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Risk-Based Capital Standards and Bank Portfolios

Banks in the U.S. must meet several regulatory standards for minimum levels of capital. The primary purpose of bank capital is to serve as a cushion to absorb losses. Traditionally the size of this cushion has been set as a fixed percentage of bank assets. In recent years, capital requirements have been changed to reflect certain dimensions of bank risk. By year-end 1992, U.S. banks must satisfy the international risk-based standards promulgated by the Basel Committee on Banking Regulations and Supervisory Practices.

In contrast to fixed capital requirements, the risk-based standards establish a variable capital cushion based on the risk of a bank's assets. These standards assign risk weights to different categories of assets, and thus create incentives for banks to shift their portfolios toward assets that receive favorable risk weights and away from less favored asset categories. These portfolio shifts are desirable as long as the weights accurately reflect the true risk of the assets. If the weights are inappropriate or arbitrary, however, the risk-based standards could actually increase bank risk. In this *Weekly Letter,* I describe recent changes in the composition of bank portfolios and consider some of the consequences of these portfolio shifts.

Conceptually, risk-based capital standards are an improvement over fixed capital regulations because they explicitly acknowledge the heterogeneity of bank assets. Under traditional regulations, two banks with the same quantity of assets, but with different asset risks, are required to maintain the same minimum capital cushion. Risk-based guidelines, in contrast, recognize that the riskier bank has a higher probability of default, and require it to hold a larger capital cushion against losses.

This variable capital requirement is especially important in the presence of fixed-price deposit insurance. The two banks considered above pose significantly different risks to the deposit insurer. Under fixed capital regulations, the bank with the riskier asset portfolio receives a larger subsidy from deposit insurance. Properly administered risk-adjusted capital requirements can eliminate the insurance subsidy, and thus reduce the incentive to exploit that subsidy by assuming more risk.

Risk-based capital standards

While bank capital regulation is not new, risk-based capital standards are a recent phenomenon. In 1988, the so-called Basel Committee, under the aegis of the Bank of International Settlements, presented an agreement among regulators from Europe, North America, and Japan describing a risk-based system of minimum capital standards that all banks should satisfy. Though the Committee has no official jurisdiction, regulators in the different countries issued domestic capital guidelines that largely accord with the Basel agreement. These guidelines must be met in full by the end of 1992.

Under these standards, banks are required to maintain capital equal to at least 8 percent of *risk-adjusted* assets. Capital is divided into two components which are ranked according to the availability of the funds to buffer losses. So-called Tier 1 capital consists primarily of common equity, while Tier 2 can include subordinated debt and such instruments as cumulative perpetual preferred stock. Tier 1 capital must comprise at least 4 percent of risk-adjusted assets.

The risk-adjusted aspect of the capital standards involves allocating bank assets to different categories, each of which has a risk weight. These weights were determined by considering the *credit risk* of assets. For example, the asset category considered to have the lowest credit risk includes cash and central government securities (like Treasury bonds). This category receives a zero risk weight. This means that banks are not required to hold capital against these safest of assets.

In contrast, the highest risk category includes most loans to private entities (such as commercial and industrial loans) and receives a 100

percent risk weight. Against these assets, banks must maintain the full 8 percent capital support. In between these extremes, there is a 20 percent risk weight category, which in the U.S. includes securities issued by the Federal National Mortgage Association (FNMA) and the Federal Home Loan Mortgage Corporation (FHLMC), and a 50 percent risk weight category which includes residential mortgage loans. The standards also account for credit risk associated with off-balance sheet activities like interest rate swaps and standby letters of credit. Total risk-adjusted assets are the totals in each category, multiplied by the corresponding risk weight. Note that a bank could have zero risk-adjusted assets if it holds only the safest assets. According to the risk-based capital guidelines, such a bank would be required to hold no capital. To avoid anomalies like this, U.S. regulators issued an additional requirement that banks must hold at least 3 percent capital to *unadjusted* assets.

