Editors' Summary

THIS ISSUE OF *Brookings Papers on Economic Activity* contains papers and discussions presented at the thirty-eighth conference of the Brookings Panel on Economic Activity, which was held in Washington, D.C., on September 13 and 14, 1984. Four major articles cover the causes of high interest rates, the Latin American debt crisis, bank deregulation and policy effectiveness, and a formal model of stock prices. Two shorter reports examine the effect of the exchange rate on the U.S. price level and why unemployment fell so fast in the recovery.

IN THE PAST several years, real interest rates have reached historic levels in the United States. From 1981 through the middle of 1984, short-term rates on government debt averaged nearly 6 percentage points more than the rate of inflation, compared with an average of only 1.5 points more in the previous fifteen years. It appears that real interest rates have been comparably high for long-term debt, although the inflation rate expected over the lifetime of bonds can be estimated only crudely. In the first article of this issue, Olivier J. Blanchard and Lawrence H. Summers examine why real interest rates have been so high.

As the authors note, the surge in real interest rates has not lacked for possible explanations. These include large current and prospective budget deficits, tight money, improved prospects for profits and investment, financial deregulation, and increased uncertainty. In order to discriminate among these potential explanations, Blanchard and Summers examine developments around the world as well as in the United States and look at the performance of stock markets and exchange rates as well as markets for bonds and short-term debt. All the potential explanations would raise real interest rates. But reduced saving would

have an uncertain effect on stock prices and tight money would unambiguously lower them. Enhanced profitability would raise both real interest rates and stock prices but have an uncertain effect on exchange rates. Only tight money in the United States would produce a strong increase in the U.S. exchange rate.

Turning to the facts, Blanchard and Summers start with a detailed analysis of budget deficits here and in five other major industrial countries—France, Italy, Japan, the United Kingdom, and West Germany. As their main measure of government saving or dissaving they calculate the deficit of all levels of government adjusted for the state of the business cycle and for the rate of inflation. The first adjustment converts actual budgets to the familiar structural budget concept. The second subtracts from interest payments on the debt an amount that corresponds to the reduction in the real value of the debt that results from inflation. With these adjustments, the U.S. budget moves toward deficit by 2.7 percent of gross national product between 1978–79 and 1984–85. However, deficits aggregated over the other five industrial countries give a very different picture of government dissaving over this interval. Because fiscal policies have tightened since the late 1970s in other industrial countries, the adjusted surplus as a percent of GNP for the weighted sum of the six national budgets shows little change.

Blanchard and Summers point out that the effects of government deficits on total demand and interest rates depend in important ways on expectations about future deficits. The response of consumers may depend on whether they expect taxes to be raised in the future, and the response of bond markets will depend on the net effect on future saving from those consumption decisions and from the size of future deficits themselves. Unfortunately, these ideas are hard to test empirically. The authors do provide a model that incorporates some forward-looking consumer behavior and a DRI (Data Resources, Inc.) forecast of future U.S. deficits that assumes policy changes are made that will reduce the U.S. deficit in future years. For the five other countries, they construct future deficits based on the assumption of no change in structural deficits. Their resulting aggregate fiscal index for the industrial countries supports the conclusion of little change in fiscal thrust that they derived from the adjusted actual deficits.

Although worldwide government deficits, properly adjusted, provide no evidence of an important reduction in worldwide saving, the verdict

is less clear when Blanchard and Summers consider the OPEC surplus as an additional form of world saving. Between 1980 and 1985 the OPEC nations will have moved toward deficit by 2.0 percent of the six industrial countries' GNP. However, the authors believe that much of this decline in OPEC saving may have been anticipated, and hence it would not account for the behavior of long-term real interest rates.

