Safe and Sound Banking Twenty Years Later: What Was Proposed and What Has Been Adopted

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In 1986 a task force of banking academics organized and sponsored by the American Bankers Association convened to examine the banking industry and the efficacy of its regulatory system. The group was charged with reviewing the problems of ensuring the safety and soundness of the banking system and evaluating several policy options to improve the system's efficiency, performance, and safety by changing the structure of deposit insurance and the bank regulatory and supervisory process. The results of the task force's work were published by the MIT Press as the book *Perspectives on Safe and Sound Banking* (Benston et al. 1986, the Report), which includes a set of principal options and recommendations.

The recommendations in the Report focus on prudential supervision and regulation of depository institutions—commercial banks and thrift institutions. In putting forth the set of recommendations, Benston et al. note that they explicitly were not addressing the political feasibility of adoption or existing legal limitations.

The underlying premise of the Report is that, in 1986, the extant administration of the federal safety net—deposit insurance and the lender of last resort—provided incentives for risk taking by insured depository institutions. To address this issue, Benston et al. make recommendations intended to help ensure that the deposit insurance system is compensated for its risk exposure, reduce the insurance system's overall risk exposure, and align accountabilities for the administration of deposit insurance and the lender of last resort with those for prudential supervision and regulation.

The timing of the Report and its emphasis on deposit insurance reform was propitious given the broader attention at the time being given to the moral hazard problems associated with mispriced deposit insurance and the perception of de facto 100 percent insurance coverage of bank liabilities, at least for the largest banking organizations. Of particular concern in the mid-1980s was the precarious financial condition of many savings and loan associations, the so-called zombie thrifts. The eventual need to recapitalize the federal deposit insurance funds both for thrifts and banks attests

to the need for reform of the deposit insurance system and changes in prudential supervision and regulation more generally.

The purpose of this article is to assess the extent to which changes in public policy regarding depository institutions have been aligned with the recommendations of Benston et al. We find that, over the past twenty years, several legislative initiatives and changes in regulations and the bank supervisory process have been in keeping with the specific recommendations of the Report or with the analytic framework underlying the recommendations. At the same time, other recommendations in the Report have not been taken up, and some proposals rejected in the Report have been put in place by legislative and regulatory initiatives.

The recommendations that constitute the main body of the Report are those calling for risk-related pricing of deposit insurance, changes to the deposit insurance contract, changes to capital requirements, reliance on current (market) value measures of assets and liabilities, and other measures to enhance market discipline. The authors in general rejected the use of limiting activities of depository institutions or the use of limits on deposit interest rates. However, they did link the expansion of banking powers to the ability of the insurance agencies to assess and monitor banking institutions' consolidated risk. The authors also argue that the federal insurance agencies should not be allowed to preempt state regulations regarding banking powers unless the new activities would result in uncompensated risk exposure of the insurance funds.

The underlying premise of Benston et al. is that, in 1986, the safety net—deposit insurance and the lender of last resort—provided incentives for risk taking by insured depository institutions.

The authors recommend that the risk of depository institutions be assessed on a consolidated basis. They argue that risks in a banking organization cannot be isolated by housing activities in nonbank subsidiaries or affiliates.

In keeping with linking prudential supervision and regulation with the provision of federal deposit insurance, the authors recommend that only insurance agencies be responsible for prudential supervision and regulations. That responsibility would include conducting examinations and having the authority to close institutions. The authors, however, would retain the traditional feature of the regulatory structure in which depository institutions have a choice of federal chartering agency by extending federal insurance authority to the Office of the Comptroller of the Currency (OCC). Under their set of recommendations, the Federal Reserve would not have prudential supervision or regulatory authority since it would neither charter nor insure depository institutions. Moreover, Federal Reserve discount window emergency liquidity lending would be fully collateralized or guaranteed by the relevant federal deposit insurance agency.

In addition to risk-related insurance premiums and capital standards to compensate for, as well as to limit, the insurance funds' risk exposure, the authors recommend measures for reducing the public uncertainty about the administration of the insurance funds, dealing with problem institutions, and changing the treatment of uninsured liability holders. They also recommend that the insurance funds be incorporated into the Treasury's general revenue budget.

Other recommendations include greater use of current (market or fair) valuation of assets and liabilities by supervisors, by depositories for risk management, and in public disclosures. Benston et al. also call for focusing bank supervision more on uncovering fraud, which is argued to be a key source of bank failures; the use of information technology to enhance off-site monitoring; and the use of such monitoring to

target institutions for closer examination. In line with the emphasis on safety and soundness, the authors recommend that the federal insurance agencies not be involved in supervision regarding compliance with consumer protection regulations.

One landmark legislative initiative addressing issues encompassed by the Report's recommendations is the Federal Deposit Insurance Corporation Improvement Act (FDICIA) of 1991. The act includes several provisions resembling some of Benston et al.'s recommendations in terms of risk-related insurance premiums as well as early intervention and closure policies. The act also clarified and formalized the condition under which emergency liquidity lending could be extended to large banking organizations—that is, explicit rules related to the treatment of institutions viewed as too big to fail. The act, on the whole, is consistent with certain recommendations of the Report; but in the implementation of the act by the agencies, practices under prompt corrective action still rely on book-value (not current-value) measurements, deposit premiums are only nominally risk-related, the Federal Reserve remains the effective lender of last resort, and federal agencies that are not responsible for administering deposit insurance are still involved in bank closure decisions.

The first Basel Accord formally introduced risk-related capital requirements. Consistent with Benston et al.'s recommendations, the accord included the extension of capital requirements to off-balance-sheet activities. The accord is vulnerable to capital arbitrage, which has been addressed in part by several supervisory initiatives, but its shortcomings still have prompted changes being proposed by Basel II. In addition, in keeping with the Report's recommendations, current valuation is used for trading books of banks, though not for other assets and liabilities of banking organizations. The rise in the use of subordinated debt by larger banking organizations as part of tier 2 regulatory capital is in keeping with the general recommendation for having greater reliance on subordinated debt. Related recommendations in the Report, such as the one requiring subordinated debt used for regulatory purposes to have staggered maturities, were not adopted. The Gramm-Leach-Bliley Financial Modernization Act (GLB) of 1999 directed the Federal Reserve and the U.S. Treasury to prepare a study to consider requiring depositories to issue subordinated debt, but such requirements were not acted on by Congress or the supervisory agencies. On balance, the increased equity capitalization of banks, measured either on a book-value or a market-value basis, might be the single most important development affecting the overall risk exposure of the deposit insurance system.

In addition to the changes in capital regulation, in keeping with the Report's recommendation to increase reliance on market discipline, several steps have been taken to improve public disclosure by financial institutions over the past twenty years, and improved disclosure is encompassed in pillar 3 of the Basel II proposal. The agencies also have taken steps to improve disclosure by expanding the scope of regulatory reports, accelerating the release of the reports, and making the information more readily available.

Among the recommendations relating to the agencies, the agencies have enhanced off-site monitoring through using both statistical models and information technology to access and assess data relating to supervised institutions. A major change in the process of bank supervision has been the adoption of the so-called risk-focused approach, which emphasizes monitoring and assessing risk management systems of depository institutions, as compared to the traditional transactions-testing approach.[1] While not explicitly part of the Report's recommendations, the risk-focused

1. Both a risk focus and transactions-based assessments are part of the current examination process.

approach is consistent with the recommendation to improve detection of certain types of fraud along with improvement of risk management more generally.

However, few of the Report's recommendations regarding agency structure have been adopted. Supervisory responsibility and insurance authority have not been combined fully. In fact, some ground was lost with the creation of the Office of Thrift Supervision (OTS), which has no insurance authority. The Federal Reserve retains prudential supervision and regulation authority. Fuller financial integration under GLB does include umbrella supervision, which is consistent with the recommendation that risk be assessed on a consolidated basis. However, the reliance in GLB on the use of the holding company structure is contrary to the Report's position on the ineffectiveness of corporate separateness in isolating risk in banking. Also at odds with the recommendations of the Report is the raising of the nominal coverage of deposit insurance for retirement accounts to $250,000.

Finally, tying prudential regulation to the deposit insurance system highlights an important principal-agent problem in the financial system. However, some developments affecting the banking sector, while perhaps consistent with ameliorating this agency problem, are probably better understood in terms of other principal-agent relationships, externalities, or even simply firms' desire to better assess their risk-return trade-offs. Examples include the development of internal risk models by the private sector and improvements in public disclosures, both voluntary and in response to accounting and regulatory guidance. Another feature of bank supervision is the stated goal of limiting systemic risk, which may have shaped the approach to supervision of large banks, the attention given to their role in the payment system, and the interactions among supervisory agencies internationally.

Following the order of presentation of the key recommendations in the Report, the rest of the paper will focus in turn on deposit insurance and the lender of last resort, market discipline, prudential supervision, other reform issues, and expanded banking powers. In each section, we first recap the principal recommendations in the Report and then discuss and analyze subsequent related legislative, regulatory, and supervisory developments. A concluding section summarizes our observations.

Deposit Insurance and the Lender of Last Resort

Benston et al. highlight the reform of deposit insurance and lender-of-last-resort policies as an especially critical area for ensuring the safety and soundness of the U.S. banking system (depository institutions system). The five areas addressed in the Report include: (1) modifications of deposit insurance pricing structure to remove mispricing, (2) modifications of the insurance contract, (3) changes in insolvency resolution mechanics, (4) elimination of uncertainties about the quality of the federal deposit guarantee, and (5) changes in responsibilities related to the lender-of-last-resort function.

Modifications of deposit insurance pricing structure. To remove mispricing of deposit insurance, first and foremost the Report recommends using risk-related charges for deposit insurance coverage. The Report proposes three options: (1) using risk-adjusted deposit insurance premiums, (2) using risk-adjusted capital standards in conjunction with a fixed charge for insurance, and (3) using a combination of risk-adjusted capital requirements and risk-adjusted deposit insurance premiums.

FDICIA required the Federal Deposit Insurance Corporation (FDIC) to establish a risk-based assessment system. To implement this requirement, the FDIC adopted a system that places institutions into risk categories based on two criteria, capital levels and supervisory ratings. The three capital groupings—well capitalized, adequately capitalized, and undercapitalized—are based on leverage ratios and risk-based capital

ratios used for regulatory capital purposes. The three supervisory subgroupings are generally based on an institution's composite CAMELS rating— CAMELS 1 or 2, CAMELS 3, and CAMELS 4 or 5.[2] The three capital groupings and three supervisory subgroupings form a nine-cell matrix for risk-based assessments. However, the act prohibited the FDIC from charging well-managed and well-capitalized institutions deposit insurance premiums when the deposit insurance fund is at or above the designated reserve ratio (DRR). In 2005 only about 6 percent of the almost 8,000 commercial banks paid deposit insurance premiums.

The Federal Deposit Insurance (FDI) Reform Act of 2005 also requires that the assessment system be risk based and allows the FDIC to define risk broadly. At the same time, the act grants the FDIC more discretion to price deposit insurance according to risk for all insured institutions by eliminating the fixed DRR of 1.25 percent. Specifically, the DRR for the deposit insurance fund is allowed to fluctuate within a range of 1.15 percent to 1.50 percent of estimated insured deposits. As such, a single-value DRR no longer serves as a trigger, whether for assessment rate determination, recapitalization of the fund, or dividends.

The FDI Reform Act also allows the FDIC to establish separate risk-based assessment systems for large and small institutions, subject to the requirement that no insured depository institution be barred from the lowest-risk category solely because of size.

The 1988 Basel Capital Accord introduced risk-based capital requirements to address banks' exposure to credit risk. While the credit risk categories are broad and the derivation of the risk weights was not very scientific, it was a major step toward risk-adjusted capital standards. The 1996 amendment explicitly added market risk to the regulatory capital requirements. The currently proposed Basel II refines the capital requirements against credit risk and adds operational risk into the capital requirements.

The original Basel Capital Accord was created to achieve some degree of standardization in bank capital requirements across different countries so that internationally active banks competing in the global lending markets face similar capital requirements. However, the capital rules were susceptible to capital arbitrage—that is, strategies that reduce a bank's regulatory capital requirements without a commensurate reduction in the bank's risk exposure. While supervisory initiatives were taken to deal with loopholes to patch Basel I, the international supervisory community has been working on the new Basel II requirements for a number of years. The Basel II framework has three pillars to promote bank safety and soundness: capital requirements (pillar 1), banking supervision (pillar 2), and disclosure requirements (pillar 3). Under Basel II's capital requirements, U.S. institutions would be required to maintain risk-based capital requirement using either the formulaic standardized approach or the advanced internal-rating-based (IRB) approach.[3] The advanced IRB approach leverages the bank's internal risk management system to set regulatory capital requirements.

So, technically, the United States has both risk-based deposit insurance and risk-based capital requirements. Under the current system, the risk-based deposit insurance premium is based on both the CAMELS rating and the level of book capital of an institution. However, as discussed earlier, both criteria have problems, and further

2. CAMELS ratings measure six factors: capital adequacy, asset quality, management quality, earnings, liquidity, and sensitivity to market risk
3. In the United States, the so-called Basel Ia standards have been proposed. The OCC, the Board of Governors of the Federal Reserve System, the FDIC, and the OTS issued a joint advance notice of proposed rulemaking on October 20, 2005, to revise the existing risk-based capital framework to enhance its risk sensitivity.

reforms are currently under way. Although it is premature to predict the outcomes of these reforms, it seems safe to say that the new deposit insurance pricing structure coming out of the FDI Reform Act and the new risk-adjusted capital standards due to Basel II represent improvements over the existing schemes.

Besides risk-based pricing, Benston et al. recommend several changes related to the modification of the deposit insurance pricing structure. These charges include (1) basing risk-related deposit insurance premiums on the risk of the consolidated banking organization rather than the bank subsidiaries, (2) including the off-balance-sheet risks of the banking organization in determining the risk-adjusted premium, and (3) charging insured institutions explicitly for examinations based on risk.

Currently, the deposit insurance premium is assessed for the bank only and not on a consolidated basis, despite the proliferation of nonbanking activities conducted by a number of banking organizations over the past twenty years. As we will discuss in more detail below, the expansion of banking power has taken place with banking organizations being required to house many of their nonbanking activities in separate holding company affiliates. Basing the deposit insurance premium solely on the risk of the bank subsidiary assumes that the bank subsidiary can be isolated effectively from the rest of the organization. Whether this separation is feasible, both in normal times and in the event of a crisis, remains a hotly debated issue. On the assessment of the deposit insurance premium for a bank subsidiary, the base that is used in calculating the premium is the level of assessable deposits and excludes nondeposit liabilities. However, the rate schedule, which is partly based on the CAMELS rating, reflects the risk taking of the entire bank subsidiary and thus should take into consideration off-balance-sheet activities in the bank subsidiary.

To remove mispricing of deposit insurance, first and foremost Benston et al. recommend using risk-related charges for deposit insurance coverage.

Currently, examinations conducted by the Federal Reserve and the FDIC are funded through Federal Reserve earnings and deposit insurance premiums, respectively. As such, the two federal banking agencies do not explicitly charge for bank examinations—based on risk or any other criteria. National banks pay an assessment to the OCC for supervision, which is the OCC's major source of funding. The OCC fee schedule is tied to the number of hours of on-site examination, albeit not to bank risk explicitly. Similar to the OCC, the OTS charges fees based on time spent on site, but not on risk per se. State banking commissions also charge for their examinations, but the practices and the fee schedules vary across states. The idea of using explicit charges for examinations related to bank risk can be seen as furthering the risk-based deposit insurance pricing. To that end, a perfect risk-based deposit insurance program can incorporate the risk-based examination fees into the deposit insurance premium.

Modifications of the insurance contract. Benston et al. recommend modifying the insurance contract to make market discipline more effective. On changing the insurance coverage, the Report points out that all depositors at all banks should be treated equally and not granted de facto differential coverage based on bank size. However, the authors were ambivalent between keeping the de jure $100,000 coverage and selectively rolling back the coverage to an amount significantly less than $100,000. They did unanimously reject raising the coverage.

The deposit insurance coverage, both in terms of the level and scope, was not changed until the passage of the FDI Reform Act in 2005. Contrary to the recommendations in the Report, the recently enacted Reform Act raised the retirement account insurance coverage from $100,000 to $250,000. The act also allows, but does not require,

the FDIC to adjust the general account coverage levels to keep pace with inflation starting in 2010; it remains to be seen whether the FDIC will exercise this authority.

The goal behind rolling back deposit insurance coverage or allowing the deposit insurance coverage to decline in real term is to increase market discipline by exposing more depositors to risk of default. Implicit in this view is that the maximum level of coverage ($100,000) exceeded what was sufficient to achieve the public policy goals for having federal deposit insurance.[4]

The argument in favor of raising deposit insurance coverage is that the dollar coverage in real terms has been declining as a result of inflation, and, thus, raising the nominal coverage would help restore the deposit insurance coverage in real terms. Implicit in this view is that the effectiveness of deposit insurance depends on the coverage being adjusted in real terms.

The Report recommends the continuation of the reliance on the federal government to provide a basic or minimum level of insurance coverage while encouraging development of private supplemental insurance. The collapse of the Rhode Island Share and Deposit Indemnity Corporation in 1991 ended a two-decades-long cycle of failure of state-chartered deposit insurance funds following a series of failures of privately operated deposit insurance funds. Since then, we have seen little momentum for expanding the private market for supplementary deposit insurance.[5]

Changes in insolvency resolution mechanics. The Report recommends that the responsible insurance agency be given the authority to close economically insolvent institutions. At the time of the Report, the insurance agency had to get the chartering agency to agree to close an insolvent institution. The resulting delay could involve losses that would be borne by the insurance funds.

Currently, a failing depository institution is typically closed by its chartering authority (the state banking agency for state chartered institutions, the OCC for national banks, or the OTS for federal savings institutions) when it becomes insolvent, is critically undercapitalized, is implicated in a discovery of a severe case of fraud, or is unable to meet deposit outflows. FDICIA gives the FDIC the authority to close an institution that is considered to be critically undercapitalized (having a ratio of tangible equity to total assets equal to or less than 2 percent) and that does not have an adequate plan to restore capital to the required levels. FDICIA also authorizes the FDIC to close an institution that has had a substantial dissipation of assets due to a violation of law, has been operated in an unsafe or unsound manner, has engaged in a willful violation of a cease and desist order, has concealed records, or has ceased to be insured. These conditional powers for the FDIC go partway in meeting the related recommendation in Benston et al.[6]

4. Among the common rationales for having federal deposit insurance are discouraging runs by depositors and protecting savers with small account balances. In a public interest group framework of political decision making, another effect of a higher de jure limit on deposit insurance coverage might be to benefit smaller banking organization with limited access to money and capital markets. The force of this argument, however, likely is diluted to some degree with a large number of small commercial banks having access to Federal Home Loan Bank advances.
5. There are still private insurers of deposits (credit union shares). In July 2006, the Washington State Department of Financial Institutions invited comments on a proposal for reviving a private deposit insurance program.
6. Under the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) of 1989, if the federal banking agency to which the FDIC recommended specific enforcement action against any insured depository institution or any affiliated institution failed to take the recommended action (or an acceptable alternative action) within sixty days, the FDIC could step in. Under certain circumstances, the FDIC could take immediate action. FDICIA gave the FDIC the same authority over national banks and state member banks.

To protect the insurance fund and uninsured creditors, the Report recommends closing a depository institution when the market-value net worth of the institution falls below some low, but positive, number such as 1 or 2 percent of assets. In this regard, in the early 1990s, policymakers embraced the concept of structured early intervention and resolution (SEIR) to mandate specific intervention by the regulatory agencies on a timely basis. After a number of attempts by Congress, FDICIA was signed into law. While FDICIA embodied the concept of SEIR with the prompt corrective action (PCA) and least-cost resolution (LCR) provisions, the triggers for regulatory intervention are based on book-value capital ratios. Relying on book-value capital ratios for prompt corrective action is viewed by the Report as inferior to using current valuations. On that score, book-value accounting measures may be less timely than current valuations when PCA is essential. Book values also may be subject to managerial manipulation such as the discretion used in making loan-loss provisions. On the other hand, in the absence of full market-value accounting (reporting) and given the fact that many banks are not publicly traded, book-value capital is the only readily observable measure for implementation purposes for many banking organizations.

In resolving depository institution failures, the Report also recommends imposing a pro-rata "haircut" on all uninsured liabilities to enhance market discipline and to impose management performance requirements to ensure that management acts in the interests of the insurance agency in FDIC-assisted mergers.

The notable large bank failure since the Report was the failure of three bank subsidiaries of the Bank of New England Corporation in 1991. In the Bank of New England failure, the three failed bank subsidiaries were acquired by the partnership between Fleet/Norstar and the buyout firm, Kohlberg, Kravis Roberts & Co. All deposits, both insured and uninsured, of the three failed bank subsidiaries were protected.

In the wake of the Bank of New England failure, the enactment of FDICIA introduced specific provisions to guide the resolution of large bank failures. Under FDICIA, the FDIC is prohibited from protecting uninsured depositors or creditors at a failed bank if it would result in an increased loss to the deposit insurance fund. However, there is an exemption from this requirement for banks that regulators judge to be "too big to fail," and where imposing losses on their depositors or creditors "would have serious adverse effects on economic conditions or financial stability." But this exemption requires such a determination by the Secretary of the Treasury upon the written recommendation of two-thirds of both the FDIC board of directors and the Board of Governors of the Federal Reserve System and after consultation with the president of the United States. To date, this too-big-to-fail exemption has not been tested.

Eliminate uncertainty about the quality of the federal deposit guarantee. Benston et al. recommend that authorities publicly announce (and follow) policies to deal with depository institution insolvencies and coverage of insured deposits. While the Report was ambivalent about merging the Federal Savings and Loan Insurance Corporation (FSLIC) fund and the FDIC fund, it recommended placing the insurance funds into the U.S. Treasury's General Fund, while retaining separate supervisory, regulatory, and premium-setting authority among the agencies.

FDICIA's PCA provisions set conditions under which early supervisory intervention and the associated interventions would take place. The least-cost resolution provisions require the FDIC to resolve bank failures using the resolution method that is the least costly to the deposit insurance fund. In addition, the FDIC publishes its failed bank resolution procedures on its Web site.

While the administration of the thrift and bank deposit insurance funds has been combined, the agency has maintained the Bank Insurance Fund (BIF) and the Savings

Association Insurance Fund (SAIF) separately. Very recently, the FDI Reform Act provided for the merger of the BIF and the SAIF. The merger of the two insurance funds should improve risk pooling. It also eliminates the possibility of having two potentially different deposit insurance pricing schemes for two very similar sets of institutions.

The FDIC receives no congressional appropriations; it is funded by premiums that banks and thrift institutions pay for deposit insurance coverage and from earnings on investments. While the FDIC is an independent government agency that is self funded, it has a line of credit from the Treasury and is widely perceived to be fully backed by the U.S. government.

The lender of last resort. Benston et al. recommend that the deposit insurance agency or agencies be able to lend directly when necessary to institutions experiencing liquidity problems; the funds could be borrowed from the Federal Reserve. The Report also recommends that, if the Federal Reserve should provide emergency liquidity to a depository institution, it should do so at the initiative and with the approval of the relevant federal deposit insurance agency and with sound collateral backing the loan. Finally, direct lending in emergency liquidity situations should be at a rate commensurate with risk associated with the credit extended.

Contrary to recommendations of the Report, the Federal Reserve remains the lender of last resort through its discount window program. In 2003 the Federal Reserve revised the program by replacing the adjustment credit and the extended credit with ones for primary credit and secondary credit, respectively. Primary credit is extended only to generally sound institutions at a rate that is above the target federal funds rate. Secondary credit is extended under appropriate circumstances to institutions not qualified for primary credit, at a rate above the primary discount rate.

We note that the authors of the Report do not recommend eliminating the lender-of-last-resort function, only redesigning it. The choice of having the insurance agencies bear the risk in providing emergency liquidity is consistent with the focus on accountability and with assessing and pricing risk correctly. In a broader context, there may be other public policy roles of the lender of last resort, such as limiting systemic risk. If limiting systemic risk is a legitimate concern for policymakers, the relevant question to ask is, Will a deposit insurance agency narrowly charged with protecting the insurance fund also be effective in dealing with systemic issues?

Market Discipline

The presence of market discipline means that a firm has private sector stakeholders who are at risk of financial loss from the firm's decisions and that the stakeholders can take actions to discipline the firm, that is, influence its behavior. In the context of the Report's recommendations, the private sector stakeholders are management (including directors), shareholders, and uninsured depositors and other creditors. The Report has a general recommendation for increasing reliance on market discipline by imposing costs on stakeholders as disincentives for taking risk.[7] More specific recommendations include those for greater reliance on subordinated debt. The Report also recommends expanding the use of current-value measures for internal use by depository institutions, for deposit insurance purposes, and in public disclosures.

7. One of the recommendations is to expand stockholder liability in the event of a failure. Specifically, depository institutions should have the option of issuing shares with double liability. We are not aware of institutions having done this since the publication of the Report, though there are historical precedents for the recommendation. In any case, the Report's recommendation for double liability for shareholders does not appear to have received serious consideration by policymakers.

The Report argues that one of the benefits of increased market discipline is that it can supplement supervision and thus lower the expenses of the agencies. A recommendation also calls for examination reports to be shared with bank management.[8]

Higher capital requirements. A principal set of policy measures directed at increasing reliance on market discipline from shareholders is the collection of changes to capital regulation. The regulatory agencies adopted explicit capital requirement in the early 1980s. As discussed earlier, the next major capital requirement initiative was the first Basel Accord, adopted in 1988 and fully effective in 1992. In the years after the implementation of the accord, several amendments were made to the risk-based capital. The changes in part responded to expanded use of new financial instruments. One example is the supervisory directive in 1997 on capital requirements for credit derivatives. Also among the notable changes was the application of capital requirements to the market risk of a bank's trading book. This change leveraged innovations in risk management in the private sector. Large banks and other financial institutions had developed models that encompassed their processes, procedures, and techniques, including statistical models for assessing portfolio risk. Regulators saw that these state-of-the-art risk-management tools provided the methodology for setting risk-based capital requirements. The internal models also provided the makings of a framework for the Basel II capital regulation to address the more general shortfalls of Basel I, at least for the largest banking organizations.

The implementation of least-cost resolution by the FDIC resulted in larger losses to uninsured creditors, potentially increasing market discipline.

Coincidental with the increased emphasis on bank capital by the regulatory agencies has been the substantial turnaround in book-value capitalization in the industry. The increase in book-value capital among banks has resulted in more than banking organizations' just meeting the minimum capital regulation, which requires banks to hold total capital in the amount of at least 8 percent of risk-weighted assets with at least 4 percent in tier 1 capital.[9] As discussed earlier, banks are subject to PCA regulations under FDICIA. Banks with a total risk-based capital ratio of at least 10 percent and a tier 1 risk-based capital ratio of at least 6 percent are classified as "well-capitalized," while banks with lower capital ratios are assigned lower capital categories.

Banking organizations have incentives to be classified as "well-capitalized" since the classification carries a number of economic benefits. These include reduced regulatory scrutiny, more operational freedom, and the ability to engage in permissible financial activities. For example, well-capitalized banks can receive expedited treatment in certain transactions, including for some mergers and acquisitions that require regulatory approval. When a bank holding company applies to become a financial holding company (so that it can engage in securities underwriting and dealing, insurance, and merchant banking activities) the holding company's depository institutions must be well capitalized at the time of the application and remain well capitalized thereafter to avoid restrictions on engaging in financial activities.

It is not surprising, then, that nearly all U.S. banks are not just adequately capitalized but well capitalized. Also, having many banking organizations maintain capital ratios well above the thresholds for being well capitalized could be consistent with binding capital standards being the main driver. To the extent that raising equity capital quickly could be costly, a bank would be expected to hold a buffer of capital to limit the chances of falling below the well-capitalized cutoff.

On the other hand, as discussed below, some policy measures have been aimed at increasing the risk exposure of uninsured depositors and other bank creditors. To

the extent that these stakeholders view the expected loss given bank default as having increased, a rise in bank capitalization would be consistent with increased market discipline from these stakeholders. Greater market discipline could lead to higher book-value capitalization, to the extent that bank closure policies are based on book values, and to higher market-value capitalization. Indeed, along with the increase in book-value capitalization, there has been an even more notable increase in market-value capitalization. Furlong and Kwan (2006) show that the ratio of market-value equity to book-value equity has increased substantially since the early 1990s for bank holding companies (BHCs), especially for the largest BHCs.

Increase reliance on subordinated debt. Benston et al. recommend increasing market discipline by raising the effective capitalization by allowing for greater reliance on subordinated debt for regulatory purposes. The main recommendation is for greater reliance on subordinated debt to increase capital and hence increase market discipline. Related recommendations would require using only debt that is subordinated to deposits, exclude debt with covenants that might impede an insurance agency's ability to resolve an insolvency, and require that the maturity of the debt be staggered.[10]

Consistent with the Report, subordinated debt is part of tier 2 capital, which is included in total regulatory capital. While the debt used for regulatory capital purposes can have restrictive covenants and issuance is not required to be staggered, the environment is more conducive to the use of such debt in meeting capital requirements. In fact, as part of the recapitalization of the banking industry in the early 1990s, banking organizations as a group did increase their reliance on subordinated debt in meeting regulatory capital requirements. The report by the Study Group on Subordinated Notes and Debentures (1999), for example, shows an increase in reliance on subordinated debt in the 1990s. More recently, policymakers have allowed trust preferred securities to meet part of tier 1 capital requirements. While these do not have the features called for by the recommendations in the Report, they do involve bank holding companies issuing subordinated debt, albeit to special purpose entities.

Over the past twenty years, requiring banks to issue subordinate debt has been considered by policymakers, and a number of studies have assessed the potential effectiveness of such requirements as well as presented proposals for how to structure the requirements. The idea of requiring reliance on subordinated debt was considered by the FDIC in the early 1990s, but no action was taken. More recently, GLB required the Federal Reserve and the Treasury to prepare a study regarding the use of subordinated debt requirements for capital regulation, but, again, no action was taken.[11]

Among the studies that have proposed some type of mandatory subordinated debt issuance since the publication of Benston et al., a common feature is a provision for regular issuance of subordinated debt by depository institutions. As in the Report's recommendations, one approach is to have staggered maturities of the debt. More restrictive requirements would have a predetermined schedule for issuing debt. Evanoff and Wall (2000), for example, would have banks eventually be required to

8. The Report also recommends that the supervisory agencies be less hesitant in applying their authority to remove management of a depository institution promptly in situations that pose an obvious threat to the deposit insurance fund.
9. Tier 1 capital includes common stockholder equity, qualifying noncumulative perpetual stock, a limited amount of cumulative perpetual preferred stock, and minority interests in the equity accounts of consolidated subsidiaries. Trust preferred securities also can account for part of tier 1 capital.
10. The Report would exclude debt with a maturity of less than thirty days.
11. Section 121 of GLB requires large bank holding companies controlling a financial subsidiary to have at least one issue of rated debt outstanding, though not necessarily subordinated debt.

issue subordinated debt twice a year. Having regular issuance of subordinated debt is supported by the findings that banks might adjust the timing of issues based on their financial condition (Covitz, Hancock, and Kwast 2002) and by the findings that the information content of subordinate debt by banking organizations is greatest at the time of new issuance by banking organizations (Evanoff and Jagtiani 2004).

Too big to fail. Other measures that are consistent with the Report's recommendations are argued to have affected market discipline by increasing the risk exposure of private stakeholders, including uninsured depositors and other creditors. As noted earlier, the provisions of FDICIA regarding PCA had the potential of introducing not only corrective action but an early closure policy and thus reducing supervisory forbearance. As structured, this provision is directed mainly at raising costs for management and shareholders of depository institutions. Another FDICIA provision requires the FDIC to use the least-cost resolution (LCR) method in resolving problem banks, the principal stakeholder target being uninsured creditors.[12] As discussed above, the FDICIA provisions relating to a too-big-to-fail policy—that is, the circumstances under which the agencies could extend emergency liquidity assistance to a large depository institution and the procedures for the agencies to follow to determine if the circumstances apply in a particular case—may also have increased market discipline for certain depository institutions.

In principle, the pricing of depository institutions' risk exposure requires current (market) valuations of the institutions' assets and liabilities.

Views on the effectiveness of these particular provisions vary. Benston and Kaufman (1998), for example, argue that PCA had an impact even though the potential effect was diluted in part by the failure of the agencies to incorporate current-value "tripwires." On the other hand, Rosengren and Peek (1997) conclude that PCA likely had little effect. They argue that, had PCA been in place during the banking crisis in New England, it would have had little, if any, effect. The study suggests that PCA imposes an essentially nonbinding constraint on bank supervisors, doing little to reduce supervisory forbearance.

It does appear that the implementation of LCR by the FDIC resulted in larger losses to uninsured creditors, potentially increasing market discipline. In this regard, research has found that yields on bank-related subordinated debt (as well as credit default swap spreads) are sensitive to the risk of the issuing organizations. An especially pertinent study by Flannery and Sorescu (1996) concludes that interest rates on long-term bank debt tend to vary with the riskiness of an institution issuing the debt in the period 1989 to 1991 but not earlier in the 1980s. A subsequent study indicates that these results for the earlier 1980s may be related to measurement issues. Covitz, Hancock, and Kwast (2002) find that, after accounting for liquidity premiums in yields on subordinated debt, banking-related subordinated debt spreads were sensitive to organization-specific risks in the mid-1980s, and that the risk sensitivity of such spreads was about the same in the pre- and post-FDICIA periods.

In a more recent study, Flannery and Rangan (2004) look at the relationship between market-value capitalization and asset risk among large BHCs. They conclude that the evidence supports the hypothesis that regulatory innovations in the early 1990s weakened conjectural government guarantees, thus enhancing bank counterparties' incentives to monitor and price default risk.[13]

While the impact of certain provisions of FDICIA may be debated, as discussed in Furlong and Williams (2006), recent research consistently shows that the pricing of longer-term uninsured debt issued by banking organizations reflects firm-specific

risk. The research on whether market discipline affects risk taking is more limited and less definitive. Bliss and Flannery (2002) find no evidence that market assessments of risk lead to changes in bank risk taking. However, Goyal (2005) finds that covenants in debt contracts are a source of discipline on banking organizations. In particular, the author finds that the charter value of a banking organization can affect the degree of restrictive covenants in its bond agreements. The idea is that a higher charter value provides a check on a banking organization's risk taking; the charter value typically is gauged by comparing a banking organization's market value to its book value. As referenced earlier, Flannery and Rangan (2004) also argue that, in response to market pressures, large BHCs with higher portfolio risk tend to have higher market equity-to-assets ratios after 1994.[14]

Views on the implications of the too-big-to-fail-related provisions of FDICIA vary, and questions persist about the effect of the provisions (Stern and Feldman 2004 and Kaufman 2002). As discussed above, under FDICIA, a bank can be declared too big to fail so that uninsured liability holders would be afforded some protection only if not doing so would have serious adverse effects on economic conditions or financial stability. On the one hand, FDICIA lays out what look to be high hurdles for finding an institution to be too big to fail, which should work to limit the exposure of the deposit insurance system. On the other hand, the act establishes an explicit policy that previously had been implicit. This elimination of ambiguity over a too-big-to-fail policy could have increased the potential too-big-to-fail subsidy for the very largest banking organizations. Recent empirical evidence, however, suggests this may not be the case.[15]

Current (market, fair) valuation and disclosure. In principle, the pricing of risk exposure posed by depository institutions to the deposit insurance system and to private sector stakeholders requires current (market) valuations of depository institutions' assets and liabilities. Benston et al. recommend the voluntary use of current-value measurement by depository institutions for internal purposes and the mandatory use of current-value measurements for deposit insurance purposes. They also recommend voluntary public disclosures by depository institutions of selected current-value measures, announcements by the (insurance) agencies of actions against depository institutions (when filed), and agencies' giving examination reports directly to depository institution management (including directors).

Consistent with the spirit of the recommendations, the use of current valuations among large banks and other financial institutions has increased over the past twenty

12. If the administration of an earlier closure policy were expected to result in the closure of institutions with positive market value, that result obviously would place more expected costs on shareholders. Indeed, to the extent that institutions have positive charter values (intangible assets) not reflected on their balance sheets, even a book-value closure rule could impose added costs on shareholders.
13. Flannery and Rangan (2004) find no evidence that a BHC's market capitalization increases with its asset volatility prior to 1994 but find a strong cross-sectional relation between capitalization and asset risk after 1994.
14. A number of other studies find that market assessments of the risk of a banking organization can have other effects but not necessarily mitigate risk taking. See Furlong and Williams (2006) for a discussion of those studies.
15. For the very largest BHCs, Furlong and Kwan (2006) find a negative relationship of relative charter values to BHC assets from the late 1980s through 2003, with the negative effect increasing in magnitude after the mid-1990s. The results are consistent with a decline in the expected value of the implicit federal guarantee related to the protection of creditors at the banking organizations most likely to be viewed as too big to fail.

years. In part, this practice reflects compliance with new accounting standards, issued over the past several years by the Financial Accounting Standards Board (FASB), that affect the accounting standards and disclosures associated with financial instruments that make up a large part of banking activities. Much of the emphasis has been on the current value of financial instruments, asset transfers, and off-balance-sheet risks.[16]

Internal use of current-value measures is part of risk management among large depository institutions. For the banking agencies, current-value measures are part of the capital standards for measuring market risks of trading books. However, the agencies have been reluctant to adopt broader applications of current-value measures (see, for example, Bies 2004). Also, the FDIC generally is not required to use current-value measures for deposit insurance purposes, as recommended in the Report.

In place of the full application of current-value accounting in banking, the agencies have promoted initiatives for reporting information that can be used to assess risk exposures. An example is the joint agency guidance on asset securitization, which deals with reporting retained risk in securitization. The Study Group on Disclosure (2000) discusses the role of the banking agencies, the SEC, FASB, international banking agencies, and the private sector in the public disclosure of information on banking organizations.

One recommendation of that study was to convene a private sector group to identify key issues in public disclosures for banking organizations and make recommendations for voluntary enhancement to those disclosures. As a result, the Working Group on Public Disclosure was established in April 2001 by the Board of Governors of the Federal Reserve System; it was chaired by Walter V. Shipley, retired chairman of Chase Manhattan Bank (see Board of Governors 2001). The report sets out a list of principles for public disclosure and identified several specific areas for improving public disclosure by financial institutions. A key principle is that disclosures should include information that is consistent with an institution's approach to risk management. It is also notable that the specific recommendations for enhancing public disclosures call for reporting information about risk exposures rather than reporting fair-value measures per se. Nevertheless, as discussed earlier, voluntary private sector initiatives have played an important role in advancing the use of current-value measures in banking. Again, one of the most notable private-sector initiatives is the development and use of internal risk models.[17]

The supervisory agencies are required to make public formal supervisory actions taken against banking organizations. In 1989 and 1990, the U.S. Congress adopted legislation requiring bank regulatory agencies to make public all formal enforcement actions imposed on banks. Moreover, this enhanced disclosure was adopted during a period of great banking distress in the United States. By making the formal actions public, bank supervisors were in effect disclosing that certain institutions were believed to have a high probability of failure in the absence of substantial remedial action. In their examination of the impact of disclosing formal actions, Jordan, Peek, and Rosengren (2000) find that disclosures provide information to the market about the individual institutions.

Use of market information in bank supervision. The Report argues that enhanced market discipline could reduce the cost of government supervision; specifically, enhanced oversight from market participants could supplement bank supervision by the agencies. Indeed, some policymakers have been very supportive of the idea that, given the increased complexity and sophistication of large banking organizations, reliance on market signals (pricing of bank-related securities) can be an impor-

tant supplement to other sources of information used in the supervisory process (see Meyer 1999 and Stern 2000). In fact, over the past several years, financial market information has been incorporated into the bank supervision process. Burton and Seale (2005) discuss the use of market information in bank supervision by the FDIC. Feldman and Schmidt (2003) document the incidence of references to financial market information in Federal Reserve supervisory reports and identify the types of market information considered. Furlong and Williams (2006) report that for the Federal Reserve System, while resources directed at the use of market information in the supervisory process remained modest, they are increasing.

At the same time, Furlong and Williams (2006) point out that considerable skepticism remains about the market's ability to uncover with any regularity problems among traditional banking organizations before bank supervisors do because supervisors have access to confidential information, and, for the very largest banking organizations, examiners are on site full time. What is recognized, however, is that market sentiment can influence a banking organization's operations, especially its access to funding. Using the market information along with other sources of information is seen as being especially useful to bank supervisors in the face of adverse events affecting conditions in the banking industry or of a given banking organization. So, while information (related to the financial condition of banking institutions) from equity, debt, and derivatives markets is used in several stages of bank supervision and is included regularly in supervisory reports, such information does not appear to be a driver of supervisory findings regarding the financial condition of banking organizations.[18]

Examination reports and rating explicitly given to directors and senior management. Consistent with the recommendation in the Report, follow-ups with bank management are part of the bank examination process. Senior management is provided with the examination reports and key finding are discussed with management.

