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Program Report

Corporate Finance

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The NBER's Program on Corporate Finance has a strong and dedicated core group and, in its brief existence (since 1991), has initiated some very promising avenues of research. Narrowly interpreted, corporate finance is the study of the investment and financing policies of corporations. But, since firms are at the center of economic activity, and because almost any topic of concern to economists — from microeconomic issues like incentives and risk sharing to macroeconomic issues such as currency crises — affects corporate financing and investment, it is increasingly hard to draw precise boundaries around the field.

The range of subjects that group members have addressed in their research also reflects this difficulty. In fact, some of the most interesting work in corporate finance now is being done at its interface with other areas. Here I have chosen a set of our papers, because there are far too many for me to describe all of them, that fall into fairly coherent subject areas. The order in which I describe the subjects loosely follows from micro to macro: dividend policy to international finance.

Dividend Policy

Given that the study of dividend policy is as old as the modern field of finance (recall the Miller-Modigliani work on dividends), it might seem surprising that there is something left to say about it. Yet, although the questions remain the same, we have new hypotheses and new or better evidence on old ones.

Brav et al. (W9657) survey Chief Financial Officers and Treasurers of companies to determine key factors driving dividend policy. They find the traditional behavioral patterns: managers are reluctant to cut dividends, prefer to smooth dividends over time, and tie dividend increases to long-run sustainable earnings. But they are also more willing to use

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stock repurchases nowadays. The authors also conclude that managers give only moderate weight to traditional tax, agency, and clientele theories of dividend payout.

Other papers, however, suggest that either managers responding to these surveys do not articulate well what they do, or they respond to cues that they do not fully understand. It seems that tax, agency, and clientele rationales are alive and well in the data. Chetty and Saez (W10572) test the tax theory by asking whether dividend payments increased after the individual income tax on dividends was cut in 2003. They find that more firms initiated dividends for the first time and that many firms increased the dividends they already paid. This finding is robust to the usual controls. While others have found similar responses to tax changes in the past, the fact that the long decline in dividend payment in the United States seems to have turned around, and for a traditional reason, is particularly interesting.

Desai, Foley, and Hines (W8698) examine the dividend policies of foreign affiliates of U.S. multinational firms. They find that they are not only determined by tax considerations, but also by agency considerations: foreign affiliates that are only partly owned, located far from the United States, or in areas where property rights are weak, typically pay more in dividends (presumably because they cannot be trusted to keep the cash, given the parent's weak control). DeAngelo, DeAngelo, and Stulz (W10599) argue that if firms did not pay out dividends, they would sit on a mountain of cash with attendant incentives to waste it. They find that firms with large amounts of retained earnings tend to pay dividends, even after one controls for their profitability and growth.

Finally, Baker and Wurgler (W9542) find that firms tend to initiate dividends when the demand for dividends is high, as measured, for example, by the difference between the market-to-book ratio of dividend paying firms and non-dividend paying firms. They suggest that there are fluctuations in investor sentiment about dividends, and that firms cater to this. Of course, what they term investor sentiment may well be time-varying concerns about agency or taxes (as would occur, for example, if firms built up cash piles during cyclical upturns and ran them down in downturns). The authors do a number of tests to rule it out. Nevertheless, one could still have questions about the findings: if indeed investors become enthused about dividends when sentiment is high, then it is surprising that firms do not raise the aggregate payout ratio. However, this is a novel explanation that deserves further investigation.

Capital Structure

Many battles have been fought over capital structure: whether firms truly have a target capital structure that they adhere to fairly strictly; whether firms have high costs of issuing equity which they factor into decisions about how close they should be to the target; and finally whether firms are simply buffeted by market forces and do not really bother about capital structure. Welch (W8782) takes the last view, and shows that the ratio of debt to market value of assets for firms is determined strongly by past equity returns and little else. One could take issue with whether debt-to-market-value is the appropriate measure of capital structure, but Welch offers some arguments in support. Kayhan and Titman (W10526) soften Welch's basic finding by arguing that even though history (for example, through past movements in the stock price) tends to influence capital structure changes, the effects eventually are reversed, and firms do tend to make financing choices that move them towards target debt ratios.

Stock Market and Investment

The recent boom and bust in the stock market, and evidence of excessive investment in certain sectors like telecommunications, has led some to ask if we should revisit the received wisdom that the stock market is a sideshow to real activity. Polk and Sapienza (W10563) find that overpriced firms do tend to overinvest, and then tend to have low stock returns. Gilchrist, Himmelberg, and Gur (W10537) argue that stock prices rise above fundamentals when investor beliefs are more dispersed, and short-selling constraints prevent the most pessimistic among them from registering their vote. They find that firms with more dispersed investor beliefs have higher new equity issues and investment. Both papers suggest that high stock prices push managers into investing by reducing their cost of finance. One problem with this interpretation is that high stock prices also may be signaling the value of future

opportunities, and this may be why firms invest. Baker, Stein, and Wurgler (W8750) find a clever way to tell these two explanations apart: they rank firms on whether they rely on equity for financing or not. If it is the abnormally low cost of financing that pushes managers to invest, then the investment of equity-dependent firms should be far more sensitive to stock price changes than the investment of firms that are not dependent on equity for financing. They find that this is the case.

Shleifer and Vishny (W8439) present a model to explain the ludicrous prices that were paid during the merger wave of the late 1990s. Why, for instance, would America Online pay so much for Time Warner? They argue that even if both bidder and target are overvalued in some long-run fundamental sense, the bidder may still go ahead, provided the market sees synergies in the merger, and the bidder itself is sufficiently overvalued. Moeller, Schlingemann, and Stulz (W10200) find that the acquirers in the mergers from 1998 to 2001 lost a total of \$240 billion on announcement, while the targets gained only \$134 billion. Therefore, they argue, there was massive loss in these acquisitions, in part driven by a reassessment of the bidder's value. If this indeed were the case, one has to ask whether acquisitions truly were the most effective way for those acquiring managers sitting on paper wealth to convert it to real wealth, as the Shleifer-Vishny model suggests. Could they not simply have issued shares and put the proceeds in the bank? Probably not, but this suggests that we need to understand better the pressures imposed by the market on managers.

Financial Market Frictions

The difficulty of raising external finance because markets do not know enough about the borrower, or cannot control it, is one of the most investigated topics in recent years. Typically, financing frictions can be identified by asking whether a firm's investment is related to its cash flow. A positive correlation between the two is taken as evidence that the firm cannot raise enough from the capital markets and

thus is forced to invest only when it has cash. An alternative explanation, however, is that cash flow serves as a proxy for the quality of investment opportunities. So, it may be no surprise that there is a correlation. Hovakimian and Titman (W9432) address this issue by looking at firms that conduct asset sales. These asset sales should provide cash for investment but should not necessarily be related to investment opportunities. They find that cash from asset sales is strongly related to investment, especially when a firm has the characteristics of firms we typically think are liquidity constrained.

Taking a related but different tack, Almeida, Campello, and Weisbach (W9253) argue that firms that are likely to be liquidity constrained should save a larger fraction of cash inflows, especially in times of economic adversity. They find this to be the case. Pinkowitz, Stulz, and Williamson (W10188) point out that cash holdings may serve a precautionary need, but are also likely to be misused by management. They find that a dollar of cash translates to a dollar of value for minority shareholders in countries with good investor protection but only 65 cents of value in countries with poor protection.

Although some firms may be constrained by markets, they may have access to special sources of financing. Fisman and Love (W8960) argue that industries dependent on trade-credit financing rely less on formal markets and thus should grow faster in countries with weak financial systems. Desai, Foley, and Forbes (W10545) point out that affiliates of multinationals still may have access to financing when a country undergoes a currency crisis, and thus should be able to invest significantly more than comparable firms during and after the crisis. Both papers find evidence consistent with their predictions.

Corporate Governance in the United States

Turning to corporate governance, Kaplan and Holmstrom (W8220, W9613) take a broad look at U.S. corporate governance in the last two decades. They argue that the primary

instrument of governance in the 1980s was hostile mergers and buyouts, while internal corporate governance mechanisms have played a much bigger role in the 1990s. Of course, recent corporate scandals do raise questions about the effectiveness of corporate governance in the United States. The authors do not see the problems as symptomatic of systemic failure — they see U.S. corporations as performing favorably relative to corporations in other countries — and argue that the regulatory, legislative, and market responses in all likelihood would deal quickly with the remaining problems. Of course, the entire credit for the performance of U.S. corporations over this period should not be attributed only to governance — the favorable macroeconomic environment in the United States over this period undoubtedly helped. Nevertheless, they offer a provocative argument to those who believe that managerial compensation has become unconscionable, and that U.S. corporate governance is broke.

Bebchuk, Fried, and Walker (W8661) are in the latter camp. They feel that managerial compensation has become excessive, and much of it is rents extracted by powerful managers. The lack of any indexing of option grants to market indexes (so that manager are not simply rewarded for market-wide movements) is just one example of the practices they find egregious. Bertrand and Mullainathan (W7604) in fact try to estimate how much managerial pay is for factors under managers' control and how much for luck. They find that executive pay in the oil industry increases substantially with oil prices, even though higher oil prices are, for all practical purposes, outside the control of the executive. Presumably, managerial compensation cannot be all good or bad. Rajan and Wulf (W10494) examine the canonical symbol of managerial excess, the company plane. They find evidence that company planes are used where they have the most effect in enhancing the productivity of executives — for example, when the company is located far from a major airport. By contrast, they find little evidence that better governance diminishes perks in firms where they

might be most egregious. They conclude that a blanket indictment of perks is unwarranted.

International Corporate Governance

How important is corporate governance across the world? Dyck and Zingales (W8711) construct a measure of the private benefits of control (crudely, a measure of what the market thinks owners can skim from minority holders) in 39 countries. This ranges between 4 percent and 65 percent of the value of the firm. Capital markets are less developed, ownership is more concentrated, and fewer privatizations take place in countries where these private benefits are large. Interestingly, the authors find that measures like a stronger press, a high rate of tax compliance, and a high degree of product market competition have at least as much explanatory power for the level of private benefits as factors like the statutory protection of minority rights. The more general point seems to be that a range of institutions (and, more generally, popular awareness and support for them) seem to be important for good governance.

Bertrand, Mehta, and Mullainathan (W7952) offer a nice way to get at the extent of misgovernance in Indian business groups. They argue that one way profits are siphoned out of firms is through pyramid structures. The owner of the firm at the top of the pyramid gets a large share of its dividends but only a small share of the dividends of the firm at the bottom of the pyramid, even though he may control it via the pyramid structure. Therefore, he has an incentive to divert profits from the firm at the bottom to the firm at the top via mechanisms like transfer pricing and possibly fraud. If this is so, then reported earnings in bottom firms should respond far less to positive changes in industry conditions (because a significant fraction of the additional profits are skimmed off to the top) than reported earnings of the firm at the top. Also, earnings for firms at the top should respond to increases in earnings for firms at the bottom but not vice versa (after taking

out the effect of any dividends going from the bottom firm to the top firm). The authors find these patterns in the data.

Finally, Caprio, Laeven, and Levine (W10158) examine the effects of governance structures on bank valuation around the world. They find that: 1) larger cash flow rights by the controlling owner boost valuations; 2) stronger shareholder protection laws increase valuations; and 3) greater cash flow rights mitigate the adverse effects of weak shareholder protection laws on bank valuations.

Contracting and Organizational Structure

One important area of emerging study is the nature of organizations and the contracts that define them. Kaplan and Stromberg (W7660, W8202, W8764) study the contracts that venture capitalists write with entrepreneurs in the United States. They note how these contracts allocate cash flow rights and a variety of control rights separately. Typically, if the company performs poorly, the VC gets full control; otherwise he retains cash flow rights but gives up control rights. The nature of contingencies built into the contracts relate to the perceived risks associated with the venture, with greater risk generally leading to more rights for the venture capitalist. Lerner and Schoar (W10348) analyze private equity transactions outside the United States. While transactions in common law countries seem similar to those in the United States, with greater use of contingencies and contingent instruments like preferred stock, investors in other countries have fewer contractual protections and tend to use uncontracted ownership, like common stock. These contractual differences have real consequences with larger, higher value transactions in the common law countries. These detailed empirical studies of contracting represent a major new advance in corporate finance, and verify as well as inform the theories.

Our researchers are also studying organizations. Rajan and Wulf (W9633) find that large firms in the United States are adopting flatter organizational

structures, with fewer levels between the CEO and divisions, and more direct reports to the CEO. These changes also are being reflected in pay, with steeper pay differentials in the flatter firms. They conjecture that these changes have to do with the changing nature and importance of human capital, and they find some consistent evidence.

Entrepreneurship and Ownership

How do firms start? What are the constraints on their growth? Rajan and Zingales (W7546) argue that one fundamental concern for entrepreneurs is how to bring in employees and financiers to help generate rents while at the same time preventing them from expropriating those rents. For instance, employees can walk away with trade secrets. They develop a theory of the origins and growth of firm hierarchies which can explain stylized facts, such as why firms typically are started with family management (family members are more trusted to not expropriate, and are especially important when the firm is young and at its most vulnerable); why human-capital-intensive firms have flatter hierarchies with more ownership rights granted to successful employees; and why firms remain small in countries with weak property right protection. Burkart, Panunzi, and Shleifer (W8776) develop a model of the evolution of the entrepreneurial firm in different legal environments and conclude that widely held professional corporations are most likely where there is strong legal protection of minority investors, while family succession is most likely when legal protection is weak.

Gompers, Lerner, and Scharfstein (W9816) examine the factors that lead to venture capital start-ups. They examine two alternative views of this process: employees of established firms are trained to become entrepreneurs by coming into contact with other entrepreneurs and venture capitalists, or individuals become entrepreneurs because the firms they work for do not fund their ideas. They find the data to be more consistent with the first view.

Finally, Franks, Mayer, and Rossi

(W10628) and Khanna and Palepu (W10613) examine the evolution of family ownership in the United Kingdom and India respectively. These are fascinating and careful studies that challenge the perceived wisdom that families in both countries were effete rent-seekers.

Information Processing

Stein (W7705) offers an intriguing theory of hierarchies, in which large hierarchical firms are at a comparative disadvantage in processing soft information: in large firms, decisions have to be made by managers who are organizationally or geographically distant from the site where the information is gathered; and, soft information (such as whether a customer is trustworthy) does not travel well. Berger et al. (W8752) test this theory with bank lending data and find that, as predicted, large banks tend to be less willing than small banks to lend to informationally “difficult” credits, including those who do not keep financial records, even after correcting for factors like the endogeneity of matching.

Durnev, Morck, and Yeung (W8093) distinguish between industries that have greater firm-specific stock price variation and industries in which prices tend to move with the market. The former tend to use more external financing and allocate capital more precisely, suggesting that the market is able to better understand these firms, and perhaps guide their investment.

A number of papers examine the effect of physical distance on information. Garmaise and Moskowitz (W8877) study the effect of information problems in the real estate market. They find that these problems are resolved by participants buying properties that are nearby, trading properties with long histories, and avoiding informed professional brokers. Petersen and Rajan (W7685) find that the distance between banks and their borrowers has been increasing over time and suggest that this is consistent with greater and better use of information technology by banks. Finally, Guiso, Sapienza, and Zingales (W8923) examine the effects of differences in local access to finance in Italy on the propensity to start busi-

nesses and grow them. They find that even local financial development matters for growth, suggesting that physical distance is still an important barrier for finance.

Liquidity

Liquidity has become an area of renewed focus in the banking literature. Diamond and Rajan (W8937) argue that liquidity shortages can create a contagion of failures because bank failures themselves subtract liquidity from the market. Gorton and Huang (W9158) argue that, while liquid assets are useful because they allow transactions to take place, private agents may supply too few of these assets. They argue that there is a role for the government in providing such assets, one example of which is government bailouts of banking systems. In a similar vein, Caballero and Krishnamurthy (W7792) argue that companies in emerging markets have an incentive to underinsure against the shortage of foreign currency, which is why these companies are so willing to issue foreign currency debt despite the risks.

Empirical work confirms the importance of liquidity. Gatev and Strahan (W9956) test the proposition that banks, being able to hedge liquidity demands well, are best able to offer liquidity support. In particular, they find that when the commercial paper market dries up, and spreads increase, banks experience inflows allowing them to offer back-up lines of credit to commercial paper issuers. Lerner and Schoar (W9146) argue that private equity funds making long-run investments with high information asymmetries are likely to prefer deep-pocket investors who have little need for liquidity. Consistent with this hypothesis, they find that later funds organized by a firm (where information problems will be lower because of the firm's past record) have fewer transfer restrictions on investors. Similarly, funds investing in industries with longer investment cycles, such as pharmaceuticals, have more transfer constraints. Finally, investors who have long horizons, such as endowments, are less likely to have transfer constraints imposed on them.

Banking

La Porta, Lopez-de-Silanes, and Shleifer (W7620) examine government ownership of banks around the world and find it associated with low levels of income, financial development, and productivity growth. While this is an indictment of government ownership of banks in developing countries, it is not clear that private ownership would be better. La Porta, Lopez-de-Silanes, and Zamarripa (W8848) find that privatized banks in Mexico indulged in significant amounts of related lending, and that the default rates in such loans were significantly higher than in unrelated loans.

Carow, Kane, and Narayanan (W10623) find that in megamergers, the large customers of the target are relatively unaffected, while the small customers of target firms fare especially badly on announcement of the merger. The effects are particularly pronounced for customers who show signs of being credit constrained. While this evidence is also consistent with the Stein (W7705) hypothesis, the authors attribute it to changes in bargaining and monopoly power as a result of the merger. By contrast, Morgan and Strahan (W9710) focus on some virtues of bank integration in the United States, finding that bank integration across U.S. states dampened economic volatility within those states. However, they do not find similar effects for international bank integration.