Some pros and cons of risk-based capital guidelines

The risk-based capital standards have been criticized for arbitrarily assigning risk weights to different asset categories. For example, the standards treat every home mortgage held by banks as being half as risky as every commercial loan. Undoubtedly, this is not correct in all cases, even though home mortgages historically have tended to be less risky than commercial loans.

The risk weighting scheme used in the capital standards also ignores variations in asset quality *within* categories. This means that a short-term bank loan to a blue chip corporate borrower is considered just as risky and requires just as much capital support as a long-term loan to a high-risk startup venture. The capital standards thus ignore information relevant to individual asset risk.

The risk-based capital standards overlook potentially important interactions between individual assets. The standards establish the relative risk weights based on an asset's risk *in isolation* of other assets. Portfolio theory suggests, however, that the relevant risk of an asset is its risk *in portfolio*. Thus, an individual asset's contribution to portfolio risk depends not only on its own variability but also on its covariation with other assets in the portfolio. These latter effects are ignored in the risk-based standards.

Finally, the risk-based capital guidelines consider only credit risk in differentiating bank assets while ignoring other risks, such as interest rate risk. Thus, any Treasury security, regardless of term to maturity, is treated as if it poses no risk to the bank holding it. While this may be true for default risk, long-term bonds are far more sensitive to changes in interest rates than short-term Treasury bills.

These criticisms suggest that the risk-based capital guidelines may not present an accurate picture of bank risk, and thus may require banks to hold an inappropriate amount of capital. Defenders of the standards, however, counter these arguments by suggesting that the different risk categories are broadly consistent with the perceived riskiness of bank assets. While exceptions can always be found, central government debt is less risky than obligations of government-sponsored enterprises, which in turn are safer than claims against private sector borrowers. A recent study by Avery and Berger (1991) provides further support for the risk-based standards, finding statistical evidence that risk-based capital is more informative about bank performance and risk than unadjusted capital ratios.

Proponents of the risk-based capital standards also admit that the failure to incorporate interest rate risk is a real limitation. However, most bank regulators believe that credit risk is the primary risk facing banks. While some banks may have significant interest rate risk in their portfolios, the major cause of bank failures is more likely bad management and poor asset quality, and *not* excessive interest rate risk. Moreover, bank examiners continue to rely on subjective evaluations of bank portfolio diversification, loan quality, and interest rate risk management practices. While the risk-based capital guidelines do not formally address these factors, they still receive considerable scrutiny from bank examiners.

Shifting portfolios

A bank regulatory system that establishes preferential treatment for certain types of assets relative to others creates incentives for banks to alter the composition of their portfolios. A look at bank balance sheets over the past few years confirms that significant portfolio shifts have occurred that are consistent with such incentives. For these comparisons, I use data from the reports of condition on insured commercial banks (Call Reports) for the fourth quarter of 1987 (before the risk-based guidelines were announced) and the fourth quarter of 1990.

During this three-year period, banks maintained their securities portfolios at a constant 19 percent of total assets. However, they altered the composition of these portfolios. Commercial bank

holdings of U.S. government securities rose from 65 percent of total securities in 1987 to 74 percent of securities holdings in 1990. Similarly, bank holdings of government sponsored, mortgage-backed securities, so-called Ginnie Maes, Fannie Maes, and Freddie Macs, rose from 15 percent of bank securities portfolios in 1987 to 25 percent in 1990. These figures indicate that, while banks maintained the relative size of their securities portfolios, they shifted about 20 percent of their holdings into assets with the lowest risk weights under the Basel accord.

Significant shifts also have occurred in bank loan portfolios. While total loans were stable at approximately 62 percent of total bank assets, the proportion of these loans to finance residential real estate rose from 17 percent of total loans in 1987 to 22 percent by the end of 1990. In contrast, commercial and industrial loans fell from 30 percent of bank loans in 1987 to less than 27 percent in 1990, and loans to individuals held steady at 20 percent of bank loan portfolios in both years.

