

FROM STATE TO MARKET: A SURVEY OF EMPIRICAL STUDIES ON PRIVATIZATION

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From State to Market: A Survey of Empirical Studies on Privatization

Abstract:

This study surveys the academic and professional literature examining the privatization of state-owned enterprises (SOEs), with a focus on empirical studies. The paper is written from the perspective of a policy-maker weighing the adoption of a national privatization program, who seeks answers to the following questions: (1) How large an impact have privatization programs actually had thus far on state involvement in different national economies?; (2) Has the decision to privatize been based on dissatisfaction with the economic performance of SOEs, and is there a viable policy alternative to divestment?; (3) Have privatization programs significantly improved the operating and financial performance of the companies divested?; (4) Once the decision to privatize is made, how do governments select the appropriate method and sequencing of selling state-owned assets?; (5) How do governments price the SOEs they wish to sell and how do they decide which potential buyers to favor?; and (6) Have investors who purchase the shares of privatized firms experienced positive short and long-term returns?

Privatization has been instrumental in reducing state ownership in many countries and had a transforming effect on global stock markets, although the role of SOEs in many other countries is similar to what it was two decades ago. Those countries that have adopted large-scale privatization programs have done so primarily for different reasons: first, the conclusive evidence that privately-owned firms outperform SOEs and, second, the empirical evidence clearly shows that privatization significantly (often dramatically) improves the operating and financial performance of divested firms. Further, governments have raised significant revenues through the sale of SOEs. While the choice between privatization via public share offering versus through asset sales is still imperfectly understood, factors such as firm size, government fiscal condition, and the state of national economic development are important influences. Further, those countries which have chosen the mass (voucher) privatization route have done so largely out of necessity--and face ongoing efficiency problems as a result. Governments have great discretion in pricing the SOEs they sell, especially those being sold via public share offering, and they use this discretion to pursue political and economic ends. While raising revenue through setting high offering prices for SOEs is important to governments, many trade this objective off in favor of targeting sales to preferred buyers in direct sales and allocating shares to domestic investors (particularly SOE employees) in share offerings. On average, investors who purchase the shares of firms being privatized earn significantly positive excess returns both in the short-run (due to deliberate underpricing of share issues by the government) and over one, three, and five-year investment horizons.

From State to Market: A Survey of Empirical Studies on Privatization

1. Introduction

It is rare for a completely new economic policy to move from novelty to global orthodoxy in the space of two decades. Nonetheless, this has occurred for the political and economic policy of privatization, defined as the deliberate sale by a government of state-owned enterprises (SOEs) or assets to private economic agents. Both the term and the modern policy of privatization were coined by Britain's Thatcher government in 1979, and it was then met with great skepticism by the public and by professional economists. Twenty years later, privatization has been accepted as a legitimate--often a core--tool of statecraft by the governments of more than 100 countries. This paper surveys the academic and professional literature that studies privatization, attempts to frame and then answer the key questions this stream of research has addressed, and then describes a few key lessons that have been learned about the promise and perils of selling off state-owned assets. Throughout this survey, we adopt the perspective of an advisor to a government policy-maker who is wrestling with the practical problems of whether and how to implement a privatization program. The policy maker asks: "what does the research literature have to tell us about this aspect of privatization as an economic policy?" Since these same issues would face (1) the manager of a multinational corporation weighing the purchase of an SOE in an asset sale program, (2) an investment banker charged with advising a government on the design of a privatization share offering or advising investors on the merits of purchasing stock of a newly-private firm, or (3) an academic researcher examining the interface between state and market, our approach is actually quite general.

This paper is organized as follows. Section 2 provides a brief historical overview of privatization programs, defines the different types of transactions which are called "privatization" in different regions, and examines the impact that privatization programs have had to date in reversing SOE involvement in the economic life of developed and developing countries. Section 3 surveys the recent theoretical and empirical research on the relative economic performance of state-owned versus privately-owned firms and concludes that this debate has now largely been resolved in favor of private ownership. This section also examines whether less radical methods of improving the performance of SOEs (such as deregulation or allowing greater competition) can be as effective as outright privatization. The vital issue of whether--and by how much--privatization programs have actually improved the economic and financial performance of divested firms is examined in section 4. We survey two types of empirical studies in this section: those which focus on a single country or a single industry (or single firm) and those which study multi-national and multi-industry privatization samples. Section 5 lays out the key issues a government wishing to implement a privatization

program must face regarding the method(s) of selling state-owned assets, the proper sequencing of SOE sales, and the ways governments conduct those sales in order to balance competing economic and political considerations. This section also surveys the literature for guidance regarding whether certain industries (particularly banking) are especially difficult to privatize or should be divested before or after certain other industries. A similar set of issues -- but this time concerning the pricing of SOE offerings -- is examined in section 6. This section also documents how governments can adjust the terms of a public share offering to achieve a desired post-issue ownership structure and corporate control equilibrium. Section 7 assesses whether those domestic and international investors who have purchased privatizing share offerings have experienced positive initial and long-term investment returns. Section 8 concludes and summarizes our survey.

