CHAPTER 6

The Federal Role in Credit Markets

THE INSTABILITY OF INTEREST RATES and inflation through the 1970s and early 1980s resulted in substantial difficulties for many institutions in U.S. credit markets. Home mortgage lenders experienced an enormous capital loss from which they are not yet fully recovered. Lenders to real estate, including agricultural real estate, suffered losses when real property values, once buoyed by inflation, fell with the return of lower inflation. Similarly, institutions that lent dollars abroad when inflation was high and the dollar was low face borrowers struggling to repay in now stronger dollars.

In this episode of instability, well-meaning government policies aimed at protecting savers and accommodating borrowers interfered with risk bearing and risk management. Encouraged by regulation and tax policy, the thrifts and a government-sponsored financial intermediary lent to homeowners on a long-term, fixed-rate basis. These loans were financed by shorter term deposits and bonds guaranteed by the government. The increased volatility of interest rates made this a very risky strategy. Fluctuations in real property values revealed the deficiencies of limited-purpose lenders such as the Farm Credit System. Barriers to interstate banking inhibited diversification of lending risks, many of which have large regional components, and increased the likelihood of the insolvency of many financial institutions. Concern for the security of pension beneficiaries created a pension insurance system that generates a large subsidy, encourages abuse, and in only 10 years of operation, has created a large liability that the taxpayers may have to assume.

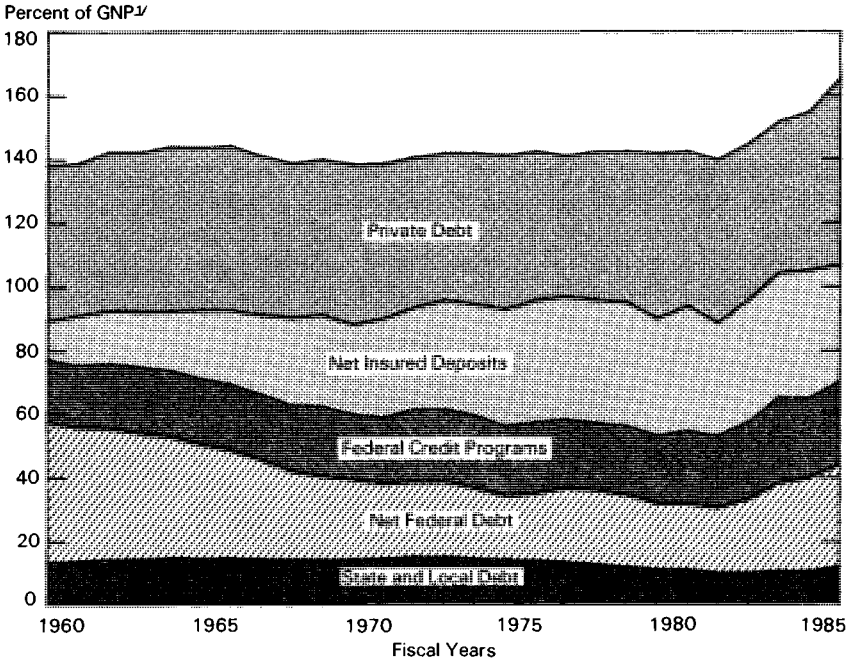
This chapter analyzes government policy as it shapes the institutions that must cope with both the risks of lending and the risks of macroeconomic policy as well. It examines Federal loan programs and five government-sponsored financial intermediaries which execute much of government credit policy. It also analyzes the incentives and outcomes of insuring deposits at commercial banks and thrift institutions and insuring the income from certain pension plans. This chapter concludes with a discussion of the relationship between the deregulation of financial institutions and some of the problems these institutions have recently experienced.

THE SIZE OF THE FEDERAL ROLE IN CREDIT MARKETS

At the end of fiscal 1985 nonfinancial debt outstanding (the sum of the debt of households, nonfinancial businesses, and Federal, State, and local governments) totaled $6.5 trillion. Chart 6–1 shows the development of Federal involvement in the credit markets between 1959 and 1985, by type of debt outstanding, as a percent of gross national product (GNP).

Chart 6-1

Debt of All Nonfinancial Sectors
As Percent of GNP



1/ Debt at end of fiscal year as percent of GNP for fiscal year.

Source: Council of Economic Advisers, based on data from various government agencies.

The bottom layer of the chart represents the outstanding debt of State and local governments, which has remained stable in relation to GNP. The next layer up is Federal debt outstanding less direct Federal loans (made to households and businesses). Direct Federal loans are subtracted because they represent government borrowing for the purpose of relending, and hence constitute a portion of the Federal debt that is financial. Direct Federal loans are included in the next layer of debt.

The third layer of debt consists of loans made or guaranteed directly by the government, plus loans made or guaranteed indirectly by the government through government-sponsored financial intermediaries. The total outstanding debt from these Federal credit activities was $1,038 billion at the close of fiscal 1985, which is approximately the same as the total assets of thrift institutions and just under half of the total assets of the commercial banks. These activities account for 22 percent of private (nongovernment) nonfinancial debt.

The Federal Government insured over $2 trillion of deposits at commercial banks, thrift institutions, and credit unions at the close of fiscal 1985. Many institutions use money raised through insured deposits to acquire instruments that already carry Federal guarantees or are obligations of the Federal Government. These instruments are federally guaranteed loans, Treasury debt, the debt of the government-sponsored intermediaries, cash, and reserves held at the Federal Reserve Bank. Subtracting the sum of these instruments from insured deposits yields the fourth layer—the net additional involvement of the Federal Government arising from deposit insurance.

Completely privately intermediated debt is represented in the top layer of the chart. Bank loans financed by bank capital coming from sources other than insured deposits are represented here. The debt of private corporations that issue bonds not guaranteed by the government is also represented here.

The level of government involvement as both borrower and lender has remained fairly stable between 1959 and 1985 at a surprisingly high 63 to 69 percent of total nonfinancial debt (including State and local debt). But the composition of borrowing versus lending has changed. The relative amount of Federal debt outstanding fell from the end of World War II until very recently, but was offset by a rise in the government's role as a lender and insurer of credit, from 23 percent of total nonfinancial debt in 1959 to 38 percent in 1985.

