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Sergei Guriev, William Megginson

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Privatization: What Have We Learned? [1]

Sergei Guriev[2] and William Megginson[3]

Abstract

Privatization is one of the major economic phenomena in recent economic history. This paper summarizes empirical research on the effect of privatization on the performance of privatized firms and on the society. The extant evidence from privatizations in many developed and developing shows that privatization usually results in an increased productivity and positive effects on the society. The effect of privatization depends however on economic institutions in place, in particular on rule-of-law, competition, hard budget constraints, quality of governance and regulation. We pay a special attention to the cases of Russia and China and show that their experience is consistent with the conventional wisdom once one accounts for an appropriate counterfactual.

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[1] This paper is prepared for ABCDE conference in St Petersberg, January 2006. The paper draws heavily on Megginson 2005 and Guriev and Rachinsky 2005.

[2] Human Capital Foundation Professor of Corporate Finance, New Economic School and CEFIR, Moscow, and CEPR. E-mail: sguriev@nes.ru.

[3] Professor and Rainbolt Chair in Finance, University of Oklahoma. E-mail: wmegginson@ou.edu.

Why Is Privatization Research Important?

Since 1979, many countries have embarked on the course of privatization which has changed the economic landscape around the world. Privatization has spread to many industries, including those that had never been privately owned. Privatization has transformed command economies in post-communist countries into decentralized ones. It has changed the political balance of power in many societies and revolutionized global financial markets. Yet, the intellectual debate on the benefits of privatization is far from over. The available research shows that the impact of privatization on the privatized firms and on the economy and society depends on many variables including political and economic institutions. There are significant complementarities between privatization and other reforms. It also matters how privatization is structured and who the new owners are. In particular, there are substantial benefits to opening up to foreign ownership.

We summarize the extant research on privatization in this article, and also discuss two important cases that are often referred to as evidence against privatization: Russia and China. In Russia (and some other CIS countries), privatization seems to have produced few benefits for the privatized firms or for society, whereas China has managed to pursue a reform package that has not so far included the mass privatization of state-owned enterprises and yet has produced very impressive results. We argue that in both cases–as well as in other controversial privatization examples such as Latin America–the outcomes can be explained within the conventional framework once one accounts for an appropriate counterfactual.

A comprehensive survey of the existing research on privatization would take over fifty pages (as it actually does in Megginson and Netter 2001; Djankov and Murrel 2002; and Megginson 2005) so we only summarize the general lessons and discuss the representative studies.

Privatization Around the World

While it is now hard to imagine the world without privatization, it is still a very recent phenomenon by historical standards. While there were important privatization programs in West Germany in the early 1960s, and in Chile during the 1970s, state ownership of business enterprise was pervasive, and growing, in the world economy until a quarter-century ago. In OECD countries, this was a result of (1) the Great Depression, which inspired a profound critique of private ownership, (2) the two World Wars, during which governments established (or reestablished) public ownership over "strategic" industries, and (3) widespread acceptance of social democrat philosophies stressing the strategic need for state control of an economy's "commanding heights." In the socialist countries, public ownership of the means of production was the essential piece of ideology; private ownership was limited to personal consumption goods and – in some countries – to small agricultural land plots. Not surprisingly, given the perceived success of Soviet industrialization and the important role of public ownership in the developed West, many developing countries also adopted state-directed development policies during the post-WWII era.

By the late 1970s, however, there was growing disappointment with the dismal performance of the state-owned companies, as well as the growth slowdown in the socialist countries, prompted the first privatization attempts by Britain's conservative Thatcher government. Since then, privatization has spread to more than 100 countries that collectively have privatized tens of thousands of firms, and have raised almost $1.5 trillion. Privatization has produced substantial fiscal benefits: in many countries, privatization revenues accounted for 10 percent or more of government budgets in some years, and saved almost as much via eliminating the need for further subsidies to the state owned enterprises.

Certainly, the most dramatic privatization experiences have occurred in transition countries where socialist economies have been become predominantly privately owned within a decade. Yet, other countries have also pursued impressive privatization programs; moreover, as much of post-communist privatization was non-cash-based, OECD countries and other developing countries easily surpassed transition economies in terms of privatization revenues.

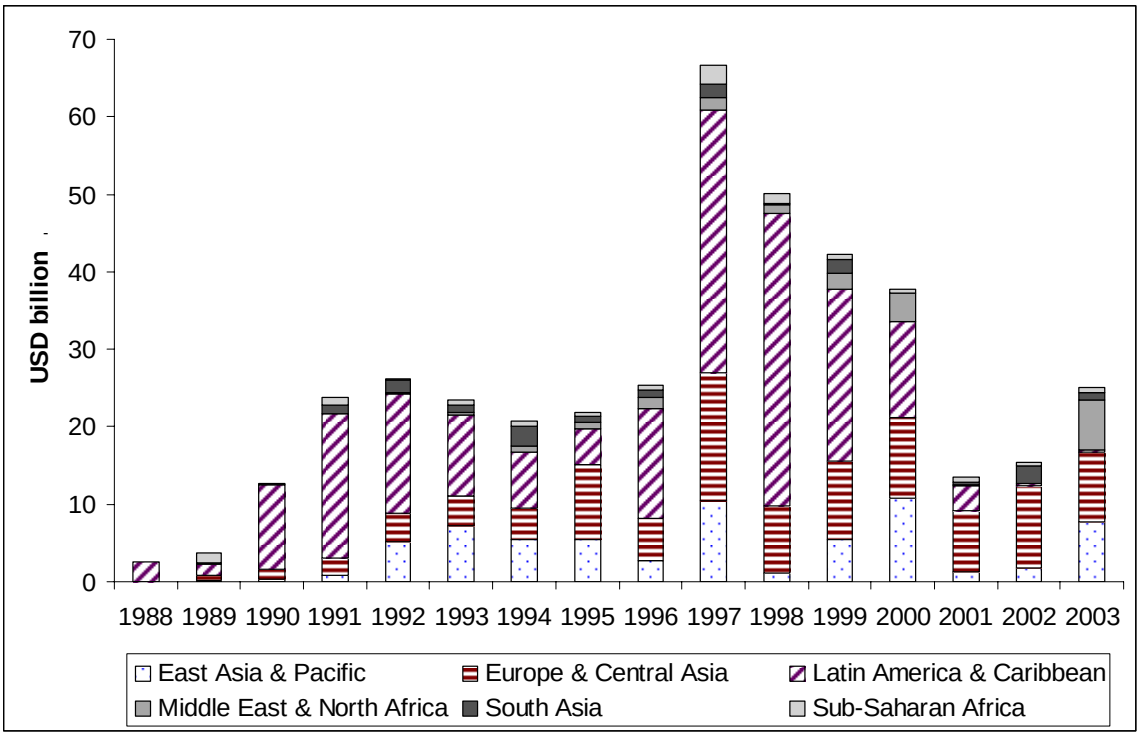

Figure 1: Developing countries' revenues from privatization. Source: World Bank Privatization Database.

Since 1984, the share of state-owned enterprises (SOE) in the GDP of industrialized countries has fallen by almost half, to less than 5 percent. The change was even more substantial in the developing countries: according to Sheshinski and Lopez-Calva 1999, between 1980 and 1997,

SOEs' activities as a percentage of GDP decreased from 11 to 5 percent in middle income countries, and from 15 to 3 percent in low income economies. The change in employment was even larger. In the middle-income countries, SOE employment has come down from a peak of 13 to about 2 percent of total employment, while in low income countries employment in state enterprises has dropped from over 20 to about 9 percent (Sheshinski and Lopez-Calva 1999).

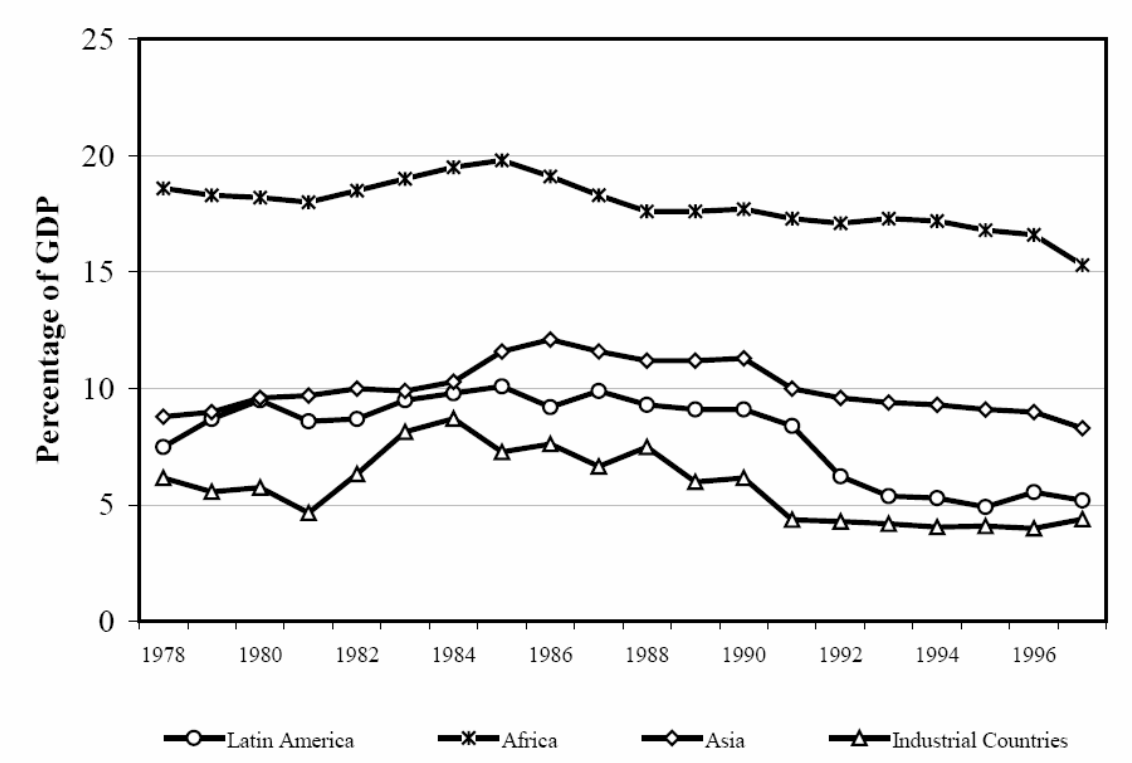

Figure 2: The share of SOE in GDP by region. Source: Lopez-de-Silanes 2005, Figure 1.

