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FINANCIAL SYSTEMS FOR
EASTERN EUROPE'S
EMERGING DEMOCRACIES

JOSEPH E. STIGLITZ

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Financial Systems for Eastern Europe's Emerging Democracies

Joseph E. Stiglitz



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PREFACE

The International Center for Economic Growth is pleased to publish *Financial Systems for Eastern Europe's Emerging Democracies* by Joseph E. Stiglitz as the thirty-eighth in our series of Occasional Papers, which present reflections on broad policy issues by noted scholars and policy makers.

This paper addresses the challenge of designing appropriate capital systems for countries new to the sphere of market-oriented private economies. Observing that the emerging democracies of Eastern Europe need well-functioning capital markets if they are to sustain reforms and establish enduring market-based economies, the author offers key insights for understanding these markets.

Dr. Stiglitz examines problems particular to the economic transition of the emerging democracies, among them the creation of new financial institutions and the introduction of competition in the financial sector. His Occasional Paper will provide a significant resource for policy makers who need to understand the requirements for successful economic transition in Eastern Europe's newly emerging democracies. It will be equally useful to those attempting to modernize the financial systems of developing countries.

Named by the president of the United States to his Council of Economic Advisers, Joseph E. Stiglitz is on leave from Stanford University, where he was the Joan Kenney Professor of Economics. He has received the highest professional recognition for notable contributions to economic theory and practice in the field of this Occasional Paper, as well as for work in public finance, information economics, and a number of other areas.

Dr. Stiglitz wrote this paper as a senior research fellow of the Institute for Policy Reform, the objective of which is to enhance the

foundation for broad-based economic growth in developing countries. Through its research, education, and training activities IPR encourages active participation in the dialogue on policy reform, focusing on changes that stimulate and sustain economic development.

Economists, policy makers, and leadership groups everywhere will benefit by the analysis of capital markets presented in this essay.

Nicolás Ardito-Barletta
General Director
International Center for Economic Growth

Panama City, Panama
April 1993

ABOUT THE AUTHOR

Joseph E. Stiglitz has been selected by President Clinton to serve on the Council of Economic Advisers. He is on leave from Stanford University, where he was the Joan Kenney Professor of Economics. While at Stanford, he was also a senior fellow at both the Hoover Institution and the Institute for Policy Reform, and was a research associate at the National Bureau of Economic Research. He received his Ph.D. degree from the Massachusetts Institute of Technology and was a Fulbright scholar and Tapp junior research fellow at Cambridge University. He has taught at Princeton, Yale, Oxford (where he held the Drummond Chair in Political Economy at All Soul's College), M.I.T., and Cambridge.

Dr. Stiglitz has been widely honored both in the United States and abroad for his contributions to economics. Among his awards are the John Bates Clark Award of the American Economic Association, a Guggenheim Fellowship, and the International Prize of the Academia Lincei in Rome. He has been a member of the Executive Committee of the American Economic Association since 1980 and has served as vice president of the national organization. He is founding editor of AEA's *Journal of Economic Perspectives* and is a present or past member of the editorial boards of many other journals of economics.

As a consultant in both the public and private sectors, Dr. Stiglitz has served the United States Department of State, Department of Labor, Department of the Treasury, Federal Energy Administration, and Department of the Interior; the Organization for Economic Cooperation and Development; the Inter-American Development Bank; the Seneca Nation of Indians; the World Bank; and a large number of states. He has lectured and written extensively on economics and has made notable contributions to the theory of market structures, the economics of the public sector, financial economics, macroeconomics, monetary economics, and the economics of development and growth. He is one of the originators of the "economics of information" and is the author, with A. B. Atkinson, of *Lectures on Public Economics*, a standard reference work in the field.

JOSEPH E. STIGLITZ

Financial Systems for Eastern Europe's Emerging Democracies

If capital is at the heart of capitalism, then well-functioning capital markets are at the heart of a well-functioning capitalist economy. Unfortunately, of all the markets in the economy, the capital markets are perhaps the most complicated and least understood. Few governments leave capital markets to themselves—they are affected by a host of regulations and government policies. Moreover, the structure of capital markets appears, in some important respects, vastly different among major capitalist economies. Are the differences inessential, perhaps a consequence of different historical experiences but of no more substance than that? Are the differences important, reflecting adaptations to the particular cultural or economic circumstances of their own countries? Or are some structures more conducive to economic success, so that the solid economic performance of some countries

This paper originated as a talk delivered to the Conference on the Transition to a Market Economy, held in Prague in March 1991. A different version appeared as "The Design of Systems for the Newly Emerging Democracies of Eastern Europe," in *The Emergence of Market Economies in Eastern Europe*, edited by Christopher Clague and Gordon Rausser (Cambridge, Mass.: Blackwell, 1991). Financial support from the Institute for Policy Reform is gratefully acknowledged.

is in part a consequence of their well-designed capital markets and the poor performance of others is in part a consequence of ill-designed capital markets?

To a large extent, the form of capital markets observed in the more developed countries is the consequence of a historical process. Technologies have changed everywhere, but nowhere so much as those that affect capital markets. These markets are transactions intensive: banks record millions of debits and credits a day. The computer revolution has lowered the costs of such transactions. To those in the more developed countries, it is not apparent that the capital markets that they have inherited are appropriate for the technologies of the twenty-first century. But change is not costless, and the evolution of financial systems, even when it is clear that they have quite serious problems, appears to be slow.

The newly emerging democracies of Eastern Europe face difficult choices in designing (or failing to attempt to design) capital markets. The choices they make will have a bearing not only on the efficiency with which capital is allocated, but also on the macroeconomic stability and performance of their economies. They have one advantage over other developed economies: they may have wider scope for choice, less encumbered by current institutional forms. But this, too, places a heavier burden on them. They should know that the choices they make now may not be easily undone. Institutions once established are not easily or costlessly altered.

My objective in this paper is not to lay out a blueprint for the ideal set of capital markets, but rather to help frame the discourse. Previously, commenting on the subject of agricultural policies for Eastern European economies in transition (Stiglitz 1993), I found myself in the uncomfortable position of an American saying, "Do as we say, not as we do." Our agricultural policies are hardly models of economic rationality. I now find myself very much in the same position. Parts of the capital market in the United States are, to put it mildly, in disastrous shape. One major part of our financial system, our savings and loan associations, has gone belly-up. The S & L debacle has cost the taxpayers hundreds of billions of dollars. That is a financial loss. But beyond that financial loss is a real loss: resources were misallocated. The government's losses are only a part of the total loss to society. If we take a middle ground

in the estimate of the loss, \$300 billion, then it is as if almost one year's investment of the United States was completely squandered. It is hard to fathom mistakes of this magnitude.¹ The S & L debacle is the most obvious problem with our financial markets, but other parts of the U.S. banking system are also not healthy.