Prudential Supervision

Examination process. Benston et al. include several recommendations for revising the bank examination process. The authors argue that fraud and insider abuse are major problems and that the examination process should focus on uncovering fraud. The other recommendations include directing examinations at verifying accounting and estimates of the current value of assets and liabilities; using existing data, statistical methods, and computer models to monitor and predict risk and identify problems;

16. Over the past several years, FASB has issued several standards related to current- (fair)-value accounting and risk exposure affecting banks, including FAS 107, Disclosures about fair values of financial instruments; FAS 114, Accounting by creditors for impairment of a loan; FAS 115, Accounting for certain investments in debt and equity securities; FAS 119, Disclosures about derivatives; FAS 125, Accounting for transfers and servicing of financial assets and extinguishments of liabilities; FAS 133, Accounting for derivative instruments and hedging activities; and FAS 141, Accounting and reporting for business combinations (purchase accounting in mergers).
17. The Study Group on Disclosure (2000) also recommended changes in the treatment of regulatory reports for banking organizations. In recent years, bank Call Reports and BHC regulatory reports have been made available electronically, and the release of reports for larger BHCs has been accelerated.
18. The Federal Reserve System first issued guidance for the use of financial market information by examiners in 1994, with SR Letter 94-47. That document directs examiners to consider equity returns as possible signals of condition for publicly traded financial institutions. The guidance was later replaced by SR Letter 95-43. More recently, the new BHC rating methodology, as implemented by SR 04-18, requires examiners to consider market indicators in rating the financial component of the rating system.

increasing the reporting of significant information using information technology; and charging for risk examinations of institutions based on time spent by the agencies.

The bank supervision and examination processes have changed over the past twenty years, and the agencies have taken advantage of advances in information technology. A notable change directly affecting the examination process has been the adoption of the so-called risk-focused approach, which was formally announced by the Federal Reserve in 1997.

Benston et al. argue that enhanced market discipline could reduce the cost of government supervision; specifically, enhanced oversight from market participants could supplement bank supervision by the agencies.

Risk-focused (risk-based) supervision has at least two key dimensions. One is that examiners can scope examinations to target activities of a banking organization that might be most vulnerable. Another is that examiners review an organization's risk management process—the level of management's expertise needed to effectively oversee the institution's business strategy; the adequacy of internal controls for monitoring activity; and the presence of contingency plans to mitigate loss in a worst-case scenario. This risk focus is supplemented with traditional transactions testing of a sample of a banking organization's assets.

While improved risk management in banking could help protect the insurance fund, it should be noted that the adoption of risk-focused supervision was not motivated mainly by the presence of moral hazard from mispriced deposit insurance. Rather, the application of risk-focused supervision assumes that banks have an incentive to measure risk accurately and to manage that risk. In fact, the risk-focused approach can be seen as arising out of financial institutions' own innovations in risk management such as the development of risk models for use in determining the internal allocation of capital.

Nevertheless, the risk-focused approach, with an emphasis on controls, is consistent with the Report's recommendation to enhance the detection of fraud. In particular, the approach would seem to address instances of employee fraud, such as in the case of Barings. With regard to detecting fraud, some advantages of the risk-based approach may be diminished as fewer resources are directed toward transactions testing in examinations or toward verifying accounting and current-value measures. But these potential drawbacks may be mitigated by other changes in bank supervision.

One such change is the move to what might be called continuous supervision for larger banking organizations. Aside from having staff on-site at the very largest banking organizations and off-site monitoring more generally, supervision involves a series of targeted examinations leading up to full examinations. The targeted examinations can focus on particular areas of risk—credit risk, market risk, compliance risk, or operational risk. Fraud is considered part of operational risk.

Another dimension of bank supervision is the movement toward differential approaches to overseeing large and small banking organizations. With larger organizations seen as posing the greater risk to the financial system, more attention is given to those institutions. For smaller banks, the Federal Reserve, for example, relies almost exclusively on the reports from the primary federal banking supervisor in determining the supervisory rating for smaller shell BHCs. A shift of supervisory resources to focus on larger, more complex banking organizations can be seen as consistent with a goal of protecting the deposit insurance system. However, it also is consistent with a goal of directing resources toward the set of institutions most likely to affect systemic risk.

As discussed earlier, the supervisory agencies have made several changes relating to current-value measures and disclosures regarding risk exposures. In addition, for

larger banking organizations, the assessment of risk management includes considerations such as the documentation and reliability of internal risk measures. Regarding accounting, a number of steps have been taken, including dropping regulatory accounting practices (RAP) and adopting generally accepted accounting principles (GAAP).

Off-site monitoring among the federal banking agencies has been expanded and improved substantially as the agencies have taken advantage of statistical models and advances in information technology. At the Federal Reserve, for example, off-site monitoring models are used to estimate probabilities of failures and to predict CAMELS ratings. Ongoing efforts include the development of monitoring models for holding companies, including ones that incorporate market-based variables.

Agency structure. The Report includes arguments against potential changes to the structure of the agencies that would concentrate supervisory and regulatory authority. The Report rejects having a single "superagency," giving the Federal Reserve added responsibility, and having federal agencies preempt state regulation (in the absence of a threat to the deposit insurance system). The Report recommends combining responsibilities for prudential supervision and regulation with those for administering deposit insurance, extending deposit insurance responsibilities to the OCC, taking the Federal Reserve out of prudential supervision, and having the other agencies (deposit insurers) focus only on prudential supervision.

Few of the Report's recommendations regarding agency structure have been adopted. The one item in the plus column for the Report is the rejection by Congress of a single superagency. The United States has several federal agencies that share responsibility for bank supervision and prudential regulation. Not only has the United States retained the multi–banking agency structure, but it also has kept much of the silo structure regarding financial regulation more generally. This structure is in contrast to countries such as the United Kingdom, which created the Financial Services Authority.

The lynchpin to agency restructuring among Benston et al.'s recommendations is tying supervisory responsibility and insurance administration. In making this recommendation, the Report's authors still would retain the traditional feature of the U.S. supervisory structure in which depository institutions have a choice of chartering agency by extending federal insurance authority to the OCC. The agencies, as deposit insurers, would not have consumer protection responsibilities and would focus only on safety and soundness.

Under the set of recommendations, the Federal Reserve would not have prudential supervision or regulatory authority since it would neither charter nor insure depository institutions. Moreover, Federal Reserve discount window emergency liquidity lending would be fully collateralized or guaranteed by the relevant deposit insurance agency.

The banking agency structure in the United States has retained the feature giving banking institutions choices among federal bank supervisors. However, no steps have been taken to more fully combine supervisory responsibility and insurance authority. In fact, some ground was lost from the perspective of the Report with the creation of the OTS, which has no insurance authority.[19] The FDIC still has responsibilities regarding compliance to consumer protection laws and regulations. Moreover, the Federal Reserve retains prudential supervision and regulation authority.

19. FIRREA eliminated the FSLIC and created the OTS, under the Department of the Treasury, to assume the examination and supervision functions of the former the Federal Home Loan Bank Board (FHLBB). The act also created the SAIF and the BIF.

Indeed, in some ways Congress expanded the responsibilities of the Federal Reserve. GLB tends to put the expansion of activities outside the banks.[20] The act also gives the Federal Reserve umbrella oversight of financial holding companies (FHCs).[21] On the other hand, GLB puts limits on the Federal Reserve. It designates the Federal Reserve as the umbrella supervisor for FHCs, while the securities and insurance affiliates are subject to functional regulation by the SEC, the Commodity Futures Trading Commission, and state insurance commissions. For FHCs, the GLB Act directs the Federal Reserve to rely as much as possible on the functional regulators (including the primary federal banking supervisory agency) for examination and other information. As discussed above, FDICIA's too-big-to-fail provisions do provide guidelines on emergency liquidity lending, but the Federal Reserve is still a key part of the process.

Other Reform Issues

Benston et al. call for the insurance agencies to monitor deposit rates and fund flows to safeguard against risky institutions overbidding for deposits when deposit insurance is not properly priced. The supervisory agencies certainly have access to an institution's retail deposit pricing schedule, and any abnormal growth in deposits likely would trigger supervisory scrutiny. While we are not aware of any systematic monitoring of retail deposit interest rates (outside of the exam process), as discussed earlier, a wide variety of market signals related to the financial condition of banking organizations are monitored regularly.

Another possible source of information, not mentioned in the Report, is the pricing of a banking organization's loans. Morgan and Ashcraft (2003), for example, advocate using loan rates to monitor bank risk taking. Their idea is intuitively appealing, but the implementation may not be trivial. Currently, the Federal Reserve collects loan rate data over a two-week period for a panel of banks each quarter in its Surveys of Bank Lending Practices. The banking agencies also have information on syndicate loans. In addition, some Federal Reserve Banks have conducted pilot projects to collect loan information for the major borrowers of large banking organizations.

Expanded Powers

The Report recommends that the main criteria for authorizing new activities should be the ability of the responsible insurance agency to monitor and assess the total risk implications of the new activity for the consolidated entity and to price the risk to the consolidated entity (or to adjust capital requirements accordingly). In Benston et al.'s view, the Glass-Steagall Act's separation of commercial and investment banking and the separation of banking and insurance were neither necessary nor desirable for reducing conflicts of interest. Their position regarding the concentration of power is that the best way to eliminate any concerns would be to promote competition aggressively, to ease entry and exit restrictions, and to enforce existing antitrust statutes. The Report rejects the idea of housing the new activities in nonbank subsidiaries or affiliates because it would not protect the insurance agency from the risk of new activities as long as the holding company can shift risk to insured bank subsidiaries.

Regulatory and legislative actions over the past twenty years have allowed greater affiliation of banking and other financial services. Even with the Glass-Steagall Act, in the period after 1986 bank holding companies were permitted to engage in securities underwriting and dealing on a limited basis through their so-called Section 20 subsidiaries approved by the Federal Reserve. On the insurance side, national banks exploited loopholes in the law by conducting insurance agency activities in small

towns. Nonetheless, the corporate merger between Citicorp and Travelers Insurance in 1998 created the urgency to reexamine banking powers.

In 1999, the GLB Act formally repealed provisions of the Glass-Steagall Act, allowing banking firms to be affiliated with securities firms and insurance companies. However, the new securities activities and the insurance activities of the banking organization must be conducted outside of the bank subsidiaries in nonbank affiliates.

To keep regulation responsive, the GLB Act gave the Federal Reserve and the Treasury the authority to define new activities that are financial in nature or incidental to financial activities. The act for the most part kept banking and commerce separate (aside from allowing merchant banking activities) but left the door slightly open by letting the Federal Reserve determine when some nonfinancial activities are complementary to financial services. However, the reality of banking organizations entering new activities that are financial in nature or incidental to financial activities could be very challenging. In the years since the passage of the GLB Act, various attempts by banking companies to enter the real estate brokerage and agency activities have been effectively blocked. So far, there has not been any meaningful approval of new financial activities.[22]

These measures allowing greater affiliation of banking with other financial activities are consistent with the views in the Report that such affiliation should not lead to conflicts of interests that are harmful to consumers. Even the continued restrictions on mixing banking and commerce could be seen as consistent with the views in the Report to the extent that the ban could be motivated by concerns over the supervisory agencies' ability to assess and monitor the associated risks.

The use of the holding company framework for expanding banking powers, however, is clearly at odds with the views expressed in the Report. A relevant question to explore is, To the extent that deposit insurance is not assessed on the risk of a consolidated enterprise, would it make sense, even in the context of a second-best solution, to at least try to isolate the banking subsidiary from the rest of the organization? As indicated earlier, placing certain new activities of a financial holding company in nonbank subsidiaries per the GLB Act was an attempt to protect insured bank subsidiaries. Returning to our earlier discussion of the deposit insurance reform proposal

20. All of the new activities under GLB can be conducted in a holding company affiliate and some in a financial subsidiary of a bank. At this time, general insurance underwriting and merchant banking can be conducted only in financial holding company affiliates. For the other activities, banks face limitations on the size of financial subsidiaries. While a number of activities, including underwriting municipal securities, can be done within the bank, most of the avenues for financial integration are pushed out to holding company affiliates or bank subsidiaries.
21. Note also that even though there is umbrella supervision directed at consolidated risk of holding companies, GLB retains the concept that the bank subsidiaries can be shielded from risk transmitted from other subsidiaries. Several provisions of the act point to the primacy of protecting the banks in FHCs. For example, the act keeps in place limits on the financial transactions between a bank and the other holding company affiliates. Also, if the Federal Reserve has concerns about a bank's exposure to risk from a functionally regulated affiliate, the Fed can interact directly with the nonbank affiliate, including conducting examinations. Parallel provisions apply for financial subsidiaries of banks, including limits on financial transactions between the bank and its subsidiaries. In addition, a bank's outstanding equity investments, including retained earnings, in its financial subsidiaries are to be deducted from the bank's capital. To ensure transparency for the bank, published financial statements must present separate financial information on the bank.
22. The mixing of banking and commerce has been allowed through the Industrial Loan Company (ILC) charter. At the time of the conference, the FDIC had placed a six-month moratorium on approving ILC applications for deposit insurance.

regarding whether the enterprise risk or just the bank risk should be used for the pricing of deposit insurance, perhaps a larger question relevant to this debate is the longstanding one over corporate separateness. That is, can a bank subsidiary be effectively insulated from the rest of the organization? What are the social benefits and costs of the universal banking model versus the holding company model?

Regarding the supervision of banking firms that engage in nonbank financial activities, the GLB Act designates the Federal Reserve as the umbrella supervisor of financial holding companies and the functional regulators as the supervisors of the nonbank affiliates. The rationale for having an umbrella supervisor is that large financial institutions tend to manage their risk on a consolidated basis and operate along business lines that cut across legal entities. At the same time, several provisions of the GLB Act are intended to insulate a banking organization's depository subsidiaries from the risk of other affiliates. For example, the dealings between a bank and other financial affiliates have to be made at arm's length and on market terms. They also are subject to quantitative limits and collateral requirements. Other regulations are in place to limit the ability of a holding company to use fees paid by its subsidiary banks to transfer funds to other affiliates.

Conclusions

Perspectives on Safe and Sound Banking, written twenty years ago when the nation's banking and thrift sectors were in serious distress, took a broad and deep look at the issues contributing to the banking industry's problems. The Report made a number of recommendations to improve the efficiency, performance, and safety of the banking system by changing the structure of the deposit insurance system and the bank regulatory and supervisory process. The recommendations are based on economic principles, including the theory underlying options pricing models and agency theory in finance.

Certainly, today we have much healthier banking and thrift sectors, with institutions registering record profits. Compared to the 1980s and early 1990s, there seems to be little question that the safety and soundness of the banking system has improved substantially—at least for now. Looking back, one can point to several major developments that have shaped the U.S. banking system during the past two decades. Among these are the recapitalization of the banking industry, financial market innovations and the increased sophistication of risk management, and greater overall efficiency.

These developments are consistent with and to some extent connected to public policy measures that are in keeping with the set of recommendations laid out in the Report. We see the primary thesis of the Report as being that a safe and sound banking system requires that risk-taking incentives among depository institutions are appropriately aligned and the scope of the federal safety net is limited. Accordingly, the Report highlights the moral hazard problem of fixed-premium deposit insurance as a major source of instability. The other general areas of focus in the Report are the promotion of market discipline in banking and the reform of prudential supervision and regulation of depository institutions. The core recommendations in the Report directed at these general areas of concern include adopting risk-based deposit premiums, instituting risk-based capital requirements, implementing early intervention and closure policies, making wider use of current (market) valuations of assets and liabilities, increasing reliance on market discipline from uninsured creditors, and aligning agencies' accountability regarding prudential regulation and protection of the deposit insurance funds.

In this paper, we have examined how the recommendations in the Report map to the myriad legislative initiatives and regulatory and supervisory developments over the past twenty years. For one of the core sets of recommendations, those related to the administration of deposit insurance, the authority and framework for risk-based deposit premiums are in place. However, as a practical matter, differential pricing of deposit insurance likely has had a minimal effect on incentives for risk taking.

We would argue that much more ground has been gained in protecting the deposit insurance system through the increase in bank capitalization, both in terms of book value and market value of equity. The increase in equity capitalization has coincided with greater regulatory and supervisory emphasis on higher capitalization as well as tying capitalization to risk. Still, it is uncertain to what extent the increased capitalization in banking can be attributed directly to capital regulation or to market forces. However, having market forces play an important role in the recapitalization of banks is consistent with a goal of increasing reliance on market discipline.

The goal of enhancing market discipline in large part is to curtail the de facto scope of deposit insurance.

Indeed, it appears that the concept of promoting market discipline in banking has been incorporated broadly in public policy, as reflected in a range of initiatives from the provisions of FDICIA to pillar 3 of Basel II. The agencies also have been laying down the infrastructure for greater reliance on market information by incorporating market data into banking supervision and pushing the frontiers in public disclosure. Among banking organizations, reliance on subordinated debt has increased since the early 1990s. Moreover, the empirical evidence shows that uninsured depositors and other creditors are sensitive to the overall risk of individual banking organizations.

The goal of enhancing market discipline in large part is to curtail the de facto scope of deposit insurance. The provisions of GLB relating to the extension of emergency liquidity to larger institutions also likely reinforced the market's views that some banking organization would not be eligible for such credit. The uncertainty is over whether the more explicit policy on too big to fail reduces the ambiguity regarding the treatment of the very largest banking organizations. On that score, some empirical evidence suggests that, overall, the conjectural government guarantees associated with the federal safety net may have been reduced.

Another key development that is in keeping with the Report is the improvement in risk management. Risk management is mainly about identifying, measuring, and pricing risk correctly. The issue of moral hazard from deposit insurance aside, bank shareholders and uninsured creditors have an interest in banks' measuring risk accurately. Advances in financial modeling and information technology have enabled the development of more sophisticated risk management tools, making effective enterprisewide risk management a realizable goal for large financial organizations. Interestingly, leveraging these developments in the private sector, banking regulators also shifted their supervisory approach toward risk-focused banking supervision, reinforcing the importance of sound risk management in banking.

In connection with promoting market forces and measuring risk, initiatives have led to greater use of current (market) valuations, both for internal use by large depository institutions and in capital regulations. However, full market-value accounting has not had broad support in the private sector or by policymakers. Rather, in banking the emphasis has been on initiatives for reporting information that can be used to assess risk exposures and, thus, indirectly get at current valuations.

Among the recommendations in the Report that were not adopted are those stipulating certain features of subordinated debt be used for regulatory purposes. The recommendation for pricing deposit insurance based on the consolidated risk of the banking enterprise does not seem to have received much attention. Furthermore, contrary to the Report's recommendation, the deposit insurance coverage for retirement accounts has been raised substantially, and the coverage for other deposits could begin to rise with the rate of inflation after 2010.

The recommendations for supervisory reforms have gained only limited traction. While several developments are consistent with the Report's recommendations, such as using off-site monitoring as an early warning system, the supervisory agencies have not been restructured along the lines suggested by the Report. Prudential regulation and deposit insurance administration have not been fully linked. While the Federal Reserve revised the discount window programs by raising the discount rate above the market rate, it remains the lender of last resort and continues to supervise state member banks and bank holding companies. Indeed, as the umbrella supervisor of financial holding companies, the Federal Reserve has an expanded supervisory role in some dimensions.

Overall, public policy and private-sector initiatives appear to have contributed to safer and sounder banking and thrift sectors over the past two decades. Consistent with what we see as the main theme of the Report, a likely contributing factor is the more appropriate alignment of incentives for risk taking among larger depository institutions. Developments affecting risk taking by depository institutions likely include higher capitalizations, greater risk exposure of private sector stakeholders more generally, improvements in risk management, and supervision and regulation that is focused on overall risk.

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COMMENTARY

Policies and Prescriptions for Safe and Sound Banking: Shocks, Lessons, and Prospects

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Both the external environment and the internal business practices of banking in the United States changed enormously over the past two decades. (For simplicity, I refer here to any federally insured depositories and their holding companies as banks.) By the middle of the 1980s, the U.S. macroeconomy had suffered through its most turbulent years since the 1930s. Then, seemingly suddenly, real economic activity became much less volatile beginning about the middle of the 1980s. Because some of the public policies that might have been appropriate under different circumstances had become outmoded and provided inappropriate incentives for risk taking, numerous and substantial legislative and regulatory changes were enacted. Financial deregulation was both deep and broad and greatly affected both regulated institutions and regulators. Technological advances in computing and communications that were pertinent to banking lowered the relative prices of such services considerably. Advances in financial techniques and in the ranges of financial products and services offered by, and offered to, banks importantly affected the risks that banks faced and measured as well as the kinds and amounts of risks that banks ultimately decided to retain or to shed.

These changes had important shorter-run and longer-run effects on banks' earnings and conditions. As of the middle of the 1980s, concern about the then current and likely future conditions of banks was widespread. One result of that concern was the publication in 1986 of the book *Perspectives on Safe and Sound Banking: Past, Present, and Future*, by George Benston et al. (the Report), which provided comprehensive descriptions, diagnoses, and prescriptions about banking for banks and for public policymakers. My commentary notes many of the Report's most salient prescriptions, changes in regulations (and legislation) that followed the Report, and the extent to which regulatory changes to date conform to the Report's recommendations. As such, the Report provides a touchstone for analyzing regulatory and other developments in banking over the past two decades.

Among the banking conditions that were affected by the vicissitudes of the macroeconomy were banks' capital ratios. By the middle of the 1980s, banks' capital

ratios had been in a longer-term, substantial downward trend. Since that time, however, the large and steady increase in the aggregate capital ratio in banking has been notable. Below, I discuss a variety of reasons why bank capital ratios may have risen so much over the past twenty years.

I also call attention to how banks and their regulators may effectively sidestep some of the intended capital-related constraints of the prompt corrective action (PCA) provisions embodied in the Federal Deposit Insurance Corporation Improvement Act (FDICIA) of 1991. In addition, I discuss how the options to sidestep PCA during periods of generalized banking difficulties encourage banks to seek "safety in similarity." Finally, I review some of the unresolved issues posed by and for the restructuring of financial regulators.

Turbulence in Banks' External Environment

Over the past two decades, the banking landscape changed considerably. Changes in the macroeconomies, both at home and abroad, in public policies, in computing and communication-related technologies, and in techniques of financial analysis have changed banks' overall conditions and business practices. Along with interest rate deregulation, we have seen broad and deep deregulation of geographic and activity barriers in banking. The 1994 Riegle-Neal Interstate Banking and Branching Efficiency Act (IBBEA) largely, though not completely, deregulated both interstate banking and branching. The 1999 Gramm-Leach-Bliley Financial Services Modernization Act largely ended the half-century-old Glass-Steagall prohibitions against a single firm owning commercial banking, investment banking, and insurance subsidiaries.

Technological advances were stunning. Progress, and resulting declines in real prices, in computing, telecommunications, data collection and storage, and the Internet were rapid and far-reaching. These advances rendered feasible, at often dramatically lower costs, the complex financial products that are now used by banks and their customers and the complex financial risk management techniques used by banks and their regulators.

Lower communication and transport costs also generally increased internationalization of financial markets for banks and their customers. Greater internationalization also increased tourism and migration, real and financial international transactions between and within companies, foreign direct investment, and real trade deficits. Banks, domestic and foreign, became more internationally oriented when they followed their customers and on their own accounts, with U.S. banks operating abroad and foreign banks increasing their operations in the United States.

The "Great Moderation" is a significant, though not completely explicable, macroeconomic development for banks. The Great Moderation refers generally to the large and rather sudden decline, beginning in the mid-1980s, in the volatility of real gross domestic product or its growth rate. The data in Table 1 reveal some of the most striking differences in the U.S. macroeconomic environment. The table presents means, standard deviations, maximums, and minimums for monthly federal funds interest, civilian unemployment, and consumer price inflation rates for the 1970–2005 period and its two halves, 1970–86 and 1987–2005. Strikingly, the means, standard deviations, maximums, and minimums are all lower in the latter period. The declines are often substantial. The mean annual inflation rate fell by more than half, from 6.7 to 3.1 percent. Its standard deviation fell by two-thirds, from 3.3 to 1.1 percent.

Figures 1 and 2 display the time series of monthly data for the nominal federal funds interest rate and for the unemployment rate for the 1970–2005 period and their means for the two halves of that period. The mean interest rate fell by 3.8 percent,

Table 1
Annual Interest, Unemployment, and Inflation Rates, 1970–2005

	Interest rate	Unemployment rate	Inflation rate
1970–2005			
Mean	6.7	6.2	4.8
Standard deviation	3.5	1.4	3.0
Maximum	19.1	10.8	14.6
Minimum	1.0	3.8	1.1
1970–1986			
Mean	8.7	6.9	6.7
Standard deviation	3.5	1.5	3.3
Maximum	19.1	10.8	14.6
Minimum	3.3	3.9	1.2
1987–2005			
Mean	4.9	5.6	3.1
Standard deviation	2.2	0.9	1.1
Maximum	9.9	7.8	6.4
Minimum	1.0	3.8	1.1

from 8.7 to 4.9 percent; the mean unemployment rate fell by 1.3 percent, from 6.9 to 5.6 percent. By these and other measures, the macroeconomic environment for banks was more benign over the most recent decades. It remains an open question, however, as to how much of the Great Moderation and the lower mean rates are due to smaller average-sized real and financial shocks, to better microeconomic and macroeconomic policies, or to changes in technologies and techniques.

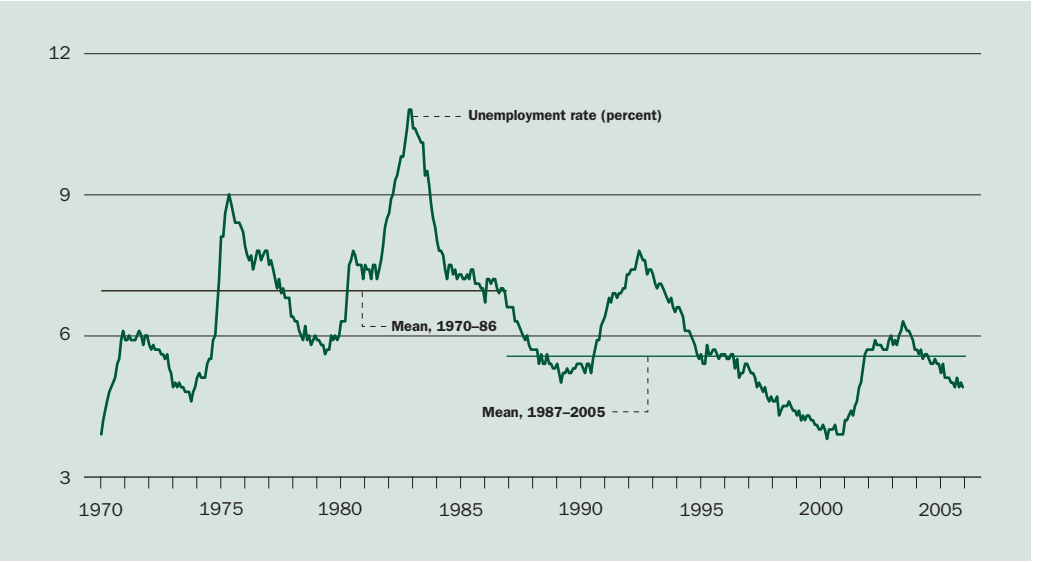
Prescriptions and Policies from the Middle of the 1980s Onward

By the mid-1980s, we were (unknowingly) at the beginning of the Great Moderation and (knowingly) in the midst of an ongoing wave of general deregulation that had begun a decade earlier. The 1986 Report described and diagnosed the sources of some of the ills that afflicted banking and prescribed policies to correct them. Many of the Report's recommendations for policy adjustments to make—and, perhaps as importantly, to avoid—have been adopted since 1986. However, many of the recommendations in the Report were also not followed. Furlong and Kwan (2007, this issue) describe in detail which of the Report's recommendations were adopted and to what extent.

Table 2 attempts to summarize succinctly the Report's recommended and the actual policy changes since 1986. The top row in the table lists policy changes recommended by the Report (a "to do" list). The bottom row lists policy changes that the Report advised against (a "don't do" list). The left column lists the policy changes that took place (a "did" list); the right column then lists the policy changes that did not take place (a "didn't" list). Thus, the northwest cell includes the policy changes recommended by the Report (for example, weakening barriers between banking and finance) that were actually carried out. The northeast cell includes recommendations (for example, removing the task of consumer protection from banking regulators) that have, so far, not been implemented. The southwest cell includes policies that the Report advised against (such as separating thrift insurance and supervision) but were imple-

Figure 1
Interest Rates: 1970–86 versus 1987–2005

Figure 2
Unemployment Rates: 1970–86 versus 1987–2005



mented; the southeast cell includes the policies that the Report advised against (such as creating a single super-regulator) that have not been implemented.

Assigning any particular implemented policy change (or inaction) to one of the four cells can be problematic, and some differences in assignments are surely reasonable. Furlong and Kwan's detailed descriptions of policy changes highlight the difficulties of classifying whether some actual policy changes follow the recommendations in the Report in full, in part, in spirit, in name only, or not at all. In some cases, policy changes might partially follow a recommendation and might reasonably be placed somewhere

Table 2
Recommended and Implemented Policy Changes from Benston et al. (1986)

		Policy changes implemented during 1986–2006	
		Did	**Didn't**
Benston et al. (1986)	**Do**	• Adopt statistical early warning systems • Increase bank disclosures • Increase supervisory disclosures • Allow insurers to close banks • Risk-base capital premiums • Enact prompt corrective action • Haircut uninsured creditors • Count subordinated debt as capital • Use subordinated debt yields in supervision • Remove banking/finance barriers	• Add deposit insurance to OCC role • Remove consumer protection from banking regulators • Consider enterprisewide risk • Risk-base deposit insurance premiums • Market value assets and liabilities • Remove supervision from the Fed • Restrict Fed as lender of last resort • Supplement FDIC with private deposit insurance
	Don't	• Separate thrift insurance and supervision • Increase nominal-dollar insurance ceilings	• Cap interest rates • Limit banking activities more • Create single super-regulator

in between. Thus, I augment the basic two-by-two matrix with a "somewhere in between" cell that includes policy changes that have been carried out in name but that in effect probably are closer to not having been carried out. For instance, I list risk-based insurance premiums as a policy that was carried out in name but clearly was not carried out to the extent recommended by the Report. As Furlong and Kwan discuss more extensively, FDIC insurance premiums are barely risk based—the overwhelming majority of banks have not paid any premiums for years despite the presence of a risk-based premium schedule and the likely changes in their risk profiles over the past decade (see also Wilcox 2001).

Despite its inevitably approximate assignments, Table 2 helps distinguish the forest from the trees. The table prompts two questions, one directly related to the table and a second question that is implied. First, how much did policymakers follow the Report's recommendations? Second, have banking and regulatory developments since 1986 reflected the issues the Report focused on? The diagonal cells in Table 2 provide information about the first question. The longer the lists in the northwest and southeast cells and the shorter the lists in the northeast and southwest cells, the more one might regard policymakers as having adhered to the recommendations of the Report. The longer the lists in the off-diagonal cells, the more discouraging for those who agree with the Report's recommendations.

It is challenging to assign weights to the relative importance of each individual recommendation and policy in Table 2. Nevertheless, it seems unassailable that a number of very important items are listed in each diagonal cell. Thus, an appraisal of the influence of the Report would have to conclude, perhaps unsatisfactorily, that while much of the Report has been implemented, much has not. On balance, however, it is striking how many of the significant, recommended reforms have been implemented.

Banks' being permitted to count subordinated debt toward capital requirements is one of the key issues and sets of recommendations in the Report. The Report clearly

calls for counting subordinated debt toward regulatory capital requirements. The Report does not, however, call for mandatory issuance of subordinated debt, instead calling for further study of the topic. A Federal Reserve staff study (Study Group 1999) weighs the pros and cons of mandatory issuance and finds the technical challenges of regular issuance at fixed intervals burdensome for all banks, particularly for smaller banks. Whereas banks have resisted mandated subordinated debt, banks seem to like subordinated debt or bondlike trust preferred securities (TPS), not as a complement to, but rather as a substitute for, equity capital in tier 1. Wilcox (2002, 2003) explores the rationales of counting subordinated debt and TPS toward capital requirements and the use of collateralized debt obligations that might make subordinated debt and similar instruments financially feasible for ever-smaller depository institutions. Given that payoffs from subordinated debt to the FDIC look more like those of debt than equity, perhaps banks and taxpayers could reasonably agree to substituting subordinated debt for equity in capital requirements, especially if subordinated debt creditors really are fully at risk. However, regulators still seem to much prefer equity to uninsured debt, perhaps in the belief that such creditors will not be fully at risk.

To what extent do regulatory developments since 1986 correspond to the issues identified in the Report? Indeed, many of the Report's recommendations have been implemented. Somewhat surprisingly, however, given its focus on safety and soundness, the Report treated bank capital (and its requirements) very sparsely. Unlike in the Report, the (in)adequacy of bank capital was much discussed during the entire decade of the 1980s. Maisel (1981) and other studies had already paid and brought considerable attention to the issues and evidence about bank capital adequacy. The thrift crisis was under way and very visible. As the market value of thrifts' capital and eventually even the book value of their capital vaporized, regulatory capital was created from vapor. In addition, U.S. and European banks had long complained about the low ratios of capital required by Japanese regulators for their banks. And discussions that led to Basel I's capital regulations had begun.

Despite recognizing "the current perceived capital weakness in the industry" (Benston et al. 1986, appendix, 305), the Report argues that "a full discussion of the problem of bank capital is beyond the scope of this project" (176). While the Report's appendix briefly discusses and advocates risk-based capital requirements, the Report largely eschews any position on whether nominal or effective capital requirements should be increased, recommending only that banks should be closed when their market values of net worth sink to 1 to 2 percent of assets.

Why Have Capital Ratios Risen So Much?

Furlong and Kwan (2007) emphasize higher capital level ratios as a major, if not predominant, change associated with banking regulation over the past two decades. There are several plausible reasons why capital ratios may have risen so much. An obvious candidate is the set of public policies that raised minimum nominal and effective required bank capital ratios. One might term this effect "Basel and Washington" in reference to the cities where the international accord and capital-related regulations were agreed upon.

Changing evaluations of the private and public policies adopted toward banking may have also raised capital markets' assessments of banks' optimal capital ratios. One might term this effect "New York" in reference to capital markets. Whether enhanced credibility of strong supervisory action (either through outright closures or through restrictions on activities for undercapitalized institutions) that raised optimal capital ratios should be attributed to Washington or New York is partly a semantic

distinction. Which city most affected banks' strikingly higher capital ratios in recent years has yet to be determined.

The threat of effective least-cost resolutions or early closure may have raised pressure from creditors and equity holders on banks to hold more capital. Alternatively, Flannery and Rangan (2004) argue that banks on their own may have chosen to hold more capital as an optimal response to their conscious decisions to hold riskier assets. The empirical support for this latter hypothesis is far from universal, as the perceived riskiness of bank assets probably rose considerably from the late 1960s through the mid-1980s while capital ratios simultaneously fell.

Other reasons for the striking increase in bank capital ratios might range from improved fiscal, monetary, and regulatory policies to better product, activity, and regional diversification by banks; from better management to better luck. Declines in capital ratios prior to the Great Moderation were sometimes attributed to an unusual spate of adverse shocks from the early 1970s through the early 1980s. In the absence of adverse shocks, even practices roughly similar to those of earlier periods might restore capital ratios in the shorter term. An extended recent period of better luck—in the sense that the average shock recently has been as beneficial as the shocks before the middle of the 1980s were adverse—might have brought some temporary, but long-lasting, overshooting of optimal capital ratios, which would be expected to be corrected over time.

PCA, Accounting, and "Safety in Similarity"

The 1986 Report argued that mispricing of risks by deposit insurers was, in large part, responsible for the bank and thrift crises of the 1980s. The Report thus implicitly argues that pricing such risks correctly—for instance, via risk-based insurance premiums and risk-based capital requirements—would greatly reduce the likelihood of similar crises in the future. As noted above, many of the Report's recommendations were implemented, and many others were not. Aside from the policies and issues the Report identified and foresaw, several other regulatory developments provide reasons for outright optimism, and some provide reasons for more guarded optimism.

Among the reasons for outright optimism are the "virtuous volleys" of policy changes between regulators and banks. We term sequences of public and private policy changes "virtuous" when successive changes reverberate upon each other and in the process produce banking that is safer and sounder. For instance, binding capital requirements can stimulate better risk management. Faced with demands from regulators for higher capital ratio cushions above formal minimum requirements, banks may develop and upgrade their risk management systems (for instance, collecting and analyzing more and better data) and resulting value-at-risk (VaR) estimates to rebut the necessity of higher capital cushions.

Better risk management can, in turn, stimulate better regulation. Regulators may permit more experimentation among "better" banks. In a common and perhaps sensible approach of testing the waters one toe at a time, bank regulators gradually allowed Section 20 subsidiaries of bank holding companies to engage in more and more investment banking. Regulators also eventually amended capital regulations to better reflect market risks in banks' trading books. Along the way, banking regulators developed more and better tools to analyze banks' risks, which presumably led to more appropriate demands for capital cushions.

Despite examples of virtuous volleys of public and private policies and the mounting capital ratios since the early 1990s, regulator-bank volleys need not all be virtuous. Just as binding capital requirements may lead to more sophisticated risk

management systems, they also may stimulate capital arbitrage. Indeed, a major impetus to Basel II was the sense that banks had effectively been able to skirt some of the important strictures of Basel I via capital arbitrage.

Another reason for optimism about upcoming bank safety and soundness is the sizable actual bank capital cushion that has accumulated over the last two decades. To date, regulatory reforms have apparently performed adequately, but the exceedingly benign macroeconomic environment apparently has put little stress on banks and thus on regulatory reforms.

The most recent decade has pleasantly surprised regulators and banks alike with a series of largely positive shocks that have nursed a healthy capital cushion for the banking system in general and for most individual banks. Though we have been through a lot of shocks and shifts since the Report was released, on average we may simply have had better luck. Indeed, a leading explanation for the Great Moderation of the macroeconomy is that the mean and variance of adverse shocks dwindled after the middle of the 1980s. And indeed many, and probably most, of the sizable shocks and shifts the economy has experienced in the last decade and a half also helped, rather than hurt, the financial sector. The same might be said for regulatory, technological, and technique shocks. In that sense, luck on average in recent years has been good.

What will happen when major adverse shocks strike again, as they are likely to eventually, is not altogether clear. The regulatory regime implemented over the past two decades might work as well as it is presumed to work. The current substantial capital buffers might well shield banks and the macroeconomy from serious implications. The fortunate absence of severe shocks and stresses, however, leaves the current arrangements largely untested.

This perspective then raises the question of whether relatively untested regulatory changes, such as PCA, will stand up when adverse shocks lean on it. Advocates of PCA express confidence that, in its actual application, PCA will indeed be both prompt and corrective, in contrast to regulators' capital forbearance, which allowed banking problems to fester and grow. Such prompt corrective action can reduce the expected losses to banking, the FDIC, and taxpayers. Such confidence has so far been little borne of experience. In that regard, it is reminiscent of the confidence placed until the 1970s by many macroeconomists in the long-term stability of the trade-off between unemployment and inflation rates. According to our revised thinking, borne of the painful experiences of the 1970s, that trade-off may be real and important in the short term but much different, and perhaps nonexistent, over the long run.

How strictly will PCA be applied in the face of serious banking problems? When the going gets really tough, will banks' losses get reported? When the banking industry is troubled, would a troubled bank report unbiased amounts of charge-offs and loan-loss provisions for contemporaneously or prospectively troubled loans on their financial statements? Will regulators, when confronted by many simultaneously troubled institutions, strictly apply prior provisioning standards for all of those banks? Will legislators allow such strict enforcement, or will they demand, explicitly or implicitly, that regulators be understanding of economic repercussions on the constituencies of elected representatives?

PCA does not eliminate all of the incentives and abilities for regulators and banks to collaborate to reduce reported problems. Indeed, by emphasizing regulatory strictures as a function of reported capital ratios, PCA may strengthen such incentives, opening the possibility for a new strain of "regulatory arbitrage." And, in such a case, some may well regard reporting discretion as an escape clause from the rigors of rules that may work to the benefit of the economy generally.

Luengnaruemitchai and Wilcox (2004) and Stever and Wilcox (2007) argue that discretion in the reporting of bad news might allow banks, in conjunction with their regulators, to sidestep, or at least postpone, PCA triggers. Accounting rules do somewhat limit such accounting discretion, but they may not completely preclude it in full for such "discretionary" items as loan-loss provisions and charge-offs. Past and ongoing examples of such collaboration between banks and regulators in the United States and abroad during troubled times are too many to ignore. Much of the litany of underreporting of bad news is well known and even acknowledged: U.S. thrifts and banks in the 1980s, U.S. banks again in the early 1990s, U.S. banks during the LDC crisis of the 1980s, and Japanese banks in the 1990s and 2000s.

In their empirical results, Luengnaruemitchai and Wilcox (2004) and Stever and Wilcox (2007) find evidence that individual banks have engaged in reporting discretion in response not only to their own conditions but also to their peers', a hypothesis termed "safety in similarity." Stever and Wilcox (2007) estimate loan-loss provision (LLP) and charge-off (CO) functions on panel data for the thirty largest banks during the 1985–2005 period. The finding that LLPs and COs rise and fall with a bank's own cash flow fits others' research results that such discretionary items tend to be used by banks for the purposes of "earnings management." In addition, the authors find that banks report fewer losses, ceteris paribus, when other banks are troubled. The size and significance of this effect waned after the early 1990s, likely either because it was gone or could not be detected during that high capital period. Stever and Wilcox hypothesize that when the banking industry is troubled, banks have a larger incentive to cluster. The value of the accounting discretion option is likely to be most valuable to a bank when it is troubled at the same time that other banks are troubled. Being similar to other banks can reduce the odds of being troubled when the rest of industry is not troubled. Indeed, Stever and Wilcox find that, when the banking industry was troubled, there was less dispersion across banks of their equity and asset betas, their assets' risks (volatilities), and their asset portfolio shares. Their results also show that individual banks moved their asset betas closer to the industry mean faster when the banking industry was troubled. Thus, these results suggest that reporting discretion has been actively used, although it may be currently practiced less. Whether that discretion will be exercised in the future remains to be seen.