The Theoretical Debate on Privatization

The policy debate on privatization is often reduced to the following simple arguments. Privatization helps to raise revenues for the government. Private ownership strengthens the incentives for profit maximization and therefore should lead to increased productive and allocative efficiency. Yet private ownership may involve substantial costs: there can be market

failures related to externalities, market power, and public goods. These market failures provide a rationale for public ownership.

While the policy debate is usually focused on the trade-offs above, economists argue that the picture is actually much more nuanced. Privatization, particularly in post-socialist countries, tends to impact almost all macroeconomic and many microeconomic forces, sometimes in conflicting ways.

Fiscal considerations. The argument that privatization helps to raise cash for the government is related to the privatization's impact on productivity. If the public ownership is optimal, then government is better off keeping the firms in public ownership and receiving the stream of profits. If the government is cash-strapped it should issue debt (or raise taxes). The privatization proceeds are high only when the new private owners are more efficient (or at least expect to be more efficient). Therefore the fiscal benefits of privatization are certainly related to the efficiency and welfare advantages of private ownership. Yet, the fiscal issues are very important as they provide government with incentives to undertake the privatization–to raise cash and to eliminate public subsidies to SOE.

Privatization and market failures. Market failures, even when they exist, do not have to be corrected through public ownership. Much can be achieved through regulation, taxation, and private provision of public goods (through profit-maximizing firms or non-profit organizations). There are certainly limits to this argument. Similarly to the multitasking framework of Holmstrom and Milgrom 1991, Shleifer 1998 argues that privatization may result in an excessive emphasis on profit maximization at the expense of other socially valuable objectives. If the latter are not contractible, then the multitasking theory suggests that it may be optimal to weaken the

profit maximization incentives. For example, private prisons may be very good at cutting costs but do not necessarily internalize the well-being of the convicts (Hart et al. 1997). Therefore state ownership of prisons may be socially optimal even though they would not undertake cost-reducing measures.

This argument applies to all societal effects of privatization–externalities, distributional concerns, market power–whenever government's regulatory capacity is limited. If, for some reason, government cannot ensure effective regulation of the privatized firms to limit the negative externalities, privatization may indeed have negative implications for social welfare. The regulatory failure may arise from either lack of competence or incentives within government bureaucracy or because of regulatory capture by the regulated firms. As shown in Guriev and Rachinsky 2005, privatization can create powerful interest groups that have a serious effect on economic policy choices. In particular, if privatization creates large private monopolies in an economy with poor institutions, it is very likely that competition policy will never develop. Faccio 2006 shows that political connections are especially important in countries with less mature institutions.

On the other hand, public ownership may not resolve all the relevant issues: both in democratic and in non-democratic regimes politicians are often concerned with issues other than economic efficiency and social welfare; they may be either driven by political motives or simply corrupt. Privatization reduces their ability to pursue political objectives.

Market socialism. The opponents of privatization argue that neoclassical economics' welfare theorems should also work in an economy with public ownership. Instead of a Soviet-type economy with public ownership and planning, one can imagine a *market socialism* (Barone

1908; Lange 1936) system where firms are publicly owned, but exchange occurs in competitive markets, and SOE managers are incentivized via performance contracts. Some adherents of market socialism argue this is exactly what has been successfully implemented in China.

Critics of this idea argue that it is very hard for the government to commit not to intervene in markets. Under market socialism, the government is omnipotent and can directly control all the prices. Therefore, it is hard to protect market competition from the government monopoly, which would not only expropriate the consumer surplus but would also undermine efficiency. It is also hard for the government to commit to the strict antitrust policy that weakens the market power of state-owned firms. Even in an open economy which "imports" product market competition, the government still wields a monopoly in the labor market and in markets for nontradeables. The government is also unable to commit to abstain from political pursuits while designing and enforcing management contracts.

Another problem of government ownership is the inability to ensure the exit of failing firms. Governments (or government banks) often bail out firms, private or public, in order to preserve employment. This problem is especially severe in the case of the public firms. It is essentially impossible for the state to commit to not bailing out its own firms. The resulting soft budget constraints further aggravate the incentives problem for state-owned enterprises.

Yet another argument in favor of private ownership is the importance of innovation. Shleifer 1998 argues that innovation can only prosper under private ownership. While inventors can come up with great ideas independently of the predominant ownership forms, further development and commercialization of innovative ideas is certainly more likely under private ownership.

Policy Challenges: Speed, Sequencing and Methods

Complementarities and Sequencing

The debate above implies that the success of privatization depends on the quality of economic and political institutions. Therefore reforms assuring property rights protection, competition and openness, hard budget constraints, good corporate governance, low corruption, and optimal regulation are all complementary to privatization.

The fundamental problem of privatization is that the need for privatization is stronger in countries with less competent and accountable governments, yet these are exactly the countries that lack mature economic and political institutions. Hence, the government that cannot run the publicly owned firms well is often the government that is not able to design and implement privatization well and to carry out the complementary reforms.

Privatizers in such countries face a chicken-and-egg problem. On one hand, they should first build market institutions that would reinforce the benefits of privatization. On the other hand, it is not clear why the reforms introducing such institutions would find any support until there is a critical mass of private ownership. This problem is virtually absent in OECD countries where (a) such institutions are already in place; (b) the majority of voters respect private property. The situation is very different in developing and especially transition countries where prior to mass privatization, the demand for market institutions is simply absent.

It is certainly not clear which approach is better suited for solving the chicken and egg problem. Some countries have tried the “Machiavellian privatization” (Biais and Perotti 2002) approach by selling cheap and fast in order to create a demand for institutions. Others delayed privatization

until the institutions were in place. In Central and Eastern Europe, both approaches were tried and ultimately both succeeded – probably because of the external anchor of possible EU accession. In the former Soviet Union, both approaches were attempted but neither seems to have succeeded. In some countries, both privatization and institutional changes have been delayed indefinitely; in others, privatization has happened but institutional change is still slow. In some countries, particularly Russia, privatization was deemed illegitimate by the vast majority of population because of the perceived corruption of the sale process. This eventually resulted in a policy reversal, including major renationalizations.

Speed

An important policy choice is the speed of privatization. On one hand, in order to maximize privatization revenues and find the most efficient owners, privatization should be administered case by case rather than *en masse*. However, as Boycko, Shleifer, and Vishny 1995 argue, privatization often has to be undertaken by a divided government. In this case, the window of opportunity is very narrow and the case-by-case privatization is too slow while rapid, mass privatization may assure the transformation's irreversibility. The problem with mass privatization is that if the government fails to design the mass privatization process well, this may undermine the public support for further reforms and the legitimacy of the emerging private property rights regime.

Another sequencing/speed issue is whether to restructure and improve performance before privatization—not least in order to maximize privatization revenues. Boycko, Shleifer, and Vishny 1995 argue that if the firm can be made profitable under public ownership, it should probably not be privatized in the first place. And vice versa, if the firm is slated for privatization

as the government bureaucracy is not capable of running it, why trust the bureaucracy with restructuring the firm?

Methods of Privatization: Share Issues, Trade Sales, or Non-Cash Privatization

Government can privatize firms through three major approaches: share issue privatization (SIP), asset sales to a single buyer (trade sales), and non-cash (or "voucher") privatization. The choice between SIP and the trade sales is usually driven by size. Smaller firms are sold via private markets (usually auctions) to a single buyer. This resolves the issue of separation of ownership and control which is especially severe in countries with poor corporate governance. Larger firms are harder to sell in their entirety, since the lack of financial intermediation precludes buyers from raising sufficient funds to pay a high price for the asset (Maskin 2000). Such firms are usually privatized via public capital markets.

In both SIPs and asset sales, an important decision is whether to allow foreigners to bid. For an economist, increasing competition among bidders (either via SIP or in trade sales) should raise privatization revenues and eventually attract a more efficient owner. However, foreign participation is often ruled out due to political/nationalistic sentiment. In many cases, the sentiment is promoted by the incumbent bidders, who benefit from the ban on foreign ownership at the expense of the domestic public. Indeed, the exclusion of the foreign bidders raises substantial problems, especially in the case of mass privatization. When a post-socialist government is about to privatize a large part of the economy, there is insufficient wealth within the country to assure a high price for the assets. Therefore one has to resort either to dispersed ownership, even for small firms, or to non-cash privatization. The latter may result in inefficient insider ownership and/or low privatization revenues, leading to disappointment with reforms.

Lessons from Privatization

The discussion above implies that privatization's success depends on many variables, and there is a large scope for empirical research to measure their relative importance. In this section we summarize the results of such empirical studies.

Methodological Issues

Most studies focus on comparing the performance of firms under private and public ownership. Some run cross-section regressions on the large samples of both private and public firms estimating the effect of ownership controlling for other determinants of performance (see the seminal paper by Boardman and Vining 1989). This approach is problematic as (a) ownership is endogenous (Himmelberg, Hubbard, and Palia 1999) and (b) in a cross-section, it is very hard to control for all possible determinants of performance at the firm level.

The other influential approach focuses on privatization per se rather than on ownership and compares pre- and post-privatization performance of privatized firms. This approach–suggested and first used by Megginson, Nash and van Randenborgh 1994, hereinafter referred to as MNR–allows for comparing privatized firms in different industries, countries and even time periods. The MNR methodology has become a tool of choice for privatization researchers as it only requires data on the privatized firms for three years before and three years after the event of privatization; such data are usually readily available.

Yet, MNR's major advantage of looking only at the privatized firms is also a weakness. Indeed, one should compare the change in performance of the privatized firms to that of the other firms, public or private, that did not undergo privatization during this period. This approach is more

demanding as it requires a panel dataset that would track a large set of firms over a reasonably long period of time (as described in Brown, Earle, and Telegdy 2006).