FEDERAL LOAN AND LOAN-GUARANTEE PROGRAMS

Federal credit programs have two primary effects on credit markets. First, they all provide subsidies transferring wealth to government-favored borrowers from the rest of the public. These subsidies create distortions in the economy by reallocating resources from higher to lower valued uses.

Second, these credit programs disperse lending risk nationally, bypassing barriers to interstate banking. Two benefits flow from national dispersion of risk. First, a more broadly based loan portfolio effectively diversifies away a significant portion of lending risk. In addi-

tion, the remaining nondiversifiable lending risk can be more easily borne if widely dispersed rather than concentrated in one region or one institution. Ultimately, diversification lowers interest rates for borrowers and reduces potential instability for the financial system as a whole.

DIRECT FEDERAL LOANS AND GUARANTEES

The government makes direct loans to finance agriculture, housing, education, medical facilities, purchases of arms by foreign governments, rural development, railroads, and other activities. These loans must be financed with either taxes or Federal borrowing. The Federal Government also redirects credit by guaranteeing the loans of certain borrowers, notably homebuyers, students, and small business owners.

Because the public bears the lending risk for direct Federal loans and loan guarantees, that risk is more widely dispersed than if the risk-bearer were a small commercial bank. In case of a default, the public absorbs the loss either in the form of higher taxes or higher government debt.

The costs of the direct loan and loan-guarantee programs are not measured in the cash-based Federal budget. The budget generally records outlays when cash is disbursed and records receipts when funds are received. The budget shows the cost of a new direct Federal loan to be the amount lent, and the net cost of direct lending programs to be new lending less payments of interest and principal on existing loans. For loan guarantees, a budgetary cost appears only if a guaranteed borrower defaults and the government has to make good on its guarantee.

To understand the cost to the public of Federal credit activity, consider the budgetary impact resulting from having the government contract with private lenders and loan insurers to loan to or insure parties for whom the legislature desired to subsidize borrowing. Private lenders and loan insurers would base their fees on the degree of risk assumed and the degree of subsidy provided, and would charge the government more for guaranteeing risky loans than sure ones. If the government paid up front for direct loan subsidies and guarantees, the cost would be accurately reflected even in the cash-based budget.

The Federal direct loan and loan-guarantee programs are not small. At the close of fiscal 1985, the Federal direct loan portfolio totaled $257 billion. This loan portfolio is larger than the combined loan portfolios of the two largest U.S. commercial banks, and represents 17 percent of the outstanding national debt held by the public. Federally guaranteed loans totaled another $410 billion.

The Office of Management and Budget estimates the subsidies provided through Federal credit programs. The Administration's 1987 (cash) budget proposes to reduce the subsidies by charging Federal credit programs for the use of the government's good name in the credit market. This would entail raising the fees on insurance programs such as the Government National Mortgage Association (Ginnie Mae), the Veterans Administration, and the Federal Housing Administration and imposing fees on the five sponsored intermediaries. While fees would not result in putting the cost of Federal lending and guarantees into the budget, it would put revenues into the budget to offset some of the costs borne by the taxpaying public from guaranteeing government loans and would reduce credit market distortions caused by these programs.

GOVERNMENT-SPONSORED FINANCIAL INTERMEDIARIES

The government moved in the direction of using the private sector in serving its credit goals by establishing five government-sponsored financial intermediaries. Three of these, the Federal National Mortgage Association (Fannie Mae), the Federal Home Loan Mortgage Corporation (Freddie Mac), and the Federal Home Loan Banks, serve the housing finance market. The Farm Credit System finances agriculture, and the fifth, the Student Loan Marketing Association (Sallie Mae), makes a secondary market in federally guaranteed student loans. Each issues securities (bonds, notes, and/or mortgage pass-throughs) and uses the proceeds to fund its lending activities. All of the five sponsored enterprises are now privately owned but maintain a special relationship with the Federal Government. Among the privileges enjoyed in this special relationship are exemption of their earnings from State and local income taxes, exemption of their securities from registration with the Securities and Exchange Commission, and eligibility of their debt securities for unlimited investment by most depository institutions.

Ideally, these institutions would pool and diversify risks and distribute any remaining risk to the parties most willing to bear it via national distribution of their debt and equity securities. Three of the sponsored intermediaries, Fannie Mae, Freddie Mac, and Sallie Mae, come close to this result. To what degree the government also shares the risk by guaranteeing their bonds remains an open question. In principle, the Farm Credit System distributes risk nationally through its bonds; but again, it is not clear how much risk is borne by the government rather than the bondholders. The Farm Credit System fails to disperse its equity risk nationally because the equity holders of the system are its borrowers.

Fannie Mae and Freddie Mac assist in providing lower cost credit to private financial institutions that in turn provide lower cost credit to homebuyers. There are two fundamental sources of this cost advantage: the implicit subsidy from association with the Federal Government, and the opportunities to diversify regional components of real estate lending risk.

The usefulness of the secondary market created by Fannie Mae and Freddie Mac resulted from restrictions on interstate banking. Large interstate banks could diversify mortgage-lending risks by holding portfolios of mortgages on properties across the country and by nationally distributing their equity shares. Without a secondary market for mortgages, equity holders of smaller banks and thrifts would be forced to bear all of the risk associated with changes in the value of property within a confined geographic area. They would naturally require compensation for bearing this risk. By creating a national market for mortgages, Fannie Mae and Freddie Mac provided a mechanism for diversifying away much of the geographically specific risk in mortgage lending, thereby lowering the rate of return required by the lenders and ultimately lowering the cost of borrowing.

Fannie Mae and Freddie Mac both make secondary markets in mortgages, but differ in the potential liabilities that they create for the public. Freddie Mac is owned by the thrifts and by the Federal Home Loan Banks, and acts primarily as an agent that buys, repackages, and sells mortgages. At the end of fiscal 1985 Freddie Mac held a portfolio of mortgages of only $13 billion and had an outstanding portfolio of mortgage-backed securities of $92 billion. Hence, Freddie Mac is exposed to relatively little risk from changes in interest rates.

