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PRIVATIZATION: NOTES ON THE MACROECONOMIC CONSEQUENCES

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Abstract

This paper examines differences in the macroeconomic and efficiency consequences of alternative approaches to privatization in Eastern Europe. The resulting changes in firm behavior will depend on who ends up controlling the firm, the nature of their objectives, and the degree of their control. Even given firm behavior, the privatization process has important effects on the cash flow of both the government and households, requiring compensating changes to restore budget balance in each case. Given the misallocation of resources in the past, the resulting reallocations can have important efficiency consequences.

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Privatization is now at the top of the political agenda among the formerly Communist countries in Eastern Europe. There is, not unexpectedly, intense debate about the appropriate mechanism for privatization, and the consequences of alternative approaches for economic performance.

Many different mechanisms are under discussion. The standard approach used in past privatizations elsewhere in the world has been to sell shares in firms to the public. (Foreigners may or may not have been allowed to participate.) One problem with this approach has been that it inevitably is very slow. Many new problems arise in the Eastern European context, however. To begin with, valuation of firms whether by the government or by individual investors will be very difficult given the lack of knowledge of such basic factors as future tax, tariff, and regulatory policies, and the lack of existing financial markets to help price shares. In any case, the scale of proposed privatizations is large enough to have substantial effects on market prices, and the performance of these economies more generally, which must be taken into account when judging the value of any given firm. For example, in many of these countries the existing financial assets of domestic residents are tiny relative to any plausible aggregate value of the firms to be privatized, based on rates of return in Western financial markets. In spite of these difficulties, many smaller firms, and a few larger firms, have already been sold in a number of these countries.

Given the difficulties faced in selling firms, a number of alternative approaches are under serious discussion. Many involve giving firms away. For example, firms might be given to those individuals, or their descendants, who owned them prior to their nationalization.¹ Alternatively, each citizen can be given an equal fraction of the shares in each firm being privatized, or an equal number of vouchers, where the vouchers can be exchanged for shares in particular firms.² Some proposals would allow individuals to trade shares immediately, others would delay trade for a few years. A variant of this approach, proposed by Sachs-Lipton(1990), has financial intermediaries hold shares directly, with individuals then holding claims on these financial intermediaries.³

These approaches differ not just in their administrative difficulties and in the equity of the resulting ownership structure. Each approach has different consequences for the incentives faced by the newly privatized firms, and for macroeconomic performance more generally. The objective of this paper is to examine differences in both the macroeconomic and the efficiency consequences of alternative approaches to privatization.

In order to judge the implications of the privatization process for firm behavior, it is important to assess how privatization changes the objectives pursued by firm managers. Who ends up controlling the appointment and compensation of managers, what are their

¹ This approach has been used in some cases in both Czechoslovakia and Hungary.

² Czechoslovakia is proposing using this voucher scheme.

³ This is the approach now being pursued in Poland.

objectives, and to what degree can they exercise effective control? What incentives will firms face in anticipation of privatization?

Even given firm behavior, the privatization process can affect the efficiency, the income distribution, and the macroeconomic performance more broadly, of these countries. The privatization process will inevitably have important effects on the cash flow of both the government and households, which will require compensating changes to restore budget balance in each case. How budget balance is restored will affect the allocation of resources. If the government sells firms, what happens to the initial sales revenue, and how does the government compensate in future years for the lost income from firms which have been sold? If individuals buy firms, how do they finance these purchases? Analogous questions arise if firms are given away, rather than sold. On net, what happens to the allocation of resources within the economy? Given the many ways in which resources have been misallocated in the past, these reallocations can potentially have important efficiency consequences. In particular, there is a strong presumption that in the past private investment and private savings were both inefficiently low. Private firms were generally unable to borrow to finance investment, and faced punitive taxes and regulations. Households, when they did save, often did so in the form of untaxed stockpiles of real goods rather than through investments in productive activity, which were heavily taxed, or through bank deposits, which paid sharply negative real rates of return. To the extent that the privatization process leads to more private investment and lower stockpiles, efficiency should improve. The differing consequences of the various mechanisms for privatization can affect their relative attractiveness.

Section 1 of the paper explores these macroeconomic and efficiency consequences of privatization, ignoring any changes in firms' internal efficiency. Section 2 then explores how firm behavior is likely to be affected by each of the proposed mechanisms for privatization. Section 3 explores some further implications of privatization.

1. Consequences of privatization, given firm behavior

The privatization process has direct effects on the amount and the time pattern of resources going to the private vs. the public sectors. When shares are sold, resources flow to the public sector initially, due to revenue from the sale of shares, and flow to the private sector later due to dividends being paid to private owners rather than the government. If instead shares are given away, the government loses the income earned on these shares. Unless some explicit offsetting revenue flows occur, the time pattern of real expenditures in each sector will have to adjust accordingly. The government can offset the implications of privatization for the government budget through changes in debt or tax policy, leading to further consequences for the allocation of resources.

This reallocation of resources can easily have important efficiency consequences. To begin with, the value of marginal expenditures may differ in the public vs. the private sectors. In addition, resources within the private sector were not allocated efficiently in the past, implying potential efficiency consequences from any reallocation. For example, the return to personal savings has been extremely low, not only discouraging personal savings, but also inducing people to save through accumulation of commodity stockpiles (e.g. an extra apartment held vacant for one's children) rather than through investments

in financial assets. If privatized shares can be purchased at market prices, then individuals will face a much higher incentive to save, and commodity stockpiles will no longer appear as attractive. This will allow these resources to move to better uses.

Private business investment has also been extremely low in the past. Even now, private businesses have great difficulty obtaining credit — bank loans to private businesses are unusual, and personal loans are also difficult to obtain due to the lack of legal enforcement of loan contracts. Even when entrepreneurs can obtain credit, they face heavy taxes and restrictive regulations, discouraging real investments. As a result, the real return on productive investments, particularly in the private sector, should exceed the implicit return on commodity stockpiles, implying an efficiency gain from shifting resources accordingly.⁴ Privatization therefore leads to an efficiency gain to the extent that it leads to a shift in resources from stockpiles to extra private investment.