International Finance

Desai, Foley, and Hines have written a number of papers exploiting the fact that when a multinational has affiliates in a number of countries, local conditions will affect the behavior of the affiliates differently. This work can be used to test theories. For example, they examine the effects of local capital controls (W10337). Clearly, these will cause firms to shift profits towards the parent via transfer pricing: the reported profits for affiliates located in countries with capital controls indeed are significantly lower than for affiliates in other countries. Also, the local cost of capital is higher: affiliates in countries

with capital controls face a 5.4 percent higher interest rate than the norm. Finally, multinationals invest less in countries with capital controls, and affiliates there are approximately 15 percent smaller.

Arslanalp and Henry (W9369) examine the effects on the stock market of debt relief agreements under the Brady plan. They find an average appreciation of 60 percent in dollar terms, which is not explained by IMF agreements or liberalization. Instead, it appears that the stock market forecasts higher future net resource transfers and GDP growth, as would be suggested by debt-overhang theories. Chari and Henry (W10318) find that capital account liberalizations do not draw in unthinking investors as some suggest, but rather investors who seem to allocate funds based on a firm's prospective cash flow and on the fact that the cost of capital in the country has fallen. However, investors do not seem to be drawn to firms that have benefited the most from a fall in the firm-specific risk premium.

The Effects of the Business Environment

La Porta, Lopez-de-Silanes, and Shleifer (W9882) ask what aspects of securities law help the development of stock markets. They conclude that greater mandatory disclosure, together with a relatively low burden of proof on investors claiming improper or inadequate disclosure by issuers (that is public rules and private enforcement), tends to be associated with better stock market development. Of course, more disclosure is not always good. Gomes, Gorton, and Madureira (W10567) find that the adoption of a rule intended to stop the practice of selective disclosure in the United States (where firms gave information ahead of public disclosure to a few analysts) resulted in a welfare loss for small firms because analysts stopped following them.

Djankov, La Porta, Lopez-de-Silanes, and Shleifer extend a very interesting literature on the connection between law and finance, begun by some of these authors, and attempt to understand how the legal system (for

example, common law versus civil law) actually matters. They measure and describe the exact procedures used by litigants and courts to evict a tenant for non-payment of rent and to collect a bounced check (W8890). They use these data to construct an index of procedural formalism of dispute resolution for each country. They find that such formalism is systematically greater in civil than in common law countries. Moreover, procedural formalism is associated with higher expected duration of judicial proceedings, more corruption, less consistency, less honesty, less fairness in judicial decisions, and inferior access to justice.

Doidge, Karolyi, and Stulz (W8538) ask why so few firms cross-list in the United States since it appears that those firms are valued more highly than comparable firms in domestic markets that do not cross-list. The authors conclude that firms that do not treat their minority shareholders well (and thereby trade at a discount) face costs in going to the better-policed U.S. markets. This is why much of the difference in valuation between cross-listed firms and firms that do not cross-list may simply be a matter of self-selection: the good firms tend to face fewer costs and greater benefits from cross listing. Reese and Weisbach (W8164) do find that cross-listed firms seem to use the discipline of cross listing to raise more equity capital.

A number of papers study the effect of the business environment on firm creation. Desai, Gompers, and Lerner (W10165) find that greater protection of property rights increases average entry rates, reduces exit rates, and reduces average firm size. Klapper, Laeven, and Rajan (W10380) find that high bureaucratic barriers to entry hamper both entry and the growth in value added in naturally high-entry industries. They find that these entry barriers have little effect in corrupt countries; this suggests that an efficient and overweening bureaucracy is particularly detrimental for business. Fan and White (W9340) argue that the Homestead exemption (by which individuals are allowed to shield a portion of their homes from creditors) gives entrepreneurs insurance against bad outcomes. Home-owning families are

35 percent more likely to own a business if they live in a high-exemption state than if they live in a low-exemption state. However, one cannot argue from this that the Homestead exemption expands access to credit. Indeed, it also should make it more difficult for any poor individual to buy a home or to raise money against it, as White indeed has shown in previous work. Johnson, McMillan, and Woodruff ask whether stronger property rights or greater access to finance is more important (W8852). From a survey of new firms in post-communist countries, they conclude that weak property rights discourage firms from reinvesting profits

even when bank loans are available, and thus have a greater adverse effect on growth.

Finally, what determines whether a country adopts proper rules regarding financial markets and competition? Countries seem to have experienced dramatic changes in their absolute and relative level of financial development over time; these are inconsistent with static explanations for the development of financial markets, such as their legal origin [for legal theories, see an excellent review by Beck and Levine (W10126)]. Zingales and I argue that the time-varying incentives of the dominant interest groups in a country explain

whether they are willing to allow finance to develop (W8178). Tracing financial development in a number of countries over the twentieth century, we provide evidence consistent with their conjectures.

Summary

Given space limitations, it is not possible to do justice to the range of issues our members are working on. I hope this sampling gives you a taste for more. You can access the full array of NBER working papers in Corporate Finance at the NBER's web site.

Research Summaries

Labor Market Intermediation: What It Is, Why It Is Growing, and Where It Is Going

David Autor*

Two developments — one institutional, one technological — are changing how employers identify, evaluate, and select job candidates. The institutional change is the rapid diffusion of “non-standard” work relationships in the United States and the OECD — particularly temporary help employment — through which firms employ workers at arms length and frequently audition them for direct hire positions.

The technological change is the deployment of electronic candidate assessment systems, which screen and vet job applicants using personality tests and online background checks. Both developments underscore the growing importance of “labor market intermediation” — mechanisms or institutions that intercede between job seekers and employers. A major strand of my research concerns the growth of labor market intermediation: how it affects the way workers seek jobs, who is hired, and potentially what consequences follow. Here, I describe several recent NBER papers that explore these questions.

Why is Temporary Help Employment Growing?

Although temporary help firms have supplied workers to U.S. businesses since the 1940s, only relatively recently has the industry's explosive growth brought it sustained national attention. From 1972 to 2000, employment in the temporary help industry increased five times more rapidly than employment economy-wide. The U.S. economy produced a record number of new jobs in the 1990s, and the temporary help industry laid claim to fully 10 percent of all of this job creation.

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At their peak in 2000, temporary help agencies accounted for almost 3 percent of U.S. daily employment. This growth has not been limited to the United States. In virtually all OECD countries, temporary help employment surged in the last decade.¹ Why is temporary help employment growing so rapidly?

In “Outsourcing at Will,”² I show that one key explanation is the rising risk of wrongful-discharge litigation faced by U.S. employers — what many Europeans would call employment protection. Uniquely in the industrialized world, the United States has long had the legal presumption that workers can be fired “at will” — that is, “for good cause or for no cause, or even for bad cause,” to quote a famous 1884 Tennessee Supreme Court Decision. During the 1970s and 1980s, this presumption eroded rapidly: most U.S. state courts created several classes of common-law restrictions that limited employers’ ability to fire. These exceptions generated both costly litigation and substantial uncertainty among employers about when workers could be terminated with impunity. I assess whether the adoption of wrongful-discharge laws by U.S. state courts in part can explain the rapid growth of temporary help employment.

Why would wrongful-discharge laws increase demand for temporary help workers? If temporary help firms operate under the same firing strictures as direct-hire employers, these laws should not differentially affect temporary help employment. As discussed in the paper, however, temporary help firms are quite unlikely to fall afoul of wrongful-discharge laws. By their nature, temporary help jobs are understood by workers and by the courts to offer no employment security. Moreover, temporary agencies can readily “fire” a worker simply by ending her current assignment and not providing a replacement. A worker is particularly unlikely to litigate if she is unaware that she has been terminated. These factors provide temporary help employers with a comparative advantage in terminating workers in states offering wrongful-discharge protections.

To evaluate this hypothesis, I contrast the growth of temporary help employment in states adopting wrong-

ful-discharge laws to those not adopting wrongful-discharge laws in the contemporaneous time period. I find that these laws increased the incidence of temporary help employment.³ In the year following adoption, states adopting wrongful-discharge laws saw 13 percent excess growth of temporary help employment (on average). Within four years, this impact rose to 24 percent. In net, I estimate that wrongful-discharge laws explain 20 percent of the growth in temporary help employment between 1973 and 1995. This contribution is numerically large, amounting to a half million additional workers in temporary help employment on an average day in 2000.⁴

As noted above, temporary help employment also grew in the OECD during the 1990s. Clearly, increased employment protection cannot provide the explanation in that case; firing restrictions were typically relaxed — from a fairly restrictive starting point — in many OECD countries during this time period.⁵ However, as European governments have *gradually* eased hiring and firing restrictions on direct-hire employment, they often have radically deregulated temporary help employment. For example, temporary help employment was only legalized in Italy in 1997.⁶ This rapid deregulation has allowed temporary help employment to surge. When OECD temporary help employment reaches its steady state — assuming regulators allow it to do so — I expect that its share of employment will substantially exceed that in the United States.

What Do Temporary Help Firms Actually Do?

Temporary help firms traditionally have been viewed as suppliers of spot market labor services (or, “warm bodies,” as they have been termed by some sociologists⁷). This spot-market view is not incorrect, but it is likely incomplete. The finding that employment protection spurs demand for temporary help employment suggests another role for temporary help firms: providing a mechanism for employers to audition candidates for direct-hire positions without risking a wrongful-discharge

lawsuit.

In “Why Do Temporary Help Firms Provide Free General Skills Training?” I explore this screening function.⁸ The paper begins with a puzzling observation: the majority of temporary help firms offer nominally free, unrestricted (that is, prior to job assignment; no commitment) training in general, portable skills, such as the use of word processing and spreadsheet programs. This fact is at odds with the competitive human capital model in which firms provide workers with firm-specific, non-portable skills, and workers pay for their own general training. Based on interviews and observation, the paper proposes a model to understand this phenomenon. In the process of training and testing workers, temporary agencies are able to closely observe applicants’ abilities and motivation. This private information allows the agency to better match its workers to its clients, and the “screening” generates a sufficiently high return, in the form of repeat client business and service demand, to cover the training cost.

In addition to potentially resolving the proximate question (that is, why do temporary help firms provide free general skills training?), the broader contribution of the paper is to offer an alternative to the “warm bodies” view of temporary help employment. The model and accompanying empirical analysis suggest that, beyond providing spot market labor, temporary help firms gather and sell information about worker quality to their clients. This brokering role has likely become much more important in the last two decades as wrongful-discharge laws have raised the demand for screening services.

Do Temporary Help Jobs Facilitate Direct-Hire Employment?

If direct-hire employers use temporary help assignments to screen candidates for employment, does this mean that temporary help employment is a productive way to search for a direct-hire job? A forthcoming NBER working paper that I wrote with economist Susan N. Houseman offers an empirical analysis of this question.⁹

During the 1990s, the temporary help industry became a leading port of labor market entry for welfare recipients. Recent analyses of state administrative welfare data reveal that 15 to 40 percent of former welfare recipients who obtained employment in the years following welfare reform took jobs in the temporary help sector.¹⁰ In our paper, Houseman and I explore whether temporary help jobs held by welfare recipients improve earnings and reduce welfare recidivism.

Our analysis draws upon administrative data from an unusual policy experiment in the state of Michigan. Over a period of four years, welfare clients in one Michigan county were randomly assigned to two welfare-to-work service providers which had substantially different placement rates in temporary agencies but otherwise similar policies. As a consequence, comparable populations of welfare clients were — depending only on chance — encouraged or discouraged from taking temporary help jobs. As we show in the paper, program assignment had sizable impacts on temporary help employment rates: in each year, temporary help employment was almost twice as high in the “experimental” group (that is, those assigned to the provider encouraging temporary employment) than in the control population.

Analysis of this policy experiment provides several insights into how temporary help jobs affect the labor market status of welfare recipients and — we believe — low-skilled workers more generally. Perhaps the most critical finding is that marginal temporary workers — that is, individuals whose job finding behavior was changed by the experiment — appear to have been drawn from the ranks of the non-employed. More precisely, we find that the incidence of direct-hire employment was essentially identical among the control and treatment groups. Hence, the greater temporary help employment in the treatment population was matched by greater *non-employment* in the control population. This finding suggests that temporary help firms provide opportunities to workers who might otherwise have difficulty finding any employment.

Using the variation induced by the

experiment, we show that temporary help jobs appear to substantially increase short-term earnings. This, of course, is not surprising in light of the fact that the alternative occupation for most “marginal temps” was non-employment. Moreover, we find that temporary help jobs slightly reduce the odds of welfare recidivism (that is, a return to the welfare rolls) in the first year after assignment to a welfare-to-work provider. However, these jobs do not appear to help welfare clients attain steady employment — defined as 90 days of continuous employment — nor do they reduce program recidivism over the longer term.

These results are preliminary; we currently await data from the state of Michigan that will allow a longer-term assessment of employment and earnings outcomes for experimental subjects. At the moment, we can be confident that temporary help jobs provide sizable, short-term earnings gains and cause no offsetting reductions in employment or earnings over a slightly longer horizon.

How will the Internet Change Employment Arrangements? Intermediation Versus Free Agency

The explosion of e-commerce in the mid-1990s was heralded by some as the coming of age of the free-agent labor market.¹¹ Web sites like MonsterTalent.com, FreeAgent.com, Guru.com, and SkillsVillage.com appeared ready to “disintermediate” temporary help agencies and their ilk, replacing them with online spot markets where firms could directly identify and contract with freelancers. In “Wiring the Labor Market,” I predicted that this vision of a free agent society would not come to pass.¹² On the contrary, I argued, firms contracting for remote labor service — such as computer programming or back office operations — would rely increasingly on labor market intermediaries to screen and vet suppliers of labor services. What form these labor market intermediaries would take — be it tem-

porary agencies, contracting firms, or something altogether new — was a question left unanswered by that paper.

In a forthcoming NBER working paper, David Scarborough and I study one such novel form of labor market intermediation: outsourced candidate assessment (OCA).¹³ Under this arrangement, employers contract with third party service providers to screen their job applicants, make hiring recommendations, evaluate employee outcomes, and further refine selection. To conduct applicant screening, vendors of OCA install computer kiosks in clients’ establishments. These kiosks collect applicants’ resume data and administer personality and skills tests. Applicant data are processed remotely, checked against online criminal and credit history databases, and distilled into aggregate candidate scores that are communicated electronically to managers — frequently within minutes of application. Notably, the software often retains the right of first refusal on job candidates: managers are only free to select among approved applicants.

Scarborough and I study the experience of a large, geographically dispersed retail firm whose 1,363 establishments switched from informal, paper-based hiring methods to an OCA process during 1999 and 2000. Both hiring methods use face-to-face interviews, while the electronic screen also places substantial weight on a computer-administered personality test. We use the rollout of this technology over a 12-month period to contrast contemporaneous changes in productivity at establishments differing only in whether or not they adopted employment testing in a given time interval.

We find that the computerized screening technology yielded more productive hires — increasing the median employee tenure of front-line hourly workers by 10 percent and slightly lowering the frequency at which workers were fired for cause. In a high-turnover environment such as the one analyzed in the paper, this gain in employee longevity ultimately will translate into thousands of fewer hires and fires per year.

Outsourced candidate assessment is not entirely novel, of course; employers historically have used executive search

firms (“head hunters”) to screen senior professional hires. What differentiates OCA is its automation, scale, and low cost. With OCA, large employers potentially can screen hundreds of thousands of applicants annually at a nominal cost per head. It is my expectation that over the next several years, OCA will bring relatively sophisticated screening practices to a large swath of high-turnover, hourly wage jobs — jobs where selection historically has been comparatively unsystematic.¹⁴

This development raises a number of intriguing questions that I plan to explore in future work. First, will increased reliance on computer-administered personality and skills tests differentially affect minority hiring? Because of the near universal finding that minorities fare relatively poorly on standardized tests,¹⁵ there is a pervasive concern that job testing may have adverse distributional consequences, commonly called “disparate impacts.” Job testing often is thought to pose a trade off between efficiency and equity; better candidate selection comes at a cost of reduced opportunity for groups with lower average test scores. Will the advent of widespread job testing harm minority workers? Scarborough and I offer a preliminary theoretical and empirical exploration of this question in the aforementioned paper. We conclude that there is no reason to expect disparate impacts on minority hiring — nor do we find any evidence that they occur at the 1,363 establishments in our sample. I refer interested readers to the paper for details.

A second question is whether employers’ private gains from improved worker selection will translate into social benefits. If more sophisticated selection processes improve the quality of matches between workers and firms, the attendant gains in allocative efficiency are likely to raise social welfare. By contrast, if improved selection primarily redistributes “desirable” work-

ers among competing firms where these workers have comparable marginal products, then social benefits will be decidedly smaller than private benefits. Ironically, since candidate selection is itself costly, the net social benefits in this pure redistribution case could well be negative. Quantifying these social benefits remains a key topic for future work.

I hope to report on these questions in future NBER papers. I end my research summary with an invitation to other researchers. With the support of the National Science Foundation¹⁶ and the NBER, I will be organizing an international conference on Labor Market Intermediation in the academic year 2005-6. As I begin the planning process, I invite researchers to alert me to their interest in presenting work at this conference.

¹ OECD *Employment Outlook 2002*, OECD, Paris.

² D. H. Autor, “Outsourcing at Will: Unjust Dismissal Doctrine and the Growth of Temporary Help Employment,” NBER Working Paper No. 7959, February 2000, and “Outsourcing at Will: The Contribution of Unjust Dismissal Doctrine to the Growth of Employment Outsourcing,” *Journal of Labor Economics*, 21 (1) (January 2003), pp. 1 - 42.

³ In independent, contemporaneous work, Thomas Miles also uncovers this same causal relationship. See: T. J. Miles, “Common Law Exceptions to Employment at Will and U.S. Labor Markets,” *Journal of Law, Economics and Organizations*, 16 (1) (2000), pp. 74 - 101.

⁴ John J. Donohue III, Stewart J. Schwab, and I evaluate the employment and wage costs of wrongful-discharge laws for U.S. states in the “The Costs of Wrongful-Discharge Laws,” NBER Working Paper No. 9425, January 2003.

⁵ See O. J. Blanchard and J. Wolfers, “The Role of Shocks and Institutions in the Rise of European Unemployment,” *Harry Johnson Lecture*, *Economic Journal*, Vol.

110, (March 2000), pp. 1 - 33.

