

Editors' Summary

THIS ISSUE OF *Brookings Papers on Economic Activity* contains papers and discussions presented at the forty-seventh conference of the Brookings Panel on Economic Activity, which was held in Washington, D.C., on April 6 and 7, 1989. The first major paper provides a model showing a central role for job vacancies in explaining the dynamics of the labor market. The second paper speculates on how institutional changes over the past decade have altered the way in which U.S. monetary policy affects the national economy. The third paper examines the correlation among the stock price indexes of Japan, Germany, Great Britain, and the United States before and after the stock market crash of October 1987. The fourth paper focuses on the Federal Reserve's measures of capacity utilization and questions the conventional interpretation of high capacity utilization as signaling the need for contractionary monetary policy. The first of two reports details the plight of the nation's troubled thrift industry, evaluates the legislative solution crafted by the administration and Congress, and looks ahead to signs of possible trouble in the banking industry. The final report examines the way exchange rate changes in the dollar are reflected in U.S. prices of imported manufactured goods.

NOT ONLY IS the unemployment rate the single most-watched indicator of how well the economy is doing, but it also plays a central role in models of labor market dynamics and inflation. The vacancy rate, defined as the ratio of job vacancies to employment, is analogous to the unemployment rate, but is much less widely used or discussed. There are at least two reasons for this relative neglect. Society is not as concerned with "unemployed" jobs as with unemployed workers. The vacancy rate, therefore, is not taken as a direct objective of policy or as an indicator of economic performance. And, partially as a consequence, fewer resources are devoted to estimating it, with the result that it is not

as accurately measured as the unemployment rate. In the first paper of this volume, Olivier Jean Blanchard and Peter Diamond develop an explicitly dynamic model of the labor market in which the vacancy rate has fully as large a role as the unemployment rate.

A salient feature of the U.S. labor market is the huge flow of workers into and out of jobs each month. In the aggregate, the labor market is highly efficient in matching workers and jobs. Yet large numbers of unemployed workers coexist with large numbers of unfilled jobs at any time. Blanchard and Diamond develop a model that accommodates these broad facts as well as many other characteristics of the labor market. In their model, a crucial relationship is a matching function through which the unemployment rate and vacancy rate determine the flow of new hires. If jobs are being created and destroyed at a steady rate and the labor force is constant, their model generates a steady level of unemployment and vacancies determined by the efficiency of this matching process.

Blanchard and Diamond focus on two main types of shocks that alter these steady-state levels of unemployment and vacancies. The first, changes in aggregate activity, leads to changes in unemployment and vacancies in opposite directions. Such changes thus trace out the Beveridge curve that is familiar from the earliest discussion of job vacancies. Because adjustments are not instantaneous, the changes trace out counterclockwise movements around the Beveridge curve in the process of adjustment. The second type of shock the authors consider is changes in the intensity with which jobs are reallocated among workers—the efficiency of the matching process. Shocks to this process lead to changes in unemployment and vacancies in the same direction.

Armed with this theoretical model, Blanchard and Diamond fit their model empirically to identify the relative importance of these two types of shocks as well as other characteristics of labor market dynamics. To do so, they assemble data from various sources. For unemployment, the official aggregate data are used. Vacancies are proxied by the Conference Board's help-wanted series using adjustments developed by Katharine Abraham (*BPEA*, 1:1987). Finally, new hires are constructed as the sum of several estimated components: gross flows into employment from unemployment and from out of the labor force, plus the flow of workers from employment in one job to employment in another, less the flow of workers who are recalled rather than newly hired. The gross flows into

employment are available monthly from the *Current Population Survey*, and the authors use the adjustments to the data developed by John Abowd and Arnold Zellner that correct for spurious transitions in the raw data. Job-to-job transitions are estimated by applying the quit rate for manufacturing to the whole economy and using the estimate of George Akerlof, Andrew Rose, and Janet Yellen (*BPEA*, 2:1988) that 40 percent of all quits move workers directly from one job to another. Data are available for manufacturing recalls, and aggregate recalls are assumed to equal 1.5 times recalls in manufacturing. All the needed data are available only from 1968, when the gross flow data start, through 1981, after which the quit rate series was discontinued.