Restructuring Financial Regulators

Benston et al. (1986) recommended root-and-branch restructuring of financial regulators. The Report called for both (1) regulators to be responsible for the deposit insurance of the institutions they regulated and (2) dual banking to be retained. As such, the Office of the Comptroller of the Currency would operate its own insurance fund for national banks, the Federal Deposit Insurance Corporation would be the sole federal banking regulator responsible for state-chartered banks, the Office of Thrift Supervision would operate its own insurance fund (as the Federal Home Loan Bank Board did), and the Federal Reserve System would largely be relegated to conducting monetary policy. The Report's recommendations have not been implemented.

These recommendations do raise the issue of whether, in a world where both integration and competition of both financial institutions and financial regulators are increasing, the Fed should be a banking regulator. Several researchers have presented evidence that supports a narrower focus for central banks. Using cross-country data, Goodhart and Schoenmaker (1995) and Di Noia and Di Giorgio (1999) find a positive correlation between the rate of inflation and the central bank having responsibility

for both monetary policy and supervision. Using data for the formal actions that federal bank supervisors take against banks, Ioannidou (2002) presents evidence that the Fed's monetary policy responsibilities affect its supervisory behavior compared to the bank supervisory behavior of the other federal banking regulators. In particular, she finds that when the Fed increases the federal funds rate, relative to the other federal banking supervisors, the Fed's supervisory posture eases somewhat. Barth et al. (2002) report evidence that countries whose central banks regulate banks tend to have banks that have higher measured credit risks. As the holding companies the Fed regulates are permitted to engage in activities that span more of the entire financial sector, pressures seem likely to impel the Fed to increasingly expand, rather than contract, the scope of its regulatory purview toward adding to its duties being a de facto regulator for insurance and securities firms.

The 1986 Report also called for sustaining a vibrant dual banking system. Some of the interactions between interstate banking and branching and the practical operation of an effective dual banking system were unlikely to be foreseen then, and some have not yet been fully envisioned. For example, the 1994 Riegle-Neal IBBEA permitted national banks with interstate branches to consolidate their operations largely under a single set of rules. In contrast, state banks were disadvantaged in that they still were burdened with different set of rules for branches in different states. At least partly to reduce the resulting disincentives for banks to be state chartered, the 1997 amendments to Riegle-Neal permit out-of-state branches of state banks to import their home state rules to the extent that out-of-state branches of national banks operate under national, rather than state, rules.

Wilcox (2005) refers to this system of "home-run" regulation, in which an individual bank can, in practice, choose from among more than fifty U.S. (state plus national) charters and operate anywhere in the United States under the rules of its chosen charter simply by locating its legal headquarters in the state that offers its preferred charter. If dual banking does have the advantages that banks and policymakers have so long claimed for it, then perhaps dual banking was "too good to be two." And, now, rather than regulatory duopoly, such home-run regulation allows not just two, but many, charters to reign within a given state. To date, the practical implications of regulatory reciprocity have not been very large, but, so far, the amendments are relatively new and seem largely unrecognized.

Conclusion

The last four decades brought large and sometimes wrenching shocks and shifts to the macroeconomic environment in which banks operate. The same period also brought sweeping, mostly beneficial changes in public policies, which aimed largely at deregulating the prices, activities, and locations of banking activities. Banks also benefited from the enormous technological and analytical advances that improved banks' abilities to measure and manage their risks.

By the middle of the 1980s, the difficulties and maladies afflicting banking were large and well known. Among the most prominent and far-reaching diagnoses and prescriptions was the 1986 book, *Perspectives on Safe and Sound Banking: Past, Present, and Future*. We used the book as a touchstone for evaluating banking policy prescriptions and outcomes. An impressively large share of the book's recommendations has been implemented in full or in part. And, of course, as one might anticipate about such a comprehensive list of prescriptions, not all of the recommended policies were implemented, and some policies that run counter to those of the book have been implemented.

Despite the impressive scope of its prescriptions, the Report was largely silent about capital. This silence is especially notable because of the amount of attention that capital had received by the middle of the 1980s and the preoccupation with capital that regulators have shown since then. Since the book appeared, bank capital has risen markedly and presumably, but not certainly, reduced solvency risks to banks and to the FDIC itself. Why capital levels have risen so much is even less certain. Likely reasons include reductions in the mean and variance of shocks adverse to banking and pressures from Basel, Washington, and New York.

Regulations now trigger increasing restrictions on banking as a function of falling capital ratios. These regulations might increase incentives for banks and their regulators to exercise options to report bad news and concomitantly encourage banks to seek safety in similarity in the face of adversity. Fortunately, the relatively benign environment has not severely tested how PCA will work in practice. While PCA's stimulus to higher capital ratios may help shield banking from macroeconomic difficulties, PCA has yet to be severely tested, and consequently caution about its effects under stress is warranted.

The past two decades brought substantial shifts in macroeconomic performance; in the permissible prices, activities, and locations of banks; and in banks' business practices. The period also brought proposals for substantial restructuring of the financial regulators. So far, formal adjustments to the structure of financial regulators have not been substantial. But far-reaching changes might yet emerge from the current set of regulations. One, as yet virtually unnoticed, change is that out-of-state branches are now permitted to operate under their home state charters. This change could lead from the current dual banking system to a "home-run" system that allows branches in a given state to operate under any one of more than fifty charters.

In addition, the Federal Reserve System's assuming the role of umbrella supervisor for financial holding companies offers the prospect of the Fed, perhaps both in appearance and in practice, being an important regulator not just of banks and their holding companies but also of the insurance companies and securities firms in those holding companies. The Fed could thus become the de facto regulator for most, if not almost all, of the financial sector. Whether the Fed should, wants to, or will embrace that role remains to be seen.

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COMMENTARY

Market and Risk Management Innovations: Implications for Safe and Sound Banking

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The paper by Fred Furlong and Simon Kwan (2007), "Safe and Sound Banking Twenty Years Later: What Was Proposed and What Has Been Adopted," is a comprehensive discussion of the status of recommendations that first appeared in *Perspectives on Safe and Sound Banking* (Benston et al. 1986). Summarizing the recommendations that appeared in a book twenty years ago and providing an overview of all the actions taken related to those recommendations could easily have become unwieldy. Fortunately, Furlong and Kwan have been quite successful in succinctly covering the many regulatory and supervisory changes over the past two decades that have responded (or in some cases not responded) to the original recommendations.

One of the major themes highlighted by Furlong and Kwan is the surprising number of recommendations from *Perspectives on Safe and Sound Banking* that have been adopted during the past twenty years. My comments provide a brief overview of three of the major innovations that were suggested in the original recommendations and discussed by Furlong and Kwan: movement toward greater risk-sensitive approaches, an enhanced role for market discipline and disclosure, and earlier intervention for troubled banks. I will then discuss the environmental changes that may not have been anticipated at the time of the original recommendations and some implications for bank supervision and regulation. The final section will provide some conclusions.

Major Innovations since the Publication of *Perspectives on Safe and Sound Banking*

One of the major suggestions in the original report was that bank supervision and regulation should adopt more risk-sensitive approaches. During the past twenty years, bank regulators have increasingly adopted risk-sensitive regulations. Perhaps the most striking example was the adoption of more risk-sensitive capital regulation. Basel I took some initial steps toward greater risk sensitivity by creating varying capital charges for asset classes according to their credit risk. While these asset categories were quite broad, they started the process of varying capital according to the riskiness of the bank. The Basel II proposal takes the risk sensitivity much further by allowing capital to vary according to the credit, operational, and market risk of the bank. In addition,

Basel II is a far more granular approach and comes much closer to the economic capital approaches taken by banks when they allocate capital internally.

Much of the Basel II proposal has leveraged off innovations made in risk management within the banking industry. As banks have become more complex, it has become increasingly important for institutions to develop their own internal models to calculate risk and return internally. An institution's corporate decisions, such as stock buybacks and dividend payouts, as well as internal decisions such as which business lines should be allocated more capital, require a much better understanding of the bank's capital and risks. The risk-sensitive approaches used in economic capital have served as the foundation for the new Basel II proposal.

Deposit insurance premiums have been another area where more risk-sensitive approaches have been adopted. The Federal Deposit Insurance Corporation has recently implemented a risk-sensitive approach to insurance premiums. While an appropriate policy, the impact of this approach is likely to be modest.

Bank supervision is another area where risk-sensitive approaches have been adopted—again, in response to industry innovations. Most banks use risk-sensitive approaches for internal audit and risk function activities. Similarly, bank supervisors have looked for opportunities to be more efficient by allocating more resources to those institutions that pose the greatest risk.

A second major innovation is a greater role for market discipline and financial disclosure. A variety of factors have caused banks to reexamine their degree of disclosure. Potential legal risk from not disclosing material information has caused banks to become more proactive in disclosing supervisory issues such as board resolutions and memorandums of understanding. Many institutions have been exploring innovative ways to disclose key control issues and better inform investors about their risk management practices. Improved disclosure has also been an outgrowth of the increased accountability of boards of directors. From a regulatory perspective, the Basel II proposal includes market discipline and improved disclosure as a central pillar.

A third major innovation is the acceptance of the benefits of earlier intervention into problem institutions. Perhaps the most important was the adoption of prompt corrective action, which required bank supervisors to close banks well before they had exhausted their capital. This innovation has given clear directions to bank supervisors that they are accountable for closing banks promptly as they become more troubled and that forbearance is not consistent with their legislative mandate.

A number of other innovations have resulted in problems at banks being addressed before the problems become severe. First, the emphasis on greater involvement by directors has caused them to get much more involved when significant problems are identified by internal audits or bank supervisors. Second, bank supervisors are more proactive in elevating problems. Memorandums of understanding, board resolutions, and formal actions are often imposed on banks that remain well capitalized. This approach emphasizes that interventions are occurring well before problems become a significant capital problem. Finally, at large banks, continuous supervision avoids discontinuities between exams. Exam teams that receive internal memos and board minutes and are in frequent contact with managers throughout the bank are much more likely to identify problems early compared to the more traditional periodic exams that are still conducted for smaller institutions.

Environmental Changes

While *Perspectives on Safe and Sound Banking* foreshadowed many of the changes to occur over the ensuing twenty years, obviously many of the environmental changes

that occurred in banking could not have been fully anticipated. One unforeseen change is the increased awareness of the role of financial institutions in the resilience of markets. Perhaps the most striking example of this was the 9/11 attacks, which had a significant impact on institutions in close proximity to the World Trade Center. The ramifications of the attacks increased awareness that business resilience was increasingly important. Banks have responded by significantly enhancing their contingency planning, and regulators have issued a white paper on business continuity for key market players.

The recent work on improving the functioning of the credit derivatives market is another example of the role of financial institutions in markets. This market has become increasingly important to banks and other financial institutions seeking to hedge some of their credit risk. However, the back-office developments have not kept pace with the volume of activity, and failed trades could potentially disrupt this market. Joint efforts by regulators and banks have been instrumental in reducing the volume of failed trades.

The Federal Reserve has also become much more aware that the volume of activity during the day could potentially result in significant intraday exposures to a failed bank. Both banks and the Federal Reserve have been taking actions to reduce the potential for such exposures, which could potentially disrupt the payment system.

Another major development is the emergence of processing banks, which often have negligible loans and retail deposits but are key players in settlement activities. With trillions of dollars in assets under custody and assets under management, these institutions are key players in the infrastructure of the financial system, and they pose potential systemic concerns from sources other than deposit runs. Unlike most other banks, processing banks tend to have relatively little credit risk exposures but have potentially large operational risk exposures.

While *Perspectives on Safe and Sound Banking* recognized that fraud was potentially an important source of bank failure, the definition of operational risk has expanded well beyond traditional fraud. Recent data from twenty-three large U.S. institutions show $25.9 billion in operational losses. These losses were dominated by two causal types: 78.9 percent from legal losses and 9.6 percent from execution and process errors. The legal losses frequently occur when new financial products carry risks that are not fully appreciated. This practice can result in class-action lawsuits for misleading customers or providing products that are not appropriate for their corporate clients. Process errors can occur when banks do not fully understand the risks posed by sloppy backroom operations. Mitigation for these types of problems is very different than the traditional controls placed in a bank to prevent internal or external fraud.

Another major innovation is the emergence of truly global banks with a variety of legal entities around the world. While most of *Perspectives on Safe and Sound Banking* had a domestic focus, the emergence of trillion-dollar banks is causing changes that were not fully anticipated. Although global banks have corporate governance, risk management, and economic capital determined for the entire enterprise, most regulation and supervision of institutions is based on legal entities operating within a national border. For example, bank regulations and supervision of institutions are focused on legal entities within national borders, the discount window is focused on domestic activities, and most deposit insurance schemes are focused on domestic deposits. This problem may be exacerbated as some trillion-dollar banks become large relative to the home and host countries in which they operate. Over time it will be necessary to more fully consider whether global banks are compatible with the national focus of most of our supervision and regulation of these entities.

Conclusion

While the recommendations in *Perspectives on Safe and Sound Banking* have not been fully implemented in the ways suggested by the authors, the original book helped generate many positive developments that are consistent with the spirit of their recommendations. Furlong and Kwan have done a nice job of summarizing the book and its impact. While much has been done in the past twenty years, spurred on by academics who have advocated more risk-sensitive market-based solutions, there is no shortage of additional issues that need to be tackled.

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Safety, Soundness, and the Evolution of the U.S. Banking Industry

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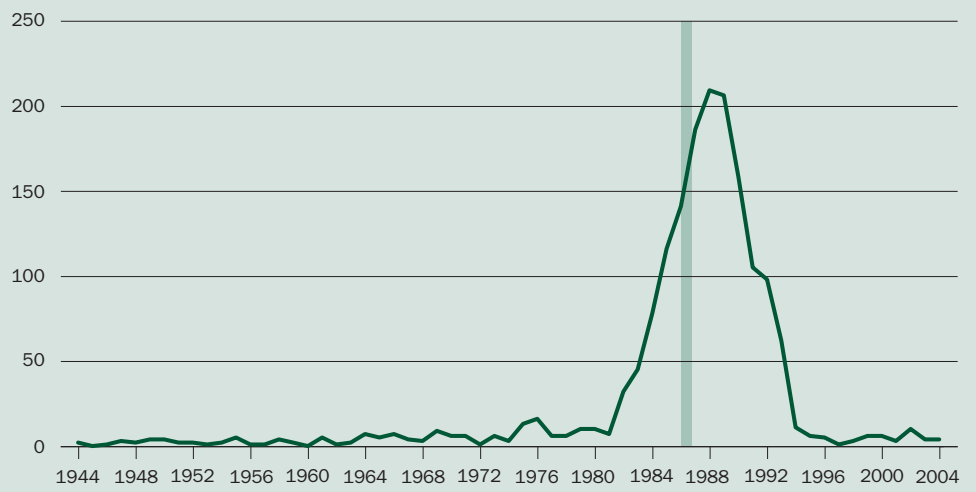
Bank failures are the most obvious manifestation of an unsafe and unsound banking system. From the early 1980s through the early 1990s, approximately 10 percent of U.S. commercial banks failed, resounding evidence that the banking system was at the time neither safe nor sound. As Figure 1 shows, the bank failure wave was an abrupt and substantial departure from normal conditions. The forty years leading up to the banking recession were nearly failure-free: only 237 banks failed between 1940 and 1980, an annual rate of fewer than four insolvencies per 10,000 banks. But the appearance of safety and soundness during those years is deceptive because the financial regulations and industry structure present at the time were themselves the root cause of the bank insolvencies of the 1980s and 1990s. Hence, the observation that the banking industry has been nearly failure-free since the mid-1990s is not, by itself, a good indication of the safety and soundness of today's banking system.

George Benston, Robert Eisenbeis, Paul Horvitz, Edward Kane, and George Kaufman wrote *Perspectives on Safe and Sound Banking: Past, Present, and Future* in 1986 near the peak of the bank failure wave. The book offered forward-looking advice for increasing banking industry safety and soundness. Much of the authors' advice is now embedded in U.S. banking law and prudential regulatory policies, and there is consensus among industry analysts and commentators that these regulatory changes have contributed importantly to a safer and sounder U.S. banking system. But neither time nor technology stands still. Evolution and innovation in financial markets, risk management techniques, information flows, and permissible banking powers have substantially altered the fabric of the banking industry during the intervening twenty years. Collectively, these regulatory and nonregulatory changes have dampened some types of risk, amplified other types of risk, and created some new types of risk. On balance, the banking system appears to be safer and sounder today than two decades ago, but it faces new risk challenges that could not have been anticipated in the 1980s.

Figure 1
Bank Failures per Year, 1944–2004



Note: The vertical line marks the publication of Benston et al. (1986).
Source: FDIC

This paper outlines the fundamental changes in the structure of the U.S. commercial banking industry over the past twenty years. I begin with a chronology of the regulatory, technological, financial, and competitive changes leading up to, during, and since the writing of *Perspectives on Safe and Sound Banking*. Next, a strategic analysis of the current state of the industry focuses on the concept of "transactions banking" and compares the transactions banking business model (and the large financial companies that practice this relatively new approach to banking) to the more traditional relationship-based banking business model. Special attention is paid to the different production technologies, product mixes, strategic behaviors, and risk-return trade-offs that characterize these two diametrically opposed approaches to commercial banking. The paper closes with a discussion of what these new developments may mean for the ongoing safety and soundness of the banking industry.

The Evolution of the U.S. Banking Industry[1]

During the 1970s, and indeed during all of the postwar period leading up to the 1970s, U.S. commercial banking was a protected industry. Government regulations shielded banks from geographic competition, from product competition, and to a great extent from price competition. The McFadden Act of 1927 protected banks from outside competition by prohibiting interstate branch banking. Although the act permitted cross-border banking through multibank holding companies, these organizational structures required state approval, and during the 1970s none of the states approved. In addition to these interstate restrictions, most states imposed partial or blanket restrictions on intrastate branching. The Glass-Steagall Act of 1933 effectively isolated commercial banking as a separate and highly regulated financial sector and thus insulated banks from competition with investment banks, insurance companies, and brokerage firms. Moreover, depository institutions such as savings and loans and credit unions were not permitted to compete with banks for commercial loans. Regulation Q

imposed interest rate ceilings on all deposits except for large negotiable CDs, effectively prohibiting price competition between banks for deposit accounts.

By 1980 there were still 14,434 chartered commercial banks in the United States. More than 97 percent of these commercial banks were "community banks" with less than $1 billion (2001 dollars) of assets, and these small banks accounted for about one-third of the industry's total assets. The banking industry was the largest category of financial intermediary in the United States, with more than 35 percent of the nation's intermediated assets (Federal Reserve Flow of Funds Accounts). The industry's deposit franchise made it the dominant provider of transactions services through checkable deposit accounts, and banks were an extremely important investment vehicle for consumers through savings accounts and time deposit accounts. For example, consumers allocated approximately 23 percent of their assets to depository institutions in 1983 (the first year that these data were available from the Federal Reserve's Survey of Consumer Finance). An important feature of banks' deposit franchise was their access to the payment system, which at the time was predominantly paper based. In a banking world that emphasized brick-and-mortar delivery, community banks enjoyed a competitive advantage in their local markets because regulation constrained brick-and-mortar entry by out-of-market banks, and automated teller machines (ATMs) were still in their infancy. In states that limited branch banking, this advantage was especially significant because large banks simply could not branch into local markets.

Loan markets were generally segmented during the 1970s, and in some lending markets banks (along with thrift institutions) were the dominant players. Banks and thrifts dominated the residential mortgage market. Mortgage holdings by insurance companies and finance companies were relatively small, and the mortgage securitization market was limited mostly to Ginnie Mae passthroughs. With regard to consumer loans, consumer finance companies tended to attract the higher-risk and subprime borrowers, while banks, thrifts, and captive auto finance companies (for example, GMAC, Ford Motor Credit) tended to attract the prime consumer borrower. Again, because of the extensive limitations on branch banking, community banks' power in local markets afforded them a competitive advantage in consumer lending over larger banks. Data from the Survey of Consumer Finance show that households obtained approximately 60 percent of their mortgage and consumer debt from depository institutions in 1983.

Commercial lending in the 1970s was segmented across financial institutions and within the banking industry. Large commercial banks made loans to business firms of all sizes and were the major source of short-term financing to large businesses. Small businesses are generally unable to get long-term financing other than to finance specific fixed assets such as equipment and real estate (see Carey et al. 1993). Community banks, constrained by legal lending limits, focused on lending to smaller businesses. Community banks allocated between 20 and 30 percent of their loan portfolio to commercial loans, on average. Life insurance companies were also active in business finance, but their activities were confined to longer-term financing to medium-sized businesses and some large businesses.

Financial innovation and technological change. In the late 1960s and early 1970s money market interest rates regularly exceeded the Regulation Q ceiling on deposit interest rates. This gap became huge after the Federal Reserve changed its approach to monetary policy in 1979, with the ninety-day Treasury bill rate at one

1. This section is based largely on material from Section 3 in DeYoung, Hunter, and Udell (2004).

point exceeding the passbook savings account ceiling by more than 1,000 basis points. As a result, deposits flowed out of low-yielding bank deposits and into higher-yielding investments offered by nonbank institutions. The impact of this disintermediation was felt most acutely by smaller banks and thrifts that depended on the small retail deposits covered by Regulation Q, as opposed to large banks that relied more on large-denomination CDs with interest rates that were set in competitive markets.

The threat from disintermediation was especially serious because retail customers were gaining increased access to alternatives to bank deposits for their liquid investments. The most salient change was the introduction of money market mutual funds (MMMFs) in 1971. Unlike existing large-denomination money market instruments such as negotiable CDs and commercial paper, MMMFs came in denominations affordable to households and small businesses; moreover, MMMFs had a big competitive advantage over Regulation Q–constrained bank deposits because they paid higher money market investment returns and allowed consumers check-writing privileges. As a result, MMMFs grew dramatically beginning in the late 1970s. Later in the decade Merrill Lynch took this innovation one step further with its Cash Management Account by adding a third dimension, a brokerage account. Innovations elsewhere in the financial services sector, such as universal life insurance, which combined term life insurance with a money market–linked savings component, created additional alternatives to retail bank deposits.

Evolution and innovation in financial markets, risk management techniques, information flows, and permissible banking powers have substantially altered the fabric of the banking industry during the past twenty years.

Other innovations had an equally powerful impact on retail banking. One of the most important was the ATM, which reduced the cost of producing transactions services and made them more convenient. Banks had initially hoped that the ATM would be, as its name implies, a substitute for human tellers and perhaps even a partial substitute for bank branches. To the contrary, as the number of ATMs has increased, so has the number of bank branches; these unexpected trends imply that bank delivery systems have a variety of complex strategic characteristics, such as locations that provide customer convenience, revenue centers that generate fee income (for example, third-party ATM fees), and physical brick-and-mortar platforms for person-to-person contact and relationship building. In addition to the ATM, other alternatives to brick-and-mortar banking began to appear in the 1970s and 1980s. Although fully transactional Internet banking did not appear until later, some banks began offering limited forms of computer banking in the 1980s. Customers with a computer and modem could pay bills and transfer money between accounts over telephone lines. Credit cards and debit cards expanded rapidly in the 1970s and 1980s, and although they are not generally thought of this way, these payment vehicles represented yet another alternative to the traditional bank delivery system.

Regulatory reaction to financial innovation and technological change. During the 1980s it became increasingly difficult to maintain a regulatory environment that could protect the banking industry from product competition, interregional competition, and interest rate competition while at the same time ensuring a vibrant and healthy banking industry. Market conditions and financial and technological innovation simply conspired against preservation of the old regime. Regulatory change became inevitable and necessary.

In some ways this change came quickly. For example, a period of high interest rates that began in 1979 led to the relatively rapid dismantling of Regulation Q, culminating

with the passage of the Garn–St. Germain Depository Institutions Act in 1982, which, among other things, allowed thrifts to make commercial loans and thus compete more directly with community banks. The demise of the McFadden Act took longer. At the intrastate level, thirty-two states liberalized their in-state geographic restrictions on banking between 1980 and 1994. At the interstate level, states began to exploit the multibank holding company loophole in the McFadden Act in the early 1980s, entering into reciprocity agreements with each other that allowed cross-border bank ownership through multibank holding companies. By the end of the decade, all but six states allowed some sort of interstate banking, with most being part of large regional compacts.

Expansion of banking powers occurred at a somewhat more incremental and deliberate pace. On the retail side, the first major change came with the Garn–St. Germain Act of 1982, which authorized banks and thrifts to offer money market deposit accounts (MMDAs), transaction accounts with no interest rate ceiling, which allowed them to compete directly with MMMFs. Until the end of the 1990s, most of the other changes were facilitated by Federal Reserve Board rulings. The Federal Reserve was given the authority under the 1956 Bank Holding Company Act and the 1970 amendments to the act to determine what activities could be conducted by banking organizations, subject to the condition that these activities be "closely related to banking." In 1987 the Federal Reserve allowed banks to form investment banking subsidiaries (Section 20 subsidiaries), and in 1989 the Federal Reserve granted limited (percent of bank income) corporate securities underwriting privileges to a select group of banks. The percent-of-bank-income limitations were gradually relaxed during the years that followed.

Some of the most fundamental changes in the banking industry over the past two decades are a direct result of the growth of securitized lending. However, unlike the deregulatory changes just discussed, in which government basically got out of the way, securitization is a story about government intervention right from the beginning. Securitization began in the 1960s with the creation of the Ginnie Mae passthrough and exploded in the 1980s with the development of the collateralized mortgage obligation. Two government-sponsored enterprises (GSEs), the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac), are dominant forces in the residential mortgage market.[2] As of 2003 investors held approximately $2 trillion in mortgage-backed securities issued by Fannie Mae (about $1,300 billion) and Freddie Mac (about $770 billion), and Fannie and Freddie held an additional $1.5 trillion of mortgages and mortgage-backed securities directly in their own portfolios. Together, mortgages securitized by, or held in the portfolios of, these two GSEs accounted for about 47 percent of total residential mortgage debt in the United States (White 2003).

Securitization combined financial innovation with technological innovation. The financial innovation is the synthetic creation of a liquid, traded security from a pool of illiquid, nontraded assets (for example, individual residential mortgages and credit card receivables) where often the payoff characteristics of the traded securities are altered significantly from those of the underlying assets. For example, securitization has become an important tool for community banks to geographically diversify their

2. Fannie Mae and Freddie Mac receive an implicit government subsidy because investors treat their debt as if it were backed by a guarantee of the U.S. government. The competitive advantage embodied in this subsidy, and the incentives that it creates for Fannie and Freddie, is the subject of substantial public policy debate (for example, Hendershott and Shilling 1989; ICF 1990; Cotterman and Pearce 1996; Passmore, Sparks, and Ingpen 2001; White 2003).

otherwise locally concentrated loan portfolios. The technological innovation is the efficient compilation, computation, and dissemination of information related to the performance and operation of the asset pools. One of the key links in this information chain is credit-scoring technology, which transforms quantitative information about individual borrowers (such as income, employment, or payment history) into a single numerical credit score, which lenders can use when screening and approving loan applications, securitizers can use to group loans of similar risk into pools, and investors can use (together with other information) to evaluate the risk of the resulting asset-backed securities.

One of the most important innovations in retail banking in the 1970s was the ATM, which reduced the cost of producing transactions services and made them more convenient.

First introduced in the 1950s, credit scoring has become widely used in consumer, mortgage, and micro-small business lending over the past thirty years (Mester 1997). Although some (mostly larger) banks have developed their own credit-scoring formulas, most lenders rely on third-party credit bureau scores to solicit and prescreen applicants. Bureau scores are based solely on the credit history of individuals as reflected in credit bureau reports, as opposed to application scores that weigh other factors (for example, income and employment) in addition to credit bureau information (Avery et al. 1999). Research on credit scoring is still relatively new, so it remains difficult to quantify the economic impact of credit scoring on the consumer, real estate, and small business lending markets. For example, it is still an open question as to whether risk is assessed more accurately using automated credit-scoring approaches or the more traditional, case-by-case credit analysis performed by loan officers.[3] It does seem safe to assert, however, that credit scoring has significantly reduced the unit cost of underwriting an individual loan, and as a result it has (a) increased the minimum efficient scale of consumer loan underwriting operations and in the process (b) expanded lenders' incentives to make credit available (Berger, Frame, and Miller 2005; Frame, Srinivasan, and Woosley 2001; DeYoung, Glennon, and Nigro 2006).

Comprehensive deregulation, consolidation, and widespread technology adoption. Banking industry deregulation reached its zenith during the 1990s. In 1994 Congress rationalized the patchwork of state-by-state geographic rules by passing the Riegle-Neal Interstate Banking and Branching Efficiency Act, which effectively repealed the McFadden Act at the national level. The immediate response was the highest-ever five-year run of bank mergers in U.S. history in terms of both the number and the value of the banks acquired (Berger, Buch et al. 2004). Although the most prominent mergers and acquisitions are the "megamergers" that combine two large banking companies, the vast majority of U.S. bank mergers since (as well as before) Riegle-Neal have involved at least one community bank (DeYoung and Hunter 2003). In 1999 Congress, its hand forced by the announced merger of CitiBank (the largest U.S. bank) and Travelers (one of the largest U.S. insurance companies), passed the Graham-Leach-Bliley (GLB) Act. GLB effectively repealed the Glass-Steagall Act and granted broad-based securities and insurance powers to commercial banking companies.

These congressional acts ratified the decades-long deregulation movement, and as such they marked the culmination of story lines that began in the 1970s and 1980s. By removing long-standing limitations on bank size and bank product mix, these acts helped accelerate the adoption of new financial processes and information technologies by U.S. banks. In general, larger banks have been quicker to adopt new technology than have smaller banks, including electronic payments technologies, transactional

Web sites, small business credit-scoring models (Berger 2003), ATMs and ATM networks (Hannan and McDowell 1984), loan securitization, and various off-balance-sheet activities (Berger and Udell 1993). However, the more scalable among these technologies disseminated quite rapidly to smaller banks because of the existence of a highly competitive sector of third-party technology vendors and declining costs of delivering these technologies.[4]

In the 1990s credit scoring was adopted by many large banks for micro-small business lending. The definition for this class of lending varies across banks, but the ceiling loan size generally lies between $100,000 and $250,000. Some banks use their own proprietary models, and others have purchased credit-scoring models from outside venders. In general these models rely on information about the entrepreneur (for example, credit bureau reports) and mercantile credit information from third-party information exchanges (for example, Dun and Bradstreet) as well as firm-specific information. Recent research indicates that this technology has been associated with an increase in overall small business lending and that it has enabled banks to make loans to a more marginal class of loan applicants (Frame, Srinivasan, and Woosley 2001; Berger, Frame, and Miller 2005; DeYoung, Glennon, and Nigro 2006).

Financial technology has also had a significant effect on how banks manage risk. After the run-up in interest rates in the 1970s caught many banks with an asset-liability mismatch, the banking industry began to adopt interest rate risk management techniques (for example, GAP-based programs and duration-based programs) to measure their interest rate exposure. Advances in financial engineering and the development of new and wider derivatives markets have improved banks' ability to implement interest rate risk management strategies. Following some highly visible financial fiascos, including Barings PLC, Orange County, and Metallgesellshaft, banks began to implement market risk management tools to measure and manage their trading risk in the mid-1990s. In the latter half of the 1990s, banks began to adopt similar value at risk–based tools for managing credit risk. The proposed new Basel Capital Accord (Basel II) goes one step further, using these new credit tools to link capital requirements to credit risk.

Possibly the biggest impact of technology on the banking system has been on the payment system, where electronic payments technologies and fund transfers are replacing paper-based payments (cash and checks) and paper record keeping. Gerdes and Walton (2002) found a 3 percent per year decline in the number of checks paid in the United States during the late 1990s, while payments made with credit cards and debit cards were increasing by 7.3 percent and 35.6 percent per year, respectively. These figures imply that checks' market share of total payments declined from 80.8 percent to 64.6 percent. Similarly, Humphrey (2002) estimated that checks' market share of total payments fell from 87.8 percent to 72.3 percent during the 1990s, although he found that overall check use was still rising modestly.

The Check Clearing for the 21st Century Act of 2003 (Check 21) permitted banks to improve the efficiency of check payments. By removing the requirement that banks return physical paper checks from the banks where the checks are deposited to the banks that pay them, Check 21 allowed banks to exploit improvements in information

3. Only one published study has analyzed whether human intervention can improve decision making on applicants rejected on the basis of credit scoring. This study used data from one bank with a historically high "override" rate and found that overrides of applicants who would have been rejected on the basis of the credit score did no better on average than their credit score alone predicted (Mayes 2003, chap. 12).
4. Frame and White (2004) survey the literature on technology adoption in the banking industry.

technology. Instead, banks could simply transmit electronic check images, saving substantial transportation and handling expenses and potentially easing the competitive disadvantages of check transactions relative to credit and debit card transactions.

The technology-driven switch from paper-based payments to electronic-based payments is reflected in the steep increase in automated clearinghouse (ACH) transactions, such as monthly mortgage payments and direct payroll deposits. ACH volume handled by the Federal Reserve increased at a 14.2 percent annual rate from 1990 to 2000, and this pace has resulted in an 83 percent reduction in the costs of producing these transactions from $0.959 to $0.158 in real 1994 dollars (Berger 2003). Technology-driven cost reductions in the processing of checks and cash payments have been more modest (Bauer and Ferrier 1996; Bohn, Hancock, and Bauer 2001; Gilbert, Wheelock, and Wilson 2002).

Some of the most fundamental changes in the banking industry over the past two decades are a direct result of the growth of securitized lending.

More recently, Internet banking has changed the landscape of the financial services industry by reducing both the importance of geography and the cost of transactions. In its most extreme form, a relatively small number of banks offer their services exclusively on the Internet. As of July 2002 there were just twenty such Internet-only operations; approximately another dozen Internet-only institutions have failed, been acquired, or voluntarily liquidated; and in addition, several large banks have integrated their Internet-only units into the main bank after poor stand-alone performance.[5] The more widespread Internet banking approach is the "click-and-mortar" model that combines a transactional Internet site with traditional brick-and-mortar offices or ATM networks.

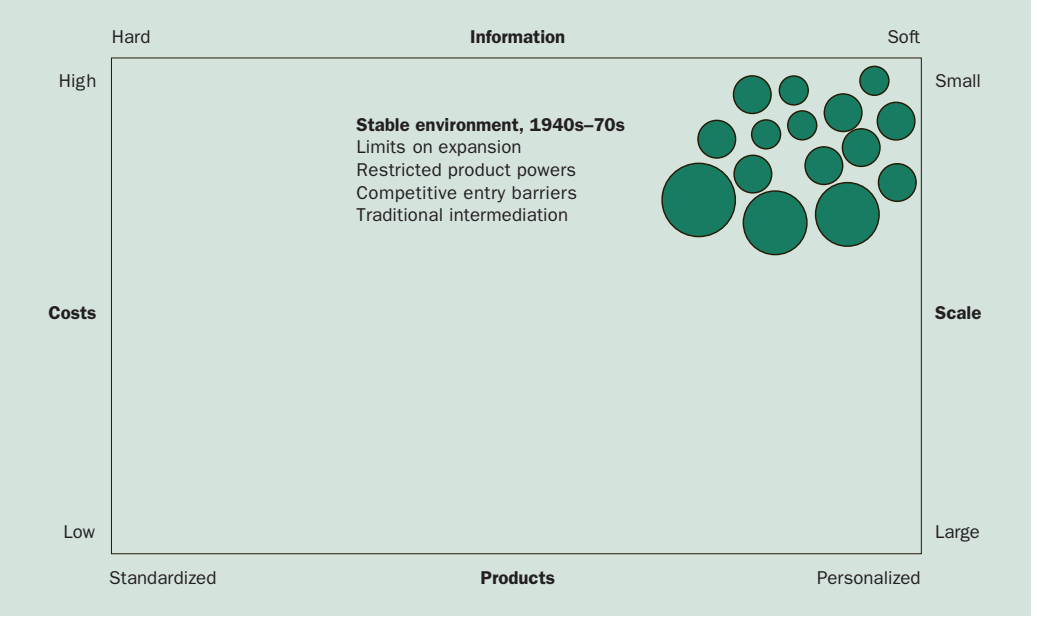
A substantial majority of banks have at least an informational Web site, and close to a majority—and virtually all large banks—now offer transactional Internet sites (Furst, Lang, and Nolle 2001, 2002; Sullivan 2001; Berger 2003). Because the basic Internet banking transaction has low variable costs, there are economies of scale associated with this production process and distribution channel (DeYoung 2005). However, this does not preclude small banks from offering this technology, because they can outsource both the development and the maintenance of their Internet sites to website vendors. There is some evidence that offering Internet banking services enhances the profitability of small banks (DeYoung, Lang, and Nolle, forthcoming).

Overall, the increased efficiency that results from a shift from paper-based to electronic payments should reduce the amount of transactions balances required by consumers. Indeed, consumers have reduced the fraction of their financial assets allocated to transactions accounts by a third, from 7.3 percent in 1983 to 4.6 percent in 2001 (Federal Reserve Survey of Consumer Finance). Moreover, the increased efficiency that results from a shift from full-service head offices to more specialized delivery channels (branches, ATMs, Web sites) should reduce the number of inputs that banks require to produce a given amount of banking services. The number of offices (bank branches plus the head office) per bank has nearly quadrupled since 1970, while assets per office, deposits per office, and transactions per office have steadily increased, and the number of full-time employees per office has declined (DeYoung, Hunter, and Udell 2004).

A Stylized View of Banking Strategies

The previous section described myriad ways that deregulation, technological change, and financial innovations have changed the competitive environment for commercial

Figure 2
The U.S. Banking Industry, Pre-deregulation

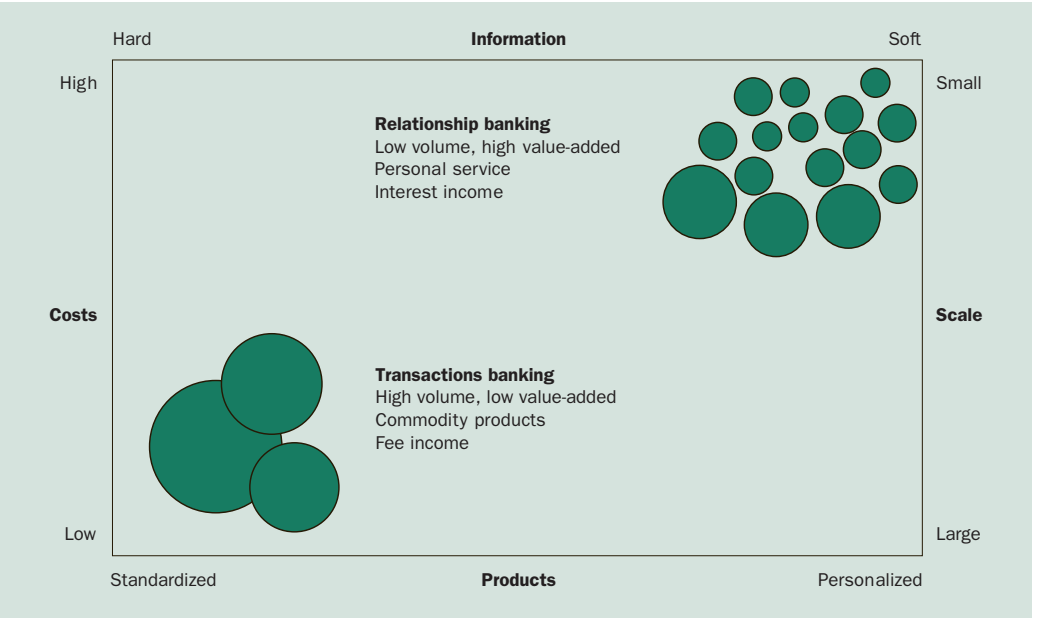


banks. At the risk of oversimplification, this section describes the strategic impact of these phenomena using just four basic parameters: bank size, unit costs, lending technologies, and product differentiation. This approach is derived from a series of studies by DeYoung (2000), DeYoung and Hunter (2003), and DeYoung, Hunter, and Udell (2004) and is illustrated here by the strategic maps in Figures 2 and 3.

The vertical dimension in these maps measures bank size, with large banks at the bottom and small banks at the top. Because the production of banking services tends to exhibit scale economies, the vertical dimension also measures unit costs, with low unit costs at the bottom and high unit costs at the top. Research on bank scale economies has evolved over the years, and the literature contains a fair number of inconsistencies; however, some important points of agreement have emerged over time. One point of general agreement is that small banks using a traditional banking model (that is, intermediating transactions deposits into loans held on portfolio) can gain substantial reductions in their unit costs—but not fully exploit all available scale economies—while still remaining relatively small. Of course, as banks continue to grow larger, they will gain access to additional reductions in unit costs, albeit at a declining rate. But at some point bank size is constrained unless the bank changes the manner in which it produces credit products and other financial services. For example, Rossi (1998) shows that unit cost reductions at financial institutions doing less traditional banking (for example, high-volume origination and securitization of mortgage loans or credit card loans) continue to be substantial even at very large scale, and this technological reality likely precludes small banks using traditional lending approaches from successfully competing head to head with very large banks in the production of financial commodity products.

5. These figures are based on internal records compiled by the Federal Financial Institutions Examination Council.

Figure 3
The U.S. Banking Industry, Post-deregulation



The horizontal dimension in Figures 2 and 3 measures the degree to which banks differentiate their products and services from those of their closest competitors. Banks that offer differentiated products and services (such as customized loan contracts or personalized private banking) are located on the right, and banks that offer nondifferentiated products and services (such as standardized mortgage loans or discount online brokerage) are located on the left. Note that not all product differentiation is tangible—it can often be a perception in the mind of the customer. For example, community banks attempt differentiation by knowing the names of their customers upon sight, while large banks attempt to differentiate via marketing campaigns to create brand images for otherwise undifferentiated products. If successfully deployed, both of these strategies can support higher prices for retail banking services.