Even if private firms could now obtain credit at market interest rates without constraint, the rate of private investment would still be too low. Private investment at this point should generate a variety of positive externalities for the economy. Under centralized allocation, the set of goods produced, the technologies used, the size and internal organization of firms, etc. all were far different from what would be chosen by a market economy. How specifically the economy will change under market incentives is not at all clear, however. When private businesses try out alternatives, they do not receive the full gains from their venture. Regardless of whether a particular venture turns out to be profitable or not, others can learn from that venture's experience. If it fails, they can avoid making the same mistakes; if it succeeds, they can quickly enter to share in the profits. Competition from private businesses may also induce state-owned firms to behave more efficiently. Since the initial entrepreneur is not paid for any of these benefits, incentives to try out new alternatives are inadequate. At the start of the transition period, when the uncertainty concerning the most profitable direction of change is greatest, these externalities are likely to be particularly large.⁵

The objective of this section is to examine how the allocation of resources will differ under alternative approaches to privatization, and to note where differences in the resulting allocations may have important efficiency consequences. In order to discuss the macroeconomic effects of any given privatization scheme, it helps to set out a specific model of these economies. The key aspects I focus on in the model are: (1) weak savings incentives, which lead to savings through commodity stockpiles, and (2) credit-constraints faced by households and private businesses. For simplicity, other prices are assumed to be market-clearing.⁶

⁴ Households have also not been able to borrow to buy housing or consumer durables. As a result, there are possible efficiency gains from shifting resources from households' now savings at low interest rates to households anxious to borrow even while paying high interest rates.

⁵ One objection to private businesses traditionally expressed in these countries is that the income private entrepreneurs receive can easily be objectionably high. If this is indeed a concern, then allowing more private investment reduces the rents earned by existing entrepreneurs, lessening the extent to which extreme incomes are earned, again implying a welfare externality from more private investment.

⁶ Even when some prices have been set at nonmarket-clearing levels, barter and other forms of tied sales should lead to implicit prices for goods that approximate market-clearing prices. Intertemporal barter trades are very difficult to enforce, however, given existing legal systems, so private lending and

A. Model of the economy

1. Household behavior

Assume that in year t , household i receives income from labor of y_{it} and receives interest income of $r_t b_{it}$, where r_t is the real rate of return on the household's bank deposits and bond holdings, b_{it} . The household pays income taxes (which may be negative) of x_{it} . If the household owns a private business, then it also receives net-of-tax income $q_{it}(1-\tau)$, where q_{it} is the income from the business and τ is the tax rate on this income. The production function is $q_{it} = f_i(k_{it}; q_t^c)$, where k_{it} is the household's stock of productive assets and q_t^c captures any externalities generated by the cumulative level of aggregate private business activity due to aggregate learning by doing. To be concrete, let q_t^c equal the sum of the aggregate past output of private businesses, $\sum_i \sum_{s < t} q_{is}$. A household's total income is therefore $y_{it} + r_t b_{it} + q_{it}(1-\tau) - x_{it}$. (Each of these variables is measured in real terms.) The household uses this cash-flow for four uses: (1) real consumption of nondurables, denoted by c_{it} , (2) purchases of goods to be stockpiled, denoted by $h_{i,t+1} - h_{it}(1-d)$ where h_{it} measures the household's stocks at the beginning of period t and d is a depreciation rate, (3) additions to business assets, denoted by $k_{i,t+1} - k_{it}(1-\delta)$ where δ is the depreciation rate for these assets, and (4) new bank deposits, denoted by $b_{i,t+1} - b_{it}$. Here, stockpiles can include not only consumer durables and housing, but also storable commodities, e.g. canisters of gasoline, soap, etc. The household's cash-flow constraint in period t is therefore

$$c_{it} + (h_{i,t+1} - h_{it}(1-d)) + (k_{i,t+1} - k_{it}(1-\delta)) + (b_{i,t+1} - b_{it}(1+r)) = y_{it} - x_{it} + q_{it}(1-\tau). \quad (1)$$

In making decisions, the household acts as if it is maximizing the following utility function:

$$\rho^t U_i(c_{it}, h_{it}), \quad (2)$$

where ρ is a factor discounting future utility. The role of h_{it} needs some further explanation. If h_{it} represents housing or consumer durables, then the utility from h_{it} simply represents the utility provided by use of durables. If h_{it} instead represents commodity stockpiles, then the utility from h_{it} is a reduced form expression capturing the utility gain from these stockpiles, e.g. time savings or possible speculative gains due to price changes, net of any storage costs. Since consumers should allocate saving across durables, housing, and commodity stockpiles so that the marginal utility of each is the same, aggregation is justified.

In making decisions, the household faces the constraints that h_{it} , k_{it} , and b_{it} are all nonnegative.⁷ Thus, I assume that households cannot borrow, even to buy housing or business assets. This captures in an extreme way the difficulties households face in obtaining credit in these countries. To simplify the discussion, I consider only two types of households, one for whom these nonnegativity constraints are entirely nonbinding (the

borrowing cannot easily substitute for a formal capital market, leading to the focus on the lack of an adequate capital market.

⁷ Implicit in these constraints is the assumption, to some degree counterfactual, that individuals with positive asset holdings can alter the size of these holdings in either direction without problem.

"unconstrained" households), and the other for whom the constraints on b_{it} , but not on h_{it} or k_{it} , are always binding (the "credit-constrained" households). "Unconstrained" households voluntarily hold positive amounts of bank deposits, in spite of the low real rate of return. "Constrained" households, in contrast, earn an implicit return on real assets higher than r_t even when all their savings go into real assets — they would choose to borrow at rate r_t if they could. Such households could include not only those who expect their income to be much higher in the future, but also those trying to invest heavily in business activities or in housing. Given the presumption in these economies that the available rate of return, r_t , on financial assets is far below the value of the marginal product of new investment, I will assume that all households with private businesses are credit-constrained. "Credit-constrained" households simply spend all their income, period by period, dividing their expenditures appropriately among c_{it} , $h_{i,t+1}$, and $k_{i,t+1}$.

2. Behavior of state-owned enterprises

The state-owned productive sector uses capital and labor to produce output. To simplify the discussion, I do not treat labor supply explicitly in the model. Therefore, let aggregate output Q_t be a function of the aggregate capital stock, K_t , so that $Q_t = g(K_t)$. Nothing is assumed about the efficiency of this productive process.

The revenue received when output is sold is used to pay workers and to make payments to the government, denoted D_t . These payments to the government can take the form of tax payments, dividend payments, or interest payments to the government-owned banks. The firms' cash-flow constraint is:

$$g(K_t) = \sum_i y_{it} + D_t. \quad (3)$$

The only discretion that firms have is the choice of K_t . Initially, I assume that the behavior of these firms is unchanged by the reforms.

