

Lecture Note on Privatization

Spring 2000

1. Privatization

Privatization is a key aspect of economic reform. Privatization is not the end-all of reform. Restructuring is also critical. There are also institutional changes that are needed. As we shall see restructuring is dependent on good corporate governance, and the *method* of privatization determines this.

There are several goals that privatization should satisfy. First, it ought to enhance efficiency. Second, it ought to be fair in terms of distribution. Third, it ought to be implemented in a manner that will enhance other aspects of reform. These are not always consistent aims.

There are also subsidiary goals that are often at odds with these primary goals. Privatization should be done rapidly, so that reform can be hastened. This may conflict with the goal of obtaining proper corporate governance. There is also the goal of obtaining sufficient revenue from sale.

1.1. Equity versus Efficiency

The conundrum is evident if we compare *nomenklatura* privatization with pure giveaway (*PG*).

- *Nomenklatura* privatization involves selling (or giving) the enterprises to the officials who ran them in the previous regime. This scheme makes existing managers owners of the enterprise. It is inequitable in that the inherited wealth of the society is distributed very unevenly. It does, however, result in "real owners;" the dispersion of ownership in each firm is minimal. Agency problems are minimized. A market for corporate control can still exist, however, as managers could share in their companies.
- Pure giveaway would be the distribution of shares to each citizen: each citizen would get $\frac{1}{n}$ shares in each enterprise, where n is the number of citizens.

This scheme achieves complete equity in distribution of wealth. It is clear that PG ranks high on the equity scale. But PG ranks very low in terms of producing real owners. Ownership is very dispersed. This could lead to free rider problems: each citizen owns a tiny fraction of each enterprise ($\frac{1}{145}$ million in Russia, $\frac{1}{38}$ million in Poland). With such a small stake in the enterprise it would not be worth any effort to try and improve performance. If $\Delta\pi$ is the change in enterprise profits given improved managerial effort, the return to any individual shareholder is $\frac{1}{145}\Delta\pi$, which is less than tiny.

1.1.1. Why does this matter: The Coase Theorem

The *Coase theorem* states that the distribution of ownership rights is irrelevant to economic efficiency. What matters are that property rights be well-defined. But it does not matter who owns the firm.

Consider a hypothetical example. Oil is discovered under my backyard by a geologist for an oil company. The value of the oil exceeds the cost of taking it out, including the cost to me of losing my backyard to an oil derrick, which is minimal. Suppose that the law provides that I own the rights to any deposits under my backyard. Then the oil company will have to pay me royalties for the oil: we will split the surplus somehow, but I will get a good share because I can refuse to let them pump. Alternatively, suppose that the law gives the rights to the oil to the discoverer of the asset: I am only entitled to a small payment to compensate me for the loss of view, which is far less than the value of the oil. In both cases the oil will come out of the ground – the efficient outcome – the only difference is how the wealth is distributed between me and the oil company. This is the essence of the Coase theorem.

What is implicit in this example is the importance of *specified* property rights and *enforced* contracts. To see this, alter the example. Suppose that I farm the backyard, and that this produced \$10,000. If I lease the land to the oil company the revenues will be \$15,000. If I have complete ownership of the land I would clearly lease: that is the efficient outcome. But suppose I farm under a contract that specifies that any lease revenue must be split 50 – 50 with my neighbor.¹ Then I would be better off farming, even though this is inefficient.

Now this argument is not quite correct. Given that farming results in a \$5,000 overall loss to both of us, I ought to be able to write a contract with my neighbor giving me the right to lease for greater than 50% of the revenues; say, for example we write a contract which pays my neighbor \$3,000 for the rights to lease. We are both better off. So the Coase theorem seems restored.

Restoration, however, is dependent on the capacity to *enforce* the contract.

¹We ignore why this would be so in the first place.

What if there are no courts that enforce the contract? Then the neighbor may take my \$3,000 but still demand 1/2 of the lease revenue after the fact (holdup). If this is a possibility I will not sign the contract, and no oil will be produced.

Alternatively, suppose that I am entitled to 100% of the lease revenue, but the neighbor controls access to the backyard. I have full *cash rights* but my neighbor has *control rights*. In this case the neighbor may demand 50% of the lease revenue, and once again we get inefficiency. A contract would help, once again, but only if it could be enforced.

Now further suppose that there are 1000 neighbors who collectively control access. Now I would have to bargain with 1000 potential agents who can each hold up the contract. The cost of gaining an agreement may exceed the efficiency gain, so I may just end up farming.

This suggests that for the Coase theorem to be applicable it is necessary that:

- property rights be fully specified,
- contracts be enforceable.²

It is also important that transaction costs not be so high that efficient bargains are prevented. If these conditions are not satisfied ownership may matter a great deal.

An important implication of this result is that it makes a difference whether incumbent managers are allowed to control the enterprise without ownership versus managers are given ownership. And it certainly matters whether we have *PG* or not. Thus, privatization does imply a tradeoff between efficiency and equity. Transition economies have chosen different points on this continuum.

2. The Need For Rapid Privatization

There are several reasons why privatization should be undertaken rapidly. One is political – it may be an effective way to attenuate state power. Rapid privatization may be the best way to consolidate the political victory. The focus of this paper, however, is on the economics of privatization. In this regard, there are several. One is budgetary. Selling off state assets is a way to raise revenue. It is not a great reason to privatize, however. Privatization is a sale of assets and assets sales ought not to be used to finance government expenditure. The stock of assets is not, after all, infinite. Using asset sales to finance regular categories of expenditure is a poor way to conduct fiscal policy.

²It is also important that contracts can specify the relevant contingencies, but many are unforeseen.

2.0.2. Revenue Considerations

The focus on asset value conflicts with the privatization revenue equivalence theorem (PRET).

Theorem 2.1. *Suppose that all potential managers are of identical quality, capital markets are perfect, and that taxes are lump sum. Then any revenue that can be obtained from selling enterprises to the public can also be achieved via taxation of assets that are given away.*

Proof. *Let the present discounted value of profits of a privatized enterprise be $\Gamma \equiv \sum_{t=0}^{\infty} \frac{\pi_t}{(1+r)^t}$. Then Γ must be the upper bound on the revenue from selling the enterprise. Denote this amount as $R_0 \leq \Gamma$. Suppose the firm is given away. By assumption it is worth Γ , and as capital markets are perfect, the owners can borrow up to Γ . Let $T_0 \equiv \sum_{t=0}^{\infty} \frac{\tau\pi_t}{(1+r)^t}$ be present value of future taxes, where τ is the tax rate on profits.³ Then clearly the government can levy taxes, $T_0 \leq \Gamma$. Hence, the government can obtain via taxation any revenue it can obtain from sale.*

Remark 1. *Notice that the assumption of lump sum taxes is not really necessary. If taxes are not lump sum there may be incentive effects from higher taxation rates. In practice, however, there will be distortionary taxes under both regimes. The question is whether employing the higher taxes in the give-away regime reduces the value by a large enough amount to make revenue equal.*

Remark 2. *Why do we need to assume identical managers? The issue here is a bias in selection between sale and giveaway. If the latter yields poorer managers then income and hence, tax revenue, will be lower. Sale could get better owners. But notice that this contradicts the Coase theorem.*

The assumption of perfect capital markets is more important. Without this assumption it is harder to implement the tax scheme. The government may have to delay taxes until restructuring takes place. This is fine if the government can borrow, but most transition economies are fiscally constrained. So it may be harder to obtain revenue from taxation. But this works both ways. Without perfect capital markets it may be harder to achieve revenue from sales, because potential purchasers may be liquidity constrained. With give-away revenue is taxed as produced so it is *easier* to obtain than when assets are sold.⁴

To obtain more revenue the government must commit to low taxes. But this may be time inconsistent. This is the durable goods monopoly story applied to

³This formulation is somewhat different from lump-sum taxation.

⁴Foreign participation can get around the lack of liquidity, but it has its own political problems.

privatization. Agents know that once assets are sold the government will renege on the commitment to low tax rates. Hence, the sale price will be low. This argues for give-away.

Remark 3. *The fundamental problem with the theorem is tax evasion. How do we know that the new owners will do things that make it harder to tax privatized enterprises? This we know to be a severe problem in transition economies, especially Russia. Governments have more control over the revenue streams when they own the assets.*

Rapid privatization is not without problems, however. If a simultaneous sale of all enterprises is undertaken, a fire sale, then the price of assets will fall. The problem is the insufficiency of domestic savings to purchase the capital stock at the onset of transition.⁵ The problem is the inability to borrow against future income. If you sell enterprises off gradually then the supply is lower so the price is maintained. But the custodian problem (i.e., the potential for asset dissipation by the transition structure) suggests that the value of the assets will erode anyway. Of course, there is a serious question of why one should worry about the proceeds from the sale at all. From an economic standpoint it is really irrelevant. What matters is that the assets get in the hands of those who can use them most effectively. Valuation becomes important for political reasons ("selling off our heritage" etc.). And it introduces interesting moral hazard problems in that the current negotiators for the sellers do not receive the proceeds, hence there is no pressure to get a good price.