Fannie Mae's equity is held by the public and its equity shares are traded on the New York Stock Exchange. In its mortgage pass-through operations, totaling $49 billion, Fannie Mae assumes no interest rate risk. But in its direct funding operations, another $97 billion, Fannie Mae takes considerable risk from possible fluctuations in interest rates because the average maturity of Fannie Mae's assets is longer than the average maturity of its liabilities. As a result, any rise in interest rates causes greater declines in the value of Fannie Mae's assets than in the value of its debt. As late as April 1984, when interest rates had already declined substantially from the peaks in 1981, Fannie Mae still had negative net equity on a market-value basis. Yet Fannie Mae's bonds continued to be priced as if they were near-Treasury securities, (rather than claims on Fannie Mae's portfolio) presumably because bondholders imputed a value to Fannie Mae's special relationship with the Federal Government.

The special relationship of Fannie Mae to the Federal Government benefits the equity holders of Fannie Mae as well. If Fannie Mae speculates on interest rates successfully, the profits belong to the equity holders. If the speculation is unsuccessful, the government is expected to absorb the loss. The continued success of the home mortgage market does not depend on government sponsorship of term intermediation. This is demonstrated by the success of the pass-through operations of both Fannie Mae and Freddie Mac, by the existence of markets in which institutions can hedge interest rate risk, and by the growing role of adjustable-rate mortgages.

Moreover, although substantial barriers to interstate and intrastate branch banking remain, the emergence of private firms in the secondary market for mortgages shows that government subsidies and government sponsorship are not necessary to support secondary mortgage markets. Fannie Mae and Freddie Mac do still enjoy subsidies and have a comparative advantage over private firms in their niche of the market. Private firms have concentrated on mortgages exceeding the size limits imposed on Fannie Mae and Freddie Mac. Fannie Mae and Freddie Mac are no longer unique in providing diversification services, but they are unique in operating under the aegis of the Federal Government.

THE FEDERAL HOME LOAN BANKS

The Federal Home Loan Banks (FHLBs) lend to the thrifts on substantial collateral and hence face very little risk through this lending. FHLB funding of the thrifts resembles the funding that the Federal Reserve provides to commercial banks through its discount window, except in term and size. The FHLB loans are both short- and long-term ($15 billion out of $80 billion is of more than 5-year term), while discount funding is typically overnight. As of August 1985 discount window borrowing totaled slightly more than $1 billion, financing less than 0.05 percent of commercial bank assets, while FHLB borrowing totaled $80 billion, financing 8 percent of thrift assets. The role of the FHLBs in diversifying thrift lending risk is minimal.

THE FARM CREDIT SYSTEM

The Farm Credit System (FCS) operates a network of primary and secondary lenders. The 12 Federal Land Banks (FLBs) make mortgage loans on farms and real estate, through 306 (as of the end of 1985) local Federal Land Bank Associations (FLBAs), to farmers and ranchers, rural homeowners, and farm-related businesses on terms of up to 40 years. Twelve Federal Intermediate Credit Banks provide loan funds to 216 Production Credit Associations (PCAs) and can discount agricultural loans from other financial institutions as well.

The PCAs make primarily 1-year operating loans to agricultural borrowers. In addition, the Central Bank for Cooperatives makes loans to the 12 district Banks for Cooperatives, which make short- and long-term loans for cooperative agricultural facilities.

The smallest entities of the FCS, the PCAs and FLBAs, are owned by their borrowers, who must buy stock in them in proportion to their loans. The PCAs in turn own the Federal Intermediate Credit Banks and the FLBAs own the Federal Land Banks. These, together with the Banks For Cooperatives and the Central Bank for Cooperatives, make up the Farm Credit System. The borrowers of these organizations reap the benefits of any profits made by the FCS in the form of lower interest rates on subsequent loans or in patronage refunds.

Much publicity was given to the losses of the FCS in 1985, a difficult year for agriculture. While the FCS as a whole did report a loss of $426 million for the first 9 months of 1985, it also reported remaining total capital of $8.5 billion on total assets of $80.5 billion. While the FCS will probably experience further losses through 1987, these income and equity figures show that the FCS as a whole is solvent.

The troubles of the FCS in 1985 varied greatly by region, supporting the contention that there is a strong regional element in agricultural lending risk. For the quarter ending September 1985 the FLBs in Omaha and Wichita reported losses exceeding 2 percent of total assets, while the FLBs in Texas and Sacramento reported positive income. Legislation passed in December 1985 established a regulator for the FCS and empowered the regulator to impose assessments on the district banks to pool their resources. The Administration believes that with this pooling of capital, the FCS will be able to cover anticipated losses.

The Farm Credit System has not inspired competitors, as have Fannie Mae and Freddie Mac. On the contrary, both the FCS and direct Federal lending to agriculture have gained ground compared with private alternatives. Market shares of agricultural lending for 1970, 1975, 1980, and 1984 are shown in Table 6–1.

Why has government and government-sponsored lending to the farm sector steadily displaced private lending? Private financial institutions have been at a disadvantage to the FCS and Federal direct loans on at least two grounds. First, the FCS's special agency status has lowered its borrowing costs, and of course, the funding for direct loans comes from the U.S. Treasury. Second, important actual and potential competitors, specifically commercial banks, have only limited ability to pool agricultural risk because of restrictions on interstate and intrastate branch banking. Insurance companies competing with

TABLE 6-1.—*Market shares of agricultural lending, 1970-84*

[Percent of total]

Source of lending	1970	1975	1980	1984
Government direct and sponsored programs	32.6	35.6	44.5	48.1
Farm Credit System	23.2	29.6	31.1	31.9
Farmers Home Administration	6.0	5.6	10.7	12.1
Commodity Credit Corporation	3.4	.4	2.7	4.1
Private sources	67.4	64.4	55.5	51.9
Commercial banks	27.3	28.9	22.1	23.5
Individuals and others	29.8	28.2	26.3	22.5
Life insurance companies	10.3	7.3	7.1	5.9

Note.—Data for end of year.

Source: Department of Agriculture.

the FCS, however, do have access to national capital markets. Over these potential competitors, the FCS had no advantage except its subsidy. These comparisons suggest that the subsidy, not the access to national markets, was the primary force behind the increased share of government-affiliated lending to the farm sector.