3. Government and banking sectors

For simplicity, the government and the banking sectors are merged in the model. In socialist countries in the past, banks were simply an arm of the government. While decentralization of banking is now beginning to occur in Eastern Europe, banks are still largely government-owned and continue to be influenced by political as well as economic factors in making lending decisions.

The government/banking sectors receive revenue each period from taxes, net bank deposits, and payments by firms. This revenue is used to finance public expenditures, G_t , net exports (repayment on existing debts), N_t , interest payments on bank deposits, and productive investment in the state sector. Revenues must equal expenditures, so that

$$\sum_i (x_{it} + \tau q_{it} + b_{i,t+1} - b_{it}(1+r)) + D_t = G_t + K_{t+1} - K_t(1-\delta) + N_t. \quad (4)$$

Combining the cash-flow constraints of households, firms, and the government, we end up with the resource constraint for the economy as a whole:

$$\sum_i [c_{it} + h_{i,t+1} - h_{it}(1-d) + k_{i,t+1} - k_{it}(1-\delta)] + (K_{t+1} - K_t(1-\delta)) + G_t + N_t = g(K_t) + \sum_i q_{it} \quad (5)$$

Here, the right-hand side is real output from private firms and state-owned enterprises. It is used for consumption, investment in both consumer stockpiles and producer assets, government services, and net exports.

B. Implications of privatization

Under privatization, ownership claims to some of the income stream, D_t , are transferred to households from the government. One mechanism for doing this would be to sell equity shares in state firms. Assume, for example, that rights to an income stream $d_t \leq D_t$, are sold in period 0 for an aggregate value of V .⁸ Each household can buy whatever fraction it chooses of the shares, in return receiving that fraction of the income stream. Another mechanism would simply be to give ownership shares to each household. I examine both cases below.

Whatever mechanism is used to transfer ownership to the household sector, some other action must simultaneously be taken to bring the government's cash-flow back into balance each period. When ownership shares are sold, the government receives an extra amount V in period 0. In addition, whether shares are sold or given away, the government no longer receives d_t in each future period t . Household bank deposits and taxes from private business activity may also change. How the budget is rebalanced plays a key role in determining the overall effects of the privatization process. Several alternatives are considered below.

1. Voucher schemes: Rebalancing through taxes and transfers

What happens if shares are given away, and the government adjusts taxes and transfers to rebalance its budget period by period? Assume initially that households cannot sell the shares they have been given. If households are given shares in firms without charge, then the government must raise taxes, $\sum_i x_{it}$, by d_t in each future period t to replace the immediate loss in revenue from firms. If share holdings are divided equally among households, and if lump-sum taxes are used to replace the lost government revenue, then each household in principle is left totally unaffected by the combined changes — each household receives a proportional fraction of d_t and pays a proportional amount of the compensating lump-sum tax. The two effects just offset and the economy as a whole remains unchanged.

If extra income and extra taxes do not offset for each household, then the net redistribution of income across households may have macroeconomic implications. Aggregate

⁸ Here, d_t is less than D_t in part because the government retains ownership of some shares but also in part because the government continues to collect taxes from these firms.

consumption remains unaffected only under very strong assumptions.⁹ In general, income redistribution will lead households in the aggregate to change the timing of their expenditures. In order to satisfy the economy's resource constraint period by period, as required by equation (5), something else must adjust. What the options are I consider below.

What happens if instead households are allowed to sell their newly acquired shares? Now, problems arising from a changing time pattern of private expenditures become much more important. Consider again the seemingly simple case in which the government gives equal numbers of shares to each household and uses lump-sum taxes to replace the lost income from firms. Previously, each household had no change in its income, period by period. Now, "credit-constrained" households will immediately sell all their shares to "unconstrained" households, and spend the entire proceeds in period 0.¹⁰ The lump-sum taxes on "credit-constrained" households will simply reduce their expenditures at the dates when the taxes are paid, since these tax liabilities presumably cannot be traded on the market.

At what price will these shares sell? Let $V(r^*)$ denote the present discounted value of future dividends on the newly issued shares, discounted at the rate of return r^* , and assume that "credit-constrained" households are given the fraction a of these shares. If $aV(r) < \sum_i b_{i0}$, where r is the interest rate on bank deposits, then "unconstrained" households will simply withdraw funds from their bank accounts to buy the shares from the "credit-constrained" households at the price $V(r)$.¹¹ In the future, they will deposit the income from these shares back in their bank accounts, leaving their real expenditures entirely unchanged — they have simply swapped debt for equity in their portfolios.¹² On net, the change in aggregate expenditures reflects the behavior solely of the "constrained" households.

If $aV(r) > \sum_i b_{i0}$, as is likely to be the case, then the story is more complicated. Now, the implicit interest rate, r^* , has to rise to clear the market for shares. As r^* rises, $V(r^*)$ falls. In addition, "unconstrained" households will reduce their real assets and reduce their current consumption in order to invest more in equity, earning this higher rate of return.

⁹ It remains unchanged, for example, if households do not respond to the price distortions created by deviating from lump-sum taxes/transfers, if the aggregate income of "credit-constrained" households is unchanged, if consumption behavior of "unconstrained" households is homothetic in the present value of income (implying that when a household's present value of income goes up by $x\%$, its consumption in each period also goes up by the same $x\%$), and if these households all have the same utility functions, U_i , so that they have chosen the same time pattern of consumption. Under these assumptions, aggregate household behavior remains unchanged, though consumption is reallocated across households due to the redistribution.

¹⁰ If their sales proceeds are large enough, some of the revenue will be saved and spent in the next few periods. See Maringer(1987) for a formal analysis of such a situation.

¹¹ One complication ignored here is risk. If shares are risky, then households will purchase them only if the expected return is high enough to compensate for the risk. Risk therefore pushes the equilibrium price of shares down relative to that calculated discounting the future expected dividend stream at the real interest rate.

¹² This assumes that "unconstrained" households in fact remain "unconstrained." While households as a group can withdraw funds from the banks, however, they cannot as a group change the timing of their income from shares. To the extent that this reduced flexibility causes these households to become "constrained," then the net acceleration in the timing of consumption would not be as great.

Now, the extra initial expenditures of the "credit-constrained" households, $aV(r^*)$, are financed by the total liquidation of the bank deposits of the "unconstrained" households, plus reductions in the stockpiles and the initial consumption of these households.