2. How large has the impact of privatization really been to date?

Given the great fanfare privatization receives in the popular and business press around the world, and the fact that privatization has become a key part of economic policy in many countries, it would be easy to conclude that privatization has already “won” its battle to roll back the involvement of the state in global economic activity. Actually, the evidence is more nuanced. In certain countries -- particularly in western Europe -- privatization has indeed dramatically reduced the number and sway of state-owned enterprises.¹ Furthermore, its impact on global stock market capitalization and trading volume has been nothing short of transforming. Outside of the European Union, however, SOEs retain much of their historic role. To understand the differential impact of privatization on the state’s role in different economies, it is important to first understand how this policy has evolved historically.

2.1. Historical overview of privatization

Although most people associate modern privatization programs with Margaret Thatcher’s conservative government which came to power in Great Britain in 1979, the first large-scale, ideologically-motivated “denationalization” program of the postwar era was launched by the government of Konrad Adenauer in the Federal Republic of Germany.² In 1961, the German government sold a majority stake in

¹ Throughout this paper, we will use the definition of state-owned enterprises given in World Bank (1995): “government-owned or government-controlled economic entities that generate the bulk of their revenues from selling goods and services.”

² The historical overview presented here is based on a longer historical discussion in Megginson, Nash, and van Randenborgh (1994). Other discussions of the historical evolution of privatization include Jenkinson and Mayer (1988), van der Walle (1989), Shirley and Nellis (1991), World Bank (1995), Brada (1996), Bennell (1997), and Yergin and Stanislaw (1998).

Volkswagen in a public share offering heavily weighted in favor of small investors. Four years later, the government launched an even larger offering for shares in VEBA. Both offerings were initially received very favorably, but the appeal of share ownership did not survive the first cyclical downturn in stock prices, and the government was forced to bailout many small shareholders. It was almost twenty years before another major western nation chose to pursue privatization as a core economic or political policy.³

While the Thatcher government may not have been the first to launch a large privatization program, it is without question the most important historically. Although not a major campaign theme for the Tories in 1979, privatization was embraced enthusiastically, and Margaret Thatcher is credited with changing the policy's name from "denationalization" to the more appealing, "privatization."⁴ Early sales were bitterly attacked by the Labour opposition, which threatened to renationalize divested firms such as British Aerospace and Cable and Wireless if elected, and it was not until the immensely successful British Telecom initial public offering in November 1984 that privatization was firmly established as a basic economic policy. A series of truly massive share issue privatizations (SIPs) during the last half of the 1980s and early 1990s reduced the role of SOEs in the British economy to essentially nothing after the Tories left office in 1997, from over 10 percent of GDP eighteen years earlier when the Tories took office.

It is worth noting that the objectives set for the British privatization program by the government were virtually the same as those listed by the Adenauer administration twenty years before--as well as virtually every government that has adopted such a program in the years since. These goals, as described in Price Waterhouse (1989a) are to: (1) raise revenue for the state, (2) promote economic efficiency, (3) reduce government interference in the economy; (4) promote wider share ownership, (5) provide the opportunity to

³ A few non-European governments did, however, pursue privatization during the 1965-79 period. In particular, the Pinochet government of Chile, which gained power after the ouster and death of Salvador Allende in 1973, attempted to reprivatize companies that the Allende government had nationalized during its short but eventful reign. However, the process was poorly executed and required very little equity investment from purchasers of assets being divested. Thus, many of these same firms were renationalized once Chile entered its debt and payments crisis in the early 1980s. Chile's second privatization program, which was launched in the mid-1980s and relied more on public share offerings than direct asset sales (where the government acted as creditor as well as seller) was much more successful. The Chilean programs are described and assessed in Yotopoulos (1989).