Blanchard and Summers review the performance of stock prices around the world for evidence on whether improved prospects for profits would be a cause of high real interest rates. In most countries, the historic collapse of real stock prices in 1973–74 was followed by uneven performance, with notable stock market declines in 1981 preceding major rallies starting when nominal interest rates fell in the summer of 1982. As this sketch suggests, the performance of stock prices to date can be characterized as either strong or weak, depending on when one starts measuring it. The authors reduce this ambiguity by calculating how stock prices should have moved since 1978 on the assumption that investors arbitrage so as to equalize expected returns from bonds and stocks after allowing for traditional risk differences. Specifically, they calculate that if real stock prices were appropriate in 1978, before the second OPEC oil crisis, and if the risk premium and the expected growth in dividends were no different in 1984:2 than in 1978, the Dow-Jones industrial stock price index would have been at 555 instead of 1200 in 1984:2. They reason that the expected growth in dividends must be much greater today than it had been in 1978, implying a strong improvement in expected profitability. This improvement, they conclude, is one source of upward pressure on interest rates today.

One possible source of improved profitability in the United States is the reduction in business taxes that occurred in 1981. However, the authors cite Alan J. Auerbach's estimate (*BPEA, 2:1983*) that this has raised after-tax returns by less than 1 percentage point, which in turn should have raised real interest rates by substantially less than that. Other possible sources of improved profitability, whose importance they do not attempt to quantify, include lower real wages and oil prices and reduced uncertainty about future growth. The authors find indirect evidence of good profit prospects in the recent strength of business investment. They show that investment since 1983 has exceeded predictions from cyclical equations in most countries and particularly in the United States.

Blanchard and Summers reason that tight money was the major factor raising real interest rates through 1982. The role of monetary policy in raising short-term rates in this period is unquestioned. Although historically estimated term-structure equations failed to predict the extent of the rise in long-term rates that occurred in this period, the authors note that the Federal Reserve's shift to monetary targeting in the fall of 1979 corresponded to a change in the policy regime that would invalidate past relations. The new policy could be seen as raising the level of rates for a long period, instead of just cyclically, and as increasing the volatility of rates and therefore the price risk in bonds.

The authors offer two explanations that stress the interaction of monetary and fiscal policies in explaining the continuing high level of real long-term rates since 1982. The first explanation underscores the divergence between fiscal policies in the United States and elsewhere. In the absence of tight monetary policies, this divergence would raise U.S. interest rates, lower them elsewhere, and thus appreciate the dollar sharply. To avoid too sharp a depreciation of their currencies, foreign governments respond with tight money themselves. Thus developments since 1982, at least in short-term interest rates, are understood as the result of "loose U.S. fiscal policy, tight European monetary policy." The second explanation, described as "loose U.S. fiscal policy, tight anticipated U.S. monetary policy," sees continuing large deficits in the United States leading to the expectation that higher interest rates will be required as full employment approaches. With other nations resisting continued depreciation of their currencies, they too are expected to raise interest rates. Together these explanations link high long-term and short-term real rates to actual and prospective U.S. budget deficits. But unlike explanations resting on worldwide deficits alone, which the authors find factually questionable, these explanations show why U.S. deficits together with exchange rate concerns can force tight monetary policies on the world, both now and in the expected future, thus producing high real interest rates at all maturities and weak European recoveries even without substantial worldwide deficits.

Blanchard and Summers examine the theory and evidence for ascribing high real interest rates to portfolio strategies aimed at reducing risk. Although a large increase in the supply of government bonds could, in principle, force a substantial increase in their yield relative to the returns on stocks, they show that the change actually anticipated in the relative

supplies of bonds and stocks is not large enough to have an important effect on portfolios. Similarly, they suggest that the increase in the price variability of bonds that comes from the greater variablity in short-term rates exaggerates the relative riskiness to bondholders. That variability in price ignores the fact that long-term bonds allow portfolio holders to avoid the variability in yield that is associated with the rolling over of short-term securities. In general they note that empirical evidence on portfolio behavior is inconclusive and are reluctant to accept it as an important explanation for high long-term rates.