Therefore, without any offsetting changes, expenditures of "constrained" households go up by $aV(r^*)$ in the first period while expenditures of "unconstrained" households drop by $aV(r^*) - \sum_i b_{i0}$,¹³ implying a net jump in aggregate private expenditures of $\sum_i b_{i0}$. Unless the bank interest rate rises to equal the implicit interest rate prevailing in each future period, all households will be "constrained" for at least the near future, so that private expenditures will equal aggregate private income, period by period. In aggregate, private income is lower in subsequent periods by $r_t \sum_i b_{it}$, due to the liquidation of bank deposits, but is higher due to any extra income from private businesses.

Analogously, government revenue falls in the first period, due to the withdrawals from banks, and rises in subsequent periods since interest is no longer paid on the funds withdrawn from the banks, and since new private investment in the first period causes future business taxes to rise. What options exist to bring the government's budget back into balance? If the government continues to use taxes/transfers to maintain its budget balance, then taxes must adjust accordingly, rising by $\sum_i b_{i0}$ in the first period, and falling to reflect the savings in interest payments and extra profits taxes in subsequent periods. This change in the timing of tax payments, by reducing initial private expenditures and raising future expenditures, causes the implicit interest rate, r^* , to rise further.

If the originally "constrained" households pay the same fraction a of these surtaxes, then their expenditures jump in the first period by $a \sum_i (V(r^*) - \sum_i b_{i0})$, and the expenditures of "unconstrained" households fall by the same amount. In each future period t , expenditures of initially "constrained" households as a group change by¹⁴ $\sum_i \Delta q_{it} (1 - (1-a)r) + a(r_t \sum_i b_{i0} - d_t)$, which can be of either sign. Aggregate private expenditures certainly rise, however, going up by Δq_{it} .

Economic efficiency improves due to the extra investment in private business assets. Since this investment is done entirely by credit-constrained households, their private rate of return, net of taxes, must be at least r^* . The social rate of return would be yet higher due to the extra tax payments and the externalities generated by this investment. The relaxation of credit-constraints may also lead to extra expenditures on consumption and stockpiles, if the marginal rate of return on stockpiles equals that on business assets. These extra expenditures are financed by liquidation of part of the stockpiles of "unconstrained" households, which drop by enough so that the marginal return falls from r to r^* , and in part by a drop in the initial consumption of these households. The size of commodity stockpiles, in particular, is likely to drop substantially. If the real return r were negative enough, commodity stockpiles would have been an attractive form of savings, even though their real return equaled zero less storage costs. If r^* now becomes positive, then commodity stockpiles would no longer be attractive.

While investment in private businesses should increase, however, investment in newly

¹³ I assume here that $aV(r^*) > \sum_i b_{i0}$.

¹⁴ Here Δq_{it} reflects the effects of any extra investment in business assets, made possible by the extra income "constrained" households received in at least the first period.

privatized businesses may well stagnate. If shares in newly privatized firms sell at a discount relative to the replacement cost of the real assets owned by those shares, as seems likely, then these firms will want to sell off their real assets if they can do so at replacement cost, and will not want to invest further.¹⁵ These firms previously faced a cost of funds of r_t , so they would likely have invested more than is now profitable, when the opportunity cost of funds has risen to r^* . Any increase in the internal efficiency of these firms due to privatization may create profitable investment opportunities, however. But firms that were never socialized are still likely to remain far more efficient.

A second alternative to restore the government's budget balance would be through use of debt finance. In the first period, the government can raise the interest rate paid on bank deposits by enough to induce "unconstrained" households to leave their deposits unchanged, and finance their purchase of $aV(r^*)$ entirely through reductions in their stockpiles and their first-period consumption. This requires an even larger rise in interest rates than would occur when the initial deficit is closed through increased taxes. The larger drop in the initial expenditures of "unconstrained" households, when debt rather than taxes is used to restore budget balance, finances a larger jump in expenditures of "constrained" households — "constrained" households no longer pay taxes to help close the government deficit. The greater shift in resources to "constrained" households should cause a larger jump in business investment, while the greater rise in r^* should cause a larger drop in stockpiles, leading to a larger efficiency gain.

An easier way to restore budget balance, period by period, would be to change the timing of government expenditures, G_t . Changing direct expenditures would have welfare implications not modeled directly. Postponing new investments in education or infrastructure, e.g. transportation and communications, for example, could well limit economic growth.¹⁶ Cutting investment in state firms is another option, and would be attractive if the rate of return on investment in the state sector is below r^* . It may even be attractive otherwise, since increased private expenditures flow in part to extra private business investment, where the social rate of return exceeds r^* .

In theory, the easiest response would be to borrow from foreigners to cover the initial surge in expenditures. If the government, for example, could borrow from abroad at the same interest rate, r_t , to cover any withdrawals from domestic banks, then it can use the money it would otherwise have paid in interest on these bank deposits to repay the extra foreign debt, with no implications for the repayment of existing international debt. In general, any small country should try to take full advantage of gains from trade in the world capital market by borrowing or lending until the internal rate of return equals that prevailing in the world market. Therefore, debt or tax finance of the initial deficit would be appropriate until r^* has risen to the rate prevailing in the world market. Further financing should in principle then come from abroad.¹⁷

Explicit government borrowing is not the only means to raise funding from abroad. If

¹⁵ If old assets were invested in the wrong activities, however, then firms may sell at a discount even though investment in the right activities remains profitable.

¹⁶ See Aschauer(1989) for U.S. evidence on the role of government expenditures in increasing productivity.

¹⁷ Borrowing abroad may be difficult, however, until the status of past debt is resolved.

r^* rises above its value in the world capital market, then foreign investors should find both direct and financial investment in the economy attractive. If foreign investors were able to buy shares without constraints, then shares would be priced based on the rate of return in the world market, and foreigners would purchase most of the shares.¹⁸ Many factors may restrict foreign investment, however. For example, lack of information about local markets can easily lead to poor decisions, reducing the ex ante rate of return below that available to local investors. Also, foreign investors could fear future expropriation, both directly and through future increases in tax rates, depreciation of the currency, and political interference, such as by government support of labor union demands. If foreigners have an easier time screening the credit-worthiness of governments than of individual firms, and have more bargaining power in the event of explicit default on government debt than in the event of implicit expropriation of assets through new taxes or inflation, then government borrowing is preferable to decentralized capital flows.¹⁹

However the government rebalances its budget period by period, there will be sharp changes in the composition of aggregate demand, e.g. increased private business investment financed in part by the liquidation of stockpiles in the first period. In the above model, this does not add any complications, since all goods are perfect substitutes. But in the real world, all goods are not perfect substitutes. If domestic and/or foreign firms cannot costlessly offset shifts in relative demand for different goods, then relative prices may change, thus complicating the discussion. One cause of the downturn in Poland in 1990, for example, may have been the drop in aggregate demand for the goods being stockpiled, as households liquidated their commodity stockpiles and firms their inventories of inputs in response to the reforms. Most firms were unable to export excess supplies of goods that domestic consumers no longer demanded, even given the favorable exchange rate.