⁴ Anyone working in this area will soon notice that the last three syllables of "privatization" are sometimes spelled with an "s" and sometimes with a "z," with the latter generally being used by British writers and the former by most everyone else. Although equity perhaps suggests that the nation which popularized the policy should get the honor of mandating its spelling, empirical evidence suggests the z-spelling is winning out. Of the 81 articles in our reference list with either privatization or privatisation in their titles, 70 use "z" while 11 use "s".

introduce competition, and (6) expose SOEs to market discipline. The other major objective mentioned by the Thatcher and subsequent governments is the goal of developing the national capital market.⁵ Note these goals can be conflicting. For example, we discuss later how governments make the tradeoff between raising revenue and promoting efficiency.

The success of the British privatization program in general, and the British Telecom offer in particular, helped convince many other industrialized countries to begin divesting SOEs through public share offerings. The French government of Jacques Chirac, which came to power in 1986, privatized no fewer than 22 companies (worth \$12 billion) before being ousted in 1988. The returning Socialist government did not execute any further sales, but neither did it renationalize the divested firms. Beginning in 1993, the Balladur government launched a new and even larger French privatization program, which has continued under the Jospin administration (the Socialists, in fact, launched the largest French privatization ever, the \$7.1 billion French Telecom initial public offering (IPO) in October 1997). Several other western European governments--including Italy, Germany and, most spectacularly, Spain--also launched very large privatization programs during the late-1980s and early-1990s. These programs typically relied on public share offerings, and were often launched by avowedly socialist governments.

Outside of western Europe, fewer neat historical patterns can be observed. Japan has sold only a relative handful of SOEs during the past twelve years (usually relying on SIPs), but many of these have been truly enormous. The three Nippon Telegraph and Telephone share offerings executed between February 1987 and October 1988 raised almost \$80 billion, and the \$40 billion NTT offer in November 1987 remains the largest single private-sector security offering in history. Elsewhere in Asia, governments have tended to take an opportunistic approach to SOE divestment--selling pieces of large companies when market conditions were attractive, or when money was needed to plug budget deficits. It is uncertain how the economic difficulties that have gripped the region since mid-1997 will impact privatization sales in the future.

On the other hand, two Asian countries deserve special attention, since they are already the world's second and fifth largest economies on a purchasing-power-parity basis, and promise to become even more economically prominent in the coming millenium. The People's Republic of China launched a major economic reform and liberalization program in the late-1970s that has transformed the productivity of the Chinese economy in only twenty years, but to date there have been relatively few outright privatizations of SOEs (Li (1997)). Though the government has pledged itself to just such a program, the fact that Chinese

⁵ Similar, though more detailed, discussions of the goals of the British privatization program are presented in Menyah, Paudyal, and Inganyete (1995) and Menyah and Paudyal (1996).

SOEs are burdened with so many social welfare responsibilities suggests that it will be extraordinarily difficult to implement a privatization program large enough to seriously undermine the state's economic role (Lin, Cai, and Li (1998) and Bai, Li, and Wang (1997)). The other special Asian case is India, which adopted a major economic reform and liberalization program in 1991, after being wedded to state-directed economic development for the first 44 years of its independence. India's reform program shares two key features with China's: it was adopted in response to highly disappointing SOE performance (Majumdar (1996) and Gupta (1997)) and privatization has thus far not figured prominently in the reform agenda.

One region which has embraced privatization with enthusiasm is Latin America. Chile's program is important both because it was Latin America's first and because the 1990 Telefonos de Chile privatization--which employed a large American depository receipt (ADR) share tranche that was targeted towards U.S. investors--opened the first important pathway developing countries could use to directly tap western capital markets. Mexico's program was both vast in scope and remarkably successful at reducing the state's role in what had been a very interventionist economy.⁶ Bolivia's innovative "capitalization" scheme has been widely acclaimed (Bowen (1997)) and several other countries have executed very large divestment programs. However, the most important program in the region is easily Brazil's. Given the size both of Brazil's economy and its privatization program, and the fact that the Cardoso government has been able to sell several very large SOEs (CVRD in 1997 and Telebras in 1998) in spite of fierce political opposition, this country's program is likely to prove highly influential.