This experience may put me in an advantageous position: I can relate, from first-hand experience, the consequences of ill-functioning capital markets and some of the causes.

The Functions of the Capital Market

To help frame the discussion, I need to spend a few minutes reviewing the central functions of capital markets. These have been variously described as²

1. Transferring resources (capital) from those who have it (savers) to those who can make use of it (borrowers or investors): in any capitalist economy, there is never a perfect coincidence between those who have funds and those who can make use of those funds.
2. Agglomerating capital: many projects require more capital than that of any one saver or any small group of savers.
3. Selecting projects: there are always more individuals who claim that they have good uses for resources than there are funds available.
4. Monitoring: ensuring that funds are used as promised.
5. Enforcing contracts: making sure that those who have borrowed repay the funds.
6. Transferring, sharing, and pooling risks: capital markets not only raise funds, but the rules that specify the conditions of repayment effectively determine who bears what risks.

7. Diversifying risk: by pooling a large number of investment projects together, the total risk is reduced.³

One of the central financial institutions, the banking system, has an additional function: recording transactions or, more generally, running the medium of exchange.

Capital markets are engaged, not only in intertemporal trade, but also in risk. The two are inexorably linked partly because intertemporal trades involve dollars today for promises of dollars in the future, and there is almost always the chance that those promises will not be fulfilled. Thus, even if we would like to separate the two, we cannot. As a practical matter, in all capital markets, the two are combined.

The various functions I have described are linked together, but in ways that are not inevitable. For instance, banks link transactions functions and selection and monitoring functions. With modern technologies, the transactions function can easily be separated. In cash management accounts, or CMAs (run by the various brokerage houses in the United States), money is transferred into and out of "banks" instantaneously. The brokerage house's bank performs the transactions function, but no balances are kept, and accordingly no loan function (such as selecting and monitoring projects) is performed. Some investment banks perform selection functions; they certify, in effect, bond or equity issues, but they play a very limited role in subsequently monitoring the borrower. Today, mutual funds provide risk diversification services, but provide few of the other services of capital markets.

The array of financial institutions is proof of the advantages that come from specialization and the possibilities of economies of scope. Thus, one of the traditional arguments for the interlinking of the medium of exchange function of banks and their loan functions was that in the process of mediating transactions, the banks acquired considerable information that might be of value in assessing and monitoring loans. This argument is still valid, though the presence of a large number of alternatives for processing transactions vitiates some of the information content; observations of a small fraction of the transactions of a potential borrower may provide little if any information of value.

Some of the interlinkages among functions arise from particular characteristics of information: judgments about whether a particular loan candidate is worthy have a lot more credibility when the persons or

organizations making the judgments are willing to put up money than when they are only willing to make a recommendation. Monitoring is enhanced when the borrower is likely to return to the lender for additional funds.

At the same time, it is important to bear in mind the distinctions among the various financial institutions and the roles they play. Although the capital market as a whole raises and allocates funds, much of the activity in bond and stock markets consists in trading existing assets. The stock market in particular is a relatively unimportant source of funds in the United States and the United Kingdom—two of the countries with the most developed equity markets.⁴ New firms, when they succeed in getting equity from outside sources, typically raise their capital through venture capital firms, and established firms finance themselves through retained earnings, resorting to bank loans and bond issues if they need outside funding. Though the liquidity provided by the stock market to shareowners may affect the firm's decisions about reinvesting its retained earnings, the equity market itself does not exercise a primary role in raising and allocating investment funds.

The distinctive aspects of capital markets and the role of government. What are the distinctive aspects of capital markets that result in government regulation in almost all countries? Capital markets are different from ordinary markets, which involve the contemporaneous trade of commodities. As we have noted, what is exchanged is money today for an often vague promise of money in the future. This distinction is important in explaining that capital markets cannot be, and are not run as, conventional auction markets, and that there may be credit (and equity) rationing.⁵ It also explains some of the important roles, described in the previous section, that financial institutions perform, such as monitoring and selecting. In conventional markets, there is no need to select; the item goes to the highest bidder.

Primary Roles of Government

We can begin our analysis of the role of the government with an examination of the four distinct primary roles that government has already assumed.

Consumer protection. The government is concerned that investors not be deceived. Thus, if a bank promises to repay a certain amount upon demand, the government wants it to be likely that it will repay that amount. There is a public good—information—that merits government intervention; information about the financial position of the firm is a public good.⁶ Of course, there are private incentives for disclosure (at least by the better firms);⁷ and in many areas, private rating agencies, such as Best for insurance, Moody's and Standard and Poor's for bonds, and Dun and Bradstreet for other investments, do play a role. The question is whether they are sufficient; most governments have decided that they are not.

Government attempts to protect consumers have taken four forms:⁸

1. By ensuring the solvency of financial institutions, governments make it more likely that financial institutions keep the promises they have made (that, for example, banks will return the capital of depositors upon demand, insurers will pay the promised benefits when the insured-against accident occurs).⁹
2. Deposit insurance and government-run guaranty funds protect consumers in the event of the institution's insolvency.
3. Disclosure laws make it more likely that investors know what they are getting when they make an investment.¹⁰
4. The market is regulated to ensure that certain individuals (insiders) do not take advantage of others. In the United States, there are a variety of such regulations, from those prohibiting insider trading to those that regulate the operation of the specialists (market makers) to those that attempt to prohibit unsavory practices, such as cornering a market.

The government's interest in consumer protection in this area goes beyond looking after the interests of investors. The government is concerned that, without such protection, capital markets might not work effectively. If investors believe that the stock market is not fair, then

they will be not be willing to invest their money, the market will be thin, and firms may have greater trouble raising capital. Incidents in which investors have been cheated—from the South Sea Bubble of the eighteenth century on—have been followed by a drying up of equity markets. Honest firms trying to raise capital are hurt by the potential presence of scoundrels; there is an externality. Government policies, in protecting investors, are thus aimed at making capital markets function better.

Enhancing the solvency of banks. The United States, perhaps more frequently than other countries, has periodically been plagued with bank runs. The government has employed three sets of instruments to enhance the solvency of banks.¹¹

Insurance. Government insurance for depositors was intended to restore confidence in banks and thus prevent bank runs. The government has undertaken this insurance role for two different reasons. One is to enhance the viability of the banking institutions by increasing consumer confidence and making runs less likely. In this role, the insurance reduces the likelihood that illiquidity will cause the default of a basically solvent bank. Here, the question is whether the other mechanisms (to be described below) suffice, whether there is much value added provided by government insurance. The second role is consumer protection. Today, it is hard *in principle* to see a justification for the latter role, because individuals can put their money in money market funds, investing in Treasury bills, in which there is no default risk (apart from that which might arise as a result of fraud).