2. Sale of shares

Rebalancing through changing the government debt

If instead the government sells shares, it receives some amount V in period 0, then foregoes revenue from firms of d_t in each future period. Assume first that these shares are purchased only by "unconstrained" households. If the government allows these households to borrow as much as they need at the existing interest rates to buy these shares, then the equilibrium simply amounts to a debt-equity swap — the government acquires bonds to replace its equity, and conversely for households. In the process, the price of a share would be set equal to the present value of its dividend payments, discounted at the interest rates r_t . Since the present value of income of these households has not changed in the process, their behavior will not change as long as interest rates remain unchanged. With no change in behavior, the resource constraint continues to be satisfied period by period without further adjustment.

¹⁸ In principle, foreigners could lend funds at this rate of return to domestic investors, enabling them to use the borrowed funds to purchase shares. Given the substantial costs of screening potential borrowers, and seeking restitution in the event of default, this is unlikely to be a relevant alternative.

¹⁹ The need for technology transfers does not necessarily give a preference to decentralized capital flows, since transfers of technology need not be tied to private capital transfers.

What if "credit-constrained" households can also borrow to purchase shares? If interest payments on the debt are relatively larger during the near future, and dividend receipts on the new shares are relatively larger in the distant future, as would normally be the case, then these households are made worse off by borrowing to buy and keep these shares so would not do so. However, if they can sell their shares after having borrowed to buy them, without in the process being forced to repay the debt, then they are clearly better off. They would spend the sales proceeds immediately, then reduce their expenditures in future periods in order to finance interest payments.²⁰ In effect, this process allows them to borrow money, which previously was not possible. Since they gain strictly from borrowing to buy shares when shares are priced at $V(r_t)$, whereas "unconstrained" households are merely indifferent to borrowing to buy shares at this price, all shares should be purchased initially by "credit-constrained" households, then resold on the secondary market to "unconstrained" households.²¹

At what price would these shares sell on the secondary market? The determination of the implicit discount rate, r^* , at which the securities market clears would follow the same logic as before. Now, however, the "unconstrained" households are buying all the shares, and not just the fraction α , so that the market-clearing value of r^* must be higher than in the previous case. Since "credit-constrained" households are willing to accept some capital loss on these shares in order to obtain the bank loan, the market-clearing price they pay the government to buy shares would be bid above the subsequent price $V(r^*)$.

As previously, the net changes in the timing of desired private expenditures requires some offsetting response in government expenditures to maintain budget balance period by period. The same options exist here as previously. In each case, the increased expenditures in the first period by "constrained" households should be greater than before, r^* should rise by more, and stockpiles fall by more. As a result, efficiency gains should be larger on net.

Rebalancing through adjustment of government expenditures

Another possible response when the government sells shares is to use the resulting revenue in the first period to spend more on public services, e.g. telephones, transportation, education, etc., then absorb revenue losses in future periods by offsetting reductions in such expenditures. Certainly, such investments are badly needed in many of these countries. What are the consequences of this policy combination?

If those who buy shares are not allowed to borrow from the government to help finance their purchases, then "constrained" households will not buy any shares and their expenditures remain unchanged. All shares will be purchased by the "unconstrained" households, financed by their bank deposits, commodity stockpiles, and foregone consumption, resulting in the same effects on the implicit interest rate, r^* as in the previous case when they bought all these shares from "unconstrained" households. Government

²⁰ The government would then be faced with the problem of enforcing repayment of interest from individuals with no liquid assets.

²¹ Even if households are not allowed to resell shares for a given period of time, as is sometimes proposed, shares would still likely be purchased by "credit-constrained" households, since being able to increase expenditures at the date when resale is allowed is still a gain.

revenue/expenditures therefore go up in the first period, and private expenditures fall, by $V(r^*) - \sum_i b_{i0}$. In later periods, "unconstrained" households now receive d_t , rather than the government, but are no longer paid $r_t \sum_i b_{it}$ by the government, resulting in changes in private expenditures, and compensating changes in government expenditures. While stockpiles fall in this case, the resources freed in the process increase government expenditures rather than expenditures by "constrained" households. Private business activity in particular will not increase in the process, making this option less attractive.

Similarly, the initial government revenue V can be used to increase investment in the state sector. Given the cheap financing available to state firms in the past, resulting in investment in very capital-intensive technologies and projects of questionable merit, and given the relatively unchanged incentives faced by these firms, the expected rate of return on new investment in this sector is likely to be very low. Yet the political pressure to bail out floundering firms may be intense.

Rebalancing through adjusting loans to private firms

What if the government lends the funds it receives from the sale of state firms to private investors? If all "constrained" households had private businesses, then the outcome should be the same that occurs when the government simply lends individuals money to buy shares. By the Modigliani-Miller Theorem, it should not matter whether the household or the firm owned by that household is allowed to borrow. If only some "constrained" households have private businesses, however, then this approach concentrates the loans in those households who are likely to use the funds for new business investment. This approach therefore should lead to more new business investment than the other approaches — while the increased expenditures by "constrained" households remains the same, more of it should be allocated to business investment.

2. Effects of privatization on firm behavior

What effect will privatization have on firm behavior? The main objective when privatizing firms is to increase their productivity. To what degree will this occur? Of course, some firms may have undue monopoly power, so that increased productivity from the firm's perspective may not be an increase from a social perspective. But in such cases, either open borders should force them to compete with foreign producers, or else the government can explicitly break monopolies into smaller competing firms.²²

But can we be so confident that the objective of a newly privatized firm is to act efficiently, i.e. to maximize firm value? To begin with, what are the objectives of the owners? What efforts are they likely to expend to induce the firm to pursue those objectives? Will they have the ability to impose these objectives on the firm?