2.0.3. Efficiency Considerations

A second reason to privatize is to increase efficiency. This will depend on the ability to create the conditions that promote efficiency, especially competition. But it is a mistake to over-emphasize the importance of competition. Some argue that private and public monopolies act the same. This may be true in market economies, but it is not true in transition economies. The reason is *cost minimization*. State-owned enterprises do not minimize costs. Private monopolies do.⁶ Privatization can thus generate efficiency gains from cost minimization. The welfare loss of monopoly is present, but that may be small compared to the gain from cost minimization.

⁵Sales to foreigners does not suffer from this problem, but this is often politically unpopular.

⁶Against this we have the maxim that the "best of all monopoly profits is a quiet life[4]: 139."

It is also critical to get the privatized firms in the hands of agents who worry about the bottom line.⁷ This suggests that it is important that there be a market for corporate control, so that managers that perform poorly can be replaced. This is the *corporate governance* problem, and it is clearly crucial for restructuring. A privatized firm in which management is entrenched will have no incentive to increase profits. There needs to be a mechanism that allows owners (i.e., shareholders) to throw out ineffective management. Notice that there are two aspects to this. First, there is the issue of *how* to privatize so that corporate governance is appropriate. Second, there is the issue of *implementing* rules that allow for a market for corporate control. These two issues are, of course, intertwined.

Why does it matter how shares are distributed? Imagine two scenarios. First we issue $\frac{1}{n}$ shares of each enterprise to each individual, where n is the population. Second, we make the incumbent manager the 100% owner of the enterprise. The former is completely dispersed ownership, and the latter is owner-management. The former is high on equity, but the dispersed ownership prevents action due to the free rider problem. The latter distribution leads to full incentives, but it is inequitable.

2.0.4. Source of Inefficiency under Planning

Why are state-owned firms inefficient? There are three views.

- *Government is the problem* This is the Boycko-Shleifer-Vishny view, which motivated the Russian privatization scheme, is that the state is the problem. The primary source of inefficiency is that the state forces the enterprise to do things that it would prefer not to do, such as employ too many workers. If freed of state control the enterprises will move to more efficient use of resources. This argues for rapid privatization and corporatization (see below).
- *Agency is the problem* The second view focuses on the *agency* problem. Directors do not have incentives to act efficiently. If they are given more discretion they will use this to enhance their own positions, but not necessarily to use resources more efficiently. Under this view Soviet planning fell into difficulties because of the inability of the center to write an efficient contract with enterprise directors.⁸ This view puts more weight on questions of corporate governance; getting the "right" owners.

⁷Again notice here that we worry about this issue despite the Coase theorem. In this case transaction costs clearly make it difficult for dispersed managers to implement control.

⁸Of course one reason for this was that prices were irrational so that even an "efficient" contract would result in inefficient output use.

- *Dynamic efficiency* is the problem. On this view the major problem is not that enterprises use resources inefficiently, so much as they are unable to induce technical change and economic growth. They are static not dynamic. This leads to the evolutionary view that new enterprises are the key.

A third reason to privatize is the desire to make institutional choice endogenous. In socialist economies the institutional structure is determined from above by the political leadership. Such economies have large enterprises because the political leaders desire it. In market economies institutional structure is determined from below, it is endogenous. Agents adapt organizations to minimize production costs, and the transaction costs associated with various forms of economic organization (Ickes 1990).

There is also the macroeconomic issue that without private owners there is no principal who can exert pressure to hold down wage increases. With the state still nominally owning the firms macroeconomic stability may be jeopardized by the pressure for higher wages.

The most compelling reason for rapid privatization is simply scale. In Poland, for example, the largest 500 enterprises employ about 40% of the workforce and produce about 68% of net income (Lipton and Sachs 1990: 302). If privatization is undertaken via initial public offerings (IPO's) at the pace pursued in Great Britain in the 80's – about five companies a year – the process would take a hundred years. This would mean that the bulk of the industrial sector would remain in state control for quite a long period. If such a pace were followed these economies would remain socialist for decades to come. Hence it is imperative that a more rapid method of privatization is found.

2.0.5. Evolutionary Critique

An entirely different problem with rapid privatization is that it may be focusing attention away from more important issues, in particular, PTNE. Murrell (1991) argues that "there is a tradeoff between efforts to create a new private sector and the speed and scope of privatization" (1991: 15). Murrell's point is that the state could use surpluses earned from nationalized industries to fund the development of new private firms.

Murrell argues that greater focus on PTNE rather than PFA is the preferred reform strategy because of the difficulties that will be encountered when owners try to restructure newly privatized state firms. The problem is that these former state enterprises inherit many legacies from the era of central planning, and it may be very difficult to change the internal organization of these firms to make them suitable for market conditions. If it turns out to be difficult for many enterprises to adapt quickly to a market regime, then there will be many failures

post-privatization. Why not instead, Murrell asks, just gradually shut down state enterprises in coordination with the rise of new private enterprises?

The major problem with Murrell's prescription is that the private sector is just too small at present. Although it is clearly true that the new firms in these economies are the most dynamic sectors, the bulk of output and employment is in the state sector. It is true that over time the latter will decline relative to the former. But in the short run capital is too immobile to simply shut down state firms. The question then is whether the state sector should be kept open as part of the state budget or privatized. This depends, in turn, on the consequences for other aspects of reform. It seems hard to believe that keeping the large state sector intact is of positive benefit for reform.

Nonetheless Murrell's basic point, that too much attention on PFA takes away resources from PTNE, is correct. This is an important problem. Financial reforms are particularly critical to the privatization process, and this has not had sufficient attention.

2.1. Corporatization

The first step in the process is not privatization, however. The first step is corporatization. This is the process of transforming the state-owned enterprise into commercial enterprises; corporations. This serves the function of taking the decision over the use of inputs from the state to the firm.

Remark 4. *We can think of a firm as a bundle of rights. Two are of particular importance. Control rights refer to who has the ultimate decision on the use of inputs. Cash-flow rights refer to who the rights to the residual income stream that the firm produces. Efficient decision-making requires that both rights are retained by the same agent. Corporatization refers to moving control rights to the firm. Privatization refers to moving cash-flow rights from the treasury to the firm.*

Remark 5. *Corporatization typically takes the form of removing the enterprise from the control of a ministry, and often the creation of a board of directors. Essentially it results in some de-politicization of the enterprise's decisions.*

Consider a state-owned firm where the planners determine the amount of labor that will be employed. Suppose that the government wants more employment than the firm does. It must bribe the firm to over-employ. This may be more costly if the firm is corporatized than if it is still on the state budget.

Corporatization is essential, but it does not solve the custodian problem. The custodian problem arises because the current owners of the enterprise must take

care of the assets prior to privatization, but they may not be managers after privatization. The problem is how to induce them to take care of the enterprise in the meantime. This depends, in practice, on how privatization will be organized. If assets are given away to managers there is no custodian problem. But if assets are sold there will be.

Poison pill equivalents.

Nonetheless, there is evidence that corporatized, state-owned enterprises in many transition economies have adjusted, somewhat. This seems true in Poland, Czech Republic, and Hungary; less true in Russia. One reason is that budget constraints have hardened and credit tightened, especially in the first three countries. It is important to understand the type of adjustment that this entails. The budget constraint forces some retrenchment; it need not be strategic planning. With tighter budget constraints some adjustment is mandatory simply to stay afloat.

Another reason why adjustment takes place is that managers facing a new managerial labor market do not want to drive their enterprises into the ground. This points to the importance of a managerial labor market for performance. If there is no external labor market there is no incentive for the manager to invest in the enterprise. This is really due to two problems.

2.1.1. Two Problems Faced by Survival-Oriented Enterprise Managers

Directors in SOE's face two critical problems. The first we refer to as the *appropriability* problem. Because of the ambiguity over control rights in the enterprise, directors may not be able to appropriate the gains that may accrue in the mature phase from actions that are taken in the noisy phase. This occurs for two reasons. First, the director may no longer be at the enterprise when the gains accrue, because of a loss in the competition for control. Second, in the absence of a developed capital market, the current value of the enterprise does not contain information about the true net worth of the enterprise. Thus, the compensation of the director cannot be linked to his or her enterprise's net worth.