The authors' empirical results support several broad conclusions. Their estimates of the matching function indicate that both unemployment and vacancies are independently important in explaining hiring. In a steady state the average duration of vacancies depends positively on the vacancy-unemployment ratio; according to their estimates it should have varied between two weeks and four weeks over the sample period. The results also suggest there may be slightly increasing returns to scale in the matching function. Increasing returns would imply that the more active or "thick" markets are, the more readily they match job vacancies with job seekers. Furthermore, the authors find little difference between the short-term (less than 27 weeks) and the long-term unemployed in their impact on hiring, and find that workers characterized as out of the labor force but wanting a job also have an impact on hiring, though it is smaller than the impact of workers listed as unemployed. They find clear evidence of an unexplained trend in the Beveridge curve over most of this period, with both vacancies and unemployment rising, and also evidence that this trend has reversed since 1984.

Blanchard and Diamond use their model to analyze labor market developments over most of the postwar period. They do this by a statistical allocation of the observed movements in vacancies and unemployment to three types of shocks: those associated with aggregate activity, with reallocation, and with the labor force. Their technique uses a vector autoregression that describes the labor force, unemployment, and vacancies as functions of their lagged values and of three series of innovations—the monthly movements that cannot be predicted from these lagged values. By making strong identifying restrictions on the distributions of these innovations, the authors can relate the observed

movements in the labor force, unemployment, and vacancies to particular kinds of shocks. The characterization of the postwar period that emerges is consistent with much of the authors' a priori reasoning about their model. Changes in the labor force and reallocation intensity—the efficiency of the matching function—have long-lasting effects on unemployment and vacancies. By contrast, the effects of aggregate activity peak in less than a year and are all but gone after three years. Yet, though any one activity shock has very little long-run effect, activity shocks dominate the postwar movements in both unemployment and vacancies. In a planned sequel to the present paper, the authors will extend their analysis to relate their model of labor market dynamics to wage and price inflation.

DURING THE 1980s fiscal policy in the United States was immobilized by ideological conflict over the size of government and unavailable as a countercyclical tool for stabilizing the economy. As a consequence, monetary policy had to bear the entire burden of keeping the economy on track. To the credit of the Federal Reserve, the performance of the economy in the past six years has, in fact, been quite good. Few today doubt the power of monetary policy to affect aggregate demand, and financial markets have been highly volatile and sensitive to every rumor of potential change in monetary policy. In the second paper of this issue, Barry Bosworth examines how the channels by which monetary policy influences real activity have changed during recent years and considers whether exclusive reliance on monetary policy for stabilization is likely to reduce its effectiveness over time or become costly in other ways as financial arrangements and institutions adapt to this new policy environment.

Bosworth focuses his attention on the three most important channels by which monetary policy affects the economy—households' demand for housing and consumption, business investment, and, through the exchange rate, the trade balance. Because conventional econometric models have to be estimated from a long period of data, they cannot be expected to capture changes during the 1980s, let alone predict future structural change. Therefore, rather than relying on such models, Bosworth's analysis is often indirect and speculative, inferring changes in the economy's behavior from evidence on the nature of financial contracts and the behavior of institutions and markets.

Traditionally the effect of interest rates on residential construction has been regarded as one of the most important ways in which monetary policy affects economic activity. Bosworth argues that recent developments are likely to have changed this mechanism, weakening it on balance. First, the growth of mortgage-backed securities and the removal of restrictions on rate competition by mortgage-lending institutions should have largely eliminated the quantity rationing of mortgage loans that has historically been regarded as constraining housing demand. Interest rates must therefore assume a larger role in regulating housing demand. Second, the development of adjustable rate mortgages has probably reduced the response of housing to rate increases. Such mortgages reduce the incentive to postpone borrowing when rates are high because future rate reductions will be realized on outstanding mortgages. However, Bosworth notes that it is important not to exaggerate this effect; three-quarters of adjustable rate mortgages limit the change in rate to 2 percentage points a year and frequently these mortgages are issued with a sizable initial discount. In 1988, for example, market rates would have had to fall more than 3 percentage points under a typical contract to trigger any reduction in the adjustable rate. While adjustable rate mortgages may dampen the response of home building to monetary policy, the variability in interest payments on the outstanding stock of adjustable mortgages could, in principle, significantly affect household expenditures. Bosworth estimates the upper limit of such an increase in interest payments, however, to be on the order of \$10 billion a year; even if mortgage holders reduced their spending by this full amount, it would come to only 0.6 percent of consumption.