⁶ See A. Ichino, F. Mealli, and T. Nannicini, “Temporary Work Agencies in Italy: A Springboard Toward Permanent Employment?” mimeo, European University Institute, May 2004.

⁷ See R. E. Parker, *Flesh Peddlers and Warm Bodies: The Temporary Help Industry and Its Workers*, New Jersey: Rutgers University Press, 1994.

⁸ D. H. Autor, “Why Do Temporary Help Firms Provide Free General Skills Training?” NBER Working Paper No. 7637, April 2000, and *Quarterly Journal of Economics*, 116 (4) (November 2001), pp. 1409-48.

⁹ D. H. Autor and S. N. Houseman, “Do Temporary Help Jobs Improve Labor Market Outcomes? A Pilot Analysis with Welfare Clients,” MIT mimeo, December 2002.

¹⁰ C. J. Heinrich, P. R. Mueser, and K. Troske, “Welfare to Temporary Work: Implications for Labor Market Outcomes,” *Review of Economics and Statistics*, forthcoming.

¹¹ See T. W. Malone, *The Future of Work: How the New Order of Business Will Shape Your Organization, Your Management Style and Your Life*, Cambridge: Harvard University Business School Press, 2004.

¹² D. H. Autor, “Wiring the Labor Market,” NBER Working Paper No. 7959, October 2000 and *Journal of Economic Perspectives*, 15 (1) (Winter 2001), pp. 25 - 40.

¹³ D. H. Autor and D. Scarborough, “Will Job Testing Harm Minority Workers?” MIT mimeo, June 2004.

¹⁴ More than half of U.S. workers are employed in hourly-wage jobs, and hourly workers are substantially more likely than non-hourly workers to be minorities and to have no formal education beyond high school.

¹⁵ See, for example, C. Jencks and M. Phillips, eds., *The Black-White Test Score Gap*, Washington, DC: Brookings Institution Press, 1998.

¹⁶ NSF CAREER SES-0239538.

New Perspectives on International Debt and Exchange Rates

Kenneth S. Rogoff*

My research over the past couple of years has focused on rethinking international debt and exchange rates, particularly, but not exclusively, for developing countries.

A Revised History of Exchange Rates

The choice of exchange rate regime remains one of the most controversial issues in international macroeconomic policy today and — in the eyes of most policymakers and policy economists — one of the most critical. Yet, curiously, much academic work, pioneered by NBER researchers Marianne Baxter and Alan Stockman¹, has shown that it is difficult to prove that the exchange rate regime systematically affects economic growth or, for that matter, *any* macroeconomic variable other than the real exchange rate. At the same time, it is equally difficult to identify any stable systematic relationship between macroeconomic variables (including policy variables such as interest rates and budget deficits) and major currency exchange rates, at least for horizons up to two years. Richard Meese and I first identified this puzzle in a pair of papers in 1983² and it has stood up to numerous attempts to overturn it since. In a 2000 paper,³ Maurice Obstfeld and I summarize the thin connection between exchange rates and macroeconomic variables as the “exchange rate disconnect puzzle.”

Why have researchers found it so difficult to show that exchange rate regimes matter when policymakers and business people take the connection for granted? Carmen Reinhart and I⁴

offer one possible rationale. We note that, in comparing the performance of fixed and flexible exchange rate regimes, researchers typically have had to rely on the official history of exchange rates, a sterilized picture that is often sharply at odds with reality. That is, most comparisons of fixed and floating regimes have been based on the International Monetary Fund’s official historical classification of exchange rates which, until very recently, has tended to passively reflect what countries report they are doing to the IMF. If a country like China, which has a virtually pegged exchange rate, reports to the IMF that it is engaged in “managed floating”, then (until recently) the IMF database would dutifully record China as engaged in a variant of floating. A related problem is that many countries claiming to have “fixed” exchange rates succeed in doing so only by imposing severe capital controls. Pervasive controls, in turn, typically lead to either a large parallel (“black”) market for foreign exchange or, in other instances, to an official dual market. As a result, there are surprisingly many cases historically where countries reported their exchange rates as fixed while actually following a monetary and exchange rate policy much more commensurate with floating. Although developing countries have dominated this category in recent decades, backdoor floating characterized many major European countries’ exchange rate regimes for the first half of the Bretton Woods period of “fixed exchange rates.”

Reinhart and I develop an algorithm for reclassifying exchange rate regimes going back to 1946; our approach takes neither a country’s official declared exchange rate regime nor its officially declared exchange rate for granted. Remarkably, we find only a tenuous connection between the official IMF historical classification of exchange rates and our new de facto

classification. Indeed, whether the official classification accurately represents underlying monetary and exchange rate policy is a virtual coin toss, with almost half of official fixed rates actually having a much more flexible de facto regime, and visa versa.

In our initial pass toward rethinking economic performance and exchange rates, perhaps the most striking result is that countries with large and variable parallel rate premiums experience considerably poorer inflation and growth records than countries with unified exchange rates (meaning no parallel or dual market). Thus, heavy handed exchange controls — the most historically common and pervasive form of capital account restriction — appear inimical to good economic performance.

In a follow-up paper (based closely on joint work with Robin Brooks and Nienke Oomes⁵), Aasim Husain, Ashok Mody, and I apply the classification scheme from Reinhart and Rogoff to ask whether it implies any performance difference between relatively flexible exchange rate regimes and relatively fixed ones.⁶ We find that it makes a great deal of difference if one sorts countries into three groupings: advanced countries (OECD countries plus a few other small wealthy countries); emerging markets (middle income countries with significant access to international capital markets); and developing countries. Our analysis, which attempts to control both for standard explanatory variables from generic growth regressions and for the potential endogeneity of the exchange rate regime, yields some interesting conclusions.

For developing countries that do not have extensive access to capital markets, we find that (relatively) fixed exchange rate systems perform surprisingly well, offering lower average inflation with no apparent sacrifice in growth. Moreover, contrary to conventional wisdom based on repeated

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catastrophes in emerging markets, fixed exchange rate systems have proven remarkably durable in non-financially integrated developing countries. On the other hand, floating regimes appear to outperform fixed ones for advanced countries, although the evidence is less decisive. Growth appears to be higher in advanced country floaters (again controlling for a variety of standard growth regression variables), and inflation performance is no worse, perhaps because of the advent of modern independent central banks run by inflation-conservative central bankers. Moreover, floating is very robust. Once an advanced country moves to a float, it tends to retain the regime for a very long time. For emerging markets, there is no distinct pattern, although the probability of exchange rate crises is certainly significantly worse under pegs. (We did not consider whether sharing a currency with another country significantly enhances performance, as Rose has energetically argued. Also, following my 2003 paper on financial globalization with Prasad, Wei, and Khose⁷, we use a de facto rather than a de jure measure of international capital market integration, again a very important distinction. Some African countries, for example, have achieved little in the way of international capital market integration despite no overt barriers. Some Latin countries, on the other hand, repeatedly have found capital controls to be ineffective in stemming inflows or outflows.)

Our results fly in the face of conventional policy wisdom: that fixed rates are no longer viable in today's world and should be broadly eliminated as soon as possible. For a developing country without the political and legal capacity to have a meaningfully independent central bank, a fixed rate may be a reasonable alternative form of inflation stabilization, especially when the country is reasonably insulated from international capital markets, either by choice or because international investors are not interested. Of course, once the country becomes a more financially globalized emerging market, the fixed exchange rate may eventually become a liability and an exit strategy may be needed. But espe-

cially for poorer developing countries, the need to design an exit strategy at some point in the distant future provides little argument for abandoning a peg in the present. This is no doubt one reason why pegs have proven so durable in developing countries with low de facto levels of international capital market integration.

Serial Default

Recent work with Reinhart⁸ (described in the *NBER Digest*, August 2004), and with Reinhart and Miguel Savastano⁹, looks at the phenomenon of serial default in developing countries, past and present. While lightening may never strike twice in the same place, developing country default certainly does so, again and again. Argentina, for example, has remained mired in a painful restructuring since its late-2001 debt default. But this is in fact the fifth time that Argentina has defaulted since it gained independence in the 1820s. And Argentina is not alone as a serial defaulter. Brazil had defaulted on its debt seven times, Mexico eight times, Turkey seven times, and Venezuela nine times — so far. Incidentally, if Venezuela is the modern day record holder, it is by no means the all-time leader. That distinction belongs to Spain, which has defaulted 13 times since the 1500s. Many other European countries, including France, Germany, Portugal, and Greece also were serial defaulters back in their days as emerging markets. Although each wave of default inevitably is followed by a witch-hunt for the culprits (in the 1990s, many blamed the International Monetary Fund), the simple fact is that debt crises have been with us for a very long time, and many a financial engineering scheme has failed to avert them. Reinhart, Savastano, and I find that serial defaulters can develop “debt intolerance,” so that the risk of default begins to skyrocket at debt levels that might be quite manageable for a country with a more pristine record. One possibility, we suggest, is that default imposes lasting damage on a country's financial system, thereby making it more vulnerable to future defaults.

Part of the blame for the ongoing cycle rests with policymakers in developing countries who, typically under short-term political pressure, tend to walk a country's debt too far out on a limb. Thanks to spreads, creditors earn normal returns on developing country debt, but creditors do not bear the large dead-weight costs imposed by repeated financial crises. Unfortunately, the debtor country's citizens typically must bear that burden, and to a lesser extent the international tax payer through bailouts. Our analysis suggests that debt thresholds are highly country specific and depend heavily on past history of default on external debt and on hyperinflation (which is tantamount to default on domestic debt). Argentina, for example, appears to begin experiencing symptoms of debt intolerance at debt-to-GDP ratios of 25-30 percent, far below the level for countries in Asia, where up until now, sovereign defaults have been much less frequent. In related work, we find that a history of repeated default and high inflation helps to explain why pervasive dollarization of liabilities, in both domestic and foreign debt, tends to persist long after a developing country has succeed in bringing down its inflation rate.¹⁰

Reinhart and I argue that many developing countries' histories of repeated high inflation and default are an important piece of the puzzle of why capital seems to flow from rich countries to poor countries, a phenomenon Mark Gertler and I identified and modeled in our 1989¹¹ paper, and which Lucas highlighted in his celebrated 1990 analysis.¹² Today, of course, these flows are dominated by massive sustained borrowing by the United States. Obstfeld and I¹³ first raised the prospect that the U. S. current account deficit (now over 5 percent of GNP) is not likely to be sustainable, and that when it unwinds, one may see a massive depreciation of the dollar. In more recent work¹⁴ we have updated and extended our analysis. We conclude that the problem has only become worse over the four years since our initial paper. No one expects that the United State will default in the style of a developing country, but the prospects for a sharp depreciation of

the dollar could be quite problematic for the global economy, particularly if they coincided with security problems or severe budget problems in the United States.

¹ M. Baxter and A. C. Stockman, "Business Cycles and the Exchange Rate Regime," *Journal of Monetary Economics*, 23 (May 1989), pp. 377-400.

² R. Meese and K. S. Rogoff, "Empirical Exchange Rate Models of the Seventies: Do They Fit Out of Sample?" *Journal of International Economics*, 14 (February 1983), pp. 3-24; and R. Meese and K.S. Rogoff, "The Out-of-Sample Failure of Empirical Exchange Rate Models: Sampling Error or Misspecification?" in J. Frenkel, ed., *Exchange Rates and International Macroeconomics*, Chicago: University of Chicago Press, 1983, pp. 67-105.

³ M. Obstfeld and K.S. Rogoff, "The Six Major Puzzles in International Macroeconomics: Is there a Common Cause?" NBER Working Paper No. 7777, July 2000, and in B. Bernanke and K. S. Rogoff, eds. *NBER Macroeconomics Annual 2000*, Cambridge, MA: MIT Press, pp. 339-90.

⁴ C. M. Reinhart and K. S. Rogoff, "The Modern History of Exchange Rate Arrangements: A Reinterpretation," NBER Working Paper No. 8963, June 2002, and in

Quarterly Journal of Economics, 119 (1) (February 2004), pp. 1-48.

⁵ K. S. Rogoff, A. M. Husain, A. Mody, R. J. Brooks, and N. Oomes, "Evolution and Performance of Exchange Rates Regimes," *International Monetary Fund Occasional Paper* 229, 2004.

⁶ A. M. Husain, A. Mody, and K. S. Rogoff, "Exchange Rate Regime Durability and Performance in Developing Countries Versus Advanced Economies," NBER Working Paper No. 10673, August 2004, forthcoming in the *Journal of Monetary Economics*.

⁷ E. Prasad, K. S. Rogoff, S. Wei, and M. A. Kose, "The Effects of Financial Globalization on Developing Countries: Some Empirical Evidence," *International Monetary Fund Occasional Paper* 220, 2003. A version of this paper was presented at the September 10-12, 2004 NBER Conference on Globalization and Poverty.

⁸ C. M. Reinhart and K.S. Rogoff, "Serial Default and The 'Paradox' Of Rich To Poor Capital Flows," NBER Working Paper No. 10296, February 2004, and in *American Economic Review*, 94 (2) (May 2004), pp. 52-8.

⁹ C. M. Reinhart, K.S. Rogoff, and M.A. Savastano, "Debt Intolerance," NBER Working Paper No. 9908, August 2003, and in W. Brainard and G. Perry, eds. *Brookings Papers on Economic Activity*,

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¹⁰ C. M. Reinhart, K.S. Rogoff, and M.A. Savastano, "Addicted to Dollars," NBER Working Paper No. 10015, October 2003.

¹¹ M. Gertler and K.S. Rogoff, "Developing Country Borrowing and Domestic Wealth," NBER Working Paper No. 2887, March 1989; revised version published as "North-South Lending and Endogenous Domestic Capital Market Inefficiencies," *Journal of Monetary Economics*, 26 (October 1990), pp. 245-66.

¹² R.E. Lucas, "Why Doesn't Capital Flow from Rich to Poor Countries?" *American Economic Review*, 80 (May 1990), pp. 92-6.

¹³ M. Obstfeld and K.S. Rogoff, "Perspectives on OECD Capital Market Integration: Implications for U.S. Current Account Adjustment," in *Federal Reserve Bank of Kansas City Global Economic Integration: Opportunities and Challenges*, March 2001, pp. 169-208.

¹⁴ M. Obstfeld and K.S. Rogoff, "Current Account Adjustment and Overshooting," prepared for NBER pre-conference on G-7 Current Account Imbalances, July 2004, and R. Meese and K.S. Rogoff, "Empirical Exchange Rate Models of the Seventies: Do They Fit Out of Sample?" *Journal of International Economics*, 14 (February 1983), pp. 3-24.

Macroeconomic Determinants of International Trade

Andrew K. Rose*

Introduction

Much research on international trade patterns focuses on deep primitive causes of trade, such as differences in national factor endowments, preferences, or technologies. In much of my recent research in the area, I examine less traditional causes of trade flows. In particular, I've tended to focus mostly on the macroeconomic determinants and consequences of trade.

How much does Monetary Union Stimulate Trade?

A number of countries in the Americas and Europe have engaged in monetary unions of late. This is usually to the chagrin of academic economists who point out that joining a monetary union means giving up the tool of independent monetary policy that can be used to smooth idiosyncratic business cycles. This cost seems high, and there are others. Where are the benefits of currency union?

Perhaps currency union brings the benefit of higher international trade within the union. If there's a single issue that economists agree on, it's that trade should be as free and unfettered as possible. And, two countries with different monies are separated by a monetary barrier to trade, otherwise known as the exchange rate. That barrier might be small if exchange rate costs are small or easy to hedge; but the barrier might be large. After all, the one thing we know about exchange rates is that they tend to change, usually in unpredictable ways. Quantifying the

impact of currency unions and exchange rate uncertainty on trade is thus an empirical exercise of importance.

In a 1999 paper I quantified the impact of currency union on trade and found it to be remarkably large.¹ In particular, I estimated that two countries sharing a common currency will trade over three times as much as an otherwise comparable pair of countries, holding other things equal. This effect is large — implausibly large — but my extensive sensitivity analysis simply couldn't reduce it substantially.

My research was based on a model that I have tended to use quite a bit for much of my work in international trade: the bilateral “gravity” model of trade. The gravity model has enjoyed a resurgence of use in the last decade, because it has solid theoretical foundations and turns in an admirable empirical performance. Stripped to its essence, the gravity model states that trade between a pair of countries is inversely proportional to the distance between them, and is proportional to their combined economic mass (usually proxied by GDP).² The model fits the data well and produces plausible coefficient estimates that tend to be similar across different studies and authors, an unusual combination in economics.

One of the issues with the gravity model is that it is intrinsically cross-sectional, relying on variation across pairs of countries. That's a disadvantage for inherently time-series questions such as: “what is the effect on trade of leaving or joining a currency union?” To address such important questions, Reuven Glick and I gathered a dataset covering over 200 countries and 50 years.³ This enabled us to use a variety of conventional panel data techniques, including the “fixed-effects” estimator that uses only time-series variation within a pair of countries. We found that the impact of leaving a cur-

rency union was still large; countries that dissolve currency unions see their trade shrink dramatically, *ceteris paribus*. Assuming symmetry, a pair of countries joining a common currency experiences a near doubling of trade.

My estimates of the effect of currency unions on trade are high, implausibly so to many researchers. Consequently, a number of critiques of my work have started to circulate. I have tried to list and respond individually to many of these criticisms on my website. Still, it is interesting to summarize the mass of this research as a whole. One way to do this objectively is by using “meta-analysis”: a set of tools that can quantitatively survey the literature. The key task is to construct a vector of estimates (of the effect of currency unions on trade), one estimate from each study. There are currently 34 studies in the area, each differing in a number of dimensions. This set of (34) estimates can then be summarized and linked to the features of the underlying studies. The meta-analysis shows that the literature as a whole finds a statistically significant and economically large effect of currency unions on trade, averaging around 60 percent, but with considerable variation.⁴

Suppose that a currency union *does* indeed cause trade to rise. Should we care? Jeffrey Frankel and I investigate that question by linking the effect of currency unions on trade to the effect of trade on output. We find that the indirect effects of currency unions on output can be large, and manifested through trade promotion rather than more stable macroeconomic policies.⁵ For instance, we estimate that the potential long-run output stimulus from accession to the Euro could be over 20 percent for countries like Hungary, Poland, Sweden, and the United Kingdom. Even if our estimates are off by a factor of five, policymakers ignore such effects

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at their peril.