The authors conclude with a mixed verdict about the causes of high real interest rates. They regard tight money as the initial cause; and they regard the present and prospective U.S. deficits together with a reluctance to accept continuing currency depreciation in other countries as a cause of continuing tight money and high real long-term rates. This leads them to conclude that interest rates would decline if either Europe accepted further currency depreciation, or the U.S. deficit was cut, or the U.S. recovery weakened so that U.S. monetary policy was not anticipated to remain tight. They regard an improvement in profitability as a further plausible explanation for high rates and suggest that real interest rates would remain relatively high because of it even if other probable causes were eliminated.

IN THE EARLY 1980s a debt crisis developed in Latin America that devastated the economies of the region and shook the major banks of the world. The crisis is far from over and its consequences may be felt for the indefinite future. In the second article of this issue, Carlos F. Diaz-Alejandro analyzes the economic and financial developments surrounding this episode and the policy responses to it. He examines evidence from six Latin American countries, Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela, noting that the six differ in many significant ways. Some are oil importers and some are oil exporters; before the crisis they relied on external borrowing to very different degrees; their policies ranged from decidedly interventionist to militantly laissez faire; and their growth records in the years preceding the crisis differed widely. Diaz-Alejandro looks for what happened in common to all these countries to turn "what could have been a serious but manageable recession . . . into a major development crisis unprecedented since the early 1930s."

Examining performance in 1973–80, the years preceding the crisis, Diaz-Alejandro finds that compared with earlier periods, the economies of Brazil, Colombia, Mexico, and Venezuela were expanding faster and that the purchasing power of exports had risen more in four out of the six countries. All except Colombia and Mexico had diversified their exports geographically away from advanced industrial nations. Perhaps most important, debt indicators as of 1980 were not alarming, except possibly for Brazil and Mexico, whether measured by the ratio of foreign debt to exports, interest payments to exports, or international reserves to debt. In Mexico, the debt indicators had increased after the first OPEC price rise and had remained at fairly high levels between 1975 and 1980. With its growing oil production, it was a favorite of lenders. Brazil is a somewhat different case and, as Diaz-Alejandro has argued previously (*BPEA, 2:1983*), a prudent planner could have advocated a less expansionary economic policy there as early as 1979.

By 1980–81 some portents of future difficulties for the region were emerging, according to Diaz-Alejandro. He notes that international portfolios had too little Latin American debt at the start of the 1970s but were much more amply invested there by the end of the decade. Thus even without new problems, capital inflows were bound to be smaller in the 1980s and the terms of lending less generous to borrowers. In some countries, especially in 1980–81, borrowed dollars had gone excessively into projects with little chance of earning foreign exchange. Mexico and Venezuela, optimistic about the path of real oil prices, had launched expensive development projects, while Argentina and Chile had built up military spending. In most countries, exchange rate policies had led to grossly overvalued real exchange rates by 1980. But although many reforms and policy adjustments were thus needed, Diaz-Alejandro finds that none of the apparent problems or economic indicators suggested the magnitude of the troubles ahead.

Diaz-Alejandro shows in detail how external developments in 1981–82 affected each of the countries in the region. The crisis, which in a short time engulfed them all, came when a serious though conventional export decline, which stemmed from the recessions in the industrial nations, was exacerbated by sharp declines in net lending from abroad. By 1982, because of the decline in net lending and the rise in interest rates that had occurred, interest outflow exceeded net new loans in all six countries under study, reversing the trend that had persisted until

1981–82. The sharp and unexpected rise in U.S. nominal interest rates explains most of the increase in net interest payments since 1979; furthermore, Diaz-Alejandro shows that, when the interest payments are adjusted for the change in dollar price levels relevant to the borrowing nations, the real interest rates on these loans rose to levels far higher than even the real interest rates observed in the United States.