The second problem facing directors is the *information* problem. Because of the noise, it is extremely difficult for agents to assess the consequences of any actions taken in this phase on performance in the mature phase. Directors understand that the current economic environment is likely to undergo dramatic change as the noisy phase is traversed. Although the environment of the mature phase is relatively stable (compared with the noisy phase), directors do not know what that environment will be

Some managers have undertaken restructuring to make their enterprises attractive for privatization. Foreign competition may also have played a significant

role; adjustment is needed to stay afloat. There is some evidence that adjustment was greater in Czech Republic and Hungary, where managers were in control, than in Poland where workers councils had more power. But there is little evidence that decapitalization has been widespread in Central Europe.

2.1.2. The Competition for Control Rights

In order to understand the behavior of the SOE, it is critical to examine the motivation of key agents responsible for decision making. The conventional view is that the director presently possesses the control rights to the enterprise. We define control rights as the authority to make production and financial decisions for the enterprise. In a market economy, this authority rests in the owners of the firm, while, in a centrally planned economy, this authority rests in the state. In both cases, the authority over production and financial decisions is typically delegated to management. However, the claim on the residual income of the firm continues to be held by the principal agents.

In the case of an economy in transition, the possessor of the control rights is more ambiguous. Nominally, the state continues to be the owner of a majority of enterprises and the legal claimant to the residual income of the enterprise. However, the interim control rights to the enterprise appear to have passed to the enterprise director. Indeed, the privatization program in Russia can be interpreted as one whose purpose is to transform these interim rights into permanent rights. In this section, we present our arguments to support our belief that enterprise directors currently possess the control rights to the enterprise.

Under central planning, the director's authority within the enterprise was delegated by the state. Nonetheless, this authority was substantial. The sheer costs of coordinating the behavior and monitoring the performance of thousands of enterprises made it impossible for planners to severely limit the discretion of subordinates. Indeed, as emphasized in the literature on central planning (e.g., Grossman 1963, Powell 1977), it was precisely the informal actions of agents, especially directors, that made the system workable.

When the planning system collapsed, a vacuum was created. The checks on the autonomy of the director came from above. As the ministerial links were severed, the increased autonomy of the enterprises was manifested in the increased authority of the enterprise director. This authority appears to be so absolute that any policy that assumes otherwise is believed not to be credible by most Russian officials. Indeed, the low level of managerial turnover in Russia appears to provide evidence for this point of view. While the state still possesses ownership rights over the enterprise in the beginning of the transition, it is unable to exercise them. Directors thus fill the vacuum by exercising control in the interim. Their goal,

however, is to transform these interim control rights into permanent ones.

One of the most puzzling and important questions concerning enterprise behavior is why the enterprise director appears to be the victor, for now, in the intra-firm struggle for control rights. To answer this question, it is useful to think about the factors that determine the strength of the competing forces in the noisy phase of the transition. The competition for control rights in the noisy phase is a bargaining game between management, the workers,⁹ and government officials. The structure of the bargaining game is determined by the rules for the disposal of state property, embodied in the various decrees on privatization. Depending on the time that the enterprise is privatized, and which option of the privatization program is chosen,¹⁰ there is some initial distribution of power based on access to voting shares in the enterprise. These clearly give the upper hand to the workers, since they obtain the majority of shares.¹¹

Where does the director's bargaining power come from? After all, there is no reason to expect that the workers would not wish to simply replace the director. There may not be well-functioning markets for managerial labor and corporate control, but there is no reason why the workers could not replace management with one of their own numbers. Moreover, were the workers to keep the current management, they would certainly wish to minimize the director's ownership stake to that which adequately aligns managerial incentives with workers' interests. And they would seek to eliminate the director's ability to siphon off income. It would appear that the director has little bargaining power given the way voting in a privatized firm takes place (a constraint on the process imposed from above).

The answer is that the director's power comes from the threat to survival. It is precisely the director's role in preserving survival that provides him or her with leverage within the enterprise. Much of the network capital within the enterprise is perceived by workers to be director-specific. That is, the willingness of suppliers to provide inputs on credit is, in an important part, a function of their historic relationship with a specific director. If the enterprise's survival is in jeopardy then

⁹One might want to distinguish the worker's councils from the workers, and consider the bargaining game at that level as well. We ignore this for now.

¹⁰The two major privatization options are as follows. Plan A gives "the employees, free of charge, nonvoting shares worth 25% of equity. They can also buy an additional 10% of equity at a 30% discount from book value. There is a cap on how much each employee can get (a maximum of six months' minimum wages)...Finally, top managers can purchase up to 5% of equity at book value. Up to 100% of employees' payments can be made in vouchers."

Under plan B, "a group of employees purchases 51% of equity at a price determined by the GKI. Up to 50% of payments can be made in vouchers (Djelic 1992: 43)."

¹¹The early evidence seems to be that plan B is the more popular option, and that the largest bloc of shares is purchased by the workers. This does not mean, however, that shares will continue to be distributed among managers, workers and outsiders in the same proportions as in the initial privatization plan.

workers will be reluctant to jettison a director who is able to acquire important inputs under adverse conditions.

This argument suggests that directors may wish to pursue strategies that enhance their contribution to survival. Inter-enterprise credit markets rely, to a large extent, on informal relationships which are director-dependent. Formal credit markets lessen the dependence of the enterprise's creditworthiness on the identity of the director.

The competition for control rights also implies that directors will be very reluctant to reduce the size of the labor force. Given the role that workers have in the competition for control in an enterprise, the director will avoid alienating this group. This is an important factor that inhibits restructuring during the noisy phase of transition. We return to this problem below, when we discuss privatization.

Although the state continues to be a majority owner of most enterprises, it rarely exercises its ownership rights actively. The passive role of the state is a consequence of the difficulty of monitoring an enterprise in an environment lacking meaningful information about managerial performance. Similarly, outside shareholders of privatized enterprises, particularly minority shareholders, lack the protection afforded to such owners in other countries based on commercial law and tradition. These features work together to create an environment that confers enterprise directors, in large part, with the control rights to the enterprise.

Of course, these control rights might be viewed by the director as temporary. Privatization and workers movements could threaten the authority of the director. Thus, the director of an SOE must prevent anyone else from gaining control. One strategy to do this is to push for the privatization of the enterprise and acquire a strategic ownership share. However, securing control rights does not necessarily imply that the director will seek to privatize the enterprise. Continued state ownership may, in some cases, perpetuate access to state subsidies that could end with privatization. Given that the state is usually a passive owner, preserving state ownership may thus keep open the possibilities for subsidies without jeopardizing enterprise autonomy. Hence, a director may evaluate that his or her best option is to delay privatization, but to aggressively prevent others from gaining control.

In general, however, the director will seek to secure control rights by becoming an owner of the enterprise. One may wonder why this is the case given the uncertainty over the value of the enterprise that prevails in the noisy phase. One reason is the apparent low cost of purchasing the enterprise.¹² Under the current rules of the privatization process, insiders can purchase a portion of the enterprise at a substantial discount. Consequently, the downside risk to owning and directing are

¹²Enterprises are privatized on the basis of book values. This feature, combined with a highly inflationary environment, renders the real cost of enterprise shares low.

similar. But, the upside potential is much higher for owning. Moreover, ownership reduces the dependence of the director on higher authorities for maintaining control.

2.1.3. The Agency Problem

Following McMillan (1997) use the Laffont-Tirole model. Generating profits is costly to the manager, so there is moral hazard. The cost to the manager of profit π is $C(\pi, \theta)$ where θ is the manager's type. This incorporates not only his inherent ability and human capital, but also any special knowledge and relationships he has with respect to the firm. The principal does not know the type, which puts him at a bargaining disadvantage.

This is a reduced form representation of the manager's decision. He can use various means to increase profits. He can also loot the firm. Hence a cost to the manager of generating profits is the foregone opportunity of asset looting. So C summarizes his discretionary ability to vary the firm's profit.

To induce the manager to make the firm more productive he offers an incentive contract of the form

$$B = s + r\pi$$

where the parameters s and r are set by the principal. The manager responds to maximize his net return $s + r\pi - C(\pi, \theta)$. The manager will generate profit so that $C_\pi(\pi, \theta) = r$. As a result, the firm's efficiency depends on both the manager's ability θ and incentive r .