There is also an interesting, self-fulfilling feedback loop that's possible. Suppose that a currency union tends to stimulate trade, and that more trade in turn tends to make business cycles more synchronized. In this case, entering into a currency union lowers the main cost of the currency union, namely foregone monetary independence. A pair of countries with business cycles that are dissimilar *ex ante* (making currency union look costly) might have more coherent business cycles *ex post* because the increase in trade stimulated by the currency union tends to synchronize business cycles. Frankel and I discovered that this is more than an academic point.⁶ Even after controlling for endogeneity, we found strong evidence that two countries with more international trade tend to have more synchronized business cycles.

Does the Multilateral Trade System Have Strong Effects on Trade?

Most economists now agree that “institutions” are important determinants of the standard of living, growth rates, and other key macroeconomic phenomena. Typically these institutions are measured as the presence (or lack) of domestic political, legal, or financial constraints on the ability of economic agents to engage in harmful activities. It is interesting to exploit the existence of comparable international institutions. For instance, researchers have studied how the activities of the International Monetary Fund (IMF) and the World Bank affect growth, inflation, poverty, inequality, and the environment.

One interesting gap in the literature concerns the role of the World Trade Organization (WTO) and its predecessor, the General Agreement on Tariffs and Trade (GATT). The success (or lack thereof) of IMF and World Bank programs has been studied a great deal by researchers both inside and outside the beltway. But there has been essentially no comparable research on the effects of the WTO. This is odd but perhaps understandable. Economists like free trade, and accordingly the insti-

tution in charge of freeing trade is by far the most popular and least controversial of the Bretton Woods trinity (IMF, World Bank, and GATT/WTO). Still, some evaluation of an important institution like the WTO is better than none. This is especially true since the WTO has lately (if unfairly) acquired a notorious reputation as a result of disastrous meetings in Seattle and Cancun.

In a 2002 paper, I examine the performance of the GATT/WTO in terms of its own mandate of trade promotion.⁷ At any point in time, there are countries both inside and outside the system; similarly, many countries that began outside the system subsequently have acceded. Thus, there is both time-series and cross-sectional variation available to estimate the effect of membership on trade. Using a gravity approach and aggregate data, I find that countries that are formal members of the GATT/WTO seem to engage in amounts of trade that are similar to those of countries outside the system. Accession to the system seems to raise trade, but by an amount that is economically small compared with intuition, the effects of regional trade agreements, and the hype surrounding WTO negotiations. But extensive robustness checks left few signs that members of the GATT/WTO had substantially higher trade than outsiders.

This negative result seems hard to believe initially; after all, one of the most well-known facts in international economics is that trade consistently grows faster than income. That might be the result of dropping transportation costs. Still, it seems hard to believe that the multilateral trade system is irrelevant, especially the GATT-sponsored eight successful “rounds” of multilateral trade negotiations.

Then again, perhaps not. “Most Favored Nation” status might seem like the great prize of GATT/WTO membership. But it turns out that MFN status typically is given away freely to most countries outside the GATT.⁸ Further, many believe that the GATT historically made few demands on most countries in terms of trade liberalization, since most entrants to the system were developing countries eligible for special and differential treatment (a synonym for most “special and

differential treatment” is “protectionism”). That is, many developing countries joined the GATT without substantial changes in their trade policies.

I pursue this idea in another paper.⁹ In particular, I use almost 70 quantitative measures of trade policy — all that I could find in the literature — to ask whether membership inside the GATT/WTO system is associated with less protectionism. The answer is a deafening silence; there is essentially no substantive evidence that WTO members have systematically lower or less widespread tariffs, non-tariff barriers, and so forth. Membership in the WTO seems to have few privileges in the form of higher trade, but it comes with few responsibilities in terms of more liberal trade policy.

The WTO is an institution that was designed by its creators to be toothless; it cannot use sticks since it does not hold any carrots (such as conditional IMF loans). And perhaps the WTO is not even interested in higher trade, only greater trade stability. I also investigate the hypothesis that membership in the system makes trade more predictable.¹⁰ Unfortunately for the WTO, both bilateral and multilateral evidence reveal few consistent signs that membership in the GATT/WTO reduces the volatility of trade flows.

Why do Countries Repay Sovereign Debts?

One of the ongoing mysteries in international finance is why investors are willing to export capital, especially to governments of developing countries. After all, sovereigns frequently default on their debts, and have done so for hundreds of years, in many countries. When a sovereign (such as Argentina) defaults, there are few sanctions that can be applied by foreigners (such as Americans). Debtors like Argentina don't have much collateral that Americans can seize, even in principle. Invading to enforce debt contracts is unthinkable. And there are so many serial defaulters that it's hard to take any concerns about reputation seriously, given the prevalence of repeat offences. Why then does Argentina ever service its debts? And

equivalently, why do Americans ever lend to Argentina?

One thing Americans can do to encourage repayment is threaten to damage Argentina's trade in the case of default. This threat might be explicit, in the forms of tariffs and trade sanctions intended to deter default. But such threats are rarely observed. More likely, any threat is implicit; country risk insurance rates rise in the case of default and trade credit tends to shrink. For whatever reason, debtors like Argentina might fear being cut off from the fruits of international trade following default. Is this fear reasonable? Does trade typically shrink following sovereign default?

I answer this question using another large panel data set, including the dates of over 200 "Paris Club" debt renegotiations to measure default.¹¹ Controlling for a host of other factors, it turns out that trade does indeed shrink after default. The shrinkage in trade only amounts to 8 percent a year, but it's a highly persistent effect, lasting over a decade. That is, countries have at least one solid reason to repay their debts, because they risk losing out on international trade in the case of default.

If default tends to lower trade, then it stands to reason that creditors should lend more to countries with which they

have closer trade links. That way the linkage between default and trade can be as tight as possible. Mark Spiegel and I provide a simple theoretical model of this idea and test it empirically.¹² We use Bank of International Settlements data on international banking claims between 20 creditor and 149 debtor countries between 1986 and 1999 and show that there is a robust positive link between bilateral trade and lending patterns. That is, debtors tend to borrow more from creditors with whom they share more international trade.

¹ A. K. Rose, "One Money, One Market: Estimating the Effect of Common Currencies on Trade," NBER Working Paper No. 7432, December 1999, and in *Economic Policy*, 2000.

² For more discussion, see J. E. Anderson and E. van Wincoop, "Gravity with Gravitas: A Solution to the Border Puzzle," NBER Working Paper No. 8079, January 2001.

³ R. Glick and A. K. Rose, "Does a Currency Union Affect Trade? The Time Series Evidence," NBER Working Paper No. 8396, July 2001.

⁴ A. K. Rose, "A Meta-Analysis of the Effects of Common Currencies on International Trade," NBER Working Paper No. 10373, March 2004.

⁵ J. A. Frankel and A. K. Rose,

"Estimating the Effect of Currency Union on Trade and Output," NBER Working Paper No. 7857, August 2000.

⁶ J. A. Frankel and A. K. Rose, "The Endogeneity of the Optimum Currency Area Criteria," NBER Working Paper No. 5700, August 1996, and *The Economic Journal*, 108 (449) (July 1998), pp. 1009-25.

⁷ A. K. Rose, "Do We Really Know that the WTO Increases Trade?" NBER Working Paper No. 9273, October 2002.

⁸ For instance, as of August 2004, only six countries (Afghanistan, Cuba, Laos, North Korea, and Serbia-Montenegro, and Vietnam) did not have normal trade relations (the equivalent of MFN status) with the United States, even though many countries were not in the WTO (Russia and Saudi Arabia being perhaps the most prominent non-members); see <http://www.itds.treas.gov/mfn.html>.

⁹ A. K. Rose, "Do WTO Members have More Liberal Trade Policy?" NBER Working Paper No. 9347, November 2002.

¹⁰ A. K. Rose, "Does the WTO Make Trade More Stable?" NBER Working Paper No. 10207, January 2004.

¹¹ A. K. Rose, "One Reason Countries Pay Their Debts: Renegotiation and International Trade," NBER Working Paper No. 8853, March 2002.

¹² A. K. Rose and M. M. Spiegel, "A Gravity Model of Sovereign Lending: Trade, Default, and Credit," NBER Working Paper No. 9285, October 2002.

Capital Gains Taxes and Equity Prices

Douglas A. Shackelford*

The extent to which individual shareholders' taxes affect equity prices is central to valuation and tax policy. Historically, the dividend tax has attracted more scholarly attention than the capital gains tax. Even today the debate between the traditional view and the (now not-so-new) new view continues, and studies of the 2003 reduction in the dividend tax are already emerging.¹

Conversely, the appropriate tax on capital gains has long been hotly contested in policy circles but has received comparably little attention from scholars. This is surprising because most companies pay no dividends and those that do pay dividends typically distribute only a small fraction of their profits. Thus, the capital gains tax would appear to be more important for investors than the dividend tax. In recent years scholars have become increasingly interested in the impact of the capital gains tax on share prices. This report summarizes some of that recent research.

Necessary Conditions for Share Prices to be Affected by Taxes

When an investor sells a share of stock, the United States taxes the difference between the sales price and its tax basis, which is usually the purchase price. Except for the period 1988-90, individual investors have been rewarded with a reduced tax rate if they hold the stock for a minimum period, which has ranged from six to 18 months. Currently the appreciation on investments held for more than one year (long-term capital gains) is taxed at a

maximum rate of 15 percent while the appreciation on investments held for shorter periods (short-term capital gains) is taxed at the ordinary tax rate, currently capped at 35 percent.

Policy debates about the level and appropriateness of capital gains taxes almost always revolve around the long-term capital gains tax rate and the length of the requisite holding period. Since changes in these policies often provide added power to our tests of the impact of capital gains taxes on share prices, let's consider the necessary conditions for a change in the long-term capital gains tax rate to affect share prices.² To begin with, the marginal investor in the firm must be an individual or a flow-through entity that passes capital gains to individual tax returns. If other investors (for example, qualified retirement plans, corporations, tax-exempt organizations, or foreign entities) are setting prices, then changes in the long-term rate should have no effect on prices because preferential rates for long-term gains only apply to individuals.

Furthermore, the marginal investor must be willing to hold the stock for the obligatory long-term holding period, must dispose of the stock in a taxable manner (for example, not as a charitable donation or bequest), must intend to comply with the law (capital gains non-compliance is known to exceed that of wages, dividends, interest, and many other sources of income),³ and must not have anticipated the tax rate change. In addition, because of complex netting provisions, the long-term capital gains tax rate applies if and only if an individual's long-term capital gains during the year exceed his long-term capital losses and the excess of his short-term capital losses over his short-term capital gains, if any.⁴ Finally, inelasticities in the supply of capital must prevent immediate readjustment throughout the economy following the tax rate change.

All of these conditions must hold for a change in the long-term capital

gains tax rate to affect prices (other than through indirect macroeconomic shifts). Similar conditions must hold for other changes in the taxation of capital gains to affect share prices. Thus, it is an empirical question whether changes in capital gains taxes affect share prices.

The remainder of this article reviews recent research designed to provide some empirical underpinning. In general, the preliminary evidence suggests that capital gains taxes affect equity prices and may contribute to short-term departures from fundamental prices. An implication of these findings is that changes in capital gains taxation affect firms differently depending upon the composition and preferences of their investors. For example, the results suggest that two firms, identical in all regards, except the tax treatment of their investors, could have different prices (at least temporarily).

Challenges to Empirical Work

Estimating the influence of personal capital gains taxes on equity prices is challenging because of both theoretical and empirical limitations. First, the theory struggles to provide adequate guidance and structure. The reason lies with the realization principle that underpins capital gains taxes. Shareholder capital gains taxes are triggered by trades in the secondary market, share repurchases, and liquidating distributions of a company.⁵ In the simplest of worlds, capital gains taxes could be fully avoided by distributing all profits to shareholders as they are earned. This assumes that profits monetize as they are earned, enabling their immediate distribution as cash dividends. It also assumes that expected earnings never change. Under these conditions, share prices would never change and the company's value at liquidation would equal the shareholder's

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original capital contribution. Against this backdrop, a theory of capital gains taxes must assume that the costs created by complete and immediate distribution (including the dividend tax) exceed the otherwise unnecessary capital gains tax that investors incur to monetize their investments.

As if this complication is not enough, individuals who inherit stock assume a tax basis equal to the fair market value of the shares at the date of death. Therefore, a bequest can be sold immediately without incurring any capital gains taxes. Thus, it becomes difficult to explain why so many capital gains taxes are paid without resorting to incompleteness in the capital markets. Consequently, theory struggles to grapple with the existence of capital gains taxes, leaving empirical work with limited guidance or structure.

Empirical work is further impeded because the identity, and thus the tax status, of a firm's shareholders are rarely observable.⁶ Thus, although we might predict that the extent to which capital gains taxes affect equity prices is a function of the extent to which individuals hold its stock, we are almost always left with crude estimates of the individual ownership of a specific company. The combination of inadequate theoretical structure and poor measures of the tax status of the shareholders makes it difficult to construct strong tests of the relation between equity prices and individual capital gains taxes and doubtless is a partial explanation for its historical oversight. Having said that, let's now look at some recent work that has found ways to partially overcome these limitations.

Price Responses to Changes in Anticipated Capital Gain Taxes

Wayne Landsman and I had the opportunity to observe the tax status of investors around the 1989 RJR Nabisco leveraged buyout.⁷ Examining the confidential records of individual shareholders, we find that, during the period that the stock was in play, shareholders facing smaller capital gains taxes sold their shares at a lower price than did

shareholders facing larger capital gains taxes. In other words, shareholders demanded compensation to accelerate their long-term capital gains taxes. We estimate that the share price increased by 20 cents, on average, to entice an investor with one dollar of lower tax basis to sell.

Mark Lang and I examined a legislative change that enabled us to observe capital gains tax effects in stock prices.⁸ We study stock price movements for the 2000 largest American firms around the 1997 reduction in the long-term capital gains tax rate from 28 percent to 20 percent. We assume that individuals will be more attracted (from a tax perspective) to firms paying low or no dividends, that is, companies where a higher percentage of their returns would come from capital gains, rather than dividends.

Consistent with this prediction, we find that the raw returns of non-dividend-paying firms were 6.8 percentage points greater than the raw returns of other firms during the May 1997 week when Congress and the White House agreed to reduce the long-term capital gains tax rate. Results qualitatively hold when controls are added. We interpret these findings as evidence that investors discriminated among companies based on the probability that shareholder returns would be affected by the new capital gains tax rates. The fact that we find different returns implies that the necessary conditions, detailed above, held during the investigative period.

Our findings are contrary to predictions in the business press that rate cuts would lead to widespread sell-off of appreciated securities by pent-up investors. Furthermore, we found no reversal of the returns during the summer of 1997, consistent with the rate reduction leading to permanent price differences.

Price Pressure around Holding Periods

It is important to note that the two studies detailed above are unusual. In the RJR Nabisco study, we observe the actual appreciation realized by individual shareholders. Such databases are rare. Access to similar databases at companies or brokerage houses would

greatly advance the research in this field. In the 1997 rate reduction study, we are able to employ the power of a short-window event study. This empirical approach is rarely possible with tax legislation. Normally, tax policy evolves over months, if not years, and news slowly leaks to the markets. Thus, event studies must investigate a window so large that tax effects are swamped by other effects. In our case, a short-window approach was an option because the markets were surprised by an eleventh-hour agreement to cut rates after months of failure to reach a budget accord.

Limited in their ability to link equity prices and individual capital gains tax incentives, several recent studies have turned to analyzing price effects around the date when stocks convert from short-term to long-term treatment. Recall that the capital gains tax rate drops dramatically once an investor has held stock for the required minimum period. For example, under current law, gains are taxed up to 35 percent until the stock has been held for one year; the following day the rate is capped at 15 percent. This precipitous fall in rates provides a potentially powerful setting for detecting the footprints of capital gains tax effects in the patterns of price movements. The remainder of this summary will focus on this emerging literature.

Ro Verrecchia and I constructed a theoretical model for evaluating capital gains tax incentives created by the discontinuity in rates.⁹ We analyze the impact of the tax penalty associated with short-term capital gains on equity prices and trading volume. Using a stylized model of trade, we show that capital gains taxes can restrain the portfolio rebalancing that would occur in their absence. If investors face tax-disfavored short-term capital gains on the sale of appreciated stock, then they limit the supply of equity. To induce selling, buyers must compensate sellers through higher share prices for the incremental taxes associated with short-term capital gains.

Several empirical studies test whether this rate discontinuity affects equity prices and trading volume. These studies generally investigate short windows and test whether capital gains tax

incentives affect trading volume and, if so, whether the volume surge is large enough to move prices. William Reese recognized that initial public offerings (IPOs) provide a particularly attractive investigative setting for such studies because individuals hold disproportionate shares of these companies and the IPO provides a start date for computing long-term capital gains holding periods.¹⁰ He reports that from 1976-86 trading volume increased and prices fell for appreciated firms when their initial public shareholders (those who buy at the IPO) first qualified for long-term capital gains tax treatment. Reese's findings are consistent with a surge in selling pressure (when the lower rates first apply) that could not be met at the current market price.

Jennifer Blouin, Jana Raedy, and I also examine IPOs to test price pressure arising from holding period effects.¹¹ On June 24, 1998, the joint Senate-House conference committee released its version of the IRS Restructuring and Reform Act of 1998. The conference bill unexpectedly reduced the marginal tax rate on capital gains from 28 percent to 20 percent for individual investors who had held shares for at least 12 months, but not more than 18. We compare firms whose initial public shareholders immediately benefited from the reduction to other IPO firms to determine whether the pent-up demand to sell by affected shareholders was enough to create downward price pressure in the equity markets.