Diaz-Alejandro describes the sharp reduction in bank lending, which during 1982 hit all the countries under study except Colombia, as an illustration of the financial market's vulnerability to crisis. While individual lenders were motivated to reduce their exposure, all lenders collectively had a stake in an orderly transition that would require continued lending. This conflict between the individual and collective interests of lenders explains why the Federal Reserve, the U.S. Treasury, the International Monetary Fund, the Bank for International Settlements, and large private banks have, since mid-1982, coordinated steps to maintain capital flows. However, Diaz-Alejandro notes that these efforts appear as a "credit cartel" to the debtor countries, who had no say in the new lending arrangements. In contrast to the reasonably competitive international financial market that they replaced, the new lending arrangements have imposed borrowing costs that may have been excessive and have involved adjustment policies that have thus far provided meager rewards to the complying debtors.

The economic policies of 1982–83, which were largely forced on the debtor nations in debt negotiations, have included real devaluations, import repression, and contractionary monetary and fiscal policies. Diaz-Alejandro notes the consequences of these policies. Growth in the debtor countries has virtually stopped and, as has happened many times before, trade balances have turned around remarkably fast. By 1983, trade surpluses in Argentina, Brazil, and Chile offset more than half of net factor payments abroad, while Mexico and Venezuela had current account surpluses. At the same time, inflation persisted or, in most countries, worsened, contradicting the argument that elimination of inflation is indispensable for improving the balance of payments. The growing budget deficits in Brazil and Mexico during 1983 also belie the assertions that current account deficits can be equated with budget deficits in these economies.

Diaz-Alejandro regards the damage done to business investment as an especially bad consequence of the crisis and the adjustment policies,

because investment is needed for future growth. Investment has fallen sharply in all the Latin American economies and the prospects for its recovery appear poor. Diaz-Alejandro provides regressions showing that even in Brazil and Mexico, countries with the most advanced domestic capital goods industries, business investment in machinery and equipment induces far more imports than do other expenditures. Thus any resumption of investment growth in Latin America would require a substantial increase in imports, which will be hard to achieve with present lending and adjustment policies.

Diaz-Alejandro is alarmed by the changes that have occurred in the composition and characteristics of debt during the crisis period. Although adequate data on private assets abroad are unavailable, he provides evidence that private capital flight was important in the decline in net lending that occurred. Overvalued exchange rates allowed private wealth to flee the countries, particularly Mexico, Venezuela, Argentina, and Chile, before the crisis forced policy changes. Only Brazil and Colombia, with rigid exchange control systems, seem to have avoided this problem. In addition, by 1984 most governments had either absorbed much of the previously private foreign debt or were subsidizing its servicing. By contrast, private assets abroad have been untouched and, in general, their earnings not even taxed.

The private capital flight that has occurred from Latin America and the favored treatment that private capital has received in this crisis were the subject of spirited discussion at the meeting. Participants agreed that the problem of capital flight in the future could be minimized either by capital controls or by eschewing government exchange rate supports that, in the past, have provided opportunities for capital flight. But there were disagreements over whether favored treatment of private capital should be maintained at present in order to induce a reflow of capital back to the region. Going beyond strategic issues surrounding exchange rate policy, Diaz-Alejandro sees in recent developments a "crisis of legitimacy" for the role of the private sector in future Latin American development. He fears that the contrast between the favored treatment of those with wealth and the burdens imposed on the rest of the population ultimately invites social upheaval and a rejection of the mixed private-public system that has been the vehicle for Latin American development until now.

THE MODERN ERA of more permissive U.S. bank regulatory policy started in mid-1970 with the removal of ceiling rates on large-denomination certificates of deposit. In the third article of this issue, John H. Kareken considers what effect recent changes in bank regulatory policy have had on the Federal Reserve's ability to conduct stabilization policy and what effect future changes might portend.

Kareken first considers an extreme form of the argument that monetary policy may be rendered ineffective by deregulation. If, in the limit, unregulated companies in the private sector were free to supply what is commonly used as currency, then, he argues, open market operations would be ineffective under plausible assumptions about behavior and structure. But Kareken does not consider the possiblity of such an extreme case as central to present concerns. Two important ways in which the U.S. financial system differs from the extreme model—the existence of official currency as a unique medium of exchange for some purposes and the demand for the official currency created by the existence of reserve requirements—will persist despite foreseeable regulatory and institutional changes. The more interesting issues, therefore, hinge on whether the Federal Reserve's effectiveness—its ability to conduct stabilization policy through open market operations—has been impaired by actual and contemplated changes in regulation. The regulatory changes that may bear on that issue and on which Kareken therefore concentrates are broadly of two sorts: policies governing the interest rates that may be offered to depositors and policies restricting activities in which banks may engage.