The horizontal dimension of standardization versus customization is also consistent with the distinction between hard and soft information (Stein 2002; Berger, Miller et al. 2005; Scott 2004). Banks on the left side of this information spectrum use automated lending technologies to originate and securitize standardized mortgage or credit card loans and to deliver credit-scored micro-business loans. Moving to the right, banks emphasize more traditional lending technologies such as asset-based lending and financial statement lending. Finally, at the far right, banks specialize in relationship lending where loan officers acquire soft information about the borrower over time via financial interactions with the borrower and through interaction with the local community.

Pre-deregulation. Figure 2 illustrates the commercial banking industry prior to the deregulation, technological advance, and financial innovation of the 1980s and 1990s. The positions of the circles indicate the business strategies selected by banks, and the relative size of the circles indicates the relative size of the banks. All banks were clustered near the northeast corner of the strategy space. Geographic regulation restricted the size of banks and prevented most (and perhaps all) of them from

fully exploiting available scale economies. The available technology for producing and delivering banking services required interpersonal contact between loan officers and borrowers to collect soft information, paper-based transactions for payments, and visits to the bank to receive cash and deposit checks—all of which required brick-and-mortar bank and branch locations staffed by bank employees. The level of price competition on the deposit side was restricted on the one hand by Regulation Q and on the other hand by the lack of substitute liquidity and transactions providers. Retail competition, to the extent that it existed, was nonprice competition (for example, person-to-person service, the convenience of having a branch nearby, and of course free toasters for opening accounts). The price competition that is a hallmark of commodity-based financial services was largely absent. And banks faced relatively little competition from nonbanks or securities markets for supplying credit to businesses.

Before deregulation, banks that specialized in retail banking, small business banking, and corporate banking shared many of the same characteristics, regardless of their size. Small banks tended to offer a somewhat higher degree of person-to-person interaction with retail customers, and large commercial accounts by necessity went to large banks, but small banks and large banks had more commonalities with than differences from each other. For the most part, there was a single retail banking strategy (with some variants) and very little strategic difference among most banks' approaches to commercial lending.

Post-deregulation. Deregulation, technological advance, and financial innovation created new strategic opportunities for banks, and, as competition heated up, banks had incentives to pursue those opportunities. As discussed above, the average size of commercial banks began to increase—at first because of modest within-market mergers and then more rapidly because of extension megamergers—and the disparity in bank size within the industry also increased.[6] Although increased size yielded scale economies for banks of all sizes, the largest banks gained access to the lowest unit cost structures.

Large banks also became less like traditional banks because the size of their operations allowed them to more efficiently apply the new production technologies for which the "hardening" of information is crucial (for example, automated underwriting, securitization, widespread ATM networks, electronic payments). This shift had two effects. First, it reduced large banks' unit costs even further. Second, it changed their retail banking strategy to a high-volume, low-cost, "financial commodity" strategy. Home mortgages, credit cards, and online brokerage are three examples of financial services that have become dominated by large and very large financial institutions, which use hard information and automated production and distribution processes to deliver these services at low unit costs. Because price competition is strong for nondifferentiated products, pricing pressure keeps margins low despite these banks' low unit costs. High volumes, constant vigilance to keep expenses in line, and continuous innovation are essential for this strategy to earn satisfactory returns for shareholders.

The incentives created by industry deregulation (which increased the potential size and scope of commercial banks) and innovations in information technology and financial markets (which gave large banks access to an entirely new business model) drove a strategic wedge between the large and growing banks on the one hand and the smaller community banks on the other hand. The result is shown in Figure 3. Large banks have moved in a southwest direction on the map, sacrificing personalized service

6. See DeYoung (1999, 2000) for a summary of the causes and consequences of U.S. bank mergers.

for large scale and gaining low unit costs by shifting to automated production techniques. Although many community banks have also grown larger via mergers, they have remained relatively small and have continued to occupy the same strategic ground. By virtue of their small size, local economic focus, and person-to-person ethos, community banks are well suited to gathering the soft information necessary to deliver highly differentiated small business credit products and high-end consumer banking services. This more traditional strategy has allowed well-managed community banks to charge prices high enough to earn satisfactory rates of return despite their higher cost structures. In this view of the banking industry, community banks are differentiated from large banks by their "high-value-added" strategy.

Four additional points complete the strategic analysis in Figures 2 and 3. First, the corners of the strategy space represent the only potentially viable strategic choices for banks; being "stuck in the middle" of such a map indicates the lack of a strategy and leads to mediocre financial performance (Porter 1980). Second, the northwest corner of the strategy space (high cost, low-value-added) is not a viable strategy for obvious reasons. Third, the southeast corner of the strategy space (low cost, high-value-added) is the most preferred location, but it is unlikely to be a viable long-run strategy. Without some kind of entry barrier (such as patents or monopoly rights), the excess profits generated at this location will invite entry and the resulting competition will compress margins back to a normal rate of return. Strategy-specific barriers also stand in the way. Large banks may attempt to differentiate their products and services from those of their competitors by creating brand images and other perceived differences, but offering true person-to-person service (as well as other high-value-added retail and small business services) is difficult to achieve at a large scale. Small banks may attempt to achieve lower unit costs via growth, but they run the risk of getting stuck in the middle because of the strategic dissonance between large size and personal service. Nonetheless, the mere existence of this strategic ground, and the excess profits that banks can earn in the short run or moderate run by occupying it, creates an incentive for both large and small banks to innovate. Banks that do not strive via innovation to reach this strategic ground are likely to leave the industry in the long run.

Finally, the dichotomy illustrated in Figure 3 obviously oversimplifies the array of strategic choices available to commercial banks. For example, some large banks offer customized services to certain sets of clients with idiosyncratic financial needs, such as corporate investment banking clients and high-net-worth "private banking" customers. Furthermore, some small Internet-only banks specialize in providing extremely standardized retail banking services (DeYoung 2005). But the simplifications in this framework allow us to isolate the main characteristics of community banks (small size, local focus, and more traditional banking technology) and large banks (large size, broad appeal, and highly automated banking technology) and in turn to realize that community bank strategies and large bank strategies rely on different profit drivers. DeYoung, Hunter, and Udell (2004) argue that both small banks and large banks have access to financially viable business models; in particular, they argue that financial success for community banks in competitive local markets depends chiefly on (a) being large enough to capture some modicum of scale economies and (b) bank managers' ability to effectively implement the business model.

Evidence Consistent with the Strategic Map

There is considerable empirical evidence consistent with the strategic dichotomy illustrated in Figure 3, some of which is displayed in Table 1. These data are mean values of various financial ratios for different-sized groups of U.S. commercial

Table 1
Mean Values for U.S. Commercial Banks in 2004

	Large bank	Large community bank	Medium community bank	Small community bank	Rural community bank
Asset size	> $10B	$500M–$2B	$100M–$500M	< $100M	< $2B
Headquarters location	urban	urban	urban	urban	rural
Credit card loans/total loans	0.076	0.004	0.003	0.002	0.003
Loans sold or securitized/total loans	0.262	0.031	0.017	0.006	0.010
Small business loans/total loans	0.044	0.089	0.115	0.143	0.128
Fed funds purchased/assets	0.086	0.039	0.020	0.009	0.011
Core deposits/total deposits	0.287	0.382	0.527	0.618	0.622
Net interest margin	0.032	0.036	0.038	0.039	0.038
Advertising expense/ total noninterest expense	0.027	0.020	0.016	0.013	0.015

Note: All banks are at least ten years old.
Source: FDIC data and author's calculations

banks in 2004. (Using data from other individual years since 1999, or data averaged over the 2000–05 period, yields results qualitatively similar to those displayed in the table.) To be included in the analysis banks had to meet the following criteria: They held a state or federal commercial bank charter, were located in one of the fifty states or the District of Columbia, were at least ten full years old,[7] and had reasonably traditional bank balance sheets that included loans, transactions deposits, and insured deposits; monoline banks and other special-purpose banks were excluded. Banks were also excluded if they did not fall into one of the five asset-size classes represented in Table 1: large banks, with more than $10 billion in assets; community banks with either less than $100 million in assets, $100 million to $500 million in assets, or $500 million to $2 billion in assets; or rural community banks, with less than $2 billion in assets. Rural banks are included as a separate category because of their special role in providing agricultural credit and because they tend to face less competition in the rural towns in which they are located; however, rural banks use a business model very similar to that of other community banks and for most purposes can be considered to be community banks. Finally, the community banks and the rural banks had to meet the following additional conditions: They were domestically owned, derived at least half their deposits from branches located in a single county, and were either freestanding firms, the sole bank in a one-bank holding company, or an affiliate in a multibank holding company composed solely of other community banks.

The five size classes in Table 1 correspond to the dichotomy suggested by the strategic map analysis: Banks in the "large bank" group have more than $10 billion of assets, a size that far exceeds most definitions of a community bank. Banks in the other four groups are clearly too small to be producing financial commodity products as their main strategy. Comparing the financial ratios across the columns of Table 1

7. DeYoung and Hasan (1998) found that the average newly chartered bank in the United States in the 1980s and early 1990s did not become fully financially mature until it was at least nine years old.

Table 2
Mean Values for Large U.S. Commercial Banks in 2004

	Large bank	Large community bank
Asset size	> $10B	$500M–$2B
Headquarters location	urban	urban
Noninterest income/ total operating income	0.394	0.219
Fee income on deposits/ total noninterest income	0.279	0.418
Composition of noninterest income		
Investment banking	0.059	0.029
Loan servicing	0.046	0.018
Securitization	0.041	0.001
Insurance	0.034	0.020
Other	0.541	0.514

Note: All banks are at least ten years old.
Source: FDIC data and author's calculations

offers further support for a "strategic wedge" between larger and smaller banks—but it also suggests that in some dimensions, the size-based differences are more of a continuum than a discrete difference.

The data for credit card loans, loan sales and securitizations, and small business loans offer clear evidence of a strategic wedge between large and small banks. On average, about 8 percent of loans at the large banks were credit card loans—a classic financial commodity product—compared to less than half of 1 percent for the smaller banks. The production of credit card loans (even after excluding monoline credit card banks) has clearly gravitated toward large banks because of the scale economies present in this business line. Credit card receivables are often securitized, and, consistent with this fact, the average large bank securitized about 26 percent of its loans during 2004. This rate compares to a mere 3 percent or less at the small banks. This finding indicates that most of the loans made by small banks are either nonstandardized (for example, business loans, commercial real estate loans) and hence cannot be securitized or are part of a multiple-product bank-borrower relationship that is enhanced by holding the credits on the balance sheet (for example, deposit accounts plus loan accounts). Small business loans are the other side of this lending coin: The small business loan is the classic relationship loan, underwritten based on soft information. On average, the large banks had only 4 percent of their loan portfolio invested in small business loans versus between 9 percent and 14 percent for the smaller banks. (Note that this comparison likely understates the small-business lending gap between large and small banks: Some large banks make "micro-small business loans" that are underwritten based on the personal credit score of the proprietor and hence can be more like credit card loans than relationship loans based on soft information.)

The comparative data for fed funds purchased and core deposits are also consistent with the two theorized approaches to banking. On average, the large banks funded more than 8 percent of their assets with funds purchased overnight from other banks compared to between 1 percent and 4 percent for the smaller banks. Similarly, only

about 29 percent of total deposits at the average large bank were "core" funding (that is, transactions deposits, savings deposits, and certificates of deposit less than $100,000) compared to between 38 percent and 62 percent for the smaller banks. Both of these findings illustrate the difference between the traditional banking approach, in which long-term deposits are used to fund on-balance-sheet portfolios of nonstandardized loans that reflect a variety of customer relationships, versus the transactional banking approach, in which standardized loans are securitized and sold, funding is short run, and deposit accounts are typically unrelated to loan accounts. However, note that the decline in core deposit funding as banks get larger is a relatively gradual decline rather than a discrete regime shift between small and large banks. This pattern might indicate that the rapid asset growth rates of the largest community banks require a less traditional funding mix (it is well known that core deposits cannot be grown as fast as loan accounts), or it might indicate that the largest community banks are growing at the expense of their relationship-based business strategies and are risking getting stuck in the middle of the strategic map.

The incentives created by industry deregulation and innovations in information technology and financial markets drove a strategic wedge between large and growing banks and smaller community banks.

The differences in net interest margin across the various-sized banks flow directly from the comparative differences in funding and lending just noted. The average net interest margin for the large banks was 3.2 percent compared to 3.6 percent to 3.9 percent for the smaller banks. Securitizable loans are financial commodities sold in highly competitive markets, and the competitive rivalry (a) puts downward pressure on loan rates and (b) can create pressure to extend credit to risky borrowers that have high probabilities of defaulting or missing payments. These phenomena depress interest income per dollar at large banks relative to the interest rates that smaller banks can charge for relationship-based loans made to informationally opaque borrowers in less competitive markets. Fed funds and noncore deposits are more expensive sources of funding and thus put upward pressure on deposit interest rates. This pressure increases interest expenses per dollar at large banks relative to the interest rates paid by smaller banks to their largely core depositors.

Finally, the intensity of advertising expenditures differs substantially by bank size. On average, advertising expenditures account for only 1.3 percent to 2.0 percent of noninterest expenses at the small banks compared to about 2.7 percent at the large banks. This doubling of advertising intensity from the smallest banks to the large banks is consistent with the strategic map analysis in several ways. First, most large banks are still in the process of growing and entering new geographic markets, and advertising support is essential for establishing presence in a new market. Second, small banks can spend less on advertising because their strategy is locally focused (so word of mouth is relatively more effective) and is based on multiproduct relationships that keep the customer coming back to bank branches and Web sites (where it is inexpensive to communicate with customers). The implications of these advertising patterns will be discussed at greater length below.

Although large banks generate lower interest margins than small banks, they augment their interest income with noninterest income—often referred to generically as "fee" income—to a greater extent than small banks. Table 2 shows that noninterest income accounts for nearly 40 percent of operating income (net interest income plus noninterest income) on average in the large bank group, roughly twice as much as the average bank in the large community bank group (about 22 percent). This disparity is

also consistent with the strategic dichotomy illustrated in Table 1. For example, securitized lending operations generate relatively little interest income because loans are not retained, but they generate a disproportionate amount of noninterest income through loan origination fees, loan securitization fees, and loan servicing fees. Also note that the composition of noninterest income at large banks includes substantially more fee income from investment banking and insurance activities than at smaller banks; these nontraditional banking activities were made possible by deregulation, and the fact that smaller banks have not taken greater advantage of these powers is due in part to the scale of operations needed but is, more importantly, an indication of their strategy that focuses on traditional banking activities.

Further Implications of Strategic Change

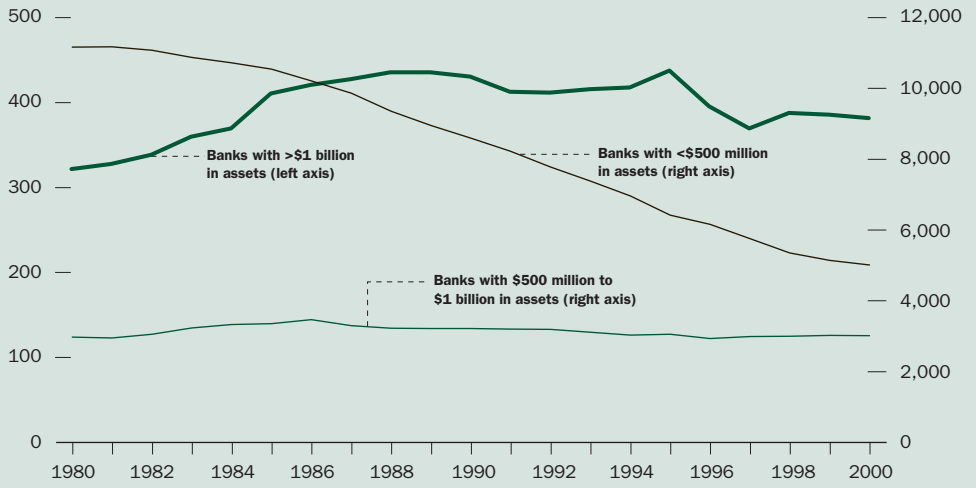
While the data offer clear support for the strategic map analysis in Figures 2 and 3, a more complete appreciation of this strategic shift requires analysis outside of this simple and highly stylized framework. This section draws on existing research in banking and finance to more closely examine how the dichotomy of transactions banking versus relationship banking has shaped competitive rivalry and financial performance in the U.S. banking industry.

Industry structure. Geographic deregulation released a binding constraint on the size of banking companies that wished to grow larger, and advances in financial and information technologies provided a potentially attractive business model (transactions banking) that could be exploited most profitably by large banks. The fastest way for commercial banks to take advantage of these opportunities was to acquire other existing banks. On average, 500 commercial banks were acquired each year between 1990 and 2000 in an industry that started the decade with about 12,000 banks. These acquisitions substantially altered the structure of the U.S. banking industry.

As illustrated in Figure 4, the wave of bank mergers and acquisitions had two effects on the number and size distribution of U.S. banks. First, the number of banks (measured by the number of bank charters) had declined by about half since 1980, from around 14,000 banks—a number that had remained remarkably stable since the 1950s—to fewer than 8,000 banks today. Note that this large decline in banks is a net figure and was not completely caused by mergers and acquisitions. On the one hand, the 2,000-plus bank failures displayed in Figure 1 account for a portion of this decline, while on the other hand, more than 3,000 new banking charters were granted by state and federal banking authorities during the 1980s, 1990s, and 2000s. Strong anecdotal evidence, as well as systematic empirical evidence, indicates that these new, or "de novo," banks tended to start up in markets in which local established banks had been acquired (Berger, Bonime et al. 2004; Keeton 2000).

Second, the size distribution of banks has clearly changed. The number of banks with more than $1 billion in assets has remained between 300 and 450 since 1980, and the number of banks with between $500 million and $1 billion in assets has remained near 3,000 since 1980. Nearly all of the reduction in the number of banks has occurred in the less-than-$500-million category, which has fallen from approximately 11,000 in 1980 to fewer than 5,000 today. Three phenomena account for most of this huge decline: The vast majority of bank failures since 1980 occurred in this size group; most of the banks acquired since 1980 were from this size group; and a substantial number of banks grew out of this size group by acquiring other small banks. (The stable populations in the two larger size groups indicate that the number of banks growing into higher size groups was roughly offset by the number of banks disappearing from the industry as merger targets.)

Figure 4
Survivor Analysis: Number of Bank Charters for Banks in Different Asset Categories



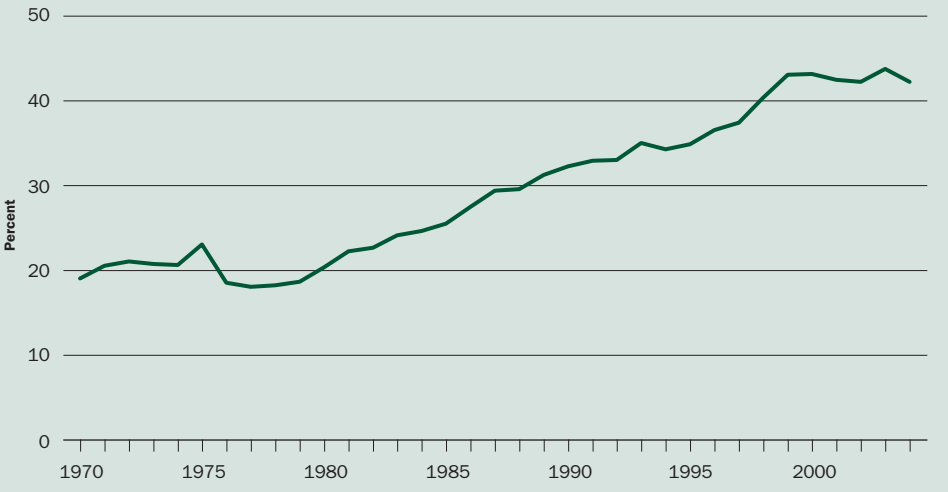
Note: The data suggest that the strongest scale efficiencies are for banks with less than $500 million in assets.
Source: FDIC data and author's calculations

Figure 4 is a crude version of a survival analysis (Stigler 1958). Scale economies provide the most likely explanation for the death of so many small and medium-sized community banks, while larger community banks continue to survive. The literature on bank scale economies is large and has produced greatly different estimates of minimum efficient scale over the years.[8] The earliest studies concluded that scale economies were fully exhausted by relatively small banks; most of these studies estimated minimum efficient scale for banks to be less than $1 billion of assets (2001 dollars). More recent studies have yielded somewhat different insights; many of these studies conclude that scale economies are available for large regional and superregional banks. While part of the difference between these two sets of studies is the inferior (though state-of-the-art at that time) methodologies used by the earlier studies, the more important difference is the change in production technologies over time as banks have taken advantage of new information and financial technologies in the production of banking services. The survival analysis in Figure 4 suggests that economically meaningful scale savings can be captured by growing up to $500 million in assets but that growing beyond $500 million—at least for community banks—yields far less substantial gains.

Efficient scale is likely to be quite different for transactions banks and other banks that do not use traditional banking business models. As noted above, Rossi (1998) shows that even very large mortgage banks (which use a classic transactions banking approach) face increasing returns to scale. Hughes et al. (1996) conclude that even the largest commercial bank holding companies (in which product volume is often dominated by transactions banking activities) also exhibit increasing returns

8. See Berger, Hanweck, and Humphrey (1987); Mester (1987); Clark (1988); Hunter, Timme, and Yang (1990); Hunter and Timme (1991); Evanoff and Israilevich (1991); Clark (1996); and Berger and Mester (1997) for reviews of the bank scale economy at various points in time.

Figure 5
Noninterest Income as a Percentage of Banks' Operating Revenues



Source: FDIC data and author's calculations

to scale. And DeYoung (2005) argues that Internet-only banks (again, with a pure transactions banking strategy) exhibit larger scale economies than similar-sized banks that have branches. Acquiring other relatively large banks in other markets has been the quickest way for large banks to capture the potentially huge scale economies available from transactions banking models.

Geographic expansion by merger has eliminated thousands of banking charters and has created very large banking companies—for example, just before the passage of the Reigle-Neal Interstate Banking Act in 1994, only four banks had more than $100 billion in assets; a decade later ten banks were that large, with two of these banks approaching $1 trillion in assets. This industrywide consolidation has had little effect on the structure of local markets—by definition, geographic expansion mergers leave local market shares unchanged—but the nature of the competitive rivalry in markets can change. Studies have shown improved cost efficiency at small local banks following market entry by large out-of-market banks, presumably because of competitive pressure (DeYoung, Hasan, and Kirchhoff 1998; Evanoff and Ors 2001). Other studies have shown that outside entrants with stronger "brand images" are able to expand their local market shares faster than average (Berger and Dick, forthcoming), consistent with the idea that perceived differentiation can be an effective tool for large banks that sell financial commodity products.

Geographic expansion mergers have also increased the distances within banking organizations and may have created internal management problems. Berger and DeYoung (2001, 2006) find that banking affiliates located farther away from the headquarters bank were less operationally efficient. While improvements in communications and information technologies have proved helpful in reducing these long-distance management problems, such organizational inefficiencies are one reason that small, locally focused banks may continue to be financially viable in competition with large banks. Distances between banks and their loan clientele have also increased over

time. This phenomenon is mainly technology-driven: automated, credit-scored lending models allow banks to make consumer, mortgage, credit card, and even some small business loans to borrowers they have never met in person, and asset securitization and credit derivatives allow banks to manage the risk associated with this type of lending (Petersen and Rajan 2002; DeYoung, Glennon, and Nigro 2006).

It is important to understand that the reduction in banking companies over the past two decades has not necessarily increased the distances between borrowers and lenders because banks have simultaneously increased the size of their branching networks. There are about 70,000 commercial bank branches in the United States today compared to only about 40,000 in 1990. This explosion in bank branches has been largely strategic in nature. For example, in some markets (such as Chicago) large banking companies are packing the map with branches in order to establish market presence and to limit entry by competitors. By increasing the size and scope of its branch network, a bank can position itself closer to its current clients as well as its potential customers. This strategy can be especially important for large, transactions banks; although it is difficult for these banks to offer personalized banking services, they can offer high levels of customer convenience by locating close by. This higher level of convenience may explain why retail customers appear willing to pay higher deposit-related fees at large banks. Finally, physical branches located in prominent places also serve as an important advertising vehicle, especially in markets into which a bank has just expanded.

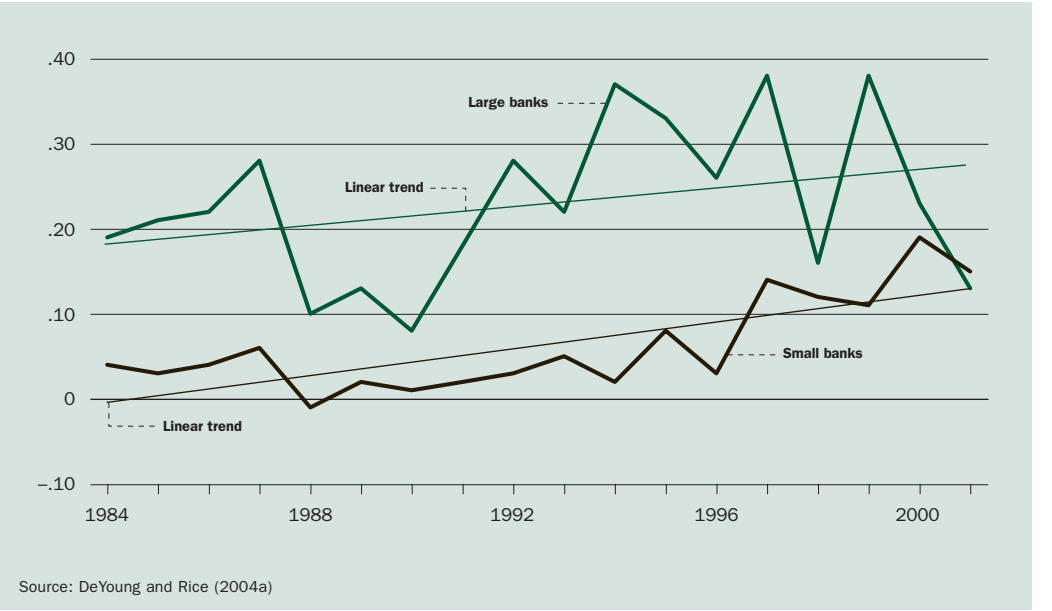
After the dramatic consolidation of industry structure, perhaps the next biggest change in the U.S. banking system in the past two decades is the shift from interest income to noninterest income.

Noninterest income. After the dramatic consolidation of industry structure, perhaps the next biggest change in the U.S. banking system in the past two decades is the shift from interest income to noninterest income. As shown in Figure 5, the percentage of total industry income derived from noninterest income doubled between 1980 and 2000. (Note that this time period coincides almost exactly with the large decline in the number of U.S. commercial banks shown in Figure 4.)

The increased importance of noninterest income at U.S. banks can be traced to three primary sources. First, product market deregulation (that is, the expansion of Section 20 securities subsidiaries during the 1990s, insurance powers granted to national banks during the late 1990s by the Office of the Comptroller of the Currency and the Gramm-Leach-Bliley Act of 1999) granted banking companies the power to produce or sell nontraditional banking services such as equity and debt underwriting, securities brokerage, and insurance products. These lines of business generate primarily fee income and negligible interest income. Second, some traditional banking services that used to generate interest income for banks now generate fee income. For example, while in the past banks might make a loan to a business client (interest income), banks might now sell that client a backup line of credit (noninterest income) that the client needs to issue its own commercial paper or other debt instrument. Similarly, a large portion of retail lending by banks has shifted from portfolio lending (interest income) to securitized lending (noninterest income). Third, the repeal of Regulation Q, which allowed banks to pay market interest rates on deposits, had the effect of increasing the prices charged for deposit services (teller services, check charges, certified checks, bounced checks, etc.), which had traditionally been subsidized by low deposit interest rates.

It is tempting to conclude that the increase in noninterest income shown in Figure 5 means that loan-based and other intermediation activities have become a

Figure 6
Correlation of Returns on Equity and Net Interest Margin



Source: DeYoung and Rice (2004a)

less important part of the value of the banking franchise. Figure 6 displays 1984–2001 time series of the annual cross-sectional correlations between commercial bank profits (returns on equity [ROE]) and net interest margins, for both large (assets greater than $1 billion) and small (assets less than $1 billion) banks (DeYoung and Rice 2004b). If intermediation had become less important to banks over time, these time series should arguably be declining over time, but this is obviously not the case.

The increase in noninterest income has altered the risk-return profiles of U.S. banks. DeYoung and Roland (2001) argue that noninterest income may be riskier than interest income, contradicting the early expectations of many industry analysts who believed that fee income was more stable than interest income or that fee income had positive diversification effects at banks. First, the fee income generated by some financial services is likely to be more volatile than interest income from lending. For example, compare fee income from the origination of mortgage loans that are quickly sold off to interest income from a small business loan that is held in portfolio. The former is a nonrepeat business with revenues that are sensitive to volatility in the housing market and mortgage interest rates, while the latter is based on a long-term relationship that both sides wish to continue. Similarly, because fee income from brokerage activities is typically a fixed portion of the value of assets under management, or a fixed percentage of the value of the trades made, these revenues contain systematic (undiversifiable) risk that is generated by the business cycle. Second, many noninterest activities have high fixed costs (personnel expenses), while lending has high variable costs (interest expenses). This high fixed-to-variable cost ratio results in higher operating leverage for the noninterest activities, which amplifies revenue volatility into even greater earnings volatility.

Several empirical studies have investigated the riskiness of noninterest income at U.S. commercial banks. DeYoung and Roland (2001) find that non-deposit-related fee income is associated with both higher revenue volatility and higher earnings volatility.

DeYoung and Rice (2004b) find that marginal increases in noninterest income are associated with a worsening of banks' risk-return trade-off. Stiroh (2004a, 2004b) finds no evidence of diversification gains at banks that combine interest and noninterest income. Choi, DeYoung, and Hasan (2007) study market returns at banks from forty-two different countries and find that noninterest income exposes banks to increased systematic risk.

Financial performance. The two broad strategies illustrated in Figure 3—transactions banking and relationship banking—are known as generic strategies (Porter 1980). Within any generic strategy there can be many strategic variations having similar though not identical characteristics. DeYoung and Rice (2004a) defined eleven such strategic groups within the U.S. commercial banking industry, with the objective of determining whether these different banking business models generated similar or different financial returns.

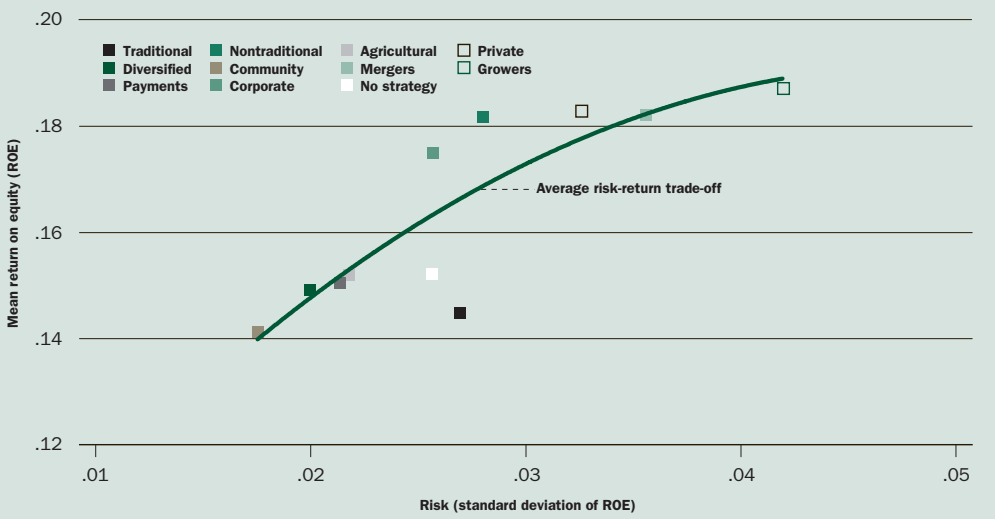
Banks were assigned to one or more of these strategic groups based on the financial services in which they concentrated, the input mixes and production technologies they used to generate those services, their growth strategies, and the customer segments that they targeted. Banks with less than $500 million in assets were excluded because, as discussed above, these banks are likely operating below minimum efficient banking scale. For the remaining banks, the mean ROE (a measure of expected return) and standard deviation of ROE (a measure of risk) were calculated using data from 1993 through 2003. Finally, the average risk and average return were calculated across the banks in each strategic group.

The results of this exercise are displayed in Figure 7, where the points on the graph represent the risk-expected return combination for each of the eleven strategic groups. The nontraditional group is closest to the stylized transactions banking model (large size, substantial loan securitization activity, high noninterest income, low core deposit funding), while the community bank group is closest to the stylized relationship banking model (small size, local focus, portfolio lending, low noninterest income, high core deposit funding). The community banking model generates a very low expected return and very low risk, while the nontraditional group generates relatively higher expected return and relatively higher risk. In other words, transactions (nontraditional) banking is riskier than relationship (community) banking, but the owners of transactions banks receive higher expected returns in order to put up with this riskiness—that is, there is a positive risk-expected return trade-off across banking strategies. The regression line running through the eleven points represents the average risk-return tradeoff in the industry, moving from strategic group to strategic group.[9]

The high level of risk for the nontraditional strategic group and the low level of risk for the community banking group are both consistent with the research findings discussed in the prior section: Noninterest income is relatively volatile, while relationship lending income is relatively stable. Similarly, the risk-return positions of the other strategic groups make economic sense. The high expected returns for banks that were growing quickly during the sample period ("growers" and "mergers") reflect the profitable investment opportunities that make firms grow quickly, and the high risk for these banks reflects the transitory expenses associated with rapid growth (for example, one-time merger-related charges, short-run excess capacity at newly established branches). "Diversified" banks that produce a balanced set of different loan and fee-based outputs operate with relatively low risk. "Private" banks that manage the investment portfolios of their wealthy clientele have relatively high levels of risk, reflecting the sensitivity of their fee income to systematic or market risk.

9. The regression was estimated using an intercept term and a simple quadratic specification of risk.

Figure 7
Accounting Risk and Return, 1993–2003



Note: Excludes assets less than $500 million
Source: DeYoung and Rice (2004b)

"Traditional" banks that have not availed themselves of recent financial innovations (such as those with no asset securitization or with a heavy dependence on interest income) and banks with "no strategy" (those that did not fall into any of the other ten strategic groups) both have poor risk-expected return trade-offs. The former strategy implies the financial perils of nonprogressive, stagnant management, while the lack of strategy illustrates the dangers of being stuck in the middle.

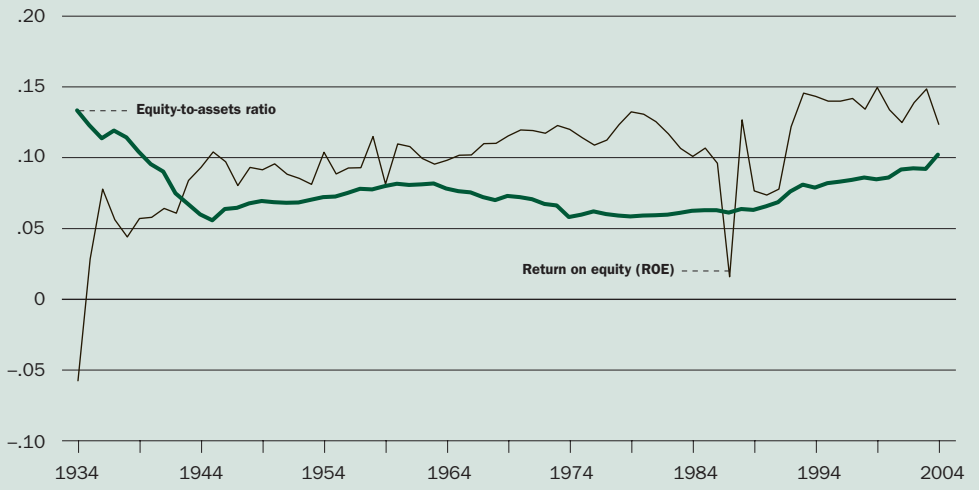
Is the Industry Safe and Sound Today?

Today's commercial banking industry is clearly more diverse than the banking industry in 1986, when *Perspectives on Safe and Sound Banking* was written. Today's largest banks dwarf those of twenty years ago, while very small community banks still exist in large numbers. Some banks practice strategies that rely almost completely on noninterest income, while more traditional banks still exist that rely primarily on interest income. Some banks have aggressive growth strategies that would have been unpracticable during the geographically regulated industry of the 1980s. Some banks use asset securitization and derivative securities to manage credit and interest rate risk, while other banks continue to rely primarily on careful loan underwriting, monitoring, and asset-liability management practices. Some banks create brand images with advertising campaigns, while others continue to let word of mouth carry their reputations to local customers. Most banks continue to count on core deposit funding, while many of the largest banks purchase a large portion of their funds in financial markets.

Given this increased diversity, one would expect substantial variation in financial performance across banking companies—and perhaps a greater chance that, at any given time, at least some banking companies would be suffering financial distress. Is the banking industry safer and sounder today than twenty years ago?

The answer is almost certainly yes, in no small part because of the public policies advocated twenty years ago by Professors Benston, Eisenbeis, Horvitz, Kane,

Figure 8
Bank Capital and Earnings, 1934–2004



Source: FDIC and author's calculations

and Kaufman, many of which lie at the core of today's regulatory and supervisory banking policies. Not surprisingly, the manifestation of these policies can be seen in the historically high capital levels held by today's banks. Figure 8 shows the aggregate equity-to-assets ratios for U.S. commercial banks (book values) each year during the postwar period. Note the continuous improvement in the aggregate capital level that started in the early 1990s, increasing from 6 percent then to 10 percent today. This large reservoir of capital provides a substantial margin of safety and soundness against the (perhaps) increased opportunities for risk taking in today's deregulated banking industry.

This large capital cushion is the result of three developments. First and foremost is the stricter supervisory and regulatory framework mandated by the Federal Deposit Insurance Corporation Improvement Act, the centerpiece of which is prompt corrective action that imposes costly restrictions on banks with diminishing capital levels. In addition, the increased competitive pressure facing banking companies—predominantly a result of deregulation and financial innovation—requires banks to operate efficiently or else exit the industry via acquisition. Efficient operations yield higher earnings, and higher earnings generate increased capital via retained earnings. And finally, fortunate macroeconomic circumstances over the past twenty years, together with the elimination of so many regulatory constraints, have allowed banks to achieve record earnings levels. Figure 8 illustrates how truly impressive these increases in bank earnings are: Industry return on equity has remained at historically high levels since the early 1990s despite the fact that industry equity levels have nearly doubled.

One should not conclude from this performance that today's banking industry is invulnerable to a banking crisis—unfortunately, history likes to repeat itself. But it is safe to conclude that the industry is safer and sounder now than it was twenty years ago.

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COMMENTARY

Some Thoughts on the Evolution of the Banking System and the Process of Financial Intermediation

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I will focus my discussion on three areas I believe are important ones when considering the evolution of the financial services industry: consolidation and the economies gained from it; governance issues, which are emerging as the structure of the banking industry has changed and continues to change; and the decline in the benefits gained from the set of contracts we call a "bank." In particular, I'll argue that the decline in relationship lending perhaps reflects a decline in demand for bank liabilities rather than a decline in demand for relationship lending.

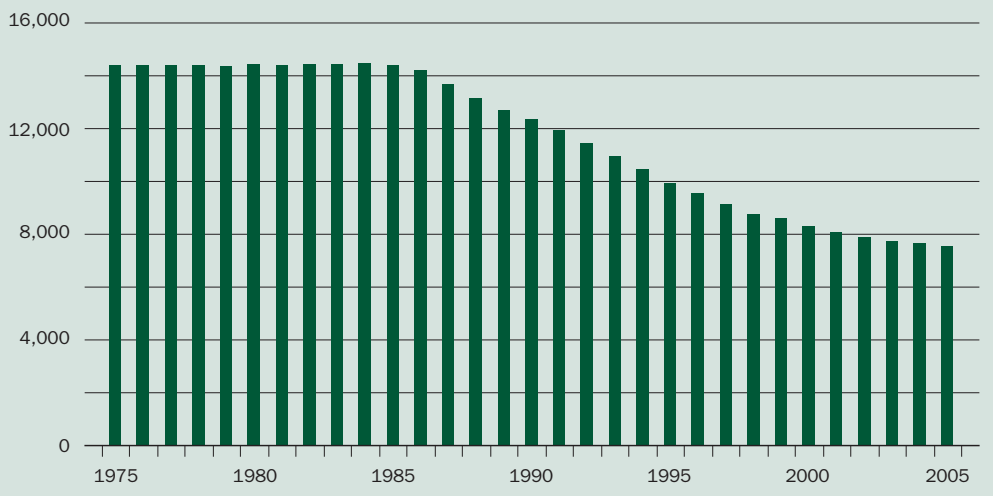
Consolidation

A striking amount of consolidation has occurred in the banking industry over the past twenty years, and it has led to some very large banks. In the United States about 11,500 bank mergers took place from 1980 through 2005, which is an average of about 440 mergers per year. And the size of mergers has risen over time. For example, in January 2004 JPMorgan Chase agreed to buy Bank One, creating a $1.1 trillion bank holding company. In October 2003 Bank of America agreed to buy FleetBoston, creating a $900 billion bank holding company and making Bank of America the second-largest U.S. bank holding company, with $1.4 trillion in assets. (Citigroup is the largest, with $1.6 trillion in assets.)

At the same time, the number of commercial banks in the United States has fallen significantly over the past twenty years (see Figure 1). The number was relatively stable at about 14,000 from about 1975 to 1985 and then started to fall to about 7,500 in 2005. The average asset size of U.S. banks (in real terms) has more than tripled since 1985 and is more than $1.1 billion. Assets are being redistributed from smaller banks to larger banks—now over 75 percent of industry assets are in banks with more then $10 billion in assets (measured in 2005 dollars), compared with 40 percent in 1985 (see Figure 2).