We find that immediately affected firms recorded mean, incremental, one-day stock price declines of 1.3 percent amid heavy trading. However, the tumble was temporary with prices rebounding on the next trading day. The results imply that transaction costs are large enough to prevent investors from entering the market immediately and fully offsetting the downward price pressure from individuals selling off shares at the first possible tax-favored date. However, the tax-induced drift from fundamentals lasted only one day, on average. This finding is consistent with Reese's IPO study but contrasts with my work with Lang where we found no evidence of a sell-off when capital gain tax rates were reduced unexpectedly in 1997.

Jim Poterba and Scott Weisbenner link holding period incentives for *depreciated* shares to the January effect.¹² They find that turn-of-the-year returns for depreciated firms were greatest from 1970 to 1976 and in 1985 and 1986, years when half of any net long-term capital losses expired unused while short-term capital losses could be deducted fully, a provision that the Tax Reform Act of 1986 eliminated. They interpret this result as consistent with price reversal following a tax-induced, year-end sell-off intended to ensure short-term capital loss treatment. Their findings imply that tax planning around those year-ends was important enough to move prices.

Both Reese and Poterba and Weisbenner investigate unusual trading circumstances and tax conditions that changed with the Tax Reform Act of 1986. My earlier work with Blouin and Raedy is limited to the same unusual firms (IPOs) as Reese (1998), and we examine only one day of legislative news in that study. Therefore, Blouin, Raedy, and I performed another study, described below, that attempted to determine whether these findings in support of price pressure reflect exceptions to the rule (that is, only occur under special tax conditions) or whether they illustrate a more general pricing role for capital gains taxes.¹³

To provide a more general test, we investigate equity trading from 1978 to 1999 around two different disclosures: quarterly earnings announcements and changes to the Standard & Poor's 500 index. Both public disclosures are known to trigger substantial portfolio rebalancing and thus potentially provide a sufficiently powerful setting to detect the impact of capital gains taxes on trading. For each disclosure, we regress both abnormal returns and abnormal trading volume on the estimated incremental taxes that would be triggered if the appreciated property were sold immediately before it qualified for long-term treatment. Incremental taxes are measured as the product of the spread between long-term and short-term capital gains tax rates (which ranged from zero to 50 percent during the years examined) and the change in the firm's price during the requisite holding period (which ranged

from six to 18 months). In other words, if an individual is at the long-term/short-term cusp when a disclosure occurs, then the tax measure captures his taxes saved by deferring the sale of appreciated property for precisely one day.

We find that the tax variable is a determinant of equity trading for appreciated stocks around both earnings announcements and additions to the S&P 500 index. The supply of equity shrinks and prices rise with the tax penalty associated with short-term capital gains. The price movement is temporary, though, largely reversing after a week of trading. This reversal implies that preferential treatment for long-term capital gains increases stock market volatility.

These results suggest that the pool of selling shareholders is so thin around these disclosures that buyers must tap one of the most tax-disadvantaged shareholder groups, that is, individual holders of appreciated shares who have not yet met the holding period requirement to qualify for long-term treatment. To attract these investors, buyers must provide additional compensation. In this regard, the results of this study are similar to those in my study with Landsman, where added compensation was required to attract sellers who faced larger taxes on their sales.

To summarize the contribution of this paper, previous work documented that capital gains taxes matter in circumstances where tax planning is particularly salient. Such settings include changes in tax policy, transactions where taxes are important considerations (for example, mergers and acquisitions), companies held disproportionately by individuals, IPOs, and periods when tax planning is prevalent (that is, year-end). Blouin, Raedy, and I conclude from our research that the imprint of capital gains taxes can be observed in settings devoid of any potential biases toward finding tax effects.

Conclusion

These studies reviewed preliminary evidence consistent with capital gains taxes affecting share prices. At a minimum, they provide examples of

instances where share prices impound potential capital gains taxes, a possibility that largely has been ignored in the past. Together, they reject the proposition that the array of necessary conditions for share prices reactions never holds.

The preliminary empirical evidence is consistent with capital gains taxes producing price pressure around heavy trading days. This pressure leads to increased volatility and drifts from fundamentals. In at least one case, the evidence suggests that the price movement may have spanned a longer period, although documenting the permanency of such price movements is difficult, if not impossible.

My hope is that the findings in these papers are sufficiently intriguing to encourage further analysis. These initial studies need further evaluation and many questions remain. Among other issues, policymakers should be particularly interested in the cost-of-capital implications arising from these documented effects of capital gains taxes on share prices.

¹ See J.L. Blouin, J.S. Raedy, and D.A. Shackelford, "Did Dividends Increase Immediately After the 2003 Reduction in Tax Rates?" NBER Working Paper 10301, February 2004, and R. Chetty and E. Saez, "Do Dividend Payments Respond to Taxes? Preliminary Evidence from the 2003 Dividend Tax Cut," NBER Working Paper No. 10572, June 2004.

² For a more expanded discussion, see D.A. Shackelford, "Stock Market Reaction to Capital Gains Tax Changes: Empirical

Evidence from the 1997 and 1998 Tax Acts," In *Tax Policy and the Economy*, Vol. 14, J. Poterba, ed., Cambridge, MA: MIT Press, 2000, pp. 67-92.

³ For further discussion, see W.R. Landsman, D.A. Shackelford, and R.J. Yetman, "The Determinants of Capital Gains Tax Compliance: Evidence from the RJR Nabisco Leveraged Buyout," *Journal of Public Economics*, 84 (2002), pp. 47-74.

⁴ See R.J. Rendleman and D.A. Shackelford, "Diversification and the Taxation of Capital Gains and Losses," NBER Working Paper No. 9674, May 2003 for a more thorough discussion of the netting provisions. In that study we show that the impact of capital gains taxation on stock values can be positive or negative depending on the correlation between the stock's returns and those of the overall portfolio. Of particular interest is our finding that valuations for stocks whose returns are negatively correlated with market returns generally are increasing in capital gains tax rates.

⁵ Note that when a company liquidates, a shareholder pays tax at the capital gains tax rate on the difference between the liquidating dividend that he receives from the company and his tax basis. A common simplifying assumption in some of the dividend tax capitalization literature is that liquidating distributions are taxed at the dividend tax rate. This assumption leads some studies to conclude erroneously that capital gains taxes can be ignored for valuation purposes unless a firm repurchases shares.

⁶ Even managers of publicly-traded companies often have only a rough understanding of the identity and taxability of their investors.

⁷ See W.R. Landsman and D.A. Shackelford, "The Lock-in Effect of Capital Gains Taxes: Evidence from the RJR

Nabisco Leveraged Buyout," *National Tax Journal*, 48 (1995), pp. 245-59.

⁸ See M.H. Lang and D.A. Shackelford, "Capitalization of Capital Gains Taxes: Evidence from Stock Price Reactions to the 1997 Rate Reductions," *Journal of Public Economics*, 76 (2000), pp. 69-85.

⁹ See D.A. Shackelford and R.E. Verrecchia, "Intertemporal Tax Discontinuities," NBER Working Paper No. 7451, December 1999, and in *Journal of Accounting Research*, 40 (1) (March 2002), pp. 205-22.

¹⁰ See W. Reese, "Capital Gains Taxation and Stock Market Activity: Evidence from the IPOs," *Journal of Finance*, 53 (1998), pp. 1799-820.

¹¹ See J.L. Blouin, J.S. Raedy, and D.A. Shackelford, "Capital Gains Holding Periods and Equity Trading: Evidence from the 1998 Tax Act," NBER Working Paper No. 7827, August 2000, and in the *Journal of the American Taxation Association*, 24, (Supplement 2002), pp. 70-93.

¹² See J. Poterba and S. Weisbenner, "Capital Gains Tax Rules, Tax Loss Trading, and Turn-of-the-year Returns," *Journal of Finance*, 56 (2001), pp. 356-68.

¹³ See J.L. Blouin, J.S. Raedy, and D.A. Shackelford, "Capital Gains Taxes and Stock Reactions to Quarterly Earnings Announcements," NBER Working Paper No. 7644, April 2000, and "The Impact of Capital Gains Taxes on Stock Price Reactions to S&P 500 Inclusion," NBER Working Paper No. 8011, November 2000, and "Capital Gains Taxes and Equity Trading: Empirical Evidence," *Journal of Accounting Research*, 41 (4) (September 2003), pp. 611-51.

NBER Profile: *David Autor*



David Autor is a Faculty Research Fellow in the NBER's Programs on Labor Studies and Education. He is also the Pentti J.K. Kouri Associate Professor of Economics at MIT. Autor is currently engaged in two research programs, one on the growth of labor market intermediation, and the second on job skill demands, technological change, and earnings inequality.

Autor received a B.A. in Psychology with a minor in Computer Science from Tufts University in 1989 and a Ph.D. in Public Policy at Harvard University's Kennedy School of Government in 1999. He is also the recipient of an NSF CAREER award for his research on

labor market intermediation and an Alfred P. Sloan Foundation Fellowship. Prior to obtaining his Ph.D., Autor spent three years directing efforts in San Francisco and South Africa to teach computer skills to economically disadvantaged children and adults. He also pursued two previous careers, one in computer programming and the other in food service.

At last count, Autor and his spouse, Marika Tatsutani, had three children, ages seven, five, and eight weeks. Autor is an avid sailor and his two older children are enthusiastic swimmers. As a compromise, they often go ice skating together.

NBER Profile: *Kenneth S. Rogoff*

Kenneth S. Rogoff is an NBER Research Associate in the Programs on International Finance and Macroeconomics, Monetary Economics, and Economic Fluctuations and Growth. He is also the Thomas D. Cabot Professor of Public Policy and Professor of Economics at Harvard University. From 2001 to 2003, he was chief economist and director of research at the International Monetary Fund.

Rogoff received his B.A. from Yale University and his Ph.D. in economics from MIT. He is an elected member of the Econometric Society and the

American Academy of Arts and Sciences.

Rogoff's main research is on international macroeconomics, including exchange rates, international debt, and current accounts. He also has worked on central bank design and political budget cycles.

Rogoff lives in Cambridge, MA. He and his wife, Natasha Lance Rogoff, have two children: Gabriel (8) and Juliana (6). Rogoff was awarded the life title of international grandmaster of chess by FIDE (the world chess federation) in 1978.



NBER Profile: *Douglas A. Shackelford*



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Shackelford received his B.S. in 1980 from the University of North Carolina at Chapel Hill, and his Ph. D. in 1990 from the University of Michigan. He is also a Certified Public Accountant, and worked as a Senior Tax Consultant for Arthur Andersen & Co. in 1981-5.

Shackelford joined the UNC faculty as an assistant professor in 1990; was promoted to associate professor in 1996; and was named Professor and Andersen Distinguished Tax Scholar in 1999. He was promoted to his current professorship in 2003.

Shackelford has also been a visiting professor at Stanford University's Graduate School of Business and Universiteit Maastricht. His research has been published in leading journals, and he is a member of the Tax Foundation's Academic Advisory Board.

Doug and his wife, Ann, delight in their four children, ages 17, 15, 12 and nine. Their lives revolve around church, baseball, their back porch, and a large garden on an old dairy farm.

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Conferences

International Seminar on Macroeconomics

The NBER's 27th Annual International Seminar on Macroeconomics (ISOM), organized by Richard H. Clarida, NBER and Columbia University, and Francesco Giavazzi, NBER and Bocconi University, was held on June 18-19 at the University of Iceland. Jeffrey A. Frankel, NBER and Harvard University, serves as chair of ISOM. The following papers were discussed at the conference:

Gauti Eggertsson, IMF, and **Michael Woodford**, NBER and Princeton University, "Optimal Monetary and Fiscal Policy in a Liquidity Trap"
Discussants: Tor Einarsson, University of Iceland, and Eric Leeper, NBER and Indiana University

Fabio Canova, Universitat Pompeu Fabra, and **Evi Pappa**, London School of Engineering, "Does it Cost to be Virtuous? The Macroeconomic Effects of Fiscal Constraints"

Discussants: Kenneth West, NBER and University of Wisconsin, and Gylfi Zoega, University of London

Matthew Canzoneri and **Behzad Diba**, Georgetown University, and **Robert Cumby**, NBER and Georgetown University, "How Do Monetary and Fiscal Policy Interact in the European Monetary Union?"
Discussants: Gauti Eggertsson, and Carlo Favero, Università Bocconi

Ozge Senay, Middle East Technical University, and **Alan Sutherland**, University of St. Andrews, "Endogeneous Price Flexibility, the Expenditure Switching Effect, and Exchange Rate Regime Choice"
Discussants: Gianluca Benigno, London School of Economics, and Matthew Canzoneri

Mihir A. Desai, NBER and Harvard University, and **C. Fritz Foley**, University of Michigan, "The Co-Movement of Returns and Investment Within the Multinational Firm"

Discussants: Jose Campa, IESE Business School, and Evi Pappa

Francesco Caselli, NBER and Harvard University, and **Silvana Tenreyro**, Federal Reserve Bank of Boston, "Is Poland the Next Spain?"
Discussants: Richard H. Clarida and Juan Dolado, Universidad Carlos III de Madrid

Andrew Clark, CNRS, and **Fabien Postel-Vinay**, CREST-INSEE, "Job Security and Job Protection"
Discussants: Pierre-Olivier Gourinchas, NBER and University of California, Berkeley, and Alan Sutherland

Rob Alessie, Utrecht University; **Agar Brugiavini**, University of Venice; and **Guglielmo Weber**, University of Padova, "Household Saving and Cohabitation"
Discussants: Mihir A. Desai, and Michael McMahon, Bank of England

In previous work, **Eggertsson** and **Woodford** characterized the optimal conduct of monetary policy when a real disturbance caused the natural rate of interest to be temporarily negative, so that the zero lower bound on nominal interest rates was binding. They showed that commitment to a history-dependent policy rule can greatly increase welfare relative to the outcome under a purely forward-looking inflation target. In this paper, they also consider optimal tax policy in response to such a disturbance, in order to determine the extent to which fiscal policy can help to mitigate the distortions resulting from the zero bound. They ask too whether a history-dependent monetary policy commitment continues to be important when fiscal policy

is adjusted appropriately. They find that even in a model where complete tax smoothing would be optimal as long as the zero bound never binds, it is optimal to adjust tax rates temporarily in response to a binding zero bound. When taxes have only a supply-side effect, the optimal policy requires that the tax rate be *raised* during the "trap," while committing to lower tax rates below their long-run level later on. An optimal policy commitment is still history-dependent, in general, but the gains from departing from a strict inflation target are modest in the case that fiscal policy responds to the real disturbance in an appropriate way.

Canova and **Pappa** study whether and how fiscal restrictions alter volatilities and correlations of macrovariables

for a sample of 48 U.S. states. The authors also examine the "typical" transmission properties of fiscal disturbances and the implied fiscal rules of states with different fiscal restrictions. Fiscal constraints are characterized with a number of indicators. There are economic and statistical similarities in second moments and in the transmission properties of fiscal shocks across states with different fiscal constraints. The cyclical response of expenditure differs in size, and sometimes in sign, but heterogeneity within groups makes point estimates statistically insignificant. The authors also discuss the implications for the reform of the Growth and Stability Pact.

Canzoneri, **Diba**, and **Cumby** address several questions about the

coordination of monetary and fiscal policy raised by the creation of the Euro area. Twelve countries — each with its own tax and spending policies — are now married by a common monetary policy. The authors show that a common monetary policy, responding to area-wide aggregates, can have asymmetric effects on countries within the union, depending upon whether they are large or small countries, or whether they are high-debt or low-debt countries. The authors analyze the implications of these asymmetries for the individual countries' welfare and for their fiscal policies. They also study rules for setting national tax rates and spending, rules that constrain movements in the deficit-to-GDP ratio, and ask whether these rules are necessary for the common monetary policy to harmonize national inflation rates. Finally, they analyze the effects of these rules on national welfare.

Senay and Sutherland analyze endogenous price flexibility and the expenditure-switching effect in a dynamic general equilibrium model of a small open economy where agents may choose the frequency of price changes. They compare a fixed exchange rate to inflation targeting and to money targeting. A fixed rate generates more price flexibility than the other regimes when the expenditure switching effect is relatively weak, but money targeting generates more flexibility when the expenditure-switching effect is strong. These endogenous changes in price flexibility can lead to significant changes in regimes' welfare performance. But, for the model calibration considered here, a peg does not generate enough price flexibility to compensate for the loss of monetary independence. Inflation targeting yields the highest welfare level despite generating the least price flexibility of the three regimes considered.

Desai and Foley present evidence on the comovement of returns and investment within U.S. multinational firms. These firms constitute significant fractions of economic output and investment in most large economies, suggesting that they could create significant economic linkages. Rates of return and investment rates of operations of multinational firms located in

different countries are highly correlated across countries. Firm-level regressions demonstrate that the rates of return and investment rates of affiliates are highly correlated with firm activity in the United States and in other locations outside of the affiliate's host country, even after controlling for country and industry factors. The evidence on these correlations and the importance of multinationals to local economies suggests that global firms may be an important channel for transmitting economic shocks.

Caselli and Tenreyro revisit Western Europe's record with labor-productivity convergence and tentatively extrapolate its implications for the future path of Eastern Europe. The poorer Western European countries caught up with the richer ones through both higher rates of capital accumulation and greater total factor productivity gains. The (relatively) high rates of capital accumulation and TFP growth reflect convergence along two margins. One margin (between industry) is a massive reallocation of labor from agriculture to manufacturing and services, both of which have higher capital intensity and use resources more efficiently. The other margin (within industry) reflects capital deepening and technology catch-up at the industry level. Despite the existence of large and inefficient agricultural sectors in Eastern Europe, the authors find that only a relatively small fraction of the East's productivity gap is explained by the between-industry component. Hence, unlike the South earlier, the East seems to have only one margin to exploit for its catch up: the within-industry one. Coupled with the fact that within-industry productivity gaps are enormous, this suggests that convergence will take a long time. On the positive side, however, Eastern Europe already has levels of human capital similar to those of Western Europe. This is good news because human capital gaps have proved very persistent in Western Europe's experience. Hence, Eastern Europe starts out without the handicap that is harder to overcome.