Given that the government does provide insurance, the government, like any other insurer, has a vested interest in making sure that the insured-against event does not occur—that is, the government in its capacity as insurer, has a vital interest in ensuring the solvency of those that it has insured. This provides one (but only one) of the rationales for government intervention.

The lender of last resort. Another mechanism for preventing bank runs was provided with the establishment of the Federal Reserve Bank, a lender of last resort, ensuring that banks could obtain funds if they had a short-run liquidity problem. With this assurance, it was hoped,

bank runs would be less likely to happen. Obviously, this does not resolve problems if the bank is truly insolvent; its only intent is to prevent short-run liquidity problems from bringing down a bank.

Regulations. Various regulations have been designed to prevent banks from becoming insolvent. Such regulations are (or should be) based on the principles that monitoring banks is costly and necessarily imperfect; that, accordingly, the regulations must be designed to make it more likely that those in control of banks make the kinds of decisions that enhance the solvency of the institution; and that regulations should be designed to make it possible to detect problems before the bank is actually insolvent. The regulations must further be based on the recognition that there are important asymmetries of information between the bank and the bank regulators; that the “books” of the bank are largely in the control of the bank; and that, accordingly, the information presented to the bank regulators may quite possibly be “distorted.” Banks are in a position to sell undervalued assets but to keep overvalued assets on their books at book value. When banks systematically engage in this practice, then “book” value will systematically overestimate true value.¹²

The first objective, making it more likely that those in control of banks will take solvency-enhancing decisions, is aided by requirements that the bank have substantial net worth—so that it has much to lose if losses do occur—and by restricting the kinds of loans and investments that the bank may make, by, for example, restricting insider lending and restricting purchases of junk bonds.

Enhancing macroeconomic stability. One of the reasons that the government has been concerned about bank runs is that the collapse of the banking system has severe macroeconomic consequences. Banks and other financial institutions are a repository of specialized information about their borrowers; when banks fail, there is a concomitant decline in the economy’s information-organizational capital. This translates into a decrease in loan availability. This would not be a problem if capital markets were just auction markets. But they are not. A decrease in information not only impairs the efficiency with which funds get allocated, but also may lead to more extensive credit rationing, so that the effective cost of capital is greatly increased.

One of the functions that banks (and other financial institutions) are engaged in is certifying who is likely to repay loans, that is, whose promises to pay should be believed. If too many people are so certified—if too many people can get funds, and they decide to exercise that option—then the demand for goods can easily exceed the supply. Since the price system (interest rate) is not functioning to clear the capital market, there is, within the market system, no automatic market-clearing mechanism. This provides an important role for a central bank.

Policy on competition. In the United States, perhaps more than in other countries, there is (or at least has been) a concern that, without government intervention, the banks would be able to exercise undue concentration of economic power. Many of the restrictions imposed on banks, such as those relating to interstate banking and those relating to the activities banks can engage in, are intended to limit their ability to exercise economic power.

Rationale for government intervention. Listing the roles of government regulation in financial markets (what is government regulation seeming to do?) is one way to analyze its function. Another way is to ask if there is any reason to believe that free and unfettered capital markets result in the efficient allocation of resources. Until fifteen years ago, there was a quick and easy answer: Adam Smith's invisible hand theorem said that competitive markets would ensure efficient resource allocations. But over the past decade the functioning of the capital market has been analyzed in depth. What makes capital markets interesting and important is that information is imperfect. With imperfect information markets are, in general, not constrained Pareto efficient.¹³ There is no presumption in favor of unfettered markets.

This is not the occasion to review all the reasons for this. Let me just briefly mention one: much of the return in capital markets consists of rent seeking. Your knowing, a minute before anyone else does, that Exxon has made a major oil discovery may make you a fortune by buying Exxon stock; but it does not increase the efficiency with which society's resources get allocated.¹⁴ Much of the innovation in the financial sector entails the recording of transactions more quickly, but is society really that much better off as a result? Someone might get the interest that

might otherwise have accrued to someone else, but have more goods been produced or have they been allocated more efficiently?¹⁵ Suppose hundred dollar bills fell at our feet, one bill by each of us. Suppose we were busily engaged in some productive activity. If we could agree, it would pay all of us to wait until we finished the activity before each bent down to pick up the bill at his foot. But this is not a Nash equilibrium: if others were working, it would pay each of us to bend down to try to pick up as many dollar bills as we could. Of course, when we all do it, we each get only our own hundred dollar bill; we have lost the production we would otherwise have had; and we are all worse off as a result.¹⁶ In short, there is no a priori basis for arguing the government should not intervene in the market, and there seem to be strong arguments for government intervention. In any case, some government intervention is likely. The questions to be answered then are what kinds of financial institutions to establish and what role government should play.

Perspectives for Eastern Europe: Issues of Transition

Most of the problems discussed in the previous section are generic: they arise in virtually any economy, though with more force in some than in others. The problems take on a particular color within the newly emerging democracies of Eastern Europe, and it is upon that that I want to concentrate my attention.

We can distinguish two distinctive sets of issues—those that relate to the form of the financial institutions that will eventually emerge in these countries, and those that relate to the particular problems associated with the *transition* from the current situation to a market economy. Of course, the two problems are in a sense inseparable: views about the ultimate destination impinge on the way in which some of the short-run problems ought to be addressed, and answers provided for short-run transition problems will almost undoubtedly have a major impact on the ultimate destination. Indeed, I have already urged an awareness of this interaction: decisions made in the short run may not easily be reversed.

There are five related central problems facing the economies of Eastern Europe in the process of transition. The first one is well recognized; the importance of the other four has only gradually been recognized.

1. The most apparent problem is that of establishing *hard budget constraints*.
2. Historically, in Eastern Europe the banks and other so-called financial institutions did not perform any of the central functions (other than that of mediating transactions) that we associate with financial institutions. In effect, completely new institutions have to be created; yet in most of the countries there has been an attempt to adapt old institutions rather than create new institutions. The extent to which their *historical institutional legacy* will impair them remains to be seen: will the old modes of thinking impede their ability to recognize their new economic functions? At the very least, a process of reeducation is required.
3. Under the old regime, not only did banks not perform the same roles (screening loan applicants, for example), but also those taking out loans did not view them in the same way. After all, the government owned the bank and owned the enterprise; it was like the left pocket owing the right pocket money. Both sides looked upon the transaction as simply an accounting exercise. This raises important questions of what are we to make of the *inherited loan portfolios* of the financial institutions? How we treat these inherited debts has obvious consequences for, and is obviously affected by, the process of privatization.
4. The former socialist economies inherit a situation in which the state had an economic monopoly. Moreover, the state did not use *competition* as an instrument of policy. On the contrary, there were state monopolies in many industries

(including the financial sector). Developing effective competition may prove to be a difficult task.