There are additional methodological problems with all the approaches. First, there are many questions related to the appropriate measure of performance—such as whether it is best proxied by stock market or accounting data. Second, there are endogeneity issues. To ensure their own viability and to prevent the policy reversals, governments may begin by privatizing the firms that are likely to benefit from privatization the most. This causes a selection bias. Another source of selection bias is related to the quality of data, which is usually higher in countries with more effective government and market institutions. As the latter are more conducive to the success of privatization, it is likely that there are more studies of privatization successes than failures.

Third, studies of the firm-level impacts of privatization by definition miss the external effects of privatization on the economy and society at large. In particular if the privatized firm is an unregulated monopoly, the firm-level study is likely to find a productivity increase: the resulting price increase will be recorded as a TFP growth even though the social returns may actually be negative. There are a number of ways to go beyond the firm level. One can study the well-being of the privatized firm's customers. This is doable when the privatized firm is a utility company serving a specific region or when there is a comprehensive privatization within an industry. Alternatively, if a country goes through a mass privatization program, one can compare the economic and social outcomes at the country level.

Summary of Research

Firm-level effects of privatization.

The extant firm-level empirical research on the change in productivity and employment around the world is summarized in the Tables 1-4 (compiled from Megginson 2005, chapters 3 and 4, and Chong and Lopes-de-Silanes 2005); see also tables 2.1-2.4 in Megginson 2005. The results of these studies show that privatization usually results in increased productivity but also leads to a reduction or no change in employment. There is also a strong evidence that privatization to *foreign* investors results in higher productivity gains. Privatization brings higher benefits to the firms wherever the appropriate institutions are in place. One should emphasize that tens of studies on developed, developing and transition countries using very diverse methodologies seem to yield very similar results.

Consistent with the critique of market socialism above, the evidence show that performance contracts, corporatization, and hard budget constraints do *not* work without privatization (Table 5, Shirley and Xu, 1998, Shirley, 1999).

Country-level effects and complementary reforms.

Zinnes, Eilat, and Sachs 2001 study the transition experiences of 25 countries and show that privatization is complementary to the institutional reforms that introduce rule-of-law, hard budget constraints, and investor protection (see the Table 2.4 in Megginsion 2005). If these institutions are not developed, privatization's impact on the economic performance is actually negative.

Restructuring prior to privatization. Does it pay to restructure the firm before privatizing? The evidence suggests a negative answer, in line with the basic logic of privatization: privatization makes sense precisely because governments are not good at restructuring firms. As shown by Lopes-de-Silanes 1997 and Chong and Lopes-de-Silanes 2002, who study the effect of pre-privatization restructuring on the net privatization price received, debt absorption has no effect on the net price, while "investment" and "efficiency" programs actually reduce the price. Chong and Lopes-de-Silanes also show that even labor force retrenchment programs are counter-productive, as they all too often lead to adverse selection in the employees being let go.

Methods of sales. Megginson, Nash, Netter, and Poulsen 2004 study the determinants of the choice between asset sales and share issue privatization. They show that the choice depends on both the market institutions and the firm-specific factors. Larger and more profitable firms are more likely to be sold via public capital markets. Better protection of property rights leads to a higher chance of asset sales privatization.

The existing research on share issue privatization (summarized in Megginson 2005, chapter 6) shows that these issues are substantially underpriced. Investors who buy the privatization share issues earn statistically and economically significant excess returns (about 30%!) both in short- and long-term. This is especially striking given that the corporate finance literature documents negative long-term excess returns for private-sector share offerings. The underpricing probably reflects the fact that privatizing governments pursue multiple goals rather than just revenue maximization (see Boycko, Shleifer, and Vishny 1995 and Biais and Perotti 2002).

Welfare effects. Studies of the effects of privatization on social welfare and inequality have been traditionally focused on utilities divestments. These studies measure the effect of privatization on

the access to services and generally find substantial benefits, especially for lower income groups (see MacKenzie and Mookherjee 2003 for four countries in Latin America; Fischer, Serra, and Gutierrez 2004 for Chile; Jones, Jammal and Gokgur 1998 for Cote d'Ivoire; Appiah-Kubi 2001 for Guinea). Galiani, Gertler, and Schargrodsky 2001 show that water privatization in Argentina has resulted not only in substantial productivity growth but also in reduction in child mortality (saving about 500 infant and young children lives per year). Similar results are obtained in the studies of telecom privatizations (see Tables 4.12 and 4.13 in Megginson 2005 for a summary of the results).

Stock market development. Another important impact of privatization is the development of financial markets. Privatizations have contributed not only to the rise of the global capital markets but, more importantly, have increased capitalization and liquidity of almost all non-U.S. national stock markets. Boutchkova and Megginson 2000 calculate the turnover ratios (total value of trading over the market capitalization) for individual financial markets and regress these on the number of privatization deals in a given country in a particular year. Controlling for country's fixed effects and first-order autocorrelation, they find that each privatization raises the stock market liquidity (proxied by the turnover ratio) by 2.3 percent in the next year and by further 1.7 percent the year after that. The relationship between privatization and stock market development seems to be well understood by the governments: Megginson, Nash, Netter, and Poulsen 2004 show that governments are more likely to privatize through share issues in the countries with *less* developed capital markets, apparently in order to foster stock market development.

When Does Privatization NOT Work?

The most thorough panel study of mass privatization (Brown, Earle, and Telegdy 2006) shows that privatization substantially improves productivity in Romania and Hungary (by about 20-30%) but has no positive effect in Ukraine and even a negative effect in Russia. If the general lesson from privatization research is that privatization usually "works", how should one explain the failure of privatization in Russia and other CIS countries? The evidence suggests that privatization succeeds, but only if the relevant institutional environment is in place: private property rights protection, rule-of-law, hard budget constraints, competition and regulation (see Table 5 as well as Tables 1-4). In this respect, Russia and other CIS countries did not have the benefit of prospective EU accession to force the pace of necessary reforms. Also, EU accession made privatization irreversible in Central and Eastern Europe, while in the CIS policy reversal was indeed an important risk (which did in fact materialize in Belarus and Russia, and almost materialized in Ukraine), hence a fast mass privatization was needed. The other major problem in the CIS arose from the decision to rule out foreign participation in privatization for ideological reasons. Given all the constraints, Russian and other CIS privatizers had to adopt non-cash privatizations.

Research shows that non-cash privatization is inferior to trade sales and share issue privatization. The intuition is straightforward. First, non-cash privatization results in insider ownership, which implies that demand for institutional reforms develops very slowly. Since market institutions are not in place, secondary market trading results in ownership concentration in the hands of a few politically connected owners (in Faccio's dataset, Russia comes firms in terms of political connections). The larger the insider's ownership stake the more he or she is protected from expropriation and regulation, and the more market power the company has. Therefore it is not

surprising in Russia, Ukraine and other CIS countries the post-privatization redistribution results in economic domination by a few large business groups (Guriev and Rachinsky 2005). The role of these so called "oligarchs" is not clear. On one hand, they improve performance of their own firms and provide the only counterweight to a predatory government. They also represent the only significant constituency for whatever pro-market institutional change might take place in Russia (Boone and Rodionov 2002 and Guriev and Rachinsky 2005). On the other hand, their dominance subverts institutions in their own favor at the expense of competition policy and entry of new firms (Glaeser et al., 2003, Sonin, 2003, Acemoglu, 2005).

The other implication of non-cash mass privatization is the resulting fragility and ambiguity of private property rights. As the owners have paid relatively little for the assets, voters believe that privatization is not fair and the politicians can always find support for expropriation; this risk undermines incentives to invest. Moreover, the negative attitude to privatization may eventually result in a nationalization backlash (as observed in Russia since early 2004).

Given all the problems with privatization in Russia, was there a better alternative? Boycko, Shleifer, and Vishny 1995 and Nellis 1999 argue the voucher privatization was the lesser evil. Also, although Russian transition is taking longer than in CEE, it is still happening while in Belarus and a few other CIS countries the reforms are delayed indefinitely. It is also important to put the Russian experience in perspective. Grosfeld and Hashi 2003 show that even though Czech Republic and Poland have pursued very different privatization policies, the ultimate ownership structures are actually quite similar and are driven by the same factors. This is also consistent with the studies in Table 4: privatization works in Russia as well whenever it results in concentrated ownership (in particular, foreign ownership). By design, the Russian voucher privatization program did not generate such ownership structure right away but the post-

privatization reallocation should eventually produce an efficient ownership structure. Because of underdeveloped financial markets and legal system it has taken much longer than expected but the recent comprehensive study of ownership structure in Russian industry (Guriev and Rachinsky 2003) shows that this pattern is finally emerging.

The "Great Outlier": China

Another case study often used by the opponents of privatization is the transition experience of China. Allegedly, China is growing very fast without mass privatization, or even due to the decision not to privatize. However, the existing evidence suggests that privatization works in China as well (see Table 7). Foreign ownership and foreign listing (in particular, listing in Hong-Kong) also positively affect performance.

It is also not true that China has not privatized, although initially the government decided to try to improve SOE performance without privatization. As these hopes faded, China began privatizing smaller SOEs or leasing them to managers in an exchange of a fixed share of the resulting profit (Kikeri and Kolo 2005). This arrangement can be likened to partial privatization. Much privatization has also occurred via foreign direct investment into China. As a result, employment at Chinese state-owned industrial enterprises fell by half during 1990s.

China has also undertaken case-by-case privatizations of minority blocks for a few hundred large SOEs. According to the World Bank Privatization Database, there were about 200 large privatization deals between 1991 and 2003 that yielded revenues of more than 18 billion dollars–about as much as the entire Russian privatization. However, partial privatization did not result in substantial efficiency improvements; one reason was the prevalence of soft budget constraints resulting from state banks making non-performing loans to SOEs. While further privatization is

certainly needed, the Chinese government is delaying full privatization of all SOEs out of fear of high unemployment and the attendant negative political implications.

Conclusions and Policy Implications.