Clark and Postel-Vinay construct indicators of the perception of job security for various types of jobs in 12 European countries based on individual

data from the European Community Household Panel (ECHP). They then consider the relationship between reported job security and the OECD summary measures of Employment Protection Legislation (EPL) strictness on one hand and Unemployment Insurance Benefits (UIB) generosity on the other. They find that perceived job security, in both permanent private and temporary jobs, is correlated positively with UIB generosity; the relationship with EPL strictness is negative. These correlations also arise for permanent public jobs, yet in a much attenuated way. This suggests that such jobs are perceived to be fairly insulated from labor market fluctuations.

Alessie, Brugiavini, and Weber study the effects of cohabitation on household saving, using data from Italy and the Netherlands. They present a two-period game-theoretical model in which the child has to decide whether to move out of the parental home. This decision is affected by transaction costs, the child's preference for independence, and by the consumption loss induced by the move (consumption is a public good while the child lives in the parental home). The authors show that the child's income share affects the household saving decision, in contrast to predictions from the standard unitary model of household decision-making. Empirical results from both countries support the key predictions of the model. The child income share has strong positive effects on the saving rate in Italy, where the authors calculate saving as the difference between disposable income and consumption but only use cross-sectional variability in estimation (and therefore cannot distinguish leavers from stayers). The child income share also has some significant effects on the household saving rate in the Netherlands, where saving is computed as the change over time in financial wealth. In the Dutch data, observing households over a long time period, the authors can distinguish between stayers and leavers. The effect of the child income share is significantly negative for stayers, positive for leavers.

Many of these papers are available at "Books in Progress" on the NBER's website.

Frontiers in Health Policy Research

The NBER's eighth annual conference on "Frontiers in Health Policy Research," organized by David M. Cutler, NBER and Harvard University, and Alan M. Garber, NBER and Stanford University, took place on June 24 in Washington, DC.

The program was:

John Cawley and **Kosali I. Simon**, NBER and Cornell University, and **Johan Mathis Schroeder**, Cornell University, "How Did Welfare Reform Affect the Health Insurance Coverage of Women and Children?"

Frank A. Sloan, NBER and Duke University, and **Jan Ostermann** and **Derek S. Brown**, Duke University, "The Rising Cost of Medicare and Improvements in Survival and Functioning Among the U.S. Elderly, 1985-2000"

Katherine Baicker and **Amitabh Chandra**, NBER and Dartmouth College, "Does the Medical Malpractice Crisis Affect the Delivery of Health Care?"

Dana P. Goldman, NBER and RAND; **Neeraj Sood**, RAND; and

Arleen Leibowitz, University of California, Los Angeles, "The Relocation of Compensation In Response to Health Insurance Premium Increases"

Ernst R. Berndt, NBER and MIT; **Tomas Philipson**, NBER and Center for Medicare and Medicaid Services; and **Adrian H.G. Gottschalk** and **Matthew W. Strobeck**, MIT, "Improving the Efficiency of the Clinical Drug Development Process: Results from Industry and FDA Interviews"

What were the effects of welfare reform enacted by the Personal Responsibility and Work Opportunity Reconciliation Act of 1996? **Cawley**, **Schroeder**, and **Simon** are especially interested in one possible consequence of welfare reform: the loss of health insurance coverage. They use data for 1992-6 and a difference-in-differences method to look at the insurance coverage of women and children who were likely to be eligible for welfare as compared to those who were not likely to be eligible for welfare before and after the welfare reform. The authors find that AFDC waivers prior to 1996, and the implementation of TANF after 1996, raised the probability that welfare-eligible women lack health insurance coverage. Specifically, they estimate that TANF implementation is associated with a 7.8 percent increase in the probability that a welfare-eligible woman was uninsured. However, welfare reform had less of an impact on the health insurance coverage of children: AFDC waivers do not appear to have increased the probability that welfare-eligible children were uninsured. TANF implementation was associated with a 2.8 percent increase in the probability that a welfare-eligible child lacked health insurance, though.

Medicare expenditures are increasing, raising the question of whether higher costs yield commensurate benefits. **Sloan**, **Ostermann**, and **Brown**

compare changes in inflation-adjusted Medicare expenditures to changes in benefits from improved survival and health in 1985-2000 for: acute myocardial infarction, stroke, diabetes, and breast cancer. Using data from the 1984-99 National Long-Term Care Surveys linked to Medicare claims, they measure the benefits based on changes in five-year survival, activity limitations, and cognition, net of changes in prescription drug and nursing home costs. They find that five-year Medicare payments following diagnosis increased, except for breast cancer. But for each condition, the dollar-value of benefits increased more than Medicare payments did.

Baicker and **Chandra** use new data to examine the relationship between the growth of medical malpractice costs and the delivery of health care. They ask first, are increases in payments responsible for increases in medical malpractice premiums? Second, do increases in malpractice liability really drive physicians to close their practices? Third, do increases in malpractice liability, by increasing the use of certain procedures, change the way that medicine is practiced? Their analysis yields three specific findings. First, increases in malpractice payments do not seem to be the driving force behind increases in premiums. Premium growth may be affected by many factors beyond increases in payments, such as industry

competition and the insurance underwriting cycle. Second, increases in malpractice costs (both premiums overall and the subcomponent factors) do not seem to affect the overall size of the physician workforce, although they may deter marginal entry and increase marginal exit. Third, there is little evidence of net increases in the use of many treatments, although there may be some increase in screening procedures such as mammography. The authors cannot infer from these results that there is no defensive medicine — rather, only that local differences in malpractice costs do not produce local differences in the physician workforce or the use of these treatments.

Goldman, **Sood**, and **Leibowitz** examine how compensation packages change when health insurance premiums rise. They use data on employee choices within a single large firm with a flexible benefits plan — an increasingly common arrangement for medium and large firms. In these companies, employees explicitly choose how to allocate compensation between cash and various benefits such as retirement, medical insurance, life insurance, and dental benefits. The authors find that a \$1 increase in the price of health insurance leads to a 52-cent increase in health insurance expenditures. Approximately two-thirds of this increase is financed through reduced wages and one-third through other benefits.

Congress enacted the first of several Prescription Drug User Fee Acts (“PDUFA”) in 1992, mandating FDA performance goals in reviewing and acting on New Drug Applications within specified time periods, and in turn levying user fees on drug sponsors submitting applications to the FDA. PDUFA has been renewed twice since 1992. **Berndt, Gottschalk, Philipson,** and **Strobeck** model and quantify the impact of PDUFA-I and II on drug approval times, and then quantify the effects of the more rapid drug approvals by calculating induced changes in the present values of benefits and costs. Exploiting the plausible and reasonable assumption that the

marginal costs of a discovered and developed drug are probably less than one third of their patent-protected price, the authors demonstrate that with a linear demand curve and constant marginal costs, industry sales provide a lower bound to social (consumers’ plus producers’) surplus. In turn, social surplus can be divided into one third consumers’ surplus and two-thirds producers’ surplus. Using sales data from IMS Health, the authors further find that with a real discount rate of 5 percent, PDUFA induced changes in the present value (“PV”) of sales over all therapeutic classes are \$18 billion in 1992 dollars, many times the \$664 million PV of PDUFA user fees,

implying a net social surplus of about \$17.3 billion. Assuming fixed profit margins, this represents about a 2.1 percent increase in producers’ surplus. Allocating the net social surplus one-third to consumers (\$5.8 billion) and two-thirds to producers (\$11.5 billion) suggests that for both, the benefits from the enactment and implementation of PDUFA were many times larger than the \$664 million in PDUFA fees.

These papers will be published in an annual conference volume by the MIT Press. They are also available at “Books in Progress” on the NBER’s website under the title *Frontiers in Health Policy Research, Volume 8*.

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East Asian Seminar on Economics Focuses on Monetary Policy

The NBER's Fifteenth Annual East Asian Seminar on Economics (EASE), sponsored jointly with Hong Kong University of Science and Technology (HKU), Korea Development Institute (KDI), Tokyo Center for Economic Research (TCER), Chung-Hua Institution for Economic Research (CIER), and the Australian Productivity Commission, took place in Tokyo, Japan on June 25-27. The organizers were NBER Research Associates Takatoshi Ito, of Tokyo University, and Andrew K. Rose, of University of California, Berkeley. The theme of the meeting was monetary policy under very low inflation rates. The following papers were discussed:

Jia-Dong Shea, National Taiwan University, and **Ya-Hwei Yang**, CIER, "Deflation and Price Divergence in Taiwan"
Discussants: Toshiki Jinushi, Kobe University, and Shigenori Shiratsuka, Bank of Japan

Seok-Kyun Hur, KDI, "The Use of the Term Structure of Interest Rates as a Target of Monetary Policy in an Economy with Frictions"
Discussants: Toni Braun, University

of Tokyo, and Yuzo Honda, Osaka University

Mitsuhiro Fukao, Keio University, "Financial Strains and the Zero Lower Bound: The Japanese Experience"
Discussants: Piti Disyatat, Bank of Thailand, and James Harrigan, Federal Reserve Bank of New York

Tim Robinson and **Andrew Stone**, Reserve Bank of Australia, "Monetary Policy, Asset-Price Bubbles, and the Zero Lower Bound"
Discussants: Piti Disyatat, and Kenneth Kuttner, NBER and Oberlin College

Bennett T. McCallum, NBER and Carnegie Mellon University, "A Monetary Policy Rule for Automatic Prevention of a Liquidity Trap"
Discussants: James Harrigan, and Kazuo Ueda, Bank of Japan

Laurence M. Ball, NBER and Johns Hopkins University, "Helicopter Drops for Japan"
Discussants: Mitsuru Iwamura, Waseda University, and Kimsong Tan, Singapore Management University

Mitsuru Iwamura, and **Takeshi Kudo** and **Tsutomu Watanabe**, Hitotsubashi University, "Monetary and Fiscal Policy in a Liquidity Trap: The Japanese Experience, 1999-2004"
Discussants: Fumio Hayashi, NBER and University of Tokyo, and Kimsong Tan

Takatoshi Ito, and **Frederic S. Mishkin**, NBER and Columbia University, "Monetary Policy During the Lost Decade"
Discussants: Kenneth Kuttner, and Kazuo Ueda

Dongchul Cho, KDI, "Housing Prices and Monetary Policy When Interest Rates Decline"
Discussants: Toshiki Jinushi, Kobe University, and Mario Lamberte, Philippine Institute for Development Studies

Woon Gyu Choi, IMF, and **David Cook**, Hong Kong University of Science and Technology, "The Macroeconomic Effects of Stock Market Liquidity: Evidence from Japan"
Discussants: Shin-Ichi Fukuda, University of Tokyo, and Makoto Saito, Hitotsubashi University

Taiwan has experienced deflation since 1999, but prices gradually stabilized and began increasing slowly in 2004. During the period of deflation, the price structure changed. The GDP price deflator (PGDP) decreased, as did the CPI by a smaller margin. However, the Wholesale Price Index increased. In fact, this kind of price divergence has happened frequently. **Yang** and **Shea** analyze data for 1982 to 2003 to study the domestic and foreign factors that cause deflation, particularly since 1999 when the PGDP dropped. During this period, aggregate market demand was insufficient, fiscal expenditures were cut, unit output labor cost (substituting production technolo-

gy and key cost factors) decreased, the Internet bubble popped, cheap Chinese products drove down global prices, and the New Taiwan Dollar appreciated. All of these forced PGDP down. The authors also analyze why WPI and CPI trends have diverged since 2002. WPI increased because when the economy recovered, an improved investment and production environment pushed up the prices of domestic products. Furthermore, China's growing economic development raised the price of imported raw materials, which further increased WPI. The main reason why CPI decreased was that service prices and general domestic prices decreased. Service prices dropped because of

decreases in rent and interest rates.

Hur explores the transmission of monetary policy through the bond market. Based on the assumption of delayed responses of economic agents to monetary shocks, he derives a system of equations relating the term structure of interest rates to the past history of money growth. He then tests the equations with U.S. data. His results confirm that monetary policy targeting a specific shape for the term structure of interest rates could be implemented, with certain time lags attributable to the path-dependency of interest rates.

Fukao analyzes the causes of the persistent deflation in Japan by esti-

mating the long-run Phillips-curve equation, using the GDP deflator and the estimated GDP gap. He also documents the conduct of monetary policy in the face of a zero lower bound on interest rates. Gradually accelerating deflation has been the origin of two serious problems with the Japanese economy: the non-performing loan problem and the increasing national debt.

Robinson and Stone use a simple, two-equation model of a closed economy to study the interest rate recommendations of a policymaker attempting to respond optimally to an asset-price bubble the stochastic properties of which are understood. Specifically, the authors focus on the impact which the zero lower bound on nominal interest rates has on the recommendations of such a policymaker, for a given target inflation rate. They also examine the implications of the zero lower bound (ZLB) for policymakers' preferences as to this target inflation rate. The authors identify several different forms of "insurance" that a policymaker can take out against the risk of encountering the ZLB because of the future bursting of a bubble. Which type of insurance is most cost-effective depends upon the type of bubble and, for certain bubbles, the time period. Whether the ZLB should cause policymakers to operate policy more tightly (or more loosely) than they otherwise would, while a bubble is growing, appears to depend upon the parameters describing the economy and on the stochastic properties of the bubble. The authors also find that the ZLB typically should be of major concern to policymakers only if the steady-state neutral *nominal* interest rate in the economy is very low. Therefore, policymakers who wish to avoid concerns about the ZLB simply should take care not to set too low an inflation target — especially if the neutral *real* interest rate in the economy is low. A higher target inflation rate also should be set if either the economy's natural propensity to rebound following a shock to output is weak, or if output is relatively unresponsive to real interest rate settings.

In analyses of "liquidity trap" problems associated with the ZLB on nominal interest rates, it is important to

emphasize the difference between policy rule changes, intended to help escape an existing ZLB situation, and maintained policy rules, designed to avoid ZLB situations. Thus, any analysis assuming that rule changes would immediately lead to a new real-exchange equilibrium seems implausible. Accordingly, **McCallum** focuses on the design of a rule that should retain stabilization effectiveness even if the economy is temporarily shocked into a ZLB situation. The rule he considers uses as its instrument variable a weighted average of an interest rate and the rate of depreciation of the nominal exchange rate. With a small weight attached to the depreciation term, it will be nearly irrelevant in normal situations, but will call for strong adjustments when the ZLB condition prevails. After studying the stabilizing properties of this "MC" rule in a small open economy model developed by McCallum and Nelson, the author finds that under ZLB conditions, the MC rule will provide strong stabilizing policy actions. Under conditions where the ZLB constraint is not relevant, though, the MC rule need not hinder monetary policy.

Ball studies fiscal and monetary policy when an economy is in a liquidity trap: output is below potential and the nominal interest rate is zero. He uses a textbook-style macro model calibrated to fit the recent experience of Japan. For most reasonable parameters, a debt-financed fiscal expansion quickly returns output to potential. Inflation rises from a negative level to a low positive level. The debt-income ratio rises in the short run but falls in the long run, because of higher output, inflation, and government revenue. Ball also examines the effects of financing the fiscal expansion by printing money rather than issuing debt. This does not change the paths of output or inflation or the long-run debt-income ratio. However, it prevents debt from rising in the short run. Thus a money-financed fiscal expansion raises output without creating high inflation or raising the debt-income ratio at any point.

Iwamura, Kudo, and Watanabe characterize monetary and fiscal policy rules to implement optimal responses to a substantial decline in the natural

rate of interest, and compare them with policy decisions made by the Japanese central bank and government in 1999-2004. First, they find that the Bank of Japan's policy commitment to continuing monetary easing until some prespecified conditions are satisfied lacks history dependence, a key feature of the optimal monetary policy rule. Second, they find that the term structure of the interest rate gap (the spread between the actual real interest rate and its natural rate counterpart) was not downward sloping, indicating that the Bank of Japan's commitment failed to have sufficient influence on the market's expectations about the future course of monetary policy. Third, they find evidence for a weaker linkage between the budget deficit and public debt in the last ten years, suggesting that the Japanese government deviated from the Ricardian fiscal policy rule. The commitment solution obtained under the assumption of non-Ricardian fiscal policy implies that, given such government's behavior, the central bank should continue a zero interest rate policy longer.

Ito and Mishkin review Japanese monetary policy over the last two decades with an emphasis on the experience of deflation since the mid-1990s. They are critical of the conduct of monetary policy, particularly from 1998 to 2003. They believe that the Bank of Japan's rhetoric was not helpful in fighting deflation, and that the interest rate hike in August 2000 amid deflation was a serious mistake. Deflation can be quite costly, and a key element in both preventing and escaping deflation is the management of expectations using either the price level or inflation targeting. Also, non-conventional policy measures become relevant when prices are declining and the zero lower bound on interest rates means that the overnight interest rate no longer can be used as the instrument of monetary policy. Ito and Mishkin suggest that price-level targeting can overcome the theoretical problems associated with inflation targeting, such as the need for a history dependent strategy. However, because actions speak louder than words, the management of expectations also involves non-conventional monetary policies, a combination of

which might have to be tried to help the Japanese economy escape its deflationary trap.

Cho discusses the relationship between interest rates and inflation rates on the one hand and house prices (typical real asset prices) relative to *chonsei* prices (typical nominal asset prices) on the other. The key point of his paper is that the relative price of sales to *chonsei* depends on the ratio of inflation to real interest rates. Thus, even when the monetary authority maintains a pre-announced target level of inflation rate, the relative price of sales to *chonsei* rises if the real interest rate is lowered. Recognizing this relationship, it would make sense to lower

the target inflation rate in an economy where the efficiency growth and real interest rate decline, if the society wishes to minimize the fluctuation of relative housing prices (or the relative values of real and financial assets). Thus, over the short-run business cycle horizon, there might be a rationale for the conduct of interest rate policy in a less aggressive manner than would be recommended by a standard Taylor rule.

In a liquid financial market, investors are able to sell large blocks of assets without significantly changing the price. **Choi** and **Cook** document a steep drop in the liquidity of Japanese stock markets in the post-bubble period and a

steep rise in liquidity risk. They find that firms with more liquid balance sheets are less exposed to stock market liquidity risk, while high exposure to liquidity shocks is associated with slow firm-level growth during Japan's deflationary period. Aggregate liquidity has macroeconomic effects on aggregate demand through its effect on demand for monetary assets which has not been fully accommodated by the monetary authorities.

