder losses} = \alpha_0 + \beta_1(\textit{Pay structure}) + \beta_2(\textit{Firm size}) + \varepsilon \qquad (4)$$

$$\textit{Ex-ante risk taking} = \alpha_0 + \beta_1(\textit{Pay structure}) + \beta_2(\textit{Firm size}) + \varepsilon \qquad (5)$$

We measure pay structure as total incentive pay, as well as its components: bonus (cash awards based on yearly performance) and equity compensation (restricted shares, LTIP and stock option awards). All variables are measured using 2006 data. We also control for firm size and include country and industry dummies.

Panel A of Table 4 reports the results of ex-post shareholder losses regressions. Column (2) shows that firms with CEO pay packages that rely more on incentive pay experienced smaller accounting writedowns. When we split incentives into bonuses and equity compensation, we find that while equity compensation is associated with smaller writedowns and higher stock returns, bonuses are associated with lower stock returns (columns (3) and (7)).

Panel B of Table 4 reports the results of ex-ante risk taking regressions. Columns (3) and (7) show that CEO compensation structures that focus on bonuses, as opposed to equity incentives, are associated with more risk taking (low equity-to-assets ratios and high expected default risk) before the onset of the crisis.

We note that we draw our main conclusion on the effect of pay structure on risk taking by examining this factor separately (that is, without including corporate boards and ownership). This is because CEO compensation is a key corporate control mechanism set by boards and we are interested in how pay structure is associated with risk taking, not its incremental effect conditional on board composition. For completeness of the analysis, Table 4 also reports a full model including both our corporate governance and pay structure measures as independent variables. The results on pay structure are similar, except that the coefficient on bonus pay becomes insignificant in Panel B of Table 4 (ex-ante risk taking) after including board independence and ownership structure.

4.4 Additional analyses

One underlying assumption of hypotheses H2 and H3 is that pressure to increase risk taking was driven by efforts to maximize short-term performance. To provide corroborating evidence on this assumption, we investigate whether there is indeed an association between ex-ante performance and the governance mechanisms over the period before the crisis. Specifically, we regress average *ROA* and *Cumulative stock returns,* measured over 2004-2006, on our corporate governance measures and control variables (firm size and country and industry fixed effects).[17] The analysis (results untabulated) finds that board independence and institutional ownership are positively associated with average ROA (two-tailed p-value < 5%). The analysis also finds that board independence is positively associated with cumulative stock returns before the crisis (two-tailed p-value < 5%).

In addition, we explore the differences between U.S. and non-U.S. firms because the 2007-2008 financial crisis originated in the U.S. and U.S. firms were often accused of excessive risk taking, despite that the U.S. was often perceived as having strong governance standards due to its legal institutions and recent regulatory changes such as the Sarbanes-Oxley Act of 2002. To test how U.S. firms differ from non-U.S. firms, we rerun our analyses after replacing the country-fixed effect with a dummy variable that equals 1 for U.S. firms, and equals 0 otherwise. For the CEO turnover test, our analysis (results untabulated) shows that the average interaction effect is positive and significant for the interaction of the U.S. dummy with capital raising and negative and significant for the interaction of the U.S. dummy with stock returns, suggesting that U.S. CEOs were

[17] We do not regress ex-ante performance on pay structure because pay structure can be mechanically related to ex-ante performance such as ROA due to the design of compensation contracts.

more likely to be replaced for poor performance than their foreign counterparts. For the tests on risk taking, our analysis finds that U.S. firms have significantly higher ex-post losses in terms of writedowns but significantly lower risk taking before the crisis (both in terms of higher equity-to-assets ratio and lower expected default frequency). This finding suggests that although U.S. firms suffered larger losses during the crisis, they did not seem to take more risk before the crisis. [18]

5. Analysis on turnover of independent directors

This section examines whether losses during the crisis had negative repercussions for outside board members. The large losses at financial firms could have been perceived by investors as being caused by a lack of oversight by directors, and therefore could have repercussions for these directors, especially if they were responsible for overseeing risk management.[19] While some prior studies find that director turnover increases around corporate failure events (Gilson, 1990, Srinivasan, 2005), some do not find such an association (Agrawal, Jaffe, and Karpoff, 1999). If investors attribute the loss to a lack of oversight from outside directors, we expect that outside directors are more likely to leave boards of firms that experienced larger losses during the crisis, especially if they oversaw risk management. However, if investors attribute the losses to bad managerial decisions and view the role of directors as confined to replacing poorly performing CEOs, we do not expect such an association. Thus, it is an empirical question whether director turnover is related to the losses.

[18] Our further analysis suggests that this finding is partially driven by cross-country variation in legal enforcement. In particular, we find that U.S. firms do not exhibit lower expected default if we include a country-level institutional measure on private enforcement (as captured by the disclosure requirements and liability standard in La Porta, Lopez-de-Silanes, and Shleifer, 2006).

[19] The SEC recently announced plans to investigate the performance of boards of financial firms leading up to the crisis ("SEC to Examine Board's Role in Financial Crisis", *Washington Post* February 20, 2009).

For director turnover, we use the data from *BoardEx* on board composition for the 306 financial firms in our sample. We concentrate on turnover of independent directors (i.e. not full-time employees) because their primary function is to discipline and monitor managers.

We run a logit model of independent board member turnover on shareholder losses, ownership structure and risk committee membership, and focus again on the interaction effect.[20] We estimate the following logit model:

$$\begin{aligned} \textit{Independent director turnover} = {} & \alpha_0 + \beta_1 (\textit{Shareholder losses}) + \\ & \beta_2 (\textit{Ownership structure}) + \beta_3 (\textit{Risk committee member}) + \\ & \beta_4 (\textit{Shareholder losses} * \textit{Ownership structure/Risk committee member}) + \\ & \beta_5 (\textit{Age dummy 1}) + \beta_6 (\textit{Age dummy 2}) + \beta_7 (\textit{Firm size}) + \varepsilon \end{aligned} \quad (6)$$

The dependent variable is a dummy variable that equals 1 if an independent board member left the firm from January 2007 to December 2008.[21] Risk committee member is a dummy variable that equals 1 if a board member was a member of a board committee with a name that is suggestive of a responsibility related to the monitoring of risk (e.g., risk committee, investment committee).[22] We control for the age of directors (with a dummy variable that equals 1 if the age of a director is between 65-70 years old, and another dummy variable that equals 1 if the age of a director is greater than 70), firm size, and include country and industry dummies.

Table 5 presents the results on director turnover. Columns (1) to (3) show that independent directors are more likely to leave firms that experienced large shareholder

[20] Some members of risk committees were among first board members to be replaced during the crisis. For example, Citigroup replaced its audit and risk committee chair following a shareholder campaign ("Citigroup Names New Board Committee Chairs", *RiskMetrics Group*, July 25, 2008).

[21] Similar to our CEO turnover analysis, we drop observations when directors remain on the board until their firm delists.

