

increased total risk in the overall financial system.

The rapidly changing financial system has generated new complexities and interdependencies. This has created additional uncertainty about the ways in which default risk can lead to systemic breakdown. The thrift industry crises in Ohio and in Maryland provide recent examples of concern.<sup>8</sup> They serve to illustrate the need to understand fully the changing network through which default can disrupt the financial system. With this full understanding, we might expect to adapt our supervisory and regulatory structure in ways that reduce systemic risk, possibly through initiatives such as risk-based capital adequacy requirements and risk-based insurance premiums.

### Policy Issues

The recent extraordinary increase in debt has called attention to the need to understand better the changing nature of risk exposures, the growing interdependencies among formerly isolated risks, and the potential for systemic failures. Without a better understanding, we might expect that the Federal Reserve will increasingly face situations in which it must act as a lender of last resort. In the postwar period, the Federal Reserve, together with the FDIC and Office of the Comptroller of the Currency, have demonstrated an ability to deal with and contain isolated instances of financial distress. There is a reasonable fear, however, that lenders might begin to expect that government assistance will be so freely available that they will increase patterns of behavior that are unsustainable in the aggregate.

The textbook solution to this "moral

hazard" problem is coinsurance. One form of coinsurance in banking regulation is to establish capital requirements for banks. Capital essentially is a cushion that allows a firm to absorb temporary losses, yet remain viable. The greater the capital, the more able banks will be to withstand losses without government help. By having to absorb more of their own losses, banks are likely to apply more prudent standards to asset and liability management. While banks have strengthened their capital positions in recent years, the question of whether current capital requirements are sufficient remains, especially when accounting for bank exposures to off-balance-sheet liabilities.

Financial guarantees issued by banks are, in principle, similar to the obligation of a lender of last resort; that is, banks act as back-up lenders for the benefit of third parties. Such activities have their own potential to create a moral hazard. To deal with this problem, banks "regulate" their customers. Banks have contractually established standards that borrowers must meet, and internal controls provide for some degree of supervision of risk. Thus, while we have seen a political movement toward deregulation of private financial markets, market forces themselves may also generate private regulatory practices. The issues raised here concern the appropriate structures of the regulatory regime. Of particular importance is the legal definition of a bank, which determines the scope of government regulation that is applied. Financial change has worked to muddle the traditional distinctions. It seems certain that financial change will continue to generate new fault lines, making the design of the official regulatory regime an ongoing issue.

The final issue considered here concerns monetary policy. The view that the rise in private indebtedness represents an increase in the economy-wide exposure to debt default, and further, that this increased exposure to debt default magnifies the contractionary dynamics of the business cycle, suggests that the choices for monetary policy could become more difficult with continued increases in the private debt ratio. Some economists have argued that the increased potential for financial instability could lead to a greater reluctance to tolerate recessions.<sup>9</sup> An implication of this, in their view, would be that monetary policy would become more expansionary than it would otherwise, raising the potential for an inflationary bias to policy.

### Concluding Comments

It is obvious that the Federal Reserve has legitimate reasons to be concerned about the stability of the financial system and, consequently, about the level, quality, and distribution of debt in the economy. While developments in risk-management techniques have reduced risks for one or more of the parties involved, there remains an open issue of whether risks have been reduced on balance for the financial system as a whole. If there is a consensus about rapid debt growth, it is that we should be more aware of the potential risks that attend excessive and imprudent debt issuance.<sup>10</sup> Although the Federal Reserve certainly has the ability to provide massive liquidity to our financial system in a time of extraordinary distress, we can all agree that an ounce of prevention would be worth a pound of cure.

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# ECONOMIC COMMENTARY

Since 1982, the indebtedness of domestic nonfinancial sectors has increased from around 140 percent of nominal gross national product (GNP) to 170 percent. This extraordinary growth contrasts sharply with the pattern of debt growth over most of the post-World War II period.

Between 1951 and 1982, for example, debt growth was remarkably stable, continuing in direct proportion to nominal GNP. Although debt increased sharply relative to GNP from 1929 to 1933, this increase largely reflected a 46 percent decline in GNP over the same period. Meanwhile, some measures of debt were declining in absolute terms. In fact, domestic nonfinancial debt (the measure of total debt used in this article) actually declined 14 percent from 1929 to 1933.

The recent surge in debt has raised some concerns among economists, particularly about its implications for the vulnerability of the financial system and the economy. A viable market-oriented financial system depends on a heavy preponderance of prudent decisions of private parties over imprudent decisions. Despite recent efforts to quantify financial risk and to establish precise rules for managing it, prudent management of financial risk remains a matter of judgment. Moreover, recent financial innovations and regulatory changes have altered the financial landscape drastically, making it especially difficult to assess the implications of accelerated debt growth.