Privatization in sub-Saharan Africa has been something of a stealth economic policy. Few governments have openly adopted an explicit SOE divestment strategy, but Bennell (1997) clearly shows that there has been substantially more privatization in the region than is commonly believed. The experience of the African National Congress after it came to power in South Africa is also instructive of the policy realities governments with interventionist instincts face in this new era. Though nationalization and redistribution of wealth have been central planks of ANC ideology for decades, the Mandela government has almost totally refrained from nationalizations, and has even sold off several SOEs (though use of the word privatization remains taboo). Whereas rich countries such as Canada can choose not to privatize even poorly-performing SOEs (Stanbury (1994)), poorer countries generally do not have such luxury of choice. As Ramamurti (1992) shows, privatization is most likely to occur in those developing countries with high budget deficits, high

⁶ LaPorta and López-de-Silanes (1997) report that in 1982 Mexican SOEs produced 14 percent of GDP, received net transfers and subsidies equal to 12.7 percent of GDP, and accounted for 38 percent of fixed capital investment. By June 1992, the government had privatized 361 of its roughly 1,200 SOEs and the need for subsidies had been virtually eliminated.

foreign debt, and high dependence on international agencies such as the World Bank or IMF.⁷ (For additional details, see Campbell-White and Bhatia (1998)).

The last major region to adopt privatization programs, the former Soviet-bloc countries of central and eastern Europe, did so as part of a much broader effort to rapidly transform themselves from command into market economies. They therefore faced the most difficult challenges and had the most restricted set of policy choices. After the collapse of communism in 1989-91, all of the newly-elected governments of the region faced the imperative need to create something resembling a market economy as quickly as possible. However, political considerations required these governments to significantly limit foreign purchases of divested assets. Since the region had very little financial savings, these twin imperatives compelled governments throughout the region to launch “mass privatization” programs that generally involved distributing vouchers to the population which citizens could then use to bid for shares in companies being privatized. Although these programs resulted in a massive reduction of state ownership, and the programs were (initially) very popular politically, the net effects of these programs remain poorly understood. We discuss the evidence on voucher privatization briefly in section 5.

2.2. *Economic impact of privatization*

The historical discussion above suggests a significant triumph of privatization over state ownership, and in a few countries this has in fact occurred. As Figure 1 demonstrates, the role of state-owned enterprises in the economies of industrialized countries declined significantly from 1978 through 1991.⁸ SOEs accounted for roughly nine percent of GDP in OECD countries in 1978, but this had declined to less than seven percent ten years later. Data presented and discussed in Haggarty and Shirley (1996), Schmitz (1996), and Bortolotti, Fantini, Siniscalco, and Vitalini (1998)--as well as our own empirical work on share issue privatization--suggests that the SOE share of industrialized-country GDP has continued to decline since 1988, and has now probably fallen below five percent. Furthermore, the mass privatization programs in the transition economies of central and eastern Europe, mentioned above, have dramatically reduced the level of state ownership of

⁷ Ramamurti also concludes that privatization in Latin America and Asia is more likely to occur in countries which have “over-used” state ownership in the past, and in which the private sector has grown fast enough to take over the duties--and employ the workers--once assigned to SOEs. In Africa, however, he feels the policy may have been imposed by external forces on countries that were not necessarily ripe for privatization.

⁸ The World Bank database from which figure 1 is created can be accessed via the internet at <http://www.worldbank.org/html/prdfp/bib/bibdata.htm>, and provides data through 1991. Additionally, Kikeri, Nellis, and Shirley (1992) discuss the fact that, by 1992, more than 80 countries had adopted privatization programs that had privatized 2000 SOEs in developing countries, 6800 worldwide.

business. In a country such as the Czech Republic, where Shafik (1995) reports the state owned 98 percent of all property in 1989, the reduction in SOE involvement to the 30-50 percent range common throughout the region today must seem nothing short of miraculous--even if declining state ownership does not necessarily mean a commensurate decline in state influence.⁹

****** Insert Figure 1 about here ******

On the other hand, Figure 1 also documents that the role of SOEs in developing countries has shown very little tendency to decline from 1978 through 1991, and in some cases is actually increasing. For developing countries as a whole, SOEs represented on average about 11 percent of GDP in 1991, slightly higher than their share in 1978. SOEs have increased their role in Asian and Latin American developing economies, and have declined in importance only slightly in Africa--where they retain the highest fractional share of GDP (over 13 percent) of any region. Furthermore, the measured level of SOE involvement in developing countries almost certainly understates its true role, because these measures generally exclude agricultural and financial SOEs and those operated by a state or region rather than by the central government (Haggarty and Shirley (1996)), and because SOEs dominate the crucial area of manufacturing in low-productivity developing countries (Schmitz (1996)). However, other evidence suggests that there has been a decrease in state involvement in the economy through SOEs in developing countries, although the recent worldwide economic crisis may impact these changes.