There is now a growing body of research on all aspects of privatization that uses detailed datasets and up-to-date methodology. This research provides solid evidence that privatization "generally" works, both for the firms that are privatized and for privatizing economies as a whole. While privatization usually results both in increased productivity and reduced employment in privatized firms, fears of negative overall effects at the economy level are not justified.

An important caveat here is that the benefits of privatizations depend on market institutions being in place. The countries that manage to ensure property rights protection and the rule-of-law, impose hard budget constraints, increase competition, and improve corporate governance reap the largest benefits. If appropriate institutions are not in place, privatization often fails to improve performance at the firm level and for the economy as a whole.

Emprical research provides a strong case for openness in privatization. Virtually all studies point to a positive role of foreign investors. Firms privatized to foreign owners exhibit the highest productivity increases. Moreover, as foreign owners usually buy the assets in a more competitive bidding process, they are likely to pay a high price for the privatized assets—and the threat of competition from foreign bidders also tends to raise the bids of domestic investors. Receiving a high net privatization price is important, not only for fiscal reasons, but also for the political legitimacy of emerging private property rights and the sustainability of reforms.

Once translated into policymakers' language, the lessons from privatization research are quite straightforward, as summarized below.

- Privatization can deliver substantial benefits. In some cases productivity doubles; in other cases it increases by single percentage points. The "weighted average" productivity increase is probably around 20 percent.

- Privatization is usually accompanied by either no change or a reduction in employment. Privatizers should be prepared to handle the increased unemployment, and experience suggests tht most privatizing countries manage this problem reasonably well.

- Privatization usually produces welfare gains beyond the increased productivity at the firm level.

- Restructuring enterprises prior to privatization is unlikely to work.

- Mass privatization is usually inferior to the case by case approach. Non-cash privatization is generally worse than trade sales and share issue privatization. The choice between share issue privatizations and trade sales is driven by several factors-firm size, the need to develop national stock markets, and the trade-off between better governance under concentrated ownership versus the difficulty of finding a single buyer for a large company.

- Policy trade-offs are resolved most effectively when privatization is transparent and open to foreign investors. However, insiders and domestic investors always lobby against allowing foreign participation and often stir up nationalistic sentiment. Precluding foreign

ownership always results in lower privatization prices and lower post-privatization efficiency.

- Share issue privatization brings an important side benefit of contributing to the development of the national stock market.

- Privatization works well wherever there are good institutions. China and Russia are not outliers. China's growth has come from private sector development, even as many SOEs are still destroying value. Russia lacked good institutions yet the demand for institutions has started to emerge. While this may be happening more slowly than expected–due to macroeconomic instability, or inequality and illegitimacy of property rights–it is not clear whether there was a better alternative, since openness to foreigners was probably politically unacceptable.

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Table 1. Summary of Empirical Studies Comparing Pre Versus Post-Privatization Performance Changes for Firms Privatized Via Public Share Offerings in Non-Transition Economies

Study	Sample description, study period, and methodology	Summary of empirical findings and conclusions
Megginson, Nash, and van Randenborgh (1994)	Compare 3-year average post-privatization financial and operating performance ratios to the 3-year pre-privatization values for 61 firms from 18 countries and 32 industries from 1961-1989. Test significance of median changes in post versus pre-privatization period. Also employ binomial tests for % of firms changing as predicted.	Document economically & statistically significant post-privatization increases in output (real sales), operating efficiency, profitability, capital investment spending, and dividend payments, as well as significant decreases in leverage. No evidence of employment declines after privatization, but significant changes in firm directors. Privatization improves firm performance.
Boubakri and Cosset (1998)	Compare 3-year average post-privatization financial and operating performance ratios to the 3-year pre-privatization values for 79 companies from 21 developing countries and 32 industries over the period 1980-1992. Tests for the significance of median changes in ratio values in post versus pre-privatization period. Also employ binomial tests for percentage of firms changing as predicted.	Document economically & statistically significant post-privatization increases in output (real sales), operating efficiency, profitability, capital investment spending, dividend payments, and employment--as well as significant decreases in leverage. Performance improvements are generally even larger than those documented by Megginson, Nash, and van Randenborgh.
D'Souza and Megginson (1999)	Document offering terms, method of sale, and ownership structure resulting from privatization of 78 companies from 10 developing and 15 developed countries over the period 1990-94. Then compare 3-year average post-privatization financial and operating performance ratios to the 3-year pre-privatization values for a sub-sample of 26 firms with sufficient data. Tests for the significance of median changes in ratio values in post versus pre-privatization period. Also binomial tests for % of firms changing as predicted.	Document economically & statistically significant post-privatization increases in output (real sales), operating efficiency, and profitability, as well as significant decreases in leverage. Capital investment spending increases--but insignificantly, while employment declines significantly. More of the firms privatized in the 1990s are from telecoms and other regulated industries. Privatization improves firm performance.
Dewenter and Malatesta (2000)	Compare pre- versus post-privatization performance of 63 large, high-information companies divested during 1981-94 over both short-term [(+1 to +3) vs (-3 to -1)] and long-term [(+1 to +5) vs (-10 to -1)] horizons. Also examine long-run stock return performance of privatized firms and compare the relative performance of a large sample (1,500 firm-years) of state and privately owned firms during 1975, 1985, and 1995.	Document significant increases in profitability (using net income) and significant decreases in leverage and labor intensity (employees÷sales) over both short and long-term comparison horizons. Operating profits increase prior to privatization, but not after. Document significantly positive long-term (1-5 years) abnormal stock returns, mostly concentrated in Hungary, Poland, and the UK. Results also strongly indicate that private firms out-perform state-owned firms.
Boubakri, Cosset and Guedhami (2002)	Investigate the role of ownership structure and investor protection in corporate governance using a sample of 170 firms from 26 developing countries that were privatized over the 1980-97. Specifically examine what ownership structure results from	Document that private ownership tends to concentrate over time after divestment, and that privatization indeed results in a relinquishment of control by the privatizing government over three years after initial sale. Much of the decrease in state ownership is

	privatization, and how it evolves subsequently; how the level of ownership protection impacts post-privatization ownership structure; and how ownership structure and investor protection relate to firm performance.	absorbed by foreign and local institutional investors, while the average stake held by individuals is less important. Also find that interaction between legal protection and ownership concentration has a significant negative effect on firm performance, suggesting that ownership concentration matters more in countries with weak legal protection.
Boubakri and Cosset (2003)	Examine pre- versus post-privatization performance of 16 African firms privatized through public share offering during the period 1989-1996. Also summarize findings of three other studies pertaining to privatization in developing countries.	Document significantly increased capital spending by privatized firms, but find only insignificant changes in profitability, efficiency, output and leverage.
Macquieira and Zurita (1996)	Compare pre- versus post-privatization performance of 22 Chilean companies privatized from 1984 to 1989. Use Megginson, Nash and van Randenborgh (MNR) methodology to perform analysis first without adjusting for overall market movements (as in MNR), then with an adjustment for contemporaneous changes.	Unadjusted results virtually identical to MNR: significant increases in output, profitability, employment, investment, and dividend payments. After adjusting for market movements, however, the changes in output, employment, and liquidity are no longer significant, and leverage increases significantly.
Verbrugge, Megginson and Owens (1999)	Study offering terms and share ownership results for 65 banks fully or partially privatized from 1981 to 1996. Then compare pre and post-privatization performance changes for 32 banks in OECD countries and 5 in developing countries.	Document moderate performance improvements in OECD countries. Ratios proxying for profitability, fee income (non-interest income as fraction of total), and capital adequacy increase significantly; leverage ratio declines significantly. Document large, ongoing state ownership, and significantly positive initial returns to IPO investors.
Boardman, Laurin and Vining (2000)	Compare 3-year average post-privatization financial and operating performance ratios to the 5-year pre-privatization values for 9 Canadian firms privatized from 1988 to 1995. Also compute long-run (up to 5 years) stock returns for divested firms.	Find that profitability, measured as return on sales or assets, more than doubles after privatization, while efficiency and sales also increase significantly (though less drastically). Leverage and employment decline significantly, while capital spending increases significantly. Privatized firms also significantly out-perform Canadian stock market over all long-term holding periods.
Omran (2001)	Studies performance changes for 69 Egyptian companies privatized between 1994 and 1998. Of these, 33 were majority sales (>50% ownership), 18 were partial sales, 12 were sold to employee shareholding associations (ESAs), and 6 were sold to anchor investors.	Find that profitability, operating efficiency, capital spending, dividends and liquidity increase significantly after privatization, while leverage, employment and financial risk (measured as the inverse of times interest earned) decline significantly. Performance changes pervasive across subgroups, but some evidence that full privatization works better than partial, and that sales to ESAs work better than others.

Omran (2002)	Perform similar study to Omran (2001), but also compare performance of privatized companies to a matched set of 54 firms that remained state owned.	Find that SOEs' performance also improves significantly during post-privatization period, and that privatized firms did not perform any better than SOEs.
Okten and Arin (2001)	Test effect of privatization on firm efficiency and technology choice using panel data set of 23 Turkish cement firms privatized between 1989 and 1998. Employ MNR tests first, then panel data regression to explore determinants of performance changes.	Document that productivity, capacity utilization, output and investment significantly increase after privatization, while employment, per unit costs and prices decline significantly. Capacity increases insignificantly. Panel regression shows output, labor productivity, capital and capital to labor ratio increase significantly, while employment falls. Per unit costs and prices also fall. Privatization clearly induces technology shift.
Sun and Tong (2002)	Compare pre vs post-privatization financial and operating performance of a sample of 24 Malaysian firms divested via public share offering by the end of 1997. Employ MNR tests first, then panel data regression to further examine sources of performance changes.	Find that privatized companies increase their absolute level of profits three-fold, more than double real sales, and also significantly increase dividends and reduce leverage. Results are robust across various sub-samples. Stocks of privatized firms earn normal returns (insignificantly different from market index). Regression analysis shows that institutional investors and directors have positive impact on privatized firm performance, and that option schemes, rather than direct remuneration, give better incentives to managers.
Sun and Tong (2002)	Test whether privatization improves financial and operating performance of 31 Singaporean companies divested through public share offering between 1975 and 1998. Employ MNR tests first, then panel data regression to further examine sources of performance changes.	Find no significant change after privatization in any variable except output (significant increase) using MNR methods. Then use regression analysis to show that output and leverage improve but efficiency deteriorates after privatization. Conclude that there is little performance improvement after ownership change because Singaporean SOEs were unusually well managed before divestment.