These papers will be published by the University of Chicago Press in an NBER Conference Volume. Many of them are also available at "Books in Progress" on the NBER's website.

NBER Conference in Beijing

The sixth annual NBER-CCER Conference on China and the World Economy, jointly sponsored by the National Bureau of Economic Research and the China Center for Economic Research at Beijing University, took place in Beijing on July 1-3. When opening the meeting, NBER President Martin Feldstein of Harvard University noted that in the eight years since the first NBER-CCER meeting, China's GDP has doubled. At this conference, the discus-

sion topics were: inflation, historically and as a risk for China; exchange rates and purchasing power parity; public finance, social security, and pensions; labor and social protection; bank regulation and capital flows; environmental concerns; the role of multinationals in China; and financial sector reforms.

U.S. participants at this year's conference were: NBER President Martin Feldstein and Professor Shang-Jin Wei, who is currently on leave from the NBER at the IMF, both serving as the

U.S. conference organizers; NBER researchers Michael D. Bordo of Rutgers University, Mihir A. Desai of Harvard University, Sebastian Edwards of University of California, Los Angeles, Don Fullerton of the University of Texas, Austin, and Robert A. Moffitt of Johns Hopkins University.

The entire conference program with links to other related information is available on the NBER's web site at www.nber.org/china.

The Aftermath of Debt Restructuring and Default

An NBER Inter-American Seminar on Economics, focusing on the aftermath of debt restructuring and default, took place in Cambridge on July 12. Research Associates Sebastian Edwards, University of California, Los Angeles, and Carmen M. Reinhart, University of Maryland, organized this program:

Mark A. Aguiar and **Gita Gopinath**, University of Chicago, “Emerging Market Business Cycles: The Cycle is the Trend”
Discussant: Pierre-Olivier Gourinchas, NBER and University of California, Berkeley

Alejandro Neut, BBVA in Madrid, and **Andres Velasco**, NBER and Harvard University, “Tough Policies, Incredible Policies?”

Discussant: Carlos Zarazaga, Federal Reserve Bank of Dallas

Juan Carlos Berganza and **Alicia Garcia Herrero**, Banco de Espana, “What Makes Balance Sheet Effects Detrimental for the Country Risk Premium?”
Discussant: Sergio Schmukler, The World Bank

Assaf Razin, NBER and Tel Aviv University, and **Yona Rubinstein**, Tel Aviv University, “Growth Effects of Exchange Rate Regimes and Capital Account Liberalization in the Presence of Crises: A Nuanced View”
Discussant: Menzie D. Chinn, NBER and University of Wisconsin

Emanuel Kohlscheen, University of

Warwick, “Sovereign Risk: Constitutions Rule”
Discussant: Michael Kumhof, International Monetary Fund

Federico Weinschelbaum, Universidad de San Andres, and **Jose Wynne**, Duke University, “Renegotiation, Collective Action Clauses, and Sovereign Debt Markets”
Discussant: Eduardo Levy-Yeyati, Universidad Torcuato di Tella

Jacques Miniane, International Monetary Fund, and **John H. Rogers**, Federal Reserve Board, “Capital Controls and the International Transmission of U.S. Money Shocks”
Discussant: Hali Edison, International Monetary Fund

Gopinath and **Aguiar** document and contrast features of the business cycle for emerging markets and developed, small open economies. In emerging markets, current accounts are more strongly countercyclical and consumption is more volatile relative to income. A standard, dynamic, stochastic, small open economy model can account both qualitatively and quantitatively for the behavior of both types of markets after the decomposition of underlying productivity shocks into permanent and transitory shocks is modeled appropriately. When the parameters of the income process are estimated structurally using GMM for each type of economy, the observed predominance of shocks to trend growth relative to transitory shocks for emerging markets, and the reverse for developed markets, explains differences in key features of their business cycles. In addition, using a VAR methodology to identify permanent shocks, the authors find that shocks to trend generate a preponderance of income variance at business cycle frequencies in emerging markets. This further supports the notion that the “cycle is the trend” for these economies.

Neut and **Velasco** revisit the question of what determines the credibility of macroeconomic policies — in this case, of promises to repay public debt. The literature has focused on governments’ strategic decisions to default (or erode the value of outstanding debt via inflation/devaluation). It also has focused on increasing policymakers’ utility costs as a way to deter strategic misbehavior. By contrast, we build a model in which default or inflation can occur deliberately (for strategic reasons) or unavoidably (shocks leave no other option). In addition, when it does occur, default or inflation entail pecuniary costs, not just utility costs for the policymaker. In the model with these two features, much conventional wisdom on the determinants of credibility need no longer hold. Tough policies, such as appointing a conservative policymaker, indexing public debt, or denominating public debt in foreign currency may reduce, not increase, the credibility of vows to repay debt in full. For some parameter values, these tough policies also may reduce welfare.

Berganza and **Herrero** build upon the empirical literature on the macro-

economic impact of real exchange rate depreciations for a sample of 27 emerging economies. They find that real exchange rate depreciations tend to increase a country’s risk premium. This effect is neither linear nor symmetric: large real exchange depreciations are much more detrimental and real appreciations do not seem to reduce the risk premium. The authors also show that the main channels for the real exchange rate to affect country risk are external and domestic balance sheet effects, stemming from the sudden increase in the stock of external or domestic dollar-denominated debt, respectively. This is particularly the case for the countries with the largest financial imperfections. Competitiveness is not important enough to outweigh this negative effect. Finally, fixed exchange rate regimes tend to amplify balance sheet effects, beyond the extent of real depreciation. The data indicate that it could be because of a larger accumulation of external debt under fixed regimes.

Razin and **Rubinstein** theorize that a direct and an indirect effect of balance-of-payments policies, geared toward exchange rate regimes and

capital account openness, exert a confounding overall influence on output growth, in the presence of sudden-stop crises. A direct channel works through the trade and financial sectors, akin to the optimal currency area arguments. An indirect channel works through the probability of a sudden-stop crisis. The empirical analysis disentangles these conflicting effects and demonstrates that: 1) the balance-of-payments policies significantly affect the probability of crises, and the crisis probability, in turn, negatively affects output growth; and 2) controlling for the crisis probability in the growth equation, the direct effect of balance-of-payments policies is large. Domestic price crises (high inflation above a 20 percent threshold) affect growth only indirectly, through their positive effect on the probability of sudden-stop crises.

Kohlscheen models the executive's choice of whether to reschedule external debt as the outcome of an intra-governmental negotiation process. The executive's necessity for a confidence vote from the legislature pro-

vides the rationale for why some democracies may not renegotiate their foreign obligations. Empirically, parliamentary democracies indeed are less prone to reschedule their foreign liabilities and accumulate arrears on them; some have been able to significantly reduce their debt/GNP ratio without a "credit incident." Moreover, countries with stronger political checks on the executive and lower executive turnover have a lower rescheduling propensity. These results persist if Latin American countries are excluded from the sample.

Collective action clauses (CACs) are provisions specifying that a supermajority of bondholders can change the terms of a bond. **Weinschelbaum** and **Wynne** study how CACs determine governments' fiscal incentives, sovereign bond prices, and default probabilities in environments with and without contingent debt and IMF presence. The authors claim that CACs are likely to be an irrelevant dimension of debt contracts in current sovereign debt markets because of the variety of instruments used by sovereigns and the

implicit IMF guarantee. Nonetheless, under a new international bankruptcy regime like the one recently proposed by the IMF, CACs can significantly increase the cost of borrowing for sovereigns, contrary to what previous empirical literature suggested.

Miniane and **Rogers** ask whether capital controls effectively insulate countries from U.S. monetary shocks, looking simultaneously at a large range of country experiences in a unified framework. They estimate the effect of identified U.S. monetary shocks on the exchange rate and foreign country interest rates, and test whether countries with less open capital accounts exhibit systematically smaller responses. They find essentially no evidence in favor of this notion. Other country factors, such as the exchange rate regime or degree of dollarization, explain more of the cross-country differences in responses. The significant differences in responses instead are more pronounced at short horizons.

Corruption and Reform

An NBER conference on “Corruption and Reform” organized by Research Associates Edward Glaeser and Claudia Goldin, both of Harvard University, took place in Salem, Massachusetts on July 30 and 31. The program was:

Matthew Gentzkow, Harvard University; and **Edward L. Glaeser** and **Claudia Goldin**, “The Rise of the Fourth Estate: How Newspapers Became Informative and Why it Mattered”

Discussant: Paul Rhode, NBER and University of North Carolina

Howard Bodenhorn, NBER and Lafayette College, “Bank Chartering and Political Corruption in Antebellum New York: Free Banking as Reform” (NBER Working Paper No. 10479)
Discussant: Lee Alston, NBER and University of Colorado

Stanley L. Engerman, NBER and University of Rochester; and **Kenneth L. Sokoloff**, NBER and University of California, Los Angeles, “Digging the Dirt at Public Expense: Corruption in the Building of the Erie and other New York Canals”
Discussant: Edward L. Glaeser

William Novak, University of Chicago, “Law and the Social

Control of Business in the Progressive Era”

Discussant: Susan Rose-Ackerman, Yale University

Price V. Fishback, NBER and University of Arizona, “Reform or Employer Capture? The Role of Employers in the Development of Industrial Safety Regulation through the Progressive Era”

Discussant: Lawrence F. Katz, NBER and Harvard University

Gary D. Libecap, NBER and University of Arizona, and **Marc Law**, University of Vermont,

“Corruption and Reform? The Emergence of the 1906 Pure Food and Drug Act”

Discussant: Raymond Fisman, NBER and Columbia University, and Daniel Carpenter, Harvard University

David M. Cutler, NBER and Harvard University, and **Grant Miller**, Harvard University, “Water, Water Everywhere: Municipal Finance and Water Supply in American Cities”

Discussant: Tomas Nonnenmacher, Allegheny College

Rebecca Menes, NBER and George Mason University, “Corruption in Cities: Graft and Politics in American Cities at the

Turn of the Twentieth Century” (NBER Working Paper No. 9990)
Discussant: Jason Kaufman, Harvard University

Price V. Fishback and **Shawn E. Kantor**, NBER and University of Arizona, and **John J. Wallis**, NBER and University of Maryland, “Politics, Relief, and Reform: The Transformation of America’s Social Welfare System during the New Deal”

Discussant: Robert A. Margo, NBER and Vanderbilt University

Naomi R. Lamoreaux, NBER and University of California, Los Angeles, and **Jean Laurent Rosenthal**, University of California, Los Angeles, “Corporate Governance and the Plight of Minority Shareholders in the United States before the Great Depression”

Werner Troesken, NBER and University of Pittsburgh, “Regime Change and Corruption: A History of Public Utility Regulation”
Discussant: Judith A. Chevalier, NBER and Yale University

John J. Wallis, “The Concept of Systematic Corruption in American Political and Economic History”
Discussant: Morton Keller, Brandeis University

A free and informative press is widely agreed to be crucial to the democratic process today. Throughout much of the 19th century though, newspapers were often public relations tools funded by politicians, and newspaper independence was rare. **Gentzkow**, **Glaeser**, and **Goldin** examine press coverage during two major scandals — *Crédit Mobilier* in the early 1870s and Teapot Dome in the 1920s — and find a sharp reduction in bias and charged language in the fifty years after 1870. The press became more informative and less par-

tisan. The rise of the informative press was the result of increased scale and competitiveness in the newspaper industry caused by technological progress in the newsprint and newspaper industries. Growing news markets fueled the rise in the independents. During the decades from 1870 to 1920, when corruption appears to have declined significantly within the United States, the press became more informative, less partisan, and its circulation expanded considerably. The rise of the informative press therefore may be one reason why the corruption of the

Gilded Age diminished during the subsequent Progressive Era.

One traditional and oft-repeated explanation of the political impetus behind free banking connects the rise of Jacksonian populism and a rejection of the privileges associated with corporate chartering. A second explanation suggests that free banking is an ill-informed inflationist, pro-business response to the financial panic of 1837. **Bodenhorn** argues that both explanations are lacking. Free banking was the progeny of the corruption associated with bank chartering and

reflected social, political, and economic backlashes against corruption dating to the late-1810s. Three strands of political thought — Antimasonic egalitarianism, Jacksonian pragmatism, and pro-business American Whiggism — converged in the 1830s and led to economic reform. Equality of treatment was the political watchword of the 1830s and free banking was but one manifestation of this broader impulse.

Engerman and **Sokoloff** examine the building of the Erie Canal, a mammoth public works project of the early nineteenth century that they find relatively free of corruption. To compare the Erie project with other public works, the authors use the ratio of actual expenditures on a public works project relative to the original projected costs. They suggest that this measure, albeit quite narrow in focus, is extremely informative about the quality of governance of public resources. In general, they expect the ratio to vary positively with the lack of transparency exhibited by public authorities, as well as with their level of tolerance of incompetence, or other cost-inflating practices, manifested in the use of public resources. The authors compute this ratio for a number of large public works projects built in the United States up to the present day; they highlight how, by this standard, the governance of public resources during the canal era of the early nineteenth century stands up well when compared with what we have seen since. Indeed, the cost overrun ratios have risen sharply since World War II, coinciding with both a marked increase in the relative size of the government sector and sustained economic growth.

Novak reassesses the relationship between the rule of law and economic regulation in the progressive era. Taking issue with reigning interpretations of law and reformist controls that alternatively emphasize *laissez-faire* constitutionalism or regulatory capture, he argues for the presence of a much larger legal-economic movement for the “social control of business.” Challenging *laissez-faire* interpretations of the role of the courts in this period, Novak then re-examines the origins of public utility regulation in *Munn v. Illinois*. From the perspective of the

“social control of business,” Munn looks less like another judicial attempt to insulate private businesses from regulatory control than the entering wedge of a legal-economic conception of public utility that would have vast implications for the public control of major sectors of the economy through the New Deal.

Fishback analyzes the relationships between large employers and the regulatory regimes chosen by the states and finds a complex relationship between large firms and safety legislation that varied across industries. In the coal industry, which was one of the most dangerous industries and certainly one marred by significant labor strife, large employers apparently were not active supporters of safety regulations. Fishback’s results suggest that larger average mine sizes were not associated with early adoption of the coal safety regulations but were associated with lower inspection budgets per miner and reduced scope in coal regulations. Large employers tended to be either indifferent or opposed to the early regulations; they then worked to limit the scope of the regulations and the resources available to enforce them. In the manufacturing arena, the situation appears quite different. States with larger manufacturing firms tended to introduce basic labor administrations, factory inspectors, and workers’ compensation earlier. In earlier work with Kantor, Fishback found that states with large employers were less likely to develop monopoly state funds, and that large firms were not associated with higher benefit payments. Support for adoption but opposition to specific features need not be considered schizophrenic. Large employers may well have supported reforms where they anticipated benefits while working to shape the details of the reforms.

Law and **Libecap** argue that a nuanced combination of the traditional and revisionist explanations for regulation accounts for the origins of the Pure Food and Drug Act. Regulation was desired for its potential to tilt the competitive playing field in favor of particular producers and to improve consumer information about product quality. Muckraking journalism, by

making the issue of food and drug quality emotionally salient to consumers, played a key role in harnessing diffuse consumer interests and ending the political stalemate over regulation. Corruption in the courts or in the administration of state regulation does not appear to have been a major factor behind the emergence of federal food and drug regulation. The authors also find that, because neither producers nor consumers were able to fully shape the institutional setting in which regulation was enforced, neither group obtained the benefits from regulation that it had anticipated. To fully understand regulation, an eclectic approach is warranted that considers not only the interest group motivations for regulation but also the institutional constraints that limit what these groups can obtain.

The construction of municipal water systems was a major event in the history of American cities — bringing relief from disease, providing ammunition to combat fires, attracting business investment, and promoting development generally. Although the first large-scale municipal water system in the United States was completed in 1801, many American cities lacked waterworks until the turn of the 20th Century. **Cutler** and **Miller** investigate the reason for the century-long delay and the subsequent frenzy of waterworks construction from 1890 through the 1920s. They propose an explanation that emphasizes the development of local public finance and they provide informal supporting evidence for it. Specifically, the suggestive evidence points to the importance of growth in the supply of municipal debt rather than increased demand for water. They present arguments discrediting a variety of alternative explanations, including new knowledge about disease, the presence of externalities, contracting difficulties, corruption costs, and growth in the supply of civil engineers.

Menes explores corruption as practiced by city politicians in the United States at the turn of the twentieth century. Corruption is generally considered to be bad for the performance of governments and for the growth and development of economies,

but American cities grew rapidly and were, as far as tangible evidence suggests, relatively well governed. Menes proposes that the answer to this conundrum lies in the exact types of graft that were possible. Skimming from city contracts and manipulating local real estate markets encouraged politicians to pursue growth enhancing policies. Many of the most damaging forms of government interference — closing borders and pursuing input-substituting policies — are not possible in cities. Patronage politics made corruption more likely by insulating politicians from (some) voter wrath, but the ability of the tax base to depart the city provided some constraints on rent-extraction. This analysis of urban graft is based on contemporary reports, especially the very detailed reports in *Shame of the Cities* by Lincoln Steffens. It also answers other important questions raised by the experience of Progressive Era cities: Why did businessmen back reform? And why did machine politics rise, and fall, between 1890 and 1930?

The American social welfare system was transformed during the 1930s. Prior to the New Deal, local governments almost exclusively administered public relief. Beginning in 1933, federal, state, and local governments cooperatively built a larger social welfare system. While the majority of the funds for relief spending came from the federal government, the majority of administrative decisions were made at state and local levels. While New Dealers often were accused of playing politics with relief, the social welfare system created by the New Deal (still largely in place today) is more often maligned for being bureaucratic than for being corrupt. **Fishback, Kantor, and Wallis** do not believe that New Dealers were motivated by altruistic motives when they shaped New Deal relief policies. The evidence suggests that politics was always the key issue. But the authors show how the interaction of political interests at the federal, state, and local levels of government created political incentives for the national relief administration to curb corruption. This led to different patterns of relief spending among pro-

grams controlled by national, rather than state and local, officials. And, in the permanent social welfare system created by the Social Security Act, the national government pressed for the substitution of rules rather than discretion in the administration of relief. This, ultimately, significantly reduced the level of corruption in the administration of welfare programs.