The primary reasons why privatization has made so little headway in developing countries are not hard to find. As Vernon-Wortzel and Wortzel (1989), Nellis and Kikeri (1989), World Bank (1995), and many others point out, most developing countries created SOEs to produce goods and services the private sector seemed unable or unwilling to offer. An idealistic interpretation of the current situation in many developing countries--assuming that a benevolent government is making policy decisions in the (perceived) best interests of their citizenry--would maintain that governments are ideologically reluctant to relinquish state control because they fear that the private sector would not step in to produce the necessary goods and services at an acceptable cost.¹⁰ A more pragmatic interpretation of government incentives (Shleifer and

⁹ Frydman, Pistor, and Rapaczynski (1996), Blanchard and Aghion (1996), Pistor and Spicer (1997), and Meyendorff and Snyder (1997) all document that the state retains significant--often decisive--influence in "privatized" firms in the transition economies, either as a large shareholder or as a lender/subsidizer of last resort, or both.

¹⁰ Nor are all modern authors convinced that market socialism *should* be discarded. For a sophisticated argument in favor of reforming--rather than rejecting--socialist economic institutions, see Bardhan and Roemer (1992).

Vishny (1994), Boycko, Shleifer, and Vishny (1996a,b), and Shleifer (1999)) argues that politicians are reluctant to privatize because they do not wish to surrender their ability to operate SOEs in ways that provide economic benefits for their political supporters. This is what Nellis (1994) calls the “common and deadly ailment of public enterprises: interference by owners who have more than profit on their minds.”

As the above discussion shows, whether or not governments *should* privatize--whether this would improve economic performance--is ultimately an empirical issue, and is what we will focus on in sections 3 and 4. Before addressing this question, however, we will briefly examine one area where privatization has unquestionably been profoundly influential--promoting the development of international capital markets.

2.3. *The impact of privatization on stock market capitalization and trading*

Although privatization by public share offerings has only been pursued vigorously since 1981, its effect on the market capitalization and trading volume of stock markets around the world has been transforming. Table 1 details the market value, sales, and profits of the 34 largest publicly-traded privatized firms (those with market capitalizations of at least \$15 billion) listed in the *Business Week* “Global 1000” and “Top 100 Emerging Market Companies” in July 1998. The fact that 75 of the Global 1000, and 29 of the Top 100 Emerging Market companies, are privatized firms implies that total world stock market capitalization would today be substantially smaller if privatization had not emerged as such a popular policy. The total capitalization of these firms, \$1.683 *trillion*, is equal to 9.74 percent of the combined Global 1000 and Top 100 samples. However, no fewer than 419 of the Global 1000 companies are American firms, and when these are excluded the impact of privatization on non-U.S. equity markets is even more dramatic; privatized companies represent 20.1 percent of the total capitalization of the non-US companies on the combined Global 1000 and Top 100 Emerging Market lists. The most dramatic comparison expresses the privatized firms’ market capitalization as a fraction of the total Top 100 Emerging Market Companies’ values. Not only are the four most valuable emerging market companies all privatized firms, but former-SOEs on the list collectively account for 36.6 percent of the Top 100 Emerging Market Companies’ total value.

****** Insert Table 1 about here ******

Even more important than their aggregate value is the “bellweather” role privatized firms play in non-US stock markets. The fourth column of table 1 details each firm’s market value ranking in its national stock market. Privatized firms are the most valuable publicly-traded companies in Japan, Italy, France, Spain, Russia, Brazil, Australia, Singapore, Hong Kong, China, Mexico, and Portugal, and are the second most valuable in Britain and Germany. They occupy the first and second places in France and Italy, and first and third in Spain; in all three nations the role privatization has played in transforming national investment

cultures would be difficult to overstate.¹¹ When the impact of privatized firms is measured using either sales or profits, similar aggregate and national patterns are observed--and sales rankings indicate that privatized firms are even more important.

Another way to measure the impact of privatized firms on capital market development is to examine how important SIPs have been as security offerings, and here the impact is even greater. As table 2 shows, the 18 largest--and 33 of the 38 largest--share offerings in history have all been privatizations. No fewer than 27 SIPs have been larger than the biggest U.S. share offering, the \$4.4 billion Conoco IPO in October 1998, and our research indicates that 112 SIPs have raised at least \$1 billion (a stock offering size rarely observed in the United States). Seventeen SIPs have raised more than \$7 billion--a feat no private-sector issuer has ever achieved. In total, governments have raised more than \$500 billion through some 630 public share offerings since 1977. Outside of the entire U.S. corporate sector, this is an unprecedented volume of common equity issuance, and it has fundamentally changed the nature of global stock market trading and investment.