[22] We include committees with names containing words such as "risk" and "investment," but not "audit," because audit committees' primary responsibility is to oversee financial reporting.

losses. In addition, we find that director turnover is more sensitive to shareholder losses, as captured by stock returns, for firms with higher institutional ownership (column (6)) and less insider ownership (column (9)). These findings are consistent with institutional investors, as opposed to insiders, holding directors accountable for poor performance during the crisis. Finally, column (10) shows that the average interactive effect of *Member of risk committee* and writedowns is significantly negative, consistent with risk committee members being held more accountable for the losses.

6. Conclusions and policy implications

Our paper brings to light the importance of corporate governance in the financial crisis. We use a comprehensive dataset on 306 publicly listed financial firms from 31 countries that were at the center of the crisis. Our results show that while stronger external monitoring by boards and investors is associated with stronger disciplining of executives after the crisis began, it has unintended consequences on risk taking before the crisis. Specifically, we find that while independent boards and institutional shareholders are associated with greater CEO turnover-performance sensitivity, they are also associated with larger losses. Consistent with outside pressure for short-term profitability encouraging managers to take on more risk, which eventually lead to the losses, we find that firms with higher institutional ownership took more risk and experienced higher performance before the crisis. In addition, while we do not find evidence for firms with more independent boards taking more risk of the type that was readily observable to market participants before the crisis, we do find that these firms experienced higher performance before the crisis. Moreover, when we examine the role of CEO compensation we find further evidence for this short-term orientation. In particular, we

find that CEO compensation packages that rely more on annual bonuses, and less on long-term equity-based compensation are associated with greater losses during the crisis and higher risk taking before the crisis. Overall, our findings are consistent with a deficiency in corporate governance mechanisms having played a significant role in the financial crisis.

Our findings have several implications for the current policy debate on reforming the financial services industry. In terms of board composition, our results suggest that external monitoring by independent board members is important for disciplining top management for poor performance during the crisis. Therefore, it is important for regulators to keep this mechanism in place, as these "gate keepers" stepped in before governments intervened. However, our results suggest that the recent focus on board independence may have reduced the level of expertise on corporate boards which has made it difficult for the board to adequately monitor the risks that financial firms have taken. Our evidence suggests that independent directors seem to have pushed for higher performance and curbed risk taking as observable to market participants before the crisis. Ultimately, however, this external pressure has encouraged firms to invest in assets (e.g., mortgage-backed securities) that, though boosting performance in the short-term, produced significant losses during the crisis. Similarly, our findings suggest that pressure from institutional owners induced managers to focus on short-term performance, which resulted in an increase in risk taking that materialized into losses during the crisis. Naturally, our findings have to be interpreted with caution because the optimal level of risk taking is unknown and it may have been difficult for executives, boards, and investors to predict the collapse of the housing market.

In terms of CEO compensation, our findings highlight that incentive compensation per se is not associated with losses in financial firms. In particular, we find that while annual bonuses are associated with larger losses and increased risk taking, long-term equity-based compensation is associated with smaller losses and less risk taking. This is consistent with some views criticizing the use of bonuses (e.g., Financial Services Authority, 2009), but not consistent with other views suggesting that equity-based incentive compensation plans also lead to higher risk taking (Bebchuk and Spamann, 2009). Our findings suggest that restructuring CEO bonuses such that some performance pay is held back until the full consequences of an investment strategy play out may induce managers to focus more on the long-term performance of their firms.

References

Ai, C. and E. Norton, 2003. Interaction Terms in Logit and Probit Models. *Economics Letters* 80, 123-129

Adams, R., 2009. Governance and the Financial Crisis. ECGI Working Paper nr 248

Adams, R. and H. Mehran. 2003. Is Corporate Governance Different for Bank Holding Companies? FRBNY Economic Policy Review.

Agrawal, A., J. Jaffe, and J. Karpoff, 1999. Management Turnover and Governance Changes Following the Revelation of Fraud. *Journal of Law and Economics* 17, 309–342.

Ashcraft, A., 2008. Does the Market Discipline Banks? New Evidence from Regulatory Capital Mix. *Journal of Financial Intermediation* forthcoming.

Barro, J. R. and R. J. Barro, 1990. Pay, Performance, and Turnover of Bank CEOs. *Journal of Labor Economics* 8, 448-481.

Bebchuk, L. and H. Spamann, 2009, Regulating Banker's Pay. Harvard John M. Olin Discussion Paper Series.

Beltratti, A. and R. Stulz, 2009. Why Did Some Banks Perform Better During the Credit Crisis? A Cross-Country Study of the Impact of Governance and Regulation. Working paper, Bocconi University and The Ohio State University.

Berger, A., S. Davies, and M. Flannery, 2000. Comparing Market and Regulatory Assessments of Bank Performance: Who Knows What When? *Journal of Money, Credit and Banking* 32, 641–667.

Bushee, B., 1998. The Influence of Institutional Investors on Myopic R&D Investment Behavior. *The Accounting Review* 73, 303-333.

Covitz, D. and C. Downing, 2007. Liquidity or Credit Risk? The Determinants of Very Short-term Corporate Yield Spreads. *The Journal of Finance* 62, 2303-2328.

Dahlquist, M., L. Pinkowitz, R. Stulz, and R. Williamson, 2003. Corporate Governance and the Home Bias. *Journal of Financial and Quantitative Analysis* 38, 87–110.

Dahya, J., J.J. McConnell, and N. Travlos, 2002. The Cadbury Committee, Corporate Performance, and Top Management Turnover. *The Journal of Finance* 57, 461-483.

DeFond, M.L. and M. Hung, 2004. Investor Protection and Corporate Governance: Evidence from Worldwide CEO Turnover. *Journal of Accounting Research* 42, 269-312.

Demirgüç-Kunt, A., E. Detragiache, and T. Tressel, 2008. Banking on the Principles. Compliance with Basel Core Principles and Bank Soundness. *Journal of Financial Intermediation* 17, 511–542.

Denis, D. and J.J. McConnell, 2003. International Corporate Governance: A Survey. *Journal of Financial and Quantitative Analysis* 38, 1–36.

Fahlenbrach, R. and R. Stulz, 2009. Bank CEO Incentives and the Credit Crisis, OSU Fisher College of Business Working Paper 2009-03-113.

Fernandes, N., M. Ferreira, P. Matos, and K. J. Murphy, 2008. The Pay Divide: (Why) are US Top Executives Paid More? Working paper, University of Southern California.

Ferreira, M. and P. Matos, 2008. The Colors of Investors' Money: The Role of Institutional Investors Around the World. *Journal of Financial Economics* 88, 499-533.

Financial Services Authority, 2009. Reforming Remuneration Practices in Financial Services. Consultation Paper 09/10.

Flannery, M., 1998. Using Market Information in Prudential Bank Supervision: A Review of the U.S. Empirical Evidence. *Journal of Money, Credit, and Banking* 30, 273–305.

