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Program Report

Corporate Finance

Robert W. Vishny

The NBER's Program in Corporate Finance was established in fall 1991, and grew out of the earlier financial markets and monetary economics program. Traditionally, corporate finance is defined as "the study of the investment, financing, and dividend decisions of firms." To that traditional list of topics, I would add "most financial or contractual issues relating to the firm, including internal organization, ownership structure, and corporate governance." Corporate finance is institutionally oriented, with research often driven by issues of current importance. Most of the NBER's research on corporate finance consists of empirical studies on firm-level data motivated by relevant, applied theory.

Recent work by NBER economists has centered on a variety of topics. Since the program is barely three years old, the origins of much of this research predate its formal start. This is especially true of the extensive research on corporate restructuring, but it is also true of some of the research on bankruptcy and financial distress, and the research on banks and the role of credit. One new area beginning to attract attention is the cross-country comparison of corporate governance and financing practices.

Corporate Restructuring

NBER researchers began to study corporate restructuring in earnest in the late 1980s in the midst of a huge wave of mergers, acquisitions, and leveraged management buyouts. The total value of U.S. assets changing hands in the 1980s was approximately \$1.3 trillion, with 143 of the 1980 *Fortune* 500 becoming acquired by 1989. This wave of activity sparked much public controversy. At issue were: the large number of hostile takeovers; the perception that employees and communities were being hurt; the heavy use of debt in many transactions and the fear that basic R and D was being sacrificed; and the large profits made by corporate raiders and corporate managements.

NBER researchers have conducted extensive studies on the causes and consequences of these mergers and acquisitions. One important question

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addressed is: Has all of this restructuring activity made the U.S. economy any more efficient or competitive? While the evidence is far from definitive, the studies suggest that there is cause for optimism. Steven N. Kaplan finds strong evidence of improvements in operating profit in a sample of 1980s leveraged buy-outs.¹ Various NBER researchers have documented the role of the 1980s bustup takeovers in moving firms away from the ill-fated diversification of the 1960s toward greater specialization.² Arguably, this favorable reconfiguration of the economy has been made possible by the more lenient antitrust policy followed in the United States since 1982.

Before jumping to the conclusion that the average merger entails huge synergies, however, it is important to note that many acquisitions appear to be motivated by the welfare of bidding management, rather than by the desire to increase shareholder wealth. Randall Mørck, Andrei Shleifer, and I show that over 50 percent of acquisitions in the 1980s were greeted by a negative reaction from bidding shareholders.³ Kaplan and Jeremy C. Stein provide evidence that the second generation management buyouts of the late 1980s were encouraged by generous deals for bidding management, overpriced junk bonds, and fee structures that encouraged investment bankers to suggest questionable deals.⁴

NBER studies also have found that the negative social impact of takeovers may be exaggerated. Frank R. Lichtenberg and Donald Siegel, and Sanjai Bhagat, Shleifer, and I find that the employment effects of hostile takeovers are not very large and are disproportionately felt by highly compensated white collar employees.⁵ Joshua

Rosett finds little evidence that union wage cuts are a major source of gains in hostile takeovers.⁶ Finally, Bronwyn H. Hall finds that the effect of takeovers on R and D expenditures is limited because the most R and D-intensive firms do not typically enter into highly leveraged transactions.⁷

Banks and the Role of Credit

One open question in monetary economics concerns the channel for the transmission of monetary policy. In particular, the link between monetary tightening and the contraction of credit made available by banks has not been firmly established empirically using microdata. NBER researchers Anil K. Kashyap and Stein, in an interesting series of papers, have brought us closer to understanding these issues.⁸ Kashyap, Stein, and David W. Wilcox show that monetary tightening appears to be correlated with a shift toward the use of commercial paper and a decline in the use of bank financing. But, as Charles C. Calomiris, Charles P. Himmelberg, and Paul Wachtel argue, the large, well-capitalized firms who issue commercial paper appear to be less affected by a tightening of bank credit.⁹ If mostly smaller firms are being cut off from bank credit when the monetary authority tightens, how does increased issuance of commercial paper by large firms end up substituting for bank credit? Calomiris, Himmelberg, and Wachtel suggest that the intermediation works as follows: During tight money periods, banks cut loans to small and medium-size firms. Large firms make up for this by extending more trade credit to smaller firms and finance this through increased issuance of commercial paper. While there is more empirical work to be done here, the prospects for better understanding the role of banks and

credit in a monetary contraction are exciting.

NBER researchers also have been documenting the special role of banks in providing credit. Using Japanese data, Takeo Hoshi, Kashyap, and David S. Scharfstein show that the sensitivity of investment to cash flow is much greater for firms without a bank relationship than for those with one.¹⁰ Using data from the National Survey of Small Business Finance, Mitchell A. Petersen and Raghuram G. Rajan have been studying the importance of banking relationships, and how the quality of those relationships depends on the concentration of lending institutions.¹¹ Interestingly, they find that typically more credit is available in highly concentrated credit markets. They attribute this to the fact that high concentration increases the likelihood that the borrower and lender will be dealing with each other for a long time, which gives the lender a greater incentive to invest in the relationship.

Bankruptcy and Financial Distress

With the rise in leveraged buyouts and the use of junk bonds in the mid- to late-1980s, the collapse of Drexel Burnham Lambert, and the recession of the early 1990s, bankruptcy and financial distress became a more focal issue in corporate finance research. Paul Asquith, David Mullins, Jr., and Eric Wolff have conducted the most careful study to date on the long-run default experience of junk bonds.¹² They find a significantly higher default rate than previous researchers after taking into account unfavorable exchanges offered to junk bondholders. Asquith, Robert Gertner, and Scharfstein study a large sample of junk bond issuers to explore the determinants of a successful debt restructuring after default.¹³ Among other things, their study suggests that bank fi-

nancing decreases the likelihood of an out-of-court settlement. Philippe Aghion, Oliver Hart, and John Moore have compared the efficiency properties of various bankruptcy procedures including the current Chapter 11 procedure.¹⁴ Their main insight is the construction of alternative bankruptcy procedures that separate the decision about how the post-bankruptcy assets will be deployed from how the proceeds from the assets will be divided among the various claimants.

International Comparisons of Corporate Financing and Governance Practices

A relatively new research area in corporate finance is the cross-country comparison of different financial and governance systems. This area originally was motivated by the apparent differences between U.S., U.K., Japanese, and German financial systems. Japanese and German corporate finance is dominated by banks, whereas the United States and the United Kingdom have much bigger bond markets. German banks typically also own equity in the firms they lend to, while this is prohibited in the United States. These differences are alleged to be important for corporate governance, with the bank-dominated systems purportedly providing superior oversight of management. Also, the close bank relationships are hypothesized to result in fewer credit constraints and a greater ability to take on leverage. NBER researchers are just starting to make progress on some of these questions.

Hoshi, Kashyap, and Scharfstein have studied the banks versus bond market trade-off in Japan.¹⁵ They find that Japanese corporate finance is moving toward the U.S. model. Rajan and Luigi Zingales

undertake an ambitious study of leverage across countries.¹⁶ They find that the claim of greater leverage in bank-dominated countries is exaggerated. Differences in leverage between countries are not that large, although there are important differences in the average maturity of debt. Finally, they find that equity issuances by mature firms are much more common abroad than they are in the United States. Jun-Koo Kang and René M. Stulz study the market's reaction to security issues by Japanese firms.¹⁷ Their evidence suggests that the negative reaction to equity issues by mature firms is much less pronounced in Japan than in the United States. Kaplan, in a series of papers, contrasts corporate governance in the United States with that in Japan and Germany.¹⁸ He finds that the probability of top management turnover in Japan is similar to that in the United States, and shows a similar sensitivity to poor performance. One apparent difference between the countries is that top management turnover in Japan is associated more strongly with negative earnings and less strongly with poor stock returns than in the United States. This is consistent with the relative importance of debt-related discipline, which is triggered when operating earnings fall below required interest payments. Corporate governance in Germany does not appear to be too different from corporate governance in the United States. For example, Kaplan does not find that the sensitivity of executive turnover to performance in Germany is affected significantly by the degree of bank ownership of equity.

¹S. N. Kaplan, "The Effects of Management Buyouts on Operating Performance and Value," *Journal of Financial*

Economics 24, 2 (October 1989), pp. 217-254.

²S. Bhagat, A. Shleifer, and R. W. Vishny, "Hostile Takeovers in the 1980s: The Return to Corporate Specialization," *Brookings Papers on Economic Activity: Microeconomics* (1990); S. N. Kaplan and M. S. Weisbach, "The Success of Acquisitions: Evidence from Divergences," *NBER Reprint No. 1742*, August 1992, and *Journal of Finance* (March 1992).

³R. Mørck, A. Shleifer, and R. W. Vishny, "Do Managerial Objectives Drive Bad Acquisitions?" *NBER Working Paper No. 3000*, June 1989, and *Journal of Finance* (March 1990).

⁴S. N. Kaplan and J. C. Stein, "The Evolution of Buyout Pricing and Financial Structure," *NBER Reprint No. 1835*, December 1993, and *Quarterly Journal of Economics* (May 1993).

⁵F. R. Lichtenberg and D. Siegel, "The Effect of Takeovers on the Employment and Wages of Central Office and Other Personnel," *NBER Reprint No. 1539*, March 1991, and *Journal of Law and Economics* (October 1990); S. Bhagat, A. Shleifer, and R. W. Vishny, "Hostile Takeovers in the 1980s: The Return to Corporate Specialization," *Brookings Papers on Economic Activity: Microeconomics* (1990).

⁶J. Rosett, "Do Union Wealth Concessions Explain Takeover Premiums? The Evidence on Contract Wages," *NBER Working Paper No. 3187*, November 1989.

⁷B. H. Hall, "The Impact of Corporate Restructuring on Industrial Research and Development," *Brookings Papers on Economic Activity: Microeconomics* (1990).

⁸A. K. Kashyap, J. C. Stein, and D. W. Wilcox, "Monetary Policy and Credit Conditions: Evidence from the Composition of External Finance," *NBER Working Paper No. 4015*, March 1992, and *American Economic Review* (March 1993); J. C. Stein and A. K. Kashyap, "The Impact of Monetary Policy on Bank Balance Sheets," *NBER Working Paper No. 4821*, August 1994.

⁹C. W. Calomiris, C. P. Himmelberg, and P. Wachtel, "Commercial Paper, Corporate Finance, and the Business Cycle: A Microeconomic Perspective," *NBER Working Paper No. 4848*, September 1994.

¹⁰T. Hoshi, A. K. Kashyap and D. S.

Scharfstein, "The Role of Banks in Reducing the Costs of Financial Distress in Japan," *NBER Working Paper No. 3435*, September 1990, and *Journal of Financial Economics* (September 1990).

¹¹M. A. Petersen and R. G. Rajan, "The Effect of Credit Market Competition on Lending Relationships," *NBER Working Paper No. 4921*, November 1994, and *Quarterly Journal of Economics*, forthcoming.

¹²P. Asquith, D. Mullins, and E. Wolff, "Original Issue High Yield Bonds: Aging Analyses of Defaults, Exchanges, and Calls," *Journal of Finance* (September 1989).

¹³P. Asquith, R. Gertner, and D. S. Scharfstein, "Anatomy of Financial Distress: An Examination of Junk Bond Issuers," *NBER Working Paper No. 3942*, December 1991, and *Quarterly Journal of Economics* (August 1994).

¹⁴P. Aghion, O. Hart, and J. Moore, "Economics of Bankruptcy Reform," *NBER Working Paper No. 4097*, June 1992, and *Journal of Law, Economics and Organization* 8 (1992), pp. 523-546.

¹⁵T. Hoshi, A. K. Kashyap, and D. S. Scharfstein, "The Choice Between Public and Private Debt: An Analysis of Post-Deregulation Corporate Financing in Japan," *NBER Working Paper No. 4421*, August 1993.

¹⁶R. G. Rajan and L. Zingales, "What Do We Know About Capital Structure? Some Evidence from International Data," *NBER Working Paper No. 4875*, October 1994.

¹⁷J.-K. Kang and R. M. Stulz, "How Different Is Japanese Corporate Finance? An Investigation of the Information Content of New Security Issues," *NBER Working Paper No. 4908*, October 1994.

¹⁸S. N. Kaplan, "Top Executive Rewards and Firm Performance: A Comparison of Japan and the United States," *NBER Reprint No. 1900*, August 1994, and *Journal of Political Economy* (June 1994); S. N. Kaplan and B. A. Minton, "'Outside Intervention' in Japanese Companies: Its Determinants and Implications for Managers," *NBER Working Paper No. 4276*, February 1993; S. N. Kaplan, "Top Executives, Turnover, and Firm Performance in Germany," *NBER Working Paper No. 4416*, August 1993.

Research Summaries

The Political Economy of Workers' Compensation in the Early Twentieth Century

Price V. Fishback and
Shawn E. Kantor*

Over the last century the United States and many other countries have implemented a wide variety of social protection programs, including health care coverage for the poor and elderly, Social Security, unemployment insurance, and workers' compensation. The first large-scale social insurance program in the United States was workers' compensation, which was introduced at the state level during the 1910s. Workers' compensation shifted the tort rules governing workplace accidents from negligence liability to a form of strict liability whereby the employer was expected to replace up to two-thirds of a worker's lost earnings for all serious accidents occurring in the workplace. This change in the liability rules led to a substantial rise in the post-accident benefits that injured workers received.

Like many other social insurance programs, the modern workers' compensation system has been plagued by escalating costs.¹ Numerous reforms have been offered, including shifting more of the financial burden of workplace accidents onto workers. In an effort to illuminate the public debate over workers' compensation, our research has two main objectives. First, we hope to improve the understanding of the economic effects of the law's adoption in the early

twentieth century, so that policy-makers will realize the consequences of reversing the trend toward more generous accident compensation for injured workers. Second, in our historical investigation of the original purposes of enacting workers' compensation in the 1910s, we wish to point out some of the potential pitfalls of returning to a form of negligence liability in which workers would be held more financially responsible for their workplace accidents.

In their time, progressive reformers hailed workers' compensation widely as a financial boon for injured workers, providing them and their families substantially higher and more certain post-accident benefits than they would have received under the negligence liability system. Under negligence liability around the turn of the century, relatively few workers received awards in court. Since a court decision could take up to five years, and the outcome was always highly uncertain, most injured workers or their families accepted out-of-court settlements. Because the employer was not legally compelled to pay anything if he had not been negligent, roughly 43 percent of the families of fatal accident victims received no payments prior to workers' compensation.² The mean levels of compensation for all families of fatal accident victims ranged from about 38 percent of a year's income to 112 percent.

By contrast, when workers' compensation was enacted in various states after 1910, nearly all workers' families received compensation. The average compensation ranged from about two to four times annual income, depending on the state. Social reformers saw workers' compensation as a great victory for workers, presuming that the sharp rise in post-accident benefits actually represented a redistribution of income.

However, increases in employer-mandated benefits often led to large enough wage declines to pay for the increase in expected benefits fully.³ Our analysis of the coal mining, lumber, and construction industries in the early twentieth century suggests that nonunion workers essentially "bought" the more generous and more certain benefits mandated by workers' compensation laws through lower real wages. Union workers, on the other hand, experienced much smaller wage offsets.⁴

Wage Offsets

We constructed three panel datasets that included the primary occupations in the coal, lumber, and unionized building trades industries, for over 20 states from 1907 to 1923. Our regression results imply that workers in the nonunionized lumber industry experienced roughly a dollar loss in annual earnings for each dollar increase in expected accident benefits that workers' compensation promised. In the nonunionized sector of the coal industry, the offset was larger, at about two to three dollars for each dollar increase in expected benefits. However, unions appear to have inhibited the employers' flexibility in passing their workers' compensation costs onto their or-

ganized workers. Workers in the unionized sector of the coal industry and in the unionized building trades experienced much smaller wage reductions than the nonunion workers.