****** Insert Table 2 about here ******

3. Why have governments embraced privatization programs?

While privatization has been popular with investors and brokers, few national governments make core economic policy decisions with their interests in mind. Why therefore have governments throughout the world embraced privatization so enthusiastically? One simple answer is of course the money that divestment can raise. According to Goodman and Loveman (1991), the worldwide total sales of SOEs had already topped \$185 billion by 1990, and our own research (based largely on data provided by *Privatisation International*) indicates that governments have raised over two-thirds of a trillion dollars just through share offerings and direct sales (excluding voucher privatizations) since 1977. Further, with the annual pace of divestments during the late 1990s exceeding \$100 billion, at least one commentator has predicted that \$6 trillion of privatization assets will be sold over the next twenty years, with fully half of that coming from eastern Europe and China.

¹¹ As examples, consider the 1997 privatizations of Telecom Italia and France Telecom, and the four SIP offerings which reduced the Spanish government's holdings in the bank Argentaria from 100 percent to zero between 1993 and 1998. First, the \$15 billion Telecom Italia SIP was the largest share offering in European history, and capped a frenetic three-year period that saw the Italian state sell stock worth \$50.2 billion in fourteen enthusiastically-received offerings. Second, the France Telecom offer yielded a record 3.9 million individual shareholders in a country with a population of only 65 million people. Finally, after Argentaria was fully divested, one Spanish household in three owned common stock.

On the other hand, divestment revenue alone cannot be the sole reason that privatization has become popular. After all, if governments were selling highly-profitable SOEs, the revenue they received from share sales would be offset by lost profit remittances in the future. The deeper answer must therefore lie in a recently-changed perception about the effectiveness of state ownership of economic assets that has occurred in many different countries. To understand the reasons for this global reconsideration of one of the central tenets of postwar western economic thought, we must attempt a survey of the recent literature on the relative efficiency of state versus privately-owned firms. Given the breadth of this literature, however, all we can hope to achieve is a sampling of the most influential articles.

3.1. Recent evidence on the relative performance of state-owned and privately-owned firms

Philosophers (and later economists) have been debating the proper role of the state in the business affairs of a free citizenry at least since the days of Pericles, and the modern political conception of “left” and “right” wings of the political spectrum dates from the split of assembly representatives in Revolutionary France. In the immediate post-World War II period, however, western political debate centered around how deeply involved the national government should be in regulating the national economy and (outside the United States) on which industrial sectors should be reserved exclusively for state ownership. Until the Thatcher government came to power in 1979, the answer to this debate throughout much of the world was that the government should control at least telecommunications and postal services, electric and gas utilities, most forms of non-road transportation (especially airlines and railroads), and certain “strategic” manufacturing industries such as steel and defense production. In many countries, state-owned banks were also given either monopoly or protected positions. Thatcher’s government launched a direct challenge to this ideology, and its success promoted privatization in many other countries.¹²

What is surprising about the quick spread of privatization as an accepted political doctrine is that much of the academic literature through the late-1980s supported state ownership either theoretically or empirically. Since most of this early literature is surveyed elsewhere (particularly in Boardman and Vining (1989)), we will cite but few of these papers here and will instead concentrate on the literature of the last dozen years. Early empirical papers supporting the optimality (or at least the economic competitiveness) of state ownership include Caves and Christensen (1980), Färe, Grosskopf, and Logan (1985), and Atkinson and Halvorsen (1986). Furthermore, several of the early assessments of the British privatization programs--including Kay and Thompson (1986), Yarrow (1986), Vickers and Yarrow (1988), Bishop and Kay (1989),

¹² A truly exceptional discussion of how state ownership became accepted as economic orthodoxy in the immediate post-World War II era, and then was largely discredited after 1979, is presented in Yergin and Stanislaw (1998).

Beesley and Littlechild (1989), and Caves (1990)--were at best only mildly approving, and at worst were highly critical. The general conclusion of these early analyses was that other methods of reforming SOEs, such as injecting more competition or providing more consistent oversight, might either have been more effective or entailed fewer social costs--though Yarrow (1986) acknowledges that the gains achieved without privatization would have been difficult to sustain. More recently, Kole and Mulherin (1997) show that government ownership (of confiscated World War II enemy assets in the United States) did not necessarily lead to poor economic performance.