The FCS has a method of allocating equity risk that exacerbates the difficulties of agricultural borrowers in hard times. Each owner/equity holder's share of the capital in the local borrower-owned unit is a proportion of his or her borrowing from the institution. When capital contributors believe their capital is at risk, they can withdraw it by going to another institution and borrowing a sufficient amount to pay off their FCS loans. The remaining borrowers are those who cannot go to alternative institutions for loans except at much higher interest rates, if at all. This system has two unfortunate consequences. First, "equity runs" can leave the FCS with only the lower quality loans when times are difficult. Second, when farmers have a difficult year due to poor crops or low prices, their equity investment in their local FCS institution does very poorly.

Strictly speaking, agricultural credit has been subsidized through the special relationship of the FCS and the Federal Government. But all things considered, it seems that agricultural borrowers are not well served by their credit markets. Commercial banks cannot serve the agricultural borrowers as well as they might because of the barriers to interstate and intrastate branch banking. The FCS makes only agricultural loans, and hence can diversify only across agriculture. By forcing farmers who borrow from it to be its equity holders, the FCS prevents them from transferring equity lending risk to other parties.

SALLIE MAE

The youngest and smallest of the government-sponsored intermediaries, Sallie Mae, makes a secondary market in federally guaranteed student loans. It also buys these loans for its own portfolio, financing

the purchases by selling bonds. Organized as a private corporation with shares traded on the New York Stock Exchange, Sallie Mae has earned on average slightly more than 30 percent of net worth annually over the past 5 years. Little implicit government subsidy is currently provided directly to Sallie Mae (as distinct from the large subsidy that is provided on the federally guaranteed student loans). If the role of this enterprise was to demonstrate, with a temporary subsidy, that a secondary market could be profitably made in guaranteed student loans, its mission is accomplished. It is therefore appropriate to consider making Sallie Mae a fully private organization. The Administration will investigate this possibility in 1986.

FEDERAL DEPOSIT INSURANCE

Insured deposits in commercial banks, thrift institutions, and credit unions now stand at more than $2 trillion, making deposit insurance by far the largest of the Federal guarantees in the credit markets. Deposit insurance is intended to prevent runs on these depository institutions (here called "banks" when discussed as a group) that can degenerate into general banking panics. Runs occur when depositors become concerned that an institution's assets may not be able to cover all of its deposits. Depositors "run" to be first in line to withdraw their deposits. Because the typical bank's assets are for the most part illiquid, even a bank whose assets are larger than deposits plus other liabilities can have considerable difficulties in accommodating large, sudden withdrawals of deposits.

From the point of view of averting runs, it does not matter whether a deposit insurance corporation stands ready to make deposits good or a lender of last resort is ready to lend to institutions plagued by runs, so long as depositors believe that the backer will in fact support the deposits. Assuring this support is a particularly difficult problem for deposit insurance. Conventional insurance, for example life insurance, operates on the principle of insuring many uncorrelated risks. But bank runs tend to be contagious. The only insurer that unambiguously has the capacity to meet any run, no matter how large, is one with the power to print money. This gives the government a comparative advantage in providing deposit insurance.

The role of deposit insurance is not so much to pool, diversify, and eliminate risks, as conventional insurance does, but to change the way in which certain risks are borne. While there is a large diversifiable component to lending risk, there remains a large nondiversifiable component that must simply be borne. Without deposit insurance, the risk is borne by both equity holders and depositors, leaving the

banking system vulnerable to occasional collapses through runs. With deposit insurance, the risk is borne by bank equity holders and by the public.

Deposit insurance imposes risk on the public because it prevents loss to depositors not only from runs on solvent institutions but also from defaults on loans and, if the maturity of the bank's assets and liabilities are not matched, from changes in interest rates. Without the inherent uncertainty regarding the value of bank assets there would be no reason for runs. Thus, maintaining deposit insurance requires insuring against these events, as well as against mere illiquidity.

When a bank is insolvent due either to defaults on loans or fluctuations in interest rates, the loss may be treated several different ways. First, it could be met by an insurance fund capitalized with accumulated insurance premiums. Should the loss exhaust the fund, the additional loss could be borne either by collecting taxes to pay off depositors or printing money to pay off depositors. If printed money is the solution, the cost is borne in the form of a general rise in the price level. The government could, of course, issue bonds to cover the loss, but these bonds would ultimately be repaid either by collecting taxes or by printing money.

On the other hand, when no real insolvency is present, the central bank can be called upon to serve simply as a temporary provider of liquidity. The central bank extends a loan to the temporarily illiquid bank and receives repayment; this imposes on the public only the cost of administering the transaction less interest collected on the loan.

ADVERSE INCENTIVES OF DEPOSIT INSURANCE

Insuring deposits encourages bank owners to take on more risk than they otherwise would. As long as the bank pays interest competitive with rates available on similarly safe investments, insured depositors have no reason to withdraw their deposits, even from a bank engaging in risky lending.

Equity holders of banks are usually not protected when a bank fails, but even when they lose their entire investment they still are not responsible for all of the losses of unsuccessful lending. Part of the loss falls on the deposit insurer. Because the deposit insurance fee is not adjusted to reflect the increase in risk borne by the deposit insurer, the bank owners have incentives to take account of only that part of increased risk that is borne by equity holders—and not the increased risk absorbed by the deposit insurer.

For depository institutions with substantial amounts of equity capital relative to their assets and other liabilities, the incentive to

engage in excessively risky activities is limited. After all, equity holders have a lot to lose before the deposit insurer steps in. For depository institutions with low equity capital, and especially for institutions with negative equity capital on a market-value basis, the incentive for excessive risk-taking can be quite strong.

To reduce excessive risk-taking encouraged by deposit insurance, regulators impose two kinds of restrictions on depository institutions. First, they subject institutions to "capital adequacy" requirements. Second, they impose portfolio regulations that restrict institutions as to the kinds and amounts of different activities. Two other approaches have been suggested: risk-adjusted deposit insurance and risk-adjusted capital requirements.

CONTROLLING ADVERSE INCENTIVES: CAPITAL REQUIREMENTS

In principle, the goal of capital requirements is to ensure that bank owners have much to lose if they do not invest the bank's funds prudently. Of course, the deposit insurer must be willing to carry through with its threat to close institutions not meeting the requirements. If capital requirements worked perfectly, regulators would close a bank with insufficient capital before the capital was zero or negative, and the public would bear no loss through deposit insurance. In practice, capital requirements have some serious flaws.