5. The relationship between finance and *corporate control* has increasingly drawn the attention of economists.¹⁷ The special problems that are likely to arise in those socialist economies that decide to privatize by means of schemes that result in a wide distribution of equity ownership have implications for the role and design of financial institutions.

We elaborate on the first three issues in the discussion below, leaving the last two to the next part, in which we focus on the ultimate shape of the financial system.

Underlying much of the discussion of the design of financial systems for the newly emerging democracies is the extent to which reliance should be placed on the reform and reorganization of existing institutions, the extent to which reliance should be placed on the creation of new institutions, and the extent to which old debts and credits, created under a very different economic regime, should be wiped out and a clean slate declared. Many of the issues that form the basis of this debate turn on politics and expectations and take us beyond the scope of economics. Still, there are basic economic issues that are relevant to this discussion, and it is upon those economic issues that we focus our attention when we touch upon the choice between reforming existing institutions and creating new ones. Much of our discussion will, however, center around the reform of existing institutions rather than the distinctive problems of creating new institutions.

Soft budget constraints, bank solvency, selection processes, and inherited assets and liabilities. Perhaps the first problem one encounters in the reform of current financial institutions is that of solvency. Many of the financial institutions have been run with soft budget constraints: deficits have been made up by the government. Soft budget constraints within the financial sector can have disastrous effects for the entire economy. Soft budget constraints are like a disease: they can be highly contagious. If the banks face only soft budget constraints, they will not discipline their borrowers. If a borrower has a zero or

negative net worth, he may not care if he makes a loss. Even if the government will not make up the difference, he may be able to borrow to keep himself operating.

There is a more direct mechanism by which the disease of soft budget constraints is spread: firms are constantly extending trade credit to suppliers and customers. If some firms are not on a tight leash, they may not put their suppliers and customers on a tight leash. If there is a widespread belief that the state stands behind state firms and will honor their debts, then any state firm is in the position of being able to create credit.

Hardening the budget constraint through privatization. How best to harden the budget constraint? There are no easy answers. The apparently simplest solution is privatization. Once a firm is in the private sector, it has no more "entitlement" to the public purse; it must sink or swim.

Problems of valuation. The problems of privatization have been widely discussed. Here, I want to focus on some of the problems that arise acutely in the privatization of the financial sector. Assume, for the moment, that the government were to decide to sell the financial sector in open competition. One central problem is that of valuing the assets of financial institutions. The risks associated with valuing those assets imply that, with risk-averse bidders, the state is likely to get considerably less than the actuarially fair value. This, of course, is true for all privatizations. But the risks are, in a fundamental sense, different from the risks associated with privatizing industrial firms. One of the central aspects of the risks associated with valuing a bank's assets is the way in which, in the process of privatization of the "firms" that owe the bank money, the liabilities of those firms are to be treated. These issues have, at this juncture, not been resolved. Thus, the principal valuation risk is a political risk, and it makes little sense for the government to transfer—at a cost—that risk to the private sector.

Moreover, the consequences of valuation errors are likely to be particularly severe. If on the one hand, the bidders overestimate the value of the assets, the financial institutions will be undercapitalized. Undercapitalized financial institutions have strong incentives to undertake

undue risks. This is the familiar moral hazard problem, the consequences of which were all too clear in the case of the S & L debacle in the United States, as near-bankrupt firms gambled on their resurrection. Moreover, if such undercapitalization is widespread, then the likelihood of a government bail-out becomes very high. The financial institutions will know this and act accordingly: privatization will not, after all, harden budget constraints. If, on the other hand, the bidders underestimate the value of the assets, there will be charges of a government give-away. It may be hard for governments to resist the temptation to recapture these profits, by, for example, a special tax on the industry.

In either case, the success or failure of the financial institution will not convey much information—other than about the luck (or lack of it) of the bidders, or their skill (or lack of it) in predicting political winds. A bank's apparent solvency may be the result not of good lending decisions but of its assets being undervalued.

Insolvency. By the same token, the government faces severe problems in deciding what to do with a bank facing a liquidity crisis. First, it must ascertain whether the bank is insolvent. Determining insolvency gets us back to the problems of asset valuation. The value of a bank's loan portfolio depends to a large measure on government policies: will the government honor the loans taken out by state enterprises? Will it insist that those purchasing state enterprises "honor" these debts? Even if it is ascertained that a bank is insolvent, should one presume that it is incompetent and therefore to be shut down?

Not necessarily, if there have been drastic changes in economic circumstances that could not reasonably have been anticipated. But this is precisely the position in which many Eastern European institutions find themselves. Moreover, the grounds for granting loans by state-run banks may have had little to do with standard commercial principles. Banks under socialism do not perform the central functions of screening and monitoring that they do under capitalism.

Assume one concludes that the insolvency is not a mark of incompetence: what then? There is (perhaps) valuable organizational capital, which would be lost if the bank were dissolved.¹⁸ One needs a once-and-for-all capital infusion. Without some method of ensuring that such a capital infusion would not be repeated, again incentives would be distorted.

Public distribution of shares. If the banks were privatized but the shares distributed publicly (rather than the bank being sold, say, in an auction), the same problems would arise, but they would be worse. Unlike what happens when a bank is sold, there has been no outside assessment of the value of assets and liability, as unreliable as those assessments might be, and no infusion of additional equity from the outside, which might normally be expected to occur in the event of a bank privatization through a sale. There is another objection: public distribution of shares is, in effect, a negative lump sum grant or a negative capital levy. Traditional tax theory has argued for the desirability of capital levies, were it not for the distortionary consequences arising from the expectation that they might be repeated. Negative capital levies are, a fortiori, undesirable. Proponents of these negative capital levies argue that the gains in managerial incentives from privatization more than outweigh the subsequent costs arising from the distortionary taxation that will be necessary to raise the requisite revenue. But a partial privatization, in which the government retained a substantial fraction of the shares, would presumably do as well; the private shareholders would still have an incentive to make sure the firm was well run. Beyond this, there are serious questions concerning the importance of managerial incentives: in most large private corporations in the United States, managerial pay is only weakly related to the managers' contributions to the firm's performance.¹⁹

To mitigate the effect of a negative capital levy, the government might treat the current assets of a nonfinancial firm being privatized as debt of the firm to the government. But then the government itself would be involved in the difficult question of valuation, with all the untoward consequences of misvaluation that we have previously noted.