Table 2. Summary of Empirical Studies of Privatization: Developed Countries

Study	Sample description, study period, and methodology	Summary of empirical findings and conclusions
Galal, Jones, Tandon, and Vogelsang (1994)	Compare actual post-privatization performance of 12 large firms (mostly airlines and regulated utilities) in Britain, Chile, Malaysia, and Mexico to predicted performance of these firms had they remained SOEs.	Document net welfare gains in 11 of the 12 cases that equal, on average, 26% of the firms' pre-divestiture sales. Find no case where workers are made worse off, and 3 where workers are made significantly better off.
Green and Vogelsang (1994)	Provide a historical overview of BA's evolution as a state owned enterprise through its first years as a fully privatized company. Also analyze how operating and financial performance evolves during the time before and after company's sale.	They show that BA suffered severely during the airline depression of the early 1980s, but that the operational changes and restructuring that the management team executes during the mid 1980s paves the way for the successful sale of the government's 100 percent ownership in 1987.
Martin & Parker (1995)	Using two measures (ROR on capital employed and annual growth in value-added per employee-hour), examine whether 11 British firms privatized during 1981-88 improve performance after divestment. Also attempt to control for business cycle effects.	Mixed results. Outright performance improvements after privatization found in less than half of firm-measures studied. Several improve prior to divestiture, indicating an initial "shake-out" effect upon privatization announcement.
Price and Weyman-Jones (1996)	Measure the technical efficiency of the U.K. natural gas industry before and after its 1986 privatization and associated regulatory changes using Malmquist indices and non-parametric frontier analysis.	Show that the industry's rate of productivity growth increased significantly after privatization—though not as much as it could have if the industry had been restructured and subjected to direct competition and more appropriate regulation.
Newberry and Pollitt (1997)	Perform a cost-benefit analysis of the 1990 restructuring and privatization of the Central Electricity Generating Board (CEGB). Compare the actual performance of the privatized firms to a counter-factual assuming CEGB had remained state-owned.	The restructuring/privatization of CEGB was "worth it," in that there is a permanent cost reduction of 5 percent per year. Producers and shareholders capture all this benefit and more. Consumers and the government lose. Also show that alternative fuel purchases involve unnecessarily high costs and wealth flows out of the country.
Laurin and Bozec (2000)	Compares productivity and profitability of two large Canadian rail carriers, before and after the 1995 privatization of Canadian National (CN). Compares accounting ratios for entire 17-year period 1981-1997 and for three sub-periods: the fully state-owned era (1981-91), the pre-privatization period (1992-95), and	Total factor productivity of CN much lower than that of privately owned Canadian Pacific (CP) during 1981-91 period, but becomes just as efficient during pre-privatization (1992-95) period, then exceeds it after 1995. CN stock price out-performs CP, the transportation industry, and the Canadian market after 1995. Both firms shed workers after 1992, but CN's employment declines by more (34% vs 18%) as average productivity almost doubles (97% increase). CN's capital spending

	the post-privatization era. Also examines stock returns from 1995-98. Creates a six-firm comparison group of Canadian privatizations, and computes accounting ratios and stock returns for these firms as well.	increases significantly, though CP increases more. Six-firm Canadian privatization comparison group also experience significant increases in investment spending and productivity, and a significant decline in employment.
Villalonga (2000)	Examines the effect of privatization on efficiency for 24 Spanish firms fully divested between 1985 and 1993. Tests for separate effects of ownership change, once other political and organizational factors and time period (state of the business cycle) effects accounted for.	Find insignificant changes in level and growth rate of efficiency after privatization. Significant positive effect found for business cycle suggests government sold firms during recessions. Capital intensity, foreign ownership and size also positively related to efficiency improvements. Privatization seems to decrease efficiency for 5 and 6 years after divestiture, but increase efficiency 7 and 8 years after and 4 and 3 years before, suggesting importance of time effects.
Florio (2001)	Presents an analysis of the welfare impact of the UK privatization program 1979-1997. Considers the impact on five types of agents: firms, employees, shareholders, consumers and taxpayers.	Concludes that privatization has modest effects on efficiency of production and consumption, but has important effects on distribution of income and wealth. Acknowledges fiscal benefits, lower prices in most areas, productivity growth, but asserts these would have been achieved under continued state ownership (due to extrapolation of existing trends). Calculate that, at best, the NPV of the welfare change for each British consumer is less than £1,000, and would be lower if distributional issues accounted for.
Dumontier and Laurin (2002)	Investigate the value that is created or lost during the state ownership period for each firm nationalized during 1982 and then re-privatized between 1986 and 1995. Then tests whether privatization improves performance over that achieved during post-1982 nationalized period. 46 companies (39 banks and five industrial firms) were nationalized and then re-privatized.	Find that government created value in nationalized firms, but state and taxpayers did not benefit because of premium paid to shareholders upon nationalization (20%) and underpricing of IPO at privatization. Financial and operating performance of companies improved during nationalization phase, then improved even more after privatization. Profits and sales increased after privatization, while efficiency improved over all three periods. Employment fell during nationalized period, but increased (due to higher sales) after privatization. Capital spending highest during nationalized period, due to government subsidies. Leverage declined during nationalized period, but increased after privatization. Dividends decline during nationalized period, but increase after privatization.
Saal and Parker (2003)	Examine the productivity and price performance of the privatized water and sewerage companies of England and Wales after the industry is privatized and a new regulatory regime imposed in 1989. Examines joint impact of privatization and new economic regulatory environment on performance.	Find no significant evidence that productivity growth, measured by growth in TFP, is improved by privatization—despite reductions in labor usage. Also find that increases in output prices have outstripped increased input prices, leading to significantly higher economic profits after privatization.

Table 3. Summary of Empirical Studies of Privatization in Latin America

Study	Sample description, study period, and methodology	Summary of empirical findings and conclusions
Ramamurti (1996)	Surveys studies of four telecom, two airline, and one toll-road privatization programs in Latin America during period 1987-1991. Also discusses political economic issues and methods used to overcome bureaucratic and ideological opposition to divestiture.	Concludes privatization very positive for telecoms, partly due to scope for technology, capital investment, and attractiveness of offer terms. Much less scope for productivity improvements for airlines and roads, and little improvement observed.
Ramamurti (1997)	Examines restructuring and privatization of Ferrocarilla Argentinos, the national railroad, in 1990. Tests whether productivity, employment, and need for operating subsidies (equal to 1% of GDP in 1990) change significantly after divestiture.	Documents a 370% improvement in labor productivity and a 78.7% decline in employment (from 92,000 to 19,682). Services were expanded and improved, and delivered at lower cost to consumers. Need for operating subsidies largely eliminated.
La Porta and López-de-Silanes (1999)	Tests whether performance of 218 SOEs privatized through June 1992 improves after divestment. Compares performance with industry-matched firms, and splits improvements documented between industry and firm-specific influences.	Output of privatized firms increased 54.3%, while employment declined by half (though wages for remaining workers increased). Firms achieved a 24 percentage point increase in operating profitability, eliminating need for subsidies equal to 12.7% of GDP. Higher product prices explain 5% of improvement; transfers from laid-off workers, 31%, and incentive-related productivity gains account for remaining 64%.
Pambo and Ramirez (2001)	Performs ex post measuring and econometric analysis of 30 large Colombian manufacturing firms and 33 power generation plants privatized during 1993-1998 period. Employ both panel data regression analysis and MNR matched pre vs post-privatization tests.	Panel data analysis finds very positive results for privatized manufacturing firms. Total factor productivity indices increase from 0.27 to 0.50 points, while profit rates increase by 1.2 percentage points. Productive efficiency in power production not systematically related to ownership changes, once other factors accounted for.
Galiani, Gertler and Schargrodsky (2001)	Examines the impact of privatizing water services on the mortality of young children in Argentina. Between 1991 and 2000, 30% of Argentina's public water companies covering 60% of the population were privatized. Estimate impact of privatization on child mortality using three different measures.	All three measures show that child mortality fell 5 to 8 percent in areas that privatized their water services. Increase in access to and quality of water caused the reduction in mortality. Investment increased, service provision became more efficient and quality improved. The number of people connected to the network increased dramatically, but prices did not.
Estache (2002)	Asks whether Argentina's 1990s utilities privatization program was a cure or a disease. Certainly, the privatizations of Argentina's electricity, gas, water and	He finds that privatization, per se, was quite successful: it raised significant revenues for the state and the new private operators increased efficiency and service levels significantly—without significantly raising the rates they