Bosworth also considers the effect of the reduced deductibility of consumer interest payments that resulted from the 1986 tax revision. Because after-tax interest costs will vary more with reduced deductibility, he believes that the response of consumer spending to a given change in before-tax interest will increase; alternatively, the higher average after-tax interest rate could reduce the average level of borrowing, thereby reducing the response of spending to interest rate changes.

Many of the structural changes that Bosworth considers were just being phased in during the last period of severe monetary restraint in 1979–81. Because there have been no tight money episodes in more recent years, when these structural changes were largely complete, U.S. experience offers little evidence for judging their quantitative impor-

tance. Bosworth thus examines the experience of Canada, where adjustable rate mortgages have long been common and interest payments on mortgages and consumer debt have not been tax deductible. Fluctuations in residential construction are in fact substantially smaller in Canada than in the United States, bearing out his expectations. Despite similar movements in market interest rates in the two countries during the early 1980s, residential construction fell less than half as much in Canada as in the United States, a difference that is supported by regressions explaining construction in which the coefficients on interest rates for Canada are less than half those for the United States. Bosworth's belief that reduced tax deductibility of interest payments would increase the sensitivity of other types of U.S. consumer expenditure to rate changes gets some weak empirical support from the fact that regressions explaining Canadian household saving show sensitivity to interest rate changes, while regressions explaining U.S. saving show none.

In theory, monetary policy, working through its effect on the cost of capital, should have an important effect on business investment. Empirical studies, however, have had difficulty establishing an unambiguous and substantial effect. One possible reason is that real interest rates have not varied substantially during most of the postwar period. During the 1980s, however, real rates have risen substantially, raising the possibility that their predicted effects may be more visible. Bosworth finds that the cost of capital, after adjusting for expected inflation and taxes, has averaged about 50 percent more this decade than during the 1970s, reaching more than 8.5 percent in 1988. Hence, theory would predict the 1980s to be a period of weak investment. Agreeing on the facts with which to confront this prediction of theory is difficult. The share of gross investment in GNP has been well above its 1970s value, while the share of net investment has fallen to less than half the level of the late 1970s. Bosworth shows that this divergence results from the increased expenditures on office computers and the way those expenditures are adjusted for price changes in the national accounts. Expenditures on other producers' durable equipment have fallen dramatically, and the rate of accumulation of all forms of capital except computers has declined rather steadily during the 1980s, in accord with theoretical prediction. Thus, theory can be regarded as supported if computer investment can be taken as exogenous.

Although some domestic responses to monetary policy may have

weakened or become less certain, Bosworth notes that the expansion of international capital markets during the past decade may have strengthened the foreign trade response of the economy to monetary policy. Empirically, the exchange rate appears highly responsive to interest rates, and a dollar appreciation should reduce U.S. demand both by reducing exports and by raising imports, while simultaneously putting downward pressure on the domestic price level. But while the size of such effects is important, Bosworth notes that their timing in response to monetary policy is uncertain and somewhat delayed. Added to this uncertainty about time lags is uncertainty about whether domestic policy changes will induce policy responses by foreign central banks. Taken together, the structural changes in the response of domestic demand and the increased importance of foreign channels of response are likely both to delay the impact of monetary policy and to increase the uncertainty about that impact.

Bosworth draws several policy implications from these findings. He argues that the greater delay in the response of the economy to policy makes the Federal Reserve less able to respond in a timely fashion to disturbances. Even if it knew precisely the size and the timing of the response that its action would bring, the Federal Reserve would need to forecast further ahead to compensate for greater lags in the economy's response. The greater uncertainty about how the economy responds adds to the Federal Reserve's problem. Greater delay and greater uncertainty both suggest the Federal Reserve should be less active in its attempts to stabilize. The reduced short-run response of housing implies that interest rates will need to vary more than they have in the past to achieve the same degree of stabilization. Although some changes in financial markets and contracts reduce the cost to households of increased interest variability, the increased exposure of highly levered firms could lead to major bankruptcies that would disrupt financial markets. Furthermore, increased exchange rate variations may lead to increased variation in the performance of industries exposed to foreign trade. Bosworth concludes that the loss of fiscal policy as a tool available for stabilization has been costly and that regaining that tool should be a high priority.