Franks, J.R., C. Mayer, and L. Renneboog, 2001. Who Disciplines Management in Poorly Performing Companies? *Journal of Financial Intermediation* 10, 209- 248.

Gillan, S. and L. Starks, 2007. The Evolution of Shareholder Activism in the United States. *Journal of Applied Corporate Finance* 19, 55-73.

Gilson, S., 1990. Bankruptcy, Boards, Banks, and Bondholders: Evidence on Changes in Corporate Ownership and Control When Firms Default, *Journal of Financial Economics* 27, 355–388.

Gorton, 2008. The Subprime Panic. Working paper, Yale School of Management and NBER.

Holderness, C., 2002. A Survey of Blockholders and Corporate Control. *Economic Policy Review* 9, 51-63.

Houston, J. and C. James, 1995. CEO Compensation and Bank Risk: Is Compensation in Banking Structured to Promote Risk Taking? *Journal of Monetary Economics* 36, 405-431.

Hubbard, R. G. and D. Palia, 1995. Executive Pay and Performance Evidence from the U.S. Banking Industry. *Journal of Financial Economics* 39, 105-130.

Jensen, M. and W. Meckling, 1976. Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure. *Journal of Financial Economics* 3, 305-360.

John, K, A. Saunders, and L. Senbet, 2000. A Theory of Bank Regulation and Management Compensation. *Review of Financial Studies* 13, 95-125.

John, K. and Y. Qian, 2003. Incentive Features in CEO Compensation in the Banking Industry. Federal Reserve Bank of New York Economic Policy Review 9, 109-121

Kang, J. and A. Shivdasani, 1995. Firm Performance, Corporate Governance, and Top Executive Turnover in Japan. *Journal of Financial Economics* 38, 29-58.

Kashyap, A., R. Rajan, and J. Stein, 2008. Rethinking Capital Regulation. Working paper, University of Chicago.

Laeven, L. and R. Levine, 2008. Corporate Governance, Regulation, and Bank Risk Taking. *Journal of Financial Economics*, forthcoming.

LaPorta, R., F. Lopez-de-Silanes, and A. Shleifer, 1999. Corporate Ownership around the World. *The Journal of Finance* 54, 471-517

LaPorta, R., F. Lopez-de-Silanes, and A. Shleifer, 2006. What Works in Securities Laws? *The Journal of Finance* 61, 1-32.

Lel, U. and D. Miller, 2008. International Cross-listing, Firm Performance and Top Management Turnover: A Test of the Bonding Hypothesis. *The Journal of Finance* 63, 1897 - 1937

Mehran, H. and J. Rosenberg, 2008. The Effect of CEO Stock Options on Bank Investment Choice, Borrowing, and Capital. Working paper, Federal Reserve Bank of New York.

Merton, R., 1974. On the Pricing of Corporate Debt: The Risk Structure of Interest Rates. *The Journal of Finance* 29, 449-470.

Parrino, R., R. Sias, and L. Starks, 2003. Voting with Their Feet: Institutional Ownership Changes around Forced CEO Turnover. *Journal of Financial Economics* 68, 3–46

Renneboog, L., 2000. Ownership, Managerial Control and the Corporate Governance of Companies Listed on the Brussels Stock Exchange. *Journal of Banking and Finance* 24, 1959-1995.

Ross, S., 2004. Compensation, Incentives, and the Duality of Risk Aversion and Riskiness. *The Journal of Finance* 59, 207-225.

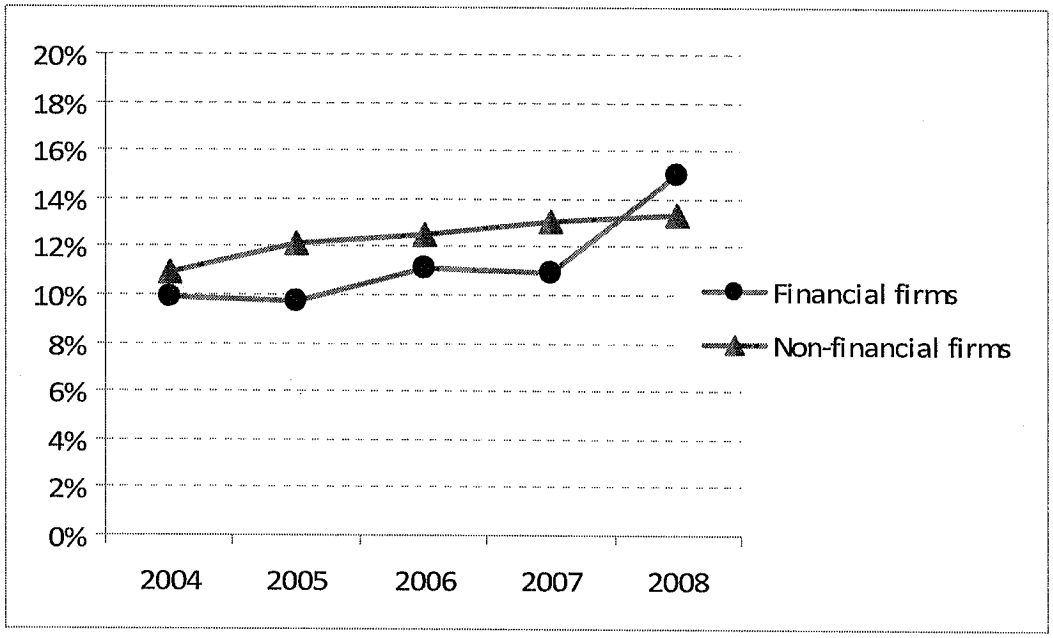
Ryan, S., 2008. Accounting in and for the Subprime Crisis. *The Accounting Review* 83, 1605–1638.

Srinivasan, S., 2005. Consequences of Financial Reporting Failure for Outside Directors: Evidence from Accounting Restatements and Audit Committee Members. *Journal of Accounting Research* 43, 291-334.

Volpin, P., 2002. Governance with Poor Investor Protection: Evidence from Top Executive Turnover in Italy. *Journal of Financial Economics* 64, 61–91.