That such a large fraction of the work force would have experienced wage offsets helps to explain employers' widespread willingness to embrace the idea of workers' compensation. Accordingly, what appeared to be a large-scale transfer of income from employer to worker was, in fact, largely illusory. If employers could anticipate that workers would pay for the increase in post-accident benefits, then they were more likely to favor a no-fault compensation system that was less acrimonious than negligence liability. Similarly, organized labor's diligent lobbying on behalf of workers' compensation is understandable, given that union members experienced relatively small wage declines.

What is less clear is why nonunion workers, who constituted the majority of the labor force, also supported workers' compensation. After all, they could expect to pay fully for their new benefits in the form of wage reductions. Workers would have had little desire to "buy" the higher accident benefits under workers' compensation if they could just as easily have used the risk premiums in their old wages to purchase their own workplace accident insurance.⁶ A central question concerning the economic motivation for the adoption of workers' compensation, therefore, is the extent to which workers had access to their desired levels of private accident insurance around the turn of the century.

Since measuring workers' desired levels of accident insurance would be a difficult task, we use an indirect method that does not require knowledge of workers' utility functions.⁶ A theoretical model suggests that changes in workers' saving in response to a switch to workers' compensation can be used as a signal of the market availability of private accident insurance. If insurance purchases were uncon-

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strained, workers would not have used saving to insure against workplace accident risk, because saving was a relatively costly means of insuring their workplace accident risks. If accident insurance were widely available, the switch to workers' compensation would have led to an increase in saving, as some of the income targeted for insurance purchases would have been freed for consumption and saving. If, on the other hand, insurance were rationed, imposing binding constraints on the amounts of accident insurance workers could buy, then the workers' primary option was to use saving to protect against accident risk. Under these conditions, the provision of employer-provided accident insurance would have led to a reduction in the households' precautionary saving.

Impact on Saving

To test the impact of workers' compensation on saving, we use a sample of over 7000 households surveyed for the 1917-9 Bureau of Labor Statistics Cost-of-Living study. These cross-sectional data are particularly valuable because they allow us to compare the saving behavior of households in states that already had enacted workers' compensation with behavior in states that had not. Our results suggest that households tended to save less, holding all else constant, if their states had workers' compensation in force. This finding, in concert with qualitative evidence drawn from contemporary insurance textbooks, periodicals, and manuals, suggests that insurance companies were not able to effectively offer workplace accident insurance to a wide range of workers. Accident insurance companies faced

substantially greater informational problems, and thus adverse selection problems, in selling individual accident insurance than in selling liability insurance to employers. Thus, by shifting the burden of insurance from workers to employers, workers' compensation benefited risk-averse workers who were rationed out of the insurance market, even if they paid for their more generous post-accident benefits through lower wages. Moreover, insurance companies stood to gain from the passage of workers' compensation because the law enabled them to expand their coverage of workplace accident risk. In fact, the insurance industry actively supported the general idea of workers' compensation, as long as the state did not compete in the selling of the insurance.

Although workers, employers, and insurers all publicly claimed to favor the concept of workers' compensation, they fought bitter battles over the specific features of the legislation, such as maximum benefit levels, waiting periods, medical benefits, and the issue of state insurance. Our preliminary research into the political origins of workers' compensation has shown that employers, unions, insurers, lawyers, and agricultural interests wrote the bills that framed the debate. Each lobbied for their version of the legislation, but none was strong enough to pass their own bill unilaterally. Instead, the features that were written into each state's workers' compensation law were the result of political compromises orchestrated through broad-based political coalitions, such as the Progressives, who were interested in a wide range of economic and political reforms in the early twentieth century. For example, monopolistic state insurance funds typically were implemented in states where the legislature experienced a substantial shift toward "progressive" political groups that believed that the government was uniquely qualified to alleviate market imperfections, either real or perceived.⁷

The results of our economic and political studies of the origins of workers' compensation have implications for the modern policy debate on how to reform the system. The modern workers' compensation crisis is almost a reversal of the situation that led to the initial adoption of workers' compensation. Workers' compensation was enacted in the early twentieth century because the negligence liability system and the insurance industry did not pro-

vide the means for workers to replace a significant portion of their lost earnings. While the early workers' compensation laws provided injured workers with approximately 50 percent of their lost earnings, injured workers today recover about 83 percent of their lost aftertax wages.⁸ As a result of these relatively generous expected accident payments, there have been dramatic cost increases for the system. Employers and insurers view the reduction of workers' compensation benefits as one step toward reform.

The lessons learned from our analysis of the origins of workers' compensation suggest that the distributional consequences of shifting more of the financial burden of workplace accidents onto workers will be tempered by labor market adjustments. In other words, workers can anticipate that their employers will "buy" the reduction in accident benefits in the form of higher real wages. The question then becomes whether workers will be able to purchase private accident insurance coverage with their anticipated wage premiums.

"While the early workers' compensation laws provided injured workers with approximately 50 percent of their lost earnings, injured workers today recover about 83 percent of their lost aftertax wages. As a result of these relatively generous expected accident payments, there have been dramatic cost increases for the system."

The answer is not clear. Group disability and health insurance are certainly much more widely available today than when workers' compensation was first introduced.

Insurers, on the other hand, may be reluctant to offer widescale supplemental coverage for workplace accidents because the problems associated with replacing the compensation lost to reform will still remain.

Of course, the outcome of any reform movement will depend on the distribution of political power among the competing interest groups. While interest groups certainly framed the political debate over workers' compensation in the early twentieth century, our research has discovered that broad political coalitions ultimately determined the scope of America's first social insurance program. If the modern reforms of workers' compensation follow the same political patterns as the law's origins, then the conservative shift seen in the November 1994 election will have a profound impact on the types of reforms that will emerge from state legislatures in the next decade.

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¹ *Workers' compensation payments have been rising at a faster pace than even health care costs, which have attracted much recent attention. From 1980 to 1990, workers' compensation payments grew by 181 percent, while private health care expenditures and Medicare payments rose 170.5 and 195 percent, respectively. By contrast, unemployment insurance payments increased by only 9 percent. These percentages represent increases in nominal spending. The inflation rate over this period (based on the CPI) was approximately 59 percent. See U.S. Bureau of the Census, Statistical Abstract of the United*

States, 1993, Washington, DC: GPO, 1993, pp. 108, 368, 379.

²P. V. Fishback and S. E. Kantor, "Did Workers Pay for the Passage of Workers' Compensation Laws?" NBER Working Paper No. 4947, December 1994.

³For a summary of modern studies showing the impact of employer mandates on wages, see M. J. Moore and W. K. Viscusi, *Compensation Mechanisms for Job Risks: Wages, Workers' Compensation, and Product Liability* (Princeton, NJ: Princeton University Press, 1990). Also see J. Gruber and A. B. Krueger, "The Incidence of Mandated Employer-Provided Insurance: Lessons from Workers' Compensation Insurance," in *Tax Policy and the Economy*, Volume 5, D. F. Bradford, ed. (Cambridge, MA: MIT Press, 1991), pp. 111-143, and J. Gruber, "The Incidence of Mandated Maternity Benefits," *American Economic Review* 84 (June 1994), pp. 622-641.

⁴P. V. Fishback and S. E. Kantor, "Did Workers Pay . . . ?," *op. cit.*

⁵For evidence that workers received compensating wage premiums for increased accident risk prior to workers' compensation, see P. V. Fishback and S. E. Kantor, "'Square Deal' or Raw Deal? Market Compensation for Workplace Disamenities, 1884-1903," *Journal of Economic History* 52 (December 1992), pp. 826-848.

⁶P. V. Fishback and S. E. Kantor, "Insurance Rationing and the Origins of Workers' Compensation," NBER Working Paper No. 4943, December 1994.

⁷See P. V. Fishback and S. E. Kantor, "A Prelude to the Welfare State: Compulsory State Insurance and Workers' Compensation in Minnesota, Ohio, and Washington, 1911-9," NBER Historical Paper No. 64, December 1994. Our research on the origins of workers' compensation in Missouri found that voters

eschewed the intervention of government in the insurance market and, thus, flatly rejected state insurance in various referendums. See S. E. Kantor and P. V. Fishback, "Coalition Formation and the Adoption of Workers' Compensation: The Case of Missouri, 1911 to 1926," in *The Regulated Economy: An Historical Approach to Political Economy*, C. Goldin and G. D. Libecap, eds. Chicago: University of Chicago Press, 1994, pp. 259-297.

⁸W. K. Viscusi, "Product and Occupational Liability," *Journal of Economic Perspectives* 5 (Summer 1991), p. 81. Viscusi argues that the current workers' compensation benefit levels offer close to the optimal level of insurance, from the worker's perspective. From a social point of view, however, the relatively generous benefits may be suboptimal once moral hazard problems are considered (p. 82).

Health Insurance and Individual Labor Market Decisions

Brigitte C. Madrian

It is well accepted that health insurance distorts the demand for medical services. My research explores a further margin along which health insurance may affect behavior: by changing the labor market decisions of individuals. This distortion arises because in the current system of provision of health insurance in the United States, employers are the primary source of coverage for all but the elderly. As rising medical costs make health insurance an increasingly valuable component of employee compensation, we should expect coverage to be an important consideration in the labor market decisions of individuals.

There has been little previous research on the labor market effects of health insurance. However,

there is growing interest in understanding this relationship, first because health insurance expenditures constitute a significant fraction of total employee compensation. Employers now spend more on health insurance than on any other employee benefit, including pensions. Health insurance expenditures are also the fastest growing component of benefit payments, increasing at an average rate of 15.6 percent annually from 1948-90.¹ Second, and perhaps more important, any health care reform that alters the current relationship between health insurance and employment has the potential to affect the labor market in significant ways.

The rationale for employer provision of health insurance is straightforward. By pooling their employees into large groups, employers

can lower administrative expenses and reduce the risks of high health care costs faced by any individual employee. In addition, employer expenditures on health insurance are tax deductible, while individual expenditures generally are not. Given these cost advantages, it is not surprising that the delivery of health care in the United States has evolved into a system based primarily on employer provision of insurance.

Job-Lock

One significant disadvantage of employer-provided health insurance, however, is that it is not typically portable: when an individual quits his or her job, the insurance coverage associated with that job usually ceases as well. For many individuals, a change in insurers is inconsequential, but for some, relinquishing their employer-provided health insurance may be very costly. Exclusions on preexisting

conditions are typical of almost all individual policies, and of many employer-provided policies as well.² In addition, half of full-time workers face length-of-service requirements before being eligible for any insurance.³ Also, there is a growing trend toward medical underwriting, especially in small firms, in order to exclude serious ailments from coverage entirely. As a consequence, those with health problems may find themselves liable for many of their medical expenses that previously were covered by insurance. If these perceived costs of changing insurers are great enough, then the labor market decisions that individuals otherwise might make may be dictated instead by their needs for health insurance.

Exclusions for preexisting conditions and medical underwriting often are cited as causes of "job-lock": the tendency for individuals to stay in jobs they would really rather leave for fear of losing their health insurance coverage. While the popular press on several occasions has cited job-lock as a major problem with the current health care system, until recently there was no empirical evidence on the magnitude of this problem. This is in part because of the difficulty of identifying exactly what job-lock is and when it occurs.

Although it is impossible to observe directly whether individuals are locked into their jobs, in the population as a whole the extent of job-lock can be inferred by comparing the turnover rates of those who are more likely to be affected by it with the turnover rates of those who should not be affected by it. Job-lock should affect only those with health insurance, and the effect should be greater for those who have high expected

medical expenses. If job-lock is important, the difference in mobility rates between those with high and low expected medical expenses should be greater for those with employer-provided health insurance than for those without it.

In recent research, I consider three different "experimental" groups to estimate the extent of job-lock: married men who have an alternative source of coverage in addition to employer-provided health insurance; heads of large families who are more likely to have high expected medical expenses simply because of the size of their family; and married men whose wives are pregnant.⁴ I find that job-lock related to health insurance reduces the voluntary turnover rate of those with employer-provided health insurance by 25 percent, an effect that is both economically and statistically significant.

These results have been corroborated in a follow-up study done with Jonathan Gruber that examines the effect of continuation coverage mandates on job turnover.⁵ Such mandates grant individuals the right to continue purchasing health insurance through their former employers for some period of time after leaving their jobs, and thus should reduce the extent of job-lock. We find that the availability of continuation coverage indeed increases the job turnover rate. Recent research by other individuals also has found evidence of job-lock,⁶ although these results have been disputed.⁷

To the extent that health insurance does reduce mobility, there may be important consequences for economic welfare. First, it will directly affect the well-being of those who are locked into their current jobs. Second, and perhaps more importantly, job-lock may be

a significant concern if there is a specific component of productivity that makes workers more productive in some jobs than in others.⁸ The efficiency of the economy as a whole will suffer if individuals who would like to move to more productive jobs are constrained to keep their current positions simply to maintain their health insurance. The actual magnitude of the welfare loss associated with job-lock is something that has yet to be estimated empirically.

Retirement Decisions

Closely related to job-lock is the issue of how health insurance affects the retirement behavior of individuals. The underlying issues are the same: health insurance in the private market is much more expensive than the health insurance provided by employers, and individuals with preexisting conditions may find themselves unable to secure equivalent coverage if they retire from their job and give up the accompanying health insurance. However, the incentives facing older workers contemplating retirement are somewhat different from those faced by younger workers changing jobs.

First, all individuals become eligible for Medicare upon reaching age 65. Although Medicare is much less generous than most employer-provided policies, coverage is conditional only upon age and does not exclude preexisting conditions. Therefore, the costs of relinquishing employer-provided health insurance are diminished after reaching age 65. Second, many employers provide post-retirement health insurance to their retirees. Thus, the possibility of losing health insurance coverage should not be a deterrent to retirement for

individuals who work in firms that offer this type of coverage.

Several recent papers suggest that health insurance is an important factor in the retirement decision. My own work and studies by Rogowski and Karoly both find evidence that the availability of employer-provided health insurance coverage after retirement is associated with early retirement.⁹ Michael D. Hurd and Kathleen McGarry find that such health insurance is correlated with expectations of earlier retirement among those who are not yet retired.¹⁰ Further work by Gruber and me finds that the availability of continuation coverage encourages early retirement as well as job turnover.¹¹

The increased availability of both employer-provided retiree health insurance and continuation coverage may be important explanations for the trend toward early retirement that has been observed over the past several decades. The previously cited research suggests that these two sources of health insurance may account for between 10 and 50 percent of the decline in male labor force participation between 1960 and the late 1980s.¹²

The role of Medicare in the retirement decision is less well understood. My own research, as well as that of Robin S. Lumsdaine, James H. Stock, and David A. Wise, finds little evidence to suggest that the availability of Medicare helps explain the excess retirement that occurs at age 65, once the financial incentives associated with pensions and Social Security are taken into account.¹³ This may be because Medicare is a vastly inferior source of health insurance, and therefore does not affect retirement, even though the availability of more generous health insurance might. Not only is the coverage provided

by Medicare much less generous than what typically is provided by employer plans for retirees, but it also is available only to the individual, while employer-provided health insurance usually covers dependents as well.

¹J. S. Piacentini and J. D. Foley, EBRI Databook on Employee Benefits, Washington: Employee Benefits Research Institute, 1992.

²P. Cotton, "Preexisting Conditions 'Hold Americans Hostage' to Employers and Insurance," *Journal of the American Medical Association* (1991), pp. 2451-2453.