	sanitation and telecommunications utilities are today the object of intense anger within the country, but Estache attempts to determine whether this anger is appropriate. He first notes that privatization occurred just before the country was gripped by a massive political and economic collapse and he tries to separate the impact of privatization from the overwhelming impact of the collapse.	charged. The rates charged consumers, however, increased significantly, since the government exploited the new ownership structure to impose indirect taxes that it could not impose through direct levies. Once the economic crisis began, government actions discriminated against the privatized companies and foreign operators were vilified as exploiters when they tried to raise fees in line with inflation and devaluation.
Birch and Haar (2000)	A descriptive study of the privatization experience in the last two decades in Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela and some Caribbean countries.	The authors find sizeable effects of privatization on the macroeconomic conditions (both in the short and long run). They also show a positive effect of privatization on productivity and a negative effect on employment.
Chisari, Estache and Romero (1999)	The study assesses macroeconomic and distributional effects of privatization in Argentina's gas, electricity, telecommunications, and water sectors. It uses a computable general equilibrium model.	The study concludes that effective regulation translates into annual gains of about 1.25 billion of GDP. Privatization cannot be blamed for increased unemployment as it may be due to ineffective regulation.
Chong and Sanchez (2003)	A detailed analysis of the contractual arrangements of privatizations and concessions in infrastructure. It covers four countries: Brazil, Chile, Colombia and Peru.	It concludes that clear, homogeneous, transparent and credible institutional processes during privatization yield positive outcomes.
Clarke and Cull (2001)	This study uses evidence from the privatization program of provincial banks in Argentina during the 1990s. It tests econometrically how political constraints affect transactions during bank privatization.	It finds that provinces with high fiscal deficits were willing to, first, accept layoffs; and second, to guarantee a larger part of the privatized bank's portfolio in return for a higher sale price.
Galal, Jones, Tandon, and Vogelsang (1994)	It compares post-privatization performance of 12 large firms from Chile and Mexico. The companies covered are mostly airlines and regulated utilities.	This study finds net welfare gains in 11 of 12 cases covered. Gains are on average equal to 26 percent of the firms' pre-divestiture sales. It finds no case where workers were made worse off, and 3 cases in which workers' conditions improved.
Hachette and Luders (1994)	This study analyzes the difference in 10 performance indicators of 144 private, public and privatized firms in Chile during the period from 1974–1987.	It finds no significant differences in behavior among public, private and privatized firms that operate under similar sets of rules and regulations.
Petrazzini and Clark (1996)	Using International Telecommunications Union data through 1994, it tests whether deregulation and privatization impact the level and growth of teledensity, prices, service quality and employment. The sample covers 26 developing countries, including some Latin American	Deregulation and privatization are both associated with significant improvements in the level and growth of teledensity, but have no consistent impact on the quality of service. Deregulation is associated with lower prices and increased employment; privatization has the opposite effect.

	nations.	
Pinheiro (1996)	It analyzes the performance of 50 former Brazilian SOEs before and after privatization. It uses data up until 1994. The variables used are net sales, net profits, net assets, investment, employment and indebtedness.	The study concludes that privatization has improved the performance of the firms. It shows that the null hypothesis of no change in behavior is rejected for the production, efficiency, profitability and investment variables. It finds a significant negative impact on employment.
Ros (1999)	Uses ITU data and panel data regressions to examine the effects of privatization and competition on network expansion and efficiency. The study covers 110 countries during the 1986–1995 period.	Countries with at least 50 percent of private ownership in the main telecom firm have significantly higher teledensity levels and growth rates. Both privatization and competition increase efficiency. However, only privatization is positively associated with network expansion.
Sanchez and Corona (1993)	Uses a descriptive case-study approach to analyze the privatization experiences of Argentina, Chile, Colombia and Mexico. It focuses on the preparatory measures taken prior to privatization; on valuation, sale mechanisms, regulation and supervision, and on the fiscal and macroeconomic impact of privatization.	The authors find great differences in the effects of privatization in the countries covered by the study. They conclude that firms, institutions and regulations need sufficient time to prepare for the privatization process to be successful.
Trujillo, Martin, Estache, and Campos (2002)	This study uses a sample of 21 Latin American countries covering from 1985 to 1998. It uses pooled and panel data with fixed and random effects to examine the macroeconomic effects of private sector participation in infrastructure.	The authors find that private sector involvement in utilities and transport have minimal positive effects on GDP. There is crowding out of private investment, private participation reduces recurrent expenditures except in transport where it has the opposite effect. The net effect on the public sector account is uncertain.
Wallsten (2001)	Analyses the effect of telecommunication reforms. It explores the impact of privatization, competition, and regulation on telecom firms' performance. This study covers 30 African and Latin American countries during the 1984-1997 period.	It indicates that competition is significantly associated with increases in per capita access to telecommunication services and with decreases in its costs. Privatization is helpful only if coupled with effective, independent regulation. The study concludes that competition combined with privatization is best. Privatizing a monopoly without regulatory reforms should be avoided.

Table 4. Summary of Empirical Studies of Privatization in the Transition Economies of Central and Eastern Europe

Study	Sample description, study period, and methodology	Summary of empirical findings and conclusions
Pohl, Anderson, Claessens, and Djankov (1997)	Compares the extent of restructuring achieved by over 6,300 private and state-owned firms in seven eastern European countries during 1992-1995. Uses six measures to examine which restructuring strategies improve performance the most.	Privatization dramatically increases restructuring likelihood and success. Firm privatized for 4 years will increase productivity 3-5 times more than a similar SOE. Little difference in performance based on method of privatization, but ownership & financing effects impact restructuring.
Frydman, Gray, Hessel and Rapaczynski (1999)	Compares the performance of privatized and state-owned firms in the transition economies of Central Europe, and asks the question "when does privatization work?" Examines influence of ownership structure on performance using a sample of 90 state-owned and 128 privatized companies in the Czech Republic, Hungary and Poland. Employ panel data regression methods to isolate ownership effects.	Privatization "works," but only when firm is controlled by outside owners (other than managers or employees). Privatization adds over 18 percentage points to the annual growth rate of a firm sold to a domestic financial company, and 12 percentage points when sold to a foreign buyer. Privatization to an outside owner also adds about 9 percentage points to productivity growth. Further, gain does not come at the expense of higher unemployment; insider controlled firms are much less likely to restructure, but outsider-controlled firms grow faster. Shows the importance of entrepreneurship in reviving sales growth.
Berg, Borensztein, Sahay and Zettelmeyer (1999)	Using macroeconomic data from 26 transition countries for 1990-1996, examines relative roles of macroeconomic variables, structural policies, and initial conditions in explaining the large observed differences in output performance after transition began.	Results point to the preeminence of structural reforms over both initial conditions and macroeconomic variables in explaining cross-country differences in performance and the timing of recovery from the sharp recession that hit every transition economy in the early 1990s.
Frydman, Gray, Hessel and Rapaczynski (2000)	Examines whether the imposition of hard budget constraints is alone sufficient to improve corporate performance in the Czech Republic, Hungary and Poland. Employs a sample of 216 firms, split between state-owned (31%), privatized (43%), and private (26%) firms.	Finds privatization alone adds nearly 10 percentage points to the revenue growth of a firm sold to outside owners. Most important, finds that the threat of hard budget constraints for poorly performing SOEs falters, since governments are unwilling to allow these firms to fail. The brunt of SOEs' lower creditworthiness falls on state creditors.
Frydman, Hessel and Rapaczynski (2000)	Examines whether privatized Central European firms controlled by outside investors are more entrepreneurial—in terms of ability to increase revenues—than firms controlled by insiders or the state. Study employs survey data from a sample of 506 manufacturing firms in the Czech Republic, Hungary and Poland.	Documents that all state and privatized firms engage in similar types of restructuring, but that product restructuring by firms owned by outside investors is significantly more effective, in terms of revenue generation, than by firms with other types of ownership. Concludes the more entrepreneurial behavior of outsider-owned firms is due to incentive effects, rather than human capital effects, of privatization—specifically

		greater readiness to take risks.
Zinnes, Eilat and Sachs (2001)	Employs a unique panel dataset of macroeconomic, ownership structure, and indicator variables measuring the depth and breadth of reform and privatization for 24 transition countries to determine whether "change of ownership" (privatization) alone is enough to promote improved economic performance over the period 1990-98, or whether "deep privatization" involving improved corporate governance, enhanced prudential regulation and hardening of budget constraints is also required. Develop an OBCA indicator variable for each country measuring the breadth and depth of reforms, and includes this variable in regressions. Use four measures of economy-wide macroeconomic performance as dependent variables.	Regardless of performance measure employed, finds that economic performance gains come only from deep privatization—meaning that change of title reforms only yield economic gains after key institutional and agency-related reforms have exceeded certain threshold levels. By themselves, change of title reforms never have a significant impact on performance, but the higher the OBCA level a country has, the more positive is the impact of an increase in change of title on economic performance. While ownership matters, institutions matter just as much.
Carlin, Fries, Schaffer and Seabright (2001)	Uses data from a 1999 survey of 3305 firms in 25 transition countries to examine the factors that promote restructuring by firms and enhance subsequent performance—as measured by growth in sales and in sales per employee over a 3-year period. Survey includes about 125 companies from each of the 25 countries, with larger samples from Poland and Ukraine (200+ firms) and Russia (500+ firms). Just over one-half were newly-established firms, 8% were privatized to insiders, 22% privatized to outsiders and 16% remained state-owned.	Finds that competition has an important and non-monotonic effect on the growth of sales and labor productivity, with performance improving more for firms facing 1-3 competitors than for monopolists (one-fourth of SOEs face no competition for their main products in their domestic markets) or firms facing many competitors. Controlling for other factors, find no significant relationship between privatization and performance. Newly created firms generally out-perform all other categories. Old firms (privatized and SOEs) are much more likely to cut employment than new entrants, but authors find some evidence that private firms (new entrants and privatized) are more likely to engage in new product development. Overall, find competition to be a more powerful influence on performance than ownership, per se.
Angelucci, Estrin, Konings and Zolkiewski (2001)	Analyzes the effect of ownership and competition on firm performance, measured by total factor productivity (TFP), in three transition economies for years 1994-1998. Uses reported company accounts data for 1994 and 1998 for 17,570 Polish, and for 1997-98 for 1,500 Bulgarian and 2,047 Romanian companies. Tests whether private foreign-owned firms outperform private domestic companies, and whether these both outperform SOEs.	Finds that (1) competitive pressure (measured by market structure) is associated with higher productivity in all three countries; (2) increased import penetration is positively associated with performance in Poland, but negatively in Bulgaria and Romania; (3) competitive pressure has stronger effects in private firms and privatization is associated with higher performance in more competitive sectors; (4) privatization is associated with better firm performance and privatized firms out-perform SOEs in all three countries. Overall, find there are complementarities between competitive pressure and ownership.
Claessens and	Examines changes in the performance of 6,354 privatized and	Finds that privatization is associated with significantly increased sales