This *Economic Commentary* provides a perspective for understanding policymakers' concerns about the increasing debt burden, particularly for

the implications of such a debt burden for the integrity of the financial system. We examine how this integrity is essential to the well-being of the economy and analyze the important stabilizing role played by deposit insurance and the lender-of-last-resort function of the central bank. We discuss the nature of the incentives created by the financial stabilizers, specifically whether they encourage excessive risk-taking. We also consider the possibly adverse implications of the increasing complexity and interdependencies arising from the evolution of the financial system. This concern arises because recent changes in financial markets may have generated new ways in which debt default can spill over into the banking system. Finally, we address some of the policy issues related to these concerns.

### Debt and Income

Debt cannot rise without limit in relation to the income needed to cover payments of interest and principal. Largely for this reason, debt is commonly measured in relation to nominal GNP. There is, however, no particular basis in standard economic theory for arguing that the nation's welfare is best served at any particular value of this ratio, nor is the recent increase in this ratio alarming in itself.

The steady proportionality of debt to income between 1951 and 1982 seems, in retrospect, to reflect largely a coincidence of diminishing federal needs in the face of increasing private needs.

## Debt Growth and the Financial System

by John B. Carlson

The federal government, while running budget deficits, was nevertheless borrowing a declining share of national income. Private borrowing, on the other hand, trended upward relative to national income over most of the period. Only after 1982, when federal borrowing needs jumped sharply, did total domestic nonfinancial debt (DNFD) rise sharply relative to nominal GNP.

Many factors can account for the increasing private demands for debt after World War II.<sup>1</sup> Two key factors may explain part of the pattern of household debt. One of these factors is demographics, especially an acceleration in household formation; the other is the proliferation of bank credit cards, which is due largely to the convenience of their use in transactions. Neither of these factors suggests cause for alarm. Deductibility of mortgage and consumer debt interest payments for tax purposes also helps explain the increasing attractiveness of household debt in the postwar period. Developments in corporate finance that increased access to credit markets by previously excluded businesses formed one important element explaining the increase in business borrowing; tax incentives to leveraging formed another. These factors, taken by themselves, suggest a rational basis for the increasing private debt ratio.

However, some market observers do not find it comforting that there are many reasonable explanations for the perennial increases in private debt relative to income. They point to the deterioration of some common indicators of financial distress, particularly at a time when the economy has been expanding.

*John Carlson is an economist at the Federal Reserve Bank of Cleveland. The author would like to thank Mark Sniderman, E.J. Stevens, and Walker Todd for their helpful comments.*

*The views stated herein are those of the author and not necessarily those of the Federal Reserve Bank of Cleveland or of the Board of Governors of the Federal Reserve System.*

1. Although these factors account for the underlying trends in debt growth, there remains something of a puzzle as to why the recent acceleration in debt has been so strong.

2. See Benjamin M. Friedman, Harvard University, "Increasing Indebtedness and Financial Stability in the United States," draft, July 1986.

3. Some economists would argue that the likelihood of such financial collapse is nil, provided the central bank supplies sufficient reserves to offset the lost liquidity. See George J. Benston et al., "Perspectives on Safe and Sound Banking," MIT Press, Cambridge, Mass. 1986.

Federal Reserve Bank of Cleveland  
Research Department  
P.O. Box 6387  
Cleveland, OH 44101

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For example, since the beginning of the current business expansion in 1982, more corporate bonds have been downgraded by rating agencies than upgraded. In addition, there has been an upward tendency in delinquency rates on consumer and mortgage debt. This is unusual during economic expansions and suggests additional exposure of households to the risk of default.

A chief concern is that continued increases in the debt ratio ultimately increase the chances that debt service will become unsustainable in the aggregate. A fundamental risk in debt accumulation is that borrowers and lenders overestimate the growth potential for aggregate income. It is feared that they may not adequately take into account the potential for sustained periods of general economic stagnation. Moreover, we have seen financial strains in several sectors of the economy—agriculture, energy, foreign transactions, and real estate—in which lenders and borrowers were too optimistic about the growth potential of these sectors, if not that of the overall economy.

In addition, some analysts argue that the upward trend in private debt partly reflects a number of institutional biases that encourage more risk-taking than borrowers would have accepted in the past. It is feared that these biases may encourage debt growth beyond limits that are consistent with the well-being of the economy.