³U.S. Department of Labor, Bureau of Labor Statistics, *Employee Benefits in Medium and Large Firms*, Washington: Government Printing Office, 1989.

⁴B. C. Madrian, "Employment-Based Health Insurance and Job Mobility: Is There Evidence of Job-Lock?" *Quarterly Journal of Economics* (February 1994), pp. 27-54.

⁵J. Gruber and B. C. Madrian, "Health Insurance and Job Mobility: The Effects of Public Policy on Job-Lock," *Industrial and Labor Relations Review* (October 1994) pp. 86-102.

⁶P. F. Cooper and A. C. Monheit, "Does Employment-Related Health Insurance Inhibit Job Mobility?" *Inquiry* (1993), pp. 400-416, and "Health Insurance and Job Mobility: Theory and Evidence," *Industrial and Labor Relations Review* (October 1994), pp. 65-68; and T. C. Buchmueller and R. G. Valletta, "Employer-Provided Health Insurance and Worker Mobility: 'Job-Lock' or Not?" unpublished paper, University of California, Irvine, February 1994.

⁷J. R. Penrod, "Health Care Costs, Health Insurance, and Job Mobility," unpublished paper, Princeton University, November 1993, finds mixed evidence in favor of job-lock; D. Holtz-Eakin, "Health Insurance Provision and Labor Market Efficiency in the United States and Germany," in *Social Protection Versus Economic Flexibility: Is There a Trade-Off?* R. M. Blank, ed. Chicago: University of Chicago Press, 1994, finds little evidence of job-lock.

⁸B. Jovanovic, "Job Matching and the Theory of Turnover," *Journal of Political Economy* (1979), pp. 972-990.

⁹B. C. Madrian, "The Effect of Health Insurance on Retirement," *Brookings Papers on Economic Activity* 1 (1994), pp. 181-252; L. A. Karoly and J. A. Rogowski, "The Effect of Access to Post-Retirement Health Insurance on the Decision to Retire Early," *Industrial and Labor Relations Review* (October 1994), pp. 103-123.

¹⁰M. D. Hurd and K. McGarry, "The Relationship Between Job Characteristics and Retirement," NBER Working Paper No. 4558, December 1993.

¹¹J. Gruber and B. C. Madrian, "Health Insurance Availability and the Retirement Decision," NBER Working Paper No. 4469, September 1993.

¹²B. C. Madrian, "The Effect of Health Insurance on Retirement," *op. cit.*; J. Gruber and B. C. Madrian, "Health Insurance Availability and the Retirement Decision," *op. cit.*

¹³B. C. Madrian, "The Effect of Health Insurance on Retirement," *op. cit.*; R. S. Lumsdaine, J. H. Stock, and D. A. Wise, "Pension Plan Provision and Retirement: Men and Women, Medicare, and Models," in *Studies in the Economics of Aging*, D. A. Wise, ed. Chicago: University of Chicago Press, 1994.



Executive Compensation

Nancy L. Rose

The Controversy

The compensation of top corporate executives in the United States has attracted considerable attention over the last few years. Part of this is undoubtedly because of the high and rising pay levels reported for CEOs of the largest U.S. corporations. CEO salary and bonus at these firms has risen by more than 3 percent annually in real terms over the past two decades, to a median of almost \$890,000, according to the *Forbes* survey of 1993 CEO compensation. The explosion of stock options and stock awards for CEOs, combined with overall increases in the stock market during this period, has meant even greater increases in real total compensation (more than 6 percent per year), and led to enormous variation in executive compensation across CEOs and over time. In the *Forbes* 1993 compensation survey, total compensation rose as high as \$203 million for Michael Eisner of Walt Disney Corporation, with an overall median of \$1.4 million. Although these substantial increases in compensation are not unique to CEOs—they echo similar trends across a broad range of professional occupations during the 1980s¹—they have generated substantial media attention and political debate.

Much of this debate has focused on the equity implications of high CEO pay levels, particularly as a contributing factor to the overall increase in income inequality over the past decade. There is also a concern in some circles that high pay levels may reflect CEOs benefiting at shareholder expense, a re-

sult of inadequate oversight by corporate boards of directors. The political pressures created by this debate have given rise to a number of policy responses. In 1992 the Securities and Exchange Commission substantially revised its disclosure rules for reporting executive compensation on annual proxy statements. It now requires more detailed information on compensation components, options awards, and shareholder returns relative to other firms in the market or a defined "peer group." After calls for a cap on total CEO compensation, Congress passed legislation effective January 1, 1994 that eliminates the corporate tax deductibility of CEO compensation in excess of \$1 million unless it is based on objective measures of firm performance. The Financial Accounting Standards Board (FASB) also reviewed the use of stock options in compensation. However, its original proposal to require the value of stock options to be deducted from corporate income when awarded ran into such heated opposition that the FASB's final ruling simply modified the reporting requirements for options.

While it is difficult to determine whether U.S. CEOs are paid "too much," many of the issues involved in the policy debate over executive compensation have been the subject of long-standing academic interest and investigation. Although some of the early studies of managerial compensation and incentives were conducted by industrial organization economists, most of the recent work falls within labor economics, corporate finance, organizational theory, and managerial accounting. Sherwin Rosen

provides an excellent overview of the results of these analyses, which investigate the structure and determinants of executive compensation, the organization of managerial labor markets, and the effectiveness of corporate governance in monitoring and controlling managerial behavior.²

The Research

Two NBER colleagues, Paul L. Joskow of MIT and Andrea Shepard of Stanford University, and I recently have applied an industrial organization perspective to the analysis of executive compensation. We focused on three broad questions: First, what is the role of regulatory and political pressure in constraining executive pay? Second, what is the relationship between firm diversification and CEO compensation, and what are its implications for models of corporate governance and the market for CEOs? Third, what do more complex empirical models of incentive pay for CEOs suggest about the overall sensitivity and dynamic responses of executive pay to firm financial performance?

Regulation

Our initial project on executive compensation explored the influence of economic regulation on the level and structure of CEO pay.³ This work builds on a long-standing interest among regulatory economists in the interplay between labor markets and economic regulation.⁴ Our analysis of CEO pay at over 1000 firms during the past two decades reveals substantial and persistent differences in compensation between firms subject to economic (price and entry) regulation

and those in unregulated industries. CEOs in the regulated electric and gas utility, gas pipeline, airline, and telecommunications sectors averaged considerably lower pay than their counterparts in unregulated industries. Moreover, their compensation tends to be weighted more heavily toward salary and cash, and away from incentive-based forms of pay, including stock options. These patterns could result from differences in the nature of the CEO's responsibilities in the regulated sector, that reduce optimal compensation, or from the heightened susceptibility of regulated firms to political pressures to limit nominal pay levels. While it is difficult to distinguish decisively between these explanations in the data, we argue that the pattern of compensation discounts across regulated industries, over time and between firms, is broadly consistent with the presence of binding political constraints on executive pay, as mediated through the regulatory process.

Joskow, Catherine D. Wolfram, and I use variations in the political and regulatory environments of firms within the electric utility industry to ascertain the potential impact of political pressure on compensation patterns.⁵ Our initial study of regulation and compensation indicated that compensation discounts are particularly severe in this sector, arguably the most tightly regulated industry in the U.S. economy. CEOs of electric utilities average less than one-third to one-half of the pay of CEOs in comparable firms in the unregulated sector. By analyzing pay variation within a single industry, we hope to control for unobserved differences in the nature of the CEO's job that might affect optimal com-

pensation arrangements. The large number of electric utilities, each regulated at the state level, and the wide variation in the political activism and orientation of state public utility commissions provide an opportunity to identify the direct effects of political constraints on executive compensation. This research confirms the general conclusions reached in our original, cross-industry study. CEOs of firms that operate in "pro-consumer" reg-

"CEOs of firms that operate in 'pro-consumer' regulatory environments are paid less than CEOs of firms that operate in more investor-friendly environments."

ulatory environments are paid less than CEOs of firms that operate in more investor-friendly environments. Compensation is lower when electric utility rates are high or rising. It is also lower in states with publicly elected regulatory commissioners—situations in which previous research has demonstrated that political pressures on utilities are most intense. It appears that economic regulation provides an effective mechanism through which public concern over executive compensation can be translated into political and regulatory action, and ultimately, to reduced CEO pay.

We cannot determine whether the regulatory discounts we observe reduce pay from "excessive" levels in the unregulated sector, or distort CEO performance incentives and limit managerial quality by reducing compensation in the regulated sector below desirable levels. Our results merely imply that intervention in the compensation process by influential outsiders may affect the contracts between share-

holders and top executives. This suggests that the recent attention focused on executive compensation more broadly may significantly affect compensation even at unregulated firms.

Diversification

Shepard and I have investigated the link between diversification of firms into multiple lines of business and the compensation received by their top executives.⁶ There has been substantial interest over the last decade in the motivation for and effects of corporate diversification, particularly given the popular view and emerging academic consensus that diversification is associated with poor ex post financial performance.⁷ One explanation for this poor performance is that managers pursue diversification to fulfill their own objectives rather than those of shareholders. Andrei Shleifer and Robert W. Vishny have argued that diversification may even be a strategy pursued for the explicit purpose of raising managerial compensation through increased managerial entrenchment.⁸ Shepard and I use data on over 500 (unregulated) CEOs during 1985–90 to analyze the relationship between executive pay and firm diversification. We find evidence of substantial premiums for diversification: CEOs of firms with two distinct lines of business average 10 to 12 percent more in salary and bonus and 13 to 17 percent more in total compensation than CEOs of similar-sized but undiversified firms (all else equal). This corresponds to average 1990 salary gains of \$115,000 to \$145,000 for our sample. Diversification could raise pay either because it is associated with managerial entrenchment or be-

cause the CEO's job in a diversified firm requires higher ability. If entrenchment explains the correlation, then we expect higher premiums for CEOs with longer tenure (who, on average, are likely to be more entrenched) and an increase in compensation when the CEO diversifies the firm. If the premium is a payment to greater ability, it should not vary with tenure. We find that the diversification premium more likely is a payment for higher ability, rather than a consequence of entrenchment: the premium is not affected by tenure, and increased diversification by incumbent CEOs reduces their compensation.

Financial Performance

Finally, Joskow and I have analyzed the sensitivity of executive compensation to firm financial performance, in a project that grew out of our first study of CEO pay.⁹ In that study, we found that executive pay in the unregulated sector became increasingly sensitive over time to variations in firm performance. Compensation also seemed to be more responsive to variations in accounting rates of return than to stock market rates of return. While a number of earlier papers had estimated performance sensitivities in CEO pay, most relied on simple, highly restricted models of the pay-for-performance relationship. Joskow and I use a more complex model of the compensation-performance relationship, and uncover a number of interesting features in the unregulated sector. First, we find that current compensation responds to past firm performance, but that this effect decays substantially within two or three years. This contrasts sharply with the standard models in the literature, which assume that a one-year increase in a firm's market rate of return generates permanently high-

er compensation over the entire remaining career of the CEO.

We find that CEO pay has become substantially more sensitive to firm performance over the past two decades, even when those portions of compensation derived from stock options and related instruments are excluded. Compensation is influenced by both accounting and stock market rates of return, suggesting that boards of directors treat each of these performance measures as a useful independent signal of managerial performance. Moreover, failing to include both of these performance measures in a model of compensation leads to a substantial understatement of the pay-for-performance sensitivity.

We find no evidence for the popular view that boards typically fail to penalize CEOs for poor financial performance or reward them disproportionately well for good performance. It does appear that boards may discount extreme realizations of performance—both high and low—relative to performance that lies within some “normal” band, though. This could be consistent with the view that extreme performance realizations reflect “noisy outcomes” that are more likely to be caused by events beyond the influence or control of management, or with efforts to limit the extreme variability of compensation in response to managerial risk aversion. While our estimates of performance sensitivities do not alter the general conclusion that changes in managerial compensation resulting from superior financial performance of the firm are small in comparison with changes in total shareholder wealth, the compensation effects are nonetheless economically significant. During the 1980s, a CEO who increased his or her firm's market and accounting returns by one-half standard deviation over the means in our sample would have generat-

ed compensation increases equivalent to roughly 15 percent of total compensation. At the average 1990 compensation level of \$1.25 million for our CEOs, this increase would correspond to an additional \$193,000 in pay.

¹See D. Bok, *The Cost of Talent*, New York: Free Press, 1993.

²S. Rosen, “Contracts and the Market for Executives,” NBER Working Paper No. 3542, December 1990, and in *Contract Economics*, L. Wernin and H. Wikjander, eds., Oxford, England: Basil Blackwell, 1992.

³P. L. Joskow, N. L. Rose, and A. Shepard, “Regulatory Constraints on CEO Compensation,” NBER Reprint No. 1825, November 1993, and in *Brookings Papers on Economic Activity—Microeconomics 1* (1993), pp. 1–58 and 70–72.

⁴See, for example, W. Hendricks, “Regulation and Labor Earnings,” *Bell Journal of Economics* 8 (1977), pp. 483–496; and N. L. Rose, “Labor Rent-Sharing and Regulation: Evidence from the Trucking Industry,” *Journal of Political Economy* 95 (1987), pp. 1146–1178.

⁵P. L. Joskow, N. L. Rose, and C. D. Wolfram, “Political Constraints on Executive Compensation: Evidence from the Electric Utility Industry,” NBER Working Paper No. 4980, December 1994.

⁶N. L. Rose and A. Shepard, “Firm Diversification and CEO Compensation: Managerial Ability or Executive Entrenchment?” NBER Working Paper No. 4723, April 1994.

⁷See, for example, L. H. P. Lang and R. M. Stulz, “Tobin's Q, Corporate Diversification, and Firm Performance,” NBER Working Paper No. 4378, June 1993, and the studies they cite.

⁸A. Shleifer and R. W. Vishny, “Management Entrenchment: The Case of Manager-Specific Investments,” *Journal of Financial Economics* 25 (1989), pp. 123–139.

⁹P. L. Joskow and N. L. Rose, “CEO Pay and Firm Performance: Dynamics, Asymmetries, and Alternative Performance Measures,” forthcoming as an NBER Working Paper.

NBER Profile: *Price V. Fishback*

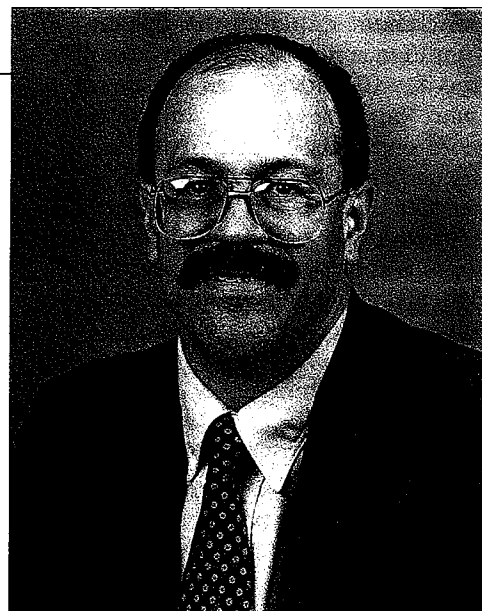
Price V. Fishback, who became an NBER Research Associate in 1994, is a professor of economics at the University of Arizona. He holds a B.A. from Butler University and a Ph.D. from the University of Washington.

Fishback began his teaching career as an assistant professor at the University of Georgia in 1983. He was promoted to associate professor in 1987, and moved to the University of Arizona as an associate professor in 1990. His research and teaching interests are economic history, labor economics, and applied microeconomics.

Fishback served on the editorial board of the *Journal of Economic*

History from 1991–4, and is a trustee of the Cliometrics Society. He has published numerous journal articles on labor markets and safety at the turn of the century. His work on the coal labor market is summarized in the 1992 volume, *Soft Coal, Hard Choices: The Economic Welfare of Bituminous Coal Miners, 1890 to 1930*.