Several theoretical papers also either favor state over private ownership, or conclude that there is no unambiguously preferable form of ownership. Sappington and Stiglitz (1987) examine the choice between public and private provision of goods and consider when one method will dominate the other. They argue that the principal determinant of this choice is a function of the level of transactions costs from the delegation of authority under informational asymmetry a government faces when it wishes to intervene in the delegated production of goods, which occurs under both state and private ownership. Their Fundamental Privatization Theorem concludes that government intervention is less costly under government ownership, but the government's promise not to intervene is more credible under private ownership. Though they take a balanced approach, Sappington and Stiglitz also acknowledge that it is not necessarily optimal to make government intervention easy. Laffont and Tirole (1991) recast the ancient public versus private debate in the framework of modern agency theory, and ask which form of ownership is more likely to promote social welfare. They examine the choice between public ownership and public regulation of a privately-owned firm, which is a very common choice encountered in many industries (telecoms, utilities, airlines, banking, etc.). The authors find that the cost of public ownership is suboptimal (excessive) investment by SOE managers in those types of assets that can be appropriated by public owners for redeployment to serve social, rather than profit-maximizing, objectives. The cost of private ownership is goal incongruity, since the firm's managers must try to satisfy two masters--regulators and shareholders. Finally, DeFraja (1993) compares the degree of X-inefficiency which results from the imposition of the optimal incentive contract on public versus private firms when there are two possible states of the world and significant agency problems between managers and principals. This paper establishes the surprising result that public ownership always results in a higher level of productive efficiency in the good state of the world because consumers' welfare enters into the government's utility function, but not into that of private-firm managers. Hence the government has more to gain from an increase in productive efficiency and should therefore be willing to pay more for that gain.

While economists since Adam Smith have outlined the benefits of market versus state allocation of resources, Frederich von Hayek's passionate critiques of the welfare state and collectivism, exemplified in the

1944 book *The Road to Serfdom*, may have had the most direct impact on policymakers. Yergin and Stanislaw (1998, p. 98-107) write how Hayek's work was the intellectual basis for Keith Joseph and then Margaret Thatcher, the Tory politicians who began the intellectual campaign against statism in the U.K. that triggered the worldwide privatization movement. Yergin and Stanislaw detail how in the mid-1970s the newly-chosen Tory leader Margaret Thatcher stopped a Tory research staff member who was arguing that the Conservatives adopt a middle way between left and right by slamming down a copy of Hayek's book *The Constitution of Liberty* on the desk, saying "this is what we believe" and then delivering a speech on the problems of the British economy.

Many others have developed theoretical models and empirical evidence that have contributed to the movement towards markets. This is not the place to discuss this vast body of work other than to highlight a few key contributions. One of the most consistent and persuasive critics of state ownership--and, more generally, the entire socialist system, due to the human and economic damage it inflicts on a captive citizenry--is Janos Kornai, who analyzes the peculiar incentives resulting from state economic control in a series of articles and books (e.g., Kornai (1988)). Kornai is also credited with coining the highly-descriptive phrase "soft budget constraint" as an explanation of why governments find it so hard to impose financial discipline on profligate SOEs (Berglof and Roland (1993)).

Vining and Boardman (1992) take issue with theorists who feel that "competition (deregulation) is more important than ownership (privatization)" in improving the economic performance of SOEs. They argue theoretically, and then show empirically, that performance enhancement requires private ownership and control. Another paper which looks theoretically at the choice between privatization versus deregulation is Fridman (1997), who examines the choice between divestment and price liberalization (defined as a gradual increase in state retail prices) as a transition tool for developing a market economy. The author concludes that privatization is better than liberalization during the entire transition period, regardless of individual preferences.¹³

Drawing on the incomplete contracts literature, Hart, Shleifer, and Vishny (1994), and Shleifer (1998) conclude that private ownership must be preferred to public ownership whenever the incentive to innovate and contain costs is strong. If complete and enforceable contracts could be written, public versus private provision of goods and services would usually yield similar efficiency results. If only incomplete

¹³ In a somewhat related theoretical model, Anderson, de Palma, and Thisse (1997) ask what happens to retail prices when a SOE that is currently competing against a private firm in an imperfectly competitive market is privatized. In the short run, privatization is harmful, because the disciplinary role of the SOE is lost and prices rise. In the long term, privatization is beneficial because it promotes new entry into the industry.

contracts can be written then it becomes very difficult to motivate an agent to control costs or to invest in noncontractible “quality” improvements. The authors find that government managers (agents) have very poor incentives to either cut costs or improve quality, and that private ownership is therefore preferable in almost every realistic industrial setting. Public ownership is preferred only when (1) cost reduction opportunities lead to non-contractible quality reductions that are significant;¹⁴ (2) innovation is relatively unimportant; (3) competition is weak and consumer choice is ineffective; and (4) reputational mechanisms are weak. Even here, the non-profit organizational form will generally be preferable to public ownership. Additionally, in a survey of the early literature that underpinned the post-war embrace of state-owned enterprises, Shleifer (1998) concludes that economists of the 1930s and 1940s had an overwhelming desire to prevent price competition, which led them to espouse state ownership as a means of its elimination.