Fully efficient managerial decisions are elicited by a contract with full marginal incentives, $r = 1$.¹³ The principal often chooses $r < 1$, however. For example, the principal may have aims inconsistent with profit maximization (Boycko, Shleifer, Vishny). A second reason is informational asymmetry. The manager knows more about his type than the principal, so the latter will offer an incentive contract that has higher r if higher ability is revealed. This means setting r at less than 100 percent, hence inducing inefficiency. The manager has bargaining power due to hidden information, and the principal's rational counter is to distinguish whether the manager has low or high ability by offering a stronger incentive r if he reveals himself to have high ability. But to use the marginal payment in this way requires setting it at less than 100 percent.

Another source of inefficiency is managerial ability. Without a market for corporate control managers may be recruited for the wrong reason. Competition for managers can lead to better allocation of talent. Better managers receive steeper incentives. A more important reason why such a market is needed is to solve the appropriability problem.

¹³This essentially sells the firm to the agent.

One way to view restructuring, then, consists of: a) giving the manager stronger incentives; b) shortening the hierarchy, or; c) installing new and better managers.

Notice that there is no discussion about the inappropriateness of the capital stock, or of the external issues associated with restructuring.

3. Privatization in Practice

There are two main ways of privatizing industrial assets: privatization via sales, and mass privatization. We consider each in turn.

3.1. Asset Sales

The motivation for asset sales, emphasized by Kornai, is that it creates a core of *real owners*. When assets are sold a class of owners that will be responsible for the bottom line is created. The cost of this type of privatization is the time it takes to achieve.

Asset sales have been most important in Germany and Hungary. In Germany the *Treuhand* was set up to organize the sale of inherited assets. Between 1990 and 1994 the *Treuhand* sold or liquidated some 13,000 enterprises. The *Treuhand* was given two, often contradictory tasks: privatize as quickly as possible, and; insure that the enterprises would compete and survive. The latter often took the form of investment commitments on the part of purchasers (and often employment levels as well). This, however, often lowered the price of the asset. Thus, assets were sold for about \$50 billion but the *Treuhand* spent some \$243 billion on restructuring and guarantees [1, 71]. Such restrictions may prevent new owners from stripping the enterprise, but it does so at a cost; reduced levels of restructuring. Moreover, this requires the bureaucracy to monitor that the commitments are complied with.

The cost of this type of transition would be difficult to implement elsewhere. In Germany a rich country could afford this type of privatization. Essentially this was a rich country subsidizing a poor region of the country. Such a policy could not be pursued in an economy that was all formerly socialist. It would also be harder to implement in a case where revenues are a greater concern.

In Hungary the shares of corporatized state enterprises were held by the SPA which organized their sales. Foreign investment played a key role: about half of the \$1.6 billion in privatization revenues during 1990-93 was from sales to foreigners. This was not always popular: *spontaneous privatization* (privatization organized by the management) were often seen as give-a-ways to foreigners.¹⁴ But it is hard

¹⁴This led to unpopularity of the SPA and successive resignations of the heads of the agency.

to judge such claims. The problem is *how* to value the assets. The insiders have more information.

The process of privatization in Hungary appears, from the vantage point of 1994, to be slow. The SPA was a passive owner, and lots of assets remained in state ownership. Thus little privatization took place. The lesson was that it takes a long time to sell assets: perhaps only the most profitable could be sold first. One explanation seemed to be the reluctance of the SPA to deal with the commanding heights of industry; perhaps because of the influence of the managers of these industries, and their allies.

3.1.1. Insider Ownership as a Barrier

One important barrier to privatization, and to restructuring in general, is that insiders may lose. Of course, it may be efficient for this to happen, but if insiders have some control rights they may act to prevent this.

Suppose that employment in the firm is N , and that the average product of labor is x . We will assume that workers share all income to make matters simple. Let v denote the reservation wage that workers obtain outside the firm. Restructuring requires that some fraction, $1 - \lambda$, of the current workforce be replaced, so λ is the fraction that remains employed in the enterprise. However, the workers are replaced so that total employment is unchanged. Since restructuring results in an increase in the average product of labor to $x(1 + \theta)$, where $\theta > 0$, this is efficient.¹⁵ The question is will it occur. Here we focus only on the willingness of insiders to achieve this.

What should happen? Clearly if the firm is restructured those workers who remain see their incomes rise. Those who are laid off see a loss in income of $x - v$. The losses of the latter group are then $(1 - \lambda)(v - x)$, while the gains to the remaining workers are $\lambda x\theta$. Restructuring requires that the expected value of restructuring be positive, i.e.:

$$EV \equiv \lambda x\theta + (1 - \lambda)(v - x) \geq 0 \tag{3.1}$$

Clearly, there is a λ^* for which (3.1) is satisfied with equality. This follows because with $\lambda = 1$, $EV = x\theta > 0$, while if $\lambda = 0$, $EV = v - x < 0$. Continuity thus suggests that there exists a λ^* such that $EV = 0$. Hence, the "losers" may be

¹⁵The other important condition would be that the firm be able to obtain the capital required to restructure. Absent property rights, the firm may not be able to borrow.

able to bribe the "winners" not to support restructuring if¹⁶

$$\frac{x - v}{x\theta} > \frac{\lambda}{1 - \lambda} \quad (3.2)$$

The LHS of equation (3.2) is the ratio of the per-worker losses to gains, while the RHS is the ratio of workers who remain to those who must leave. Clearly, the higher is θ relative to the potential loss from job-loss, the more difficult it is to block restructuring, and the smaller the number who lose their job ($\lambda \rightarrow 1$), the more likely is privatization.

Remark 6. *But the important implication of this analysis is that there is no reason why we should not expect efficient restructuring to be blocked by insiders.*

This leads to the conclusion that to induce privatization the insiders may have to be bought off. Thus privatization schemes may give undue shares to insiders in order to buy off their opposition to restructuring. Of course, this still begs the question of whether inside ownership will lead to restructuring, directly or indirectly. By indirectly, we refer to the notion that insider owners may re-sell their shares to outsiders who would then engage in restructuring.

3.1.2. Insider Ownership and Resale

Will insiders necessarily sell their shares if it is efficient to do so?

Assume that all decisions are taken behind a veil of ignorance: workers thus have an equal probability $1 - \lambda$ of losing their jobs under restructuring. We are assuming that they are *ex ante* identical. Each worker has one share of the firm. There are two cases to consider.

No Coordination Each worker decides on his own whether or not to sell. Let q be the price per share. How much an outsider will pay depends on whether restructuring takes place. Conditional on that the maximum price a buyer will pay per share is given by

$$q^b = x(1 + \theta) - w \quad (3.3)$$

where w is the wage. This is just the gain in profits per worker.

What about the selling price? What is the minimum price a worker will accept, conditional on enough shares being sold so that restructuring will take place? Since q^s is conditional on enough shares being sold, the worker takes as

¹⁶We are assuming here that only the incumbents get to vote. If privatization takes place some fraction $1 - \lambda$ new workers will be hired, and their incomes will rise by $x(1 + \theta) - v$ per worker. But they are not involved in the decision.

given that restructuring takes place, so he remains with the firm with probability λ and loses his job with probability $1 - \lambda$. Hence, we can define the minimum acceptable price to the worker by

$$q^s + \lambda w + (1 - \lambda)v = (x(1 + \theta) - w) + \lambda w + (1 - \lambda)v \quad (3.4)$$

where the first term on the RHS of (3.4) can be thought of as dividends, and the last two terms as expected income.

Notice that (3.4) implies that $q^s = x(1 + \theta) - w$. But from (3.3) it then follows that $q^s = q^b$. Since the buying price and the selling price are the same restructuring occurs.¹⁷ The selling price and the buying price are equal, because the sellers will bid up the price until they extract all the surplus that is available from restructuring (the free-rider problem).

Coordination If the workers act collectively sales may not take place. The buying price is unchanged but the selling price is now bounded from below by the workers expected earnings if there is no sale:

$$q^s + \lambda w + (1 - \lambda)v = x \quad (3.5)$$

Now a sale takes place only if $q^s \leq q^b$, so using (3.3) and (3.5) we obtain:

$$x(1 + \theta) - w \geq x - [\lambda w + (1 - \lambda)v]$$

or

$$x\theta \geq (1 - \lambda)(w - v) \quad (3.6)$$

which simply says that the gains from restructuring must be greater than the expected loss to the workers that is due to the risk of unemployment. The higher the probability of being laid off, the less likely the workers will be to collectively sell their shares.

Assessment The difference in the two cases suggests why it is so important to have proper corporate governance. To protect insiders it is crucial to have a mechanism for cooperation. To protect outsiders it is apparent that what is needed is anonymous sales procedures and independent share registries. This suggests exactly what a director intent on remaining in control will do. It also suggests that some shares ought to be initially placed outside the firm to create the market for corporate control.