Fishback is married to Pamela Slaten, the assistant department head in the Management Information Systems Department at the University of Arizona. She claims that he “risks too much bodily harm playing basketball, and flying around the country announcing swim meets.”



NBER Profile: *Shawn E. Kantor*



Shawn Everett Kantor is a faculty research fellow in the NBER's Program in Development of the American Economy and an assistant professor of economics at the University of Arizona. He received his B.A. from the University of Rochester in 1987 and his Ph.D. in social science from the California Institute of Technology in 1991.

Kantor's fields of research and teaching include economic history, labor economics, political economy, and law and economics. Recently he has begun a new project on the political economy of New Deal

spending on infrastructure, work relief, and agricultural relief. This research will include analyses of the economic effects of the expenditures on various aspects of the economy, and the economic and political factors influencing the federal and state governments' allocation of New Deal funds.

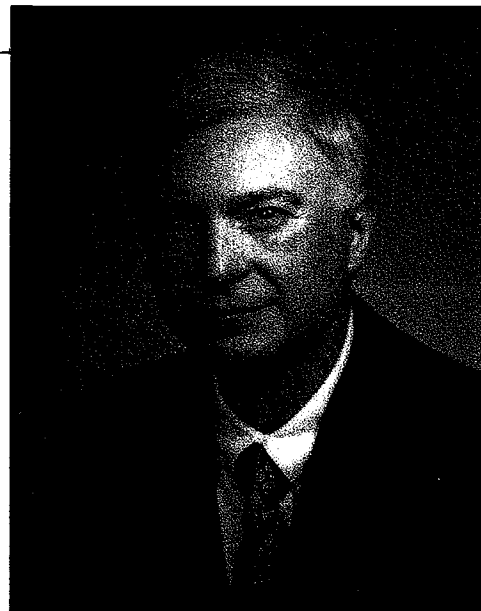
Kantor and his wife, Jennifer West, have a two-year-old son, Quinn, and are expecting their second child in May. When he gets a chance, Kantor enjoys hiking, scuba diving, and “four-wheelin’ in the Arizona desert.”

NBER Profile: *Sam Parker*

Sam Parker joined the NBER in 1974 as its chief financial officer. He is a CPA, and has a special understanding of the accounting, auditing, and management problems of the not-for-profit sector. In 1991, he was appointed a member of the Not-For-Profit Organizations Committee of the American Institute of Certified Public Accountants, for a three-year period. Parker currently serves on the Board of the Massachusetts affiliate of the American Heart Association, and is a member of its Budget, Finance, and Audit Committee.

A native of New York City, Parker was educated at the Bernard M. Baruch School of the City University of New York. He worked with major public accounting firms for a number of years; formed his own firm, Parker and Mulligan; and held a senior management position with a major retail company. He also served with the U.S. Army Corps of Engineers in a financial capacity.

Parker's wife, Mary, holds a Ph.D. in Spanish literature and is a member of the faculty at St. John's University in New York. They enjoy music and the theater, and do a lot of walking and, of course, commuting.



NBER Profile: *Joel Mokyr*



Joel Mokyr, the Robert H. Strotz Professor of Arts and Sciences and a professor of economics and history at Northwestern University, has represented that institution on the NBER's Board of Directors since 1993. Mokyr began his teaching career at Northwestern in 1974 as an assistant professor, was named an associate professor in 1978, professor of economics in 1980, professor of economics and history in 1981, and attained his current position in 1994. He also has taught at Stanford University, the University of Chicago's Graduate School of Business, and Harvard University.

Mokyr received his B.A. from Hebrew University of Jerusalem and his Ph.D. from Yale University. His work on economic history has been published in a number of journals and books, including the 1990 co-winner of the International Joseph A. Schumpeter Prize, *The Lever of Riches: Technological Creativity and Economic Progress*. Mokyr is also a trustee of the Economic History Association, of which he was vice president in 1993-4, and is coeditor of the *Journal of Economic History*.

Mokyr is married and has two children.

NBER Profile: *Brigitte C. Madrian*

Brigitte Condie Madrian is a faculty research fellow in the NBER's Programs in Public Economics and Health Care and an assistant professor in Harvard University's department of economics. She received her B.A. from Brigham Young University in 1989 and her Ph.D. in economics from MIT in 1993.

Madrian currently teaches both undergraduate and graduate courses in public economics. Much of

her research focuses on health economics, though, and appears both in the NBER Working Paper series and in the *Quarterly Journal of Economics* and the *Industrial and Labor Relations Review*.

Brigitte and her husband David, a systems engineer and accomplished pianist, live in Belmont, MA. Together they enjoy anything musical, and vacations to their mountain homeland in Utah.



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*On Leave for Government Service

Conferences

Innovations in Health Care Technology

The NBER and the Alfred P. Sloan Foundation cosponsored a conference on "Innovations in Health Care Technology" in Palo Alto, CA on September 16-17. Alan M. Garber, director of the NBER's Program on Health Care, also of Stanford University, organized the program:

Alan M. Garber, and
Paul M. Romer, NBER and University of California, Berkeley, "Incentives to Develop Cost-Saving Health Care Technology"

Charles Phelps, NBER and University of Rochester, "Good Medical Interventions Gone Bad: How Cost Effectiveness Changes with the Target Population"

José Escarce, University of Pennsylvania, "The Diffusion of Laparoscopic Cholecystectomy: When Low Cost Means High Expenditure"

Jerome Grossman, New England Medical Center, "Changes in Development and

Acquisition of Cost-Saving Medical Technologies"

Mark Pauly, University of Pennsylvania, and
Scott Ramsey, University of Washington, "The Growth of Medical Technology: Can We Say Whether the HMO-Dominated Market Rate Is Wrong?"

Edward Shortliffe, Stanford University, "Does Information Management Reduce Costs of Health Care?"

Garber and **Romer** address the role of market structure in determining the rate and type of technological innovation in health care. They develop a model in which there are multiple competing potential technologies in markets that provide care on a fee-for-service basis with a fixed copayment, and in markets where "ideal" HMOs provide care. Because new technologies typically are introduced by monopolistic suppliers, the overutilization on the part of a fee-for-service market may offset the underprovision of a monopolist. According to the model, the rate of adoption also depends on the distribution of health endowments across the population. The welfare implications of the market structure on the demand side are ambiguous, because market structure influences both the quantity of a given technology that is adopted and the choice of tech-

nology adopted. The high returns that the monopolist receives in a fee-for-service market may be necessary to pay the fixed costs of developing a new technology. Garber and Romer apply this model to specific issues in the development of technology, such as the producer's decision to pursue a "break-through" drug or medical device, rather than a "me-too" drug that offers a higher probability of success but for which close substitutes exist.

"The high returns that the monopolist receives in a fee-for service market may be necessary to pay the fixed costs of developing a new technology."

The cost effectiveness of medical treatments, measured in "quality-adjusted life years," varies from a few hundred dollars for some

vaccines to several million dollars for the most labor- and capital-intensive interventions. Further, the cost effectiveness of any one treatment can vary widely, depending on the patient. Using a model of doctor-patient decisionmaking, **Phelps** analyzes a doctor's choice of treatment. He finds that cost containment is affected by accuracy of diagnosis, efficacy and costs of treatment, and the patient's preferences regarding health and income.

Escarce examines two phenomena that stand out in the adoption and diffusion of laparoscopic cholecystectomy (a new gall bladder removal technique) in the United States: the remarkable speed with which practicing general surgeons learned to perform the procedure and incorporated it into their everyday practice, and the increase in frequency of the procedure after

the laparoscopic method was introduced. He finds that the principal factors in the rapid diffusion of laparoscopic cholecystectomy were: vigorous patient demand; psychic benefits gained by surgeons who adopted the technique; accessibility of information about laparoscopic cholecystectomy; and low adoption costs. Escarce also suggests that the increase in frequency of cholecystectomy, and the accompanying changes in the characteristics of cholecystectomy patients, are expected responses to a procedure with less postoperative disability and lower patient costs

In industries such as electronics and computers, technical improvements generally lower prices. By contrast, innovations in medicine result in higher prices. **Grossman** believes that this market imperfection stems from academic medicine's traditional single focus on technical feasibility, rather than on the broader concerns of cost, quality, and appropriateness of treatment.

How does managed care affect the rate of growth in medical spending? **Pauly** and **Ramsey** show that health maintenance orga-

nizations (HMOs) do not lower the growth in spending in a one-for-one manner even when they actually do save money. The authors believe that there are reasons for optimism about the future, though,

"[T]he increase in frequency of cholecystectomy, and the accompanying changes in the characteristics of cholecystectomy patients, are expected responses to a procedure with less postoperative disability and lower patient costs."

if consumers are willing to give up some costly medical technology: HMOs have a tendency to economize, and might save more if they achieve greater market clout and face less government intervention.

Innovative clinical information systems have been developed and adopted with little assessment of their impact on costs, according to **Shortliffe**. Hospitals have adopted a wide array of such systems, ranging from computer networks that report laboratory data alone to highly sophisticated systems that offer advice to physicians about patient management and alert hos-

pital personnel to potential adverse drug interactions and laboratory evidence of deterioration. Some systems, such as the Integrated Academic Information System at Columbia, appear to save money despite their high cost; maintenance costs alone amount to 0.3 percent of the medical center's annual budget. Another information system that has been extensively studied, the Regenstrief Medical Information System in Indiana, seems to provide similar benefits and may reduce costs. According to **Shortliffe**, the "infor-

mation highway" may expand the reach and value of such systems, but standardization of methods for encoding and retrieving information will be necessary. Although more extensive evaluations of such systems are needed before they can be confidently characterized as cost-saving technologies, the best of them are likely to increase productive efficiency in the health care sector.

These papers and their discussions will be published in a conference volume by the University of Chicago Press. The release of this volume will be announced in an upcoming issue of the *Reporter*.

Growth and International Trade

The 1994 International Seminar on International Trade, cosponsored by the NBER and the Centre for Economic Policy Research (CEPR), was held on October 7 and 8 in Cambridge. This conference, on "Growth and International Trade," was organized by Richard Baldwin, of NBER and CEPR, and Robert E. Baldwin, of

NBER and the University of Wisconsin, Madison. The program was:

Brian Aiken, International Monetary Fund;

Ann Harrison, NBER and Columbia University; and

Robert E. Lipsey, NBER and Queens College, "Are There Wage Spillovers from Foreign

Investment?"

Discussant:

Philip Swagel, Northwestern University

Jonathan Eaton and

Samuel S. Kortum, NBER and Boston University, "The Internationalization of U.S. Patenting" (NBER Working Paper No. 4931)

Discussant:

James Anderson, Boston College

Douglas A. Irwin, NBER and University of Chicago and

Peter Klenow, University of Chicago, "High Tech R and D Subsidies: The Effects of Sematech"

Discussant:

Gene M. Grossman, NBER and Princeton University

J. David Richardson, NBER and Syracuse University, and

Pamela Smith, University of Delaware, "Sectoral Growth Across U.S. States: Factor Content, Linkages, and Trade"

Discussant:

James E. Harrigan, University of Pittsburgh

Dani Ben-David, CEPR and

University of Houston, "Some Evidence on Trade and Convergence Among Countries"

Discussant:

Jon Haveman, Purdue University

Richard Brecher,

Ehsan U. Choudhri, and **Lawrence L. Schembri**, Carlton University, Ottawa, "Trade

Liberalization and Productivity Growth: Some Evidence for Canada and the United States"

Discussant:

Keith Head, University of British Columbia

Christian Keuschnigg, CEPR and Institute for Advanced Studies, Vienna, and

Wilhelm K. Kohler, University of Essen, "Commercial Policy and Dynamic Adjustment Under Monopolistic Competition"

Discussant:

Elias Dinopoulos, University of Florida

Richard Baldwin, and

Rikard Forslid and

Jan Haaland, CEPR and Norwegian School of Economics and Business Administration, Bergen, "Growth Effects in a CGE Mold"

Discussant:

Drusilla Brown, Tufts University

Magnus Blomström, NBER and Stockholm School of Economics, and

Edward N. Wolff, New York University, "Growth in the Dual Economy" (NBER Working Paper No. 4433)

Discussant:

Michael Knetter, Dartmouth College

Aiken, Harrison, and Lipsey explore the relationship between wages and foreign investment in the United States, Mexico, and Venezuela. They find that higher levels of foreign investment are associated with higher wages across all three countries. However, in the case of Mexico and Venezuela, the overall wage increase is brought about by wage increases in foreign-owned firms only. In Mexico and Venezuela, there are no positive wage spillovers to domestic enterprises, which is consistent with significant wage differentials between foreign and domestic enterprises. Together with productivity differences, these wage differences are also consistent with greater human capital formation in foreign firms.

While domestic patenting in the United States and Europe has been relatively constant since 1950, the fraction of innovations that are patented abroad has risen dramati-

cally. **Eaton and Kortum** develop a model of technological innovation at the national level and the transfer of technologies between countries, which includes the decision to patent, either domestically or abroad. They relate the number of patents taken out by U.S. inventors in other countries, and by foreign inventors in the United States, to a number of variables. They find that market size and the strength of intellectual property protection are the most important factors affecting patenting by U.S. inventors abroad. Research effort in the country of origin explains most of the variation in the amount of foreign patenting into the United States.

Sparked by concerns about their shrinking market share, 14 leading U.S. producers of semiconductors, with \$100 million in annual subsidies from the U.S. government, formed a joint R and D consortium in 1987 called Sematech. **Irwin** and

Klenow find that Sematech induced members to cut their overall R and D spending by about \$300 million per year.

Using data covering 1987-9 on value added, international exports, patents, structural capital, and labor, **Richardson** and **Smith** find that factor endowments correlate rather strongly with cross-state sectoral growth. Further, there are marked intersectoral differences in productivity change, ranging from less than zero to annual rates over 10 percent. The authors find little evidence of either unusual growth linkages from sector to sector or state to state, or of a correlation between unusually strong sectoral growth and export performance.

Ben-David examines the relationship between trade and income convergence by focusing on groups of countries that comprise major trade partners. The majority of these groups exhibit significant

convergence. Furthermore, a comparison of the trade-based groups with different, randomly selected groups of countries shows that the former are more likely to exhibit convergence than the latter. Finally, the magnitude of growth in trade appears to be related to the degree of income convergence among countries.

Brecher, Choudhri, and Schembri develop a model that tests the links between trade policy and productivity growth through both R and D and international spillovers. Using data from Canadian and U.S. manufacturing industries, they find a positive long-term relationship between productivity growth in each country and total R and D in both countries. Moreover, the difference in the scale of R and D activities between Canadian and U.S. industries does not cause rates of productivity growth to diverge internationally.

Keuschnigg and Kohler find

that unilateral tariff cuts have an expansionary effect, resulting both in rationalization of industrial production and in new products supplied by new firms entering the market. Small export subsidies are self-financing. The expansionary effects and the welfare increases get magnified under monopolistic competition, as compared to a more competitive case.

Richard Baldwin, Forslid, and Haaland study the effects of the European Union (EU) Single Market program on investment creation and investment diversion. There is some evidence that the European Community's (EC's) Single Market program may have led to investment diversion in the economies of the European Free Trade Association (EFTA) and investment creation in the EU economies. Using a detailed computable equilibrium model, though, the authors find some cases in which EC92 does, and other cases in which it does

not, lead to investment diversion in EFTA. In all cases, when the Single Market program is extended to include EC and EFTA, investment creation occurs in them, and the impacts on the United States and Japan are negative, but trivially small.