### Debt and Stability of the Financial System

Some economists have argued that the potentially increased exposure of the debt structure to risk may lead to larger swings in the business cycle.<sup>2</sup> This view is based on some widely accepted models of the process underlying financial instability, which emphasize a mutually deteriorating interaction between situations of financial market distress and contractions in nonfinancial economic activity. Such a process could be initiated when sufficient numbers of borrowers fail to meet their obligations so that their creditors (perhaps borrowers themselves) face severe

restrictions on liquidity or possibly become insolvent. The loss of liquidity leads to constraints on aggregate spending, which in turn reduce the cash flow of other borrowers. Some of these borrowers are pushed into default, causing further weakness in aggregate demand, and so forth. Typically, this interactive process is dampened either by some offsetting exogenous event, by automatic stabilizers, or by actions of the Federal Reserve to restore lost liquidity. To the extent that the overall economy is becoming more exposed to default risk, we might expect that the contractionary dynamics would be further intensified.

The ultimate fear is that the process underlying financial instability could become open-ended. In such a situation, large numbers of debtors and creditors, seeking to regain liquidity, could be forced to sell assets at “fire sale” values. This destruction of financial wealth could undermine the public’s confidence in the financial system’s safety and soundness, leading to general collapse in financial markets and to persistent stagnation in nonfinancial economic activity.<sup>3</sup>

Those who express strong concerns about this kind of systemic risk typically view history as replete with episodes in which highly leveraged speculation climaxed in a crescendo of debt defaults. Prior to World War II, such episodes often culminated in bank runs that led to a cascade of bank failures and to general collapse in financial markets. In the United States, for example, such severe bank panics occurred in 1837, 1857, 1873, 1884, 1893, 1907, and 1933.

A key catalyst in the process of systemic failure—the bank run—has been contained by federal deposit insurance (FDIC and FSLIC), first established by statute in 1933. Since the end of the Great Depression, federal deposit insurance has helped maintain unprecedented confidence in the safety and soundness of the banking system by sharply reducing the probability of panic withdrawals of bank deposits when the public suspects that some banks are insolvent. In addition, deposit insurance has helped banks to weather cyclical storms that could have led to temporary periods of illiquidity;

it has, thereby, limited the impact of defaults by some borrowers and some banks on the overall credit supply.

Some economists also argue that postwar financial stability in the commercial banking system also is attributable to prompt backup lending by the Federal Reserve. Most liquidity provided by the Federal Reserve still is added through open market operations. However, in isolated instances, the Federal Reserve has been able to maintain sufficient liquidity in a community or region through discount window operations when traditional lending facilities have broken down. The lender-of-last-resort function has limited the number of situations in which problems of illiquidity lead to insolvency. By isolating and containing systemic risks of default, deposit insurance and Federal Reserve lending have greatly reduced the frequency and magnitude of financial panics.

### Incentive Problems

While the potential stabilizing effects of federal deposit insurance and Federal Reserve lending seem evident in principle, there are a number of problems in practice. Insurance protection, whether explicit or implicit, alters the benefits and costs of various activities of the insured, particularly by softening the consequences of risky situations. When it is costly to control, or even monitor, the actions of the insured, it is sometimes rational for the insured to become less concerned about risk. This is known as the moral hazard problem. When the costs of deposit insurance are low and the benefits of risky behavior are high, a moral hazard is created.

The moral hazard problem is inextricably linked to insurance pricing. If the deposit insurance premium is less than what is commensurate with the inherent risk, a subsidy arises, creating incentives for insured institutions to hold riskier portfolios than they would otherwise.<sup>4</sup> Thus, while deposit insurance may reduce the frequency of bank runs in response to liquidity crises, it could, through underpricing, encourage banks to continue lending in excess of prudent amounts. Such excessive lending would increase the likelihood of

bank failures in response either to systemic disturbances or to particular cases of mismanagement. Critics of the current pricing practices for deposit insurance argue that some deposit premiums are, in fact, underpriced. They point to pending legislation that seeks to recapitalize FSLIC as evidence that the existing pricing practice is not actuarially sound.<sup>5</sup>

Another subsidy can arise from the deposit insurance system in the failed bank settlement practices employed by deposit insurance agencies. In recent years, the FDIC handled these settlements in a manner in which no uninsured depositors at large institutions (more than \$1 billion of assets) have suffered losses, despite the fact that the FDIC has absorbed significant losses itself. This practice, it is argued, creates de facto deposit insurance for all deposits at large banks, including those which are legally uninsured. Critics of bank failure settlement practices argue that de facto insurance for all deposits erodes market discipline.

Allowing losses to holders of large uninsured deposits is obviously not without its own risks. Large banks typically have correspondent relationships with many small banks. Under these arrangements small banks hold deposits at the respondent bank as clearing balances. The prospect of bank runs on uninsured deposits could create situations of illiquidity that would jeopardize the health of some small, but otherwise well-managed, correspondent banks.