Legal records indicate that conflicts of interest — that is, situations in which officers and directors were in a position to benefit themselves at the expense of minority shareholders — were endemic to corporations in the late-nineteenth and early-twentieth century United States. Yet investors nonetheless continued to buy stock in the ever increasing numbers of corporations formed by business people during this period. **Lamoreaux and Rosenthal** attempt to understand this puzzling situation by examining the evolution of the legal rules governing corporations and their main organizational alternative, partnerships. Because partnerships existed only at the will of their members, disputes among partners had the potential to lead to an untimely (and costly) dissolution of the enterprise. The authors find that the courts quite consciously differentiated the corporate form from the partnership so as to prevent disputes from having similar disruptive effects on corporations. The cost of this differentiation, however, was to give controlling shareholders the power to extract more than their fair share of their enterprise's profits. The courts put limits on the extent of these private benefits of control by defining the boundary at which they became fraud, but the case law suggests that these constraints became weaker over the period studied. The authors model the basic differences between corporations and partnerships and show that, if one takes the magnitude of the private benefits of control as given by the legal system, the choice of whether or not to form a firm, and whether to organize it as a partnership or a corporation, was a function of the expected profitability of the enterprise and the probability that a partnership would suffer untimely dissolution. They argue

that the large number of corporations formed during the late nineteenth and early twentieth centuries was made possible by an abundance of high-profit opportunities. But the large number of partnerships that also continued to be organized suggests that the costs of corporate form were perceived to be significant.

Troesken argues that occasional regime changes are desirable for public utility markets. In developing this argument, he builds on the following three observations: first, corruption is endemic to public utility industries; corruption exists, in some form, across all regulatory and ownership regimes. Second, regime change in utility industries does not eliminate corruption; it only alters the type of corruption observed. Third, for any type of governance regime (for example, state regulation or municipal ownership) corruption grows increasingly severe over time, and at some point, becomes politically untenable. When corruption becomes politically untenable, politicians intervene and replace the existing and utterly corrupt governance regime with a new (less corrupt) regime.

The critical role of governance in the promotion of economic development has created intense interest in the manner in which the United States eliminated corruption. Up through the early twentieth century Progressive Era, corruption was a central term of political discourse. **Wallis** examines the concept of corruption in American history, tracing the term to its roots in British political philosophy of the seventeenth and eighteenth centuries, and from then back to Machiavelli, Polybius, and Aristotle. Two conclusions emerge from this intellectual history. First, the way corruption was defined prior to 1850 was significantly different from how it was defined in the Progressive Era. What Wallis terms “systematic corruption” was the idea that political actors manipulated the economic system to create economic rents that politicians could use to secure control of the government. In other words, politics corrupts economics. The classic cure for systematic corruption was balanced government. Americans fought for independence

because they believed that the British government was corrupt, and they continued to fear corruption in America. The structure of American constitutions was shaped by the need to implement balanced government. Conflict and debate over the implementation of balanced government dominated the political agenda until the 1840s, when states began moving

regulatory policy firmly towards open entry and free competition. Second, by the 1890s, systematic corruption had essentially disappeared from political discourse. By then corruption had come to take on its modern meaning: the idea that economic interests corrupt the political process. What modern developing countries with corrupt governments need to learn is how the

United States eliminated systematic corruption.

These papers will be published in a conference volume by the University of Chicago Press. Its availability will be announced in a future issue of the NBER Reporter. They are also available at "Books in Progress" on the NBER's website.

Bureau News

Khan is 2004/5 Griliches Fellow

B. Zorina Khan, an NBER Faculty Research Fellow in the Productivity Program and a member of the economics faculty at Bowdoin, has been selected to receive the Zvi Griliches Fellowship at the NBER for the academic year 2004/5. This fellowship, which is awarded every two years, was created and funded by friends and col-

leagues of Professor Griliches to honor his memory and his tradition of mentoring young empirical economists.

Khan's research is directed toward the empirical assessment of patents, copyrights, and legal systems. She plans to spend the coming year at the NBER's Cambridge office studying how different rules and standards in

patent systems affect the rate and direction on inventive activity and economic development.

Khan received her B.Sc. from the University of Surrey (England), her M.A. in Economics from McMaster University in Canada, and her Ph.D. in Economics from the University of California, Los Angeles.

Twenty-fifth NBER Summer Institute Held in 2004

In the summer of 2004, the NBER held its twenty-fifth annual Summer Institute. More than 1300 economists from universities and organizations throughout the world attended. The

papers presented at dozens of different sessions during the four-week Summer Institute covered a wide variety of topics. A complete agenda and many of the papers presented at the

various sessions are available on the NBER's web site by clicking Summer Institute 2004 on our conference page, www.nber.org/confer.

Economic Fluctuations and Growth

The NBER's Program on Economic Fluctuations and Growth met in Cambridge on July 1. NBER Research Associates Mark Bills of the University of Rochester and Matthew D. Shapiro, University of Michigan, organized this program:

David S. Johnson, Bureau of Labor Statistics; **Jonathan A. Parker**, NBER and Princeton University; and **Nicholas S. Souleles**, NBER and University of Pennsylvania, "Household Expenditure and the Income Tax Rebates of 2001"
Discussant: Nicola Fuchs-Schundeln, Yale University

Marco Battaglini, Princeton University, and **Stephen Coate**, NBER and Yale University, "Pareto Efficient Income Taxation with Stochastic Abilities"
Discussant: Narayana R. Kocherlakota, NBER and Stanford University

Giorgio E. Primiceri, Princeton University, "Why Inflation Rose and Fell: Policymakers' Beliefs and U.S. Postwar Stabilization Policy"
Discussant: Eric M. Leeper, NBER and Indiana University

Christina D. Romer and **David H. Romer**, NBER and University of California, Berkeley, "A New Measure of Monetary Shocks:

Derivation and Implications"
Discussant: John H. Cochrane, NBER and University of Chicago

Yongsung Chang, **Andreas Hornstein**, and **Pierre-Daniel Sarte**, Federal Reserve Bank of Richmond, "Productivity, Employment, and Inventories"
Discussant: Valerie A. Ramey, NBER and University of San Diego

Ricardo J. Caballero, NBER and MIT, and **Eduardo M.R.A. Engel**, NBER and Yale University, "Adjustment is Much Slower than You Think"
Discussant: Robert E. Hall, NBER and Stanford University

Under the Economic Growth and Tax Relief Reconciliation Act of 2001, most U.S. taxpayers received a tax rebate between July and September, 2001. The week in which the rebate was mailed was based on the second-to-last digit of the taxpayer's Social Security number, which effectively is randomly assigned. Using special questions about the rebates added to the Consumer Expenditure Survey, **Johnson**, **Parker**, and **Souleles** exploit this historically unique experiment to measure the change in consumption caused by receipt of the rebate and to test the Permanent Income Hypothesis and related models. They find that households spent about 20-40 percent of their rebates on nondurable goods during the three-month period in which the rebate was received, and additional smaller, but still substantial, amounts in the two quarters after receipt. The implied effects on aggregate consumption demand are significant. The estimated responses are largest for households with relatively low liquid wealth or low income, which is consistent with liquidity constraints.

Battaglini and **Coate** study Pareto-efficient income taxation in an economy with infinitely-lived individuals whose income-generating abilities

evolve according to a two-state Markov process. Their study yields two main results. First, when individuals are risk neutral, the fraction of individuals who face a positive marginal income tax rate is always positive but converges to zero. Moreover, the tax rate that these individuals face also goes to zero. Second, Pareto-efficient income tax systems can be time-consistent even when there is a high degree of correlation in ability types.

Primiceri provides an explanation for the run-up in U.S. inflation during the 1960s and 1970s and the sharp disinflation in the early 1980s. He presents a model in which rational policymakers learn about the behavior of the economy in real time and set stabilization policy optimally, conditional on their current beliefs. The steady state associated with the model's self-confirming equilibrium is characterized by low inflation. However, prolonged and asymmetric episodes of high inflation can occur when policymakers underestimate both the non-accelerating inflation rate of unemployment and the persistence of inflation in the Phillips curve. Using likelihood methods, **Primiceri** estimates that the model accounts remarkably well for the evolution of policymakers' beliefs, stabi-

lization policy, and for the postwar behavior of inflation and unemployment in the United States.

Romer and **Romer** develop a measure of U.S. monetary policy shocks for the period 1969-96 that is relatively free of endogenous and anticipatory movements. The authors use quantitative and narrative records to infer the Federal Reserve's intentions for the federal funds rate around FOMC meetings. They regress this series on the Federal Reserve's internal forecasts to derive a measure free of systematic responses to information about future developments. Estimates using the new measure indicate that policy has large, relatively rapid, and statistically significant effects on both output and inflation. These effects are substantially stronger and quicker than those derived using conventional indicators.

Whether inventories can be used to break the link between production and sales is crucial for understanding firms' employment response to productivity shocks in sticky-price models. In a Taylor-type sticky-price model with inventories, **Chang**, **Hornstein**, and **Sarte** show that the employment response to a productivity shock depends on the extent to which goods

are storable. Whereas in conventional sticky-price models without inventories, productivity shocks reduce employment, the same shocks cause firms in this economy to expand output relative to sales, to build up inventories and, as a result, to hire more workers. The authors then estimate the employment response to productivity shocks in disaggregated U.S. manufacturing data from 1958 to 1996. Consistent with their theory, they find that an industry's employment response to productivity shifts is strongly correlated with its inventory holdings and the storability of its products.

In most instances, the dynamic response of monetary and other policies to shocks is infrequent and lumpy.

This is also true of the microeconomic response of some of the most important economic variables, such as investment, labor demand, and prices. **Caballero** and **Engel** show that the standard practice of estimating the speed of adjustment of such variables with partial-adjustment ARMA procedures substantially overestimates this speed. For example, for the target federal funds rate, the authors find that the actual response to shocks is less than half as fast as the estimated response. For investment, labor demand, and prices, the speed of adjustment inferred from aggregates of a small number of agents is likely to be close to instantaneous. While aggregating across microeconomic units reduces the bias

(the limit of which is illustrated by Rotemberg's widely used linear aggregate characterization of Calvo's model of sticky prices), in many instances convergence is extremely slow. For example, even after aggregating investment across *all* continuous establishments in U.S. manufacturing, the estimate of its speed of adjustment to shocks is biased upward by more than 400 percent. While the bias is not as extreme for labor demand and prices, it still remains significant at high levels of aggregation. Because the bias rises with disaggregation, findings of microeconomic adjustment that is substantially faster than aggregate adjustment are generally suspect.

Market Microstructure

The NBER's Working Group on Market Microstructure, directed by Research Associate Bruce Lehmann of University of California, San Diego, met on July 30 in Los Angeles. The meeting was organized by Lehmann; Matthew Spiegel, Yale School of Management; and Avaniidhar Subrahmanyam, University of California, Los Angeles. The following papers were discussed:

Doron Avramov, University of Maryland, and **Tarun Chordia** and **Amit Goyal**, Emory University, "Liquidity and Autocorrelations in Individual Stock Returns"
Discussant: Ryan Davies, Babson College

Michael J. Barclay, NBER and University of Rochester; **Terrence Hendershott**, University of

California, Berkeley; and **Kenneth Kotz**, Forensic Economics, "Automation versus Intermediation: Evidence from Treasuries Going Off the Run"
Discussant: Michael Fleming, Federal Reserve Bank of New York

Michael Gallmeyer, **Burton Hollifield**, and **Duane Seppi**, Carnegie Mellon University, "Liquidity Discovery and Asset Pricing"
Discussant: Shmuel Baruch, University of Utah

Eric Benzen, Copenhagen Business School; **Peter R. Hansen**, Brown University; **Asger Lunde**, Aarhus School of Business; and **Allan Zebedee**, San Diego State University, "The Greenspan Effect on Equity Markets: An Intraday

Examination of US Monetary Policy Announcements"
Discussant: James D. Hamilton, NBER and University of California, San Diego

Ronnie Sadka, University of Washington, and **Anna Scherbina**, Harvard University, "Analyst Disagreement, Mispricing, and Liquidity"
Discussant: Paul Irvine, University of Georgia

Kumar Venkataraman, Southern Methodist University, and **Andrew C. Waisburd** and **Steven C. Mann**, Texas Christian University, "The Value of the Non-Monopolist Specialist"
Discussant: Charles Cao, Pennsylvania State University

Short-horizon return predictability, which has been documented extensively, challenges the efficient market hypothesis. Previous research claimed that contrarian trading strategies, exploiting the negative autocorrelations in individual stock returns, are quite profitable. **Avramov**, **Chordia**, and **Goyal**

show that the contrarian trading strategy profits are smaller than the likely transactions costs. The short-run reversals occur mainly in the loser stocks, especially at the monthly frequency. Extreme price changes occur in the high turnover stocks with low liquidity. The largest reversals, and the potential

contrarian trading strategy profits, occur in precisely these high-turnover, low-liquidity stocks as the price pressures caused by non-informational demands for immediacy are accommodated. However, these high-turnover, low-liquidity stocks face high transaction and large market impact costs.

Barclay, Hendershott, and Kotz examine the choice of trading venue by dealers in U.S. Treasury securities to determine which services provided by human intermediaries are difficult or impossible to replicate in a fully automated trading system. When a Treasury security goes “off the run,” its trading volume drops by more than 90 percent. This decline in trading volume provides a controlled event that allows the authors to test whether an intermediary’s knowledge of the market and its participants can uncover hidden liquidity and facilitate better matching of customer orders in thin markets. Consistent with this hypothesis, the market share of electronic intermediaries falls from 80 percent to 12 percent when securities go off the run.

Gallmeyer, Hollifield, and Seppi note that most investors purchase securities knowing they will resell them in the future. Uncertainty about the preferences of future trading counter-parties causes randomness in future resale prices that we call liquidity risk. It is natural to suppose that investors are asymmetrically informed about liquidity risk. Through a process of liquidity discovery, trading volumes and prices reveal private information about future counter-party preferences. The liquidity discovery process leads to endogenous joint dynamics for prices, trading volume, volatility, and expected returns. In particular, market liquidity is a forward-looking predictor of future liquidity risk and,

as such, is priced. Liquidity discovery provides an alternative explanation to transaction costs for the relationships between current market liquidity measures and future returns.

Benzen, Hansen, Lunde, and Zebedee study the impact of monetary policy announcements and expectations of future monetary policy on the stability of equity markets. Specifically, they consider the changes in asset prices and volatility associated with changes in Federal Open Market Committee (FOMC) announcements and changes in expectation of future U.S. monetary policy, as measured by the federal funds future contract. The results show a significant decrease in returns following FOMC announcements as predicted by financial theory. However, the results also show a small increase in returns following changes in expectations about future monetary policy. The authors interpret these results to suggest that the price discovery process in the equity markets is dominated by the realization of expectations and not by changes in market expectations.

Examining the mispricing of stocks with high levels of analyst disagreement about future earnings reveals a close link between mispricing and liquidity. Previous research finds that these stocks are often overpriced, but that prices correct downward within a fiscal year as uncertainty about earnings is resolved. **Sadka** and **Scherbina** conjecture that one reason mispricing has persisted is that these stocks have

higher trading costs than otherwise similar stocks, possibly because some investors are better informed than the market maker about how to aggregate analysts’ opinions. As analyst disagreement increases, so does the informational disadvantage of the market maker, and trading costs rise. In the cross section, less liquid stocks are more severely mispriced on average. Moreover, increases in aggregate market liquidity accelerate the convergence of prices to fundamentals. As a result, returns on initially overpriced stocks are negatively correlated with the time series of innovations in aggregate market liquidity.

In their study, **Venkataraman, Waisburd, and Mann** address the following question: can a specialist with no information advantage, that is, a *non-monopolist*, enhance market quality? Consistent with theoretical predictions, the authors find that the Paris Bourse’s non-monopolist specialist reduces temporal imbalances in order flow and increases the frequency with which markets clear. Around the announcement of specialist introduction, stocks experience an average cumulative abnormal return of nearly 5 percent that is positively correlated with improvements in stock liquidity. Overall, these results suggest that the specialist can improve the terms of trade, even in the absence of any information advantage, merely by maintaining a regular market presence.

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NBER Working Papers

Paper	Author(s)	Title
10611	Jacob L. Vigdor	Liquidity Constraints and Housing Prices: Theory and Evidence from the VA Mortgage
10612	Bennett T. McCallum Edward Nelson	Targeting vs. Instrument Rules for Monetary Policy
10613	Tarun Khanna Krishna Palepu	The Evolution of Concentrated Ownership in India: Broad Patterns and a History of the Indian Software Industry
10614	Chi-Young Choi Nelson Mark Donggyu Sul	Unbiased Estimation of the Half-Life to PPP Convergence in Panel Data
10615	Peter M. DeMarzo Yuliy Sannikov	A Continuous-Time Agency Model of Optimal Contracting and Capital Structure
10616	Francis X. Diebold Glenn D. Rudebusch S. Boragan Aruoba	The Macroeconomy and the Yield Curve: A Dynamic Latent Factor Approach

Paper	Author(s)	Title
10617	Martin Eichenbaum Jonas D.M. Fisher	Evaluating the Calvo Model of Sticky Prices
10618	Alexander Haupt Eckhard Janeba	Education, Redistribution, and the Threat of Brain Drain
10619	Dhaval Dave	The Effects of Cocaine and Heroin Price on Drug-Related Emergency Department Visits
10620	Robert C. Merton Zvi Bodie	The Design of Financial Systems: Towards a Synthesis of Function and Structure
10621	William J. Collins Martha J. Bailey	The Wage Gains of African-American Women in the 1940s
10622	Victor Lavy	Performance Pay and Teachers' Effort, Productivity, and Grading Ethics
10623	Kenneth A. Carow Edward J. Kane Rajesh Narayanan	How Have Borrowers Fared in Banking Mega-Mergers?
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