Blomström and Wolff examine the sources of labor productivity growth in Mexican manufacturing. They find that labor productivity levels vary almost in direct relationship to establishment size, but that labor productivity growth shows no systematic variation by size. In fact, small establishments have had the same rate of labor productivity growth as larger ones, partly because of the exiting of low-productivity, small plants. Moreover, most of the variation in labor productivity across plant class sizes is attributable to differences in capital intensity.

These papers will be published in a special issue of an academic journal.

Individual and Social Responsibility

On October 7 and 8, an NBER conference on "Individual and Social Responsibility: Child Care, Education, Medical Care, and Long-Term Care in America" was held at the Bureau's California office. Victor R. Fuchs, NBER and Stanford University, organized this program.

Arleen Leibowitz, RAND, "Child Care: Private Cost or Public Responsibility?"

Discussant:
Francine D. Blau, NBER and Cornell University

Erik Hanushek, University of Rochester, "Efficiency, Equity, and the Rising Costs of Schools"

Discussant:
Christopher Jencks, Northwestern University

Henry J. Aaron, Brookings Institution, "Reforming the Financing of Health Care: The Clash of Goals, Facts, and Ideology"

Discussant:
Martin Feldstein, NBER and Harvard University

Alan M. Garber, NBER and Stanford University, "To Comfort, Always: The Prospects of Expanded Social Responsibility for Long-Term Care"

Discussant:
John B. Shoven, NBER and

Stanford University

Paul M. Romer, NBER and University of California, Berkeley, "Preferences, Promises, and the Politics of Entitlement"

Discussant:
Roger Noll, Stanford University

Robert Frank, Cornell University, "Consumption Externalities and the Financing of Social Services"

Discussant:
Amartya Sen, Harvard University

Kenneth J. Arrow, Stanford University, "Information, Responsibility, and Human Services"

Discussant:
Glenn Loury, Boston University
Henry Hansmann, Yale

University, "Organization of Production in the Human Services"

Discussant:

Joseph Grundfest, Stanford University

James M. Poterba, NBER and

MIT, "Government Intervention in the Markets for Education and Health Care: Why and How?" (NBER Working Paper No. 4916)

Discussant:

Richard J. Zeckhauser, NBER and Harvard University

Theda Skocpol, Harvard University, "The Politics of American Social Policy, Past and Future"

Discussant:

Seymour Martin Lipset, George Mason University

Leibowitz focuses on the notion of child care as an investment in the human capital of tomorrow's adults. Her paper discusses various types of child care, issues surrounding the quality and financing of such care, and the possible role for government involvement. Leibowitz points out that the gains may be especially large for children starting off on the bottom rungs of America's socioeconomic ladder. Good-quality child care may provide a start in life that makes success in school more likely, and thus offers a start toward a middle-class economic future. Moreover, although there is less evidence on this point, child care may serve as an early intervention that helps to counteract neighborhood pathologies of crime, abuse, and children giving birth to other children.

Hanushek discusses issues of quality in schooling, particularly the quality of elementary and secondary schools. In particular, he looks at efficiency and equity, which are intertwined directly in education debates because of the approaches commonly taken in distributional assumptions. Efficient spending is assumed, so that variations in expenditure can be used to gauge the distribution of educational services. If expenditure is not a good measure of the quality of education, then equity discussions based on expenditure can be misleading. The available evidence points to substantial inefficiency in

the production of high-quality education. Finally, Hanushek analyzes voting on school budgets in New York state, and finds no systematic relationship between performance of schools (measured in terms of student achievements) and willingness to support proposed budgets.

Aaron explores why health care reform proved such an intractable problem. Politics played a role, of course. But Aaron argues that the key problems are central to the nature of the health care industry, and to the inherited patterns of how the United States provides health care. For example, new technology is driving up the cost of health care. Because of tax breaks and limited information, households have a distorted perspective on how much health insurance they need. A number of overlapping policies and institutions, both public and private, determine how health care is provided. Yet some group has a personal stake in every one of these institutions, and thus is loath to see it changed.

Garber lays out what actually is involved in long-term care; what proportion of the population is likely to make use of such care; how Medicare and Medicaid presently cover such care; and what the options are for providing such care to the baby boom generation. He argues that planning for a future transfer program, from the working-age population to the elderly, is not likely to be economically or

politically sustainable. Thus, the solution must be to find ways in which the baby boom generation taken as a group saves the money to pay for its future long-term care needs.

Romer takes on the task of explaining why rational people may have preferences that depend on the promises made by others. He tackles this question by examining evidence from biology, and pointing out that in many situations, it will be useful for people to have mechanisms that help enforce corporate behavior. Romer uses insights about why promises matter to reopen a set of long-standing arguments over why people vote, why negative campaigning works, why commitments and promises matter in politics, and more. In particular, he uses his argument to explain why the phrasing of promises about Social Security has been taken to be so important, both by those in favor of expanding the program and by those in favor of reining it back. His argument implies that the design of social programs and the promises surrounding their passage will influence the life expectancy of such programs, and whether they expand or contract with time.

Frank explores the implications of two plans for financing health care: the first provides for universal membership in a basic, no-frills health insurance plan financed out of general tax revenues. Consum-

ers are free to join more elaborate plans, but they must pay the full cost of the alternative plan completely out-of-pocket. The second provides a tax-financed voucher to every consumer in the amount required to purchase membership in "Plan 1." People then may either join Plan 1 or supplement their voucher with their own funds to purchase membership in more elaborate plans. Because the cost of adding additional coverage to the basic plan is much lower under "Plan 2," it would induce more people to upgrade. This will reduce the perceived adequacy of the basic plan and, in turn, will generate political pressure to upgrade it. Under Plan 1, by contrast, fewer people elect to upgrade, and so political pressure to upgrade the basic plan will be weaker. Frank argues that Plan 1 is likely to deliver comparable health care outcomes at lower cost than Plan 2. He applies his findings to choice of alternative plans for financing education, child care, and long-term care.

Services are difficult to measure. Of course, one can count the amount of time a service provider spends on certain tasks, or the amount of money spent on services, but those aren't the same thing. In principle, at least, if information on the quality of service were describable and measurable, then people and suppliers could make more rational choices, and markets for services would work much better. **Arrow** focuses on the economics of information, and reinforces how markets will have difficulty dealing with a valuable, costly, intangible, nondepletable good such as information about service quality.

Different institutional forms organize the incentives and flows of information in different ways.

Hansmann lays out how the advantages and disadvantages of public, nonprofit, and for-profit institutions determine how they are used differently in child care, education, health, and long-term care. He finds a strong expansion of for-profit provision, and predicts that, just as a wave of for-profit providers revolutionized health care in the last 25 years, for-profits may alter education dramatically in the next 25.

Poterba examines how two standard arguments for government intervention in private markets—market failure and redistribution—apply to the markets for education and medical care. He then considers the choice between intervention via price subsidies, mandates, and direct public provision of services in these markets. Economic arguments alone seem unable to explain the sharp divergence between the nature of public policies with respect to education and medical care. Moreover, there is virtually no evidence on the magnitudes of many of the key parameters needed to guide policy in these areas, such as the social externalities associated with primary and secondary education, or the degree to which adverse selection in the insurance market prevents purchase of private insurance.

Skocpol offers an overview of four eras of U.S. social policymaking from the nineteenth century to the present: the Civil War era; the Maternalist era; the New Deal era; and the contemporary era of controversies over the federal social role. She concludes with a discussion of recurrent patterns, and contemporary constraints and opportunities in U.S. social policymaking. History shows that Americans repeatedly have been willing to pay taxes for generous social benefits

distributed widely to middle-class as well as less privileged citizens. Yet Americans are also deeply suspicious of, and occasionally antagonistic toward, intrusive governmental bureaucracy. Federal regulations *not* accompanied by subsidies are especially likely to be resisted. Social policies are politically viable only if they are broadly targeted, well-financed with public revenues, and not highly intrusive as regulators of families, individuals, or businesses.

This summary was prepared with the assistance of Timothy Taylor, *Journal of Economic Perspectives*. These papers and their discussions will be published by the University of Chicago Press in an upcoming conference volume. Its availability will be announced in a future issue of the *NBER Reporter*.



Public Policy and the Housing Market

An NBER conference on "Public Policy and the Housing Market," organized by Patric H. Hendershott, of the NBER and Ohio State University, was held on October 21 and 22. The program was:

Richard K. Green, University of Wisconsin, Madison, "Should the Stagnant Homeownership Rate Be a Source of Concern?"

Discussants:

Peter Englund, Uppsala University, and

Ann Schnare, Federal Home Loan Mortgage Association (FHLMA)

Dixie Blackley, LeMoyne College, and

James Follain, Syracuse University, "In Search of Empirical Evidence That Links Rent and User Cost"

Discussants:

Ann Dougherty, FHLMA, and Michelle White, University of Michigan

Yongheng Deng,

John M. Quigley, and

Robert Van Order, University of California, Berkeley, "Market Behavior and Homeowner Subsidies"

Discussants:

Dennis Capozza, University of Michigan, and

James Carr, Federal National Mortgage Association (FNMA)

Andrew C. Caplin, NBER and Columbia University,

Charles Freeman, Chemical Bank, and

Joseph Tracy, Columbia University, "Housing Partnerships: A New System of Housing Finance"

Discussants:

Susan Gates and Peter Zorn, FHLMA

Dennis Capozza and

Paul J. Seguin, University of Michigan, "Expectations, Efficiency, and Euphoria in the Housing Market"

Discussants:

James Berkovec, FHLMA, and Nancy Wallace, University of California, Berkeley

Gary Engelhardt, Dartmouth College, "House Prices and Homeowner Saving Behavior"

Discussants:

Jesse Abraham, FHLMA, and Jonathan S. Skinner, NBER and University of Virginia

Karl E. Case, Wellesley College,

and

Christopher Mayer, Federal Reserve Bank of Boston, "Housing Price Dynamics Within a Metropolitan Area"

Discussants:

Donald R. Haurin, Ohio State University, and

William Stephens, FHLMA

Sewin Chan, Columbia University, "Residential Mobility and Mortgages"

Discussants:

Jan Brueckner, University of Illinois, and Henry Buist, FNMA

Wayne Archer,

David Ling, and

Gary McGill, University of Florida, "The Effect of Income and Collateral Constraints on Residential Mortgage Terminations"

Discussants:

Man Cho, FNMA, and James Follain

Steven Grenadier, Stanford University, and

Brian Hall, Harvard University, "Risk-Based Capital Standards, Mortgage Demand, and Real Estate Markets"

Discussants:

George Bentson, Emory University, and Tyler Yang, FNMA

Green asks why the homeownership rate in the United States between 1980 and 1990 was stagnant. He finds that predicted changes in household composition based on demographics alone could have caused the homeownership rate to drop by 2.1 percent. Changes in the demand for owner-occupied housing within each household category could have caused the rate to drop another 1.5 percent. In light of these predictions, and con-

sidering that the actual rate dropped by only 0.2 percent, perhaps the stagnant homeownership rate should not be a major concern after all.

Most models of the rental housing market assume a close linkage between the level of residential rents and the aftertax cost of rental housing capital, that is user cost. Using U.S. annual data for 1964 through 1993, **Blackley** and **Follain** find that only half an increase

in user cost is passed along as higher rents. The adjustment process also takes a long time; only about half of the long-run effect is realized within 10 years of the increase in user cost. They offer several possible explanations for these results. Among them is the possibility that the linkage between user cost and rents is too complex and varied to be identified using 30 years of national data.

Dang, Quigley, and Van Order

analyze the costs of a current policy proposal suggested by the Clinton administration: transferring resources and stimulating homeownership by offering low downpayment loans. They find that if zero-downpayment loans were priced as if they were mortgages with 10 percent downpayments, then the additional costs of the program would be 2 to 3 percent of the funds made available—when housing prices are increasing steadily. Under a stable or a moderately declining pattern of housing prices, though, the costs of the program would be much larger: as much as \$67,000 to \$92,000 per million dollars of lending. If the expected losses from such a program were not priced at all, then the losses from default alone could exceed 10 percent of the funds made available for loans.

Caplin, Freeman, and Tracy explore the feasibility of introducing partnership agreements into the housing market, with households and financial institutions each taking partial ownership of the residence. They show that partnership contracts of this form have the potential to reduce the financial burdens to households of owner occupation, and to reduce the cost to taxpayers of the various subsidies to owner occupation. They envisage a limited partnership agreement, with the purchasing household as the managing partner and the financial institution as the limited partner. In the simplest such form of contract, ownership of the property would be divided in fixed proportions between the household and the financial institution. As managing partner, the household would get the sole right to live in the property and decide when to sell it. In return, the man-

aging partner would have the contractual obligation to maintain the property in acceptable condition. Upon sale of the property, the receipts would be split between the managing partner and the limited

“[H]ouseholds have offset real capital gains on housing through reductions in savings.”

partner in proportion to their fixed ownership proportions.

Capozza and Seguin study expectations of capital appreciation in the housing market. They show that expectations impounded in the rent/price ratio at the beginning of the decade successfully predict appreciation rates, but only after adjusting for cross-sectional differences in the quality of rental versus owner-occupied housing. They also demonstrate that observed rent/price ratios contain a disequilibrium component that has the power to forecast subsequent appreciation rates. Finally, they demonstrate that euphoria exists; that is, participants in housing markets appear to overreact to income growth.

Engelhardt examines the link between house price appreciation and the savings behavior of homeowners during the 1980s, when there was rapid real appreciation regionally and household savings rates fell. Using household asset and debt data for a sample of homeownership households under age 65 in 1984 and 1989, he finds that households have offset real capital gains on housing through reductions in saving: the estimated marginal propensity to consume out of those gains is 0.025. This is somewhat smaller than, but consis-

tent with, previous findings from aggregate data for the 1970s. Virtually all of the savings offset comes from households with negative real capital gains on housing.

A number of studies have demonstrated that increases and decreases in single family home prices over the housing cycle have varied widely within metropolitan areas. **Case and Mayer** show how changes in a variety of fundamental factors, including amenities, incomes, and employment, affect the pattern of housing and land prices across jurisdictions. They base their findings on data on price changes across 193 separate cities and towns in Massachusetts between 1981 and 1994.

Chan discusses how the accuracy and detail of mortgage data can be applied to important areas of economics outside of mortgage finance, in particular, mobility and location choice. As a supplement to the variables from the application form, the self-selection of mortgage contracts has been used to infer expected mobility from the choice of points. Chan tests the points indicator using the Chemical Bank dataset of mortgage loans. He finds that the points indicator is highly significant in predicting mobility for low loan-to-value (LTV) borrowers, but not for high LTV borrowers. This is evidence for the presence of large constraints to mobility for the high LTV group, most likely because of the recent collapse in property values, coupled with downpayment requirements for the purchase of another home.

Archer, Ling, and McGill explore the influence of household-level characteristics on mortgage prepayment, both characteristics of the householder and of collateral (house) value. They recognize im-

portant interactions between the status of the prepayment option and the influence of income and collateral constraints on prepayment. Using a major source of data that has not previously been used, the American Housing Survey, they find that when the household is constrained in terms of either collateral or income, or the prepayment option is unlikely, then the influence of the option value on prepayment is about half what it otherwise would be. When the status of the option and the influence of potential household constraints are more appropriately recognized, these factors account for nearly all explanatory power otherwise at-

tributable to household demographic characteristics.

Bank risk-based capital (RBC) standards require that banks hold differing amounts of capital for different classes of assets. **Grenadier** and **Hall** find that after adopting RBC standards, banks changed their portfolios in ways that raised their risk-weighted capital ratios. However, banks did not reduce their holdings of home mortgages, which have an intermediate weight of 50 percent, in response to risk-based capital standards. Their analysis suggests that the ordering of the risk weights is basically correct in terms of credit risk, but that the

50 percent weight given to home mortgages is too high. In terms of more general notions of asset riskiness, the RBC risk weightings are seriously deficient. In particular, the lack of consideration of interest risk may lead to an *increase* in bank riskiness, through the incentives provided by the RBC regulations.