Kareken appraises the claim that the Federal Reserve is more effective when interest rates that banks may pay for funds are restricted by ceilings. Such an argument was put forth by Albert Wojnilower in *BPEA, 2:1980*. The simplest form of the argument behind that claim is that if banks cannot pay to attract funds as market interest rates rise, then they will not be able to lend and, therefore, demands that depend on borrowing from them will be curtailed. Kareken observes that, so long as borrowers can go elsewhere for funds, restrictions on banks or on banks and other regulated depository institutions will not have much effect. Even if alternative sources of funds were not available when some restrictions first become binding, he believes they soon would become available in a competitive environment. If regulators persist in curtailing the ability of

some institutions to compete for funds in such an environment, they will put them at a competitive disadvantage relative to unregulated lenders and, ultimately, force them out of existence. Implicit in this argument is the assumption that such institutions have no offsetting competitive advantage protected by regulation. Kareken does not believe that interest ceilings could be employed as a permanent feature of the policy arsenal because of the potential for nonbank competition; but neither does he find this a major problem, for he reasons that ceilings are unimportant to policy effectiveness in any case.

Kareken buttresses his a priori reasoning with an empirical assessment of performance under interest ceilings. He argues that forced disintermediation—driving funds out of lending institutions by maintaining a binding ceiling on what they can pay for funds—became conscious policy in the summer of 1966. At that time the Federal Reserve Board and the Federal Deposit Insurance Corporation reduced the rates commercial banks could pay on some accounts in order to keep them from luring depositors from savings and loan institutions; shortly thereafter, Congress authorized the Federal Home Loan Bank Board to set national rates for insured S&Ls. Thus both banks and S&Ls were subject to binding ceilings at that time, and as market interest rates rose, they lost deposits from accounts subject to those ceilings.

Policy started moving in the other direction with the elimination of ceiling rates on banks' large certificates of deposit in the summer of 1970. By the early 1980s, in response to the competition that had arisen from money market mutual funds, which were outside the regulated banking system, banks were authorized to issue money market deposit accounts and super NOW accounts. By October 1983 all restrictions on interest rates that banks could pay were for practical purposes eliminated.

In order to test whether the interest rate restrictions had any important consequences for the relation between policy changes and economic activity, Kareken provides a test for structural change in the economy that compares the period of maximum interest rate restrictions, July 1966 to June 1970, with the years before and after that interval. He concludes there is no evidence of important structural change between these periods. Whatever effects the interest rate restrictions of the late 1960s had were apparently not observable in overall measures of economic policy and performance; therefore, he infers, these restrictions had little to do with the effectiveness of policy.

Kareken does find a plausible indirect link between regulations and effectiveness coming from the riskiness of banks' activities. He reasons that if regulatory change and competition have now made banks subject to greater risk than in the past, the Federal Reserve may, at times, have to compromise stabilization objectives if to pursue those objectives would increase the risk of bank failures.

Kareken reviews regulatory changes that concern the activities in which banks and other financial institutions may engage to see whether they may be adding to the riskiness of banks. Savings and loans have become more like commercial banks as a result of recent changes in the law, but this mainly blurs the distinction between S&Ls and banks without, in Kareken's view, changing the riskiness or other crucial characteristics of the financial system as a whole. Banks and bank holding companies have been given permission to expand into fee-generating activities such as real estate appraising and stock brokering, but none of these activities involves added risk. Some state legislatures have permitted banks and S&Ls to start taking risky equity positions; but federal regulatory agencies have successfully resisted such changes. Finally, a legal distinction has allowed the development of new financial institutions that are not regulated as banks because they do not both accept demand deposits and make loans. But Kareken sees no threat to the banking system from this source and notes that the regulatory authorities are ready and able to thwart institutional changes that would effectively remove banks from their jurisdiction.