¹⁷We can think of lots of practical reasons why the selling price may fall below p^s , eliminating the knife edge. One factor could be time preference and liquidity constraints facing workers.

3.2. Mass Privatization

Mass privatization is a mechanism to achieve privatization rapidly. The basic idea is that vouchers are distributed to the population, the nominal value of which is equal to the book value of the assets to be privatized. These vouchers can then be used to purchase shares in the firms. This form has the effect of a give-away, and it results in faster privatization. It also results in a more diffuse ownership structure.

The diffusion of ownership is mitigated, somewhat, by investment funds. Investment funds are intermediaries between citizens and enterprises. Without them, individuals would have to invest directly, by using their vouchers in auctions. The funds pool the vouchers and then invest in enterprises. This offers two advantages to shareholders. Diversification reduces risk, and larger holdings makes possible greater outside influence on enterprise behavior. The latter can raise the return. The only problem is the potential for fraud.

Investment funds were most important in the Czech Republic, but also in Russia. In the former some 72% of coupon points were given to investment funds in the first round, and some 60% in the second. Since most of this was concentrated in a small number of funds that were owned by banks, this has led to a German-style ownership structure, where banks are the major owners of firms.

One important feature of mass privatization is that enterprises were forced to adopt programs. With asset sales the choice of being privatized or not is endogenous, and it may reveal information. This is not true in countries where there are asset sales. Thus it is not all that surprising that performance of *privatized* enterprises does not appear to differ from state-owned enterprises, unless foreign owned. There does appear to be a difference between new firms and both state-owned and privatized.¹⁸

3.2.1. Comparison of the Czech Republic and Hungary¹⁹

As noted above, the conventional wisdom (and empirical observation as of the end of 1994) was that mass privatization resulted in more rapid privatization. From the vantage point of the present, however, the picture seems different. Recently, the pace of privatization via assets sales has been swift in Hungary. This now shows up in the data.

One way to see this is to look at the share of GDP produced in the private sector. In 1994 about 60% of GDP was produced in the private sector in Hungary; today it is over 70%. This compares with 56.3% for 1994 and 74% for 1996:1 in

¹⁸Interestingly, Ickes and Ryterman find no difference even between enterprises with "closed" privatizations or enterprises that underwent leasehold.

¹⁹This section relies heavily on Crane 1996.

the Czech Republic. Poland lags behind both, probably due to the slow pace of privatization. But this suggests one problem with this measure; it includes all sectors of the economy, so as an indicator of the *pace* of privatization it is biased by the initial conditions.

A better way to look at the question is to look at the share of industry privatized; that is to the pace of ownership transfer. Again, as of mid-1996, the differences are rather small. In Hungary, 1,857 state-owned enterprises were transferred to the SPA. Of these, by early 1996 829 enterprises had been fully privatized and 642 had been liquidated or closed. Of the remaining 596 companies (less than one-third of the initial total), the state continues to have a majority stake in 311, and a minority stake in the remaining 285.²⁰ Total state assets that have been privatized have a book value of about \$19 billion, though the market value is, of course, much less.

In the Czech Republic the initial pace was much faster. In the first wave of privatization some 1000 companies were privatized, and in the latter two waves, 900 and 320 respectively. Assets privatized amounted to some \$26 billion in book value. According to the Czech National Property Fund, 78% of the property and 68% of the shares earmarked for privatization through vouchers had been sold by mid-1996.

Another way to ask the question about pace would be to look at what is left in state hands. Here Hungary has done very well. As of end-1995 761 enterprises remain state-owned (not corporatized), from an initial number of 2233 in 1991. These tend to be smaller enterprises, virtually bankrupt and headed for liquidation. In the Czech Republic some 1,422 enterprises are still state-owned, compared with 3,818 in early 1991.²¹

The major difference between Czech and Hungarian privatization is in *ownership structure*. In Hungary, asset sales have led to more concentrated ownership. In the Czech Republic investment funds took major stakes in privatized enterprises. And much of the Czech banking system remains in state hands. The government continues to control major stakes in the largest banks. In Hungary the government is privatizing the banks too. Of the four largest commercial banks, two have already been sold to foreign investors, a third has been tendered. Thus Czech banks which are largely state controlled play a large role in controlling industry.

²⁰These numbers total more than 1857 because some enterprises were split up during the privatization process.

²¹Poland is clearly the odd man out here. State ownership continues to dominate many industries, including coal, ferrous metals and some machinery products. 4,537 state enterprises continue to exist. The share of state-owned assets in total productive assets has fallen from 65.3% in 1990 to 59.1% in 1994, not a major drop by any measure!

3.2.2. Russian Privatization

Russian privatization has been successful in converting a large share of enterprises to private ownership. The vast majority of firms were privatized via employee buy-outs (variant B). This has led to a situation where the vast majority of firms are dominated by their workers. According to a recent study by the Federal Securities Agency,²² insiders held majority stakes in 65% of Russian enterprises in the last quarter of 1995.²³ The vast majority of inside owners were rank and file workers, with only 4% of enterprises majority owned by management. This probably understates, however, the degree of managerial control. Managers may exert more control without owning shares. And they need not own a majority to get control.

The evidence indicates an increasing proportion of management ownership. One study shows that the average stake held by rank-and-file employees has fallen from 53% in December 1994 to 43% in June 1995, while the share held by managers has increased from 11% in December 1994 to 16% in June 1996. Managers obtain shares in several ways. Buying from the workers is one way. Issuing new shares is another. Firms also buy back their own shares on the marketplace. 41% of the companies surveyed by the FSA reported stock buybacks in 1995.

At the same time the share held by outsiders has increased from 27% in December 1994 to 45% in June 1996. Outsiders tend to be other commercial firms (36% of outside owners), individuals (22%) and investment funds (16%). Suppliers and customers are one obvious source of outside owners. There is evidence of interlocking directorates, though not at as much as in Hungary, where as David Stark has emphasized, the emergence of *recombinant property relations* seems to be most prevalent.

Valuation The valuation of Russian enterprises upon privatization was very low. To see this, note that 100 million vouchers were used to purchase 18% of Russian industry. Now vouchers tended to trade between \$4 and \$20 per voucher. Using the latter, the vouchers used in auctions purchased about $\frac{1}{6}$ of Russian industry for \$2 billion. Hence, privatization valued Russian industry at about \$12 billion. The equity stakes in all of Russian industry, oil production, mining, manufacturing, etc., valued at less than Anheuser Busch. This seems very small!

Individual examples show the same thing. *Gaz* sold for about an implied \$27 million, and *Zil* about \$16 million. Both have close to 100,000 employees. *Uralmash* sold for an implied \$4 million. In the US, manufacturing companies are

²²Russian Economic Trends, vol 5, 2: 116.

²³Blasi and Shleifer reported that initial privatization led to 56% of shares owned by workers and 9% by managers. This was based on their survey of 142 companies in 32 regions.

valued at about \$100,000 per employee. In Russia, the values were between \$100 and \$500 per employee. This is pretty remarkable. The US standard of living may be 10 times that of Russia, but these differences are huge.

Remark 7. *Both within and outside Russia, there was, and is, no shortage of bullish sentiment regarding the long-term future of Russian equity markets. This relates primarily to the perception that enormously valuable assets are being sold off extremely cheaply. For example, If the market capitalization of Gazprom, the state gas monopoly which controls 30% of the world's known gas reserves, is divided by its known reserves, the company appears to be worth about 0.3 US cents per barrel of oil equivalent, while that of British Gas is roughly 10.30 dollars. CS First Boston estimates that Gazprom should be worth between 280 and 740 billion dollars. Another example is Rostelekom, which has 80% of all telephone lines in Russia, is valued at about 49.35 dollars per access line, as against a value of 2,429 for Japan's NTT. Earlier this year (i.e., after the primary auctions), most Russian oil companies' reserves were valued at about 5 US cents per barrel, compared with 5 dollars a barrel for Royal Dutch Shell – even if allowance is made for the longer average time taken to extract oil from proven reserves in Russia, which reduces the market value of those reserves.*

Another example is given in the figure which compares western market values under profit maximization assumptions with actual values:

Why are Values so Low? This is a key question. One reason was the prohibition on participation by foreigners. As this has been relaxed prices have increased.

More important is weak corporate governance. A buyer of shares is purchasing a right to the income stream of the assets. The value of this right will depend on what can be done with the assets. Notice that if outsiders have weak rights then this value could be quite low. This could happen for two reasons. First, outsiders may be unable to induce restructuring. Second, managers may be able to divert income to their own use (theft). If corporate governance is weak, it may be difficult to police the latter.