Who are the new owners? This will depend on the mechanism used for privatization. Consider the simplest case, in which shares are distributed proportionately to each individual and trading of shares is not allowed — here, the privatized shares in each firm are

²² Tirole(1991) recommends doing this before a firm is privatized, given the difficulties Western countries have faced in breaking up private monopolies.

owned proportionately by each citizen.²³ Will they want the firm to maximize its share value, so want the firm to invest as long as the present value of the resulting after-tax profits, discounted at the interest rate r , exceeds the cost of the investment? To begin with, "constrained" households would demand a higher rate of return on any new investment, given the higher implicit rate of return they face. In addition, shareholders benefit from the expenditures financed by taxes the firm pays to the government, suffer from the pollution emitted by the firm, have to pay the price the firm charges for its products, etc. They may even care about equitable patterns of pay to the firm's workers, and about the retention of existing workers — establishing such norms may benefit shareholders qua employees. Normally, it is assumed that these supplementary concerns are dominated by the shareholder's concern with share values. But with equal distribution of shares to all citizens, each citizen owns very few shares, so that these supplementary concerns may be relatively important.²⁴

To what degree can these new shareholders control the behavior of the firms they now own? Given that the government may still be an important, if not a majority, shareholder in these firms, the amount of control ceded to outside shareholders is a policy decision quite separate from that of privatizing share ownership. The government, if it chooses, can simply maintain control as it has in the past, in which case there is no reason to expect any change in firm behavior, in spite of the privatization. If the government does in fact cede control rights to these outside shareholders, e.g. through agreeing not to participate in normal corporate decisions, what mechanisms can these new shareholders use to exercise control? In Western economies, small shareholders can participate in controlling a firm primarily through votes on proxy resolutions or for members of the Boards of Directors. These ballot initiatives, however, and the proposed names for members of the Boards, are likely to come from the firms rather than from other shareholders, since any one shareholder has too little at stake to take the effort to bring an issue before the rest of the shareholders. In addition, shareholders would have little incentive individually to become informed about the issues, or even to take the effort to vote, making their role quite passive. Therefore, in this setting, the firm is likely to have substantial discretion in setting its own policies. Since this lack of outside oversight is likely to be temporary,²⁵ a firm's manager and unions have the incentive to take anything they can in higher wages and benefits immediately — they are likely to anticipate gaining little if anything from the future profits earned on new investments. As a result, privatization may even worsen the allocation of resources.

What if the shareholders do take the initiative to elect a Board of Directors which promises to push firms to maximize share values? Will this be sufficient to produce efficient

²³ Not all shares in any given firm may be privatized, with remaining shares still held by the government.

²⁴ If shares in each firm are distributed to very few people, but with each person receiving the same value of shares in total, then each shareholder's income would be much more dependent on the return from any given firm he owns shares in, making the rate of return earned much more important relative to these supplementary concerns. Some of these concerns may still remain important, however. See Gordon(1990) for further discussion.

²⁵ Not only may the government later sell a controlling interest in the firm to some firm or individual, but also trade in shares, once it occurs, could well lead to some firm or individual acquiring enough shares to exercise effective control.

behavior? The first problem is that the Board members, individually, may have very mixed incentives. Their official pay is unlikely to depend much on their success in raising the firm's share values, and their chance of reelection to the Board is unlikely to depend much on their actual behavior, given the inability of shareholders to monitor their personal performance. A manager should therefore find it easy to induce members of the Board to support his preferred policies.²⁶ Second, even if the Board is not "captured" by the manager, it still may not succeed in changing the behavior of the firm. Direct day-to-day oversight of all major decisions of the firm is likely to be very difficult, not only because of the time involved but also because of the Board's limited access to reliable information about the choices available to the firm — the manager can normally control the information available to the Board. The standard response to this type of principal-agent problem is to design the compensation of the manager so that it is in the manager's personal interests to maximize share values, with or without day-to-day supervision. This is generally done by paying managers in large part through stock options. For this to be effective, however, stock values must be set anonymously and be set based on reliable information about the firm's current position and future prospects. In the U.S., firms normally rely on the securities market to determine the value of the firm's shares. Given the lack of adequate publicly available accounting statements from firms in these countries, and given the lack of experience in these countries in assessing the implications for the value of a firm of whatever information is available, the market price of shares is unlikely to provide very effective guidance to a manager, at least for some number of years. In addition, securities markets are likely to be very thin, making it easy for a firm's manager to manipulate share prices. Some privatization proposals do not even allow trading, in which case no observable market prices exist.

While daily pricing of a firm's shares provide quick outside feedback to a firm's manager concerning the implications of his decisions for his compensation, what is essential is that his shares be valued objectively and accurately when they are finally sold. In many cases, securities markets may well have developed enough by the time a manager sells his shares that the price set by these markets seems adequate. Alternatively, the price could be set by an outside accounting firm when he sells his shares.²⁷

At least in the immediate future, however, any valuation of firms will be difficult — even accounting firms cannot reliably set a value for a firm. If basing the manager's pay on share values is not an effective control mechanism during this period, what other approaches can be used to induce a manager to act efficiently? Basing pay on current profits, for example, discourages decisions which lower profits now and raise them after the manager has left the firm.²⁸ Thus, many positive net-present-value investment projects may not be undertaken.

²⁶ In Western firms, members of the Board are commonly major shareholders in the firm, giving them strong incentives to maximize share values.

²⁷ The task of pricing a firm's shares would be much easier, however, if market prices exist for similar firms, so that the accounting firm is not required to estimate the rate of return required on the firm's shares by investors. Allowing market trade in the shares of some firms may therefore be important, even if it is not essential to allow trade in the shares of all firms.

²⁸ Even when the manager's pay is primarily based on current profits, incentives can be improved by adding a bonus/penalty at the end of the manager's job tenure based on the value of the firm at that date.

In principle, the Board of Directors can invest more time and resources in order to monitor firms more effectively. For the Board members to have the incentive to invest this time and effort, however, requires that they have a large personal stake in the firm's performance. While some of the above schemes will lead to more concentrated ownership than others, none of them are likely to create a group of individuals with such large ownership shares in any given firm. Few individuals in these societies have enough wealth to buy a large share in any but the smallest of firms. While the government can lend an individual money to buy a large block of shares, these individuals would be so highly leveraged that many would end up defaulting. Alternatively, sale of a controlling interest could occur at a very cheap price. This price is likely to be below the price at which these shares can be resold on the secondary market, creating windfall profits and opportunities for corruption of the government officials in charge of the sales.

If individual shareholders cannot effectively control the firms they own through the Board of Directors, then they may well turn to the government to do so. The government may be at least as accountable as the Board, and may have more powers of enforcement. Is the government any more likely to push for efficient behavior now than it did before, however?