The timing of privatization. In short, the potential viability of any newly privatized bank may depend as much on its competence in valuing the old assets, or on luck, as prices and market values change unpredictably, as on the competence of the institution in performing its *ongoing* roles. It is particularly in the early stages of the transition, during which laws, regulations, and policies that could affect the private sector are not clear, that market values change unpredictably. For instance, the government might decide that the high debt of some firms represents an

impediment to their ongoing operation, and either repudiate that debt or assume that debt as its own obligation. These alternatives have obviously drastically different obligations for the holders of this debt paper.²⁰

In the days of socialism, financial structure made no difference. (Here at last was a domain in which the Modigliani-Miller theorem was correct, though for quite different reasons: all obligations were simply obligations of one part of the government to another.²¹) Firms produced what they were told to produce; finance simply accommodated these "orders."²² In market economies, financial structure makes a great deal of difference.²³ Again, there is no incentive or sorting (selection) reasons to impose the inherited financial structure upon the ongoing operations of the firm. Some kind of recapitalization is required. Privatization does represent one form such recapitalization can take, but government assumption of debt (as in the restructuring of the S & Ls in the United States) and debt for equity swaps (as in the restructuring of some third-world debt) may represent interim measures to be taken as the government reexamines some of the more fundamental issues associated with privatization. But these recapitalizations, as desirable as they may be, can have profound effects on the outstanding liabilities of these firms to the financial institutions. There seems to be a case for resolving these uncertainties before proceeding with the privatization of financial institutions. If privatization is postponed, some alternative interim method of "hardening" budget constraints may be required. Professor McKinnon (1992) provides one possibility.

Leaving for the moment the question of the timing of privatization of the financial institutions, there are some important caveats to be borne in mind in the design of what might be viewed as the privatization package.

Other issues in the hardening of budget constraints. There are obvious macroeconomic as well as microeconomic advantages in enforcing tough budget constraints. The excessive expansion of credit can clearly lead to inflationary pressures. I want to put in a word of caution against hardening the budget constraint too rapidly, or perhaps I should say, in the wrong way.

The selection mechanism in the process of transition. Tough budget constraints have obvious incentive effects—provided they can be met.

They are also important as selection mechanisms. Those who cannot meet the market test are weeded out. This selection mechanism only makes sense if market prices are right. But in a transition period, market prices are likely to deviate markedly from their longer-run equilibrium values. Moreover, in assessing viability, some value must be attached to the capital that is used. But when the machines that have been installed are inefficient and of low quality, how are we to value them? There is not much of a market for used capital goods. If we undervalue them, it may be too easy to meet the market test. If we overvalue them, it may be impossible for the firm to survive.

Credit constraints and aggregate supply. The standard macroeconomic model focuses on the effect of monetary (credit) constraints on aggregate demand. But such constraints have effects on aggregate supply. If firms cannot get sufficient working capital, then production will be cut back.²⁴ If interest rates are raised sharply, and there has not been a recapitalization, debt-ridden firms may be thrown into bankruptcy. But these problems have nothing to do with their current operating efficiency, only with an inherited financial structure.²⁵ If the reduction in aggregate supply exceeds that of aggregate demand, the monetary (credit) constraints can actually be inflationary. More broadly, it is important that credit be cut off to those for whom the return is lowest. But in the transition process, that is difficult to ascertain.

Macroeconomic control mechanisms. There are problems with controlling both the allocation of credit and its total volume. When there is a single bank, the volume of credit is, in principle, easy to control. But a central part of establishing a market economy is having at least a few competing banks and other financial institutions. In the United States and in many other capitalist economies, the government relies on indirect mechanisms for controlling the quantity of credit: open market operations, discount rates, and reserve requirements. Even in the United States, the relationship between these instruments and the volume of credit becomes tenuous when the economy faces considerable uncertainty, as it does in a downturn. In newly established financial systems, there is likely to be even greater uncertainty about these relationships, and thus indirect mechanisms may be viewed as an excessively risky way of controlling the volume of credit. The central

bank may not be in a position to allocate credit targets efficiently among the various banks. The use of “marketable quantity constraints” has been suggested. The central bank would control the quantity of credit, either by auctioning off the right to issue loans or by granting the rights to various banks, with the proviso that banks could trade the rights among themselves. Such marketable quantity constraints combine the certainty of quantity targets with the allocational efficiency of market mechanisms.²⁶

The Ultimate Shape of the Financial System

There are some basic issues concerning the design of the financial system that must be faced as part of the transition but are as much issues of the ultimate shape of the financial system. We divide our discussion into three sections. The first deals with the role of competition, the second with the regulations that are concerned with the solvency or liquidity of the banking system, and the third with issues of corporate control.

Banks and competition. On the subject of banks and competition there are two separate but related issues: competition among banks, and banking practices that affect competition among firms. The United States has clearly been worried about the possibly deleterious effects of banking practices that limit competition among firms. Recent reforms in the banking system have encouraged more competition within the banking system—far more competition than in other countries—and there are proposals to dismantle some of the regulations that were intended to limit the economic power of banks.

The problem of establishing viable competition in the newly emerging democracies of Eastern Europe is a bone of some contention. Some believe that allowing foreign competition is all that is required. Others see a variety of barriers to entry, of kinds that have been well documented within capitalist economies and that result in at best imperfect competition. I am inclined to the latter view. Adam Smith had it right when he described the natural inclination of businessmen as one of attempting to restrict competition: “People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices.”²⁷ These tendencies may be all the stronger among individuals who have

formerly worked closely together, as seems often to be the case when large state enterprises are divided into competing firms. Anecdotes of firms getting together to stabilize the market and to prevent disorderly competition do not prove the point, but they at least alert us to the existence of a problem.²⁸ That there has not, in the past, been competition, that those within an industry have been encouraged to cooperate rather than compete and have developed a nexus of social relationships that promotes such cooperative noncompetitive behavior make it all the more difficult to generate effective competition.

Banks can serve, and have served, the function of limiting competition in product markets. They are in an ideal position for coordinating decision making. Moreover, it is even in the bank's narrow interest as a lender to limit competition: the fiercer the competition, the more likely the less efficient firms within the market will go bankrupt, and thus the more likely that some loans will not be repaid.

The vitality of capitalism does not depend on the existence of perfect competition in the textbook sense, but a high level of competition is essential to ensure both economic efficiency and that the fruits of that efficiency are passed on to consumers. Farmers will find little relief if, instead of receiving low prices for their goods from the government, they receive low prices from monopsonist food processors. In either case, low prices will depress production and inhibit development of the agricultural sector.

There is a general presumption that competition among banks is no less desirable than competition in other sectors of the economy. But, although *some* competition among the banks is thus desirable, excess competition may create problems. Banks, perhaps more than other institutions, depend on their reputation. Reputation is an asset worth preserving—provided that there is an economic return. For there to be an economic return, competition has to be limited. The limitation may come from natural economic forces—the necessity to establish a reputation may act as a barrier to entry.²⁹ (Though this argument holds, to some extent, in many other markets, it holds with particular force in financial institutions, where what is being exchanged is dollars today for *promises* of dollars in the future. A buyer of a TV can see quickly what he is getting; if the TV wears out in two years, the producer will quickly lose his reputation. With financial markets, the promises are frequently made for much longer terms.) It is worth noting that, in the

United States, one of the effects of deposit insurance has been to reduce or eliminate this barrier, facilitating entry and competition. But the resulting competition, and the ensuing reduction of reputation rents, encouraged banks to pursue short-sighted policies that contributed to the S & L debacle and the current banking crisis.