Although the number of institutions has fallen, the number of offices has not (see Figure 3). There were fewer than 14,000 ATMs in 1979, but by 2004 there were more than 380,000, almost thirty times as many.

Figure 1
Number of Commercial Banks in the United States



Source: Federal Deposit Insurance Corporation

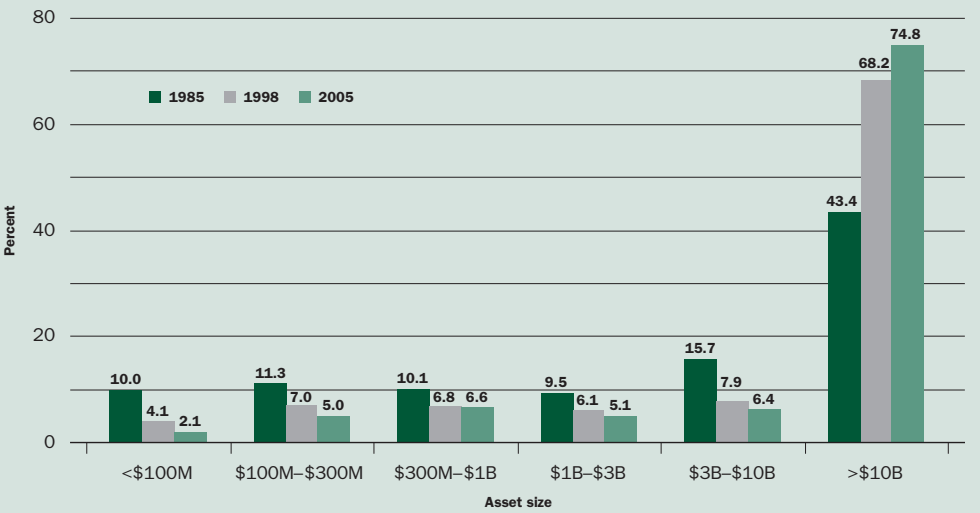
Also, there has been new bank entry even as consolidation has occurred. Nonetheless, by several measures, banking is becoming more concentrated (see Figure 4). The top ten banks in terms of asset size are holding over 50 percent of industry assets, compared with about 25 percent in 1985.

The question is, What has consolidation meant for competition in the industry? Here, it is important to consider the drivers of the consolidation. Consolidation need not imply that the industry is less competitive. Banking is subject to the usual antitrust safeguards: The Riegle-Neal Act of 1994 and amended Bank Holding Company Act set deposit concentration limits on proposed mergers (that is, no merger can result in an institution with more than 10 percent of the deposits in the nation or more than 30 percent of deposits in any state [but states can set their own limits, and initial entry into the state is not subject to the 30 percent limit]). And merger applications are examined for their potential effects on competition.

Note also that consolidation is a global phenomenon, which means deregulation in the United States was not the only important driver. (According to a 2001 Group of Ten study of consolidation in thirteen countries in the 1990s, the number of banks fell in almost every country. Japan was an exception, but that is because the country changed the definition of "bank"; Belgium gained just two banks; Australia gained ten banks, with the number rising from 34 in 1990 to 44 in 1999, but the industry remained concentrated with the five largest banks holding 74 percent of deposits.)

The drivers of consolidation have led to increases in competition at the same time consolidation has occurred. Two important drivers have been deregulation and technological change. The removal of geographic restrictions on branching was one of the drivers of consolidation. Regulations that restricted the geographic extent of banking led to fewer banks and smaller banks than would have arisen in equilibrium without the regulations. Geographic deregulation also increased the contestability of markets.

Figure 2
Distribution of Banks in the United States by Asset Size



Note: Size categories are based on total assets (domestic and foreign) and are in 2005 dollars. Data exclude credit card banks.
Source: Quarterly Reports of Condition and Income, Federal Reserve System

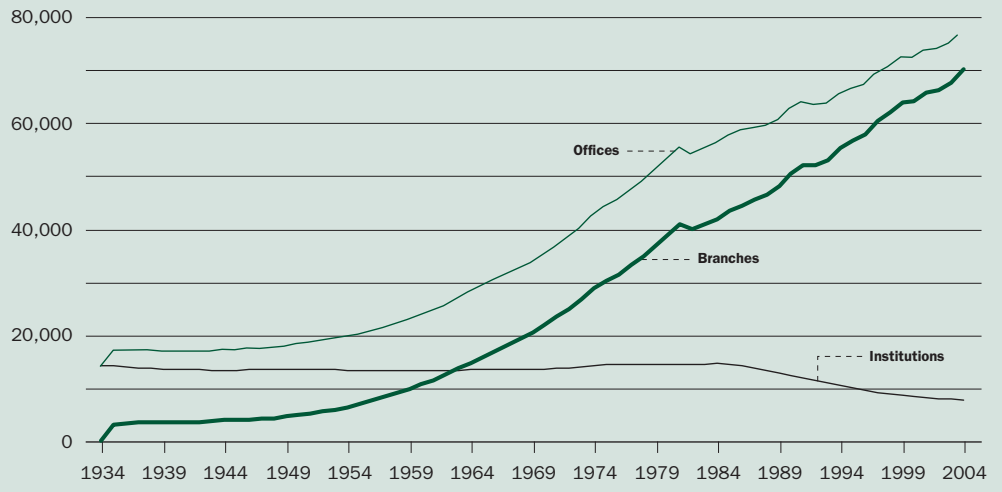
Technological change also helped enable consolidation. By technological change I mean not only changes afforded to the delivery of financial services by computers and telecommunications but also financial innovation—for example, risk-management models. Technological and financial innovation allowed for the commoditization of financial services and in turn led to increased competition; new competitors that were able to produce only a piece of the banks' output could enter and compete with banks for that piece. Technology also increased the geographic scope of markets.

Consolidation and Scale Economies

While we understand some of the forces driving the industry toward consolidation, consolidation does present some conundrums. Consolidation has created some very large banks, and bank managers often cite the desire to capture scale economies as one of their motivations for mergers and acquisitions. But much of the empirical literature on banking says these economies are exhausted at relatively small sizes. For example, in his conference presentation, Bob DeYoung argues that there are two types of banking: relationship banking and transactions banking. The first is low volume. The second is high volume, which suggests there are scale economies in the second type, but much of the literature doesn't find them. Another puzzle is why the official government statistics suggest that productivity in banking rose at a slower rate from 1994 to 2002 than in the rest of the corporate sector, despite the technological advances in banking.

My answer to these conundrums is that much of the literature has not adequately evaluated scale economies and productivity because it has not adequately accounted for the endogenous choice of risk by banks. At its heart, banking is about handling risk, and the amount of risk to take on is a choice of bank management. Thus, to my mind the changing nature of banking is a risk-management story and not just a deregulation story. Technology is important to the extent that it enables new types of risk

Figure 3
Number of FDIC-Insured Commercial Banks, Branches, and Offices in the United States



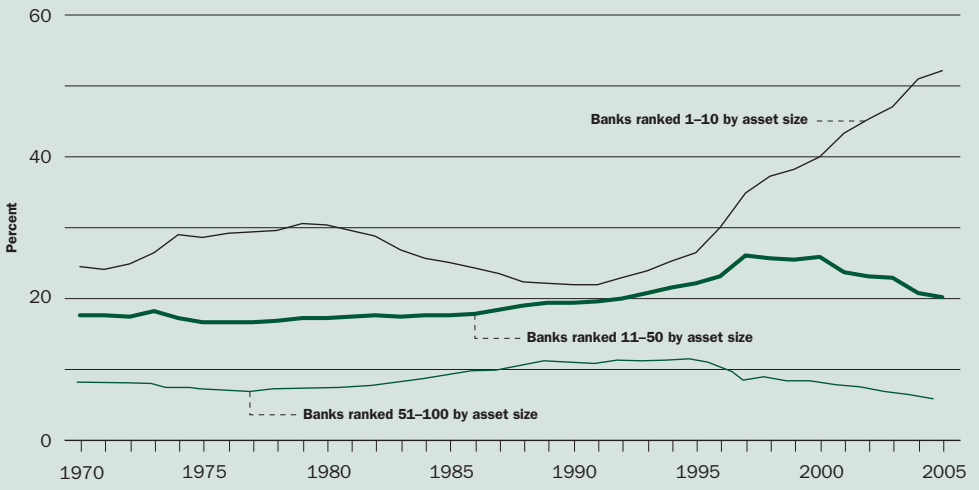
Source: Federal Deposit Insurance Corporation

management (more diversification at less cost, more effective risk-management models at a given cost, etc.). But the next chapter of the banking story is a capital and systemic risk story (for example, Basel II, financial stability), and bank management becomes an important player in the story (and, therefore, so does corporate governance).

Hughes, Mester, and Moon (2001) investigate whether economies of scale in banking are illusive (that is, do not exist) or elusive (that is, evade detection by the methods used in the literature). We conclude that the scale economies are real but that the usual methods used to find them fail because they do not adequately view banks as risk-management operations. The paper lays out an approach to measuring scale economies based on the role of the bank as an intermediary. Larger scale may mean better diversification, which leads to reduced liquidity risk on the liability side of the balance sheet and reduced credit risk on the asset side. Thus, larger scale can lead to reduced marginal cost of risk taking and reduced marginal cost of risk management, all else being equal. But all else is not necessarily equal because risk taking is endogenous. If banks respond to the lower cost of risk management by taking on more risk, then we would see two effects of increased scale of operations. The fact that scale-related diversification reduces cost, all else being equal, we call the *diversification effect*. But risk taking can increase cost, all else being equal, if banks have to spend more to manage increased risk. This effect, which we call the *risk-taking effect*, might mask scale economies that derive from better diversification unless we incorporate risk into the analysis.

In Hughes, Mester, and Moon (2001) we find constant returns to scale in our sample of large bank holding companies when we estimate a standard cost-function model. However, when we estimate our more general model, we find significant returns to scale. Our general model incorporates capital structure into the production model and generalizes managers' objectives from profit maximization to value maximization. (If bank managers care about risk, then they care about more than just

Figure 4
Market Share of Bank Assets by Rank of Firm



Note: Rank is determined by total assets.

Source: Quarterly Reports of Condition and Income, Federal Reserve System

expected return. In their utility function they may trade off higher expected profit for lower risk. So the maximization problem from which scale economies are derived should account for this.) Our findings suggest that large bank holding companies (BHCs) are using less than the cost-minimizing level of capital and that small BHCs are using more than the cost-minimizing level. We find increasing returns to scale, with estimates ranging from 1.19 to 1.24. We find evidence of the diversification effect: An increase in diversification and asset size from the minimum to maximum value in the sample implies an increase in scale economies of 0.16. (Diversification is the degree of macroeconomic diversification in a BHC's geographic operations, measured by the correlation in unemployment rates over states in which a BHC operates.) We find evidence of the risk-taking effect: An increase in risk implies a decrease in scale economies. And we also find evidence of an inefficiency effect: An increase in inefficiency implies a decrease in scale economies. Thus, the results of this paper support the conclusion that scale economies exist, but the usual method cannot find them because it ignores the fact that bank risk taking is endogenous. Larger scale means a lower cost per unit of risk—a scale economy—but larger scale means that banks have the capacity to take on more risk.

Other research (Hughes, Lang, Mester, and Moon 1999, 1996) has found that geographic diversity is positive for banks' performance and safety. Thus, consolidation has led to real benefits for the industry. These studies look at within-state, regional interstate, and interstate consolidation strategies and their effects on banks' expected profit, profit risk, and insolvency risk and find that geographic diversity was positive for performance and safety and that the gains are priced by capital markets as shown by improved market value. The clearest gains come from expansion across state lines, especially when the expansion diversifies macroeconomic risk, which lowers systemic risk. The studies find that larger banks, all else being equal, tend to take on greater risk, but, holding size constant, geographic diversity is related to lower

risk. Thus, consolidation that is accompanied by greater geographic diversification significantly offsets the tendency of larger banks to take on more risk. Hughes, Lang, Mester, and Moon (1996) find that geographic expansion is also associated with lower deposit volatility, higher expected return and risk for efficient banks (that is, movement along the expected return-risk frontier), and higher efficiency (that is, movement toward the frontier) for inefficient banks.

Consolidation and Corporate Governance

Consolidation has positive aspects—scale economies and risk diversification—but are all motivations benign? In my view, consolidation means that corporate governance issues in banking will become increasingly important. Evidence from the bank merger literature raises the question of whether bank mergers are value enhancing or driven by empire building. Corporate control problems in banking can exist because the relationship between bank owners (stockholders) and bank managers is a principal-agent relationship and their goals are not always aligned. Some mechanisms exist that help control the behavior of bank managers, but they may not be totally effective. These mechanisms include labor market controls (compensation, reputation) and capital market controls (stockholders' meetings, interbank loan and CD markets, market monitoring for large deposits, bank supervision, takeovers). The takeover market in banking is not necessarily effective in controlling bank management since informational problems may limit this control and restrictions on bank ownership (for example, prohibitions against the mixing of banking and commerce) can limit potential buyers.

We call managers who can resist market discipline entrenched. Entrenched managers can consume agency goods, including perquisites, avoiding effort (shirking), avoiding risk, engaging in discrimination, and/or empire building. Hughes, Lang, Mester, Moon, and Pagano (2003) look for evidence of managerial entrenchment in the relationship between ownership structure and financial performance of the highest-level bank holding companies and for evidence of empire building in the relationship between asset size, asset acquisitions, and asset sales and financial performance. The paper identifies entrenched management with poor bank performance and finds that entrenchment is associated with higher managerial ownership, better growth opportunities, worse financial performance, and smaller asset size. Selling assets is associated with better performance at all banks. Larger asset size obtained by internal growth (not by acquisition) is associated with better performance at all banks whether or not management is entrenched, which is evidence of scale economies. However, while acquiring assets is associated with better performance at banks without entrenched managers, it is associated with worse performance at banks with entrenched managers. Thus, while research suggests consolidation is associated with better performance on average, not all consolidation is value enhancing. Managerial incentives and good corporate governance need to be considered.

Regulatory oversight of consolidation is still warranted. None of the research results suggest that regulators should stop considering market power when considering whether to approve mergers since the results are based on those mergers that have been approved. Our research indicates that managerial entrenchment can lead to inefficient consolidation strategies by banks. This problem occurs particularly at banks that have high levels of managerial ownership and better growth opportunities. Thus, regulation should help ensure good governance. Supervisory oversight is likely needed to contain systemic risk. And regulatory oversight is perhaps needed to ensure that all market segments are served.

Table
Relative Shares of Total Financial Intermediary Assets

	1960	1970	1980	1990	2000	2003	2005
Insurance companies							
Life insurance	20.6	15.0	10.9	11.5	9.4	9.6	9.4
Property and casualty	3.0	2.7	3.5	3.5	2.5	2.4	2.6
Pension funds							
Private	3.9	3.2	4.3	4.7	3.2	2.7	2.2
Public (federal, state, and local government)	3.7	4.3	4.2	4.1	4.1	3.4	2.6
Finance companies and ABS issuers	4.8	4.7	5.1	7.5	12.2	12.9	14.0
Mutual funds							
Stock and bond	1.1	1.3	0.8	6.4	8.5	9.2	10.2
Money market	0.0	0.0	1.2	3.8	6.3	5.4	4.6
GSEs, REITs, mortgage companies	2.5	5.1	9.0	14.8	21.2	23.8	22.2
Depository institutions (banks)							
Commercial banks	39.1	42.1	39.1	30.2	25.4	23.7	24.6
Savings and loans and mutual savings banks	20.4	20.4	20.5	11.9	5.3	5.0	5.5
Credit unions	0.9	1.3	1.5	1.7	1.8	2.0	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: Shares are shown in percent. Totals may not sum to 100 percent because of rounding.
Source: Federal Reserve System Flow of Funds Accounts

The Changing Nature of Bank Intermediation

As the banking industry has consolidated, despite the improved performance of U.S. banks, they have been losing market share to other types of financial intermediaries, perhaps as a result of increased competition. (See the table.) Commercial banks started losing market share to other intermediaries in the mid-1980s (or maybe even before). The market share of commercial banks has declined from almost 40 percent of financial intermediary assets in 1960 to under 25 percent in 2005. (The share of total assets in depositories, which include commercial banks, savings and loans, mutual savings banks, and credit unions, fell from 60 percent in 1960 to 32 percent in 2005.) Savers now place a larger share of their savings in mutual funds and pension funds—intermediaries that hold securities rather than loans as assets—and put less of their savings in the bank. Larger firms have been moving away from commercial bank loans toward open market securities like commercial paper or long-term bonds. The junk bond market is a source of open market financing for firms that could have borrowed only from banks before the 1980s. Houston and James (2001) constructed a panel data set documenting the declining share of bank loans in larger firms' balance sheets between 1980 and 1993. Their data show a constant share of bank debt and an increasing share of public debt as firms' leverage increased over the latter part of the period.

The decline in the market share of banking implies that the synergies between the liability and asset sides of the bank balance sheet have fallen. But the decline in banks' market share does not necessarily start on the asset side of the bank's balance sheet—it might start on the liability side. That is, it might be a result of a decline in demand for deposits, rather than a decline in demand for relationship lending. Berlin and Mester (1999) find empirical evidence of an explicit link between banks' liability structure and their distinctive lending behavior. Relationship lending is associated with lower loan rates, less stringent collateral requirements, a lower likelihood of credit rationing, more contractual flexibility, and reduced costs of financial distress for borrowing firms. Core deposits (which are rate inelastic) enable banks to offer relationship lending by insulating banks' cost of funds from economic shocks. So core deposits are a foundation of relationship lending that enables banks to insulate borrowers from economic shocks through multiperiod contracts that insure borrowers against adverse credit shocks. As banks lose access to core deposits (as savers move to mutual funds), they can offer less insurance (loan-rate smoothing) to borrowers. So banks lose market share to intermediaries that hold securities rather than loans. This process helps explain why we do not just see banks losing market share to entities offering close substitutes to bank loans and instead see a rise in entities that issue securities. The declining demand for deposits not only raises banks' cost of funds—banks have to pay market rates for funds (directly reducing the supply of bank loans)—but also reduces the feasibility of relationship lending by banks, reducing firms' demand for bank loans as they become less distinctive. In other words, the banking sector has been shrinking since banks loans have become less "special."

This specialness of banking can also be found in asset-based lending that a bank does, that is, operating loans. Mester, Nakamura, and Renault (forthcoming) show that deposits and asset-based lending are linked. Namely, deposits give banks an informational advantage. The paper shows empirically that information on the cash flows into and out of a borrower's transactions account can help a bank monitor the changing value of collateral that a commercial borrower has posted for an operating loan. We find that monthly changes in accounts receivable are reflected in changes in transaction account balances when the borrower has an exclusive banking relationship with the lender; that the number of prior borrowings in excess of collateral is an important predictor of credit downgrades and loan write-downs and the lender uses this information promptly; and that the lender intensifies monitoring as loans deteriorate—that is, loan reviews become lengthier and are more frequent.

Transactions account information is most readily available to commercial banks. So our results provide a rationale for the coexistence of deposit taking and lending within a single institution (that is, the commercial bank). But the "specialness" of commercial banks has likely fallen over time since declines in the cost of information processing and communication have lowered the cost of the duplication of bank services. Indeed, finance company lending has increased substantially relative to commercial bank lending to businesses over the past thirty years—from 17 percent in 1975 to 43 percent in 2005. According to Udell (2004), finance companies and other asset-based lenders typically require their borrowers to establish special bank accounts (cash collateral accounts) to keep track of loans collateralized by accounts receivable. This deposit account is used strictly for the purpose of receiving all remittances on collected receivables. If the asset-based lender is not a bank, then the account is set up at a bank that works with the asset-based lender. Remittances are sent to this bank and typically are held for several days by the bank to cover deposit collectability. Then the asset-based lender draws down these funds and applies them

to reducing the loan. The borrower sets up a separate checking account from which it makes disbursements. The asset-based lender can monitor the cash flows into and out of these accounts to obtain the same kind of information on its borrowers that a commercial bank lender can obtain from the borrower's checking account.

An asset-based lender needs to contract with another intermediary to maintain the transactions accounts while a bank maintains the checking account on its own, so the asset-based lender faces higher costs than a bank. But these costs have declined as information processing and communication costs have declined. The shrinking cost advantage of banks means less of an offset to the higher regulatory costs banks face when lending to riskier borrowers. This decline in the bank's cost advantage may help explain why finance companies specialize in lending to riskier borrowers, particularly more leveraged borrowers, as shown by Carey, Post, and Sharpe (1998), while banks lend to relatively less risky borrowers.

The implication of the studies by Berlin and Mester (1999) and Mester, Nakamura, and Renault (forthcoming) is that the decline in traditional commercial bank lending (that is, relationship lending) relative to transactions lending (securitization) may not reflect anything about a decline in demand for relationship lending. Instead, it may reflect a decline in demand for traditional commercial bank liabilities (core deposits), which makes relationship lending less feasible, or a decline in the information advantage inherent on the liability side of the commercial bank's balance sheet.

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COMMENTARY

How Have the Banking System and the Process of Financial Intermediation Changed?

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I would like to begin by thanking Bob Eisenbeis, Fred Furlong, and the other organizers of this conference for inviting me to discuss Bob DeYoung's paper.

My strategy for commenting on Bob's remarks is the following. I assumed (quite correctly, I would say) that Bob would do an excellent job presenting his views, and thus there would be little value added in my trying to summarize what he had said. So, if I were looking at the U.S. banking and financial system in 1986 and in 2006, what aspects would I notice were really different? Thus, my remarks this afternoon are based on my list, and along the way I will use them to comment on Bob's remarks. Also, please note that everything I am about to say is my own opinion and no one else's.

In my judgment, the most notable contrast between the U.S. banking system of today and that of 1986 is today's banking system's remarkable resiliency and health despite some significant shocks. Remember, in 1986, 205 banks and savings and loans failed. And that wasn't even the peak—that was reached in 1989 when a total of 533 banks and savings and loans failed. Not until 1993 did the annual number of bank failures drop well below 100. In recent years you might say we have become quite spoiled, with rates of bank failure of fewer than five institutions per year.

But this low rate of bank failures is not the result of calm in the financial world since 1993. Indeed, since the mid-1990s we have had several shocks, such as the Russian debt default in the fall of 1998 and the Asian debt crisis shortly thereafter; the recession of 2001–02, which, while relatively mild, was followed by an unusually slow recovery; the stock market correction that I am sure we all remember; and, of course, September 11 and the geopolitical uncertainty of recent years. Despite these and other events, the vast majority of U.S. banks have remained unusually healthy, with strong rates of return on both equity and assets, solid capital ratios, and strong reserves.

To what do we owe this outstanding performance? No doubt there are many reasons for our current good fortune, including good monetary policy, good lessons learned by bankers and other market participants, and good luck. But I also believe that a number of bank supervisory reforms have been implemented that have made a difference. Thus, the second item on my list is a changed supervisory environment.

What items would I highlight here? First on my list is the emphasis on strong capital positions that began about 1986 and that resulted in the Basel I international capital accord of 1988. The accord helped to focus supervisors and the industry on the importance of adequate capital for bank safety and soundness. Indeed, it was a de facto increase in capital standards for a number of depository institutions, particularly large banks. Second, the accord also emphasized the importance of making supervisory standards sensitive to an individual institution's risk and thus ushered in what we now call risk-focused supervision. Last, the international nature of the accord meant that it explicitly recognized the increasing globalization of banking and financial markets.

December 1991 saw enactment of the Federal Deposit Insurance Corporation Improvement Act (FDICIA). This massive act contained critical reforms, many of which had been recommended in *Perspectives on Safe and Sound Banking.* FDICIA required that bank supervisors take prompt corrective action, or PCA, against troubled depositories. PCA's incentives for deterring moral hazard and limiting taxpayer losses were reinforced by the least-cost-resolution requirements of FDICIA. Although the act provided for certain exceptions to this charge to the FDIC, the general thrust of least-cost resolution was to encourage market discipline by putting uninsured depositors and other uninsured creditors at greater risk. Indeed, according to the FDIC, uninsured depositors have suffered losses in more than 70 percent of bank failures since 1993, and all resolutions were consistent with least cost.

Not surprisingly, research suggests that market discipline has increased in the post-FDICIA period. Bob mentions this result, but I think it deserves more highlighting. Market discipline is a powerful tool for deterring excessive risk taking. Indeed, one of FDICIA's most important reforms, PCA, was designed to make supervisors mimic what the market would do as a bank's financial condition deteriorated. The fact that market discipline appears to have increased in the post-FDICIA period is, I would say, a very positive development.

The so-called systemic risk exception in FDICIA has been one of the act's most controversial provisions. However, in my view the strict conditions under which this provision can be exercised have exerted a restraining influence on supervisors, although I confess the exception has yet to be put to a true test. Still, I would argue that, to date, this provision has also supported improved market discipline.

FDICIA required the FDIC to implement a system of risk-based deposit insurance premiums, something that many economists had long advocated. This requirement also reinforced the notion that bank supervision should be risk focused. Unfortunately, the Deposit Insurance Funds Act of 1996 essentially removed this authority, and the vast majority of insured depositories have paid zero premiums since that time. However, the Federal Deposit Insurance Reform Act of 2005 breathed new life into risk-based premiums, and the FDIC currently has a proposal out for public comment. While I am personally quite disappointed with what the FDIC is proposing, it certainly is superior to a system of zero pricing.

Another significant change in the banking and financial landscape, and another reason I would highlight for the banking system being so resilient and healthy, is the impressive improvements in risk measurement and management and the growing adoption of these technologies by mostly large banks and other large financial intermediaries over the last ten years. Truly, risk measurement and management today are a far cry from that practiced in 1986. Careful judgment by human beings is still, and I believe will always be, required. But I think there is no doubt that a much deeper analytical and quantitative understanding of risk is possible today than ever before. Indeed, the attempt to devise a new Basel Capital Accord is, despite all its

controversy, an attempt to recognize and encourage these developments in both the private and public sectors.

Improved risk measurement and management have been supported and encouraged by the growth of syndicated loans and securitized assets and the invention of entirely new financial instruments, such as credit derivatives, that greatly aid the dispersion of risk to those most willing and able to bear it. Such developments no doubt bring their own problems and concerns, but it seems clear to me that net benefits have been provided.

The importance of syndicated loans, securitized assets, and over-the-counter derivatives brings me to my next major difference between 1986 and today: the expanded importance of financial markets, financial market prices, and nonbank financial intermediaries. One significant implication of this development is the increased importance of the liquidity of the markets for a wider range of financial assets for thinking about such subjects as the nature of systemic risk.

Along with the increased importance of financial markets has come an impressive array of nonbank providers of financial services. Some of these, such as investment banks and insurance companies, have long been with us. But others, such as hedge funds and huge government-sponsored enterprises, are relatively new. The evolution of such institutions has had far-reaching effects for banks, people who study banks, and for those of us who worry about such matters as financial stability and competition.

Now let me turn my attention to deregulation. As Bob has indicated, the twenty years since the publication of *Perspectives* have seen some pretty impressive deregulation in the U.S. financial sector.

In the post-1986 period, I would highlight the same two acts that Bob emphasized: the relaxation of most restrictions on interstate banking in the Riegle-Neal Act of 1994 and the repeal of the Glass-Steagall Act's restrictions on most combinations of commercial and investment banking in the Gramm-Leach-Bliley Act of 1999. Both of these acts were the culmination of a long process, and both have profoundly changed the banking and financial landscape. The Riegle-Neal Act ended the balkanization of the U.S. banking system dating back to the founding of our republic, sparked the consolidation and restructuring of the U.S. banking system, facilitated risk-reducing geographic diversification and other efficiencies, and sharply raised the level of competition in many banking markets. Gramm-Leach-Bliley officially recognized the increasing blurring of distinctions between commercial and investment banking, sparked its own wave of financial consolidation, facilitated risk-reducing product diversification and other efficiencies, and sharply raised the level of competition in a variety of financial markets.

Bob has appropriately emphasized the next item on my list: the major consolidation of the banking industry that has occurred since 1986. I'll quickly review some well-known facts. First, the number of banking organizations has declined quite significantly. Since 1986 the number of banking organizations has declined by 40 percent. Second, as Bob points out, the national share of banking assets (or deposits) held by the largest organizations has risen steeply. It really doesn't make much difference how you look at it.

Next on my list is globalization, a hot topic these days. I will resist the temptation to say anything more about globalization, since I know that one of our newest Federal Reserve governors, Randy Kroszner, will be speaking to us about cross-border banking before dinner tonight.

However, I would like to spend a couple of minutes talking about the next item on my list, which is also on Bob's: the greatly intensified level of competition that we

observe in banking today relative to 1986. Virtually all of the factors that I have discussed thus far, including much of the consolidation that has occurred, have led to this intensification of competition from, maybe, category 1 in 1986 to category 4 in 2006. Bob covers a lot of this topic, but I would like to point out some more facts that I think are interesting and that provide a little different perspective on some of the factors behind competition in today's banking markets.

Table 1
Small Businesses' Use of Financial Service Providers

Small businesses that use at least one . . .	1993	1998	2003
1. Depository	97	96	96
2. Within 10 miles of business	89	87	87
3. Nondepository	41	41	54
4. Within 10 miles of business	24	16	20

Note: Usage is shown as a percentage of small businesses.
Source: Survey of Small Business Finances

One of the most interesting facts, I think, is one that Bob pointed out: average local market concentration has stayed largely unchanged despite all the other changes over the past twenty years. Bob showed you one figure that combined urban and rural markets, but you get the same picture if you separate the two types of markets. Moreover, you get the same picture if you look at more intuitive measures of concentration, such as the average three-firm concentration ratio or the average number of banking organizations in a market.

But now I want to drill down a little deeper and ask, Are local markets really all that important still? And I want to argue that the answer is yes—and no. Indeed, I think the situation is more complex than at least some of us may have thought, and thus I believe that this area deserves further research.

I want to look briefly at two sets of bank customers that I think sometimes get short-changed by finance researchers, but who are clearly very important to the economy: small businesses and households.

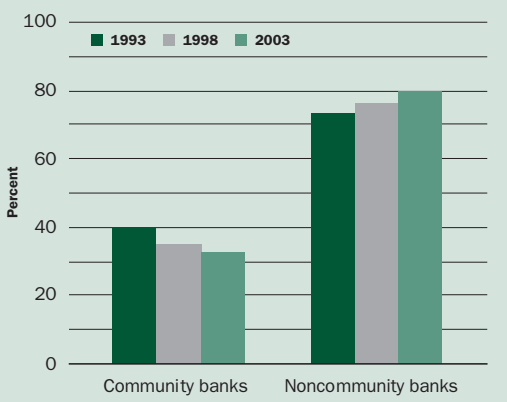
Starting with small businesses, consider some data from the Federal Reserve's 1993, 1998 and 2003 Surveys of Small Business Finances (SSBF). Table 1 shows the percentage of small businesses that use depository and nondepository providers of financial services as well as the percentage that use a depository institution within ten miles of their business and a nondepository institution within ten miles of their business.

What are my takeaways? First, depository institutions (line 1) and local depositories (line 2) have been and remain really important. Second, nondepository institutions (line 3) are growing in importance (a fairly recent phenomenon), but they still are not as important as depositories. Third, local nondepositories (line 4), have never been all that important, and their importance seems to be declining.

Another interesting question is, What does all this mean for the future of local community banks and the importance of relationship finance? Bob highlighted this as well and suggested that our traditional notions of "relationship finance" should be changing as the conventional division of labor between large and small banks begins to blur. I very much agree with that view, but I think we need to be careful about just how fast we think things are changing.

So, consider this set of facts. The figure (on the next page) again uses the Fed's 1993, 1998, and 2003 SSBFs. It shows the percentage of small businesses that use community banks (less than $1 billion in real total assets) and that use noncommunity banks. (Please note that the observations in the figure represent small business–bank pairs; thus, because small businesses sometimes have relationships with more than one bank, the percentages can total more than 100 percent.)

Figure
Bank Usage by Small Businesses



Note: Usage is shown as a percentage of small businesses that use at least one commercial bank or thrift. "Community banks" are commercial bank or thrift organizations with less than $1 billion in total real assets.

Source: Survey of Small Business Finances

My takeaways are that, first, small businesses' use of community banks is declining but at a gradual rate. Still, community banks should probably be worried. Second, small businesses' use of larger banks is increasing but also at a gradual rate. Third, change is certainly occurring, but perhaps we need to better understand why it is occurring relatively slowly.

What about households? Table 2, formatted similarly to Table 1, uses the Federal Reserve's Surveys of Consumer Finances from 1989 (only three years after *Perspectives* was published) through 2004. Table 2 shows that, first, as with small businesses, depository institutions (line 1) have been and remain important (that 98–99 percent is a rock solid number). Second, as with small businesses, local depositories (line 2) have been and remain important. Third, nondepository institutions (line 3) are growing in importance and now appear to be more important for households than for small businesses. Fourth, as with small businesses, local nondepositories (line 4) have never been especially important, and their importance seems to be declining.

The next item on my list in some ways underlies all of the others and has been highlighted by Bob and many others: technological change. By technological change I mean both hardware and software and the invention of new financial instruments and the intellectual tools needed to price them.

I want to comment very briefly on one small aspect of technological change that Bob did not emphasize that I think is important for understanding banking in 2006. I believe it illustrates that we still have a lot to learn. The process by which technological change becomes embedded in production and consumption decisions has long fascinated and been considered important by economists. Despite this attention, the process remains a considerable mystery, and households' use of financial services technologies is no exception. For example, many academics, regulators, and bankers have long forecast that technological change would kill the paper check and make brick-and-mortar branches obsolete. However, here we are in August 2006 and the paper check is still with us, the smart card has been a flop, and the number of brick-and-mortar branches is ever increasing.

In 1995 the Fed began using its Survey of Consumer Finances to ask households about their use of various technologies, including computers, to conduct business with their financial institutions. Table 3 summarizes some of these findings. It lists the percentage of households holding an account with at least one financial institution that report using various technologies to conduct business with any financial institution.

I have time to highlight only two rows here—the "in person" visit and the "computer." In each year since 1995, the most common technology used is the in-person visit. Is it any wonder that banks are building branches? But change is certainly under way. For example, in 1995 barely 4 percent of households said they used the computer to consume financial services. Although there was little change in 1998, by 2001 the percentage using the computer had jumped to 19 percent, and in 2004 it

Table 2
Households' Use of Financial Service Providers

Households that use at least one . . .	1989	1992	1995	1998	2001	2004
1. Depository	99.1	98.4	98.7	97.8	98.8	98.4
2. Within 10 miles of household	78.3	75.3	74.0	74.0	74.2	74.7
3. Nondepository	27.4	43.7	47.5	63.9	61.1	66.7
4. Within 10 miles of household	38.8	33.6	29.1	26.6	26.0	25.5

Note: Usage is shown as a percentage of households.
Source: Survey of Consumer Finances

Table 3
Technologies Used by Households Conducting Business with a Financial Institution

Technology	1995	1998	2001	2004
In person	86.9	80.4	77.8	77.9
Mail	57.5	54.7	50.7	50.9
Telephone	26.2	50.2	49.3	49.4
ATM	34.3	53.1	57.2	64.9
Direct deposit	50.8	65.4	72.2	75.4
Preauthorized debit	23.7	42.0	43.8	50.5
Computer	3.8	6.3	19.2	33.6

Note: Usage is shown as a percentage of households that hold an account with at least one institution.
Source: Survey of Consumer Finances

had reached an impressive 34 percent. Moreover, other types of electronic technologies, such as direct deposit, the ATM, and preauthorized debits, are increasingly used by households. Still, the older technologies are hanging in there. Indeed, one of my takeaways from these data is that the pace of adoption of technological change by households tends to be gradual. In addition, even when new technologies start to gain more widespread acceptance, old technologies are abandoned rather slowly, and many users perhaps view the old and the new technologies more as complements than as substitutes.

The final item on my list returns to the first item and begins to poach on Mark Flannery's territory tomorrow morning. For that reason, and because my time is up, I will only raise the issue.

I began my remarks by observing that since the mid-1990s, the U.S. banking and financial system has remained remarkably resilient and stable, and I asserted that a number of the safety and soundness policies put in place since the late 1980s were partially responsible. My final observation is in the form of two questions: Along with all of the other changes we have observed over the past twenty years, has the nature of systemic risk changed? And are we ready for any changes that have occurred?

The answers to these questions, while fundamental to our business and to this conference, are, I think, not easy. Earlier in my remarks I suggested that the determinants of market liquidity is perhaps a topic that needs and deserves more research. No doubt there are others. Indeed, unease about the answers to my questions lies, I suspect, at the heart of contemporary concerns about "financial stability."

But these are topics for another day. Until then, I once again thank the organizers of this conference for asking me to discuss Bob DeYoung's paper, and I thank you for your attention.

Supervising Bank Safety and Soundness: Some Open Issues

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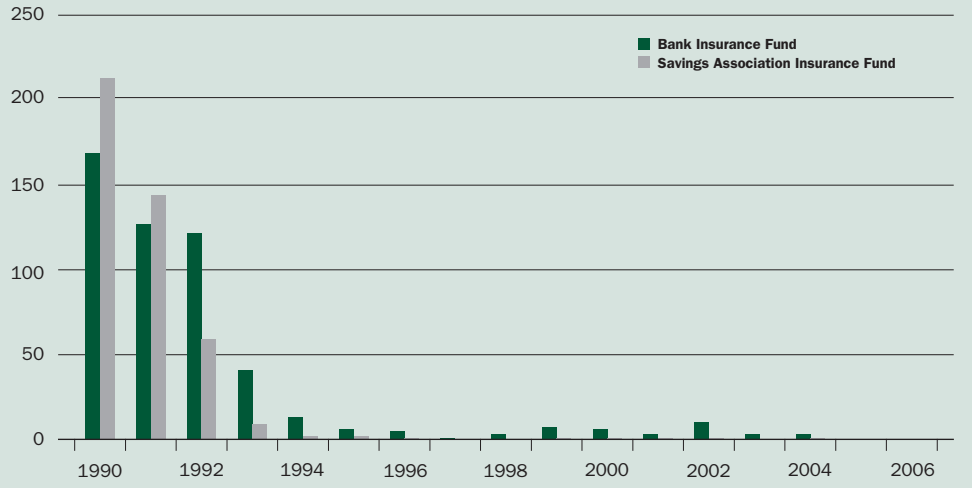
> Banking is now, and has always been, a risk business. The key to success both in operating a bank and supervising a banking system is management of risk.
>
> —Benston et al. (1986, xiii)

In response to a relatively specific request from the American Bankers Association, Benston et al. (1986) examined the mid-1980s financial landscape. As Furlong and Kwan (2007) report, *Perspectives on Safe and Sound Banking* presented a wide-ranging and innovative discussion of policy issues related to government supervision of bank safety and soundness. Among other topics, the report evaluated risk-based insurance premia, resolution methods for failed banks, capital against off-balance-sheet positions, and prompt corrective action. For this conference, I was asked to write a paper surveying the main issues affecting the contemporary financial system's safety and soundness. I have sought to identify underresearched and/or underappreciated issues that affect bank safety and soundness or financial system stability. It is a great luxury to write a paper that poses questions but is not required to provide complete answers!

Obviously, the U.S. financial sector's condition today is excellent. Capital ratios stand at levels we have not seen in sixty years, credit quality has been strong, and innovative financial instruments can spread risks more broadly than ever before. We have had 954 bank or thrift failures since 1990 (519 charged against the Bank Insurance Fund [BIF] and 435 by the Savings Association Insurance Fund [SAIF]). The combination of weak financial policies and macroeconomic shocks culminated in 834 bank or thrift failures between 1990 and 1992 (see Figure 1). Since 1992, only 120 institutions (101 BIF institutions and 19 SAIF institutions) have failed, the largest having assets of only $3.8 billion at the time it was closed. This record largely reflects the economy's strong performance since the 1991 recession (as predicted by Schwartz 1988). Supervisory reforms also deserve substantial credit, particularly those aimed at raising bank equity ratios.

Figure 1
Number of Bank and Thrift Failures, 1990–2006



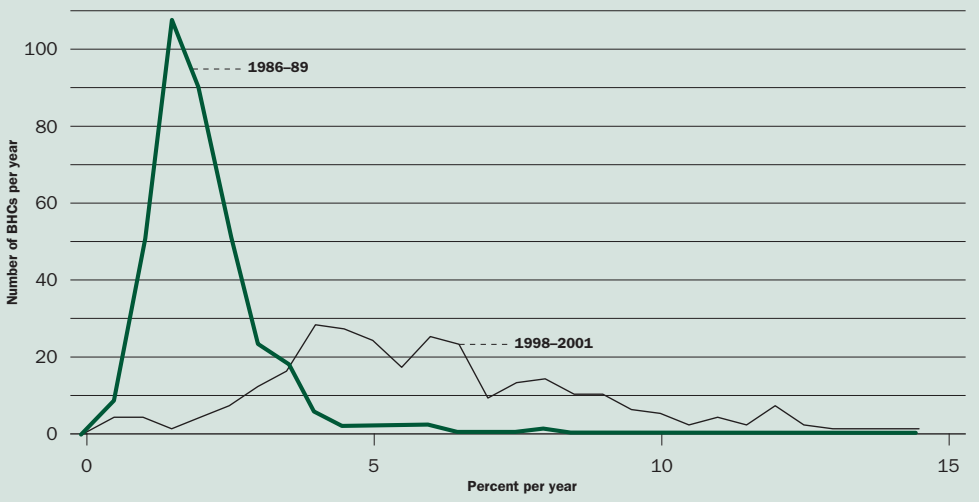
Source: www.fdic.gov, Table BF01

Bank powers expanded substantially during the 1990s. The mean asset volatility of the 100 largest bank holding companies (BHCs) rose from 1.76 percent during the 1986–89 period to 6.09 percent during the 1998–2001 period.[1] As shown in Figure 2, asset volatilities also became more cross-sectionally dispersed. Ceteris paribus, higher asset volatilities imply more bank default risk, but supervisors were simultaneously inducing banks to raise their equity capital ratios, as shown in Figure 3. The net effect is a broader range of asset risks and leverage ratios, which tend to complement one another and yield little net change in the typical institution's default probability. In addition to enforcing explicit capital standards, supervisors wielded a new threat well known to readers of *Safe and Sound Banking*—prompt corrective action.