Also in attendance were: Donald Bradley, Chester Foster, Susan Gates, Edward Golding, Vassilis P. Lekkas, and Donald Solberg, FHLMA; and Isaac Megbolugbe, FNMA.

The conference papers and their discussions will be published in a special issue of the journal *Regional Science and Urban Economics*.

Beyond the Uruguay Round: Environment, Competition, and Regulation

Over 70 participants from universities, government agencies, and international organizations met in Washington on October 28 for an NBER conference titled "Beyond the Uruguay Round: Environment, Competition, and Regulation." Robert E. Baldwin, NBER and University of Wisconsin, Madison, and J. David Richardson, NBER and Syracuse University, organized the program.

Robert E. Baldwin, "An

Economic Evaluation of the Uruguay Round Agreements"

Discussant:

Jeffrey Schott, Institute for International Economics

Alan V. Deardorff and

John H. Jackson, University of Michigan, "Problems of Regulating Economic Activity in a World of Increasing Interdependence"

Discussant:

Max Corden, Johns Hopkins University

J. David Richardson,

"Competition Policies as Irritants to Trade"

Discussant:

Morris Morkre, Federal Trade Commission

Daniel C. Esty, Yale University,

"Toward a Greener GATT" and "Greening the GATT: Specific Steps"

Discussant:

Arvid Subramanian, International Monetary Fund

Baldwin evaluates the Uruguay Round Agreements in terms of three economic criteria: the extent to which they are likely to foster growth and raise living standards; the extent to which they satisfy noneconomic goals without reducing economic efficiency; and the extent to which they strengthen the institutional mechanisms for achieving compliance with trading rules.

He judges the Uruguay Round as having been very successful in terms of all three. The reductions in duty, the elimination of voluntary export restraints, the return of agriculture and textiles to General Agreement on Tariffs and Trade (GATT) discipline, the strengthening of intellectual services, the liberalization of trade-related investment measures, and the further

opening of purchases by governments to international competition, all of which are part of the agreements, will bring substantial benefits in income and growth. Aspects of the agreements on safeguards and subsidies also will reduce the economic inefficiencies often associated with the use of trade policies to promote noneconomic objectives. Finally, the new arrange-

ments for disputes settlement, the new trade-policy review mechanism, and, most importantly, the provisions replacing the GATT with a permanent international institution, the World Trade Organization (WTO), significantly strengthen the world trading system.

Deardorff and **Jackson** discuss the general problems that arise internationally when separate governments intervene in their economies. They review some of the problems that have occurred with environmental policy and competition policy, and the questions these have raised for international cooperation. Finally, they examine the various forms that international cooperation might take, and the questions that arise in structuring international agreements and institutions, such as the new WTO.

Using the context of the Asia Pacific region, **Richardson** concludes that competition policies are significant irritants and cause significant inefficiencies to global trade and investment. However, the particular policies that inflame trade relations in the Asia Pacific area are somewhat different from those that do so elsewhere. He further believes that there is scope for modest "co-operative unilateral" actions to alleviate these problems in general and in the Asia Pacific region. Private business practices can act as market barriers that impede international trade and investment. Also, in some areas the concerns of international commercial policy and competition policy seem similar but practices differ widely.

Esty reviews the "trade and en-

vironment" agenda facing the GATT and its successor entity, the WTO. He suggests that both the GATT and WTO would benefit by undertaking environmental assessments prior to future negotiations, and by making their dispute resolution procedures more open to participation by outside experts and nongovernment organizations. **Esty** concludes with the observation that much of the "trade and environment" dispute actually stemmed from failures of environmental policy, which might be avoided by broader use of the Polluter-Pays Principle and market-based regulatory programs, as well as by creation of a Global Environmental Organization to reduce frictions between the international, environmental, and trade regimes.

Tax Policy and the Economy

The NBER held its ninth annual conference on "Tax Policy and the Economy" in Washington on November 1. James M. Poterba, director of the NBER's Program in Public Economics, also of MIT, organized this program:

Stacy Dickert and **Scott Houser**, University of Wisconsin, Madison, and **J. Karl Scholz**, NBER and University of Wisconsin, Madison,

"The Earned Income Tax Credit and Transfer Programs: A Study of Labor Market and Program Participation"

W. Kip Viscusi, Duke University, "Cigarette Taxation and the Social Consequences of Smoking" (NBER Working Paper No. 4891)

Martin Feldstein, NBER and Harvard University, and **Jonathan Gruber**, NBER and MIT, "A Major-Risk Approach to

Health Insurance Reform" (NBER Working Paper No. 4852)

Jason G. Cummins, Columbia University,

Kevin A. Hassett, Federal Reserve Board, and

R. Glenn Hubbard, NBER and Columbia University, "Have Tax Reforms Affected Investment?"

Joel M. Dickson, Federal Reserve Board, and

John B. Shoven, NBER and Stanford University, "Taxation and Mutual Funds: An Investor Perspective"

The Earned Income Tax Credit (EITC) is the cornerstone of the Clinton administration's welfare reform agenda. But how well it will work depends on workers' behavior in the labor market. **Dickert**, **Houser**, and **Scholz** estimate that the 1993 expansion of the credit will lead to a modest overall reduction in hours worked by those who receive it. However, the authors

also estimate that the EITC expansion will cause labor force participation rates to rise for single-parent households.

In assessing the appropriate federal tax on cigarettes, **Viscusi** finds that the financial savings from premature mortality, in terms of lower nursing home costs and retirement pensions, exceed the higher med-

ical care and life insurance costs that smokers generate. Still, the costs of environmental tobacco smoke, while highly uncertain, are potentially substantial. Even recognizing these costs, though, **Viscusi** concludes that current cigarette taxes are higher than the total of cigarettes' estimated costs to individuals and society.

Using data from the National Medical Expenditure Survey, **Feldstein** and **Gruber** study the impact of switching from existing types of health insurance coverage to policies with a 50 percent copayment rate and a limit on out-of-pocket expenditures of 10 percent of income, as well as several alternatives. Their analysis is limited to the population under age 65. They show that shifting to such a "major-risk" policy could reduce aggregate health spending by nearly 20 percent, and could raise aggregate national efficiency by \$34 billion a year.

Cummins, Hassett, and Hubbard find that tax policy had an economically important effect on firms' investment in equipment through the user cost of capital af-

ter the major tax reforms enacted in 1962, 1971, 1981, 1986. This effect was most pronounced for firms that were not in tax-loss positions, and thus were more likely to face statutory tax rates and investment incentives. The authors also show that tax-induced variation in the user cost of capital for different classes of equipment is related negatively to asset-specific errors in investment forecasts that follow major tax reforms. This suggests that ex ante knowledge of an impending tax reform can improve forecasts of investment.

Dickson and Shoven take shareholder-level taxes into account in determining the performance of growth, and growth and income, mutual funds during 1963-92. For a sample of funds, and in-

vestors in different income classes facing various investment horizons, they find dramatic differences between the relative rankings on a before- and after-tax basis. This is especially true for middle- and high-income investors. For instance, one fund that ranks in the 19th percentile on a pretax basis ranks in the 63rd percentile for an upper-income, taxable investor. Further, because of the failure of mutual funds to manage their realized capital gains in such a way as to permit a substantial deferral of taxes, shareholders paid more than \$1 billion extra in taxes in 1993.

These papers and their discussions will be published by the MIT Press as *Tax Policy and the Economy, Volume 9*. The publication date will be announced later in the *NBER Reporter*.

Productivity, Social Programs, and Labor Markets in Latin America

The NBER and Instituto Tecnológico Autónomo de México (ITAM) jointly sponsored the seventh annual Inter-American Seminar on Economics, "Productivity, Social Programs, and Labor Markets," which was held in Mexico City on November 10-12. Sebastian Edwards, NBER, UCLA, and the World Bank, and Alejandro Hernandez, ITAM, organized the following program:

George J. Borjas, NBER and University of California, San Diego, "The Labor Market Performance of Mexican Immigrants in the United States"
Discussant:
Michael Cragg, Columbia University

Albert Fishlow, University of California, Berkeley, "Poverty and Inequality in Latin America"

Discussant:
Sebastian Edwards

Ricardo J. Caballero, NBER and MIT, and

Mohammed L. Hammour, Capital Guidance, "On the Ills of Adjustment"

Discussant:
Manuel Santos, ITAM

Eduardo Lora and **Roberto Steiner**, Fedesarrollo, "Structural Reforms and Income Distribution in Colombia"

Discussant:
Adalberto Garcia Rocha, El Colegio de México
Santiago Levy, President,

Comisión Federal de Competencia, and **Sweder van Wijnbergen**, University of Amsterdam, "Transition Problems in Economic Reform: Agriculture in the United States-Mexico Free Trade Agreement"

Discussant:
Albert Fishlow

Jorge Quiros, ILADES, and **Mabel Cabezas**, GERENS, Ltd., "Reforms, Agriculture, and Migration in Chile: A Calibration Exercise"

Discussant:
Luis Téllez, PRI

Susan M. Collins, NBER and Georgetown University, "On Becoming More Flexible: Exchange Rate Regimes in Latin America and the Caribbean"

Discussant:
Carlos Sales, SHCP

Marcio G. P. Garcia, PUC-Rio de Janeiro, "Avoiding Some Costs of Inflation and Crawling to Hyperinflation: The Case of Brazilian Domestic Currency Substitute"

Discussant:
Hugo Mena, ITAM

Timothy Besley, NBER and Princeton University, and **Alec Levenson**, The Milken Institute, "The Role of Informal Finance in Household Capital Accumulation: Evidence from Taiwan"

Discussant:
Catherine Mansell, ITAM
Michael Cragg, and **Mario Epelbaum**, ITAM, "Wage and Employment Dynamics in Mexico"

Discussant:
William Maloney, University of Illinois

Ricardo Hausmann and **Antonio Spilinger**, Inter-American Development Bank, "Integration, Unemployment, and Transfers: The Reversed Great Sucking Sound"

Discussant:
Gabriel Martinez, SECOFI
Sebastian Edwards, "Why Are Latin America Saving Rates So Low?"

Discussant:
Agustin Carstens, Banco de Mexico
Ignacio Trigueros, ITAM, "Welfare Effects of Legislated Severance Payments"
Discussant:
Mauricio Cárdenas, Fedesarrollo

Borjas uses the 1970, 1980, and 1990 Public Use Samples of the U.S. Census to document what happened to the earnings of Mexican immigrants during the 1980s, and to determine whether pre-1980 immigrant flows have reached earnings parity with natives. He also investigates the extent to which Mexican immigration is responsible for the declining skills of successive immigrant waves. Borjas finds that there has been a decline in the relative wage of successive Mexican immigrant waves in the past three decades, and that little wage convergence occurs between the typical Mexican immigrant and the typical U.S.-born worker. Also, Mexican immigration accounts for part of the decline in skills observed in the total immigrant population. However, there has been a decline in skills among non-Mexican immigrants, too.

Fishlow focuses on three central questions: the current state of economic inequality, noting the decline in Latin American performance in the last decade; relevant

policy measures that potentially can alleviate the situation of the very poor, where the Asian countries, because of their low incomes, are in a relatively much worse position; and the current research, which builds on endogenous growth theory, suggesting that greater equality contributes to more rapid expansion.

Caballero and **Hammour** analyze impediments to the process of economic restructuring following

"Borjas finds that there has been a decline in the relative wage of successive Mexican immigrant waves in the past three decades, and that little wage convergence occurs between the typical Mexican immigrant and the typical U.S.-born worker."

reform. They argue that a major source of disruption is the "appropriability" that afflicts both labor and capital markets. The result is a depressed rate of creation of the new productive structure, and excessive destruction of the old pro-

ductive structure, leading to a surge in open or hidden unemployment. Gradualism is not a useful remedy, because it does not synchronize creation and destruction, but rather drags inefficient adjustment over a longer period. Preventing a rise in unemployment requires an adjustment program that combines vigorous creation incentives in the expanding sector with measures to support employment in the contracting one.

In 1990, Colombia implemented a comprehensive structural reform program involving the liberalization of trade and a tax reform aimed at compensating for the decline in tariff revenue. **Lora** and **Steiner** assess whether these reforms were responsible for recent changes in income distribution, particularly the widening of the rural-urban income gap between 1990 and 1993. They conclude that, neither in the medium nor in the short run, can the trade or tax reforms be blamed for any deterioration in income distribution. Instead, the surge in private and public spending, the resulting

appreciation of the real exchange rate, and the reduction in the producers' price of coffee caused by the collapse of the external price underlie the changes in income distribution.

Levy and van Wijnbergen discuss the speed with which Mexican agriculture will be incorporated into the North American Free Trade Agreement and the policies that will characterize the transition. They use Mexican agriculture as a case study to analyze the transition problems that arise in most major economic reforms. They focus on: the implications for policy design of the absence of efficient capital markets; the welfare costs of reforming only gradually; incentive problems created by trade adjustment policies; and the redistributive aspects of policy reform in the presence of realistic limits on available intervention instruments. Their key point is that adjustment should focus on increasing the value of the assets owned by the groups affected, and not on direct income transfers, or programs targeted on output, or other characteristics controlled by the beneficiaries. They target adjustment on what people have, as opposed to what people do.

Quiroz and Cabezas ask how quickly labor can move across different economic sectors, and in particular, the extent to which unskilled labor can migrate into or out of the agricultural sector. In Chile, there was a wide and comprehensive trade reform in the mid-1970s, and wide changes in relative price over the last 20 years. They find a reversal in migration flows after the trade reform, and an increase in the real exchange rate that fostered agricultural growth

during the 1980s. At the beginning of trade and market liberalization, relative wages were misaligned by as much as 40 percent as a result of labor market interventions; adjustment costs associated with migration flows were in the order of 1 percent of total consumption. Overall, the authors find that labor moves relatively freely and quickly between agricultural and nonagricultural sectors.

Collins examines the determi-

"[T]here appears to have been a major reduction in the perceived difficulty of managing flexible rates during this period [1987-92]."

nants and implications of the striking shift from fixed to more flexible exchange rate regimes among countries in Latin America and the Caribbean. For a sample of 24 countries over 1978-92, she finds that misalignments (proxied by current account deficits and moderate-to-high rates of inflation) were associated with a move to more flexible rates during 1978-86. Indicators of misalignments appear to have mattered less during 1987-92. However, there appears to have been a major reduction in the perceived difficulty of managing flexible rates during this period. There is also some evidence that after 1986 countries with very high inflation opted for fixed rates. Collins then cautions against attributing differences in macroeconomic performance between groups of countries to their exchange regime.

A classical hyperinflation is marked by an acute acceleration of the inflation level accompanied by rapid substitution away from domestic currency. However, Brazil

has been experiencing inflation levels well above 1000 percent a year since 1988 without entering the classical hyperinflation path. Two elements differentiate the Brazilian case from other hyperinflationary experiences: indexation, and the provision of a reliable domestic currency substitute (that is, the provision of liquidity to interest-bearing assets). **Garcia** claims that this domestic currency substitute is the main source of both the inability of the Brazilian central bank to fight inflation and of the unwillingness of Brazilians to face the costs of such a fight. The main macroeconomic consequences of this monetary regime are: lack of a nominal anchor for the price system

because of passive monetary policy; endogeneity of seignorage, unlike in traditional models of hyperinflation; and ineffectiveness of very high real interest rates.