The most serious flaw is that the regulators' measure of capital is a poor gauge of the true market value of the owner's stake. Regulatory measures of capital generally reflect changes in the value of bank assets and liabilities on the bank's financial statements only when assets and liabilities are bought or sold. However, market values of many assets and liabilities change, sometimes quite substantially, without any transactions being made. In particular, the market value of long-term, fixed-rate loans and mortgages fluctuates with changes in interest rates, just as does the market value of long-term bonds. Regulatory methods of accounting, however, value long-term, fixed-rate loans and mortgages at the interest rates that prevailed when the loans and mortgages were made, that is, at book value rather than at market value.

Fluctuations in interest rates are not the only force that changes the market value of bank assets. Loans to foreign countries, for example, or on real estate or agricultural properties, may change in value because of changes in expectations about when and if the borrower will repay. For these kinds of loans, there is a limit to the use that can be made of observable, competitive market prices to adjust asset values. Banks do, after all, find their comparative advantage in gathering and assessing information about borrowers, and it is unlikely that other parties could provide better information on asset

quality than do the banks themselves. Nonetheless all loans change in value with changes in interest rates, and more accurate accounting can be achieved even for these loans by making adjustments for interest fluctuations.

Flaws in the measures of net worth used to set capital standards lead to two problems. First, capital requirements often do not control the adverse incentives for risk-taking that they were designed to combat. Because capital requirements are based on book rather than market measures of capital, a fall in the value of a bank's assets often does not affect its capital adequacy until the cash-flow consequences begin to impinge on its ability to pay its bills. This event could be many years hence. But the fall in value immediately affects the incentives of the owners of the institution. As pointed out above, insured institutions with very low or negative net worth have especially strong incentives to engage in excessive risk-taking.

The second problem is that transactions that impair book capital, but otherwise are desirable for both the institution and the economy, are discouraged, and transactions that enhance book capital, but are otherwise undesirable, are encouraged. For example, a bank that forecloses on property due to a loan default typically takes that property onto its books at assessed value. Banks have for the most part not found their comparative advantage in managing real property, and would probably want to sell the property, even if it fell further in value. But if the market value is less than the book value, sale will lower the bank's regulatory capital; hence the property may not be sold. On the other hand, a bank with a big capital gain on its own building may sell that building simply to get the capital gain onto its books and thus raise its regulatory capital.

PORTFOLIO REGULATION

Besides imposing capital requirements, regulators of financial institutions attempt to control risk exposure by directly imposing limits on investment activities. These controls impose a considerable burden on the regulator in terms of risk assessment and prediction. In addition, they reduce market flexibility in allocating credit. They do not merely introduce incentives, but legally limit many kinds of activities and preclude others.

RISK-ADJUSTED DEPOSIT INSURANCE

A suggestion for reducing risk-taking incentives is to risk-adjust deposit insurance premiums. The Vice President's Task Group on the Regulation of Financial Services recommended that deposit insurers be permitted to do this. Risk-adjusting deposit insurance premiums would have two beneficial consequences. First, institutions in-

volved in more risky activities would be charged for increasing the public's risk exposure. Second, basing the premiums on risk would reduce incentives for risk-taking and thus promote overall financial stability.

The principle of risk-adjusted deposit insurance is appealing. In practice, however, it presents unresolved practical problems. First, how do regulators assess the riskiness of different lines of bank activity? Second, would such assessments be useful in predicting the future riskiness of the same lines of activity? For example, it is unlikely that the deposit insurer could have foreseen either the change in the riskiness of lending to oil and gas concerns or the significant change in the volatility of interest rates that occurred in the 1970s. Third, can the deposit insurer appropriately capture the portfolio effects of bank activity? A bank that has equal proportions of its assets in real estate loans, farm loans, oil and gas loans, consumer loans, and so on, may have a loan portfolio consisting entirely of activities judged risky by the deposit insurer. But with the wide assortment of lending activity, the exposure to the deposit insurer could be small as a result of portfolio effects. Fourth, how much will the institutions that present the biggest problems in terms of risk control—those that are nearly insolvent anyway—be influenced by deposit insurance rates? If the equity in an institution is inconsequential, equity holders will not hesitate much to spend someone else's money (the deposit insurer's) in order to take on more risk.

RISK-ADJUSTED CAPITAL REQUIREMENTS

In January 1986, the Board of Governors of the Federal Reserve announced that it will formally consider the imposition of capital requirements based on assessments of the risk of bank assets. In terms of implementation, risk-adjusted capital requirements are subject to the same practical problems of risk assessment as risk-adjusted deposit insurance premiums.

Risk-adjusting capital requirements versus deposit insurance is analogous to varying insurance deductibles versus insurance rates. The risk faced by an automobile insurer for a given policy, for example, is a function of the age and record of the driver, and also of the amount deductible before the insurance coverage begins. Generally speaking, the larger the deductible, the cheaper the insurance. Risk-adjusted capital requirements force a bank to have a higher deductible if it engages in more risky activities. Risk-adjusted deposit insurance with the standard capital requirement allows all the banks the same deductible but charges them different rates depending on their activities.

In principle, there seems no reason not to use both devices to control risk exposure. The risk-adjusted capital requirements give the regulators one more lever against the exaggerated risk-taking incentives of nearly insolvent institutions. If a nearly insolvent institution increases the risk of its portfolio without increasing the owner's stake, it can be closed. But of course this could be done simply with more strict enforcement of existing capital requirements.

None of the devices for controlling adverse incentives introduced by deposit insurance is perfect. Risk-based deposit insurance premiums and capital requirements introduce desirable incentives, but may be weak and difficult to administer effectively. Portfolio regulation helps to control the public's risk exposure, but it also requires the regulator to make difficult judgments regarding lending risk and reduces the role for markets in allocating credit. The last, capital requirements, corrects for the adverse incentives of deposit insurance and helps control the risk exposure of the public, but it is effective only if the requirements are based on definitions of capital that are economically meaningful and are executed by a regulator willing to close institutions with insufficient capital.