The interesting question is why has the value now increased? The Russian stock market boomed throughout 1997 until the late fall when the Asian flu reached Moscow. Prior to that this was the highest returning of all emerging markets. The Moscow Times Stock Index, for example, grew by 140% from December 1996 until July 1997.²⁴ The boom started with the re-election of Yeltsin in July 1996. What accounts for this?

²⁴It must continually be emphasized, however, that Russian stock markets represent a tiny fraction of Russian industry. Most companies are energy producers and banks.

Company	Industry	Value at Western Multiples (\$ billions)	Market Capitalization (\$ billions)	Ratio of Market to Western Value
Gazprom	natural gas	1960	4	0.002
Lukoil	oil	195	5.5	0.028
Yukos	oil	170	0.3	0.0017
United Energy Systems	electricity	110	3.1	0.028
Surgutneftegaz	oil	91	4.4	0.048
Tatneft	oil	75	0.4	0.005
Sberbank	bank	60	0.4	0.0067
Mosenergo	electricity	12	0.8	0.0667
Irkutskenergo	electricity	10	0.4	0.04
Norilsk Nickel	nickel	9	0.5	0.055
Rostelecom	telephone	5	0.9	0.18
Bratsk Aluminum	aluminum	2.3	0.03	0.013
Krasnoyarsk	aluminum	2.2	0.08	0.036
Aeroflot	airline	2	0.09	0.045
Magnitogorsk	steel	1.8	0.04	0.022
Severstal	steel	1.7	0.08	0.047
Total		2754	20.8	0.0075

Figure 3.1:

This could mean that people think control is going from workers to managers. There seems to be much anecdotal evidence that workers are selling their shares to the managers of their enterprises. This may reduce the tendency to worker control, and hence reduce the extent of undervaluation. Russia has also experienced some considerable capital inflow in the last year as inflation has receded. And the ensuing cash privatization should also be favorable to share prices, since 51% of the proceeds goes to the firm.

The essential point about share prices in *traded* enterprises is that the market prices (P_t) are still far below the fundamental value of the underlying assets. Let $P^* = E \left[\sum_{t=1}^{\infty} \frac{\pi_t}{(1+r)^t} | \Omega_t \right]$ be the fundamental value of the enterprise, which depends on the discounted stream of expected future profits.²⁵ Then:

$$P_t = P_t^* - \sigma_t \tag{3.7}$$

where σ_t is the *systemic* risk premium associated with holding stocks in an environment with weak corporate governance and uncertain political future. This risk is common to all assets and reflects environmental and political risks. When Russian enterprises were privatized this risk premium was large compared to share prices. This leaves a large amount of upward movement in share prices even without any increase in fundamental values. During much of 1997 this risk premium decreased, due to the increased health of President Yeltsin.

More generally, we can think of σ as a measure of the distance from a real market economy. When Russia has an economic environment that is conducive to property rights, where political stability has been reached, where crime is low, etc., then the price of shares will more closely reflect the underlying asset values. In the current situation there is a gap between fundamental values and market values because of imperfect arguments.

One can think of this in terms of arbitrage. The share price is a title to the income stream from the underlying assets. At the most basic level, the market price of shares must reflect the fundamental value of the assets because otherwise agents could buy the firm and sell the assets. This would offer an arbitrage profit. If markets are well-functioning, this possibility prevents gaps from opening up. When the costs of arbitrage are high, on the other hand, then prices can deviate from asset values.

Corporate governance affects the price.

²⁵There is an ambiguity here. In the expression for P^* we include idiosyncratic risks that the enterprise faces. Systemic risks are captured by σ .

3.2.3. Loans for Shares

A story. The U.S. Government owes \$25 billion to Germany. To pay off the obligation, it gives \$25 billion to the Bank of America with instructions to wire the funds to the German government. The money instead disappears. No one ever finds out where it went. No one at Bank of America goes to jail. No one asks Bank of America to pay the money back. The government continues to do business with Bank of America. Indeed, the President invites Bank of Americas CEO to become a cabinet secretary, and for a time he agrees, before deciding that there is more profit to be made by dealing with the government than by helping to run it.

This story isn't remotely possible in the United States or many other developed countries. But change the bank to *Oneksimbank* (run by Vladimir Potanin, another of the new kleptocrats), run the money not through *Oneksimbank* but through two of its affiliated banks, and reduce the amount to \$502 million, which is a rough Russian equivalent of \$25 billion as a proportion of GNP, and it becomes a true Russian story, less widely known than it ought to be.²¹ Its no longer hard to understand how *Oneksimbank* accumulated enough money to become a principal proponent and beneficiary of the rigged loans-for-shares auctions of major companies, through which Russia sold off many of its largest companies for a small fraction of fair value, beginning in 1995. It becomes easier to understand why the Russian government tolerated the obvious rigging of the loans-for-shares auctions, even though it was desperate for the revenue that honest auctions might have produced. And, to return to a major theme of this paper, if its that easy for the well-connected to steal money, why go to the effort of earning it by running a business?²⁶

Another popular way to instant wealth: Arrange to hold government funds, for a handsome fee, but where the real profit was paying little or no interest to the government when inflation was first in triple, then in double digits, real interest rates on government bonds and other money market instruments were 20-30% a year, and nominal rates were far higher). Vladimir Gusinski's *MOST* Bank, for example, got its start managing money in this manner for the Moscow City Government; Gusinski was soon rich enough to qualify as a first-tier klep-

²⁶For more recent examples, see RFE/RL Newline, May 21, 1999 (new Prime Minister Alexei (sic) Stepashin orders investigation into why a \$100 million foreign loan, intended for the coal industry in Kemerovo Oblast, never arrived at its intended destination); Geoffrey York, Kremlin Kills Corruption Probe of Highly Placed Officials, *Globe & Mail*, June 27, 1999, at ___ (Kremlin maneuvering to block prosecutor's probe into how the Kremlin spent \$488 million to renovate the building that includes President Yeltsin's official residence); Celestine Bohlen, Russian Says He Has Proof Bribes Were Paid to Kremlin, *N.Y. Times*, Aug. 31, 1999 (Kremlin removes Russian prosecutors investigating corruption touching the Yeltsin family).

tocrat. Potanin's Otkritiye Bank managed money for the Finance Ministry and the Foreign Trade Ministry; Mikhail Fridman's *Alfa* Bank managed funds for the Customs Service and distributed agricultural subsidies. Khodorkovskiy's *Bank Menatep* handled the funds that Russia spent on its military operations in *Chechnya* and later promised to spend on rebuilding Chechnya. A Russian government audit later estimated that some \$4.4 billion of these funds never arrived at their intended destination.²⁷

As Pyotr Aven, then head of *Alfa* Bank (controlled by kleptocrat Mikhail Fridman), candidly explained:

To become a millionaire in our country it is not at all necessary to have a good head or specialized knowledge. Often it is enough to have active support in the government, the parliament, local power structures and law enforcement agencies. One fine day your insignificant bank is authorized, for instance, to conduct operations with budgetary funds. Or quotas are generously allotted . . . for the export of oil, timber, and gas. In other words, you are appointed a millionaire.

How did loans for shares work and why? In 1995 Russia faced a fiscal crisis. Cash sales were not producing the revenue expected. Major banks came up with a plan. They would lend the government cash (\$1 billion) in exchange for the right to manage 12 large energy companies not yet privatized.²⁸ The state's shares in the companies were the collateral on the loan. If the government did not pay back the credits the shares would be auctioned off, and the banks would keep 30% of the capital gains.

Under loans-for-shares, the Government auctioned its shares in a number of major oil, metals, and telephone companies in return for loans, giving the shares (and accompanying voting rights) as security to whomever would loan it the most money. But the auctions were peculiar indeed. The right to manage the auctions was parceled out among the major banks, who contrived to win the auctions that they had been appointed to manage, at astonishingly low prices. The bid rigging that was implicit in divvying up the auction managing role became explicit in the actual bidding. The auction manager participated in two separate consortia (to meet the formal requirement for at least two bids), each of whom bid the government's reservation price or trivially above that. No one else bid at all. Foreigners were either excluded formally, or understood that it was pointless to try to bid.

²⁷See The Abuses of Authorized Banking, Radio Free Europe/Radio Liberty (Jan. 1998), available at <<http://www.rferl.org/nca/special/rufinance/index.html>>.

²⁸Note that the loans were before the presidential election and the deadline for repayment was after.

After the deadline for repayment passed in Sept. 1996 the banks began selling off the state share packages. Between November 1996 and February 1997 three such sales occurred – *Yukos*, *Sidanko*, and *Surgutneftegaz* – and each went to the auction manager or its affiliate. Most notorious of all was *Norilsk Nickel*.