THE NEARLY SIMULTANEOUS collapse of the world's major stock markets in October 1987 dramatically called attention to how vulnerable and

interdependent those markets can be. In the third paper of this issue, George M. von Furstenberg and Bang Nam Jeon analyze the short-term correlations in stock price movements among four major markets—New York, Tokyo, Frankfurt, and London—how those links may have changed since the crash, and the extent to which they can be explained by the global nature of economic shocks.

Von Furstenberg and Jeon assume that stock prices at any time embody whatever fundamental information is known to market participants. News that occurs when one market is open is assumed to affect that market's prices immediately and to affect in turn the prices in markets that open subsequently. If all news had the same significance for stock prices in different markets, one would expect to see its impact transmitted fully—that is, with an elasticity on stock price changes of 1.0—from one market to the next. However, the authors recognize that most news will not have a comparable effect on all markets. Some news will, by its nature, be important only to domestic stocks. Other news may be global in reach but could have quantitatively different, and even opposite, effects on markets in different countries. For example, a shock to world oil prices could be good for markets of net oil producers and bad for markets of net oil consumers. Similarly, a shock to exchange rates would make one country's tradable goods more competitive at the expense of another's. Von Furstenberg and Jeon also recognize that much of the movement in stock prices may not be identifiable with news about fundamentals at all. They do not rule out the possibility that stock prices in different markets may react through pure contagion effects, correlating with each other without regard to fundamentals.

Von Furstenberg and Jeon first present some statistical characterizations of daily stock price movements in their major markets. The period they analyze extends from January 6, 1986, to November 25, 1988, with the days surrounding the crash, October 13 to October 22, 1987, omitted to prevent extreme observations from dominating the results. They show that although the average returns on stocks in the 13 months after the crash were lower in all markets than they had been in the precrash period, the variance of stock prices and returns was larger in all markets except Tokyo.

When von Furstenberg and Jeon relate daily stock price changes in one market to the changes in the markets that had closed earlier in that 24-hour period, they get two persistent results. First, changes in stock

price movements as measured by broad market indexes are positively correlated between markets both before and after the crash. Second, the correlations are much stronger and more significant in the postcrash period, when stock price changes in three of the four markets have estimated elasticities between 0.28 and 0.42 on the stock price changes in the fourth market. After the crash, 27 percent of the daily stock price variation in a given market is explained by the preceding variation in the other markets, compared with only 3 percent explained before the crash. The authors show that the results found with daily data largely carry over to weekly data. Correlations of weekly price changes between countries are substantial and are higher postcrash than precrash.

The simple correlations among the prices in different markets ignore the possibility that “news” is likely to be multidimensional. News of changes in global interest rates, for example, might be expected to change all markets in the same direction and by roughly similar proportions, whereas news about changes in a particular country’s growth in output might have much more significance for the earnings of domestic firms and, hence, the value of their shares. To take account of such possibilities, von Furstenberg and Jeon use two statistical procedures. First, they do a principal components analysis of the daily rates of change in stock prices, effectively allocating the variance of the four markets among four orthogonal factors. They find that the most important component appears to reflect events affecting all markets in the same direction; indeed, the factor loadings on the separate markets were remarkably similar. The first factor explains approximately 34 percent of the collective variance before the crash and about 55 percent after the crash. The other factors show quite different effects in different countries, the effects not even having the same sign.