Bank safety further benefited from complex, new financial instruments for diversifying and hedging risks. Bank-related financial contracts are more refined and trade more actively than they did twenty years ago. At the same time, some of these market advances have added new potential exposures and (perhaps) have enhanced institutional opacity. Contracts traded over the counter (swaps and other derivatives) may bundle counterparty credit risks with the effects of the trade. As trading became concentrated in a small number of key institutions, the banking system acquired a new potential source of undiversified credit risk. Over time, contract terms have moved to mitigate this risk through collateralization, periodic mark-to-market settlements, and netting agreements. However, the process is far from complete (Federal Reserve Bank of New York 2006), and many of the new contract arrangements have not been tested in a stressful environment.

This paper begins by discussing the goals of safety and soundness supervision. I then discuss seven imperfectly understood issues related to financial stability today. Some are closely related to one another; all deserve serious scholarly attention. These issues are

Figure 2
Distribution of One Hundred Largest Bank Holding Companies' Asset Volatility



Source: Flannery and Rangan (2004, Figure 7)

1. credit rating agencies,
2. the combination of banking and commerce,
3. nationwide depositor preference and the distribution of liability holders' risk exposures,
4. systemic risk,
5. capital adequacy,
6. market discipline, and
7. credible resolution procedures for the failure of large financial firms.

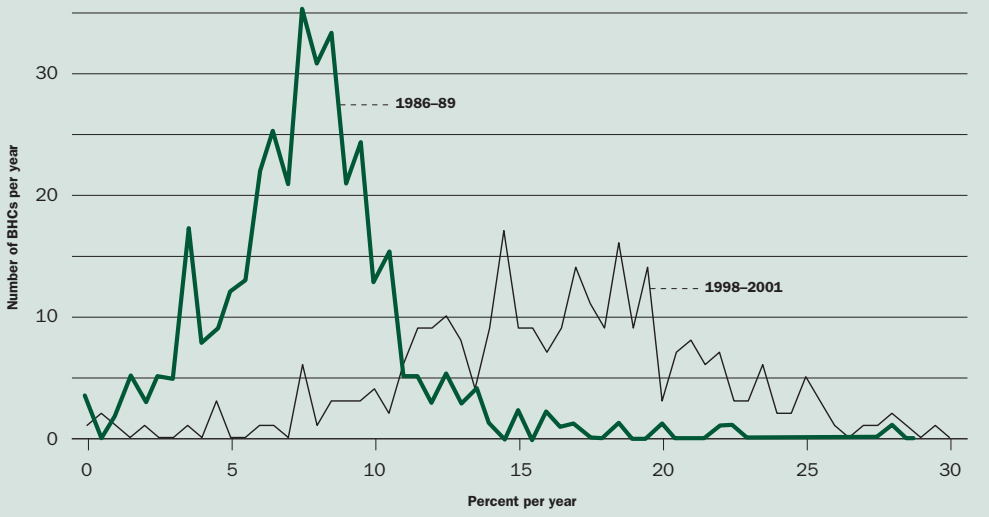
The paper concludes with a brief summary.

Safety and Soundness Supervision

For a long time, banking has involved unusual contracting terms. Recall the unlimited liability of Scottish bank directors in the eighteenth and nineteenth centuries and national bank shareholders' liability before mid-1937. Financial firms have also been more highly regulated than (perhaps) any other industry. Existing controls over bank risk basically concern minimum capital requirements, although limitations on bank activities could also be viewed in the same context. Why are banks so highly regulated? The literature suggests several reasons, reflecting primarily efficient information production or distorted risk-taking incentives:

1. The idea that broader powers should reduce bank asset volatilities was popular in the 1980s. As things have worked out, however, Stiroh (2004, 2006) and DeYoung and Roland (2001) show that many of the new activities are high risk on their own, with returns that are quite highly correlated with banks' traditional lines of business.

Figure 3
Distribution of One Hundred Largest Bank Holding Companies' Market-Valued Equity Ratios



Source: Flannery and Rangan (2004, Figure 7)

1. Using a single credit analyst (the insurance fund) to evaluate a bank's condition is less costly than for each depositor to do it on her own.[2]
2. Insurance provides a safe asset for unsophisticated investors and will reduce the number of costly bank failures caused by irrational runs.[3]

Another justification for safety and soundness regulation derives from a distortion associated with deposit insurance:

3. Given underpriced deposit insurance, bank owners face distorted incentives to increase asset risk and leverage.

Finally, there is a systemic risk justification for government control over financial firms:

4. Bank failures impose external costs on uninvolved parties. Hence the social cost of a bank's failure exceeds its (internalized) private costs.

Safety and soundness regulation primarily addresses the last two of these issues, the deposit insurance distortion and systemic risk. Thus, the basis for safety and soundness supervision derives from some market failure. Left to themselves, banks would accept too large a default probability, so supervisors design constraints to increase bank safety. Unless those constraints are binding, the supervision is ineffectual. This point is crucial to remember when discussing supervisory policies related to financial stability.

The next question is whether financial stability—a public good—requires more than sound individual banks. Many observers feel that a financial crisis begins when a systemically important bank's creditworthiness is questioned. Regardless of whether the bank fails, the initial problem somehow threatens other institutions.[4] Perhaps (as in the

case of Continental Illinois) other banks hold large, undiversified exposures in on-book liabilities. More likely today, the undiversified exposures occur in the foreign exchange or derivatives trading market, where a few firms dominate over-the-counter (OTC) trading. The failure of one such firm would therefore affect the trading ability (and hence the hedging ability) of other agents. The concept of a financial crisis goes beyond sound individual banks even if "sound" is defined as operating with a socially appropriate default probability. Ex ante, the bank's risk exposure could be socially appropriate, but ex post bad luck can still cause a failure that would have worrisome knock-on effects.

Supervisory and private actions have reduced the risks posed by OTC settlement over time. In the early 1980s, banks recognized that payment system risks were not simply operational issues. The Federal Reserve subsequently took steps to reduce daylight overdrafts on Fedwire, and banks began to manage their payments more carefully. Herstatt (settlement) risk was addressed through the privately owned, but publicly encouraged, CLS Bank. Recently, the Federal Reserve commissioned an industry group to develop a new mechanism for limiting the OTC trading system's spillover effects. NewBank is proposed to handle settlements and to wind up a large trading book when its owner becomes financially questioned (Working Group on NewBank Implementation 2005). In March 2006, the largest credit-default swap traders promised the New York Fed that they would increase the reliability of their delivery and settlement systems (Federal Reserve Bank of New York 2006).

Many central banks have established financial stability institutes to monitor the extent to which market shocks might require central bank intervention to stabilize the economy. As long as such interventions do not take the form of bailing out bank creditors or shareholders, they will not interfere with ex ante safety and soundness. The danger is that bailouts will be the most expeditious choice, which reduces counterparties' incentives to monitor large, systemically important institutions. Because these institutions are extremely difficult for a supervisor to control and evaluate (I will argue below), this possibility is a problem. A related concern is that the staff of a financial stability institute may develop a tendency to see systemic risks in too many places, and hence the central bank may "overtreat" the problem of systemic risk by overreacting to false positive indicators.

During the 1990s, U.S. supervisors appeared to become more comfortable with the notion that even relatively large bank failures could be resolved without systemic implications. This development is good, but it has not been tested under stress. However, European supervisors appear more likely to view even moderately large institutions as systemically important. In Japan, supervisors have given the clear impression that they consider a large bank failure to be inconsistent with financial system stability.

I will now discuss specific issues related to financial stability, beginning with the relatively easy ones.

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2. For example, Merton (1977) reasons that deposit insurance reflects a social cost savings: "For the small depositor particularly, there are large information and surveillance costs to be saved if the institutional structure of the bank were such that the safety of the deposits was assured. . . . A sensible alternative choice would be to have third-party guarantees where the capability and willingness of that party to meet its obligations are beyond question. For the scale of the banking system, this almost certainly means that the third party would be the government or one of its agencies" (1977, 3–4).
3. The "runs" argument for deposit insurance resembles the case for Chapter 11 bankruptcy, which prevents creditors from "running" on the firm's assets and destroying some of its synergies in the process.
4. The "domino effect" is a frequent analogy, although it does not seem to make the definition of systemic risk more tangible or specific.

Rating Agencies

Nationally recognized statistical rating organizations (NRSROs) are recognized (created) by the Securities and Exchange Commission (SEC), which relies on their opinions for controlling brokers' risk taking. Beginning in 1975, the SEC set haircuts for margin requirements on the basis of bond ratings. In the 1980s, money market mutual funds (MMMFs) were required to hold at least 80 percent of their assets in top-rated paper if they wanted to use dollar-rounding. (This requirement was changed to 95 percent in 1991.) Investment-grade bonds are eligible for short-form registration statements. Other regulators have also come to rely on rating agency opinions. The National Association of Insurance Commissioners (NAIC) sets insurance companies' required capital levels according to their bond investments' credit ratings. The Financial Institutions Reform and Recovery Act (FIRREA) required that thrift institutions divest all their junk bonds by July 1, 1994.[5] Aside from government regulations, many mutual funds establish their investment strategies in terms of minimum bond ratings they will hold in portfolio. As the asset-backed securitization market has evolved, the rating agencies have acquired a new task: designing securities to meet specific rating goals. Rating considerations largely determine the structure of asset-backed securitization issues, which have grown immensely over the past two decades. In short, NRSROs importantly affect portfolio allocations within the private sector.

This influence is due to increase (White 2002). The Basel II framework for capital adequacy bases risk weights on NRSRO bond ratings under the standardized approach (to be used abroad) and for securitization tranches under the internal-ratings-based (IRB) rules. The current Federal Deposit Insurance Corporation (FDIC) proposal for risk-based insurance premia also incorporates large insured institutions' public debt ratings (FDIC 2006, 36). Delegating credit evaluation to a private firm amounts to supervisory outsourcing, apparently based on the idea that the rating agencies provide better default risk assessments than examiners could. (Basel II does a lot of outsourcing.)

What do we know about the credit-rating industry? Historically, the bond-rating business was a duopoly, and some observers have identified abuses of market power, including the following:

- requesting payment for unsolicited ratings,
- tying ratings to the purchase of other services from the rating agency (for example, consulting), and
- reducing a rating or refusing to rate a pool of assets (for example, in a collateralized debt obligation) unless a substantial proportion of the pool's individual securities are already rated by the same agency (Kupiec 2006b).

Recently, Congress has taken an interest in the ratings industry. The House of Representatives passed HR 2990 on July 12, 2006, and the Senate Banking Committee approved a similar bipartisan credit rating agency reform bill on August 2, 2006. The SEC has also eased rules for recognizing new NRSROs.

The conventional wisdom on Wall Street is that the rating agencies are generally slow to downgrade firms (for example, Washington State Municipal Power Authority, Executive Life Insurance, Enron, or Worldcom).[6] For many years, the academic literature could detect no significant valuation effect of a rating change. An analysis of daily data (Hand, Holthausen, and Leftwich 1992) indicated that rating downgrades affect share prices but upgrades do not. In other words, ratings convey new negative information about firms, but the information reflected in a rating upgrade was already impounded in equity prices (probably because managers publicize good news more

widely on their own). Jorion, Liu, and Shi (2005) observe that regulation FD limited the availability of inside information to investors but not to NRSROs. The authors find that rating changes cause larger stock price movements after Reg FD than before.

Supervisors should base their decisions on the rating agencies' credit opinions only if those opinions are unbiased and relatively accurate. However, the rating agencies were not initially designed to play a role in supervising firms. In 1995, one industry observer told the SEC that by

> using securities ratings as a tool of regulation, governments *fundamentally change the nature of the product* agencies sell. Issuers pay ratings fees to purchase . . . a license from the government . . . if present trends of regulatory use of ratings are not arrested, the *credibility and integrity of the ratings system itself will inevitably be eroded.* (McGuire 1995, as quoted in a 1998 Investment Company Institute comment letter; italics added for emphasis)

To assert simply that credit-rating agencies can be trusted because they have a valuable reputation to protect seems naive. Remember how the auditing and stock analyst industries have collapsed upon themselves in recent years.

So my first topic for further study is the credit-rating agencies. If the first two debt ratings disagree, Basel II specifies lower capital standards for securities with a higher, third rating. How accurate are these third assessments in the context of risk supervision? How will the SEC's recently liberalized rules for certifying NRSROs affect the operation of old and new rating agencies? Third ratings are generally higher than the first two, perhaps because of sample self-selection. Will ratings shopping importantly impair the accuracy of Basel II capital standards? Does a supervisory focus on default probabilities (ratings) draw attention away from the stability effects of asset default correlations?

Banking and Commerce

Wal-Mart's recent application for an industrial loan company (ILC) charter raises many hot button issues, only some of which follow from economic principles. But the most important facet of this application has received insufficient public attention from policymakers: Should banking and commerce be permitted to operate out of the same firm? This policy question is not new, nor will it disappear during the FDIC's six-month moratorium on granting ILC insurance certificates. Today's relatively broad powers for bank holding companies were granted piecemeal, in response to specific applications from individual firms. This piecemeal approach will likely remain policymakers' modus operandi.

The Gramm-Leach-Bliley (GLB) Act increased the potential for firms to combine banking and commerce. Federal Reserve Governor Meyer (2001) testified before Congress on the permissibility of real estate brokerage and property management.[7]

5. The Comptroller of the Currency had issued a similar rule for national banks in February 1936 (Partnoy 1999, 688).
6. Moody's chairman, Clifford Alexander, sat on the Worldcom board until June 2001. The company's bankruptcy occurred in July 2002. Worldcom was rated investment grade three months before it filed for bankruptcy.
7. In late 2000, several organizations requested that the Federal Reserve and the secretary of the Treasury determine that real estate brokerage and property management are financial activities. If so classified, these two business lines would be open to financial services holding companies or subsidiaries of national banks. The agencies requested public comments between January 3 and May 1, 2001.

Table 1
Proposed FDIC Risk Categories for Pricing Deposit Insurance

	Weighted CAMELS rating		
	1–2	**3**	**4–5**
Well capitalized	I	II	III
	(2–4 bps)	(7 bps)	(25 bps)
Well capitalized	II	II	III
	(7 bps)	(7 bps)	(25 bps)
Undercapitalized	III	III	IV
	(25 bps)	(25 bps)	(40 bps)

Note: The six CAMELS ratings (see footnote 9) would be weighted as follows: 25 percent, C; 20 percent, A; 25 percent, M; 10 percent, E; 10 percent, L; and 10 percent, S (FDIC 2006, 34).

Source: FDIC (2006, Table 4 and p. 62)

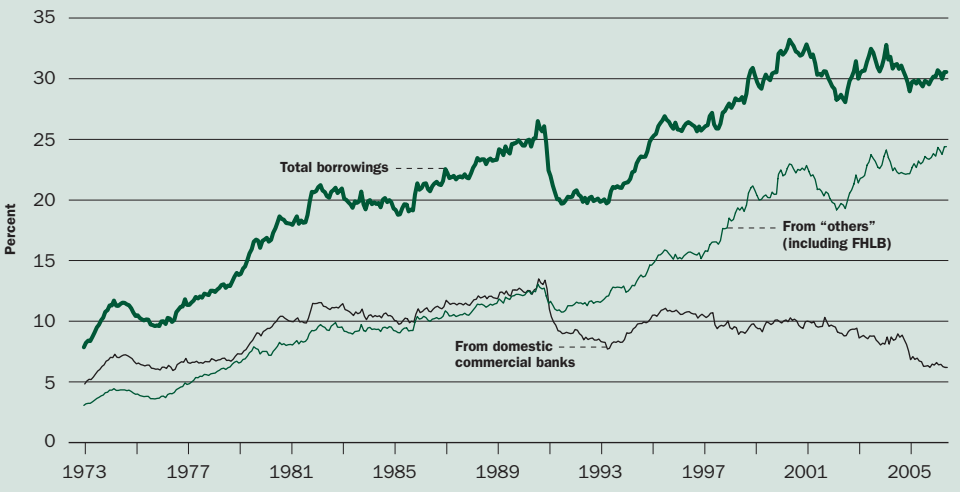
He explained that GLB provides "a significant expansion of the Board's capacity to consider the competitive realities of the U.S. financial marketplace in determining the permissibility of activities for FHCs [financial holding companies]" (FRB-OCC 2000). While the Bank Holding Company Act had permitted activities "closely related to banking," GLB allows the Federal Reserve and the Treasury to approve activities that are "financial in nature or incidental to a financial activity" (Meyer 2001).[8] Specifically approved activities in GLB include "lending; insurance underwriting and agency; providing financial advice; securities brokerage, underwriting, and dealing; and merchant banking activities" (Meyer 2001).

Instead of dealing sequentially with each piecemeal application for a new permissible activity, the banking agencies (and Congress) should get ahead of the trend by developing a sound understanding of how various connections between commerce and banking likely affect social welfare. From the 1980s and early 1990s, we all know the arguments about insulating the commercial bank from nonbank subsidiaries within a holding company (for example, firewalls or Sections 23A and B). This tactic is probably the wrong way to proceed. Benston et al. (1986) maintained that risk cannot be contained within a holding company subsidiary. Holding companies clearly act to manage total profitability across all their product lines, regardless of which subsidiary is providing the product. We need a fresh way to think about the competitive and stability implications of combining banking and commerce.

Risk-Based Insurance Premia and Depositor Preference

Benston et al. (1986) argued that deposit insurance premia should be based on risk to the insurance fund, and FDIC staff have long been sympathetic to this notion. The first system of risk-based insurance premia emerged in 1995, just in time for the insurance fund's size to preclude explicit premia for the majority of U.S. banks. The Federal Deposit Insurance (FDI) Reform Act of 2005 substantially broadens the FDIC's discretion over structuring deposit insurance premia and the insurance fund. On July 11, 2006, the agency sought comments on their proposed new system for setting individual banks' premia. The FDI Reform Act required a new pricing system within 270 days, and observers will surely criticize the proposed plan.

Figure 4
Uninsured Liabilities as a Proportion of Domestic Deposits



Source: Federal Reserve Board of Governors H.8 Statistical Release

FDIC views the proposal as a first step that will be revised as new information becomes available.

The FDIC's proposed method for pricing deposit insurance would replace its current system of nine insurance risk classes with the four risk categories (numbered I through IV) in Table 1. These proposed categories are based on a weighted average of the six CAMELS rating components (across the columns) and the bank's capital ratio (down the rows).[9] All banks within risk category II will pay 7 basis points, all banks in category III will pay 25 basis points, and all banks in category IV will pay 40 basis points. About 95 percent of all banks are presently in risk category I, for which the FDIC proposes to vary the premium (between 2 and 4 basis points) according to the bank's apparent risk.

It is surprising that the FDIC's risk categories are based on equity capital and not on the sum of all the bank claims junior to insured deposits. The National Depositor Preference Act of 1993 makes both uninsured (nondeposit) liabilities and equity claims junior to deposits.[10] For some firms, nondeposit liabilities are quite substantial. The top line in Figure 4 illustrates that aggregate uninsured (nondeposit) liabilities expanded over the past three decades, from about 8 percent of total deposits at large U.S. domestic banks in 1973 to about 30 percent at midyear 2006. Subordinating nondeposit liabilities has the apparent effect of making deposit claims more secure (low loss given default [LGD], whatever the probability of default). However, collateralizing

8. The Federal Reserve appeared inclined to permit brokerage, but extraordinary opposition from the real estate lobby prevented a final decision from being made.
9. The CAMELS system rates banks on six factors: capital adequacy, asset quality, management quality, earnings, liquidity, and sensitivity to market risk.
10. The National Depositor Preference Act was passed as Section 3001 of the Omnibus Budget Reconciliation Act of 1993.

these liabilities can more than offset the LGD effect on deposit claims. The net effect of these uninsured liabilities on fair deposit insurance premia depends importantly on the collateral pledged against uninsured liabilities. The FDIC proposal almost entirely ignores this issue.[11]

The Call Reports and monthly Schedule 2416 provide little detail about the nature of domestic bank "borrowings," which are divided simply into those from commercial banks in the United States (including U.S. branches and agencies of foreign banks) and those from others (including Federal Reserve Bank and FHLB borrowings).

The lower two lines in Figure 4 describe the components of banks' nondeposit borrowing. Interbank borrowings have not changed much over the period; most of these borrowings are probably unsecured.[12] Rapid liability growth has come from "other" (nonbank) borrowings that include loans from the Fed, the FHLBs, and all other lenders. In 1973 these borrowings constituted roughly 3 percent of total domestic deposits; by 2006 this proportion stood at nearly 25 percent. Advances from the Federal Reserve and the FHLBs are fully collateralized. (Indeed, the FHLBs require a blanket lien on a borrowing institution's assets in addition to a specific lien on pledged assets.[13]) The quantity of FHLB advances is explicitly reported on Call Reports, but we do not know whether the remainder is secured, and therefore de facto senior to deposit claims, or unsecured and therefore de facto junior.[14]

This issue requires further study and additional information gathering since the FDIC cannot assess appropriate deposit insurance premia without understanding the true seniority of the deposits they guarantee.[15] The FDIC is insuring two very different sets of institution: a large number of small firms, to which normal insurance principles roughly apply, and a small number of very large banks whose failure could tie up the entire insurance fund. Financial system stability may also depend more on the solvency of large banks than of small ones. The FDI Reform Act explicitly permits, for the first time, separate methods for determining the risks of small versus large banks. Because a sufficiently large bank's failure might also pose systemic risks to the financial system, setting accurate premia for the larger banks is much more important.

For risk category I institutions with assets below $10 billion, "the FDIC proposes to combine CAMELS component ratings with current financial ratios to determine an institution's assessment rate" (FDIC 2006, 6). For larger institutions in risk category 1, "the FDIC proposes to combine CAMELS component ratings with long-term debt issuer ratings, and, for some large institutions, financial ratios" (p. 6). Table 2 shows how the weighting scheme for various information varies with bank asset size. Beyond the items in Table 2, the FDIC's NPR expresses the possibility that a wide range of relevant market information might also affect the premium paid by large, risk category I institutions:

> In addition to long-term debt issuer ratings, the FDIC proposes to consider other market information, such as subordinated debt prices, spreads observed on credit default swaps related to an institution's non-deposit obligations, equity price volatility observed on an institution's parent company stock, and debt rating agency "watch list" notices. These additional market indicators would be especially beneficial in assessing whether the insurance score accurately reflected the relative level of risk posed by an institution. (FDIC 2006, 46–47)

Although this language permits analysts to use a broad range of information in setting insurance premia, its generality may also shield FDIC analysts from transparent accountability. (This balance is difficult to establish throughout the field of financial regulation.)

Table 2
Weights under the Proposed Approach

Asset size category[a]	Weights (in percent) applied to the Weighted average CAMELS component rating	Converted long-term debt issuer ratings	Financial ratio factor
>= $30 billion	50	50	0
>= $25 billion, < $30 billion	50	40	10
>= $20 billion, < $25 billion	50	30	20
>= $15 billion, < $20 billion	50	20	30
>= $10 billion, < $15 billion	50	10	40
No long-term debt issuer rating	50	0	50

[a] The asset size category is applicable when a current (within the past twelve months) long-term debt issuer rating is available for the insured institution. If no current rating is available, the last row of the table applies.

Source: FDIC (2006, Table 14, p. 39)

The FDI Reform Act required that risk-based insurance pricing be implemented within 270 days, and this is the FDIC's first attempt at a broad reform. Despite FIRREA's treatment of bank equity within a holding company, the FDIC evaluates its risk exposure at the bank level. For the first time, U.S. banks prospectively operate under both risk-based capital requirements and risk-based insurance premia. A careful evaluation of this proposed pricing scheme would surely be among my requests for another *Safe and Sound Banking* study. In this sense, little has changed since 1986 except that we have moved from academic arguments for risk-based insurance to a specific proposal from the deposit insurance agency.

Defining Systemic Risk

As the number of "financial stability institutes" has grown around the world, so have the number of articles and policy papers evaluating the government task of preserving financial stability. Early research viewed instability as resulting primarily from undiversified interbank credit exposures (as in the case of extensive fed fund borrowings by Continental Illinois). More recently, concern about depositor runs has (appropriately) expanded to include the credit exposures of OTC trading counterparties and a more general assertion that the failure of a large financial firm could have unspecified

11. The FDIC's proposal asks whether it should treat Federal Home Loan Bank (FHLB) advances as "volatile liabilities," which would tend to raise a bank's insurance premium. Advances should probably raise insurance premia, but because of their effect on LGD, not because they are a volatile source of funds.
12. For the first time, the September 30, 2006, Call Report includes a new item asking specifically what amount of fed fund liabilities and "other" (non-FHLB) borrowings are explicitly collateralized (draft of 9/30/06 Form FFIEC031, Memorandum RC-M, items 10.a and 10.b).
13. This blanket lien is senior to all other claimants, including those of the FDIC.
14. Recall further that some bank assets may be pledged in connection with OTC derivatives transactions.
15. Adler (2006) notes that the FDIC, on page 67 of its 152-page Notice of Proposed Rulemaking (NPR) (2006), "asked whether Home Loan Bank advances should be treated as 'volatile liabilities,' or whether it should charge 'higher assessment rates to institutions that have significant amounts of secured liabilities.' Both ideas would effectively raise premium rates for banks with Home Loan bank advances." Small banks were substantially upset at this possibility.

systemic effects. (Think of a large hedge fund, whose positions could not be unwound without substantially distorting asset market prices.) Large banking firms in particular are often identified as systemically important, although the mechanical processes for systemic effects are rarely explained (except see DeBandt and Hartmann 2000). Everyone knows that financial instability would be bad, yet few people know what it is or how important its effects on the real economy could be.

As I will emphasize again later, sound crisis-management policy requires a solid understanding of how (whether) one firm's financial distress might spread across the financial system. Simply establishing some definitions and examples that could inform research in this potentially important area would be a valuable start.

Capital Adequacy Regulation

Recall the economic basis for imposing minimum capital requirements on financial firms: Some costs of risk taking are external to the firm's shareholders. Supervisors therefore require bankers to hold more equity capital than they would otherwise choose to hold.

The Basel Committee on Bank Supervision (BCBS) has recently completed a system intended to make each bank's equity account reflect its total risk taking. The system includes three distinct approaches, designed for different sorts of banks. The target default probability is said to be 0.1 percent per year. The standard approach most closely resembles the Basel I rules except that credit ratings play a greater role in defining risk assets. The other two approaches rely on a bank's own internal ratings in a highly structured fashion. Many rules and cases are identified in the effort to minimize the potential for regulatory arbitrage. Indeed, the pillar 1 rules (for computing risk-based assets) take up 192 pages in the latest presentation of Basel II (BCBS 2006), while pillars 2 and 3 together get only thirty-nine pages.

Some have questioned whether, even in theory, the value-at-risk calculations underlying pillar 1 are what they seem to be. Kupiec (2006a) points out that the Basel II formulas do not recognize the accrual of interest on a bank's liabilities. Consequently,

> the AIRB [advanced IRB] approach will undercapitalize portfolio credit risk relative to the Basel II target of 99.9 percent bank solvency, and capital shortfalls can be substantial. In contrast, the Foundation Internal Ratings Based (FIRB) approach allocates significantly more capital than necessary to achieve the supervisory objective. (Kupiec 2006a, abstract)

Even if the pillar 1 formulas did perfectly measure credit risks, BCBS did not address important questions about the efficacy and effects of supervisory capital standards. For example, Hancock et al. (2005) argue that capital requirements can never bind private firms.[16] Specifically, they claim that small U.S. banks' higher capital requirement for low-risk mortgages should not hamper their ability to compete with larger, AIRB banks. The small banks simply need to raise their average credit risk exposures to the point where economic and regulatory capital coincide. At least for banks operating under the standard (or Basel I) rules, the implication is that banks can strategically make loans whose true risks exceed those implied by the asset's regulatory risk weight. Higher required capital ratios need not reduce default probabilities.

Basel II was designed with the primary goal of making capital requirements reflect bank risk exposures. More credit risk would require an appropriate amount of additional capital to keep the bank's default probability at approximately 0.1 percent per year. QIS (quantitative impact study) 4 in the United States and QIS 5 in Europe

indicated that the AIRB standard will be considerably lower than Basel I's 8 percent of risk assets. This standard is clearly unacceptable to (at least) the U.S. supervisors. The federal agencies' Advanced Notice of Proposed Rulemaking (68 FR, August 4, 2003, 45900, 45902) stated that "the Agencies do not expect the implementation of the New Accord to result in a significant decrease in aggregate capital requirements for the U.S. banking system." In the same agencies' draft NPR (March 30, 2006, 83) subsequent to QIS 4, we read the following:

> Were the QIS-4 results just described produced under an up-and-running risk-based capital regime, the risk-based capital requirements generated under the framework would not meet the objectives described in the ANPR, and thus would be considered unacceptable.

The proposed solution involves pillar 2, under which national supervisors set additional required equity beyond the minimum computed in pillar 1. By necessity, the justification for pillar 2 add-ons will be qualitative and opaque—in stark contrast to the scientific-looking justifications for pillar 1 supervisors could quite reasonably require capital beyond the pillar 1 formula for interest rate risk, foreign exchange risk, trading risk, granularity in the credit portfolio, etc.[17] However, an opaque policy of adding on further required capital to the pillar 1 minimum, simply to maintain an arbitrary and historic 8 percent ratio, would be quite dubious public policy. It would also mute (or eliminate) the risk sensitivity of required capital.

Another threat to the risk sensitivity of the Basel II formulas comes from the U.S. insistence that a straight leverage requirement supplement the AIRB measures. This leverage ratio will be the binding constraint for firms holding low-credit-risk loans, leaving no risk sensitivity at the margin.

Finally, banking systems in most Organisation for Economic Co-operation and Development countries presently maintain more capital than is required by Basel I. Basel II standards are expected to be no higher. In what sense, then, do supervisory capital standards bind or affect private firms' capital choices? Perhaps banks maintain a cushion above current requirements, and their actual capital will move up or down with the required minimum.[18] Perhaps the capital surplus is intended to be cyclical: As the economy heads into recession, credit quality declines and more equity becomes required.[19] We have not previously confronted a situation in which large banks hold substantially more capital than the supervisors would require.

My questions for a second *Safe and Sound Banking* study would surely include numerous inquiries about capital adequacy, such as

1. How do risk-based capital and risk-based insurance premia complement one another?
2. Are capital ratios currently binding on the world's major banks? If not, why not?

16. Kahane (1977) presented a similar assertion. Using mean-variance analysis, he showed that imposing a higher capital standard would cause a firm to move along its efficient frontier toward higher risk. The net effect on the firm's default probability was therefore ambiguous.
17. Pillar 1 includes a specific requirement for operational risk and permits (but does not require) a supervisor to require capital against interest rate risk in the banking book.
18. This cushion would be rational under some information asymmetries (Myers and Majluf 1984 or Stein 1998) that make it expensive to sell new equity at some times.
19. This view does not explain why it is cheaper to hold excess capital over the cycle than to raise new capital as credit conditions soften. More attention should be paid to this question for banking firms.

3. Is it reasonable to establish prompt corrective action guidelines in market value terms for sufficiently large firms?
4. What does it mean for capital requirements to "bind"? Is this a probabilistic statement, or are the requirements meant to constrain firm lending only during recessions?
5. How relevant is the Hancock et al. argument that capital ratios cannot be binding for smaller, "standard approach" banks or for larger, AIRB banks?
6. How should pillar 2 be administered? Can supervisors be held accountable for their decisions in this area?
7. Is the leverage requirement a good idea in theory? In practice?
8. Would implementation of a bifurcated capital standard in the United States encourage otherwise uneconomic mergers within the finance sector?
9. Should the United States abandon its proposed transition to an AIRB capital standard for large, internationally active banking firms?

Market Discipline

Dewatripont and Tirole (1994) approached bank regulation from the perspective that free riding prevents a diverse group of depositors from controlling bank actions. In contrast, a regulatory agency can represent depositors to better effect. DeYoung et al. (2001) came to a similar conclusion after studying subordinated notes and debentures investors' price reactions to news about their bank's condition. Supervisors appear to have a comparative advantage in influencing banks while market counterparties may have a comparative advantage in identifying changes in bank conditions. Financial firms are more complex than they were two decades ago. New products have permitted risks to be divided into ever-smaller portions. Derivative products and loan sales (syndications) have broken the link between credit underwriting and debt financing. Financial firms can use these products to take risks or to hedge them; outsiders probably find it more difficult to assess true risk exposures. As an example, consider credit default swaps. Wishing to retain a customer relationship, a lending bank probably prefers not to admit that it has off-loaded its exposure to a long-time borrower. Lenders' portfolios are probably more opaque because of these changes.

The transparency of large complex financial firms is not well established. Morgan (2002) finds that banking firms are more likely than other firms to receive split ratings on new bond issues. He concludes that banks are unusually opaque and hard to evaluate. Iannotta (2004) replicates Morgan's analysis for European bond issues during the 1993–2003 period, with roughly similar results. Flannery, Kwan, and Nimalendran (2004) examine other indirect evidence about bank opacity by comparing equity microstructure features of U.S. banks against similar-sized nonbanks.[20] They conclude that NYSE-traded banks differ insignificantly from their nonbank matched firms. Nasdaq banks trade significantly less often, and analysts could predict their earnings more accurately, implying that smaller banks are less opaque than their nonbank matches.

The public policy implications of bank opacity depend on the comparative advantages of supervisors versus market counterparties in evaluating complex firms. The AIRB is firmly rooted in the idea that bankers can make better risk assessments than their supervisors. Capital adequacy should reflect sophisticated banks' state-of-the-art risk-assessment and risk-management systems. Arguably, this approach also brings some financial stability benefits: If supervisors don't specify how risk systems should be designed, banks will choose different methods for estimating probabilities of default, exposures at default, etc., and the overall financial system will be diversi-

fied against model risk.[21] While this view of risk supervision offers some clear advantages, using an institution's own risk models to set its required capital creates an obvious moral hazard.

The private sector's risk assessments can alternatively be incorporated into supervisory policy via NRSRO credit ratings, as discussed above. We might also extract private information from a firm's security market prices or quantities. By understanding the terms on which counterparties are willing to deal with a particular firm, supervisors can benefit from state-of-the-art risk systems, diversified across numerous private actors. Pillar 3 attempts to encourage counterparty discipline through prescribed disclosure. The potential problem with prescribed disclosure is that supervisors may identify the wrong information or the wrong presentation format. In addition, the most relevant information could change over time, leaving pillar 3 to catch up.

Assuming that counterparties can monitor financial firms relatively well, they need proper incentives to do so (Calomiris and Kahn 1991). Counterparties must feel at risk in order for prices to reflect market assessments of a firm's condition. Since 1986, supervisors and legislators have removed many obstacles to the prompt closure of firms with insufficient equity. Fewer banking firms are too big to fail (TBTF) today than in 1986.[22] However, the supervisors' resolve has not been tested under stress. Furthermore, the extensive current study of financial stability and systemic risk within central banks raises the distinct possibility that future supervisors will react to a large firm's failure by supporting its creditors and/or equityholders. Such possibilities compromise market discipline. And such conjectures will be rational unless supervisors have a credible method for promptly closing large financial firms and apportioning losses to the various claimants. Furlong and Kwan (2007) note that Benston et al. (1986) recommended that "authorities publicly announce (and follow) policies to deal with depository institution insolvencies and coverage of insured deposits" (8). Stern and Feldman (2006) have recently made the same argument: Without credible, public plans for closing large firms, market disciplinary effects are seriously compromised.

Credible Procedures for Closing Large Financial Firms

The FDIC has recently issued a call for comments on its proposal that approximately 145 large banks maintain depositor records identifying insured balances (70 *Federal Register* December 13, 2005, 73652). Most banks do not maintain records this way, and hence the FDIC cannot quickly determine which depositors are eligible for payout when it takes over a failed bank. Without such a system in place, the FDIC cannot promptly pay out insured depositors without taking at least some "uninsured" depositors into the safety net. This lack of information is a problem for the FDIC, but it pales in comparison with the problem of closing—for liquidation or for recapitalization—a large firm with offices or branches in several countries.

Some authors have lamented the ambiguity associated with various sorts of cross-border legal agreements. Although I don't personally know much about the practical difficulties, they seem quite large. Can an integrated, worldwide institution's liabilities be separated from its assets held in the same jurisdiction? What sort of netting or offset

20. Microstructure features such as trading volume or bid-ask spread characteristics are thought to reflect information availability about the traded stock.
21. As Mao Zedong advised in 1956, "Let a hundred flowers bloom; let a hundred schools of thought contend" (Wikipedia, http://en.wikipedia.org/wiki/Hundred_Flowers_Campaign).
22. "TBTF" here is meant to include financial firms that are too big to reorganize quickly.

rights exist? Are they reliable? Which ones have been tested? How might ring-fencing affect settlements and therefore customers' incentives to run at the first sign of a problem? Do U.S. firms enter foreign markets using subsidiaries or branches? Why? What legal entities do foreign banks use to enter the United States? If a holding company satisfies capital requirements on a consolidated basis, does that mean that the U.S. subsidiaries necessarily have sufficient capital onshore? Or could that capital be held abroad, beyond the reach of U.S. supervisors in the event of a problem?

There may be excellent answers to all these questions. But given the importance of credible closure policies in policing large, complex financial firms, these issues should probably have a prominent place in the next *Safe and Sound Banking* study.

Summary and Conclusion

When all is said and done, the open issues related to financial safety and soundness are surprisingly similar to those discussed by Benston et al. in 1986: We still need to work on resolution procedures, deposit insurance pricing, and capital adequacy. Supervisors have incorporated private information into their regulations by patterning Basel II capital standards after large banks' internal risk-management systems. Market information further affects assessments of bank risk exposures because some capital requirements are determined by credit ratings. We need to know more about how these incentives work. We also need an unbiased understanding of "systemic risk," which was not such a prominent idea in 1986.

The financial system is presently strong, in part because supervisors have improved their techniques. But the target is moving, as the world's largest financial institutions grow more complex and more sophisticated. Here is a very brief summary of some questions to be addressed in the next edition of *Safe and Sound Banking*:

1. How can credit-rating agencies best be used in the supervisory process? What are the dangers associated with their use?
2. How much can we say in general about the combination of banking and commerce in the United States?
3. How do insured and uninsured liabilities affect fair deposit insurance premia?
4. What exactly is "systemic risk," and how dangerous is it?
5. What have we agreed to with Basel II?
6. Counterparty risk assessments seem necessary as financial firms become more complex. How can we translate a firm's price and quantity changes into appropriate supervisory action?
7. What more (if anything) needs to be done before supervisors can credibly close a large, international financial institution in a quick and orderly fashion, without bailing out the initial claimants?

Fortunately for all of us economists, there remains much to study.

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COMMENTARY

What Reforms Are Needed to Improve the Safety and Soundness of the Banking System?

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The author is executive vice president and director of research at the Federal Reserve Bank of Dallas. *This commentary was presented at the conference "Safe and Sound Banking: Past, Present, and Future," held August 17–18, 2006, and cosponsored by the Federal Reserve Banks of San Francisco and Atlanta and the founding editors of the* Journal of Financial Services Research.

It is an honor for me to be included among the discussants at this conference to commemorate and evaluate the contributions and impact of Benston et al. in their 1986 work, *Perspectives on Safe and Sound Banking* (1986). My assignment is to focus particularly on the excellent and insightful paper by Flannery (2007) and, to a lesser extent, the fine papers written by Furlong and Kwan (2007) and by DeYoung (2007). The three papers dovetail beautifully and are difficult to separate.

Let me begin with my conclusions. First, the citizens of the United States and many other countries enjoy the benefits of a safer and sounder banking system in 2006 in comparison with that which existed in the early 1980s. Second, much of the improvement in the health and resilience of today's banking system can be traced to the ideas contained in *Safe and Sound Banking* and to the passionate and persistent advocacy of these ideas by its authors. Much like the proverbial bulldog on a meat truck, they would not let go until many of their recommendations were enacted into law or supervisory practice. I have stated publicly in other venues that several of the authors of *Safe and Sound Banking* deserve the Nobel Prize in Economics—first, for the originality of their contributions to the fields of economics and finance that changed the conventional wisdom of the profession and, second, for the profound influence they have exerted on the improvement of economic policy.

While much has been accomplished to improve bank safety and soundness in the United States and elsewhere, further changes in legislation, regulation, and supervisory practices are necessary to capitalize upon and to further the improvements of the past twenty years. In analyzing the changes over the last two decades and in recommending additional reforms for the future, two themes will pervade my comments. First, don't let the quest for perfection be the enemy of the good. (After all, even in the Bible, Genesis 1, God declares at the end of each day that his creations are good.) Second, many of the changes I recommend to further the agenda of a safer and sounder banking system for the world of 2006 and beyond could not have been anticipated by the authors of *Safe and Sound Banking* when they were writing the book in 1986, given the state of the world that existed in the early 1980s.

To further improve bank safety and soundness in the years ahead, I recommend that (1) banks be examined and rated specifically on their organizational complexity and (2) that systemically important banks that are too big to resolve quickly be recapitalized according to a model that is known in advance by their competitors and by the general public.

A Fundamentally Different Banking Industry?