In the couple of cases when someone bid in an auction intended to be won by someone else, the true nature of the auctions came to the fore, as pretexts were found to disqualify the high bidder. For example, *Oneksimbank* managed the *Norilsk Nickel* auction, with a reservation price of \$170 million. It arranged three bids from affiliates, all at \$170 or \$170.1 million. Unexpectedly, *Rossiiski Kredit Bank* offered \$355 million, over twice as much. *Oneksimbank* found patently spurious grounds to disqualify *Rossiiski Kredit's* bid; *Oneksimbank's* affiliate won the bidding at \$170.1 million. Not that either bid was more than a small fraction of the value of a majority stake in *Norilsk Nickel*, which had annual profits of around \$400 million.²⁹

The loans-for-shares auctions were auctions that the world was watching, and sunshine is often a good disinfectant. One might have hoped that visibility, coupled with the governments desperate need for revenue, would instill some semblance of honesty. Those hopes were disappointed. Meanwhile, auctions that the world wasn't watching were often even worse.

Divestiture of Social Assets One key difficulty in privatizing former state-owned companies is what to do with social assets. Soviet enterprises provided social services: kindergartens, hospitals, housing, rest homes. As late as 1993 social benefits accounted for one-third of the wage bill of Russian enterprises.³⁰ Private owners do not want to be responsible for these assets. What to do?

Social assets are a result of the way in which social service provision took place in the Soviet Union. Enterprises were the center of urbanization. Towns were created around major enterprises, and these enterprises acted in many ways like local governments.

Now the trick is what to do with the social assets so that enterprises can be privatized. It is problematic to turn them over to local governments because of the lack of revenue. If the city is large and has a diversified income base some economies of scale can make this economical. But in Norilsk, on the other hand, not much is gained since Norilsk Nickel is the sole source of local income tax revenue anyway. Moreover, the enterprise may still be blamed for faulty provision.³¹

²⁹See Lieberman & Veimetra (1996), *supra* note 26, at 749-50.

³⁰Though one reason for this in 1993 was that it was easier for enterprises to pay wages in kind, both for tax reasons, and due to the inability to sell for cash.

³¹NORILSK, Russia – Hardship is second nature for the residents of this Siberian enclave.

Winter sends the temperature plunging to minus 45 degrees Fahrenheit and drops the sun below the horizon for months at a time. It was Stalin who established this arctic city and dispatched hundreds of thousands of political prisoners here to extract the metal ore from mines so deep they seemed to run to the very center of the Earth. Later, Norilsk became a notorious example of wasteful communist planning, a place in which the air and water were fouled with noxious chemicals that even now make breathing a hazard. Lying on the remote Taimyr Peninsula, where Siberia meets the Kara Sea, Norilsk lies in a forbidding and isolated zone. When workers here talk about visiting the rest of Russia, they say they are going to the "continent," as if Norilsk were not a sprawling city of 260,000 but an island separated by a frigid ocean. This region contains more than a third of the world's nickel reserves and two-fifths of the platinum-group metals. It also has significant amounts of cobalt and copper. Russia's authorities ignored Norilsk's early prospectors. At the end of the 19th century, Kipriyan Sotnikov, a local constable who dreamed of wresting a fortune from Norilsk's hills, sent a sample of copper ore to the czar's treasury. The czar's men turned it away, complaining that the copper, needed to make kopecks, was contaminated with nickel, cobalt, and platinum. But as World War II loomed over Europe three decades later, Stalin launched a crash effort to tap the deposits. Political prisoners were hauled by boat to the arctic port of Dudinka, 60 miles to the west. They laid the rail lines, dug the mines, and manned the factories, where the raw ore was turned into a liquid concentrate and then smelted in huge furnaces. About 360,000 prisoners toiled away here from 1935 to 1956, according to a report by the Institute for Contemporary Politics, a Moscow-based research center. The institute estimates conservatively that 17,000 died. It is hard to know precisely since Russian officials have yet to declassify most of the camp records. Many of those who died were thrown into unmarked trenches, and their bones are still unearthed by the annual spring thaw. In Norilsk's unforgiving climate, maintaining the traditional Russian kitchen garden requires extraordinary measures. Many of Norilsk's current residents, however, were lured here after the prison camps closed by promises of higher salaries, free vacations and early retirement. Others consider themselves little more than economic prisoners. Their savings were wiped out by the soaring inflation of the early 1990s even as the cost of food and transportation rose. That, plus the difficulty in finding new jobs, new housing and securing new residency permits have turned Norilsk from a springboard into a trap. The elderly find it particularly hard to leave. They receive a higher pension for their long years of service here only as long as they stay in Norilsk. The hard times have spawned a new cottage industry. Norilsk is dotted with small shops, where well-tailored businessmen with mobile phones buy the few shares of stock that the workers received through privatization on behalf of anonymous clients. The going rate: half the price at the Moscow stock exchange. The question now is whether the doddering Soviet-style metal complex can be run along capitalist principles and at what cost. Even with the best of intentions, transforming Norilsk is a herculean task. Changing the mentality of the managers and the workers is a big part of the problem. During Soviet times, all that mattered was production. To produce as quickly as possible, metal was skimmed from the richest ore and much of the remaining metal content discarded as waste. Foremen never asked themselves if they could get by with fewer men, and many still find the idea of downsizing offensive and even unpatriotic. Some advanced technology was developed, but often little was spent to keep equipment up to date and reduce labor requirements. "It is difficult to get used to the idea that labor is a commodity," said Yuri Filippov, a longtime manager here. "People do not like idea of hired labor. They think it means they are slaves." The Soviet system of state subsidies also encouraged the company to expand into unprofitable sidelines, such as construction and furniture making. Two-thirds of the company's workers are involved in these types of auxiliary enterprises, despite the fact that it is more cost-effective to import

Notice that social provision by the enterprises reinforces paternalism. This becomes more important over time because those less enamored of these benefits leave first.

4. Why does Privatization Work?

Privatization does not work in all cases. When it does, why is this the case?

One clear result is that ownership matters. It matters whether the enterprise is dominated by inside owners or outsiders. Enterprises dominated by the former do not improve economic performance relative to state-owned firms, according to a study of Czech, Hungarian and Polish mid-size enterprises.^[3] They look at a panel of medium sized firms across several CEE's (Czech Republic, Hungary, and Poland), about 200 in all. The idea is to compare the effects of privatization.

4.1. Revenue as an Indicator

They argue that revenue is a better indicator of performance in transition than profits. Profits can be difficult to measure because of accounting rules, and differences across countries: e.g., depreciation. Revenues may be more accurately measured.³² Revenues are also more forward-looking, while costs reflect past decisions. So the effect of entrepreneurial ability may be more apparent with respect to revenues. Of course, if you use revenues you have to control for mergers and acquisitions, but apparently there are no important cases in their sample.³³ Similarly, state enterprises may be more likely to be split up, so this could downward bias their revenues.

goods from the south. There were also persistent reports of corruption: metal shipments at cut rate prices to trading companies controlled by some of the managers. Environmentally, Norilsk became a disaster area. The company's Nadezhda plant spews clouds of sulphur dioxide into the atmosphere at levels that have reached 50 times the permitted dose. Many Norilsk residents believe the noxious fumes inoculate them against disease and flu. But local doctors report a large number of respiratory ills and shortened life expectancy. Much of the area around the metal complex has become a dead zone of withered trees, poisoned lakes, and scarred tundra. The fall of the Soviet Union also saddled the metal complex with the responsibility for maintaining the city of Norilsk, including the wages of thousands of municipal workers and the huge expense of importing food. The cost of supporting the city was a hefty \$327 million in 1995.

³²Though clearly not if this were Russia.

³³They looked at what happened to employment at enterprises where revenue grew dramatically.

4.1.1. Methodology

The onset of transition causes a downward shock to performance. So it is important to measure performance relative to this *transition* shock. Let y_i measure the (annualized) performance measure of enterprise i over the sample period,³⁴ and let x_i be the initial performance of the enterprise. Then if we regress

$$y_i = \alpha + \alpha_1 x_i + \beta P_i + \varepsilon_i \quad (4.1)$$

where P is a dummy variable (=1 if the enterprise is privatized). Then we can interpret $\tau = \alpha + \alpha_1 x_i + \varepsilon_{i1}$ as the transition effect, and $\rho = \beta P_i + \varepsilon_{i2}$ as the privatization effect.