In a second effort to refine their basic correlation analysis, the authors estimate a vector autoregression in which changes in each market are related to changes in markets that were open earlier and to lagged values of its own changes. The residuals estimated from this equation system, each orthogonal to all the variables included in its own equation, can be interpreted as news “innovations.” The effect of an innovation can then be traced through the system as it affects prices in subsequent markets. The results of this analysis are roughly consistent with the results for the simpler analysis. After the crash, markets generally show greater one-day sensitivity to innovations in other markets; interestingly, the sensi-

tivity to U.S. innovations changed the least, perhaps because it was already relatively high. When the time interval is extended to three days following a disturbance, markets again generally show increased responsiveness after the crash, with responsiveness to events in London increasing the most. The authors attribute much of this apparent structural change to the expansion and increased internationalization of the London market in recent years.

Von Furstenberg and Jeon are unable to find significant relations between stock price changes and variables that they believe might represent changes in fundamentals: exchange rates, interest rates, and oil and gold prices. They also disaggregate stock indexes to the industry level and correlate stocks in common industries across countries. However, they find few significant connections and conclude that the major stock indexes are connected at the level of aggregate national indexes rather than at the level of common industries. From this, they infer that “stock prices are swayed mostly by changing views on the prospects of stocks in general relative to other financial and real assets . . . and not by changes in views about the quality of the underlying assets or future earnings that one would expect to be more industry specific.”

THE LOW LEVEL OF UNEMPLOYMENT and high level of industrial capacity utilization in recent quarters in the United States have revived questions about whether tight capacity would constrain output growth and increase inflation. The Federal Reserve Open Market Committee has debated whether tighter monetary policy is appropriate, and economic analysts have begun to wonder whether a cyclical downturn is in store. In the fourth paper of this volume, Matthew D. Shapiro examines the Federal Reserve's measures of capacity utilization in manufacturing industries and asks whether high levels of utilization indicate a limit to expansion and a worsening trade-off between output and inflation.

Shapiro first discusses the conceptual and empirical issues related to the Federal Reserve's measure of utilization—the ratio of production to capacity. While production is relatively straightforward to define and measure, capacity is more elusive and the Federal Reserve is not precise about the concept that underlies its measure. A conceptually clear but somewhat artificial definition of capacity is the technological limit to

output assuming that some factors of production, primarily capital, are fixed in the short run. If the elasticity of substitution between fixed and variable factors is extremely low, the quantity of fixed capital would place a limit on output, and capacity would be well defined. Capacity limits are less well defined if some substitution is possible and the quantity of factors is not literally fixed. In this case, economic considerations are bound to enter into the notion of capacity, with output limited by cost and profitability considerations at sufficiently high operating rates. Capacity will not be sharply defined, but will still have economic consequences.

The Federal Reserve's measures of capacity are based in part on the responses of firms to questions about their capacity utilization in surveys by McGraw-Hill and the Census Bureau. Shapiro notes that the questions in the McGraw-Hill survey almost surely prompt answers that reflect an economic calculation and not simply a technological limit, while the questions in the Census survey are more likely to evoke answers that represent physical limits on output.

Shapiro reviews in some detail the method the Federal Reserve uses to generate its estimates of capacity, both for aggregate manufacturing and for two- and three-digit manufacturing industries. In addition to survey information, the method makes use of direct evidence on capacity where it is available and statistical analysis using estimates of the capital stock. Shapiro notes that the Federal Reserve seasonally adjusts capacity by implicitly assuming that it has the same seasonal pattern as production and that the seasonal peak is not sustainable throughout the year—clearly appropriate for an economic rather than a technological notion of capacity. The Federal Reserve further adjusts estimated capacity to ensure that production does not exceed capacity except in rare instances.

Shapiro argues that the elusiveness of the concept of capacity, the ambiguities inherent in surveys, and the complicated adjustment procedures used by the Federal Reserve, which are in part judgmental, make it difficult to know how to interpret the final estimates of capacity for many industries. The published capacity utilization numbers have the added difficulty that for many industries actual production figures are not available. Only some 40 percent of the data in the total production index are actual production, the rest being estimated from electricity usage and production worker hours. Although these problems are

unavoidable in estimating utilization for total manufacturing, they lead Shapiro to focus his inquiry on industries where production is estimated primarily from output data.