Throughout the post–World War II period, the profits of the U.S. banking industry have tended to correlate fairly well with the growth and health of the overall economy. Recessions were generally accompanied and followed by a downturn in banking industry earnings. The U.S. economy experienced a short and mild recession in 2001 (some of which has since been revised away). If past relationships could be depended upon to predict the future, bank industry earnings would have declined in 2001, 2002, and perhaps even in 2003 as the macroeconomic recovery did not gain traction until late 2003. (Of course, if the past were a good predictor of the future, marriages would rarely end in divorce, and the Yankees would almost always win the World Series.)

It is interesting to note that during the 2001 recession and the period since, the banking industry has kept setting new profit records (Federal Deposit Insurance Corporation [FDIC] 2006). Are we living in the midst of a paradigm shift? This question is difficult, and not enough time has elapsed to answer it. Let me add that the strong earnings performance has held up in an environment where the yield curve has had a steep, positive slope (2003–04) and, more recently, when the slope of the yield curve has flattened and even turned slightly negative (2006). Allow me to stick my neck out by saying that the resiliency of the banking industry I know today is in many ways fundamentally different from the one I knew when I started my career with the Federal Reserve System in 1970. And I think many of the changes for the better are due, in large part, to the implementation of many of the policy recommendations found in *Safe and Sound Banking*.

What Has Changed? What Has Stayed the Same?

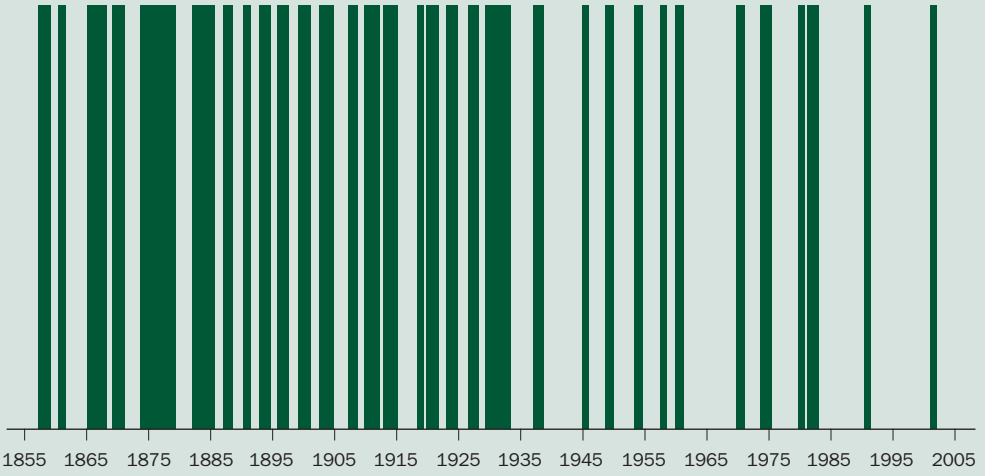
Several changes have occurred in the twenty years since the publication of *Safe and Sound Banking*. Because the impacts of these changes are mutually reinforcing, I list them in no particular order. The important changes include

- increased market discipline;
- increased bank capital, related to risks;
- prompt corrective action (PCA) coupled with transparency;
- a growing recognition that the concept of too big to fail (TBTF) is unacceptable;
- a macroeconomic environment of low and stable inflation combined with fairly steady economic growth, with the economy being in recession during only 15 of 240 months, or roughly 6 percent of the time—what Fed Chairman Ben Bernanke has labeled "the great moderation" (see Figures 1–4), keeping in mind that banking safety and soundness has benefited from, as well as contributed to, the reduction in economic volatility over the last twenty years; and
- broadened powers for banks to diversify across new product lines and geography.

Some things have not changed. Among the important recommendations that the U.S. Congress chose not to address are

- three bank supervisory agencies at the federal level,

Figure 1
Fewer Economic Downturns



Note: Vertical bars are months of contraction.
Source: National Bureau of Economic Research, Business Cycle Dating Committee

- the dominance of book-value accounting,
- mission creep at the Federal Reserve, and
- mandatory issuance of subordinated debt.

In the remainder of my comments, I will examine some further changes that are needed and, just as important, one aspect of banking supervision and regulation that ought to be left alone.

The Need for Further Changes and Improvements

In his introduction, Mark Flannery states that his goal is "to identify underresearched and/or underappreciated issues that affect bank safety and soundness or financial system stability." Professor Flannery adds that he enjoys the "great luxury to write a paper that poses questions but is not required to provide complete answers" (Flannery 2007, 83). In my remarks, I plan to practice that same philosophy.

Market discipline—the role of credit-rating agencies. For as far back as I can remember, and probably for a lot longer, businesses and government entities that wished to borrow from the general public have found it necessary to have their creditworthiness evaluated and rated by one or more credit-rating agencies. The two best-known agencies are Moody's and Standard & Poor's. These agencies are private-sector, for-profit companies. The general methodologies they use to assign credit ratings are public information and are typically covered in textbooks on finance and economics in chapters on the structure of interest rates (for example, see Kaufman 1995, Exhibit 7-1, 133; or Mishkin and Eakins 2005, chap. 5, table 1, 105).

I think of credit-rating agencies as the market's somewhat imperfect attempt to provide a privatized form of supervision and regulation to parts of the financial system. Credit-rating agencies reduce information asymmetries, adverse selection, and moral-hazard problems, thereby enhancing the flow of credit in the economy. In this respect,

Figure 2
Deviations from Trend Real Growth

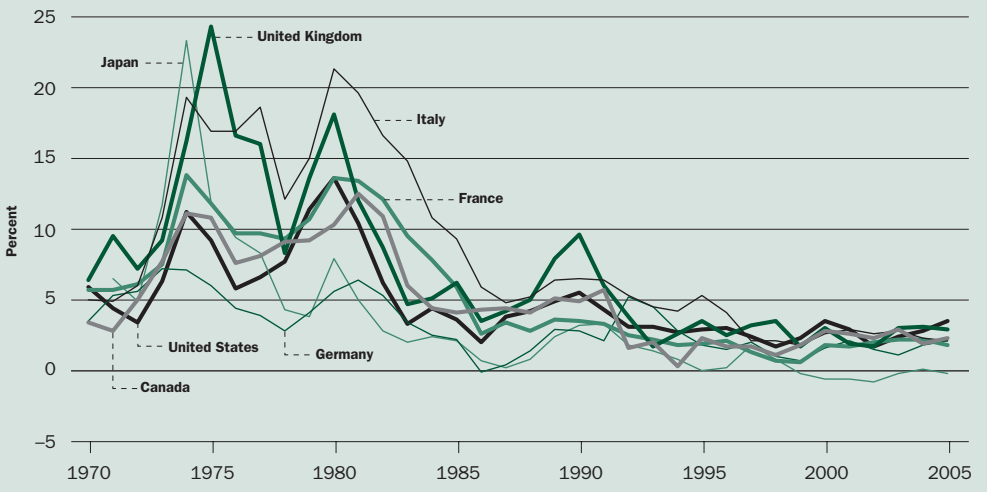
Note: Deviations are derived by applying a Hodrick-Prescott filter to the log of each inflation-adjusted series.
Source: U.S. Department of Commerce, Bureau of Economic Analysis

advocates of increased market discipline should champion the role played by existing credit-rating agencies and should support the creation of new ones to add more competition to that industry. Entry into this industry is restricted by the Securities and Exchange Commission (SEC), which certifies such companies as nationally recognized statistical rating organizations (NRSROs).

Flannery seems to lament the growing role of these private-sector firms in evaluating the creditworthiness of borrowers, particularly under Basel II. Flannery states, "Delegating credit evaluation to a private firm amounts to supervisory outsourcing, apparently based on the idea that the rating agencies provide better default risk assessments than examiners could" (p. 88). Let me offer a casual observation. I have my doubts about whether bank examiners would do a better job of evaluating debt default risk unless they had access to inside, nonpublic information. After all, examiners are trained to use the same credit analysis models and methodologies. If the only criterion were the quality of credit-rating judgments, I would assert that bank examiners and the credit-rating agencies would do equally good, but imperfect, jobs. Too many nonquantifiable uncertainties (in the Knightian sense) exist for credit-risk analysis to be perfect.

If we broaden the criteria to include the cost and speed of credit evaluation, the credit-rating agencies have a clear advantage over bank examiners since they provide and sell their ratings to thousands of interested clients. These economies of scale and

Figure 3
Global Decline in Inflation



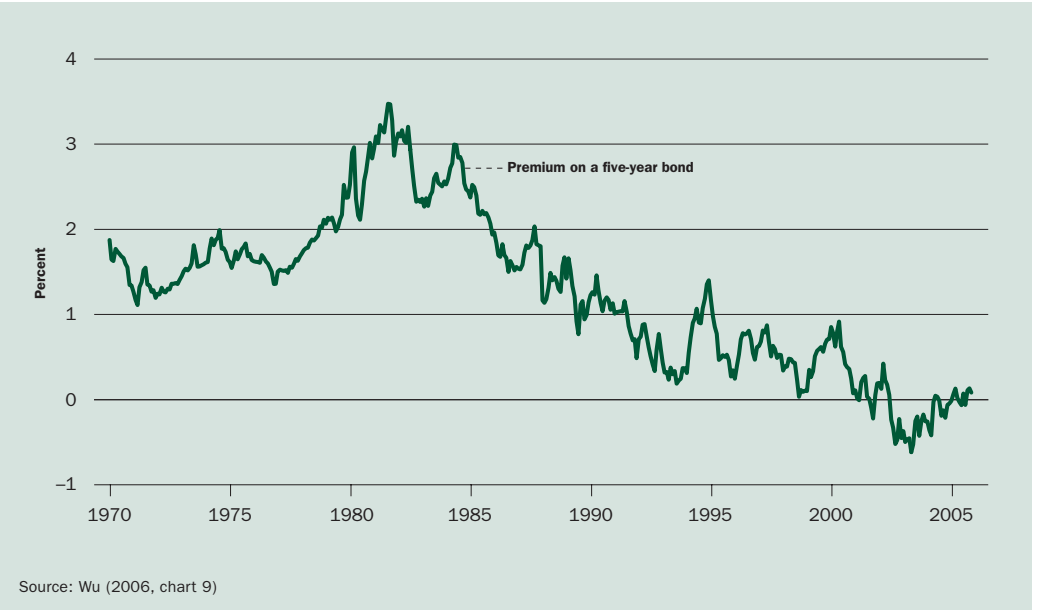
Source: Haver Analytics

scope should not be dismissed. So my question to Mark Flannery, to this audience, and to those who do financial research is, if not the credit-rating agencies who offer transparency—something that bank examiners do not—then what else is to be relied upon for credible analysis of credit risk at an affordable cost? Would freer entry into the credit-rating industry improve the quality and reduce the costs to consumers of credit ratings? Is seeking perfection the enemy of the good? If financial markets desire and need a better form of market-imposed discipline, why hasn't the entrepreneurial spirit fostered an innovation that provides better discipline than credit-rating agencies?

Increased bank capital. In discussing capital adequacy regulation, Professor Flannery asserts that supervisors "require bankers to hold more equity capital than they would otherwise choose to hold" (2007, 94). This statement is likely true but requires some qualifications. I would prefer to question how much equity capital banks would hold if there were no safety net in the form of federal deposit insurance, no central bank as a lender of last resort, and no public-sector supervision of the banking industry. Under these circumstances, how much capital would the market—that is, depositors and other creditors—demand of banks? Would it be more capital or less capital than required under present-day Basel I standards and future Basel II standards? My judgment tells me that, in the absence of the safety nets, the market would demand that banks hold more capital than required under Basel I or Basel II. If this assumption is true, then FDIC insurance provides a regulatory subsidy to the banking system, particularly because over 90 percent of banks have been paying no explicit premiums for deposit insurance in recent years.[1] Future research needs to address this issue.

1. The regulatory subsidy goes beyond federal deposit insurance, but I focus on that aspect because it dominates insured depositors' perception of bank safety. "Free" deposit insurance is about to become a thing of the past; see Adler (2006).

Figure 4
Declining Inflation Risk Premium



Source: Wu (2006, chart 9)

Some other relevant questions can be asked: Do banks increase their risk exposure when they perceive that supervisors require them to hold more capital than they otherwise would choose if left to their own devices? If so, are supervisory-imposed capital standards counterproductive in that they undermine bank safety and soundness? Do risk-based capital and risk-based deposit insurance premia complement one another—a kind of belt-and-suspenders system—or does this combination amount to legislative and supervisory overkill? After all, some optimal level of capital exists for each bank and the banking system, and the pursuit of safety and soundness can create a strong disincentive to the necessary risk appetite of the banking system and act as a brake on potential economic growth.

In this context, an additional question is worth raising—namely, just how much safety and soundness do we, as a society, really want? If near 100 percent safety and soundness is the goal, it can be accomplished via narrow banks or through a 100 percent reserves banking system (Litan 1987; Wallace 1996; Phillips 1995). If the goals are broader and more complex—as is the case for the Federal Reserve System, whose mandates include full employment and price stability in addition to bank safety and soundness—then capital regulations must adjust accordingly.

Let me posit that the real goal—which is rarely stated—is a financial intermediation system that can support a dynamic and growing economy subject to a safety and soundness constraint that can be different for each of the various types of intermediaries. Some of these financial intermediaries, which we call "banks," are funded with a special class of liabilities, which we label "deposits." These deposits are used to fund idiosyncratic loans that are a critically important source of credit that helps to fund a dynamically diverse and growing economy. This goal requires some risk-taking—more risk than under a goal of 100 percent safety and soundness.

Prompt corrective action and its interaction with the goals of monetary policy. If banks have a role—even a mission—to play in supporting noninflationary

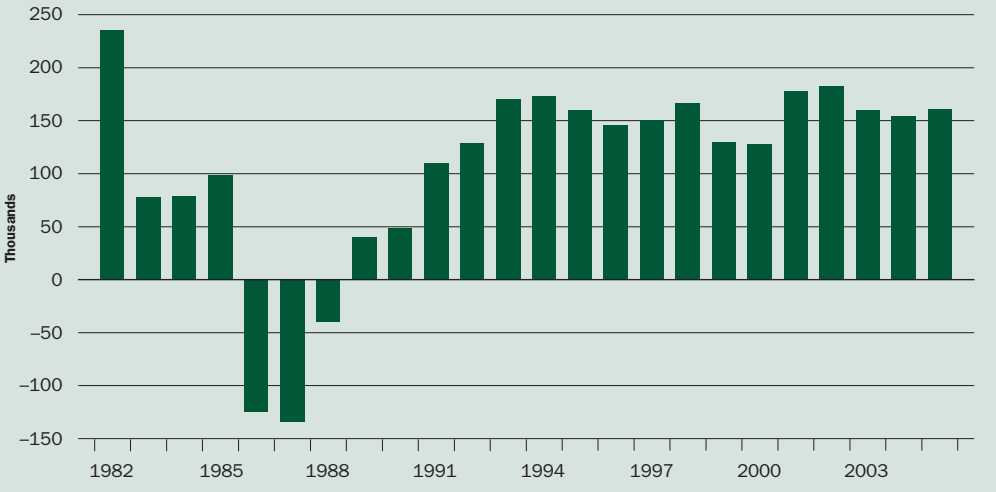
economic growth, then the issue of bank capital has to be viewed in a somewhat different way. Banks need to maintain a capital cushion in excess of the regulatory minimum in order to fund the lending necessary to support a growing economy. Under PCA, banks with less than the regulatory minimum cannot fund additional loans, though in the short run they can fund loans by selling Treasury securities that are not subject to a risk-based capital requirement. Such a bank is capital constrained and cannot expand its loan book. Indeed, a bank with capital below the regulatory minimum must shrink its loan book. If the aggregate of all banks in a nation, that is, the banking system, has a level of capital below the regulatory minimum, bank lending will ultimately shrink, and in all likelihood the quantity of money and credit in the economy will also be forced to decline, thereby triggering a contraction of macroeconomic activity.

When a large percentage of banks in a particular region do not meet their capital requirements, a decrease in bank lending at the regional level inevitably follows. This credit crunch is brought on by a shortage of bank capital. This situation happened in Texas in the second half of the 1980s and in New England in the early 1990s (Rosenblum 1990a, 1990b, 1991, 1999, 2002; Syron 1991; Peek and Rosengren 1995, 1996; Bernanke and Lown 1991; Rosenblum and Clair 1993). In this environment—that is, when capital requirements provide a binding constraint upon the size and growth of the banking system—monetary policy can become impotent in the sense that increasing the reserves of the banking system will not induce an expansion of bank credit and the money supply (Bliss and Kaufman 2002). This situation is somewhat parallel to a Keynesian liquidity trap. Clearly, the Federal Reserve has a large stake in the safety and soundness and capitalization of the banking system because the Fed's legal mandate to achieve full employment implicitly requires a safe and sound, well-capitalized banking system.

With one brief and minor exception during the 1950s, the U.S. economy has not experienced nationwide deflation since the Great Depression. However, I can speak personally and anecdotally, but not statistically, about the regional deflation that hit Texas and a few surrounding energy-producing states in the second half of the 1980s. Since the Bureau of Labor Statistics and the Bureau of Economic Analysis do not produce state-level or regional price-level statistics, there are no consumer price index or personal consumption expenditure data that I can use to make my point. But housing, land, and other asset prices did fall, in some cases by more than half. No broad wage data are available either, but circumstantial evidence suggests that the value of human capital declined. Texas, which year in and year out typically experiences a large net in-migration from the rest of the United States and from foreign countries, actually experienced a net out-migration for a few years during the late 1980s. For example, net in-migration to Texas averaged 120,000 persons annually from 1982 to 1985 but changed to net annual out-migration of 100,000 from 1986 to 1988 (see Figure 5).

As bank capital declined with the increasing loan losses, bank credit and deposits declined as well. Texas job growth, which typically averages a full percentage point above the rate of U.S. job growth, was negative. Texans moved elsewhere to find employment. And this state of affairs occurred during an era when regulatory forbearance, rather than prompt corrective action, was supposedly the modus operandi of the bank supervisory agencies. This situation predated PCA, which did not become law until it was included as part of the Federal Deposit Insurance Corporation Act of 1991. Although I am only making a conjecture, I will assert that PCA would have accelerated and deepened the rate of money and credit contraction in response to the loan losses and capital write-offs in Texas that followed the sharp drop in oil prices from $28 to roughly $10 per barrel between November 1985 and January 1986.

Figure 5
Net Migration to Texas



Source: U.S. Census Bureau

PCA is designed to deal with instances where bank capital declines in a slow and orderly way and where capital can be raised while the bank is still clearly solvent and not on the edge of insolvency. PCA is also designed to induce a change in the behaviors of bankers and bank supervisors in situations where undercapitalized banks are isolated events. But what about the situation where seriously undercapitalized banks are the rule rather than the exception and the undercapitalized banks are geographically concentrated? Who will recapitalize these banks when their current and future prospects appear dismal?

PCA may not work well when dozens or hundreds of banks undergo a severe loss of capital after experiencing a common economic shock, or even a shock whose origin is not economic (say, a series of weather-induced shocks such as hurricanes, drought, or earthquakes). But this limitation does not mean that PCA is not a useful mechanism for quick and early correction of undercapitalized situations. The papers by Flannery (2007) and Furlong and Kwan (2007) seem reluctant to give credit to PCA for increasing bank safety and soundness. To my way of thinking, this reluctance exists because these authors expect PCA to work primarily by changing supervisory behavior. To be sure, a change in supervisors' behavior is a necessary condition for PCA to have its intended impact. But altered supervisory behavior is not a sufficient condition. For PCA to work as intended, bankers must have a complete understanding of PCA in advance and must adjust their behaviors accordingly. Knowing the consequences of failing to meet supervisory minimum capitalization, bankers will take extra precautions to keep their banks in the "well-capitalized" group and to avoid falling below the category of "adequately capitalized." They will also take extreme measures to avoid the risks that could push their banks into the categories of being "undercapitalized, significantly undercapitalized, or critically undercapitalized." The reason is simple. Bankers understand the consequences of being undercapitalized. These consequences include (1) requesting that current stockholders purchase more

capital, thereby having their ownership stake diluted; (2) accepting limits on asset growth; (3) facing restrictions on dividend payouts; and (4) if all of the above is not sufficient to get their attention, then facing restrictions on their compensation (Kaufman 1995, 298–99). If you want to get a banker's full, undivided attention, threaten him or her with reduced salary and no bonuses!

The bankers I come in contact with seem to be fully aware of these provisions of PCA, and they have changed their behaviors accordingly. This new attitude and the resulting behavior with respect to capital has been in place for well over a decade, long enough for these good behaviors to have become good habits. From the perspective of bank safety, these are good habits. PCA is working, at least under the types of economic stresses and strains of the last decade. Long live PCA.

The end of "too big to fail"—size versus complexity. Professor Flannery notes that "during the 1990s, U.S supervisors appeared to become more comfortable with the notion that even relatively large bank failures could be resolved without systemic implications" (2007, 87). Further, he notes, and I would agree, that "this is a good development, but it has not been tested under stress."

The issue here is not just one of "bigness." It is more an issue of the complexity of the banking organization, particularly if its branches, subsidiaries, and offices are spread across several countries, each with its own supervisory scheme, most of which are different and far from harmonized. Basically, the issue boils down to which supervisor is in charge and who is responsible for what. To put it simply, there has been some, but not enough international cooperation in harmonizing bankruptcy practices across countries (see Herring 2002; Bliss 2003; Rosenblum 2003; and Mayes 2006). Moreover, because twenty-first century financial holding companies deal in a myriad of securities and derivative products that are regulated by a whole other set of functional regulators, it is not just banking rules that need to be harmonized. Some of these financial conglomerates are so complex that they have become what I have previously labeled "too complex to supervise" (Rosenblum 2003).

A tax on organizational complexity. Some financial companies have designed their corporate structures with a number of diverse goals in mind, including minimizing tax burdens and taking advantage of perceived laxity of regulation in some jurisdictions, all in an effort to maximize shareholder returns. In the process, their organization charts have begun to resemble a bowl of spaghetti with lines of communication, reporting, direction, and control becoming confusing, not only to outsiders looking in but to insiders as well. I have labeled such organizations "too complex to manage" (Rosenblum 2003). And I have recommended that the CAMELS ratings add another letter, an *O*, to represent either organizational complexity or opacity.[2] These issues related to complexity are the ones that allow a problem to go undetected and fester before it can be recognized and dealt with by both management and supervisors.

I will illustrate my point through a hypothetical example. Suppose a bank earns a passable 2 on its examination rating for each of the six categories in its CAMELS rating, thereby earning a composite rating of 2 on the 1–5 scale. But suppose that the supervisory authority deems the banking institution's organizational structure to be so unnecessarily complex and opaque that it gives the bank a 5 for organizational complexity—the new seventh letter in the CAMELSO rating system. The 5 would likely change the bank's composite examination rating from a 2 to a 3 and would surely get the attention of the bank's management and its board of directors. Such an indirect

2. The CAMELS system rates banks on capital adequacy, asset quality, management quality, earnings, liquidity, and sensitivity to market risk.

but explicit tax on organizational complexity might induce a bank's management to simplify its structure.[3]

TBTF—lessons from LTCM. While I am on the subject of too big to fail, I need to note my concern and surprise that the last instance of a failure that raised TBTF issues was Long Term Capital Management (LTCM), yet LTCM went unmentioned in the papers prepared for this conference. LTCM was a hedge fund, not a bank, but it was big, and its possible disorderly unwinding could have posed problems for the financial markets and the banking industry under the circumstances that prevailed in August–September 1998. Let me raise the question of whether LTCM provides a road map for how to handle a so-called too-big-to-fail systemic bank. LTCM was recapitalized, probably reluctantly, by its competitors and suppliers, with ownership divided into fourteen roughly equal pieces. In essence, LTCM failed; its owners, investors, and principals lost virtually all their equity and control; and the new owners got whatever benefits they could from their ownership stake. To use a Darwinian metaphor, a severely weakened animal was thrown to the wolves and the buzzards. No public money was promised, spent, or put at risk to alleviate what otherwise could have been a very disorderly situation.

The LTCM precedent raises an interesting question. What if there were a rule, known in advance, that if one of the three or four systemically important banks were on the brink of failure, then each of the, say, ten or fifteen or twenty other largest banks would have to recapitalize the failed bank according to some preestablished formula? Each bank would provide financial capital and other resources, including some management talent, to protect its investment. One benefit to these banks would be protecting them from creditor concerns that the deposit insurance fund could otherwise have been seriously depleted. A quick and orderly resolution would also calm depositors and other creditors rather than make them wonder which bank is next in line to fail. The rule, enforced by the bank supervisory authorities, would impose the necessary outside coordination and discipline on the process to make it work. I offer the LTCM precedent as food for thought.

A growing role for the Federal Reserve. The authors of *Safety and Soundness* suggested a reduced role for the Federal Reserve. Congress has chosen to ignore this recommendation; indeed, the Fed's role has been expanded. The provision of normal and emergency liquidity remains the sole responsibility of the Fed. In addition to retaining its role as the primary supervisor for bank holding companies, the Fed was made the umbrella supervisor for financial holding companies under the Gramm-Leach-Bliley Act. This move gives the Fed a supervisory reach over a lion's share of the nation's banking assets. The Fed, in essence, retains its role as "the super-agency that nobody planned" (Guttentag 1975, 137). The Fed's mission creep extends beyond the supervisory arena to include the payment system. Why has this expansion happened? Why did Congress adopt so many of the recommendations from *Safety and Soundness* but ignore all the recommendations about restructuring the powers of the federal bank supervisory agencies? Was it politics or economics? Was it the reputation of Fed Chairman Alan Greenspan? My answer is that the decision was based at least 90 percent on economic considerations.

In an economic or financial emergency, the country needs, indeed requires, a nonpolitical organization with the financial wherewithal, the expertise, the experience, the broad mission, and the leadership to step into the situation and quickly get the situation under control. During such crises there is no time for jurisdictional disputes about who has the responsibility or who was appointed by Republicans versus Democrats. When the financial or banking system is under great stress, government agencies with single

missions and narrow mandates are often incapable of setting priorities or making trade-offs among competing and conflicting public goals. The FDIC and the Office of the Comptroller of the Currency (OCC) focus nearly exclusively on bank safety and soundness. Only the Federal Reserve is charged with the job of internalizing the trade-offs between the items on its long list of interdependent goals, including economic growth, full employment, price stability, financial system resilience, bank safety and soundness, and payment system stability. When something goes wrong, the American public, and thereby their elected representatives in Congress, want one person or institution to be accountable for trying to alleviate the situation. Nobody wants to hear a high-level public official utter, "It wasn't my job or mandate to worry about that aspect of the problem" (Rosenblum 1994).

Economics is about maximizing an objective subject to a set of constraints. The FDIC and OCC have the job of maximizing bank safety and soundness. The Fed's job is to maximize the economic health of 300 million U.S. citizens subject to a bank safety and soundness constraint. Under normal economic and financial conditions, the three agencies perform essentially the same supervisory duties. But under conditions of economic and financial stress, the Fed may need to diverge from its usual and customary role in bank supervision and regulation. The Fed was designed to do this, and it has evolved over time in keeping with the evolution and innovations in the economy and financial markets. Congress recognizes that daily life is not simple; it involves a range of constant trade-offs. Accordingly, Congress has created and expanded the role of the Federal Reserve and delegated to it many of Congress's own responsibilities under the U.S. Constitution.

In recent years, many governments have removed bank supervisory functions from their central banks and transferred these duties to a financial services authority (FSA) that in many cases is also responsible for supervision and regulation of financial markets, insurance, and securities companies. Because no major banking and financial crises have occurred in the short span of years that FSAs have been in existence, we cannot yet judge whether separating banking supervision from the monetary-policy and lender-of-last-resort authority will work well in practice. In spite of the fact that distinctions between different types of financial intermediaries have become blurred in recent years, it is not clear to me that consolidating all financial supervision and regulation in a single government agency provides any significant benefits over the divided system that currently exists in the United States. Ironically, a solution to the cross-border regulation problems I discussed earlier is being proposed jointly by the Federal Reserve Bank of New York, the SEC, and the U.K.'s FSA (Geithner, McCarthy, and Nazareth 2006). For the time being, the U. S. Congress appears wise not to tackle the issue of bank supervisory consolidation in the United States.

Conclusions

Many, but not all, of the recommendations in *Safe and Sound Banking* have been implemented over the past twenty years. The result is a safer and sounder banking system than would otherwise have been the case. While we enjoy the benefits of this safer, sounder, and more resilient banking system today, it does not necessarily follow that we have a safer financial system. Risk taking has moved from banks to other financial institutions where regulatory subsidies do not exist and where market discipline can be more effective. This situation is as it should be and as the authors of *Safe and Sound Banking* intended.

3. One lesson from the bankruptcy of Enron, which was not a bank, is that unnecessary organizational complexity can be a problem for both top management and a range of other stakeholders.

Two additional reforms seem necessary to further improve the safety and resilience of the banking system in 2006 and beyond. First, organizational complexity needs to be discouraged, perhaps through a specific examination rating for that characteristic. Second, a set of resolution procedures needs to be put in place and known in advance for how the bank supervisory authorities will deal with the recapitalization and reorganization of systemically important banks that are too big to resolve quickly by traditional methods. One such resolution model is provided by the 1998 private-sector recapitalization of Long-Term Capital Management.

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COMMENTARY

Two Key Issues Concerning the Supervision of Bank Safety and Soundness

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The author is the Willis Booth Professor of Banking, Finance, and Real Estate at the Haas School of Business at the University of California, Berkeley. *This commentary was presented at the conference "Safe and Sound Banking: Past, Present, and Future," held August 17–18, 2006, and cosponsored by the Federal Reserve Banks of San Francisco and Atlanta and the founding editors of the* Journal of Financial Services Research.

As Mark Flannery notes, it is a luxury to be asked to prepare a paper to identify major current questions regarding bank safety and soundness. It is an even greater luxury to be asked to comment on Mark's list of questions, particularly since I agree with every topic on his list. In this commentary, I will focus on two specific issues. The first, raised by Mark, asks, What are the market failures that actually create the need for the public regulation of bank safety and soundness? The second, which Mark omitted from his list but is at the very top of mine, concerns the safety and soundness issues created by the two mortgage government-sponsored enterprises (GSEs), Fannie Mae and Freddie Mac.

Safety and Soundness Supervision Derives from Some Market Failure

Mark opens his paper by asking why bank safety and soundness is a question of public regulation in the first place, obviously a key question. Mark's answer, with which I agree completely, is that safety and soundness regulation must derive from some market failure. But Mark does not drill down to a full answer. Since the answer will determine whether we actually need bank regulation and, if so, what the best form is for this regulation, I will try to provide a more complete answer.

A simple explanation of why we need bank regulation is, of course, to avoid frenzied bank runs. That answer may have been a sensible one in the 1930s, but today I think we must consider whether capital market liquidity is now sufficient to extinguish irrational bank runs. After all, the breadth and depth of our capital markets is one of the key strengths of the U.S. economy today. If capital markets can actually provide bank liquidity, then we can save the money and effort currently invested in this aspect of bank regulation.

Let me make the case for capital market liquidity. Suppose I manage the Jaffee Bank of Berkeley, taking in deposits and making sound loans, but the maturity of my loans exceeds the maturity of my deposits. Unfortunately, one day a bank run is initiated against the big banks in San Francisco, causing concern even among the depositors at the Jaffee Bank. My solution would be simple and direct: I sell my port-

folio of loans in the capital markets, using the proceeds to pay off my depositors. I am not happy about the event because I lose the profit spread I was earning, but the situation is not disastous. In fact, my reputation for paying off my deposits is enhanced, and when the bank run panic subsides, I can regain my deposits and repurchase my loans. As long as I can depend on capital market liquidity as an outlet to sell my loans, I have no need for government liquidity and for the bank regulation that it creates.

The problem with this story, of course, is that the U.S. capital markets do not seem able, at least on a consistent basis, to provide this type of liquidity. Instead, we observe capital market liquidity crises in which market investors are suddenly unwilling to invest at all—or investors quote risk spreads that amount to the same thing—even though on the previous day identical securities were bought and sold in liquid and deep markets. Even more interestingly, the trigger events that create such capital market crises often seem very remote from the security markets that face the crises. I am thinking of the recent crises that started with Russian government bonds or Asian currencies but ended up dramatically raising the risk spreads for such securities as U.S. residential and commercial mortgage-backed securities. Since no obvious link exists between Russian bonds and U.S. mortgages, why the liquidity crisis spread in this way is an intriguing question. One answer, just now being developed in research papers, is that investors foresaw a possible chain of broken financial contracts and thus became extremely conservative in their willingness to invest until the crisis abated (see Caballero and Krishnamurthy 2006).

I suggest that this tendency of capital markets to expand panic to sectors with no direct links to the initial crisis underlies the need for public regulation of bank safety and soundness. After all, if the capital markets cannot dependably provide liquidity, then frenzied bank runs will occur, and a lender of last resort at the Federal Reserve and a deposit insurance fund can make sense.

Moreover, I suggest that this market failure also has implications for other financial services. As an example, Thomas Russell and I have a series of papers about how the failure of private markets for catastrophe insurance has led to inefficient government interventions in these markets (Jaffee and Russell 2006). The examples include the creation of federal flood insurance starting in the 1960s, the breakdown of Florida wind-damage insurance due to Hurricane Andrew in 1992, the failure of California earthquake insurance due to the 1994 Northridge quake, and, most recently, the breakdown of terrorism insurance due to the 9/11/2001 attack. It is understandable, of course, that the price of these catastrophe lines could rise after an event, especially if insurance firms raise their estimates of expected future losses. It is not easily explained, however, why large parts of the private insurance industry simply refuse to offer policies the day after the event even though they were doing so quite happily the day before. Russell and I believe the explanation is a capital market failure, in which catastrophe insurers find that their capital market access has dried up as a result of the event even though their business is expected to be very profitable as market premiums rise.

The connection here is that we see government interventions in a wide range of financial services—from bank deposits to catastrophe insurance. In all these cases, we must understand the underlying market failure in order to evaluate whether and how that intervention should occur. I believe it is of fundamental importance to provide a full answer to this question.

A New Item for Bank Supervision: Fannie Mae and Freddie Mac

The second issue I will discuss concerns the two mortgage GSEs, Fannie Mae and Freddie Mac. Mark Flannery does not include the two GSEs on his topic list, but I

Table
U.S. Capital Market Obligations by Sector

	Year-end 2005 ($ trillions)
U.S. commercial bank liabilities	$7.7
U.S. Treasury debt	$4.7
Total obligations, Fannie and Freddie	$4.2
Fannie Mae obligations	$2.4
Freddie Mac obligations	$1.8
All corporate bonds	$3.0
All commercial loans	$2.4
All municipal bonds	$2.2
All (nonmortgage) consumer credit	$2.2

Note: Fannie Mae and Freddie Mac obligations equal total debt plus net mortgage-backed securities outstanding.

Sources: Federal Reserve Flow of Funds, Table L.2; for Fannie Mae, *Debt Activity*, December 31, 2005, and *Monthly Summary*, April 2006; for Freddie Mac, Caballero and Krishnamurthy (2006)

consider them a major factor threatening commercial bank safety and soundness today. The source of the problem is that Fannie and Freddie currently embed very large amounts of interest rate risk in their retained mortgage portfolios (Jaffee 2003). One might think that Fannie's and Freddie's financial distress is a problem only for investors holding their obligations or for their regulator, the Office of Federal Housing Enterprise Oversight (OFHEO), and not for the commercial banking industry. The financial obligations of the two firms, however, are now so large that they create a very serious systemic risk that could envelop all the U.S. financial markets, including the commercial banks. The table provides some summary statistics showing that Fannie and Freddie are larger than whole sectors of the U.S. capital market, with their capital market obligations exceeding the total amounts for all corporate bonds, commercial loans, municipal bonds, and nonmortgage consumer loans outstanding in the U.S. capital market. Specifically, with respect to U.S. banks, consider these facts as of year-end 2005:

- Fannie's and Freddie's total obligations equaled $4.2 trillion, representing 55 percent of total U.S. bank liabilities. (At year-end 1985, in contrast, the two GSEs' obligations represented 8 percent of total U.S. bank liabilities.)
- Fannie and Freddie were larger than any U.S. banks based on total obligations.
- Fannie and Freddie would both be among the top six U.S. banks based on assets.
- Investments in Fannie's and Freddie's obligations exceed 14 percent of all U.S. commercial bank assets.

Congress has been considering bills for reorganizing the regulation of Fannie and Freddie, indicating further concern with their safety and soundness (Glaeser and Jaffee 2006). One response, especially by Freddie Mac, has been to argue that the regulation of the two GSEs for safety and soundness is already on par with that of commercial banks (see, for example, Syron 2005). I think it is important for bank regulators to hear this argument and to rebut it. Here are some of my notes for this rebuttal:

1. **The U.S. Treasury does not backstop the Federal Deposit Insurance Corporation (FDIC).** Fannie and Freddie have a direct credit line at the U.S. Treasury, and capital market investors generally assume that an implicit U.S. Treasury guarantee exists on all of Fannie's and Freddie's obligations. In contrast, the FDIC provides only a mutual guarantee among all the banks, with no links whatsoever to the U.S. Treasury.
2. **Bank capital requirements far exceed those of Fannie and Freddie.** The effective capital requirement for the two GSEs is just over 1 percent, reflecting a weighted average of 2.5 percent for their balance sheet assets and 0.45 percent for their mortgage-backed security guarantees. Most banks, of course, carry capital ratios in excess of 8 percent. In addition, banks hold diversified portfolios

while Fannie and Freddie mainly hold a single asset class—namely fixed-rate, long-term, freely prepayable mortgages.

3. **Bank regulation includes prompt corrective action (PCA).** As discussion at this conference confirmed, PCA has greatly expanded the safety and soundness of U.S. banking by creating a mechanism through which distressed banks must either add to their capital or merge. The regulation of Fannie and Freddie has no comparable power, leading to a serious concern that financial distress at either firm would lead first to forbearance and, later, to a federal bailout.
4. **Risk diversification.** Financial distress for Fannie and Freddie would focus on just two firms, with the likelihood that any serious issue at one firm would migrate quickly to the other. With over 7,000 U.S. commercial banks, the risk would be dispersed over many more firms.

In closing, I will return to Mark Flannery's list to highlight an important issue of high relevance for both Fannie and Freddie and for bank regulation: the Basel II proposals for capital adequacy. The current proposals will reduce the capital requirements imposed on residential mortgages, whether held as whole loans or as mortgage-backed securities. This reduction will expand the incentive for banks to hold these loans and securities, which is a good thing if it creates a reduction in the retained mortgage portfolios held by Fannie and Freddie. On the other hand, we should not forget that Basel II has no direct capital requirements for interest rate risk. For me, the highest priority is to create a capital requirement system in which interest rate risk is treated as a fundamental risk factor, with its own quantitative capital requirements, quite on par with those for credit risk.

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Roundtable Discussion: Reflection on Twenty Years of Bank Regulatory Reform

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Banking is now, and has always been, a risky business." This succinct and cautionary statement was the first sentence of the executive summary of *Perspectives on Safe and Sound Banking: Past, Present, and Future*, a book written in 1986 on the eve of a troubled time in banking but still relevant in today's more stable banking environment. The book's five authors were commissioned by the American Bankers Association "to undertake a comprehensive study of the issues surrounding the safety and soundness of the banking industry and the efficacy of its regulatory system." The five academic consultants divided the task of writing the report among themselves, reviewed each other's work, and came to a consensus on policy options and recommendations. These recommendations have in many ways served as a blueprint for the changes in banking's regulatory framework that have occurred in the twenty years since the book's publication.

At the August 2006 conference celebrating the twentieth anniversary of *Perspectives on Safe and Sound Banking*, the five authors gathered once more to reflect on the state of the banking industry. In their comments on the following pages, they assess how legislative and regulatory changes during the past two decades have reshaped the banking landscape, and they weigh in on what tasks remain to ensure that the banking system, and the larger financial system with which it has become so intertwined, remains healthy.

ROUNDTABLE DISCUSSION

Looking Back Twenty Years: What Changed, What We Wrote, and What We Did and Did Not Accomplish

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These remarks were presented as part of a roundtable discussion at the conference "Safe and Sound Banking: Past, Present, and Future," held August 17–18, 2006, and cosponsored by the Federal Reserve Banks of San Francisco and Atlanta and the founding editors of the Journal of Financial Services Research.

I reread our book, *Perspectives on Safe and Sound Banking: Past, Present, and Future*, with some concern that I might be dismayed and disappointed at what we wrote. After all, we should have learned more in the past twenty years, knowledge that would allow us to avoid some mistakes and misunderstandings. Or, since the world we analyzed has changed during this time, some of our conclusions and prescriptions might be dated or even irrelevant. Since I had not looked at the book for twenty years, I read it almost as if it were written by other authors. Much to my relief and delight, with a few exceptions that I note later, I found the book to be quite good and still largely relevant. We introduced the discussions with a substantial amount of financial history and the findings of empirical studies and based most of our policy conclusions on this record. Indeed, we wrote our recommendations after essentially completing the book, so they were based on our narrative rather than the narrative having been structured to support predetermined conclusions.

Since 1986 the United States has seen some important changes. These include a complete unraveling of the savings and loan industry, the failures of commercial banks in the late 1980s, and the Financial Institutions Reform and Recovery Act of 1989, enacted in reaction to the failures. The Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) was the most important regulatory change because it established a system of structured early intervention and resolution. In 1994 the Riegle-Neal Interstate Banking and Branching Efficiency Act finally brought nationwide branch banking to the United States. The 1999 Financial Services Modernization Act (Gramm-Leach-Bliley) essentially repealed the sections of the Banking Act of 1933 (the Glass-Steagall Act) that separated commercial and investment banking and established financial holding companies that could include banks, insurance companies or agencies, and securities firms as subsidiaries. In addition to the legislative changes, the Internet and electronic banking have changed and continue to change substantially the way banking and other financial services are delivered to consumers.