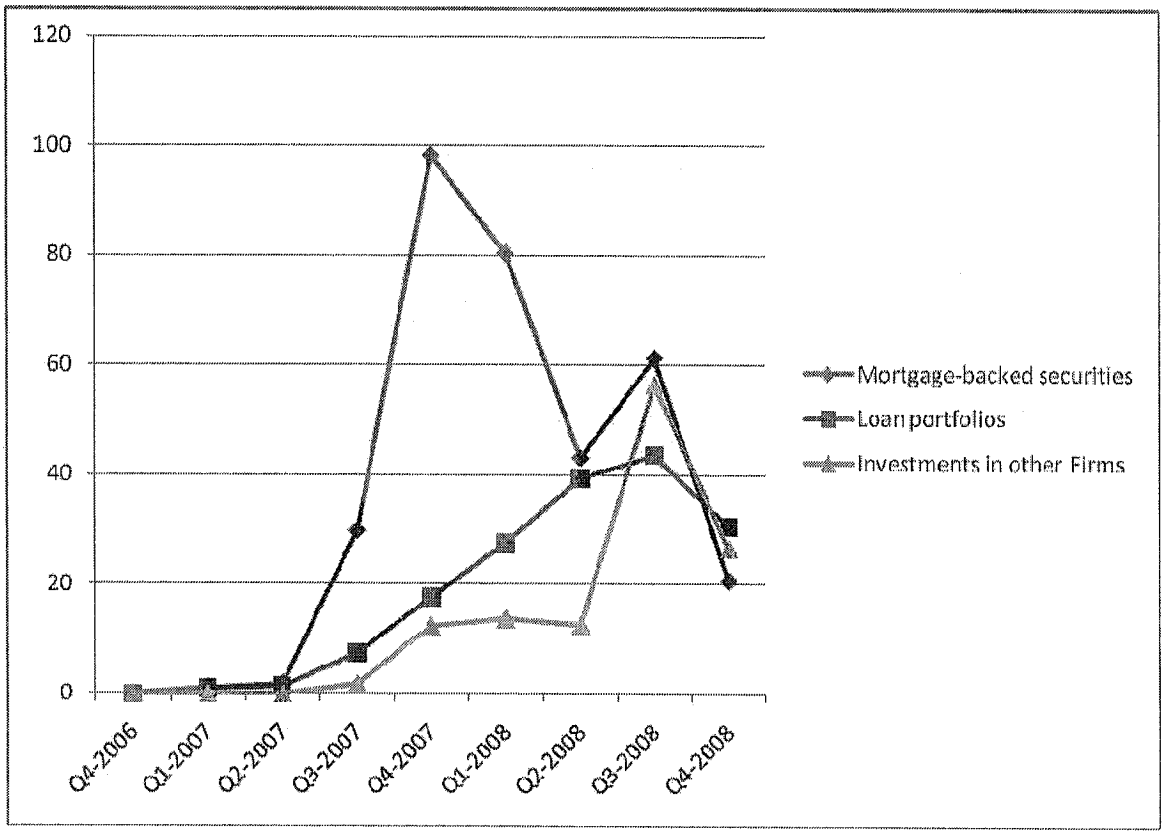
Weisbach, M., 1988. Outside Directors and CEO Turnover. *Journal of Financial Economics* 20, 431-460.

Figure 1
CEO turnover rates for financial versus non-financial firms from 2004-2008



This figure presents CEO turnover rates for financial and non-financial firms worldwide, based on data from all firms in *BoardEx* with market capitalizations greater than US $100 million. Financial firms are defined as in our main sample. We classify a firm as having experienced turnover during a year when its top executive at the end of the year is different from the previous year.

Figure 2
Magnitudes of accounting writedowns per quarter during the 2007-08 crisis period



This figure plots the magnitudes of accounting writedowns (in US $billion) per quarter for all financial firms covered in Bloomberg by three categories: (1) losses associated with mortgage-backed securities ("CDO/CMBS/MTGE/SUB"), (2) losses related to loan portfolios ("COST"), and (3) losses related to investments in other firms ("CORP/OCI").

Table 1
Summary descriptive statistics by country
This table provides summary statistics per country on our sample of 306 financial firms. Panel A shows the frequency of CEO and director turnover, as well as average measures of shareholder losses during the crisis period. Panel B presents averages per country for our variables of interest in terms of governance and CEO pay structure. See Appendix A for variable definitions.
Panel A: Frequency of CEO turnover, director turnover and shareholder losses (by country)

Region	Country	N of firms	% CEO turnover [Q1/2007-Q4/2008]	% Director turnover [Q1/2007-Q4/2008]	N of writedowns [Q1/2007-Q3/2008]	Avg writedown [Q1/2007-Q3/2008]	N of capital raising [Q1/2007-Q3/2008]	Avg stock return [Q1/2007-Q3/2008]
America	United States	125	25%	19%	50	-4%	26	-32%
	Canada	13	8%	11%	7	-1%	3	0%
	Other America	9	13%	25%	4	-4%	1	-32%
	Sub-total America	*147*	*23%*	*18%*	*61*	*-4%*	*30*	*-29%*
Europe	United Kingdom	23	39%	33%	12	-1%	6	-45%
	Germany	19	28%	34%	9	-3%	3	-27%
	Italy	19	22%	32%	2	-0%	1	-31%
	Switzerland	15	27%	23%	7	-1%	3	-15%
	France	9	0%	18%	5	-0%	3	-29%
	Spain	9	11%	14%	1	-0%	1	-30%
	Greece	7	14%	20%	0	NA	0	-38%
	Netherlands	6	50%	42%	4	-1%	3	-26%
	Ireland	5	25%	36%	2	-0%	0	-56%
	Sweden	4	0%	28%	1	-0%	0	-36%
	Belgium	3	0%	22%	2	-0%	1	-37%
	Denmark	3	0%	9%	1	-0%	0	-41%
	Portugal	3	33%	34%	0	NA	0	-48%
	Other Europe	12	18%	27%	2	-0%	0	-38%
	Sub-total Europe	*137*	*23%*	*28%*	*48*	*-1%*	*21*	*-33%*
Other	Australia	15	36%	33%	3	-2%	2	-10%
	Other countries	7	29%	26%	1	-0%	0	9%
	Total	***306***	***24%***	***24%***	***113***	***-3%***	***53***	***-29%***

Table 1 (continued)
Panel B: Corporate governance and executive compensation (by country)

Region	Country	Avg board independence [Dec. 2006]	Avg institutional ownership [Dec. 2006]	Avg insider ownership [Dec. 2006[	Avg incentives (% of salary and other pay) [Dec. 2006]	Avg bonus (% of salary and other pay) [Dec. 2006]	Avg equity compensation (% of salary and other pay) [Dec. 2006]
America	United States	85%	73%	13%	800%	213%	587%
	Canada	87%	54%	8%	424%	99%	343%
	Other America	82%	.	18%	224%	98%	126%
Europe	United Kingdom	63%	25%	9%	333%	166%	167%
	Germany	71%	17%	63%	333%	210%	109%
	Italy	82%	11%	29%	994%	144%	870%
	Switzerland	92%	17%	33%	319%	198%	143%
	France	85%	23%	44%	384%	155%	229%
	Spain	75%	10%	36%	251%	130%	87%
	Greece	71%	13%	42%	.	.	.
	Netherlands	68%	28%	20%	205%	122%	82%
	Ireland	68%	25%	4%	295%	111%	184%
	Sweden	90%	37%	24%	.	25%	
	Belgium	78%	13%	48%	179%	107%	72%
	Denmark	83%	24%	18%	85%	13%	72%
	Portugal	71%	9%	44%	.	.	.
	Other Europe	77%	24%	45%	.	51%	.
Other	Australia	85%	11%	22%	841%	260%	346%
	Other countries	84%	28%	58%	.	27%	.
	Total	***81%***	***44%***	***24%***	***640%***	***185%***	***441%***

Table 2
Descriptive statistics
This table provides descriptive statistics for the variables used in our main analysis. Panel A provides descriptive statistics. Panel B provides a Spearman correlation matrix among all the variables, with p-values in parentheses. Panel C provides descriptive statistics on shareholder losses, partitioned on whether the firm experienced a CEO turnover. The last column in Panel C presents univariate tests with p-values for t-tests in mean for the continuous variables and chi-squared test in proportion for the dummy variable. See Appendix A for variable definitions.