There seems a real possibility of either excessive entry—driving rents to zero and thus eliminating the incentives for maintaining a reputation—or insufficient entry—leading to insufficient competition within the financial sector. Nor do we have any confidence in the government’s ability to set the “right” level of entry. Out of this no clear prescription emerges, simply a word of caution: the financial sector needs to be carefully watched, for evidence of significant “errors” in either direction.

Regulations for a banking system. There is now widespread recognition (for the reasons given earlier) that, even in the best run of capitalist economies, banks need to be regulated. Earlier, I discussed the general form and objectives of this regulation. To translate these into concrete proposals for the financial institutions of the newly emerging democracies would take me beyond the scope of this paper. But I would like to dwell on a couple of key issues.

Over the past decade, the United States has been engaged in a debate about appropriate regulatory framework. That debate has served to isolate the key issues and the doctrinal positions. Understanding these issues and positions does not require a detailed familiarity with either the institutions or the policy debates. I want to discuss three issues—issues that each of the countries of Eastern Europe must eventually face. (As an aside, the debate does illustrate the difficulty of changing the system: this should be a reminder of how important it is to get things right the first time.)

The Bush administration’s proposed reform began with a doctrinal belief in competition. If a market isn’t working, it must be because of government interference. The cure is immediate: reducing government restrictions will enhance competition and make the market work better. In this case, there is a consensus that banks need more capital, as the net worth of banks has been drained by bad investment decisions. Thus, relaxing restrictions on those who can own banks (the barrier between

manufacturing and banking firms) will enhance a flow of capital to banks and thus strengthen the banking system. In this view, increased net worth requirements will simply exacerbate the banks' problems, because many of them can hardly meet the current low requirements. Though some slight attention is focused on limiting deposit insurance—so that each individual can have only one \$100,000 account—there seems to be agreement that enforcing such a provision would be very costly. Besides, since, in the case of big banks, the government has acted as if everyone is insured anyway, it is hard to see the relevance of this refinement of current law. Doctrinal beliefs can carry one a long way—especially when they conform closely with what the special interests want. But the belief in competition is no substitute for hard economic analysis. There is, as we have noted, no presumption that financial markets, without government intervention, work perfectly. We now take a closer look at the basic issues.

Capital requirements. The problems that have confronted the S & Ls and the banking system illustrate how difficult it is to monitor transactions, even in a relatively stable banking structure. There have been relatively few charges that regulators have been corrupt. Though it is not the intent of the current institutional structure, the existence of three separate regulatory agencies to monitor the industry provides safeguards against corruption of regulators. The recent S & L debacle was not due to regulators' corruption, or even really to incompetence. There is a simple lesson: if capital requirements are too low, problems are not detected until the bank is truly insolvent. Given the noise in the detection process, our present capital requirements are too low.

Low capital requirements also exacerbate the moral hazard problem. Because detection is difficult, firms whose net worth is negligible or even negative continue to operate. Such firms have strong incentives to "gamble on resurrection." Economists' predictions of how rational firms would behave in such situations have, unfortunately, been borne out.

Deposit insurance. Deposit insurance is, to a large extent, a red herring. With modern financial institutions, individuals do not need deposit insurance to protect them: in the United States, check-writing accounts, backed by Treasury bills, provide a perfectly safe medium

of exchange for small depositors, the ones the deposit insurance is supposed to protect. Such institutions have not yet emerged in Eastern Europe, but one should surely expect them to arise in short order.

Critics claim that, under the current system, deposit insurance causes a major problem because it removes any incentive for depositors to look toward the solvency of the institution in which they are depositing their money. Indeed, this sets up a process of Gresham's Law: High-risk banks, which can garner higher expected returns, drive out low-risk banks. In effect, the value of the insurance that the government is providing is increased. Individuals take advantage of the greater insurance "gift" from the government by depositing in high-risk banks.

I am, however, unpersuaded by the argument that individuals can monitor the banks—and would do so in the absence of deposit insurance. The fact is that monitoring is a public good, individuals do not have access to the relevant information, and they are not in as competent a position to judge as regulators should be. Rating services go only a little way to fill the gap. They certainly have not performed outstandingly in the current crisis.

If the government were to increase capital requirements, then the risk borne through deposit insurance by the government would be limited.³⁰ The enhanced safety, or perception of safety, would probably be worth the slight cost.

Restrictions on investments. Banking institutions have traditionally faced restrictions on how they can invest their funds. Advocates of deregulation have focused on the increased profit opportunities that might result from deregulation. But allowing banks to enter into other financial activities (such as selling securities) would only significantly enhance profit opportunities if there were significant economies of scope or if those who had come to specialize in providing such services were less competent than those who had come to specialize in providing banking services. It is hard to see a compelling case for either of these arguments.

The question that needs to be posed, of course, is whether these regulations serve any useful purpose. Given the special position of banks within the economy, the scope for moral hazard problems to arise (evidenced so clearly within the United States in the past decade), and the limited ability of government to monitor banks, there is much to

be said for limiting the kinds of investments. The government provides deposit insurance. Any insurance firm has the right to take actions that limit their exposure to risk. If a financial institution does not want to be subjected to these regulations, it should be able to opt out; but then it should not be able to avail itself of the special opportunities afforded banks, such as deposit insurance.

Similarly, consider the issue of restrictions on who can own a bank. Originally, the wall between banks and other enterprises was placed to enhance competition and to reduce the scope for conflicts of interest. On the one hand, one could argue that, with the enhanced international market in which most firms operate, concerns about competition have diminished. On the other hand, one could ask what is to be gained from reducing the barrier. The concern has been raised that American banks need more capital. But if individuals, pension funds, and other investors are not willing to put up their money to provide banks with more capital, why should we have confidence that those institutions that they own—the producing corporations—should do so? If they are a bad investment for individuals, they are a bad investment for corporations. There is, of course, one good reason: firms that could not get an honest loan from an unrelated third party might be able to get a loan from a bank of which they are major shareholders. In short, this kind of proposal puts the long-run solvency of the banking system into further jeopardy.³¹

In summary, my own view is that the most important element in bank regulation is imposing capital requirements. If this is set at sufficiently high a level, then other issues become less important. Certainly the provision of deposit insurance becomes less important, with the potential gains exceeding the slight costs. If the government does provide insurance, it makes sense that there be regulations—such as those relating to interest rates that can be paid depositors and the investments into which banks can put their funds—designed to limit the government's risk. Given the limited ability of government (and depositors) to monitor banks, ownership restrictions, to limit potential conflicts of interest and the abuse of banks' fiduciary responsibilities, seem desirable. On this last point, I have less confidence, for reasons I shall now discuss.