Djankov (2002)	state-owned firms in seven transition economies over the 1991-95 period, and test whether privatization improves performance (as measured by increased sales and labor productivity). Sample includes all manufacturing firms that are registered as state-owned in 1991 and have more than 25 employees. Have full balance sheet and income statements for 1992-95, and construct panel data showing evolution of ownership over period.	and productivity growth and, to a lesser extent, with fewer job losses. In six of seven countries, privatized firms show higher sales growth or smaller declines in sales than SOEs, and privatized firms reduce their sales forces by an average 6.11% versus 7.42% for SOEs (significant difference). Positive effect of privatization is stronger in economic magnitude and statistical significance as the time elapsed since privatization increases.
Claessens, Djankov, and Pohl (1997)	Examine determinants of performance improvements for sample of 706 Czech firms privatized during 1992-1995. Using Tobins-Q, tests whether concentrated ownership structure or presence of outside monitor (bank or investment fund) improves Q more than dispersed ownership.	Document that privatized firms do prosper, primarily because of the concentrated ownership structure that results. Find the more concentrated the post-privatization ownership structure the higher is the firm's profitability and market valuation. Large stakes owned by bank-sponsored funds and strategic investors are particularly value-enhancing
Weiss and Nikitin (1998)	Analyze the effects of ownership by investment funds on the performance of 125 privatized Czech firms during the period 1993-1995. Assess these effects by measuring the relationship between changes in performance and changes in the composition of ownership at the start of privatization. Use robust estimation techniques, in addition to OLS, since data strongly reject normality.	Find that ownership concentration and composition jointly affect performance of privatized firms. Concentration of ownership in the hands of a large shareholder, other than an investment fund or company, is associated with significant performance improvements (for all measures of performance). Concentrated ownership by funds does not improve firm performance. Preliminary post-1996 data suggests that changes in investment fund legislation may improve their performance.
Claessens and Djankov (1999a)	Study the effect of management turnover on changes in financial and operating performance of 706 privatized Czech firms over the period 1993-1997. Examine changes in profitability and labor productivity.	Find that the appointment of new managers is associated with significant improvements in profit margins and labor productivity, particularly if the managers are selected by private owners. New managers appointed by the National Property Fund also improve performance, though not by as much.
Claessens and Djankov (1999b)	Examine the relationship between ownership concentration and corporate performance for 706 privatized Czech firms during the period 1992-1997. Use profitability and labor productivity as indicators of corporate performance.	Finds that concentrated ownership is associated with higher profitability and labor productivity. Also find that foreign strategic owners and non-bank-sponsored investment funds improve performance more than bank-sponsored funds.
Lizal, Singer, Svejnar (2000)	Examines the performance effects of the wave of break-ups of Czechslovak SOEs on the subsequent performance of the master firm and the spin offs. The regressions use data for 373 firms in 1991 and 262 firms in 1992.	There was an immediate (in 1991) positive effect on the efficiency and profitability of small and medium size firms (both master and spin-offs) and negative for the larger firms. The results for 1992 are similar but not statistically significant.

Harper (2001)	Examines the effects of privatization on the financial and operating performance of 174 firms privatized in the first—and 380 firms divested in the second—wave of the Czech Republic's voucher privatizations of 1992 and 1994. Compares results for privatized firms to those which remain state-owned. Employs Megginson, Nash and van Randenborgh methodology and variables to measure changes.	Finds that the first wave of privatization yields disappointing results. Real sales, profitability, efficiency and employment all declined dramatically (and significantly). However, second wave firms experience significant increases in efficiency and profitability and the decline in employment—though still significant—is much less drastic than after first wave (-17% vs -41%).
Lizal and Svejnar (2001)	Examine strategic restructuring and new investment performance of 4,000 Czech companies during 1992-1998. Dataset includes over 83,000 quarterly observations. Develop and test a dynamic model of restructuring and investment, allowing them to examine separable impact of private versus public and domestic versus foreign ownership on restructuring, as well as the importance of access to credit and a soft budget constraint on firm investment	Find that (1) foreign owned companies invest the most and (domestically owned) cooperatives the least; (2) private firms do not invest more than state-owned firms; (30 cooperatives and small firms are credit rationed; and (4) SOEs operate under a soft budget constraint
Fidrmuc and Fidrmuc (2001)	Use a sample of 178 Czech firms privatized during first wave of voucher privatization (1992-1994) to test whether ownership change promoted increased efficiency and profitability. Use MNR pre versus post-privatization comparison techniques to test for performance changes	Find that efficiency and profitability declined after privatization, and that changes in firms' operations do not vary significantly by size or ownership—but do vary by industry type, with non-manufacturing firms experiencing more positive (or less negative) changes.
Lizal and Svejnar (2002)	Use panel of over 83,500 quarterly observations from 4,000 medium and large Czech companies over the 1992-1998 period to assess the effects of mass privatization on firm performance.	Find that foreign owners unambiguously improve long-term performance (measured several ways, including profits and investment) of privatized companies, but domestic owners do not.
Kocenda and Svejnar (2002)	Analyze the effect of ownership on post-privatization performance using a dataset of 2,529-2,949 observations on an unbalanced panel of 1,371-1,540 medium and large Czech firms. define six categories of owners and examine impact of each.	Find that concentrated foreign ownership improves economic performance, but domestic private ownership does not, relative to state firms. Foreign-owned firms engage in strategic restructuring by increasing sales and profits, while domestic firms reduce sales and labor costs without increasing profits. Ownership concentration generally associated with improved performance. Overall, conclude that state ownership plays a much more economically and socially beneficial role in this transition economy than theory would predict.
Cull, Matesova and Shirley (2002)	Examine the incentive of managers of voucher-privatized Czech companies to "tunnel" (strip assets out of companies at the expense of outside shareholders) and "loot" their companies. Looting occurs when firms face a soft budget constraint and	Controlling for size, industry, capital intensity and initial leverage, find that voucher-privatized JSCs perform significantly worse than firms with concentrated ownership that are purchased for cash. Investment fund-controlled JSCs under-perform all other firms, including other

	managers are able to borrow heavily, extract funds from the firm, and then default on the debt without penalty. Employ a dataset with 1,017 observations from 392 companies spread nearly evenly between 1994-96. Half of the firms are voucher-privatized joint stock companies (JSCs) while half are limited liability companies (LLCs).	JSCs. Fund-controlled JSCs also take on liabilities at a much faster rate than other firms, indicating they are operating under a soft budget constraint. Though not able to measure directly, evidence indirectly shows that looting is a widespread occurrence for many JSCs.
Dyck (1997)	Develops and tests an adverse selection model to explain the Treuhand's role in restructuring and privatizing eastern Germany's state-owned firms. In less than five years, the Treuhand privatized more than 13,800 firms and parts of firms and, uniquely, had the resources to pay for restructuring itself—but almost never chose to do so. Instead, it emphasized speed and sales to existing western firms over giveaways and sales to capital funds. Paper rationalizes Treuhand's approach.	Documents that privatized east German firms are much more likely to transfer western (usually German) managers into key positions than are companies that remain state-owned. Also finds that Treuhand emphasizes sales open to all buyers rather than favoring eastern Germans. Principal message: privatization programs must carefully consider when and how to affect managerial replacement in privatized companies. Plans open to western buyers, and which allow management change, are most likely to improve firm performance.
Glennerster (2003)	Using a panel dataset on 470 formerly state-owned firms in the former Yugoslav Republic of Macedonia (FSRM) for 1996-1999, examines whether privatization increases profitability of divested companies. Uses a fixed effects panel data regression to address selection bias in both the timing and method of privatization.	Finds weak but significant evidence that privatization can yield benefits even with predominantly insider sales and in an environment of weak corporate governance. On average, privatization leads to a 30% increase in revenues and costs, a 16% increase in the number of workers employed, and a $1,200 increase in profits per worker. Firms sold to outsiders and those with more concentrated ownership expand more than other, similar firms after privatization. Employee buy-outs perform relatively poorly. Also find that lack of access to capital is an important reason why insider privatizations perform poorly, since those firms where new owners bring in new capital see particularly high growth rates after privatization.
Grosfeld and Tressel (2002)	Examine whether competition and corporate governance are substitutes or complements with respect to promoting performance improvements in Poland's transition. Use the available data for all 200 non-financial firms listed on the Warsaw Stock Exchange from 1991-1998. First study the separate effects of competition and ownership concentration on productivity growth at the firm level, then examine their interaction.	Find that product market competition has a positive and significant impact on performance. The effect of ownership concentration, which is quite high in Poland, turns out to be U-shaped. Firms with dispersed ownership and those where one shareholder owns more than 50% of voting shares have higher productivity growth than those with intermediate levels of ownership concentration. Competitive pressure does not affect newly created firms, but does significantly improve performance of privatized companies. Presence of a large foreign owner increases productivity growth significantly. Conclude that good corporate governance and competitive pressures are complements.

Coricelli and Djankov (2001)	Identify the presence of soft budget constraints and analyze their impact on enterprise restructuring in Romania during the initial transition period. Employ a simple analytical model and a sample of 4,429 enterprises with data from 1992-1995 to test whether hardening budget constraints promotes beneficial restructuring and new investment or whether access to external financing is required to promote new investment.	Find that hard budget constraints (HBCs) do promote passive restructuring, in the form of labor shedding, but not new investment. Active restructuring requires access to external financing. Tightened bank credit can induce HBCs and raise enterprise efficiency in the short-run, but at the cost of curtailing investment.
Earle and Telegdy (2002)	Examine impact of privatization—and method of privatization—on firm performance in Romania over the period 1992-1999. Employ a dataset of 2,354 firms owned by the State Ownership Fund (SOF) in 1992, and trace evolution of ownership over next six years; most of these (77%) still have some state ownership (50.9% median) in 1998.	Show consistently positive, highly significant effects of private ownership on labor productivity growth, with the point estimate implying an incremental 1.0 to 1.7 percentage point growth in productivity for a 10% rise in private shareholding. Insider transfers and mass privatizations have smaller, but still significantly positive effects.
Smith, Cin and Vodopivec (1997)	Using a sample with 22,735 firm-years of data drawn from period of “spontaneous privatization” in Slovenia (1989-1992), examine the impact of foreign and employee ownership on firm performance.	Find that a percentage point increase in foreign ownership is associated with a 3.9% increase in value-added, and for employee ownership with a 1.4% increase. Also find that firms with higher revenues, profits, and exports are more likely to exhibit foreign and employee ownership.