Panel A: Summary statistics

Variable		N	Mean	Median	Std. dev.
Discipline	CEO turnover	285	24%	0%	43%
Losses (ex-post)	Writedown	306	-1%	0%	4%
	Capital raising	306	17%	0%	38%
	Stock returns	306	-29%	-28%	35%
Risk (ex-ante)	Equity-to-assets ratio	306	9%	7%	7%
	EDF	278	0.18%	0.04%	0.69%
Governance	Board independence	306	81%	85%	13%
	Institutional ownership	285	44%	33%	35%
	Insider ownership	274	24%	12%	27%
Compensation	Total incentives	199	640%	252%	1,883%
	Bonus	235	185%	86%	410%
	Equity compensation	199	441%	138%	1,766%
Controls	Firm size	306	11.20	10.94	1.44
	Age dummy	306	34%	0%	47%

Table 2 (continued)
Panel B: Correlation matrix

Variable		Discipline (Turnover)	Losses (ex-post)			Risk (ex-ante)		Governance			Compensation			Controls	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Writedown	**(2)**	-0.23 (0.00)													
Capital raising	**(3)**	0.20 (0.00)	-0.65 (0.00)												
Returns	**(4)**	-0.21 (0.00)	0.31 (0.00)	-0.32 (0.00)											
Equity-to-assets ratio	**(5)**	-0.14 (0.02)	0.08 (0.14)	-0.18 (0.00)	0.27 (0.00)										
EDF	**(6)**	0.07 (0.25)	0.12 (0.05)	-0.10 (0.11)	-0.10 (0.09)	-0.23 (0.00)									
Board independence	**(7)**	-0.04 (0.46)	-0.14 (0.01)	(0.07) (0.25)	(0.11) (0.05)	(0.24) (0.00)	-(0.10) (0.08)								
Institutional own.	**(8)**	0.03 (0.66)	-0.30 (0.00)	0.19 (0.00)	-0.17 (0.00)	0.35 (0.00)	-0.09 (0.14)	(0.20) (0.00)							
Insider own.	**(9)**	-0.04 (0.54)	0.30 (0.00)	-0.26 (0.00)	0.10 (0.10)	-0.04 (0.50)	0.17 (0.01)	-(0.11) (0.07)	-0.37 (0.00)						
Total incentives	**(10)**	0.05 (0.50)	-0.18 (0.01)	0.21 (0.00)	-0.05 (0.51)	0.01 (0.92)	-0.05 (0.51)	(0.01) (0.93)	0.18 (0.01)	-0.14 (0.07)					
Bonus	**(11)**	0.00 (0.96)	-0.15 (0.02)	0.13 (0.04)	-0.05 (0.49)	-0.09 (0.16)	0.05 (0.50)	-(0.18) (0.01)	0.09 (0.21)	-0.02 (0.75)	0.69 (0.00)				
Equity comp.	**(12)**	0.08 (0.27)	-0.23 (0.00)	0.23 (0.00)	-0.05 (0.51)	0.07 (0.32)	-0.11 (0.12)	(0.10) (0.14)	0.24 (0.00)	-0.26 (0.00)	0.89 (0.00)	0.42 (0.00)			
Firm size	**(13)**	0.13 (0.02)	-0.49 (0.00)	0.43 (0.00)	-0.17 (0.00)	-0.48 (0.00)	-0.11 (0.06)	-(0.04) (0.47)	-0.02 (0.78)	-0.18 (0.00)	0.34 (0.00)	0.26 (0.00)	0.32 (0.00)		
Age dummy	**(14)**	0.05 (0.41)	0.09 (0.13)	-0.02 (0.79)	0.07 (0.21)	0.01 (0.88)	-0.06 (0.31)	-(0.04) (0.53)	-0.07 (0.21)	0.05 (0.38)	-0.13 (0.07)	-0.12 (0.06)	-0.11 (0.12)	-0.01 (0.85)	

Table 2 (continued)
Panel C: Test of differences in shareholder losses between firms with and without CEO turnover

Variable	N	Mean	Std. dev.	Median	*p-value*
Writedown$_{-turnover}$					
CEO turnover	68	-2%	6%	0%	*0.00*
No CEO turnover	217	-0%	1%	0%	
Capital raising$_{-turnover}$					
CEO turnover	68	24%	43%	0%	*0.04*
No CEO turnover	217	13%	34%	0%	
Stock returns$_{-turnover}$					
CEO turnover	68	-26%	40%	-17%	*0.85*
No CEO turnover	217	-27%	31%	-26%	

Table 3
Logit regression of CEO turnover in financial firms on shareholder losses and corporate governance
This table presents logit regressions of CEO turnover in financial firms during the crisis period. The main variables of interest are the interaction between measures of shareholder losses and measures of corporate governance. Interaction effects are estimated as in Ai and Norton (2003). See Appendix A for variable definitions. Z-statistics based on robust standard errors clustered by country are reported in brackets. *,**,*** indicate significance at 10%, 5%, and 1% levels (two-tailed).