Economies that experience rapid growth also experience major changes in their consumption patterns, especially in terms of consumer durables. **Besley and Levenson** study the diffusion of durables in Taiwan between 1977 and 1991. They focus on the link between household accumulation of durables and participation in informal financial institutions. While growth in per capita income in Taiwan has been great, the emergence of a developed financial system appears to have been slower: many households still rely on traditional forms of finance. The authors find that rotating savings and credit associations, which are found worldwide, exist to lower the cost of saving for durables.

Between 1987 and 1993, average real urban full-time wages grew 30 percent and comparable employ-

ment grew 22 percent in Mexico. As in other developed countries, the wage premium for skills in Mexico is rising. **Cragg** and **Epelbaum** ask why the demand for educated workers also is rising disproportionately quickly. They conclude that some labor is more complementary with capital than other labor, and that shifts in demand are technologically based, and could result from skill-biased technological change.

When a rich country (the North) integrates with a poorer country (the South), the result may be unemployment in the South, as is the case in Puerto Rico versus the United States, East versus West Germany, South versus North Italy, or Spain and Ireland versus the European Union. Moreover, there are significant fiscal transfers from the North to the South, mainly as subsidies to the unemployed. **Hausmann** and **Spilinger** model these facts assuming the presence of some fixed factors. This provides workers in the North with a degree

of monopoly power that they can use to impose taxes on themselves, and then use the resources to subsidize unemployment in the South, so as to prevent entrance into their

"Between 1987 and 1993, average real urban full-time wages grew 30 percent and comparable employment grew 22 percent in Mexico."

market.

Edwards considers the determinants of savings in the world economy, and analyzes why savings ratios in Latin America traditionally have been so low. Based on international comparisons, with data from 38 countries—both OECD members and less developed nations—from 1970 to 1992, per capita growth turns out to be the single most important determinant of both private and public savings. Public savings tend to be lower in countries with higher political instability. Higher government savings crowd out private savings, but

in a less than proportional fashion. There are significant differences between the Latin American countries and the rest of the sample, especially regarding demographic variables, growth, and social security. Overall, the poor levels of private savings in the region seem to be largely a consequence on different levels of their determinants, rather than structural differences in the savings function.

Trigueros analyzes the trade-off between risksharing and productivity that results from legislated severance payments. He develops a simple analytical model for an economy where restrictions on firing adversely affect productivity, and workers face risk. He then shows that unless fired workers face especially adverse conditions, which in the model is a long period of time working for a relatively low wage rate, the productivity losses outweigh the riskspreading benefits of severance payments.

The proceedings of this conference will be published in the *Journal of Development Economics*.

NBER—Universities Research Conference on Corporate Finance

Approximately 100 participants from over 30 universities throughout the United States and Canada attended the semiannual NBER—Universities Research Conference in Cambridge on December 2 and 3. This particular conference, on "Corporate Finance," was organized by René M. Stulz of NBER and Ohio State University. The program was:

Jeffrey Zwiebel, Stanford University, "Dynamic Capital Structure Under Managerial Entrenchment"

Discussants:
David Hirshleifer, University of Michigan, and
Andrew J. Winton, Northwestern University

Tim C. Opler, Ohio State University, and

Sheridan Titman, Boston College, "The Debt/Equity Choice: An Analysis of Issuing Firms"

Discussants:
Michael J. Barclay, University of Rochester, and
Robert L. McDonald, NBER and Northwestern University

Craig Lewis, Vanderbilt University, and
Richard J. Rogalski and **James K. Seward**, Dartmouth College, "An Empirical Analysis of Convertible Debt Financing by NYSE/AMEX and NASDAQ Firms"

Discussants:

Paul Asquith and
Jeremy C. Stein, NBER and MIT

Charles W. Calomiris, NBER
and University of Illinois, and
Athanasios Orphanides and
Steven A. Sharpe, Federal
Reserve System, "Leverage as a
State Variable for Employment,
Inventory Accumulation, and
Fixed Investment" (NBER
Working Paper No. 4800)

Discussants:

Eli Ofek, New York University,
and
Luigi Zingales, NBER and
University of Chicago

Tim Loughran, University of
Iowa, and

Jay R. Ritter, University of
Illinois, "The Operating
Performance of Firms Conducting
Seasoned Equity Offerings"

Discussants:

Ronald W. Masulis, Vanderbilt
University, and
Krishna G. Palepu, Harvard
University

Oliver D. Hart, NBER and
Harvard University, and

John Moore, London School of
Economics, "The Governance of
Exchanges: Members'

Cooperatives Versus Outside
Ownership"

Discussants:

Franklin Allen, University of
Pennsylvania, and
Milton Harris, University of
Chicago

Nicholas Barberis, Harvard
University,

Andrei Shleifer, NBER and
Harvard University,

Natasha Tsukanova, Boston
Consulting Group, and

Maxim Boycko, Russian
Privatization Center, "How Does
Privatization Work? Evidence
from the Russian Shops"

Discussants:

Bengt Holmstrom, MIT, and
Jonathan Karpoff, University of
Washington

David J. Denis and

Diane K. Denis, Virginia
Polytechnic Institute and State
University, and

Atulya Sarin, Santa Clara
University, "Ownership Structure
and Top Management Turnover"

Discussants:

Michael C. Weisbach, University
of Arizona, and
John J. McConnell, Purdue
University

Gary B. Gorton, NBER and
University of Pennsylvania, and
Frank A. Schmid, Free
University of Berlin, "University
Banking and the Performance of
German Borrowers"

Discussants:

Christopher M. James, University
of Florida, and
Raghuram G. Rajan, University of
Chicago

David E. Weinstein and
Yishay Yafeh, Harvard

University, "On the Costs of a
Bank-Centered Financial System:
Evidence from the Changing Main
Bank Relations in Japan"

Discussants:

Steven N. Kaplan, NBER and
University of Chicago, and
David S. Scharfstein, NBER and
MIT

Philip G. Berger, University of
Pennsylvania, and

Eli Ofek, "Bustup Takeovers of
Value-Destroying Diversified
Firms"

Discussants:

Henri Servaes, University of North
Carolina, and
Robert Comment, U.S. Securities
and Exchange Commission

Zwiebel develops a model in which debt constrains any inefficient investments on the part of empire-building managers because bankruptcy would have serious implications for their continued corporate control. Management voluntarily chooses capital structure, in a manner that ensures enough efficiency to prevent a future takeover. Managers are free to readjust leverage each period. A policy of dividend payments coordinated with decisions about capital structure follows naturally, as do implica-

tions for the level, frequency, and term structure of debt as a function of outside investment opportunities.

Opler and **Titman** compare the characteristics of U.S. firms that issued equity between 1976 and 1993 to those that increased their use of debt financing. They find that firms that were very profitable prior to the debt issue were more likely to increase their use of debt financing; those that accumulated losses instead tended to issue equity. These results confirm previous findings that firms are most likely

to issue equity after experiencing a rise in their share price. This suggests that firms do not select their capital structures by trading off tax and other advantages of debt financing with financial distress and other costs associated with debt.

Lewis, **Rogalski**, and **Seward** study announcements of convertible debt issues by a sample of 503 NYSE/AMEX firms and 303 NASDAQ firms. For both sets of firms, before the issue share price performance is abnormally good, and during the announcement period,

returns are significantly negative. After the issue, performance is poor. The authors suggest that the factors that govern the design of convertible debt are consistent with a conflict between bondholders and stockholders. Also, the factors that explain security price reactions differ across NYSE/AMEX and NASDAQ firms. Although no one theory appears to explain share price reactions fully, information asymmetries do influence the share price reactions of both sets of firms. However, the source of the information asymmetry differs between NYSE/AMEX and NASDAQ firms.

Calomiris, Orphanides, and Sharpe examine the responsiveness of employment, investment, and inventory accumulation to changes in sales. They find that a firm's leverage conditions the response of all three variables to changes in sales. They also find that this effect varies depending on the state of the economy. During recessions, higher leverage clearly magnifies the contractionary effect of declines in sales on investment. During times of positive growth in sales, higher leverage may dampen the expansionary effect of growth in demand. Leverage effects are larger and more significant during recessions. Firms that use debt to finance expansion during times of increasing demand suffer a reduced ability to maintain growth during recessions as a consequence of their higher leverage.

Recent studies have demonstrated that firms conducting seasoned equity offerings have inordinately low stock returns during the five years after the offering, following a sharp run-up in the year prior to the offering. Using a sample of 1406 seasoned equity offerings during 1979-89, **Loughran and Ritter**

document that the operating performance of issuing firms shows substantial improvement prior to the year of the offering, but then deteriorates, especially for smaller issuers. The multiples at the time of the offerings do not reflect an expectation of deteriorating performance. This is consistent with the hypothesis that the stock price run-up reflects a capitalization of transitory improvements.

Hart and Moore ask why there is a difference in governance structure between stock exchanges (which are cooperative) and other businesses. Outside owners typically are interested only in maximizing profit, and thus tend to make inefficient decisions, tailored to the marginal user. Collective decision-making, on the other hand, is typically inefficient because the views of the pivotal voter are not necessarily the same as those of the membership as a whole. Hart and Moore find that outside ownership becomes relatively more efficient than a membership cooperative as the variation across the membership becomes more skewed and the exchange faces more competition. Changes in the environment suggest that it now may be more efficient for London's stock exchanges to be sold off and run by outside owners.

Barberis, Shleifer, Tsukanova, and Boycko study 413 shops in seven Russian cities that were privatized in 1992 and 1993. They find principally that restructuring requires new people with new skills. The success of transition "relies critically on rapid turnover in human capital," they conclude. Skills may matter more than incentives.

Denis, Denis, and Sarin report a significant negative relationship between the fractional equity ownership of top executives and the

likelihood of turnover among top management. Managers become entrenched at very low levels of ownership. Consistent with this, the stock price reaction to a change in management is significantly greater in firms in which the departing manager owns more than 1 percent of the firm's shares. Moreover, in these firms, the incoming manager's fractional ownership is typically less than 1 percent, and the firm is subject to a higher rate of post-turnover corporate control. The authors also find that turnover rates are higher in firms with unaffiliated blockholders and lower in firms with blockholders who are affiliated with incumbent managers.

As an alternative to a stock market, universal banking provides information for guiding investment and for contesting corporate governance. In Germany, banks hold equity stakes in firms and have proxy voting rights over other agents' shares. In addition, banks lend to firms and have representatives on corporate boards. Taking account of banks' equity holdings, the extent of banks' proxy voting rights, and the ownership structure of the firms' equity, **Gorton and Schmid** investigate the influence of banks on the performance of German firms. They find that the performance of German firms improves to the extent that German banks own the firms' equity. There is no evidence of conflicts of interest.

Weinstein and Yafeh examine the effects of a bank-centered financial system on firm performance in Japan. They find that when access to bond and equity markets is limited, close bank-firm ties increase the availability of capital but do not lead to higher profitability or growth. This is largely because banks enjoy more market

power when firms do not have easy access to other sources of finance; they can charge higher interest rates in exchange for liquidity services and can influence firms to avoid risky but profitable projects. Finally, the authors demonstrate that the liberalization of financial markets is important in reducing the market power of banks by enhancing the contestability of financial markets.

Berger and Ofek find that a loss in firm value from diversification is related to the probabilities of future takeover and of breakups. They show that leveraged buyouts are more likely than other acquirers to target value-destroying diversified targets. Finally, they find that for a subsample of large diversified targets, half are broken up after they are acquired; the effect on mean value of diversification is negative 22 percent to negative 33 percent for these firms. In contrast, the half not broken up after takeover have a mean valuation effect from diversification of negative 3 to positive 6 percent.

Bureau News

Martin Neil Baily Named to the Council of Economic Advisers

Martin Neil Baily, who has been a research associate of the National Bureau of Economic Research, has been nominated a member of the President's Council of Economic Advisers. If confirmed by the Senate, Baily will replace Alan S. Blinder, the former Princeton University economist and NBER Research Associate who is now Vice-Chairman of the Federal Reserve Board.

Baily was educated at Cambridge University (England) and MIT, where he received his Ph.D. in economics in 1972. After teaching at MIT and Yale, he became a

Senior Fellow at the Brookings Institution in 1979 and a professor of economics at the University of Maryland in 1989. In spring 1993, he took a leave of absence from his academic work to become a Fellow of the McKinsey Global Institute, a research group within McKinsey and Company.

Baily's principal fields of interest are productivity, macroeconomic and employment policy, and applied microeconomics. He has served as an academic advisor to the Congressional Budget Office and the Federal Reserve Board.

Monetary Economists Meet

Nearly 40 members and guests of the NBER's Program in Monetary Economics attended the group's fall meeting on October 14. Program Director N. Gregory Mankiw, also of Harvard University, put together this agenda:

Michael Woodford, NBER and University of Chicago, "Price Level Determinacy Without Control of a Monetary Aggregate"

Discussant:

Herschel I. Grossman, NBER and Brown University

Andrew C. Caplin, NBER and Columbia University, and

John V. Leahy, NBER and Harvard University, "Monetary Policy as a Process of Search"

Discussant:

Nobuhiro Kiyotaki, NBER and University of Minnesota

Casey Mulligan, University of Chicago, "Scale Economies, the Value of Time, and the Demand for Money: Longitudinal Evidence from Firms"

Discussant:

Alan Meltzer, Carnegie-Mellon University

Discussion with

Helmut Schlesinger, former

President of the Bundesbank

Bennett T. McCallum, NBER and Carnegie-Mellon University, "Monetary Policy and the Term Structure of Interest Rates"

Discussant:

Kenneth A. Froot, NBER and Harvard University

Julio J. Rotemberg, NBER and MIT, "Prices and Output: An Empirical Analysis Based on a Sticky Price Model" (NBER Working Paper No. 4948)

Discussant:

David H. Romer, NBER and University of California, Berkeley

Contradicting quantity theorists, **Woodford** argues that price levels can be determined without reference to the money supply. In his model, at the equilibrium price level, aggregate demand equals aggregate supply. For a wide class of policies, there exists a unique, perfect-foresight equilibrium path for the price level. This equilibrium is determined largely by fiscal policy. Woodford controls for predetermined prices, so that unexpected variations in nominal aggregate demand affect output, not the price level, in the short run. He also discusses policies to control inflation that do not require control of the path of a monetary aggregate.

Caplin and **Leahy** analyze the search for an optimal monetary policy in the context of a monetary authority lowering interest rates to end a recession while trying not to ignite inflation. They argue that the policy needs to be more aggressive than the reaction it seeks to elicit. If a reduction in interest rates fails to stimulate growth, then policymakers will be forced to reduce rates again, so agents have an incentive to wait. Gradual policy initiatives therefore may elicit very little reaction and are more likely to fail.

Through examination of COMPUSTAT data on 12,000 firms for 1956-92, **Mulligan** finds that large firms hold less M1 as a percentage of sales than small firms do. Whether within or across industries, the elasticity of M1 balances with respect to sales is about 0.75. Firms headquartered in counties with high wages hold more money for a given level of sales, which is consistent with the idea that time can substitute for money in the provision of transactions services.

Schlesinger briefly explained the Bundesbank's goal of monetary

stabilization through price stability and a low targeted inflation rate, and how external and domestic factors affected the realization of those goals. He also discussed the EMU, and in particular how the issue of inter-European monetary convergence affected both the goals of the Bundesbank and the value of the DM.

McCallum addresses a prominent empirical failure of the expectations theory of the term structure of interest rates under the assumption of rational expectations, which concerns the magnitude of slope coefficients in regressions of short-rate (or long-rate) changes on long or short spreads. He shows that the empirical findings can be rationalized with the expectations theory by recognition of an exogenous

term premium, plus the assumption that monetary policy involves the smoothing of an interest rate instrument—the short rate—together with responses to the prevailing level of the spread.