We first considered bank failures. I think we correctly identified the principal causes, including debunking the role of bank runs and emphasizing fraud as an important contributor. Fraud and malfeasance still is important, and, from recent experience, it appears that the banking authorities are still not dealing with it effectively. We suggested that failures could be dealt with more efficiently with trusteeships, wherein expected losses would be deducted from the balances of uninsured deposits and other debt ("haircuts"), rather than with FDIC-funded purchase and assumptions (P&As). This proposal was adopted in the Competitive Equality Banking Act of 1987 in the form of bridge banks. Furthermore, FDICIA now provides for the resolution of insolvent banks in the least costly manner, which largely obviates P&As. We also recommended that an institution be closed before the market value of its net worth declined below 1 or 2 percent. This recommendation was adopted, albeit for book-value net worth, by FDICIA. As noted later, I now wish we had suggested a higher level, at least 3 percent, since book or even market values of net worth tend to be overstated when a bank is experiencing severe financial distress.

The role and reformation of deposit insurance were and still are linked to concerns about bank failures. The experience of savings and loan failures in the early 1980s caused many observers to question the desirability of deposit insurance since it allowed insolvent savings and loans to continue operations and even expand. We rejected, correctly I believe, some alternatives that were proposed (such as privately provided deposit insurance). We called for risk-adjusted premiums based on off- as well as on-balance-sheet items. Capital requirements now include off-balance-sheet obligations. The Basel I capital requirements, adopted in 1988, are based on risk-adjusted assets, which are a form of risk-based deposit insurance. A small degree of risk-adjusted deposit insurance was adopted (as mandated by FDICIA), and the FDIC has recently proposed a system of risk-based deposit insurance premiums. I regret now that we urged the adoption of these premiums. It is very difficult for well-meaning and professionally capable banking regulators to determine the magnitudes and application of such premiums since (as Basel I and the struggles over Basel II have shown) it is very difficult for them to establish metrics that meaningfully measure risk. Furthermore, as experience also shows, it is even more difficult to keep political considerations from distorting the risk-assessment system.

Following the publication of *Safe and Sound Banking*, George Kaufman and I worked on a paper that changed my opinion about how the deposit insurance fund could best be protected.[1] In that paper (prepared for an American Enterprise Institute conference), we developed structured early intervention and resolution (SEIR) for regulating bank capital that largely obviated the need for deposit insurance and, hence, the need for risk-based deposit insurance premiums.

SEIR delineates levels of the ratio of capital to assets (including off-balance-sheet items) that specify when the banking authorities may and when they must intervene in a bank's operations. When the bank's capital/assets ratio is over 10 percent, we suggested that there should be minimum regulation and supervision. The banks would be subject only to general reporting and examination requirements. When the ratio declines to 6 percent, regulatory supervision and monitoring would be more intensive. The authorities would have discretion to reduce or suspend dividend payments and payments to the bank's holding company and other affiliates. The bank would

1. See George Benston and George Kaufman, "Risk and Solvency Regulation of Depository Institutions: Past Policies and Current Options," Monograph Series in Finance and Economics, Salomon Center, New York University Graduate School of Business, Monograph 1988-1, 1988.

have to prepare and implement a business plan to raise its capital/assets ratio to at least 10 percent. Should the ratio decline further but still be above 3 percent, the authorities would no longer have discretion, thus obviating moral hazard wherein political pressure or their own desire to put off difficult decisions results in forbearance. The authorities would have to require that the bank suspend dividend payments and interest on and redemption of subordinated debt and fund flows to its parent or affiliates. When the ratio declines below 3 percent, resolution of the bank would be mandatory. We expected that resolution would happen rarely since bank owners would have strong incentives to protect their remaining capital by taking actions to recapitalize, sell, merge, or liquidate the bank before the authorities had to take it over. The exception, we expected, would be situations in which the numbers constructing the capital/assets ratio were fraudulent. Hence, we recommended examinations, statistical analyses, and attestations by independent public accountants to uncover such situations before a bank became insolvent.

We also recommended that capital be measured in terms of market values and that subordinated debentures be counted fully as regulatory capital, as did *Safe and Sound Banking*. Both in our paper and in the book, we pointed out that numbers that do not reflect current economic values provide wrong signals to both regulators and bankers. We urged that subordinated debentures be included fully in capital largely because this inclusion would eliminate the principal cost of the higher capital by allowing banks to hold capital where its cost (interest) is deductible from taxable income. We also pointed out, though (as did the book), that banks' difficulties in replacing maturing subordinated debentures and interest on those obligations would provide the authorities with useful signals on the banks' risk as well as a form of risk-adjusted deposit insurance premiums.

Our basic SEIR proposal was included in FDICIA, albeit at lower capital ratio levels than we suggested. Unfortunately, both capital based on market values and the subordinated debt proposal have not yet been adopted. Indeed, the authorities have not even taken advantage of the market values that banks now report to shareholders. The Financial Accounting Standard Board's Statement of Financial Accounting Standard (SFAS) 107 requires banks to report in footnotes the fair values of financial instruments. SFAS 115 requires banks to report the increases and decreases in the market values of securities held for sale in comprehensive income and the fair values of securities held to maturity reported in a footnote. Regulatory capital could easily be based on these market value numbers rather than on book values, if the authorities so chose.

Several chapters of *Safe and Sound Banking* were devoted to the organization of banking supervision and regulation. We examined the Federal Reserve's lender-of-last-resort function and documented that the Fed had loaned funds to banks experiencing financial distress at subsidized rates, a practice we criticized. We recommended that such lending would best be made by the deposit insurance agency because its incentive to protect the deposit insurance fund would lead it to make optimal decisions. A second-best procedure was for the Fed to lend only on sound collateral at market rates. This recommendation, but not our first choice, was adopted in FDICIA.

We reviewed the evidence on risks, conflicts of interest, and concentration of power and their relation to bank holding companies and their nonbank affiliates. This review led us to conclude that the deposit-insured banking organization should be restricted to activities whose risks can be assessed and easily monitored. Because the evidence indicated that holding company affiliates tend to be operated as a group, we recommended imposing risk regulation and risk-based insurance premiums on the consolidated entity.

Considering the advantages of SEIR and higher capital requirements that include subordinated debt, I now would limit supervision and regulation to depositories and be concerned with other affiliates only to the extent of fund transfers from the depositories to other companies owned by controlling shareholders. I would have the Bank Holding Company Act repealed. Supervision and regulation would restrict the depositories' activities only if these were so undiversified and risky that a negative outcome might exhaust the depositories' economic capital before the authorities could intervene to have the capital restored or the depository taken over.

Neither capital based on market values nor the subordinated debt proposal has yet been adopted; the authorities have not even taken advantage of the market values banks now report to shareholders.

The numbers banks report as their capital must be trustworthy. We examined evidence on the efficacy of bank examinations for assessing the risks and legality of banks' activities, verifying the numbers reported, and giving banks incentives to report their financial data honestly and accurately. As noted earlier, we emphasized the importance of fraud as a cause of bank failures and reviewed evidence that pointed to the banking agencies' weaknesses in discovering and reducing frauds. Unfortunately, many of these criticisms still appear to apply since fraud is still an important cause of failures.

Finally, we considered several proposals for reorganizing the structure of banking supervision and deposit insurance. We discussed such issues as the cost of regulation, including the imposition of fees by the Office of the Comptroller of the Currency but not by the other supervisory agencies, and incomplete cooperation among the banking agencies that allowed insolvent institutions to avoid being closed expeditiously. We also pointed out that deposit insurance premiums were charged against all deposits even though only deposits of $100,000 or less were insured and that all deposits of very large banks were de facto insured since they were considered to be "too large to fail." We then reviewed various proposals, particularly the task force chaired by (then) Vice President George Bush. The task force recommended giving the Federal Reserve authority to regulate and examine all nonproblem state-chartered banks and "international class" bank holding companies, creating a new agency that would regulate and supervise national banks and their holding companies, and limiting the FDIC to dealing with problem and insolvent banks. The FDIC countered that it should examine all federally insured banks, thrifts, and their affiliates.

We rejected combining the federal agencies into a single supervisory and regulatory agency or making the Federal Reserve or FDIC the chief regulator. Rather, we recommended that the Federal Reserve's examination and supervision operations be transferred to a new agency; the Fed would no longer supervise banks and bank holding companies. The new agency and the other federal banking agencies would be given that portion of the deposit insurance funds that were contributed by the banks and thrifts each supervised, and the agencies would be authorized to deal with and close problem banks. Banks could shift to another agency, with its permission. Thus, the supervisory agencies would have both the incentives and the ability to structure regulations that would both attract members and protect its deposit insurance fund. Unfortunately (but, given the strong incentives of bureaucracies to protect their turfs, not surprisingly), this proposal has not yet been taken seriously. I still hope, though, that it will be adopted in my lifetime since I hope to live for a long time and continue my association with those great colleagues who, together, researched, argued about, and wrote *Perspectives on Safe and Sound Banking: Past, Present, and Future.*

ROUNDTABLE DISCUSSION

Hindsight and Foresight about Safe and Sound Banking

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At the time of the conference, the author was executive vice president and director of research of the Federal Reserve Bank of Atlanta. *These remarks were presented as part of a roundtable discussion at the conference "Safe and Sound Banking: Past, Present, and Future," held August 17–18, 2006, and cosponsored by the Federal Reserve Banks of San Francisco and Atlanta and the founding editors of the* Journal of Financial Services Research.

After hearing both the papers prepared for this conference and the discussions that followed the presentations, I want to reflect briefly on several different issues discussed in *Perspectives on Safe and Sound Banking*. I plan to first focus on the issues that were probably, in hindsight, overemphasized, those that were perhaps underemphasized, and those that were not fully appreciated but subsequently turned out to be important. Finally, I want to raise issues that should be on any agenda for the future.

Issues Overemphasized in the Study

Risk-based deposit insurance. A key issue in the finance literature and in the study was the desirability of gearing deposit insurance to risk and using options pricing theory to price that risk appropriately. While risk-based premiums were adopted in the Federal Deposit Insurance Corporation Improvement Act (FDICIA), implementation has proved to be problematic. Premiums are arguably too low and are collected only from more risky institutions. Beyond this, however, are two issues that limit risk-based pricing as a useful means to control risk taking. The first is the realization that appropriate pricing depends upon not only the ability to measure risk but also to close an institution promptly when it becomes insolvent. Second, effective risk monitoring and control involves a trade-off between the costs of monitoring a bank's risk exposure continually against both the expected costs of that monitoring and expected losses should an institution become insolvent between examinations or inspections.

Revisions to regulatory agency structure and lender of last resort. The report recommended several changes in bank regulatory agency structure, including creating a competing deposit insurance option to be administered by the Office of the Comptroller of the Currency, parceling out lender-of-last-resort administration to the insurance agencies using funds drawn from the Federal Reserve, and taking the Federal Reserve out of the prudential supervision area. It probably is not practical to

consider such reforms, given that the United States has still not seen fit to combine depository institution insurance funds, and only the central bank can provide credible lenders-of-last-resort funds. However, two issues are important. First was the suggestion that the insurance funds should have a primary role in banking supervision because they have the strongest incentives to monitor bank risk exposures. In the United States, the Federal Deposit Insurance Corporation (FDIC) is in the first loss position should a failure occur. It also, under FDICIA, is acting as the agent for other banks that stand to lose should FDIC funds be exhausted. Second, this view on supervision stands in stark contrast to how deposit insurance and supervisory responsibilities are apportioned in the European Union, where generally deposit insurers are not involved in supervision.

Issues Underemphasized in the Study

Prompt corrective action. While the study did argue that institutions should be closed via a prompt corrective action (PCA) scheme before net worth fell to zero, the importance of PCA combined with structured early intervention and resolution (SEIR)—a concept that evolved later—as perhaps the best way to protect taxpayer interests was not fully realized. These concepts and their link to banking soundness have proved important not only in the United States, where they have been codified under FDICIA, but also as a framework for dealing with supervision and prudential soundness issues in a cross-border banking world.

Accounting issues. The report argued for market-value accounting, which, when combined with PCA and SEIR, is necessary to protect the taxpayer from the costs of regulatory forbearance. The importance of market-value accounting, or at least the need to calculate the market value of banks' equity, has yet to gain much traction in regulatory circles. Much attention has been given to the problem of implementing market-value accounting. But more focus has been directed to capital adequacy, which turns out to be diverting the attention of regulatory agencies from the fundamental problems of measuring net worth. Putting the valuation issue front and center, especially in a global environment with more and more derivatives and other exotic financial assets coming together, looms as the critically important—but as yet unrecognized—problem for banking supervisors.

Controlling regulatory incentives. One of the key problems in the past has been the tendency of regulatory and supervisory agencies to engage in forbearance toward troubled institutions. FDICIA requires the FDIC to minimize failure costs to taxpayers and requires disclosure and explanations when losses do occur. However, banking regulators—with differing mixes of goals and responsibilities—can still be faced with conflicts of interest and agency problems, which can sometime lead to less-than-optimal decisions in dealing with troubled institutions. Indeed, Eisenbeis and Wall (2002) have shown that many institutions are still closed with losses to the insurance fund, suggesting that PCA is not always having its desired outcome. Kane, for example, has devoted considerable attention to controlling regulatory incentives, which remains a problem both in the United States and abroad (see Hovakimian, Kane, and Laeven 2003; Kane 1988, 1989, 1991, 2000, 2003, 2006).

Consolidated risk management. The report argued that regulatory approaches that attempted to separate risk taking within a bank holding company structure—either to protect bank subsidiaries from risk taking in sister banks or from risks in nonbanking subsidiaries—were fruitless. Subsequent developments show that increasingly banking organizations are consolidating risk management and operations functions so that subsidiaries and affiliates are not operationally independent of each

other. This trend suggests that the report's conclusion about how conceptually to approach the supervision of complex institutions rings truer today than ever and should be an important focus of banking supervision and risk control going forward.

Underappreciated Issues

Over the past twenty years the financial system has evolved in ways that have changed its structure and risk profiles, significantly changing the way that institutions take on risk and control their risk exposures. Three such developments were underappreciated by authors at the time in terms of either the speed or significance with which they might affect bank safety and soundness. The first was the removal of McFadden Act restrictions on interstate banking and the speed and manner in which the banking system structure changed. Within a few short years, bank mergers significantly reduced the number of banking organizations, increased the size of the largest institutions, and concentrated their headquarters, principally in New York and Charlotte, North Carolina. The events of 9/11 in particular exposed the potential vulnerability of such concentration and the risks to a smooth functioning of our financial markets should one or more large institution experience financial difficulties.

The second underappreciated development was the spread of computer-related technologies in combination with the explosion of intellectual technologies in the form of financial engineering. This development radically changed both institutions' risk profiles and their ability to evolve and price assets and liabilities that had previously been provided only in bundled form or not at all. The resulting decoupling of the apparent risks—through the use of new derivative instruments—associated with given assets and liabilities traditionally inferred by looking at balance-sheet measures or direct inspections via the examination process no longer necessarily reflects an institution's true riskiness.

The third development was the growth and expansion of truly global institutions, which now suggest that the origins of risk and vulnerabilities are not only more complex but may oftentimes be more associated with developments in other parts of the world rather than in domestic markets. As a result, better communication, coordination, and sharing of information with non-U.S. regulators are now a necessity. Effective PCA and SEIR procedures to close institutions before net worth becomes negative combined with bankruptcy procedures that empower regulators to close institutions and resolve them promptly hold the greatest promise to limit systemic risk problems and to control financial crises.

Concluding Remarks and Some Key Issues for the Future

Having reflected upon the study and the papers prepared for the conference, I note several issues that would be appropriate to consider as potential agenda items should a similar study be undertaken in the future. The following is a brief list of concerns, in no particular order of importance.

Accounting reform. As mentioned earlier, the key to risk monitoring and control is effective valuation of net worth, which requires not only the ability to value assets and liabilities but also to appropriately consider the interactions among subsidiaries and affiliates within complex organizations and to understand the implications for valuation posed by new derivative instruments and contingent liabilities.

Identity theft and privacy issues. As financial markets become more global and dependent upon electronic transactions, the speed with which funds can be withdrawn from individuals' accounts and from entire banking entities is accelerated. Finding ways to both verify and protect individuals' identities is crucial to ensuring

confidence in electronic payments media. There may be an important role for regulators in this sphere that has yet gone unexplored.

Shrinking role of intermediaries and the growth of capital markets. Many countries are now producing financial stability reports, and increasingly these reports are focusing on the risks and implications of potential systemic problems emanating from financial markets rather than from financial institutions. This concern is a natural reflection of the growing role that capital markets play in financial intermediation relative to financial institutions. Attention now needs to turn to what role regulators and central banks may need to play in dealing with such risks as well as the need to better understand cross-market and cross-institution linkages that arise from the trading of instruments, such as derivatives, which now separate out some of the risks that typically had been embedded in financial instruments and loans.

Cross-border banking is growing, and U.S. banking organizations are playing an increasingly important role in the financial systems and markets of other countries.

PCA and SEIR as ways to enhance Basel I and Basel II initiatives. Present Basel I and Basel II initiatives have concentrated on the definition and measurement of capital for regulatory purposes and ways to employ them to limit bank risk taking. The benefit of this exercise has been that institutions are now more systematic and concerned about their internal risk measurement schemes and capital allocation methods. Going forward, attention should be given to how to deal with troubled institutions as their capital positions deteriorate and the role that PCA and SEIR might play to limit the negative spillover effects of failure and to better protect the taxpayer from potential liability should major institutions fail and exhaust their deposit insurance funds.

Consolidation risks. The relaxation of interstate banking restrictions and the resulting consolidation of the banking industry has resulted in more concentration in U.S. banking, with most of the nation's largest organizations headquartered in either New York or Charlotte. Should one of these large institutions experience financial difficulty, not only would the prompt resolution of such an institution be extremely difficult, but also the potential drain on the FDIC fund could be enormous because of the large size of these mega-institutions. Additionally, the experience of 9/11 has shown that certain events can actually close down U.S. financial markets and institutions. The concentration of our largest institutions reduces the geographic diversification that our banking system once had. So close attention now needs to be paid to how regulators and the Federal Reserve would respond to a similar event and how we can best ensure that our markets and institutions are robust.

Role of the lender of last resort. As risks to the smooth functioning of the financial system and markets are increasingly likely to be associated with liquidity problems or shocks to particular capital and instrument markets rather than to risks coming from banking organizations, additional consideration should be given to what role, if any, the Federal Reserve should play as lender of last resort in limiting the spread of these risks. In particular, what channels should be employed to provide liquidity? To whom should this liquidity be available? Would basic open market operations be sufficient to cushion markets? What role should central banks generally play in dealing with market liquidity shocks that are transnational in origin?

Cross-border banking. Cross-border banking is growing, and U.S. banking organizations are playing an increasingly important role in the financial systems and markets of other countries. At the same time, most of the world's largest banks are

now conducting significant operations in the United States. As a result, these institutions are now faced with myriad different regulatory regimes, regulators are increasingly dependent upon their counterparts in other countries for information, and the failure of such institutions will have spillover effects in not only their domestic economies but perhaps even greater implications for financial systems that are hosting them (see Eisenbeis 2006; Eisenbeis and Kaufman 2005, 2006). Regulators need a better understanding of how to measure and monitor the risks that these institutions pose as well as to seek ways to harmonize their legal, bankruptcy, regulatory, and supervisory regimes.

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ROUNDTABLE DISCUSSION

The Minimum Requirements for Safe and Sound Banking

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These remarks were presented as part of a roundtable discussion at the conference "Safe and Sound Banking: Past, Present, and Future," held August 17–18, 2006, and cosponsored by the Federal Reserve Banks of San Francisco and Atlanta and the founding editors of the Journal of Financial Services Research.

It is a fair conclusion to draw from the papers, comments, and discussion at this conference that there is general agreement that the study done twenty years ago correctly identified the issues crucial to a safe and sound banking system. By itself, that fact is not surprising. I would expect that if you lock five economists in a room for a year you will end up with a reasonable analysis of any financial problem. What is more unusual, and more gratifying in this case, is that the study also came up with, according to the comments at the conference, reasonable recommendations for policy actions. Even more unusual, it appears that the recommendations were actually based on the economic analysis. And most unusual, a significant number of the recommendations—and the most significant of them—have been implemented.

My view is that appropriate banking regulatory policy rests on three vertical columns (I would say "pillars," but that term is taken): a meaningful capital requirement, a good means of monitoring compliance with that requirement, and a closure rule to be enforced when the capital requirement is not met.

There is widespread agreement with respect to the importance of capital but disagreement about implementation of a requirement. The problem is that capital adequacy is affected by risk, and we have not resolved the problem of measuring risk. In fact, we do not even agree on the concept of risk. I have long believed that the relevant risk is loss to depositors and the insurance system, but some believe that risk of failure is also important.

The measurement difficulty is illustrated both by the Basel discussions and by the Federal Deposit Insurance Corporation's (FDIC's) proposed risk-based premium system. Our inability to resolve this issue leads to support for keeping the current FDIC Improvement Act (FDICIA) leverage ratio in effect even after Basel is fully implemented, but some analysts fear that American banks will be at a competitive disadvantage if the leverage ratio approach applies only in America.

This issue is important only if one believes that capital is costly and leverage is valuable. Many bankers and analysts argue that it is leverage that allows a low return

on assets to result in a high return on equity. However, George Kaufman has presented evidence that American banks, which have higher capital/asset ratios than foreign banks, not only have higher income/asset ratios, as one would expect, but also have higher income/equity ratios. Finance theory has something to say about this issue—the Modigliani-Miller analysis tells us that, if markets are efficient (as we all believe them to be), leverage does not add to the value of the firm. If that proposition applied in the world of banking, then we could simply require all banks to maintain a high capital ratio, thereby reducing the risk of failure, at no real cost to the banks.

This argument is not abstract. Over the past several years many cases have been argued in the Court of Federal Claims on just this issue. The litigation grows out of the acquisitions of failed thrift institutions during the 1980s, in which the acquirers were allowed to count goodwill arising from purchase accounting as capital. This practice was prohibited by the Financial Institutions Reform and Recovery Act (FIRREA) in 1989, and the Supreme Court ruled that this legislation represented a breach of contract by the government for which the acquirers could sue for damages. The government argued, with Merton Miller as one of its expert witnesses, that the loss of this regulatory capital represented no economic loss since the affected institutions could simply replace the lost capital by raising "real" capital in the market at "zero" net cost—zero because in efficient markets the cost of the liabilities or equity raised is exactly offset by the expected earnings on the cash acquired. (Miller conceded that the plaintiffs were damaged to the extent of the transaction costs—investment banking and legal fees—of the capital raising.) While the litigation is not finished, enough cases have been resolved to conclude that the courts have accepted this position. Perhaps Basel would have a different outcome if the U.S. delegation had included significant representation from the Justice Department instead of relying solely on the banking agencies, which lack Justice's familiarity with finance theory.

Regardless of the accounting and reporting system, appropriate monitoring by the banking agencies must be concerned with fraud.

A way of resolving this issue was strongly endorsed by the authors of *Perspectives on Safe and Sound Banking*. Subordinated debt provides a cushion that protects depositors and the deposit insurance system yet allows banks to be as leveraged as they or the market believes optimal. But this proposal brings us back to the concept of risk that I mentioned earlier—subordinated debt, with its fixed charges, does nothing to prevent failure. If one is concerned with bank failure as a social problem (and not solely with losses to depositors or insurers), then only equity will do.

The importance of a closure rule is widely recognized now, but it was not as well understood twenty years ago. The concept is simple: If capital is greater than zero, there is no loss to depositors from failure; the logical rule is that closure must occur before capital becomes negative. The authors spent a good deal of time in considering this issue. Conceptually, one could close a failing bank at the time its net worth hits zero (that is, the market value of assets equals the market value of liabilities), but, clearly, the ability to measure assets and liabilities and to monitor a bank closely enough to find that precise moment to act does not exist or would be prohibitively expensive. While we did not use the terms "prompt corrective action," or even "structured early intervention and resolution," we did call for closure "when the market value of net worth goes below some low, but positive, percentage, such as 1 or 2 percent of assets."

The problem with this sort of closure rule is that there must be a reliable system to measure capital. Historical cost accounting just doesn't work for this purpose (though it is probably better suited for financial institutions than for other firms in

which fixed assets make up a large part of the portfolio). Market-value accounting is clearly better if functioning markets exist. They do for the securities that compose part of a bank's portfolio and for mortgage loans that may make up a larger part. No functioning markets exist for most of the other loans and assets that banks hold. For most financial assets and derivatives, pricing models can approximate what the market value would be. This approximation is often referred to as fair-value accounting.

George Benston, a certified public accountant, was at first skeptical but did endorse the authors' support for market-value reporting. I did not really understand his skepticism until Enron. I believed that modeling could generate valid figures—if we have market information on an A-rated, ten-year bond and on the shape of the yield curve, it should be simple to come up with a good approximation of the price of a fifteen-year bond of the same company. I recognized then that models can generate errors even if applied honestly and competently, but after Enron it is clear than skepticism toward the use of internally generated models in measuring capital is justified. As we move toward the Basel endorsement of such an approach, this issue becomes more significant.

Of course, if there is an inclination to commit fraud, reliance on models to determine accounting values provides great opportunities.[1] We know that fraud is a potential problem with any accounting system, but the opportunities to commit fraud are greater when management's judgment, rather than markets, is used to determine values. The tendency to commit fraud is not unrelated to the condition of a bank. During the savings and loan collapse of the 1980s I saw many managements with previously spotless records turn to filing false financial reports. Their intent was (often) not permanent fraud, but they were dealing in what they thought was a temporary, disastrous collapse of real estate prices. If they could avoid writing down an asset for a year, probably its fair or market value next year would be higher (they rationalized). Regardless of the accounting and reporting system, appropriate monitoring by the banking agencies must be concerned with fraud. *Perspectives on Safe and Sound Banking* stressed this point at a time in which bank examiners generally considered fraud to be a matter for auditors rather than examiners.

Although I must confess that the review of the book necessitated by this conference has made me cringe at some passages, I take pride in our ability to identify issues and to point public policy in the right direction. Over recent years we have moved significantly in that direction, but we still have a way to go.

1. In a recent paper, George Benston ("Fair-Value Accounting: A Cautionary Tale from Enron," *Journal of Accounting and Public Policy* 25, no. 4 [2006]: 465–84) explores several examples of the use of fair value accounting by Enron. Most of these examples look like fraud to me, but they passed muster by Enron's auditors (internal and external).

ROUNDTABLE DISCUSSION

The Etiology of Financial Instability: Then and Now

EDWARD J. KANE

The author is a professor in the finance department in Boston College's Carroll School of Management. *These remarks were presented as part of a roundtable discussion at the conference "Safe and Sound Banking: Past, Present, and Future," held August 17–18, 2006, and cosponsored by the Federal Reserve Banks of San Francisco and Atlanta and the founding editors of the* Journal of Financial Services Research.

Embedded in our book's subtitle is the idea that economic perspectives on financial institutions, markets, and regulatory schemes are dialectical in nature. By this I mean that measures proposed or adopted to solve problems that particularly bedeviled policymakers in the past reach forward in time to shape the present and to influence how one should think about the future. All three conference papers document ways in which subsequent financial change has transformed the details of our analysis into little more than dust in the wind. Still, our subtitle implicitly asserts that time-traveling is so valuable that sifting through the dust of our ancient study can help one to understand the forces driving financial change today and how these forces might eventually take the industry back into trouble.

I see our "Gang of Five" as a team of economic pathologists that the American Bankers Association (ABA) asked first to diagnose—and only as an afterthought to treat—the origin, nature, and course of an epidemic disease. In the mid-1980s, the symptoms of this under-researched "financial instability/inefficiency syndrome" palpably threatened the jobs of many ABA members. Savvy bankers understood that market pressures generated by insolvent "zombie" thrifts and banks deemed too big to fail were forcing them to bet their banks in ways that might reward their stockholders but put managers' human capital on the line without adequate compensation.

Fred Furlong and Simon Kwan explore the extent to which subsequent federal legislation and cross-country regulatory agreements have incorporated some of the specific therapeutic treatments our Gang suggested. Mark Flannery identifies seven currently worrisome financial stability issues, issues about which the ABA and federal regulators might be sufficiently concerned to issue a request for coordinated academic advice today. Bob DeYoung establishes a longitudinal perspective on these issues by documenting the many ways in which modern banking practices and market environments differ markedly from those of the mid-1980s.

One can gain additional perspective by recognizing that an irreconcilable tension exists between any innovation in regulation and loophole-seeking avoidance activity that might be undertaken by parties that find the innovation burdensome. Regulation begets avoidance activity, and avoidance eventually begets some form of re-regulation.[1] The regulatory adjustments, problems, and market events described in the conference papers unfold and mutate as part of alternating sequences in which either regulation spawns new forms of avoidance (RA sequences) or the growing effectiveness of particular avoidance activities calls for innovative re-regulation (AR sequences).

Techniques for detecting and resolving the insolvencies of complex multinational institutions remain so embarrassingly improvisational and untested by bureaucratic "fire drills" as to beggar credibility.

What I take to be the lasting value of our book lies in its accurately diagnosing what was fundamentally wrong with the U.S. banking system as of the mid-1980s. Our diagnosis was that, across the chain of regulators and regulated institutions, bank and regulatory incentives were severely misaligned with societal interests. With the help of other Shadow Financial Regulatory Committee members such as Richard Aspinwall and Frank Edwards, we managed to sell this diagnosis first to the financial industry and—despite active resistance from accountability-averse incumbent regulators—finally to elected politicians. With respect to the causes of fragility, the heart of our own diagnosis was (1) that the industry needed to hold vastly more private capital and to report this capital more transparently and (2) that federal regulators needed to price and operate the elements of the federal safety net efficiently and to make themselves accountable for doing so. Our book explained how well-lobbied safety-net subsidies, regulatory forbearances, and restrictions on interstate and interindustry competition had engendered unacceptable levels of individual-institution fragility and economic waste.

Because technologies for treating disease evolve and multiply almost as quickly as the character and number of dangerous pathogens, the value of our perspectives cannot be accurately scored by counting the number of the hypothetical therapies we identified that were or were not subsequently adopted. More than a few of the particular treatments that we recommended (for example, proposals for haircutting uninsured depositors, reducing deposit insurance coverages, and reallocating supervisory authority across federal agencies) obviously flew in the face of political reality. We offered these ideas, without hope, as illustrative examples of the types of structural change that could increase market discipline or regulatory accountability. I take satisfaction from the fact that the pieces of safety-net re-engineering that Furlong and Kwan catalogue and expertly dissect—the first Basel Accord (1988), the Financial Institutions Reform and Recovery Act (1989), the Federal Deposit Insurance Corporation (FDIC) Improvement Act (1991), the Interstate Banking and Branch Efficiency Act (1994), the Gramm-Leach-Bliley Act (1999), Basel II (2004), and the FDIC Reform Act (2006)—all address one of more links in the chain of incentive breakdowns that we diagnosed.

However, adapting regulatory protocols to innovative avoidance activity is an endless task. Every piece of regulatory re-engineering kicks of a series of RARA sequences. Inevitably, the range, size, and speed of regulation-induced innovation runs ahead of the vision and disciplinary powers that regulatory authorities can bring to bear.

1. See, for example, Edward J. Kane, "Technological and Regulatory Forces in the Developing Fusion of Financial-Services Competition," *Journal of Finance* 39, no. 3 (1984): 759–72.

Within and across countries, what we could call the boundless "complexification" of financial instruments, institutions, and risk-management strategies is creating an increasingly nontransparent environment for shifting risks onto national safety nets. As Flannery stresses, techniques for detecting and resolving the insolvencies of complex multinational institutions remain so embarrassingly improvisational and untested by bureaucratic "fire drills" as to beggar credibility.

Designing and testing protocols for resolving the insolvency of large multinational financial organizations is the most urgent problem facing regulators today. The bigger and more complex a leading bank becomes, the more value its shareholders can extract from country safety nets. This time around, risk-shifting gives individual ABA members much less to complain about because well-polished techniques of incentive contracting and merger deal-making permit bank managers to obtain a fair share of the rewards that stockholders of complex banks can accrue from shifting risks onto country safety nets.

ROUNDTABLE DISCUSSION

Some Further Thoughts about the Road to Safer Banking

GEORGE KAUFMAN

The author is the John F. Smith Jr. Professor of Finance and Economics in the School of Business Administration at Loyola University Chicago and a consultant to the Federal Reserve Bank of Chicago. *These remarks were presented as part of a roundtable discussion at the conference "Safe and Sound Banking: Past, Present, and Future," held August 17–18, 2006, and cosponsored by the Federal Reserve Banks of San Francisco and Atlanta and the founding editors of the* Journal of Financial Services Research.

Because they have received much favorable comment from previous speakers, I wish first to remind everyone that prompt corrective action (PCA) and structured early intervention and resolution (SEIR) in the FDIC Improvement Act (FDICIA) in 1991 did not have a very peaceful birth. They were enacted only after a bloody battle in Congress and over the strong opposition of both the banking industry and most bank regulators. But because of the large cost of the bank and thrift crises of the 1980s, these two groups had lost much of their public credibility and influence in Congress. In a rare moment of Camelot, Congress was willing to listen to academics (with the support of the Treasury Department, the Congressional Budget Office, and the General Accounting Office), who promised to effectively "outlaw" bank losses from insolvency through a legal closure rule at positive capital (Benston and Kaufman 1993).

Most bankers and regulators vigorously fought first against enactment, particularly because of the mandatory nature of some of the sanctions and the closure rule, and then after enactment for repeal of a number of important provisions, if not the entire act. Fortunately, both the House and Senate Banking Committees stood firm. Through time, many bankers and regulators have come to appreciate, if not love, PCA/SEIR. Moreover, the underlying principles are being copied in many other countries, at least in word if not always in spirit.

As I reviewed the recommendations we made in the book (Benston et al. 1986), I found myself now not always in agreement with them, although I suspect I was at the time. I attribute this shift to a continuing education of George Kaufman. I am not now enamored with risk-related ex ante FDIC deposit insurance premiums. Outside of fraud, the major loss to the FDIC from bank insolvencies arises from its failure to legally close institutions and place them in receivership on a timely basis while their capital is still positive, either because of a lack of economic capacity (inaccurate or delayed information) or because of a lack of political will. These forces are difficult to capture in risk-based premiums. Moreover, as a number of previous speakers

noted, depositor preference provides a cushion for the FDIC, at least in large banks, in the form of deposits at foreign branches and funds from nondeposit creditors, which are subordinated to the FDIC as long as they are not secured. However, the recently announced FDIC premium proposal, particularly for smaller banks for which fraud is the major cause of failure, focuses almost entirely on the bank's probability of default and not on the loss given default, which is more relevant for gauging the impact of the failure on the loss assumed by the FDIC. These forces may be proxied in a premium determination model by the average loss rate of the FDIC over the past, say, n years, by size of bank.

In recent years, many of the best minds among bankers, regulators, academics, and consultants have been involved in fine-tuning the Basel II risk weights for different activities, which in the grand scheme of promoting bank safety and soundness may be viewed as an exercise in minutia.

The fact that under the old law many banks did not pay any ex ante premiums does not imply that they never paid any premiums. If losses to the FDIC drove its reserve ratio below a specified minimum, then under either the old or the new legislation, the FDIC has to increase premiums to replenish the fund. To achieve more or less the same results as the FDIC proposal but with less complexity, it may have been easier to have merely repealed the 1996 provision prohibiting well-capitalized and well-managed banks from paying ex ante premiums and splitting the well-managed cell into separate CAMELS 1 and CAMELS 2 cells.[1]

I am also now opposed to risk-based capital requirements for public policy purpose, particularly as specified in Basel II. The basic question is, by which denominator should a bank's capital be scaled—total assets or risk-based? In almost no other industry that I know do analysts or investors compute risk-based capital ratios—not in the auto industry or the oil industry or the airline industry and so on. Thus, even if risk-based capital could be measured correctly, its usefulness could be questioned. And the results of the fourth quantitative impact study (QIS-4) conducted by the regulators for large U.S. banks cast serious doubt on the credibility of the measure computed from the combination of a banks' own individual risk models for probability of default and loss given default and the regulators' model for computing the associated risk-based capital requirement. Similarly viewed banks reported widely different minimum risk-based capital requirements, and the same activity across banks was associated with widely different risk-based capital requirements. The results also suggest that the average capital requirement will decline significantly from Basel I levels and that many of the banks in the test run can satisfy their minimum risk-based capital requirements with less capital than is required to satisfy the minimum leverage ratio to be classified as "adequately capitalized" under PCA.

For these banks the leverage ratio serves as a constraint against lower capital. But few if any analysts argue that there is currently too much capital in the banking system. If anything, most would argue that there is too little. Indeed, other evidence suggests that there is a positive relationship between bank capital and profitability both among all banks in the United States through time and, in recent years, at large banks across countries (Kaufman 2005). Large U.S. banks are both the most capitalized and most profitable. In addition, because the underlying bank risk models are proprietary, they are opaque to outsiders, and the quality of market discipline would be reduced.

But, not to be completely negative about the Basel exercises, they have enhanced bankers' and regulators' sensitivity to risk, particularly credit risk. Unfortunately, the work on Basel II has absorbed a substantial number of some of the best minds among

bankers, regulators, academics, and consultants. In the most recent years, many have been involved in fine-tuning the risk weights for different activities, which in the grand scheme of promoting bank safety and soundness may be viewed as an exercise in minutia. The opportunity cost of doing this has been high both in the United States and particularly in other countries. Valuable resources have been diverted from working on more important issues than how best to measure capital ratios, such as how to resolve large banks efficiently with the least cost to society, how to share this information with the public—so that everyone is aware of the rules of the game and adjusts their ex ante behavior accordingly—and how to prevent policymakers from changing the rules under pressure and promote accountability. In other countries, excessive attention to Basel has reduced the focus on developing meaningful PCA-type provisions to turn troubled institutions around before insolvency and to resolve them quickly and at least cost when they decline through the minimum capital ratio specified in the closure rule. Indeed, no serious system for imposing sanctions, including legal closure, exists in most other countries for banks that fail to meet the minimum capital requirements. Thus, it is high time to shift the resources from Basel to other, higher-payoff prudential issues.

I have also changed my mind on whether one should protect the bank or the entire parent bank holding company. For purposes of deposit insurance, I would protect only the de jure insured claimants of the bank even though the entire organization is managed centrally on a consolidated basis by the parent and risks may be shifted among the different subsidiaries, including the bank or banks. Federal Reserve Regulations 23A and B protect the subsidiary banks from intra–holding company transfers that are not at arms-length prices. The penalties for violation are stiff. If large bank holding companies experience difficulties in subsidiaries other than their banks that may be viewed as systemic, it likely reflects the potential for large fire-sale losses on the sale of their assets. Such problems are best addressed through central bank lender-of-last-resort operations that provide additional liquidity to increase the demand for the assets. However, in today's highly developed U.S. financial markets, liquidity should be injected almost entirely through open market operations in which the market allocates the injected funds rather than through the discount window. The latter channel has been used frequently to support insolvent as well as illiquid institutions.

It is also interesting to note that although the previous speakers have often credited the book with recommending PCA/SEIR, the book actually recommends only a legal closure rule at positive capital. The broader PCA/SEIR framework that allows the closure rule to be operationally effective by forcing the regulators to become involved and to impose a series of progressively harsher and more mandatory regulatory sanctions before an institution reaches the "critically undercapitalized" level in the closure rule was not developed until later. This addition to the closure rule, which mimics the sanctions markets impose in unregulated industries, permits regulators to attempt to turn banks around before insolvency and buys them time to introduce the sanctions, including legal closure, on a measured basis. The broader proposal came out of another task force on enhanced bank safety sponsored by the American Enterprise Institute a few years later and including some of the same members as the earlier ABA task force (Haraf and Kushmeider 1988; Benston and Kaufman 1988).

Among the important recommendations not mentioned by the previous speakers is one for the establishment of "trusteeship" banks to which the regulators can transfer

1. Under the CAMELS rating system, bank supervisors rate institutions according to six factors: capital adequacy, asset quality, management quality, earnings, liquidity, and sensitivity to market risk.

the appropriate assets and liabilities of insolvent banks perceived too big to sell or liquidate quickly. Such a structure would have helped greatly in resolving the Continental Illinois National Bank failure in 1984. The concept was incorporated in principle in the bridge bank scheme authorized in CEBA of 1987. Temporary federally chartered bridge banks are likely to be increasingly used in resolving very large banks to avoid liquidity losses both to depositors through freezing or delaying access to the par value of their insured deposits and the estimated recovery value of uninsured deposits and to borrowers by delaying access to their credit lines. These operations can be transferred from the insolvent bank to the bridge bank effectively overnight with customers largely unaffected except for possible credit losses to uninsured claimants. That is, physical closure, which is bad, is separated from legal closure, which is good. Moreover, if regulators are able to apply the legal closure rule in time, in the absence of major fraud, credit losses should be minimal if at all.

Finally, the book recommends that the authorities "should publicly announce and follow policies to deal with failures and runs." I cannot support this recommendation more strongly today. Unfortunately, little has been done to achieve it. As I noted earlier, in the absence of such policies, regulators' credibility to do the right thing is undermined. In particular, in the absence of well-specified and widely publicized plans to resolve large bank insolvencies efficiently at lowest cost to the insurance fund, the pressure on the regulators at the time of failure to protect all depositors and creditors of the bank and possibly even of the parent holding company will be intense and will likely result in such undesirable and costly action as it has in the past. This result may occur despite the substantial barriers to invoking the systemic risk exemption that have been built into FDCIA. This result is also likely to occur if the regulators have a plan but have not announced it publicly. Of all the items for action that I would put on the agenda for the next twenty years to enhance bank safety and soundness and minimize the societal cost of failure, I would rank this as the most important.

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