	Baseline regression			**Gov=Board independence**			**Gov=Institutional ownership**			**Gov=Insider ownership**		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Shareholder losses												
Writedown_turnover	-19.14***			-117.36			19.12			-60.36***		
	[-4.57]			[-1.27]			[0.57]			[-7.31]		
Capital raising_turnover		0.45			-7.88**			-1.68			-0.93	
		[0.74]			[-2.09]			[-1.12]			[-1.33]	
Stock returns_turnover			-0.05			10.87***			3.02***			-0.51
			[-0.05]			[3.44]			[3.24]			[-0.47]
Governance				1.67	0.56	-2.34	0.98	1.13	-0.07	0.10	-0.36	0.30
				[0.97]	[0.39]	[-1.09]	[1.30]	[1.32]	[-0.06]	[0.08]	[-0.37]	[0.23]
Interaction on losses and governance				125.30	9.30**	-13.19***	-30.35	2.58	-4.97***	274.13***	6.19	4.91*
				[1.18]	[2.09]	[-3.34]	[-0.88]	[1.36]	[-4.85]	[6.60]	[1.34]	[1.84]
Age dummy	0.29	0.28	0.26	0.58***	0.57***	0.59***	0.55**	0.51**	0.38*	0.50*	0.44*	0.33
	[1.53]	[1.45]	[1.27]	[3.01]	[2.92]	[2.91]	[2.51]	[2.17]	[1.94]	[1.82]	[1.75]	[1.40]
Firm size	0.17	0.13	0.19*	0.24*	0.34***	0.31**	0.25*	0.26**	0.30**	0.07	0.34**	0.20
	[1.42]	[1.39]	[1.71]	[1.67]	[2.69]	[2.50]	[1.76]	[1.98]	[2.06]	[0.39]	[2.24]	[1.07]
Country fixed effects	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes
Industry fixed effects	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	285	285	285	223	223	223	207	207	207	197	197	197
Pseudo R-squared	0.05	0.02	0.02	0.12	0.13	0.14	0.14	0.15	0.17	0.17	0.15	0.15
Predicted sign												
Average interactive effect				**19.81**	**1.35***	**-2.08****	**-4.76**	**0.32**	**-0.75*****	**45.02*****	**0.94**	**0.82**
				[1.05]	**[1.76]**	**[-2.49]**	**[-1.09]**	**[1.24]**	**[-2.87]**	**[3.97]**	**[1.21]**	**[1.43]**

Table 4

Regression of ex-post losses and ex-ante risk taking on corporate governance and CEO compensation policy

This table presents the results of regressing ex-post losses and ex-ante risk taking on measures of corporate governance and compensation structure. Panel A uses two proxies of ex-post losses (accounting writedowns and stock returns) measured between January 2007 and September 2008. Panel B uses two proxies of ex-ante measures of risk taking (equity-to-assets ratio and expected default frequency) measured in December 2006. See Appendix A for variable definitions. Z-statistics based on robust standard errors clustered by country are reported in brackets. *,**,*** indicate significance at 10%, 5%, and 1% levels (two-tailed).

Panel A: Ex-post losses

	Pred. sign	Writedown[Q1/2007-Q3/2008]				Stock returns [Q1/2007-Q3/2008]			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Board independence	-	-0.05*			-0.08**	-0.09			-0.12
		[-1.76]			[-2.56]	[-0.55]			[-0.41]
Institutional ownership	-	-0.01**			-0.01***	-0.32***			-0.30***
		[-2.75]			[-6.79]	[-6.28]			[-4.99]
Insider ownership	+	0.00			-0.00	0.08			0.10
		[0.60]			[-0.44]	[0.82]			[0.86]
Total incentives	?		0.00***				0.00		
			[4.73]				[0.95]		
Bonus	-			0.00	-0.00***			-0.01***	-0.02***
				[0.97]	[-4.01]			[-5.88]	[-4.19]
Equity compensation	+			0.00***	0.00***			0.00**	0.00***
				[5.80]	[10.25]			[2.37]	[6.06]
Firm size		-0.00	-0.01***	-0.01***	-0.01***	-0.02	-0.04**	-0.03**	-0.02
		[-1.29]	[-3.92]	[-3.85]	[-7.85]	[-1.52]	[-3.25]	[-3.45]	[-1.48]
Country fixed effects		yes	yes	yes	yes	yes	yes	yes	yes
Industry fixed effects		yes	yes	yes	yes	yes	yes	yes	yes
N		268	199	199	174	268	199	199	174
Adjusted R-squared		0.25	0.31	0.31	0.32	0.24	0.16	0.17	0.20

Table 4 (continued)
Panel B: Ex-ante risk taking

	Pred. sign	Equity-to-assets ratio [Dec. 2006]				Pred. sign	logEDF [Dec. 2006]			
		(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)
Board independence	-	0.08**			0.13***	+	-0.15			-1.89*
		[2.49]			[4.29]		[-0.12]			[-2.00]
Institutional ownership	-	-0.01			-0.01	+	0.69**			0.73***
		[-0.61]			[-1.51]		[2.62]			[4.22]
Insider ownership	+	-0.00			-0.01	-	0.56			1.13**
		[-0.27]			[-1.48]		[1.54]			[2.22]
Total incentives	?		0.00***			?		-0.00***		
			[5.49]					[-3.10]		
Bonus	-			-0.00**	0.00	+			0.03**	0.01
				[-2.45]	[0.31]				[2.42]	[0.41]
Equity compensation	+			0.00***	0.00***	-			-0.01***	-0.01***
				[9.04]	[9.17]				[-7.93]	[-17.18]
Firm size		-0.01***	-0.01***	-0.01**	-0.01***		-0.19**	-0.23***	-0.24***	-0.17***
		[-4.15]	[-3.59]	[-2.76]	[-3.84]		[-2.64]	[-4.95]	[-5.28]	[-3.63]
Country fixed effects		yes	yes	yes	yes		yes	yes	yes	yes
Industry fixed effects		yes	yes	yes	yes		yes	yes	yes	yes
N		268	199	199	174		246	186	186	163
Adjusted R-squared		0.55	0.60	0.60	0.58		0.17	0.29	0.29	0.26

Table 5
Logit models of turnover of independent board members
This table presents logit regressions of independent board member turnover in financial firms during the crisis period. The unit of observation is each board director. Interaction effects are estimated as in Ai and Norton (2003). See Appendix A for variable definitions. Z-statistics based on robust standard errors clustered by country are reported in brackets. *,**,*** indicate significance at 10%, 5%, and 1% levels (two-tailed).