Rotemberg shows that a simple sticky price model is consistent with a variety of facts about the correlation of prices and output, in particular, a negative correlation between detrended levels of output and prices. This negative correlation between the predictable movements in output and the predictable movements in prices is present (and very strong) in U.S. data. He uses these and other facts to shed light on the degree to which the Federal Reserve has pursued a policy designed to stabilize expected inflation.

Additional Papers

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"Education Finance in a Federal System: Changing Investment Patterns in Mexico," by **Alec Ian Gershberg** and **Til Schuermann**

"Reducing Supply-Side Disincentives to Job Creation: A Comment," by **Martin Feldstein**

"Financial Markets and Inflation Under Imperfect Information," by **José De Gregorio** and **Federico A. Sturzenegger**

"Reforms from Within—The Role of External Factors," by **Joshua Aizenman** and **Sang-Seung Yi**

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Robert E. Hall
Daniel S. Hamermesh
Lars P. Hansen
Jeffrey E. Harris
Oliver Hart
Campbell Harvey
Jerry A. Hausman
Fumio Hayashi
Geoffrey Heal
James J. Heckman
John F. Helliwell
Elhanan Helpman
Patric H. Hendershott
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Douglas Holtz-Eakin
Charles Y. Horioka
R. Glenn Hubbard
Charles R. Hulten
Michael D. Hurd
Casey Ichniowski
Robert P. Inman
Takatoshi Ito*
Adam B. Jaffe
Michael C. Jensen
Paul L. Joskow
Boyan Jovanovic
Theodore J. Joyce
Kenneth L. Judd
Edward J. Kane
Louis Kaplow
Lawrence F. Katz
Miles S. Kimball
Mervyn A. King*
Robert King
Morris M. Kleiner
Lawrence J. Kotlikoff
Kala Krishna
Alan B. Krueger*
Anne O. Krueger
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Edward P. Lazear
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John B. Legler
Richard M. Levich
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Karen K. Lewis
Eugene Lewit
Gary D. Libecap
Frank R. Lichtenberg
Robert E. Lipsey
Andrew W. Lo
Robert E. Lucas, Jr.
Harold S. Luft
Lisa M. Lynch
Jeffrey K. MacKie-Mason

Thomas E. MaCurdy
Jacques Mairesse
N. Gregory Mankiw
Charles F. Manski
Robert A. Margo
James R. Markusen
Richard C. Marston
Bennett T. McCallum
Robert L. McDonald
Daniel L. McFadden
Charles E. McLure, Jr.
James L. Medoff
Robert C. Merton
Bruce D. Meyer
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Frederic S. Mishkin*
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Robert A. Moffitt
Edward B. Montgomery
John Mullahy
Richard Murnane
Kevin M. Murphy
Michael L. Mussa*
Stewart C. Myers
M. Ishaq Nadiri
William D. Nordhaus
Maurice Obstfeld
Ariel Pakes
Torsten Persson
Charles E. Phelps
Robert S. Pindyck
A. Mitchell Polinsky
Clayne L. Pope
Robert H. Porter
Richard Portes
James M. Poterba
Edward C. Prescott
James E. Rauch
Assaf Razin
Peter C. Reiss
J. David Richardson
Hugh T. Rockoff
Dani Rodrik
Kenneth S. Rogoff
Christina D. Romer
David H. Romer
Paul M. Romer
Andrew K. Rose
Nancy L. Rose
Harvey S. Rosen
Sherwin Rosen
Julio J. Rotemberg
Michael Rothschild
Richard S. Ruback
Christopher Ruhm
Jeffrey D. Sachs
Henry Saffer
David S. Salkever
Garth Saloner
Thomas J. Sargent
David S. Scharfstein
Richard Schmalensee

Myron S. Scholes†
Anna J. Schwartz
G. William Schwert
Nevin S. Scrimshaw
Carl Shapiro
Matthew D. Shapiro
Steven Shavell
Robert J. Shiller
Andrei Shleifer
John B. Shoven
Christopher A. Sims
Jody L. Sindelar
Burton Singer
Kenneth J. Singleton
Hans-Werner Sinn
Jonathan S. Skinner
Joel B. Slemrod
Frank A. Sloan
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Alan C. Stockman
René M. Stulz
Lawrence H. Summers*
Richard C. Sutch
Lars E. O. Svensson
Richard Sylla
Paul J. Taubman
John B. Taylor
Peter Temin
Richard H. Thaler
Marie C. Thursby
Robert H. Topel
Manuel Trajtenberg
James Trussell
Steven F. Venti
Robert W. Vishny
John J. Wallis
Mark W. Watson
Philippe Weil
Thomas J. Weiss
Kenneth D. West
John Whalley
Michael D. Whinston
Eugene N. White
Jeffrey G. Williamson
Larry T. Wimmer
David A. Wise
Ann Dryden Witte
Frank A. Wolak
Barbara L. Wolfe
Mark A. Wolfson
Michael Woodford
Victor Zarnowitz
Richard J. Zeckhauser
Stephen P. Zeldes
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Research Meeting of Macroeconomists

The economic fluctuations program held its fall research meeting in Cambridge on October 27 and 28. Valerie A. Ramey, NBER and University of California, San Diego, and James H. Stock, NBER and Harvard University, organized the following program:

John Y. Campbell, NBER and Harvard University, and

John H. Cochrane, NBER and University of Chicago, "By Force of Habit: A Consumption-Based Explanation of Aggregate Stock Market Behavior"

Discussant:

Andrew B. Abel, NBER and University of Pennsylvania

Alberto Alesina, NBER and Harvard University, and

Roberto Perotti, Columbia University, "The Welfare State and Competitiveness" (NBER Working Paper No. 4810)

Discussant:

James M. Poterba, NBER and MIT

Robert E. Hall, NBER and Hoover Institution, "On the Sources of Economic Fluctuations"

Discussant:

Martin Eichenbaum, NBER and Northwestern University

Judith A. Chevalier, NBER and University of Chicago, and

David S. Scharfstein, NBER and MIT, "Capital Market Imperfec-

tions and Countercyclical Markups: Theory and Evidence" (NBER Working Paper No. 4614)

Discussant:

Mark Gertler, NBER and New York University

James A. Kahn and

Jong-Soo Lim, University of Rochester, "On the Contribution of Human Capital to Growth"

Discussant:

Dale Jorgenson, Harvard University

Michael Kremer, NBER and MIT, and

Eric Maskin, Harvard University, "Segregation by Skill and the Rise in Inequality"

Discussant:

Finis Welch, Texas A & M University

Campbell and **Cochrane** present a consumption-based model that explains the equity premium and the predictability of excess stock returns over a long horizon. Their model also predicts the variation over time in the volatility of stock returns. Campbell and Cochrane's model implies that fluctuations have important welfare costs.

Alesina and **Perotti** study redistribution in a world characterized by the presence of labor unions and distortionary taxation. They show that an increase in transfers to retirees, for example, which is financed by distortionary taxation, can generate a loss of competitiveness, an appreciation of the relative price of nontradables, and a decrease in employment in all sectors of the domestic economy. An increase in transfers toward the unemployed, even if financed by non-distortionary taxation, would have the same effect. Moreover, these effects of labor taxation depend on the degree of centralization of the wage-setting process in the labor market.

Hall concludes that the prime driving force in economic fluctuations is shifts in the marginal rate of substitution between goods and work. In recessions, people would rather consume smaller volumes of market goods and services, and work correspondingly less. Shifts in technology and government purchases have only a small role in fluctuations in hours of work.

Chevalier and **Scharfstein** present a model in which markups of price over marginal cost are countercyclical because of imperfections in the capital market. During recessions, liquidity-constrained firms try to boost short-run profits by raising prices to cut their investments in market share. Chevalier and Scharfstein show that during regional and macroeconomic recessions, for example, the most financially constrained supermarket chains tend to raise their prices relative to less financially constrained chains.

Kahn and **Lim** develop a general equilibrium model in a multi-

industry setting where technological progress that augments skilled labor can be distinguished from other sources of economic growth. Based on a panel of 21 U.S. manufacturing industries, their results indicate that technological progress that augments skilled labor is the significant factor in productivity growth. Growth in conventional total factor productivity vanishes once the role of skilled labor and the growth in its human capital are accounted for properly.

Kremer and **Maskin** suggest that recent increases in wage inequality have been accompanied by increased segregation of high- and low-skill workers into separate firms. A model in which workers of different skill are imperfect substitutes can account for both trends. The model implies that increased segregation and wage inequality can be explained either by technological change, or, more parsimoniously, through observed increases in skill dispersion.

Empirical Methods in Macroeconomics

A meeting on "Empirical Methods in Macroeconomics" was held in Cambridge on October 29 in conjunction with the fall meeting of the economic fluctuations program. Organizers Francis X. Diebold, NBER and University of Virginia, and Steven N. Durlauf, NBER and University of Wisconsin, scheduled the following papers:

M. Hashem Pesaran, University of Cambridge, and

Simon Potter, University of California, Los Angeles, "A Floor and Ceiling Model of U.S. Output"

Nathan S. Balke and

Thomas Fomby, Southern Methodist University, "Threshold Cointegration"

Robert G. King, NBER and University of Pennsylvania, and **Mark W. Watson**, NBER and Northwestern University, "Money, Prices, Interest Rates, and the Business Cycle"

Francis X. Diebold, and **Lee E. Ohanian** and **Jeremy Berkowitz**, University of Pennsylvania, "Dynamic Equilibrium Economies: A Framework for Comparing Models and Data"

Peter Phillips, Yale University, "Model Determination and Macroeconomic Activity"

Kenneth D. West, NBER and University of Wisconsin, "Asymptotic Inference About Predictive Ability"

Danny Quah, London School of Economics, "Empirics for Economic Growth and Convergence"

Andrew B. Bernard, NBER and MIT, and

Charles P. Jones, Stanford University, "Comparing Apples to Oranges: Productivity Convergence and Measurement Across Industries and Countries"

Pesaran and **Potter** develop a model of U.S. output that allows for floor and ceiling effects to alter the dynamics of output growth. Using post-Korean War quarterly data, they find that the turning points of the business cycle provide new initial conditions for the ensuing growth process. This dependence on history of economic behavior is not present in linear or approximately linear models, such as standard implementations of real business cycle theory.

Balke and **Fomby** model the discontinuous adjustment to a long-run equilibrium as threshold cointegration. They examine the ability of some well-known tests for nonlinearity to detect threshold behavior in cointegrating relationships. In addition, they consider a test for linearity that specifically casts the double threshold model as the alternative hypothesis. Finally, they examine a test for cointegration that uses only information about mean reversion in the outer regimes. Unfortunately, they find, in small samples, tests for cointe-

gration that uses only information about mean reversion in the outer regimes. Unfortunately, they find, in small samples, tests for cointegration that use only the region outside the thresholds are not substantially more adept at detecting threshold cointegration than standard linear methods are.

The mechanisms governing the relationship of money, prices, and interest rates to the business cycle are one of the most studied and disputed topics in macroeconomics. In this paper, **King** and **Watson** first document some key empirical aspects of this relationship. They then ask how well three benchmark rational expectations macroeconomic models—a real business cycle model, a sticky price model, and a liquidity effect model—account for these central facts. While the models have diverse successes and failures, none can explain the fact that real and nominal interest rates are "inverted leading indicators" of real economic activity, that is, that a high real or nominal interest rate in the cur-

rent quarter predicts a low level of real economic activity two to four quarters in the future.

Diebold, **Ohanian**, and **Berkowitz** propose a constructive framework for assessing agreement between (generally misspecified) dynamic equilibrium models and data. They use their goodness-of-fit criteria to produce estimators that optimize economically relevant loss functions, and whose finite-sample properties are approximated using bootstrap procedures. Finally, they provide a detailed illustrative application to modeling the U.S. cattle cycle.

Phillips discusses modeling, estimation, inference, and prediction for economic time series. The first part of his paper is concerned with Bayesian model determination, forecast evaluation, and the construction of evolving sequences of models that can adapt in dimension and form (including the way in which any nonstationarity in the data is modeled) as new characteristics in the data become evident. He performs simulations in order to study

the forecasting performance of these model determination procedures in some multiple time-series models with cointegration. The final part of the paper reports on an empirical application of these ideas and methods to U.S. and U.K. macroeconomic data.

West develops procedures for inference about the moments of smooth functions of out-of-sample predictions and prediction errors, when there is a long time series of predictions and realizations, and each prediction is based on regression parameters estimated from a long time series. The aim is to provide tools for inference about predictive accuracy and efficiency and, more generally, about predictive ability. West allows for nonlinear models and estimators, as well as for possible dependence of predictions and prediction errors on estimated regression parameters. His simulations indicate that the procedures work well.

Quah finds that the much-heralded uniform 2 percent rate of convergence could arise for reasons unrelated to the dynamics of economic growth. Further, the usual empirical analyses—cross-section (conditional) convergence regressions, time-series modeling, panel data analysis—can be misleading for understanding convergence; a model of polarization in economic growth clarifies those difficulties. Third, the data, more revealingly modeled, show persistence and immobility across countries: some evidence shows the poor getting poorer, and the rich richer, with the middle class vanishing. Finally, Quah observes convergence across U.S. states.

Bernard and **Jones** examine the role of sectors in aggregate convergence for 14 OECD countries from 1970–87. Their major finding is that manufacturing shows little evidence of convergence in either labor productivity or multifactor

productivity while other sectors, especially services, are driving aggregate convergence. They introduce a new measure of multifactor productivity that avoids problems inherent to traditional total factor productivity measures when comparing productivity levels. They also develop a model of trade, learning-by-doing, and spillovers that can explain convergence in some sectors and divergence in others.

Also attending the meeting were: Jushan Bai and Whitney Newey, MIT; Olivier J. Blanchard, NBER and MIT; Russell Cooper, NBER and Boston University; Suzanne Cooper, Harvard University; Jesus Gonzalo, Boston University; Bruce Hansen, Boston College; John Kennan, University of Wisconsin; Serena Ng, University of Montreal; and James H. Stock, NBER and Harvard University.

Program Meeting on Asset Pricing

The NBER's asset pricing program met on November 4 at the Wharton School in Philadelphia. Robert J. Hodrick, NBER and Northwestern University, organized this program.

David K. Backus, NBER and New York University,

Silverio Foresi, New York University, and

Stanley E. Zin, NBER and Carnegie-Mellon University, "Arbitrage Opportunities in Arbitrage-Free Models of Bond Pricing"

Discussant:

David Marshall, Northwestern University

John Y. Campbell, NBER and Harvard University, and

John H. Cochrane, NBER and University of Chicago, "By Force of Habit: A Consumption-Based Explanation of Aggregate Stock Market Behavior" (See "Research Meeting of Macroeconomists" earlier in this section.)

Discussant:

John C. Heaton, NBER and MIT

Geert Bekaert, NBER and Stanford University, and

Campbell R. Harvey, NBER and Duke University, "Time-Varying World Market Integration" (NBER Working Paper No. 4843)

Discussant:

Henning Bohn, University of California, Santa Barbara

Franklin Allen and

Risto Karjalainen, University of

Pennsylvania, "Using Genetic Algorithms to Find Technical Trading Rules"

Discussant:

Robert E. Cumby, NBER and Georgetown University

Torben Andersen, Northwestern University, and

Tim Bollerslev, NBER and Northwestern University,

"Intraday Seasonality and Volatility Persistence in Foreign Exchange and Equity Markets"

Discussant:

Charles Jones, Princeton University

Sanford J. Grossman, NBER and University of Pennsylvania, and

Zhongquan Zhou, Lehman Brothers, "Equilibrium Analysis of Portfolio Insurance"

Discussant:

Jiang Wang, NBER and MIT