Establishing effective private control may therefore be essential to avoid this pressure on the government to monitor firm behavior. One alternative approach, proposed by Sachs-Lipton(1990) and adopted in Poland, is to give a controlling interest in each firm to some financial intermediary, be it a bank, a pension fund, a mutual fund, or simply a new government agency whose job is to maximize firm values. The idea is that each firm would be owned heavily by some particular financial intermediary, which as a result would have the incentive to put in the effort to supervise it closely.

Some forms of financial intermediaries may serve this function more effectively than others. For example, pension funds ought to maintain diversified portfolios, in order to reduce the risks faced by pension recipients. Since each fund is likely to be small relative to the economy as a whole and would invest a relatively small fraction of its assets in any one firm, it would have little incentive to invest the time and resources to supervise firms whose shares it owns.

Mutual funds, at least in the U.S., also serve primarily to facilitate the diversification of the portfolios of relatively small savers. Perhaps as a result, such funds in the West do not seem to play an active role in supervising firms. "Exit" is much easier than "voice" — forecasting which shares will do well in the future seems to be a more profitable use of time and resources than actively attempting to improve the performance of any given firm. In principle, "voice" would become more attractive if each fund were forced to concentrate its investments in relatively few firms,²⁹ and owned a large enough fraction of the shares in each of these firms to make investment in supervision worthwhile. For "voice" to be effective in improving efficiency, the manager of the fund would need to be compensated based on his success in improving the performance of the firms under his control. In principle, this could be done by compensating the manager based on the market price of shares in the mutual fund as a whole, assuming that these are set anonymously by the

²⁹ Individual investors would then need to invest in several funds in order to achieve adequate diversification.

market. But would these share prices reflect well the actual value of the firms owned by each mutual fund? Perhaps it would be easier for these new securities markets to evaluate a few mutual funds than many individual firms, but prices may still be very noisy for a few years. In addition, if mutual funds are to exercise effective control over firms, they must be able to obtain credible information about the options available to these firms, and have the power to influence the choices made by the firms' managers. As discussed above, both may be difficult, weakening the quality of oversight.

The situation of banks would differ in several ways from that of mutual funds. Banks not only may own some of the firm's equity but may also have lent money to the firms. These loans cannot easily be sold to other financial intermediaries,³⁰ forcing banks to rely on "voice" rather than "exit." The bank's ability to control a firm goes beyond any influence it has on the Board of Directors, since it can also control access of the firm to further loans.³¹ The bank also acquires information about the firm when deciding on loans, implying that less additional effort is needed to acquire the information needed to supervise the firm effectively — supervision is relatively cheaper. All of these factors give banks an advantage over mutual funds in supervising the firm. What are the bank's objectives, however? If the bank owns relatively little stock in a firm, compared with the value of funds it has lent to the firm, then its financial interests are primarily in preventing default on the existing debt, rather than in maximizing the value of the firm as a whole. It may therefore push the firm to avoid risk, even when the total payoff to equity and debt together should be large enough to justify the risks.³² These anomalous incentives are lessened to the degree to which the bank owns comparable fractions of both the firm's equity and the firm's debt. In countries where bank supervision is important, banks do normally have large equity holdings.

There remains the problem of designing the compensation scheme of the bank's manager to give him the incentive to supervise firms properly. If his pay is based on current profits of the bank, for example, then he has the incentive to prevent firms who have previously borrowed from the bank from going into default, to avoid deductions for bad loans. This can be done, at least for a period, simply by extending further credit to weak firms, resulting in a misallocation of credit. In principle, basing his pay on the market value of shares of the bank would produce appropriate incentives. But can the securities market value shares of banks any better than it can value the shares of mutual funds, or of individual firms? Unless the incentives on bank managers are reasonably well designed, there may be little efficiency gain from making bank representatives active members of the Boards of Directors of individual firms.

If there are relatively few financial intermediaries controlling firms, then further questions arise concerning the objectives of these financial intermediaries. If an intermediary, for example, owns shares in all the firms in a given industry, e.g. an agricultural bank, then

³⁰ Since the initial lender is likely to want to sell only the weakest loans to other institutions, these institutions would be reluctant to buy them.

³¹ While in principle, a firm can seek additional loans elsewhere, outside lenders should justly fear that only the worst risks would need to seek outside finance.

³² Mutual funds, in contrast, would normally own only equity in the firm, and as a result may prefer excessive risk since they are not affected when the firm fails to repay lenders.

the intermediary has an incentive to induce firms in the industry to collude in charging monopoly prices, in order to maximize the profits earned on the shares the bank owns. Efficiency argues then that firms within an industry be split among several financial intermediaries. Similarly, a regional bank will be affected by a firm's performance not just through the profits earned on the firm's shares, and the interest paid on loans to the firm, but also through the effects the firm has on the prosperity of the region more broadly. Firm-generated unemployment, for example, may contribute to a regional recession, lowering the value of shares in other firms the bank owns. Similarly, there may be synergy gains among firms in a region, who hire workers trained by other firms in the region, who learn from each other's behavior, etc. Value-maximizing firms would ignore these spillovers, but a bank which owns shares in all these firms would push firms to take into account these externalities. Relying on regional banks to control firms in that region may therefore be attractive.

Not all shares in privatized firms will go to the general public, or to financial intermediaries. Some will likely be sold to workers, perhaps at a discount. The initial proposals in Poland, for example, involve allowing each firm's workers to buy up to twenty percent of the firm's shares at half price. This is a large enough block of shares to give workers substantial influence over a firm's decisions. Yet, workers interests will often conflict with efficiency. Wage differentials among workers for example are commonly opposed, distorting the allocation of labor.³³ Also, workers gain at the expense of outside shareholders by raising wages and reducing dividends. Fear of having their investments expropriated in this way may discourage outside investors from buying shares in a labor-managed firm, making it more difficult for such a firm to finance investments through equity issues.

Prior to privatization, workers are likely to have had an even stronger influence on a firm's decision-making, so that privatization in itself lessens these inefficiencies.³⁴ It just may not eliminate them. These inefficiencies arising from worker management can be exacerbated by the anticipation of the firm's future privatization. If workers anticipate losing control over decisions, or even of being laid off after privatization, then they have an incentive to take anything they can in higher wages and benefits immediately — they are likely to anticipate gaining little if anything from the future profits earned on new investments. When workers will have the right to buy some of the firm's shares at a discount, they may even have the incentive to reduce the current profits of the firm.³⁵ By reducing current profits, they may reduce their current wages and benefits. However, they also reduce the price assigned to shares when privatization occurs, and the gain from the cheaper price can easily outweigh the loss from lower current profits.³⁶ Firm investment

³³ Even in unionized firms in the U.S., pay differentials are much less than in nonunion firms.