Because capacity is assumed by the Federal Reserve to change smoothly over the year (monthly capacity estimates are simple interpolations between year ends), variations in utilization within a single year are essentially variations in production. Over longer time periods, however, capacity changes relative to trend. In his sample of 10 industries, Shapiro finds that capacity utilization was high by 1988 compared with utilization in the early years of the decade, but, except in the aluminum and chemicals industries, not high compared with peaks reached at other times in the 1967–88 sample period. In many industries, the rise in utilization rates after the 1982 recession was as much or more a reflection of decreases in capacity as of increases in output. Reductions in capacity during this period of slack were particularly large in iron and steel, petroleum, and aluminum.

Moving to his analysis of whether tight capacity limits output, Shapiro examines the distribution of production changes at high and low levels of capacity utilization. He reasons that when output is constrained, the distribution of output changes should be skewed to the left and have a slightly lower mean than when it is unconstrained; output can fall but cannot increase at a rate exceeding the relatively stable change in capacity. The variance of changes should also be smaller with output near capacity, since shocks to demand will be absorbed through changing backlogs and inventories instead of changes in production. It is hard to test these expectations, since output is seldom near estimated capacity. There are only a few observations in most industries with the utilization rate above 95 percent. Nonetheless, Shapiro tests for these effects in a variety of ways. He compares the first three moments of output surprises when utilization is high with the moments when utilization is low by directly examining smoothed histograms of the change in output at high and low levels of utilization and by attempting to explain statistically the change in output with the level of utilization, controlling for lagged values of changes themselves. Results are mixed. For six of nine industries and for total manufacturing, the variance of output changes is significantly lower at high levels of utilization than it is at low levels—defined as the top and bottom 10 percentiles of utilization rates. On the other hand, differences in skewness are never significant, and the mean

is significantly lower at high levels only for aerospace and for total manufacturing when the sample extends back to 1950.

Predicting vendor performance and unfilled orders are two further tests that Shapiro uses to see whether the Federal Reserve's measures of capacity indicate physical limits on production. He finds contemporaneous changes in capacity utilization help explain changes in delivery lags—the variable known as vendor performance. Results are less clear for predicting unfilled orders. Although the sum of current and lagged coefficients on capacity utilization is positive and significant, the current coefficient has a negative sign.

Shapiro goes on to examine whether the capacity utilization measures are useful in predicting investment and price performance. High utilization of capacity suggests a high shadow price on capacity that should stimulate investment. Shapiro examines this proposition by regressing the investment rate on lagged values of both output relative to capital and output relative to capacity—the utilization rate. At the aggregate level, the coefficient on capacity utilization is positive and significant, whereas production relative to capital has an insignificant and incorrect sign. At the industry level, however, capacity is badly outperformed by the capital stock. The coefficient on output relative to capital is uniformly of the right sign and sometimes significant, while, when entered with it, utilization has the wrong sign for all industries but chemicals. Thus, the regressions support the idea that some measure of capital or capacity relative to output helps explain investment, but raise doubts about whether the Federal Reserve's capacity measures are the best for this purpose.

Not only would a high shadow price of capital associated with high utilization be expected to affect investment, it might well be expected to place pressure on price-wage margins. As a final test of the informational value of utilization, Shapiro estimates a vector autoregression in the growth of prices, growth of wages, and the capacity utilization rate. Given the parameter estimates, he then traces the impact of a shock to the utilization rate on prices and wages. Utilization has only a small, statistically insignificant, positive effect on price-wage margins after four quarters in total manufacturing and in all but one of the industries. For motor vehicles the effects are significant, but negative, suggesting that economies of scale dominate any increase in the shadow price of capital. Utilization has a positive effect on prices in total manufacturing

and in four of the five industries. Three of these effects are statistically significant. Taken together, the results for price-wage margins and for prices alone suggest that the pressures on wages associated with periods of high utilization are the dominant factor behind the price increases.

Shapiro draws several inferences from these assorted results. He believes that estimates of capacity do not represent well-defined limits to production. Nor are exogenous shocks to capacity a satisfactory explanation of output changes since prices are not negatively correlated with output. It appears that supply is highly elastic even when the economy is operating at comparatively high levels of utilization. Shapiro's policy conclusion is that the Federal Reserve should not regard high measured utilization per se as a signal to tighten monetary policy.