Although he sees no special danger in the institutional changes that are occurring, Kareken is concerned that the price of deposit insurance does not properly reflect the riskiness of a bank's activities. He notes that competition would move the banking system as a whole in a risky direction even if banks in general would be inclined to be appropriately prudent. With deposit insurance underpriced for banks that expand their deposits in order to acquire relatively speculative assets, other banks would be pushed in the same direction, as they would have to compete for funds or lose deposits. Mindful of this problem, some regulatory authorities attempted to subject banks to greater market discipline. When Penn Square Bank failed in 1982, the FDIC paid off depositors up to the statutory insurance maximum of $100,000; but it did not arrange to merge Penn Square into an ongoing bank so as to prevent any loss to larger depositors. This episode seemed to send the message that there

were market risks for banks. However, when the Continental Illinois National Bank failed, that policy and its message for banks was changed because no creditor of Continental Illinois was allowed to suffer any loss. Both of these episodes and the more general problem of nonperforming loans that continues to plague the banking system are related to the competition for loanable funds that has arisen since the ceiling rate on large certificates of deposit was lifted in 1970.

Kareken despairs of ever having a deposit insurance program that properly reflects the riskiness of banks' activities. He notes that experts cannot agree on how to devise an appropriate system of risk-dependent insurance premiums; and lacking expert agreement, he doubts the Congress would act or would be successful if it tried. He does suggest that, lacking proper insurance incentives, insured banks might be required to have subordinated debt as an additional buffer against bankruptcy. But he does not see any such measure as eliminating the possibility of banks exploiting the government's insurance guarantee by exposing themselves to undue risk. Confronted with these prospects, Kareken urges improved bank supervision as the main available instrument capable of minimizing these risks. In light of new communication and record keeping technologies, he expresses some hope that regulators in the future will be able to better maintain standards for loan diversification and other principles of risk avoidance.

IT IS A COMMONPLACE belief among economists that financial markets are efficient, with prices fully reflecting all available information about future returns. The intuitive justification behind that belief is that no opportunity for earning extraordinary returns will be overlooked by profit-motivated investors. In the fourth article of this issue, Robert J. Shiller questions the validity of the efficient markets model as it has been applied to stock prices. He presents new results that reject that model using data covering various long periods between 1871 and 1983, and offers an alternative that combines the traditional role of maximizing agents with an important role for mass psychology.

Empirical research with efficient markets models has been primarily directed at showing that real returns to stocks are unforecastable, or nearly so. But Shiller criticizes the leap that is often made from such results to the proposition that the price of stocks is close to their "intrinsic value," which is given by discounted future dividends or earnings. He

notes that stock prices fluctuate far more than such intrinsic-value models can explain; and because of this high variability of stock prices, tests would likely fail to reject the efficient markets hypothesis even if it were untrue. Thus, he reasons, there is room for a richer theory that includes a role for mass psychology as well as intrinsic value in explaining stock price movements while preserving the unpredictability of stock prices, at least in the short run.

Shiller's idea that investment in stocks runs in fads or fashions and that these are important determinants of stock prices is hard to test directly, so he attempts to establish the plausibility of the idea in other ways. He offers some evidence that growing interest in stock ownership corresponded with the bull market in stocks between the late 1940s and late 1960s. And he provides a range of observations that suggest rational calculation by professionals is not the dominant factor in the market. He notes that most stock investments are not professionally managed. For example in 1980, 65 percent of the value of stocks listed on the New York Stock Exchange were owned by individuals rather than by institutions. Although stock ownership by individuals is highly concentrated, even most wealthy individuals do not delegate authority over their investments, according to a 1964 Brookings study. Furthermore, there is no accepted theory by which to evaluate stocks and no agreement, even among experts or theorists, on how particular events will affect stock prices.