THE THRIFTS

The most serious challenge to the system of deposit insurance since it began in 1933 was the insolvency of the thrift institutions in the early 1980s. This industry is composed of more than 3,000 lending institutions (savings and loan associations and some mutual savings banks) with total assets (at book value) of about $1 trillion in 1985. Congress intended the thrifts to serve the home mortgage market and offered them tax incentives to hold a large fraction of their portfolios in home mortgages. Deposits with interest ceilings and loans from the Federal Home Loan Banks financed the thrifts at lower-than-market interest rates. Responding to these incentives, thrifts typically held 60 percent or more of their assets in long-term mortgages, virtually all of which were fixed-rate prior to 1981.

Until the 1970s thrift institutions lived comfortably with their mismatched portfolios because interest rates remained relatively low and stable. With the rise in interest rates from the early 1970s to 1981, however, the cost of funds to thrift institutions rose above the interest earned on their portfolios of long-term, fixed-rate mortgages. By generally accepted accounting principles (GAAP), many thrifts began to show negative net incomes in the early 1980s as their long-term assets fell in value much more than did their liabilities. As of 1981 the thrift industry as a whole had an estimated negative net worth of $110 billion on a market-value basis. Interest rates have moved in favor of the thrifts since 1981, and the June 1985 estimate of their

value corrected for changes in interest rates (but not asset quality) is above zero for the first time in many years.

To deal with the insolvency of the early 1980s, thrift regulators lowered capital requirements and redefined capital. For regulatory purposes, thrift regulatory capital is no longer defined by GAAP (the standards applied to commercial banks) but by regulatory accounting principles (RAP). RAP allows thrifts to reassess certain fixed assets. If the appraised equity value exceeds the price originally paid, which is the book value, the appraised equity value may be entered on the balance sheet. An institution whose property has gone down in value, however, need not declare the lower value on its balance sheet. In addition, thrifts can amortize losses on assets they sell. For example, if a thrift sold a home mortgage that was 10 years from maturity for $50,000 less than its book value, the institution could declare its loss at $5,000 per year for 10 years. The loss would have only a gradual impact on the regulatory capital.

In addition, two programs were created in order to give certain thrifts the appearance of having more equity. These were the net worth certificate program and the income capital certificate program. Both involve a mere bookkeeping entry in which the Federal Savings and Loan Insurance Corporation (FSLIC) becomes an equity holder in a thrift, with a few strings attached in terms of the investments thrifts can undertake. FSLIC counts its paper "investment" in the thrift as an asset, and the thrift counts FSLIC's "contribution" of capital as equity for purposes of meeting capital requirements.

These programs to boost the regulatory net worth of thrifts kept many of them officially solvent when on the basis of GAAP—let alone market-value—they were insolvent. The programs did not affect the market value of these institutions, but merely bought time during which regulators hoped, not in vain, for lower interest rates. In effect, the thrift regulators made a judgment (like the judgments frequently made by creditors of insolvent enterprises) that the deposit insurance funds and ultimately the Treasury and the country had more to gain from keeping insolvent thrifts operating than from closing them down.

Although the thrifts, as a group, no longer have negative equity by market value, the full returns of this experiment in term intermediation are not yet complete. Four serious problems still remain. First, many thrifts with negative net worth continue to operate, and many of these continue to lose money. Second, the resources FSLIC has available to close failed institutions are very strained. Third, the industry as a whole is poorly capitalized, even by its own standards, and the capital standards of the thrifts are well below those of the

commercial banks. And fourth, the thrifts are still exposed to considerable interest rate risk.

As of June 1985 there were 88 thrifts with total assets of $16.8 billion with negative net worth by RAP measures. By GAAP measures, 461 institutions with total assets of $111.4 billion had negative net worth. Allowing insolvent institutions to operate greatly increases the burdens of the Federal Home Loan Bank Board (FHLBB) and the FSLIC in controlling the continuing losses and risk-taking of insured institutions. It is not yet clear how successful thrift regulators have been in controlling the incentives for excessive risk-taking by insolvent insured institutions.

Many of the currently insolvent institutions will likely remain insolvent. What to do about these institutions will involve difficult choices. During fiscal 1984, FSLIC found the cost of closing insolvent institutions to be 14.7 percent of the book value of their assets, and found that many institutions had serious asset quality problems. If asset quality problems worsen, the costs could rise. But interest rates have fallen, so the costs may fall.

Many insolvent institutions could be taken over by solvent institutions, and with infusions of capital from them (and perhaps other sources) once again have sufficient equity to inhibit excessive risk-taking. Hence, a judgment must be made regarding which financial institutions will be allowed to buy failed thrifts. For the most part, the FHLBB has attempted to resolve problem cases by merging failing institutions within the traditional boundaries of the thrift industry. Regulators have sought acquirers for insolvent institutions first among nearby thrifts, then in the same State, then in adjacent States, and only after these avenues proved unfruitful have they opened the market nationally. The cost to the public of closing these institutions may well be lower if the market is widened to commercial banks and other financial institutions as well.

As FSLIC has closed and liquidated insolvent institutions for which it could not find a merger partner, it has acquired a portfolio of assets from institutions whose depositors it paid off. FSLIC itself needs to liquidate these assets in order to have cash with which to close additional insolvent thrifts. But FSLIC has found some of these assets, such as unfinished real estate development projects, to be difficult to dispose of. To be able to liquidate troublesome properties more quickly and at better prices, the FHLBB has set up a new quasi-government organization, the Federal Asset Disposition Association (FADA), which will be exempt from many of the salary and staffing restrictions FSLIC faces as a government entity.

The FHLBB has announced that it intends to restrict FADA to operating only as a sales management organization and only for FSLIC.

Should these restrictions be relaxed, potential problems with FADA include the possibility of it growing into another liability for taxpayers.

Resolution of the problems in the thrift industry should involve first, closing or recapitalizing insolvent institutions. Recapitalizing is not a simple task, as it entails either finding new investors (possibly institutions) that will invest their own funds, or reorganizing debt holders of the failed thrift into equity holders. Second, the thrifts should use capital requirements and definitions of capital that are economically realistic and consistent with the standards of commercial banks. Third, it may be appropriate to reconsider the wisdom of designating limited-purpose lenders, including mortgage lenders. The commercial banks have been very active in mortgage lending, and their activity plus the success of firms in the secondary market for mortgages makes clear that mortgage lending does not require a separate, subsidized financial sector. Fourth, term intermediation is risky not only for individual institutions, but also for the economy as a whole. The effort succeeds only so long as interest rates and inflation rates are stable. Consequently, existing regulatory incentives for exposure to interest rate risk should be eliminated, and policies that result in stable interest rates and price levels should be promoted.