Notice that in this formulation there is still selection bias to worry about. First, it could be that the privatized enterprises were the better ones. This, it is argued, can be dealt with by comparing the pre- and post-privatization experience of the *same* enterprise. Is this different for private and state enterprises? The idea is to look at the enterprises pre-privatization and see if the state and privatized enterprises looked different then and compare this to post-privatization differences. But this assumes that the factors that guided privatization were *observable* in the pre-privatization period. It could be that they only show up once transition starts.

The second bias could occur if prior to privatization enterprise performance is deliberately deteriorated, so that post-privatization experience is greater. This could occur if managers attempt to solidify their hold on the enterprise, for example. To control for this enterprises for which insiders took control of the firm are excluded from the sample, and equation (4.1) is re-estimated. They find that the pre-privatization differences get smaller but post-privatization differences remain significant. The argument is that insiders do get slightly better firms,³⁵ but that these benefits are dissipated over time (e.g., by employee-owner arrangements).

The most interesting finding is that privatization has significant effects when it is outsider dominated. Insider dominated is hardly different from state ownership. The other important finding is that the big difference is on the revenue side, not the cost side. Hardening of budget constraints seems to effect the cost side equally across ownership types, but outsider-dominated enterprises tend to produce greater revenue growth. This is a critical finding. Note that it goes against the fear that the main effect of privatization is job loss.

³⁴There are problems with the way these are measured because enterprises are of different vintages. But they must be pooled because of the size of the data set.

³⁵Notice that the argument could go either way. It may be that insiders purposefully hide the value of the enterprise to acquire at a lower price. This would cause pre-privatization performance of these enterprises to look worse than average. Frydman, et al., find the opposite, using the excess of revenues of material and labor costs as the indicator.

FIG's The emergence of financial-industrial groups (FIGs) in Russia has been met with a mixture of reactions. Prominent economists in Russia and elsewhere argue that FIGs promote growth. Some advocates of FIGs argue that they are beneficial due to technological complementarities that are promoted by the integration of the constituent enterprises. Other advocates identify the advantages of FIGs as a response to deficiencies in key institutions, deficiencies that are not easily corrected, for example, problems with contract enforcement. Alternatively, detractors argue that FIGs are significant obstacles to economic development: they constrain competition and adversely affect the quality of economic and legal reforms. They are wary of the consequences of an economy dominated by large financial-industrial conglomerates, for example, a loss in economic liberalization.³⁶

The need to resolve this controversy over the causes and consequences of FIGs is becoming increasingly urgent. Security Council deputy secretary Boris Beresovskii, the former head of LogoVAZ, claimed last year that six of these conglomerates controlled over 50 percent of the Russian economy. While this statistic is probably exaggerated, it points to the growing dominance of FIGs in the economic landscape of Russia, and the likelihood that they are having a major impact on the design and outcomes of economic policy. Thus, it is imperative to look closer at the causes and consequences of their formation.

The purpose of this project is to separate and measure the growth and competition effects of FIGs in Russia, and to place the evolution of FIGs in the context of similar institutions in other countries. The four key hypotheses that we will test are:

- *Technological Complementarities*: FIGs emerge to exploit technological complementarities between constituent firms.
- *Institutional Underdevelopment*: FIGs emerge in response to problems created by institutional underdevelopment.
- *Anti-Competition*: FIGs restrict competition.
- *Political Economy*: FIGs influence the development of economic policy in ways that affect the level and distribution of wealth.

These hypotheses are not mutually exclusive. FIGs might emerge due to technological complementarities, or in response to problems of institutional underdevelopment, yet have anticompetitive and other welfare effects. Nevertheless, it is

³⁶Some detractors of FIGs point to the fact that FIGs are lobbying for legal restrictions on foreign investment in Russian firms. These restrictions enable FIGs to acquire shares in Russian firms at lower cost.

important to distinguish the relative importance of these effects, in order to predict the consequences of the continued emergence of FIGs in the medium to long run. For example, if FIGs enhance growth because of efficiencies that are due to technological complementarities, then these benefits will survive transition. On the other hand, if the primary advantage of FIGs are due to institutional underdevelopment, then the advantages of these structures are temporary. Yet, other aspects of FIGs might be permanent, such as their effects on competition, corporate governance, and politics. In this case, the transitory advantages of FIGs might be outweighed by the permanent disadvantages, resulting in an industrial structure that is ill-suited to long-run performance.

Background Many Russian policymakers advocated the formation of FIGs in the hope that they would help to end the fall in production in Russian industry. FIG's were originally promoted as a means of recreating the vertical chains of production that were disrupted by the demise of central planning. In order to regulate their growth, the government issued a decree in December 1993 outlining procedures for their formation.³⁷ This decree offered some advantages for registered FIG's, including some tax advantages and some investment guarantees from the government. But the decree also included restrictions which have limited the growth of official FIG's.³⁸ The most important of these restrictions limited the ownership share of any financial institutions to 10 percent of any member enterprise, and no enterprise could own more than 10 percent of the assets of the financial institution. These restrictions served as a bar to those enterprises that had created "pocket" banks and commercial banks that purchased large blocks of shares in enterprises. Because of this problem, most FIG's are unofficial, thus avoiding these restrictions.³⁹

Unofficial FIG's do not receive special advantages, so an important question is why then do they form? The first three hypotheses we present in the introduction offer possible explanations for their emergence. In general, these hypotheses suggest that FIGs are an institutional innovation that enables enterprises to cope with constraints limiting firm-level growth. The first hypothesis suggests that FIGs are an attempt to correct firm boundaries inherited from the Soviet period, boundaries which do not adequately reflect technological complementarities between firms.

³⁷Presidential Decree N.2096 (December 5, 1993), "On financial-industrial groups and the procedure for their formation."

³⁸In October 1996 there were 43 officially registered FIGs.

³⁹This also makes it difficult to measure the quantitative importance of unofficial FIGs. Data from surveys conducted prior to 1996 are of little value because of the tremendous growth in FIG size caused by the "loans-for-shares" program. This program greatly increased the equity holdings of commercial banks.

The second hypothesis suggests that FIGs help firms to overcome problems of institutional underdevelopment. In this work, we consider three types of institutional underdevelopment: legal underdevelopment, financial underdevelopment, and fiscal underdevelopment. The Russian legal system does not provide firms with adequate mechanisms to undertake complex transactions, or transactions with new partners. Integration has long been understood as a potential solution to hold-up problems. Cross-ownership allows member enterprises to engage in complex transactions that could not be otherwise supported. The value of cross-ownership in coping with contractual difficulties also explains why commercial banks are increasingly taking leading roles in FIG's. Inadequate financial information and inadequate collateral system combine to create an environment of financial underdevelopment. In this environment, lending is quite risky. Equity participation affords commercial banks greater security via increased ability to monitor enterprises.⁴⁰

Financial underdevelopment provides FIGs with the opportunity and tools to engage in informal profit seeking (IPS): the production of wealth hidden from official view. Cross ownership is very useful in supporting informal profit seeking activities. First, the prospect of long-term relationships fosters the development of trust between the various parts of the FIG, even between members with no prior history. Second, cross ownership opens the possibility that income and expenses can be spread across the different firms in the FIG in order to minimize the tax burden on the group as a whole. In fact, the Russian tax police are so concerned about the pervasiveness of IPS in FIGs, it announced it will set up special rapid response groups to carry out inspections of banks and financial-industrial groups to find hidden income.

The previous explanation for the development of FIGs focuses on market failures. Another class of explanations relate to market-restriction activities. FIGs might restrict competition. This effect need not be solely through horizontal integration. FIGs are large organizations, controlling a large share of domestic financial resources. Potential entrants may lack the financial resources to compete with incumbents that are FIG-related. They may also lack the contractual advantages that FIG-membership implies. Of course, these factors would be less important if markets were not underdeveloped. The key point is that even if market repair is the primary cause of FIG formation, this does not exclude the possibility that FIG's have anti-competitive effects.

⁴⁰With weak bankruptcy regulations equity participants may have greater oversight capabilities than holders of debt. If there are significant gains from curbing moral hazard, this may explain why bank-led FIGs may wish to purchase shares in enterprises.

4.1.2. Evaluation

The key point then is that in Russia privatization has led to widespread insider control and a system of corporate governance that does not protect outsiders. This will change perhaps, but slowly. One key force for change is the need for outside investment. The poorer is corporate governance the greater the reliance on retained earnings.

4.2. Foreign Investment

Foreign investment is an important signal about the success of privatization. It is the outsider's reflection on how well the environment has changes. Foreign investment thus reflects not only the opportunities, but the rules and institutions that affect profitability. Hence, it is not surprising that Estonia and Hungary have leaped to the lead in foreign investment. They have created climates more favorable to foreign investment. See figure 3.2.

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