CONVINCED that the U.S. thrift industry was in desperate straits, many economists and financial analysts have for some time urged the administration and Congress to take action. Finally, early in 1989, a new administration proposed a comprehensive plan for ridding the financial system of at least 700 insolvent thrifts and reforming the regulatory system that had failed to prevent the collapse. In the next few months Congress crafted legislation with most features of the administration's proposal intact. In the first report of this issue, R. Dan Brumbaugh, Jr., Andrew S. Carron, and Robert E. Litan scrutinize not only the thrift industry, but the banking industry as well, showing why some of the same concerns apply to both. They evaluate the adequacy of the administration's plan for the thrifts and provide their own views on the fundamental reforms of the deposit insurance and regulatory systems needed to prevent another such crisis either among banks or among thrifts.

The authors believe that drastic action on the thrift problem should have been taken sooner, and indeed Brumbaugh and Carron argued for stringent reforms in *BPEA*, 2:1987. At that time, they showed that fully one-third of the nation's thrifts then in business were insolvent or nearly so. Failing thrifts clearly had incentives to "bet the bank" every day, since losses would be borne almost exclusively by the deposit insurers and gains would accrue to owners. Allowing these thrifts to remain open, they argued, would make things only worse and increase the eventual cost of restoring the industry to health. They suggested quickly closing or merging the troubled thrifts and subjecting the rest of the industry to

stiff capital requirements. At the time, the cost of closing insolvent thrifts would have been \$22 billion.

Events have borne out these early warnings. During 1988 regulatory authorities provided \$38.6 billion to remove 205 institutions from the system and assist 17 additional failed institutions that were allowed to remain open. Notwithstanding, the industry has deteriorated further. The authors estimate that at the end of 1988, 80 percent of the industry's assets (\$1.07 billion out of \$1.35 billion) were managed by institutions whose tangible capital was less than 3 percent of their liabilities, less than half the minimum standard for banks.

In principle, the cost of removing all insolvent institutions from the financial system is the sum of their (negative) net worth, measured by the difference between the market value of their assets and liabilities. In practice, determining those market values institution by institution is extremely difficult. Instead, the authors take the loss rates from completed liquidations or mergers and apply them to the assets of currently failed or failing thrifts. They note that these historical loss rates are far larger than those implied by the negative capital-to-asset ratios for these same thrifts, primarily because many assets on these institutions' books were not written down to reflect market prices. The authors estimate the aggregate losses for three different assumptions about the loss rate: the actual rate in 1987 and rates 5 percent above or below that number. They also allow for some insolvencies, though with lower cost ratios, among the 390 thrifts that have capital ratios below 3 percent at year end 1988. Taking into account the FSLIC estimates of the cost of outstanding guarantees of thrifts merged, liquidated, or otherwise assisted in 1988, they estimate a total present-value cleanup cost between \$100 billion and \$150 billion. The administration's estimate is \$110 billion.

Banks, say the authors, could end up in similar shape. As in the case of thrifts, accounting techniques hide substantial market value losses on banks' assets, making realistic estimates of many banks' capital ratios much lower than the accounting figures. The authors fear that with many banks only weakly capitalized, a major recession could hit the banking industry with losses rivaling those of the thrift industry. Just as the FSLIC reacted too slowly to the thrifts' problems, the FDIC is being too lenient in enforcing bank capital requirements and is even allowing troubled banks to maintain dividends by reducing stockholders' equity. The authors estimate that, by late 1988, nearly one-third of all bank

assets were being managed by institutions with market value capital ratios below 6 percent—a ratio many economists consider the minimum for a well-capitalized bank. Roughly \$700 billion of these assets were held in 13 of the 15 largest banks, banks that are especially vulnerable to further losses from LDC loans that have not been adequately reserved against. Worst of all, the deterioration of banks' capital positions has come during the longest peacetime expansion in the nation's history.

The authors provide a detailed analysis of the administration's proposal for dealing with the thrift industry and strongly support a number of its features, including both tougher penalties for violating regulations and additional funding to the Justice Department for prosecution of criminal behavior, which together should deter some of the flagrant irresponsibility that has been evident in recent years.