INSURED PENSION BENEFITS

The Employee Retirement Income Security Act (ERISA) of 1974 requires almost all companies having "defined benefit" pension plans to purchase insurance from the Pension Benefit Guaranty Corporation (PBGC), a government entity established by the ERISA. Insured firms may terminate their pension plans at any time by filing with the PBGC. When a firm terminates its plan, the PBGC assumes both the liabilities (the promises made by the employer to the employees in terms of retirement benefits) and the assets of the pension plan. The PBGC also has the right to as much as 30 percent of the company's equity. Currently, the PBGC insures the pension benefits of 38 million people. By October 1985, the PBGC had taken over more than 1,200 pension plans covering 190,000 persons, and had accumulated a deficit of about $1.3 billion, more than two-thirds of it in 1985. Because the PBGC operates under public auspices, the public may ultimately have to assume the difference between the premiums it collects and the pensions it pays. Legislation to raise the premiums charged by the PBGC is pending.

"Defined contribution" pension plans resemble ordinary savings accounts, except that contributions (deposits) are tax-deductible and interest accumulates tax-free. In a defined contribution plan, employee and employer contribute to an account; after a vesting period (typically 3 to 5 years), the account essentially belongs to the employee, although use of it is generally restricted. Defined benefit pension plans typically promise an employee income in retirement based on ("defined by") the number of years of employment and the wages earned in the last years of employment. Strictly speaking, the promise is independent of how much the employer actually sets aside to pay these promised benefits, although ERISA imposes minimum funding standards. Assets set aside to fund these promises are held in trust. A pension plan is "fully funded" if the assets are at least adequate to cover the present value of the employer's promises, and "underfunded" if the assets are inadequate.

Insurance premiums collected by the PBGC are set by statute and are currently far too low to cover its anticipated liabilities. Because the government assumes responsibility for the soundness of the pensions and collects far less from the insured parties than its guarantees are worth, its insurance performs as a subsidy. Prior to the passage of ERISA, the degree to which ailing companies with underfunded pension plans could substitute pension promises for wages was limited by employees' assessments of the company's ability to make good on such promises. With the establishment of the PBGC, a company can make generous retirement benefit promises to employees, and pay employees lower wages than it otherwise would, because both parties know that if the company fails, the PBGC will honor the pension obligations (up to ERISA-limited amounts).

The companies most likely to abuse PBGC pension insurance are those doing poorly. Companies losing money enjoy no tax benefits from fully funding a pension plan and are also less likely to be able to deliver on pension promises with company assets. Yet premiums depend neither on the riskiness of the assets with which the portfolio is funded nor on the level of funding (above ERISA's minimum). This implies that even if premiums were set so that on average they covered the expected liabilities of the PBGC, ERISA would redistribute wealth from the employees and employers of healthy, low-risk companies with funded plans to the employees and employers of ailing or high-risk companies with underfunded plans.

In analyzing the economic effects of ERISA, it is instructive to consider how private companies would price pension insurance and how pension sponsors would respond. For the sake of the argument, suppose the government simply required all firms to insure their pension plans, much as State governments require individuals who own

and operate automobiles to carry liability insurance, and left it up to private firms to provide that insurance. Insurance premiums would then reflect the riskiness of the assets securing the pension benefits. Premiums for an underfunded plan would primarily reflect the riskiness of the assets of the sponsoring company. Premiums for a funded plan would reflect the riskiness of the portfolio of securities with which it was funded. Incentives to underfund the pension plan or to fund it with more risky securities would be reduced. The ERISA-caused redistribution of wealth from employees and employers of fully funded plans in healthy companies to employees and employers of underfunded plans in ailing companies would disappear.

A full analysis of the pension insurance issue must consider the question of why some pension plans were underfunded in the first place. Did these underfunded plans simply occur because employers were irresponsible and employees were ignorant of the situation?

Several studies by economists conclude that underfunded pension plans are a device that gives unions and firms a common interest and helps to resolve disputes over how to divide the firm's revenues. By underfunding the pension plan, a firm effectively makes employees who are covered by the plan long-term bondholders in the firm.

This need for a common interest is acute in industries where firms have large "sunk" costs, such as those involved in heavy manufacturing. Firms invest in capital only when they believe that long-run income will cover the costs of the capital. The costs are paid up front. Because its capital costs are sunk, the firm will continue to operate as long as it can cover variable costs, even if its income falls considerably below what was expected. Thus, unions could raise wages and lower the firm's income, without endangering jobs, once the capital investment has been made.

Anticipating that the union will raise wages once an investment is complete, the firm will be less likely to make the capital investment in the first place. Both parties, as well as consumers, are potential losers. The firm loses income from a profitable investment. Workers lose jobs. Consumers lose the value of the firm's products. This conflict of interest can be resolved to the benefit of both the firm and the union by creating a common interest—making the employees security holders in the firm via underfunding of the pension plan.

The evidence in favor of this view is first, the association of defined-benefit pension plans with unions. One study shows that while 25 percent of non-union participants are covered primarily or solely by a defined-contribution plan, virtually no unionized participants have such coverage. Second, virtually all systematic underfunding is associated with unions. Pre-ERISA, plans for union members had

funding ratios (funded assets as a proportion of total liabilities) that were on average 30 percent lower than the funding ratios for plans covering non-union employees.

If the underfunded plan was a device for aligning the interests of firms and unions, the passage of ERISA should give cause for companies to seek other devices, and they have. Employee stock option and profit-sharing plans are other ways to give employees an interest in the value of the firm as a whole and not just in the wages they will collect from it. One study shows that companies with unions were 1.3 times more likely to introduce employee stock option or profit-sharing plans, post-ERISA, than were companies without unions. The same study found that over the pre-ERISA period 1968–73 unionized companies were only 0.6 times as likely to introduce such plans.

The passage of ERISA reflects the judgment that although underfunded pensions may have had an economic rationale, the security of retirement income is too important to be left hostage to union/firm disputes. The administration supports this judgment. But the agency that currently provides pension insurance, the PBGC, faces a serious and deteriorating situation. There are several options for dealing with PBGC's burgeoning deficit, including raising the premiums and also risk-adjusting the premiums. Policy in this area should seek to ensure that the Federal Government is not left holding the promises of employers who walk out on their pension responsibilities. It should also ensure that employees who have worked for their pensions—in some cases an entire lifetime—are provided with income in their old age. The cost of making good on underfunded pension promises should not be pushed onto the employers and employees of more responsible firms.