Shiller reports on research from disciplines outside economics that demonstrates how an individual's opinions may be biased by the opinions of others. One line of research has established that, even when individuals are unaware of it, group attitudes affect their interpretation of events; another line shows individuals are even reluctant to contradict a group opinion that they know is wrong. And he finds it interesting that the "epidemic model" of mathematical sociology predicts that developments influencing opinions can produce a time series of social responses that includes patterns resembling stock price movements.

The primary argument against the importance of fashions in the movement of stock prices is that "smart-money" investors would profit by driving prices back to their intrinsic value. Shiller develops a formal though simple model to demonstrate how smart-money investors, modeled to respond to optimal forecasts of expected returns as in the efficients market literature, would coexist with ordinary investors who are moti-

vated in their stock investments by fashion. In Shiller's model, the smart money tries to anticipate the effect of fads on prices, and in so doing affects the path of prices. The smart money enters or leaves the stock market as fashions push stock prices below or above their rationally calculated intrinsic worth. But because smart money investors are risk averse, they require the prospect of higher returns to take on larger holdings of stocks; hence they may be unwilling to increase or decrease their holdings of stocks sufficiently to fully offset the effect on prices of fashions and the behavior of ordinary arational investors.

Turning to historical data on stock prices, dividends, and earnings, Shiller shows that they are highly correlated, as one would expect, and also that their variation is not as predicted by the simple efficient markets model. Because the total return on stocks is unforecastable in that model, subsequent capital gains are predicted to be exceptionally low when the dividend yield is exceptionally high. In fact, Shiller finds some regularities in the behavior of stock prices that do not support the simple efficient markets model. He demonstrates that stock prices tend to overreact to dividend news compared with what the efficient markets model would predict. A rise in dividends appears to raise stock prices disproportionately, thus leading to lower dividend-price ratios. Low dividend-price ratios, in turn, appear to be indicators of low subsequent total returns. Shiller establishes the robustness of these results over very long time periods covering stock price movements from 1872 to date and over smaller but still lengthy subperiods such as 1946–83.

Using hypothetical parameters, Shiller simulates his model in which smart money forecasts dividends and ordinary investors respond to fashion. He shows that a variety of patterns of stock movement can result from such a model, depending on the equation used to forecast dividends, the risk aversion of smart money, and the assumed nature and transmission mechanism for fashions among ordinary investors. Although these simulations are only hypothetical, Shiller finds it significant that they have plausible properties. The smart money earns a noticeably higher return over a long period than the average return available to investment in stocks. And the extent of movement into and out of equities that the hypothetical model implies does not seem unrealistic. The ability of smart money to predict to some degree the behavior of ordinary investors limits the profit opportunities that are available at any time and renders total returns nearly unpredictable in

Shiller's model. At the same time, the simulations show that ordinary investors behaving in the way Shiller describes could cause major swings in the stock market.

DURING THE past decade, with the industrial world on a floating exchange rate system, the exchange value of the dollar has fluctuated widely even after allowing for differences in inflation rates here and abroad. Most models of international linkages among countries predict that such real exchange rate fluctuations will affect domestic prices to an important degree. In the first report of this issue, Wing T. Woo examines empirically the effect of the exchange rate on U.S. price performance for goods other than energy and food.

If foreign prices of goods are given, a change in the exchange rate will produce a proportionate change in import prices. If these import price changes pass fully into the price of goods consumed in the United States, a broad price index such as the consumption deflator will approximately reflect this change as weighted by the share of imports in total GNP. Thus, in this case of full pass-through, if imports are 10 percent of GNP and the exchange rate falls 20 percent, the consumption deflator would rise by about 2 percent. This simple case requires several qualifications. Import prices may be set, in part, to compete with domestic prices and so may not fully reflect exchange rate movements. Similarly, the margin between import prices and the final consumer price of imported goods or of goods containing imported inputs may be affected by domestic price competition. In the other direction, the prices of domestic goods that compete with imports may be affected by import prices so that the total effect on consumer prices may be larger than the weight of imports alone would predict. Finally, the price of domestic exportable goods that are also sold here may be influenced by exchange rate movements and thus affect the consumer deflator.