These portfolio shifts are undoubtedly due to additional factors besides implementation of the risk-based capital standards. The decline in business loans, for example, is partially the result of the recession that began in July 1990 as well as intensified competition from nonbank sources of finance. Similarly, the greater share of real estate finance in bank portfolios has been aided by the decline of the thrift industry. While all of these influences affect the behavior of lenders and borrowers, the portfolio shifts that have occurred are consistent with banks increasing their holdings of risk-preferred assets under the risk-based capital guidelines.

If the asset categories under the new standards truly reflect the risks of broad groups of bank assets, then the shift toward risk-preferred categories means that banks have reduced the credit risk of their portfolios. As bank holdings of assets in the zero, 20, and 50 percent risk weight groups increase, then a given level of industry capital supports a safer portfolio of assets. Viewed in this light, the portfolio shifts are a desirable outcome of implementing the Basel agreement.

While these shifts may be beneficial for the safety of the banking system, they likely will alter the allocation of credit in the economy. The risk-based capital standards make real estate loans and certain securities more attractive to hold while increasing the relative cost of business loans. As banks respond by raising their holdings of Treasury and mortgage-backed securities, and home mortgage loans, it may become more difficult for some businesses to obtain bank finance. This implies that future borrowers and lenders may operate in a different financial environment than currently exists.

Interest rate risk

Regulatory agencies are aware that exposure to interest rate risk should be considered in bank regulation. The Basel Committee has been debating this issue since the late 1980s, although no formal proposals on this subject have been offered to date. The Office of Thrift Supervision proposed early in 1991 a model for incorporating interest rate risk into thrift capital regulation. This proposal was withdrawn pending action by other U.S. bank regulatory agencies. Staff at the Federal Reserve Board of Governors recently suggested a system to measure the interest rate risk exposure of banks, but not to impose a specific capital charge for this risk. Instead, the measure would be used by examiners to evaluate banks' risk management policies and to suggest ways for banks to reduce this risk exposure.

The banking reform bill recently signed into law requires regulators to broaden the risk-based capital standards in the next few years by considering additional elements of bank risk, including interest rate risk. This raises an interesting policy question: will unilateral action by U.S. bank regulators to stiffen capital standards further impair the competitiveness of U.S. banks relative to foreign banks? The answer to this question could be important for the future of the U.S. banking system.

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Index to Recent Issues of *FRBSF Weekly Letter*

DATE	NUMBER	TITLE	AUTHOR
6/14	91-24	Free Trade with Mexico?	Moreno
7/5	91-25	Is the Prime Rate Too High?	Furlong
7/19	91-26	Consumer Confidence and the Outlook for Consumer Spending	Throop
7/26	91-27	Real Estate Loan Problems in the West	Zimmerman
8/16	91-28	Aerospace Downturn	Sherwood-Call
8/30	91-29	Public Preferences and Inflation	Walsh
9/6	91-30	Bank Branching and Portfolio Diversification	Laderman/Schmidt/ Zimmerman
9/13	91-31	The Gulf War and the U.S. Economy	Throop
9/20	91-32	The Negative Effects of Lender Liability	Hermalin
9/27	91-33	M2 and the Business Cycle	Furlong/Judd
10/4	91-34	International Output Comparisons	Glick
10/11	91-35	Is Banking Really Prone to Panics?	Pozdena
10/18	91-36	Deposit Insurance: Recapitalize or Reform?	Levonian
10/25	91-37	Earnings Plummet at Western Banks	Zimmerman
11/1	91-38	Bank Stock Risk and Return	Neuberger
11/8	91-39	The False Hope of the Narrow Bank	Pozdena
11/15	91-40	The Regional Concentration of Recessions	Cromwell
11/22	91-41	Real Wages in the 1980s	Trehan
11/29	91-42	Solving the Mystery of High Credit Card Rates	Pozdena
12/13	91-43	The Independence of Central Banks	Kim
12/20	91-44	Taxpayer Risk in Mortgage Policy	Martin/Pozdena
1/3	92-01	The Problem of Weak Credit Markets	Parry

The *FRBSF Weekly Letter* appears on an abbreviated schedule in June, July, August, and December.