The lender-of-last-resort function of the Federal Reserve can also be characterized as a form of insurance and thus may generate its own moral hazard.<sup>6</sup> If the Federal Reserve were to intervene too readily to maintain liquidity in the banking system, banks would have increased incentives to bias their asset and liability innovations toward instruments that could compromise their own liquidity and solvency. Creating an illiquid system then would increase the chances that a failure anywhere in the system would result in a chain of defaults unless the Federal Reserve quickly isolated the overall system from the initial failure.

Some observers have noted that since the end of World War II the Federal Reserve has intervened increasingly as the lender of last resort. Some of these interventions have been precipitated by events occurring outside traditional banking channels. A noteworthy example was provided by the liquidity crisis which arose after the bankruptcy of Penn Central Corporation in 1970.

Penn Central, like many large corporations, had been shifting increasingly away from bank sources of credit to direct borrowing in money and capital markets—especially the commercial paper market. Lenders in these markets have little or no commitment to maintain continuity of credit supply. When Penn Central defaulted, the commercial paper market dried up for all borrowers (including the most viable firms), as lenders withdrew their funds to reassess the risks of holding other issues of such paper. With the open-market channel blocked, borrowers could not roll over their open-market paper and turned en masse to their banks. To facilitate bank adjustment to the sizable increase in loan demand, the Federal Reserve, as lender of last resort, provided the banking system with reserves sufficient to meet the surge in loans that replaced the commercial paper borrowings.

### Financial Change

The increasing use of open-market instruments is only one of many developments in the financial system that have affected the exposure of the financial system to debt default.<sup>7</sup> Other developments altering the risk exposure include innovation, deregulation, and increasing competition from foreign banks and other financial intermediaries.

Innovation is the development of new instruments and risk-management techniques that transform price, credit, and liquidity risks in a manner that promotes wider use of capital markets. Some examples are: 1) risk transferring and techniques such as interest rate and foreign exchange options, currency and interest-rate swaps, and other futures and options markets instruments; 2) liquidity-enhancing innovations such as money-market mutual

funds, cash-management techniques, and, perhaps most importantly, new financial guarantees that have improved the liquidity of some capital-market instruments.

While new techniques in risk management may reduce risks for one or more parties, the net effect could be to generate new forms of risk exposure for the banking system as a whole. For example, several of these techniques involved greater use of standby letters of credit (SLCs) and other financial guarantees. An SLC is a contractual arrangement in which a bank issues, for a fee, a guarantee that the bank’s customer will meet an underlying obligation to a third party. The bank suffers a loss only if its customer fails to perform. Such risk exposure generally is thought to be positively correlated with other bank asset risk, and SLCs are counted against regulatory lending limits for banks. Moreover, SLCs outstanding exceed capital at many large banks, but these guarantees do not appear on bank balance sheets. Thus, some analysts fear that, while bank capital cushions have increased recently, they have not increased in direct proportion to the inherent bank-credit risks assumed.

Another major development affecting the network of risk exposures is deregulation. While deregulation has benefited consumers by allowing banks to offer a greater menu of instruments at more attractive yields, it also has reduced the interest margins and, hence, the profitability of traditional lines of bank business. On the other hand, interest-rate deregulation has helped stabilize deposit bases. With interest-rate ceilings, depositories found it difficult to maintain deposits when market interest rates exceeded the deposit rate ceilings. Nevertheless, increased competition from foreign banks and other financial intermediaries—such as money-market-mutual funds and “nonbank” banks—has made it more costly for banks to obtain funds. Deregulation of bank powers has also put additional competitive pressures on banks. Overall deregulation has led to greater uncertainty and, therefore, may have

4. For a more complete discussion of this issue see James Thompson, “Equity, Efficiency, and Mispriced Deposit Guarantees,” *Economic Commentary*, Federal Reserve Bank of Cleveland, July 15, 1986.

5. It is interesting to note that FDIC premiums are not necessarily underpriced, since historically outlays have roughly equaled revenues (that is, they have been actuarially fair in the aggregate). However, FDIC insurance pricing does create a moral hazard because individual premiums are not risk-related.

6. See Hyman P. Minsky, “Money and the Lender of Last Resort,” *Challenge*, March/April 1985, vol. 28, no. 1, pp. 12-18.

7. An excellent summary of these developments is found in Edward J. Frydl, “The Challenge of Financial Change,” *Annual Report 1985*, Federal Reserve Bank of New York.

8. See “Unfoldings in Ohio: 1985,” *Annual Report 1985*, Federal Reserve Bank of Cleveland.

9. See Friedman, op. cit.

10. In recent congressional testimony, Federal Reserve Chairman Paul A. Volcker stressed the need for further exploration of the difficult and complex issues raised by rapid debt growth. See

his statement before the Subcommittee on Telecommunications, Consumer Protection, and Finance of the Committee on Energy and Commerce, House of Representatives, April 23, 1986.