How strong these effects are can be settled only by looking at the data. Woo reasons that oil prices, which have been moved dramatically by the OPEC cartel, and food prices, which are set on world markets and are heavily influenced by weather, should be analyzed separately, because their inclusion in the import and export price aggregates might lead to biased results over the relatively small sample period available. Thus he limits his empirical study to merchandise excluding food and fuel. For this important category of goods Woo finds that the exchange

rate has smaller effects than the full pass-through model predicts. Import prices change by only about 40 to 45 percent of the change in the Federal Reserve multilateral exchange rate index, or by 70 to 75 percent of an exchange rate index weighted by import shares. Export prices move by 12 to 14 percent of the Federal Reserve index. What is more striking, Woo finds no significant effect of either import or export prices on the fixed-weight deflator for consumption goods excluding food and energy. Thus for the broad range of imported and exported goods included in this study, Woo finds the prices of foreign goods are importantly influenced by U.S. prices, which, in turn, are largely determined by U.S. costs. The effects of exchange rate movements on the U.S. price level therefore appear to be much smaller than the full pass-through model implies.

Woo notes that protectionist quotas such as those in place for automobiles and some other commodities would contribute to this insensitivity to exchange rates. And he grants that food prices will be affected by the exchange rate, although he does not attempt to estimate the size of that effect. Woo also notes that the exchange rate could affect domestic prices through domestic wages, which are exogenous in his analysis; however, he reasons that such a direct influence on wages is unlikely to be large because one would expect pressure on an industry's wages to show up initially as pressure on the industry's prices, which he finds to be small. Although these qualifications are important and deserve further study, Woo's results do indicate that the effects of the U.S. exchange rate on U.S. prices is probably smaller than many models have assumed.

ONE OF THE surprising developments of the present economic recovery was the rapid decline in unemployment from 10.6 percent in the recession trough quarter of 1982:4 to 7.5 percent in the second and third quarters of this year. In the second report of this issue, Robert J. Gordon analyzes this decline using a general model of Okun's law and the determinants of the economy's potential growth. Okun's law relates unemployment to the gap between actual real GNP and potential real GNP, or the economy's aggregate supply capacity. Gordon calculates potential GNP from estimates of what employment, average hours per worker, and labor productivity would be with the economy operating at 6 percent

unemployment, which he estimates to be the economy's "natural" unemployment rate.

Gordon shows that most of the good news on unemployment reflected disappointing news on the growth of aggregate supply capacity alongside a strong recovery in actual GNP. He finds that potential GNP has been growing at only a 2.8 percent annual rate since 1979, with no evidence of a speedup during the present recovery. As a consequence, 2.4 points of the 3.1 point decline in unemployment in the recovery thus far are the predicted response of unemployment as actual GNP approached the economy's slow-growing potential.

The remaining 0.7 point improvement in the unemployment rate represented a change from an underprediction of about 0.5 point in 1982:4 to an overprediction of about 0.2 point in 1984:3. Gordon finds that an unpredicted weakness in output in the nonfarm business sector relative to total GNP at the trough of the recession and a reversal of that weakness by mid-1984 corresponded to the 0.7 point surprise in the unemployment decline and may help explain it. Apart from a discrepancy between the measures of employment based on establishment data and the household survey, which pose an unresolvable data mystery, there were no systematic surprises in other determinants of potential GNP that would account for the unemployment surprise.

In analyzing the determinants of potential GNP, Gordon confirms Peter K. Clark's finding (*BPEA, 1:1984*) that the trend of productivity growth in the private nonfarm business sector has not quickened from the estimated 1.1 percent annual trend that characterized the 1974–78 period. Although actual productivity rose faster than this in the recovery quarters through 1984:2, Gordon finds the rise is fully accounted for as a normal cyclical response of productivity to rapid output gains. His model predicts that, just as it did in the third quarter of this year, actual productivity will grow more slowly than trend as the pace of economic expansion now slows.