But the authors doubt that the thrift legislation does enough to assure against another such crisis. They discuss a variety of proposals to reduce the incentives for risk taking that arise with deposit insurance and to make the industry less vulnerable to financial shocks. To reduce excessive risk taking, they argue that shareholders should put more of their own capital at risk and that new, more stringent capital requirements should be more strictly enforced. Noncompliance should result in explicit penalties, including prohibition of dividend payments by noncomplying thrifts; regulators should be required to assume control of institutions prior to insolvency; and regulations should move toward market value accounting so as to promptly reflect deteriorating positions of banks. For failing to include such reforms, the authors view the present thrift legislation as woefully inadequate.

Although changes in deposit insurance limits and pricing may be desirable on their merits, the authors do not think such changes will deter excessive risk taking. Proposals to concentrate a thrift's assets more in residential mortgages or mortgage-backed securities, they say, are also misguided, because the diversification of investments is not the cause of the thrifts' problems. Indeed, greater concentration in mortgages could lead to more of the interest rate bets that caused problems for the thrifts in the early 1980s. Rather than attempting to define a narrower role for thrifts, the authors conclude that policymakers should be searching for ways to phase out the asset-based distinctions between thrifts and banks. And they see sound capital regulation and early

intervention by regulators as the best protection for insurance agencies and taxpayers.

THE DOLLAR'S EXCHANGE RATE has undergone fluctuations of historic proportions during this decade, appreciating sharply into early 1985 and then depreciating back, against most major currencies, to its levels at the start of the decade. The significance of these fluctuations for the U.S. trade balance depends crucially on the extent to which they are reflected in the price of exports and imports, thereby providing incentives for substitution between imported and domestically produced goods. In the final report of this issue, Peter Hooper and Catherine L. Mann investigate both how much and how quickly changes in the exchange rate affect U.S. import prices of manufactured goods.

The authors present a model that allows foreign firms some degree of control over their prices in the U.S. market as a result of product differentiation or other market imperfections. Their U.S. prices are modeled as a markup over their costs, where the markup can vary in response to demand pressure and competition in the U.S. market and where costs are themselves affected by exchange rates. The authors define the exchange rate pass-through as the ratio of the change in import price to the change in the exchange rate when the other factors affecting prices are held fixed. If pass-through is complete, the foreign producers' markups and profit margins are unaffected by exchange rates. If pass-through is less than complete, foreign markups and profit margins decline when the dollar depreciates.

Hooper and Mann estimate this model using carefully constructed data on import prices, foreign costs, and demand. For import prices, they use a fixed-weighted (1982 import shares) average of import prices for broad categories of goods. This index gives a relatively low weight to computers, whose price declines have dominated the widely used implicit price deflator for imports. They allow separately for initial and lagged effects from the exchange rate and foreign cost variables, and employ a variety of estimation techniques and specifications. Their main findings are robust to these variations. In all estimates, the short-run elasticity of import prices to the exchange rate is about 20 percent. Estimates of the long-run elasticity range from 46 percent to 74 percent, with most between 50 percent and 60 percent. The authors test for lags

up to 12 quarters, but conclude that the adjustment of import prices to exchange rates is completed in only 5 to 7 quarters. Thus by mid-1989, U.S. import prices of manufacturers have fully adjusted to the dollar depreciation that reached its low point at the end of 1987. They also find little evidence of any change in the pass-through equation over the past decade.

Hooper and Mann estimate equations for U.S. imports from Japan that parallel their equations for total imports. Interestingly, while they again find pass-through far from complete, they find it as high or higher for Japanese imports as for total imports. They infer that, if Japanese firms adjust their prices to the U.S. market, they are not alone among foreign suppliers in doing so.

Partial pass-through implies that profit margins fluctuate with exchange rates. The authors estimate that, as of mid-1988, profit margins on both Japanese and aggregate foreign exports to the United States had fallen from abnormally high levels achieved in the mid-1980s; but margins were still at or above their levels in the period before the dollar appreciated so sharply. Thus, margins have not been squeezed to unsustainably low levels by the decline in the dollar, and there is no reason to expect further price movements in the absence of further movements in the exchange rate.