DEREGULATION AND THE FINANCIAL SYSTEM

The recent period of difficulty for many financial institutions coincided with a limited deregulation of financial institutions. Deregulation progressively eliminated ceilings on interest rates paid to depositors and gradually reduced restrictions on types of assets that could be held by thrift institutions. Legislative, legal, and regulatory actions substantially broadened the eligible range of securities market activities of depository institutions, and opened, although only partially, opportunities for interstate operation of depository institutions. The coincidence of deregulation with the problems of some financial institutions has led to the suggestion that deregulation is somehow responsible for these problems.

A more persuasive case can be made for the opposite conclusion—that inappropriate and excessive regulation, combined with inflation and then disinflation, contributed to an environment in which many depository institutions could not have continued to operate without deregulation.

The problems of the thrift industry derive fundamentally from funding long-term, fixed-rate mortgages with short-term deposits. The rise in interest rates made the thrifts temporarily insolvent. True, if the thrifts could have maintained pre-1979 interest rates on deposits, they would not have suffered so severely in 1981 and later, but these institutions could not have retained deposits at low, controlled interest rates. Much more attractive opportunities, notably money market mutual funds, had become available to their depositors elsewhere. And a massive outflow of deposits would have meant the collapse of many thrifts in 1981 or 1982, as they liquidated their mortgage portfolios—at well below book value—to pay off depositors. Therefore, deregulation of interest rates on deposits cannot be the reason for the problems of thrifts. Moreover, even if it had been possible to suppress the new alternatives to deposits, that would only have shifted the problems of the thrifts onto their depositors.

Relaxation of restrictions on assets held by thrift institutions can allow thrifts some benefits from diversification, but may also provide greater latitude for exploiting the deposit insurance system by undertaking highly risky loans and investments. Indeed, some of the current problems involve thrifts that have been established or have expanded rapidly since 1982. But the expansion of activities has two faces. Institutions may expose themselves to more risk, but they may also ultimately bear less risk as a result of more broadly based activities. Risk-adjusted deposit insurance premiums and more economically meaningful capital requirements can reduce the necessity for portfolio regulation.

The recent difficulties of the Farm Credit System and of many smaller commercial banks that lend heavily to agriculture are similar in important respects to those of thrift institutions. Due to either Federal designation or Federal barriers to interstate banking, these institutions have concentrated their lending in such a way that the value of their loan portfolios has been strongly and adversely affected by events associated with the inflationary and disinflationary process. The inflation that fed the boom in agricultural land values in the 1970s also fed the appetite for borrowing to finance farmland and equipment and made lending appear attractive. The decline in farmland values in the disinflation of the early 1980s undermined the security for these loans. In the case of the Farm Credit System, these problems were exacerbated by structural defects of that system. De-

regulation of financial markets and institutions played no role. Further deregulation, however, might reduce such problems by allowing broader diversification of agricultural lending risk through lowering of barriers to interstate banking.

Similarly, the recent problems of some larger commercial banks derive primarily from their choices of loans and investments, and are not the consequence of deregulation. Some large banks that have lent to developing countries have suffered declines in the market value of their equity as the dollar rose and the market reassessed the value of those loans. Some banks that aggressively expanded their loan portfolios by making loans that other institutions were reluctant to fund have suffered losses. Other banks that concentrated lending in industries such as oil and gas drilling have suffered from the declines in these industries.

The episode of increased volatility of interest rates and inflation has resulted in some changes that have made U.S. financial institutions better able to cope with risk of all kinds. Some changes, notably deregulating interest rates, lessening of the barriers to interstate banking, and loosening of portfolio restrictions, were made by regulators. Other changes, such as the introduction of new financial instruments for hedging risks, were the innovations of private markets.

The deregulatory effort should not be regarded as complete. The most promising changes would eliminate aspects of government policy that inhibit diversification. First, it is time to move toward true interstate banking. It is no accident that 97 percent of the outstanding financing provided by the five government-sponsored intermediaries goes to housing and agriculture. Regional components are large in both housing and agricultural credit risk, and if the financial institutions are able to diversify this risk, credit for these borrowers will be less expensive and the markets will allocate credit more efficiently than if it cannot be diversified.

Banks keep, rather than sell, many mortgage, farm, and other loans for which there are currently secondary markets. This suggests that there are costs to gathering and disseminating information about borrowers that make it efficient for loan originators to keep many loans. Given that this is so, there are probably many loans—those with large regional risk components but also complex information about borrowers—for which the most efficient and lowest cost holder is neither a small local bank nor a secondary market customer, but rather a large interstate bank. Large States, such as California and New York, have greater opportunities for intrastate diversification than do smaller States with less variety in their economies. The experience of the large States shows that big banks, little banks, and sec-

ondary markets all have a natural place in the financial sector of the economy.

A similar argument for diversification calls for rethinking the designation of limited-purpose lenders, such as the thrift industry and the Farm Credit System. Eliminating the barriers to diversifying across activities would decrease the probability of failure of these institutions. It would also decrease the likelihood that these institutions might ever pose a macroeconomic threat to the financial system.

Second, the risk that cannot be eliminated through diversification needs to be controlled more effectively by the system of deposit insurance. Deposit insurance can be reformed so that it no longer provides incentives for depository institutions to undertake excessive risk, including the risk inevitably associated with funding long-term, fixed-rate mortgages via short-term, interest-sensitive deposits. Deposit insurance reform should include revisions of regulatory accounting. Shareholders and managers of financial institutions should be made to bear—promptly and effectively—the good and bad consequences of the operations of the institutions they own and control.

Finally, it is essential to avoid the strains on the economy and the financial system that result from macroeconomic policies that induce volatile inflation and interest rates. In the recent episode of volatility, the financial services industry continued to operate smoothly in spite of the failure of many individual institutions. Many reforms have already made the remaining institutions more resilient to such risks, and further reforms can do still more. But even more robust institutions are not invulnerable. Life is risky enough without macroeconomic policy introducing additional uncertainty.