Two views of banks and corporate control. The view that I have just expressed—the desirability of maintaining strong walls between the

financial and production sectors of the economy—runs counter to what many observers see as the very successful models of financial structure of Japan and Germany. These provide viable alternative models for designing financial systems, models that are particularly attractive in the context of “people’s capitalism” toward which some of the emerging democracies may be evolving. In my view, there is no single viable financial structure but there are many nonviable financial structures: The United States, for instance, has certain marked problems, and if the Bush proposals had been adopted, it would have been embarking upon reforms in that system that might have exacerbated those problems.

The Japanese financial system is usually characterized as involving production groups, in the center of each of which there is a bank. These banks are closely involved with production firms. When Mazda had trouble, its bank stepped in, changed management, and successfully turned the company around. There is competition across these groups, cooperation within the groups.

The Japanese model has received considerable attention as a possibility for resolving a problem plaguing American managerial capitalism. With widely diversified shares, managers have considerable autonomy. Good management is a public good: all shareholders benefit if the firm is run better. No shareholder can be excluded from these benefits. Each shareholder thus has an inadequate incentive to monitor the firm. Indeed, there are great barriers to prevent small shareholders from doing an effective job. The alleged control mechanisms work most imperfectly—management is seldom replaced through the voting mechanism, and there are fundamental problems with the takeover mechanism.³²

Banks nominally do not have control, but may actually exercise more effective control than do dispersed shareholders. The threat that they could withdraw credit is real; information problems mean that credit markets are inherently imperfect, and when one firm withdraws credit, others will not normally rush in.³³ Moreover, credit is normally more concentrated than equity is. (There is normally a lead bank, the number of banks in a lending syndicate is limited, and they have a variety of reciprocal relationships that help reduce the importance of problems with free riders.) Thus, banks have both the incentive and the means to exercise control.³⁴

From this perspective, the appropriate way to view the firm is in terms of a multiple principal-agent problem, the various principals being

the workers and all those who provide capital to the firm (essentially, anyone who would be adversely affected by, say, the bankruptcy of the firm). In this view, the manager is the "agent" of all these principals. Although the bank may not induce the firm to take actions that maximize the welfare of these other groups—actions that ensure that there is a relatively low risk of bankruptcy may not maximize expected returns to shareholders—the control that they exercise does confer external benefits on other groups, at least in ensuring the solvency of the firm. One could argue that, when the bank also is a shareholder, it is more likely to pursue actions that enhance the overall return to capital. This is one of the essential advantages of the "Japanese model." A single bank has the incentive to exercise the critical monitoring function and, because it also has an ownership stake, it does this in a way that reflects the interests of both lenders and owners of equity.

One might imagine that, if the shares of the large enterprises within the newly emerging democracies were widely distributed, there would be real problems of managerial control. The worst kinds of abuses—the kind that have been documented in the case of RJR Nabisco—could become prevalent. The Japanese system *may* limit these—at the expense of an agglomeration of enormous amounts of corporate power. Some of these abuses will be limited by ensuring that there are several such groups, and that there will be competition among them. (Thus, one's view of the desirable financial structure may be affected by how effectively one believes antitrust laws will be enforced.) International competition may provide further discipline. Yet one cannot be blind to the possibility that large amounts of capital when concentrated under the control of relatively few individuals (even if they do not "own" the capital) can be used to obtain political influence and possibly to restrict competition (though always, of course, in the name of some other more sacred principle).

Perhaps a hybrid system—one in which holding companies are, in effect, managing those that are part of their group, and financial institutions are *separate*—would provide the needed checks and balances.³⁵ The financial institutions would play an important role in monitoring the monitors. At the same time, the separation would serve to limit somewhat the concentration of economic power.³⁶

In recent years within the United States, venture capital firms have played a vital role in providing finance, particularly to new

high-technology industries (especially in computers and biomedical and related areas). There, the monitoring and selection functions are intimately connected with the provision of capital. Whether there is a greater potential scope for these firms, and whether variants of these firms could be adapted to the process of privatization is not yet clear.

Equity markets. I have focused my attention primarily on banks, not on equity markets. The choice is deliberate. To a large extent, equity markets are an interesting and amusing sideshow, but they are not at the heart of the action. Relatively little capital is raised in equity markets, even in the United States and the United Kingdom.³⁷ One cannot expect equity markets to play an important role in raising funds in the newly emerging democracies. Equity markets are also a sideshow in the allocation of capital. As my colleague Robert Hall once put it: *The Wall Street Journal* finally got it right, when it split the financial section from the business section. The two are only very loosely connected. Managers do not look to the stock market—to the views of the dentists in Peoria or the retired insurance salesmen in Florida—to determine whether another blast furnace should be built or whether further exploration for oil should be undertaken. The stock price is relevant—they do look to the effect of these decisions on the stock market price. But it does not, and should not, drive their behavior. It simply provides information too coarse to direct investment decisions. In the transition process in Eastern Europe, it is even less likely that equity markets will play an important role in providing relevant information for investment decisions.

If the stock market becomes important, instability in it can contribute to macroeconomic instability, in ways that are by now familiar.³⁸ The policy implications of this (for example, for transactions taxes on the stock market) remain a subject of considerable debate.³⁹

The stock market does enhance liquidity, and the enhanced liquidity makes investment in equities much more desirable, but the stock market is not an unmitigated blessing. There has been concern, for instance, that to the extent that managers do pay attention to stock market prices, it leads them to behave in an excessively short-sighted manner (presumably because stock prices are excessively sensitive to short-run returns). Advocates of this view—a view that can be traced at least back to Keynes—look for ways to encourage long-term investment in

securities, perhaps using the tax system (with, for example, a turnover tax) to discourage short-term trading. Though this is not the occasion to enter into that debate (aspects of which turn upon practical problems in implementing such a tax), it should be noted that there is little evidence that such taxes, which have been implemented in several countries, have had any adverse effects on market volatility or indeed on the ability of the market to perform any of its other functions.

Conclusions

Financial markets play a central role in any capitalist economy. The design of capital markets affects the ability of the economy to raise capital and to allocate it efficiently. Beyond that, the design of capital markets affects the efficiency of enterprises in all other sectors of the economy. Even if one has little confidence in the efficiency or effectiveness of the "market for corporate control," the monitoring function of financial institutions provides essential discipline for managers, a discipline that is particularly important in economies in which shares are widely held.