Table 5. Summary of Empirical Studies of Privatization in Russia and Former Soviet Republics

Study	Sample description, study period, and methodology	Summary of empirical findings and conclusions
Djankov (1999a)	Investigates the relation between ownership structure and enterprise restructuring for 960 firms privatized in six newly independent states between 1995 and 1997. Employ survey data collected by the World Bank in late 1997 from Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russia and Ukraine.	Show that foreign ownership is positively associated with enterprise restructuring at high ownership levels (>30%), while managerial ownership is positively related to restructuring at low (<10%) or high levels, but negative at intermediate levels. Employee ownership is beneficial to labor productivity at low ownership levels, but is otherwise insignificant.
Djankov (1999b)	Using same survey data as in Djankov (1999a) above, studies effects of different privatization modalities on restructuring process in Georgia (92 firms) and Moldova (149 firms). Georgia employs voucher privatization, while the majority of Moldovan firms are acquired by investment funds—and numerous others are sold to managers for cash.	Privatization through management buy-outs is positively associated with enterprise restructuring, while voucher privatized firms do not restructure more rapidly than firms that remain state-owned. Implies that managers who gain ownership for free may have less incentive to restructure, as their income is not solely based on the success of the enterprise.
Earle (1998)	Investigates the impact of ownership structure on the (labor) productivity of Russian industrial firms. Using 1994 survey data, examines differential impact of insider, outsider, and state ownership on the performance of 430 firms--of which 86 remain 100% state-owned, 299 are partially privatized, and 45 are newly-created. Adjusts empirical methods to account for tendency of insiders to claim dominant ownership in the best firms being divested.	OLS regressions show a positive impact of private (relative to state) share ownership on labor productivity, with this result primarily due to managerial ownership. After adjusting for selection bias, however, finds that only outsider ownership is significantly associated with productivity improvements. Stresses that leaving insiders in control of firms—while politically expedient—has very negative long-term implications for the restructuring of Russian industry.
Earle and Estrin (1998)	Using a sample very similar to that used by Earle (1998) above, examine whether privatization, competition and the hardening of budget constraints play efficiency-enhancing roles in Russia.	Find a 10 percentage point increase in private share ownership raises real sales per employee by 3-5%. Subsidies (soft budget constraints) reduce the pace of restructuring in state-owned firms, but the effect is small and often insignificant.
Jones and Mygind (2002)	Uses fixed effects production function models estimated on a random sample of 660 Estonian firms with data from 1993 to 1997. Privatization in Estonia created a widely varied ownership structures, and study attempts to estimate relationship between ownership and productive efficiency.	Find that, relative to state ownership, (1) private ownership is 13-22% more efficient, (2) all types of private ownership are more productive, though concentrated managerial ownership has the biggest effect (21-32% improvement), and ownership by domestic outsiders the smallest (0-15%), with ownership by foreigners (21-32%) and employees (24-25%) yielding intermediate levels of improvement.
Djankov and Nenova	Use data for over 6,600 Kazakh enterprises during 1996-99 to examine "why did privatization fail in Kazakhstan?" Trying	Find that newly created (de novo) private enterprises, established after 1992, perform markedly better than privatized firms or those that remain SOEs.

(2000)	to explain rapid declines in output for all sectors except oil and gas.	Privatized firms perform as badly as, or worse than, SOEs. Privatization fails to improve performance because divested firms are used as short-term vehicles for extracting private benefits.
Gregorian (2000)	Examines relationship between ownership and operating performance using a dataset of 5,300 small, medium and large Lithuanian companies with data over period 1995-1997. Performance defined as increased revenues and improved export performance. Also use regression analysis to study subsample of 618 companies which are fully state-owned in 1995; roughly half of these are partially privatized over next two years.	Conclude that privatization has brought significant performance improvements overall. Also find a negative bias in selecting firms for privatization; once this accounted for, performance improvement is even more dramatic (there is a nine-fold increase in the coefficient on private ownership). Expected subsidies contribute negatively to performance, but study finds no significant impact regarding market competition.
Anderson, Lee and Murrell (2000)	Examines effects of competition and ownership on the efficiency of newly privatized firms using a sample 211 Mongolian companies with (survey-derived) ownership data in 1995. Mongolia's privatization program is implemented in a country lacking the basic institutions of capitalism.	Finds that competition has qualitatively large effects; perfectly competitive firms have nearly double the efficiency of monopolies. Enterprises with residual state ownership appear to be more efficient than other enterprises, reflecting an environment where the government is pressured to focus on efficiency and institutions gave little voice to outside owners.
Estrin and Rosevear (1999)	Use a random sample of 150 Ukrainian firms with data from 1996 to test the relationship between enterprise performance and ownership. Explore whether privatization yields improved company performance and whether specific ownership forms lead to differentiated performance at the enterprise level.	Find that privatization, per se, is not significantly associated with improved performance, and find no benefit to outside (versus insider) ownership. Do find clear positive effects associated with insider ownership. Outside owners are never able to deliver performance superior to SOEs, and insider ownership does not yield a better profit performance than in non-privatized companies.
Andreyeva (2001)	Examines empirically the responsiveness of firm performance to ownership and market structures, sector and regional specificity, and varying degrees of soft budget constraints. Use a panel of 524 medium and large firms with performance data for 1996-98.	Find that firm efficiency improves significantly with privatization. Also document a significant influence of industry affiliation and regional location in shaping firm performance; more concentrated markets perform better. Concludes that a policy of attracting strategic investors capable of pushing restructuring and bringing new investment to privatized firms should become a priority for policy-makers.
Pivovarsky (2001)	Using data on 376 medium and large Ukrainian firms, investigate relationship between ownership concentration and enterprise performance.	Find that ownership concentration is positively associated with enterprise performance, and that concentrated ownership by foreign companies and banks is associated with better performance than concentrated domestic ownership. Concludes that privatization method has lasting impact on ownership structure; privatization methods that grant significant ownership stakes to single parties have greater efficiency gains than methods that create dispersed ownership.

Table 5. Summary of Recent Empirical Studies Examining Whether the Imposition of Hard Budget Constraints (HBC) and Improved Incentives for Managers Improves Corporate Performance

Study	Sample description, study period, and methodology	Summary of empirical findings and conclusions
Groves, Hong, McMillan and Naughton (1994)	Using a sample of data for 769 Chinese state-owned enterprises over the years 1980-89, examine the impact of developing a competitive managerial labor market on firm performance and management productivity.	Find that new positive and negative incentives were effective in promoting improved performance, and that management contracts were widely adopted as part of reform process. Poorly performing managers were more likely to be replaced, and managerial pay was linked to firm sales and profits. Output per worker rose 67 percent in real terms between 1980 and 1989 for sample firms. Competition improves performance without ownership changes.
Frydman, Gray, Hessel and Rapaczynski (2000)	Examine whether the imposition of hard budget constraints is alone sufficient to improve corporate performance in the Czech Republic, Hungary and Poland. Employs a sample of 216 firms, split between state-owned (31%), privatized (43%), and private (26%) firms.	Find privatization alone added nearly 10 percentage points to the revenue growth of a firm sold to outside owners. Most important, finds that the threat of hard budget constraints for poorly performing SOEs falters, since governments are unwilling to allow these firms to fail. The brunt of SOEs' lower creditworthiness falls on state creditors. Privatization required to improve performance; threat of HBC not credible.
Bertero and Rondi (2000)	Employing a sample of 150 Italian manufacturing SOEs, with 1,278 firm-year observations, examine whether imposition of a hard budget constraint can improve SOE performance. Exploits the fact that fiscal environment became much tighter for Italian state enterprises during the late 1980s.	Find that the SOE firms' response to increased debt during the hard budget constraint period, 1988-93, was consistent with financial pressure, but was not during the soft budget constraint period of 1977-87. Only during the later period do firms respond to financial pressure by increasing TFP and reducing employment. Imposition of HBC improves performance without ownership change.

Table 6. Summary of Empirical Studies of Privatization in China

Study	Sample description, study period, and methodology	Summary of empirical findings and conclusions
Sun and Tong (2003)	Evaluates the performance of 634 Chinese SOEs listed on stock exchanges during the period 1994-1998. Use both MNR pre- vs. post-privatization comparisons and panel data regression methods to examine whether partial divestment improves firm's earnings, output, and efficiency (real output per employee). Also examine differential effect of state and "legal person" shareholdings.	Using MNR methods, find significant improvements in return on sales and the level of real earnings, real sales, and employee productivity after partial privatization. Also find that more recently privatized companies are of higher quality—and perform better after divestment--than do those divested earlier. Panel data regressions verify basic findings that privatization improves performance, and find that different ownership structures have opposite effects on firm's performance. State shareholdings hinder performance, while "legal person" shareholdings promote improvements.
Wei, Varella, D'Souza and Hassan (2003)	Use MNR methods to test whether performance improves for 208 Chinese companies partially privatized through public share offering between 1990 and 1997.	Document significant improvements in real output, assets and sales, sales efficiency, the level of real profits and leverage. Firms in which more than 50% voting control is conveyed to private investors improve performance more than do those that remain state controlled.
Tian (2002)	Examines the ownership and control structure of 826 partially privatized companies listed on Chinese stock exchanges from 1994-1998 and tests the relationship between ownership structure and firm value—as measured by Tobin's q.	Find that government shareholding remain very large in partially privatized companies, and that the relationship between state holdings and firm value is U-shaped. Going from state ownership levels of 0 to 30%, increasing ownership causes firm value to decline, but after that Tobin's q increases with increasing state ownership.
Jia, Sun and Tong (2002)	Examine whether privatization through listing of Chinese companies in Hong Kong causes performance to improve. Uses a sample of 41 Chinese H-share SIPs from 1993-98. Use MNR and pooled regression panel data methodology.	Find that real net profits are unchanged after privatization, and that return on sales declines significantly. Output increases and leverage declines significantly. Regressions show that state ownership is negatively related to performance. H-share ownership has significant, positive effect on performance.