	Baseline regression			**Own=Institutional ownership**			**Own=Insider ownership**			**Member of risk committee**		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Shareholder losses												
Writedown	-5.22***			-6.65***			-5.00***			-5.96***		
	[-2.85]			[-3.94]			[-3.54]			[-5.81]		
Capital raising		0.24*			-0.04			0.10			0.44**	
		[1.68]			[-0.10]			[0.34]			[2.28]	
Stock returns			-0.85***			0.68			-0.96			-0.35
			[-2.86]			[1.11]			[-1.16]			[-0.66]
Ownership structure				-0.43	-0.52*	-1.25***	0.57	0.52	1.05			
				[-1.29]	[-1.68]	[-3.35]	[1.17]	[1.03]	[1.42]			
Interaction on losses and ownership structure				1.54	0.79*	-2.39***	-2.09	1.18	2.08**			
				[0.51]	[1.82]	[-3.55]	[-0.52]	[1.12]	[2.20]			
Member of risk committee										0.17	0.33**	0.11
										[1.25]	[2.21]	[0.57]
Interaction on losses and risk committee member										-12.41***	-0.07	-0.51
										[-3.01]	[-0.22]	[-1.21]
Age dummy 1	0.18	0.20	0.23	0.33**	0.35**	0.37**	0.31*	0.32**	0.34**	0.32**	0.32**	0.32**
	[1.10]	[1.25]	[1.42]	[1.98]	[2.21]	[2.22]	[1.85]	[2.02]	[2.09]	[2.07]	[2.17]	[2.09]
Age dummy2	0.94***	0.93***	0.97***	1.10***	1.11***	1.10***	1.06***	1.05***	1.07***	1.15***	1.12***	1.13***
	[5.47]	[5.38]	[4.95]	[5.08]	[5.06]	[4.70]	[4.71]	[4.66]	[4.14]	[5.04]	[5.06]	[4.71]
Firm size	0.13*	0.09	0.10	0.13***	0.07	0.13***	0.16**	0.13	0.14**	0.07	0.03	0.09*
	[1.76]	[1.14]	[1.43]	[2.68]	[1.64]	[2.84]	[2.07]	[1.60]	[2.01]	[1.59]	[0.60]	[1.76]
Country fixed effects	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes
Industry fixed effects	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	3,107	3,107	3,107	2,914	2,914	2,914	2,783	2,783	2,783	3,080	3,080	3,080
Pseudo R-squared	0.03	0.02	0.03	0.08	0.07	0.08	0.08	0.08	0.08	0.09	0.08	0.08
Average interactive effect				0.44	0.13	-0.37**	-0.58	0.23	0.33**	-2.21***	-0.00	-0.10
				[1.36]	[1.63]	[-2.80]	[-0.78]	[1.24]	[2.23]	[-3.28]	[-0.05]	[-1.37]

Appendix A
Variable definitions

Variables	Definitions	Measurement period	Data sources
Discipline			
CEO turnover	A dummy variable equal to 1 if a CEO departs the firm, and 0 otherwise	January 2007 – December 2008	BoardEx
Director turnover	A dummy variable equal to 1 if a independent board member departs the firm, and 0 otherwise	January 2007 – December 2008	BoardEx
Losses (ex-post)			
Writedown	Cumulative accounting writedowns scaled by total assets	January 2007 - September 2008	Bloomberg/ Compustat
Capital raising	A dummy variable equal to 1 if a firm raises capital, and 0 otherwise	January 2007 - September 2008	Bloomberg
Stock returns	Cumulative stock returns	January 2007 - September 2008	Compustat/ CRSP
$\text{Writedown}_{\text{turnover}}$	Cumulative accounting writedowns scaled by total assets	1Q/ 2007 until the earlier of the quarter of the CEO's departure or the end of the sample period (3Q/ 2008)	Bloomberg/ Compustat
$\text{Capital raising}_{\text{turnover}}$	A dummy variable equal to 1 if a firm raises capital, and 0 otherwise	1Q/ 2007 until the earlier of the quarter of the CEO's departure or the end of the sample period (3Q/ 2008)	Bloomberg
$\text{Stock returns}_{\text{turnover}}$	Cumulative stock returns	1Q/ 2007 until the earlier of the quarter of the CEO's departure or the end of the sample period (3Q/ 2008)	Compustat/ CRSP
Risk taking (ex-ante)			
Equity-to-assets ratio	Book value of equity scaled by total assets	December 2006	Compustat
EDF	Expected Default Frequency	December 2006	Moody's KMV
Performance (ex-ante)			
Average ROA	Average income before extraordinary item scaled by total assets	2004-2006	Compustat
Stock returns	Cumulative stock returns	2004-2006	Compustat/ CRSP

Appendix A (continued)

Variables	Definitions	Measurement period	Data sources
Governance			
Board independence	Percentage of directors whose primary affiliation is not with the firm	December 2006	BoardEx
Institutional ownership	Percentage of shares owned by institutional investors	December 2006	FacSet/ Lionshares
Insider ownership	Percentage of shares owned by insiders	December 2006	Worldscope
CEO compensation			
All incentives	All incentives (bonus + equity compensation) scaled by the sum of salary and other compensation	December 2006	BoardEx/ SEC
Bonus	Annual bonus (excluding restricted shares) scaled by the sum of salary and other compensation	December 2006	BoardEx/ SEC
Equity compensation	Sum of options, LTIP, and restricted shares scaled by the sum of salary and other compensation	December 2006	BoardEx/ SEC
Controls			
Firm size	Natural logarithm of total assets (in US $million)	December 2006	Compustat
Age dummy	A dummy variable equal to 1 when the CEO is 60 years or older, and 0 otherwise	December 2006	BoardEx
Age dummy 1	A dummy variable equal to 1 when the director's age is larger than 65 but smaller than 70, and 0 otherwise	December 2006	BoardEx
Age dummy 2	A dummy variable equal to 1 when the director is 70 years or older, and 0 otherwise	December 2006	BoardEx

Appendix B
CEO information and shareholder losses for the top ten financial firms in selected countries