³⁴ Also after privatization, workers own shares in the firm, so should care about all future profits of the firm, and not just profits earned while they are employed by the firm.

³⁵ This particular perverse incentive disappears if a certain fraction of shares are given to workers, rather than sold to them at a discount.

³⁶ The price for shares is presumably set in large part by projecting the past profits of the firm into the future. If current profits, Y , are expected to grow in real terms at rate g , and the tax rate is t , then the present discounted value of future after-tax profits is $Y(1-t)/(r-g)$. If workers expect to buy twenty percent of the shares at half price, then they expect to pay $.1Y(1-t)/(r-g)$. Increasing current profits

and firm efficiency should therefore fall prior to privatization, and jump afterwards.

Given this drop in efficiency prior to privatization, the privatization process should occur quickly to prevent managers and workers from stripping the firms. This pressure will make the sale of state-owned firms less attractive, since sales take time to organize, and their speed is limited by the lack of financial assets of potential stockholders.³⁷

3. Further implications and conclusions

If, in spite of all the above problems, the privatization process in socialist countries does succeed in redesigning the incentives of privatized firms so that they maximize share values, will the outcome be efficient? There are many remaining reasons for concern.

As firms restructure in response to new incentives, the presumption is that there will be massive layoffs and many firm bankruptcies — resources were allocated very badly in the past. Yet in most Western economies layoff and bankruptcy decisions are distorted in a variety of ways. For example, the cost-saving to a firm of laying off a worker is the wage. Yet the worker is unlikely to find another job very quickly, in part perhaps because the lack of a housing market in these countries makes migration very difficult. A worker would therefore likely prefer to keep his job even while receiving a lower wage. Also, one more unemployed worker makes it that much more difficult for those already unemployed to find work, imposing negative externalities on them. Unemployed workers also impose negative externalities on the rest of society, who must pay for the resulting unemployment benefits. As a result, the social opportunity cost of continuing the worker's employment is less than the wage — too many layoffs occur from a social perspective. While this may be true to some degree in all countries, the gap between the wage and the social opportunity cost of continued employment is likely to be particularly large during the transition period in Eastern Europe.³⁸

Bankruptcy incentives are also normally distorted. On efficiency grounds, a firm should shut down if its resources can be better used elsewhere, or better left unused. But a firm in fact goes bankrupt if its debts exceed its assets. Poor allocation decisions in the past may have saddled a firm with debts, making its continuation difficult even if its current investments are profitable. Conversely, a firm's past debts may have been wiped out by inflation, allowing the firm to borrow substantially without risk of default, even if its current investments are of little value. In general, a firm's balance sheet or income statements provide little guidance concerning the rate of return on new investments in the firm.³⁹

by y therefore costs workers $.1y(1-t)/(r-g)$, and gains them currently at most $y(1-t)(1-d)$ where d is the fraction of after-tax profits that must be paid to the government as a dividend. Workers then gain by reducing current profits as long as $(1-d) < .1/(r-g)$. When workers' wages are frozen, as in Poland, there is no gain from extra current profits, so on net workers would clearly want to lower current profits.

³⁷ See Sachs-Lipton for further discussion of problems with selling state-owned firms.

³⁸ One way to lessen the distortion to incentives is to charge the firm for unemployment benefits paid to its former workers.

³⁹ There are many sources of bias in existing accounting figures, in part due to the idiosyncratic nature of past accounting practices, and in part due to the nonmarket pricing of goods in the past and the lack of correction for the effects of past inflation. For example, the book value of existing capital and inventory stocks would be wiped out by a rapid inflation, as has occurred in several of these countries, eliminating depreciation deductions and expenses for materials for a period following the inflation.

Yet banks normally allocate loans based on the likelihood of repayment, so that they rely heavily on these income and balance sheet figures. If firms had reasonable incentives, this would not be much of an issue since firms would not choose to invest in projects earning a rate of return below the market interest rate, and this rate should reflect the opportunity cost of the funds. But existing state firms, and even newly privatized firms, are likely to have quite distorted objectives.⁴⁰ If banks judged the merit of loan applications based on an appraisal of the proposed project, rather than based on the financial viability of the firm as a whole, then the allocation of loans would improve.

In the discussion above, I assumed that banks would not lend to private firms. Casual evidence generally supports this assumption. Why have banks been reluctant to lend to private firms? Part of the reason is the close connection that banks have developed over the years with state-owned firms, making it easy for them to concentrate their new lending in these firms. Private entrepreneurs cannot normally provide any collateral when they borrow, nor can they easily demonstrate through past business activities that their chance of success is high. Banks may even fear that the borrower will simply take the funds and disappear. The government can lessen these fears by tightening enforcement of loan contracts, so that the bank is more likely to be repaid. Doing so may also make personal loans less risky, making it easier for entrepreneurs to borrow.

Even if loans were allocated based solely on the rate of return earned on the project financed by the loan, there may still be further concerns. I argued above that private investment is likely to generate substantial externalities, at least during the first few years of the transition period, thus justifying subsidies to private investment. One way to provide such subsidies would be through reduced interest rates on bank loans. This does not mean rationing cheap credit, as in the past, but expanding the amount of credit available to finance private businesses, even though doing so drives the rate charged on these loans below that charged to state-owned firms.

If credit were made readily available to private businesses, then credit constraints would no longer be such a key issue when forecasting the behavior of these economies. Under existing lending policies, however, credit is provided as in the past primarily to existing state-owned firms, even though the social rate of return to investments in the private sector is likely to be much higher. Therefore, one important side benefit of the privatization process is to provide an indirect means of financing private entrepreneurs. However, potential entrepreneurs gain funds for investment purposes through the privatization process only if newly distributed shares can be sold. Allowing secondary trading in shares therefore must be a key element of any privatization scheme.

Secondary trading in shares has the further advantage that it allows capital markets to start to develop the sophistication needed to price shares in firms. Having share prices set objectively is important when designing incentives for firm managers, for members of firms' Boards of Directors, or for managers of financial intermediaries who oversee the firm. Of course, incentives for these officials could be based on an accounting valuation of the firm's assets. The job of an accountant becomes much easier, however, when shares in comparable firms are priced in the capital market.

⁴⁰ As discussed in White(1989), firms near bankruptcy have distorted incentives, even if their underlying objective is to maximize share value.

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