In spite of the array of financial structures to be found in different capitalist economies and from which the newly emerging democracies can choose, it is not evident that any represents the "optimal" financial structure, or indeed, that any has fully adapted to the new technologies that have revolutionized the processing of information. In some capitalist countries, the defects in the financial systems are all too apparent. The newly emerging democracies have ahead of them a delicate balancing act: Once they settle upon a financial structure, they will find change is difficult and costly. Vested interests arise and attain political and economic influence quickly. The dangers of too impetuously settling upon a financial structure seem clear. But the process of privatization and establishing a well-functioning market economy requires effective capital markets. Delay is costly, perhaps impossible. At the very least, it is hoped that the remarks in this paper may prove of some help in thinking through some of the key aspects in the design of financial markets and institutions.

NOTES

1. This may overestimate the true social loss. Much of the loss is in real estate, and some expenditures were for the purchase of land. The banks' borrowers (and thus, with default, the banks) made speculative mistakes. They overpaid for the land. But these are pure transfer payments. Of course, these transfer payments affect the level of real savings of the economy; on both accounts they have a deleterious effect on the economy's growth. They may also have adverse effects on the banking system.

2. For a more extensive discussion of these various functions see, e.g., Stiglitz (1985), Greenwald and Stiglitz (1991), Stiglitz and Weiss (1991), Fama (1980), and the references cited in these papers.

3. This can be viewed (like some of the other functions) as "economizing on transactions costs, including information costs." Individuals can diversify without using financial intermediaries, but at greater cost.

4. See Mayer (1990).

5. See Stiglitz (1988a and b), Stiglitz and Weiss (1981), Greenwald, Stiglitz, and Weiss (1984), and Myers and Majluf (1984).

6. In addition, there may be an economy of scope between the enforcement of fraud laws and this kind of regulation. It is easier to enforce fraud if there are clear (and compulsory) standards of disclosure.

7. See, e.g., Grossman (1981).

8. Beyond fraud laws, which prohibit outright deception,

9. How the government attempts to ensure solvency is discussed in the next section.

10. In the United States, there are laws intended to make sure that borrowers know the true rate of interest they pay on loans and that purchasers of equity know the true risks that they are undertaking in making an investment.

11. The government takes a less active role in maintaining the solvency of most other financial institutions, with the possible exception of insurance. Insurance firms are highly regulated, and the government in most states has established a guaranty fund to protect those who purchase insurance against the consequences of the insolvency of insurance firms.

12. Tax considerations may limit the extent to which they do this. But, when a bank is in difficulties, regulatory considerations are likely to dominate tax considerations.

13. See, e.g., Greenwald and Stiglitz (1986; 1988).

14. See Hirschleifer (1971).

15. See Stiglitz and Weiss (1991) for a formal model of this.

16. I am indebted to Larry Summers for this example.

17. See, e.g., Stiglitz (1985).

18. Earlier, I suggested that there may be "negative" organizational capital: the outmoded ways of thinking associated with banking under socialism may tinge the banks in the new economic situation and thus impair their ability to perform their new, different, and more important economic role.

19. Again, the difficulties of valuing the financial institution's existing assets make it difficult to ascertain whether the institution is doing a good job.

20. An important issue in the transition process is how to deal, more broadly, with these inherited obligations. Inflation is obviously one way of reducing their importance, but this obviously has its own disadvantages. A fuller discussion of this issue would take us beyond the scope of this paper.

21. This undoubtedly oversimplifies the situation, particularly in those countries, such as Hungary and Yugoslavia, where firms had some autonomy, where there were bankruptcy laws, and where the government did not as a consequence serve as the ultimate guarantor of all loans.

22. For a more extensive discussion of this, see McKinnon (1991).

23. See, e.g., Stiglitz (1988a).

24. See Greenwald and Stiglitz (1990) for a model in which the effects of capital market conditions on aggregate demand and supply are analyzed simultaneously. Calvo and Frankel (1991) have emphasized the role of these supply effects in the transition process.

25. Although there is some debate about the significance of the costs of bankruptcy, in the process of transition, when all of society's resources are being reorganized, the disruption in the use of resources following a bankruptcy may be particularly costly. The external costs of bankruptcy are especially large when there is only one supplier of a good, as was often the case under central planning.

26. Such marketable quantity constraints have been introduced in the United States for the control of certain kinds of pollution. Weitzman provides an analysis of the advantages of the use of quantities versus prices as control mechanisms in the presence of uncertain benefit and cost functions. Such an analysis can be extended to the problem under consideration here.

The kinds of criticisms raised against the use of the price system for the allocation of credit (Stiglitz 1988b) can be raised here, for the use of the price system in allocating the rights to allocate credit among financial institutions.

27. *Wealth of Nations* I.x.c.27.

28. The fact that firms make profits does *not* prove that competition is limited, as some critics of markets within the socialist and former socialist economies seem to suggest. There are profits to be had from making markets work more efficiently, from supplying what is needed. Not all profits are monopoly profits.

29. See Eaton (1986), Shapiro (1983), Schmalensee (1982), or Stiglitz (1989).

30. The capital requirements could be met by either equity or uninsured debt. For a fuller discussion of this proposal, see Stiglitz (1991a).

31. There is another argument, that the restriction on ownership is really a restriction not on the flow of capital but on the "market for control." If a bank is performing badly, only new entrepreneurs or other banks can take it over. This is, in fact, a large market, and there is little evidence that restricting

control in this way has had any adverse effect. Moreover, there is evidence that the market for control does not enhance efficiency substantially. Why should someone who has managed an oil company be particularly good at managing a bank? In practice, what happens is that the bank managers stay on. There is no real change in management.

32. For discussions of these problems, see Stiglitz (1972; 1985) and Grossman and Hart (1980).

33. For a theoretical analysis of why this is so and of the incentive effects of credit termination, see Stiglitz and Weiss (1983).

34. See Berle and Means (1933) and Stiglitz (1985). Part of the reason for the concentration of debt is that, given the limited extent of risk, risk diversification is less important than it is in the case of equity.

35. Some people envisage the holding companies as having only a role in the transition process. Eventually shares will be widely held, but a process of concentration is envisaged, with eventually some ownership shares being sufficiently large to play an effective role in control. There is little evidence about the speed with which such concentration would occur, or indeed, whether it would eventually occur, in which case the holding companies would become a permanent part of the scene.

36. To some extent, if the Eastern European countries want to be integrated quickly into Europe, the design of financial institutions that "work well" with those of Western Europe may be as important as any of the factors I have listed.

It is perhaps worth noting that the United States quite explicitly tried to restrict the extent to which one firm could own or control other firms (at least in related industries) because of its concern over the resulting potential for collusive behavior. Having firms own other firms (as seems to be prevalent in Japan) may provide a more effective system of "peer monitoring." See Arnott and Stiglitz (1991) for a discussion of the role of peer monitoring in mitigating problems of moral hazard.

37. For a review of the data for recent years, see Mayer (1990).

38. I refer to stock market instability of the kind that can result from speculative bubbles.

39. See, e.g., Stiglitz (1989b) and Summers (1989).

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