Country	Rank	Total assets	Company name	CEO name	Date of departure	Write down_ (Q1/2007-Q3/2008)	Capital raising_ (Q1/2007-Q3/2008)	Stock return_ (Q1/2007-Q3/2008)
U.S.	1	1,884	CITIGROUP	C. Prince III	31-Dec-07	-3.6%	1	-60%
	2	1,460	BANK OF AMERICA	K. Lewis		-1.9%	1	-27%
	3	1,352	JP MORGAN CHASE	J. Dimon		-1.5%	1	2%
	4	1,121	MORGAN STANLEY	J. Mack		-1.4%	1	-65%
	5	979	AIG	M. Sullivan	1-Jul-08	-6.2%	1	-95%
	6	844	FANNIE MAE	D. Mudd	29-Sep-08	-6.6%	1	-97%
	7	841	MERRILL LYNCH	S. O'Neal	30-Oct-07	-6.6%	1	-72%
	8	838	GOLDMAN SACHS	L. Blankfein		-0.6%	1	-35%
	9	813	FREDDIE MAC	R. Syron	7-Nov-08	-7.2%	1	-97%
	10	707	WACHOVIA	G. Thompson	1-Jun-08	-7.3%	1	-93%
U.K.	1	1,952	BARCLAYS	J. Varley		-0.4%	1	-52%
	2	1,861	HSBC	S. Green		-1.6%	1	-3%
	3	1,707	RBS	F. Goodwin		-0.9%	1	-64%
	4	1,157	HBOS	A. Hornby		-1.1%	1	-88%
	5	673	LLOYDS TSB	J. Daniels		-0.8%	1	-57%
	6	573	AVIVA	R. Harvey	11-Jul-07	-0.0%	0	-35%
	7	426	LEGAL & GENERAL	T. Breedon		-0.0%	0	-30%
	8	424	PRUDENTIAL	M. Tucker		-0.2%	0	-30%
	9	266	STANDARD CHARTERED	P. Sands		-0.2%	0	-4%
	10	260	STANDARD LIFE	A. Crombie		-0.0%	0	-11%
Germany	1	1,486	DEUTSCHE BANK	J. Ackermann		-0.8%	1	-40%
	2	1,390	ALLIANZ SE	M. Diekmann		-0.3%	1	-28%
	3	802	COMMERZBANK	K. Müller		-0.4%	0	-61%
	4	670	HVB (<09/2008)	W. Sprissler		-0.1%	0	30%
	5	296	EUROHYPO (<07/2008)	B. Knobloch		-0.0%	0	30%
	6	285	MUNCHENER RE	N. van Bomhard		-0.0%	0	-10%
	7	244	DEUTSCHE POSTBANK	W. Schimmelmann	30-Jun-07	-0.0%	0	-56%
	8	213	HYPO REAL ESTATE	G. Funke	7-Oct-08	-2.5%	0	-91%
	9	187	LANDESBANK BERLIN	H. Vetter		-0.1%	0	-54%
	10	164	ERGO V AG	L. Meyer		-0.0%	0	-12%
Switzerland	1	1,965	UBS	M. Ospel	23-Apr-08	-2.5%	1	-67%
	2	1,031	CREDIT SUISSE	O. Grübel	4-May-07	-1.3%	1	-26%
	3	374	ZURICH FIN	J. Schiro		-0.2%	0	1%
	4	239	SWISS RE	J. Aigrain		-1.6%	0	-37%
	5	153	SWISS LIFE	R. Dorig		-0.3%	1	-43%
	6	67	ACE	E. Greenberg		-0.8%	0	-8%
	7	52	BALOISE	R. Schauble	6-Dec-07	-0.1%	0	-34%
	8	29	JULIUS BAER	J. de Gier		-0.0%	0	-18%
	9	26	HELVETIA	E. Walser		-0.0%	0	-24%
	10	14	NEUE AARGAUER	H. Käppeli		-0.0%	0	2%
France	1	1,901	BNP PARIBAS	B. Prot		-0.3%	0	-13%
	2	1,663	CREDIT AGRICOLE	G. Pauget		-0.5%	1	-46%
	3	1,263	SOCIETE GENERALE	D. Bouton		-0.6%	1	-46%
	4	960	AXA	H. de Castries		-0.0%	0	-12%
	5	605	NATIXIS	D. Ferrero		-0.7%	1	-82%
	6	347	CNP ASSURANCES	G. Benoist		-0.1%	0	1%
	7	283	CIC	M. Lucas		-0.0%	0	-63%
	8	153	AGF (<07/2007)	J. Thierry		-0.0%	0	9%
	9	25	SCOR	D. Kessler		-0.0%	0	-4%
	10	-	-	-		-	-	-

Appendix C
Firm governance measures for the top five financial firms in selected countries

Country	Rank	Company name	Independent board	Institutional ownership	Insider ownership
U.S.	1	CITIGROUP	88%	84%	0.5%
	2	BANK OF AMERICA	89%	76%	0.9%
	3	JP MORGAN CHASE	80%	88%	0.6%
	4	MORGAN STANLEY	75%	85%	12.9%
	5	AIG	87%	85%	13.8%
U.K.	1	BARCLAYS	65%	24%	2.6%
	2	HSBC HLDGS	84%	26%	0.2%
	3	RBS	65%	30%	0.0%
	4	HBOS	60%	21%	0.1%
	5	LLOYDS TSB	57%	27%	0.0%
Germany	1	DEUTSCHE BANK	77%	49%	0.1%
	2	ALLIANZ SE	52%	39%	0.0%
	3	COMMERZBANK	69%	35%	0.0%
	4	HYPO REAL ESTATE (<09/08)	55%	4%	93.9%
	5	EUROHYPO (<07/08)	67%	0%	98.0%
Switzerland	1	UBS	83%	39%	0.0%
	2	CREDIT SUISSE	92%	30%	0.0%
	3	ZURICH FIN	100%	25%	0.1%
	4	SWISS RE	83%	27%	9.1%
	5	SWISS LIFE	100%	29%	0.1%
France	1	BNP PARIBAS	93%	48%	5.8%
	2	CREDIT AGRICOLE	96%	18%	55.3%
	3	SOC GENERALE	81%	47%	7.4%
	4	AXA	70%	59%	14.4%
	5	NATIXIS	83%	5%	68.9%

Appendix D
CEO compensation (in US$000s) of the top five financial firms from selected countries

Country	Rank	Company name	CEO name	Salary+ other pay	Bonus[a]		Options+ LTIP+ restricted shares	
				(1)	(2)	*(2)/(1)*	(3)	*(3)/(1)*
U.S.	1	CITIGROUP	C. Prince III	1,396	13,200	*946%*	11,380	*815%*
	2	BANK OF AMERICA	K. Lewis	4,708	6,500	*138%*	16,666	*354%*
	3	JP MORGAN CHASE	J. Dimon	1,534	13,000	*847%*	24,519	*1,598%*
	4	MORGAN STANLEY	J. Mack	1,143	0	*0%*	40,227	*3,518%*
	5	AIG	M. Sullivan	1,979	10,125	*512%*	9,125	*461%*
U.K.	1	BARCLAYS	J. Varley	1,662	3,161	*190%*	3,556	*214%*
	2	HSBC HLDGS	S. Green	2,320	3,430	*148%*	4,604	*198%*
	3	RBS	F. Goodwin	2,422	5,409	*223%*	2,232	*92%*
	4	HBOS	A. Hornby	1,899	1,188	*63%*	3,196	*169%*
	5	LLOYDS TSB	J. Daniels	1,937	2,853	*147%*	6,297	*325%*
Germany	1	DEUTSCHE BANK	J. Ackermann	1,718	10,693	*622%*	5,327	*310%*
	2	ALLIANZ SE	M. Diekmann	2,131	2,923	*137%*	4,708	*221%*
	3	COMMERZBANK	K. Müller	1,703	3,596	*211%*	305	*18%*
	4	HVB (<09/08)	W. Sprissler	.	.	.	.	.
	5	EUROHYPO (<07/08)	B. Knobloch	708	1,479	*209%*	95	*13%*
Switzerland	1	UBS	M. Ospel	1,941	8,633	*445%*	4,950	*255%*
	2	CREDIT SUISSE	O. Grübel	.	.	.	.	.
	3	ZURICH FIN	J. Schiro	.	.	.	.	.
	4	SWISS RE	J. Aigrain	1,303	6,601	*507%*	.	.
	5	SWISS LIFE	R. Dorig	2,031	1,281	*63%*	435	*21%*
France	1	BNP PARIBAS	B. Prot	1,338	3,055	*228%*	5,174	*387%*
	2	CREDIT AGRICOLE	G. Pauget	1,398	854	*61%*	1,205	*86%*
	3	SOC GENERALE	D. Bouton	1,694	3,023	*178%*	6,002	*354%*
	4	AXA	H. de Castries	912	3,512	*385%*	8,887	*974%*
	5	NATIXIS	D. Ferrero	883	439	*50%*	0	*0%*

[a]Excluding restricted shares