In the context of China, Lin, Cai, and Li (1988) argue that the root cause of the problem of poor state sector profitability (40 percent of Chinese SOEs are losing money) is the separation of ownership and control--which refers to a problem far more serious than western financial economists are accustomed to expect from that phrase. These authors provide an analysis of industrial organization under a Soviet command economy. They explain why SOE managers *must* be made automatons under such a system: the system suppresses price as a means of resource allocation to mobilize those resources for priority projects (usually development of heavy industry). The problem for SOEs comes about once limited reform begins, since now alternative markets for resources (especially labor) both increase the costs of production and drive up the value of those resources allocated to SOEs by the state--tempting SOE managers to redirect state resources to private use. SOEs are rendered noncompetitive in any mixed economy for two reasons: (1) they are allocatively inefficient because sectoral allocations resulting from state priorities typically ignore national comparative advantages, and (2) they have low technical efficiency because managers have no way to motivate workers and no incentive to improve their operations. In the specific case of China, the authors conclude that SOEs face even greater burdens, because the state has imposed on enterprises social welfare functions such as worker housing, schooling, health care, and pensions that are provided by the state in other countries. Unless these “policy burdens” are removed, SOEs will likely fall even further behind--and, given

¹⁴ Hart, Shleifer, and Vishny (1997) offer an intriguing example of how ignoring noncontractible costs can lead to serious social costs with their application of incomplete contracts theory to the case of prisons. In the absence of judicial and legal restraints, a private operator of prisons would have an excessively strong cost-reduction incentive and an insufficient incentive to invest in quality improvements (prisoner safety and comfort).

the magnitude of the social problems their widespread failure would cause, it is impossible for the state to impose true hard budget constraints.

Boycko, Shleifer, and Vishny (1994) also find that SOEs are rendered unprofitable by deliberate government policy choices. In their model, politicians value SOEs because they can use them to favor their political supporters through excessive employment, regionally targeted investments, and deliberate underpricing of products or overpricing of purchased inputs (from politically-connected suppliers). Politicians have an incentive to bribe managers--in order to increase excess employment--and managers have incentives to bribe politicians for promotion or tenure in office, so corruption arises endogenously in this model. Since politicians bear few of the costs of the economic inefficiency they promote, yet capture most of the (political) benefits, they have little incentive to pursue meaningful reform. Boycko, Shleifer, and Vishny (1996) go a step further and explain why privatization is the *only* way to break this cycle of subsidy and inefficiency, since privatization raises the cost to politicians of intervening in a firm's operations. To induce a private-firm manager to hire excess workers, or build a bizarrely-located factory, a politician would have to offer the manager an explicit cash subsidy drawn out of general Treasury funds. Due to the visibility and alternative demands that are always made on tax revenues, paying cash subsidies is far costlier to politicians than non-cash (and less visible) subsidies in the form of foregone SOE profit remittances. In summary, SOEs are highly inefficient primarily because they pursue the political objectives of politicians who control them, and this can only be resolved by transferring the firms to private ownership--preferably to outside shareholders rather than managers, since the latter have incentives similar to politicians to maintain excess employment.

Although the theoretical battle has been moving steadily against state ownership during the past decade, the true measure of SOE effectiveness must be based on empirical research--and the recent evidence is overwhelmingly in favor of private over state ownership. In a highly-influential survey and empirical paper, Boardman and Vining (1989) examine the economic performance of the 500 largest non-U.S. industrial firms in 1983. Using four profitability ratios, and two measures of X-efficiency, they document that state-owned and mixed (state and private ownership) enterprises are significantly less profitable and productive than privately-owned firms. They also find that mixed enterprises are no more profitable than SOEs, suggesting that full private control--not just partial ownership--is essential to achieving performance improvement. In a later study, Vining and Boardman (1992) again examine empirically the state versus private ownership question using a sample of Canadian firms. Their results are qualitatively similar to the earlier findings, except the latter study finds mixed enterprises are in fact more profitable than SOEs--though they fall far short of private-firm levels.

One other large, multi-industry, multi-national study that examines the relative efficiency of state versus privately-owned firms is Dewenter and Malatesta (1998). They test whether the profitability, labor-intensity, and debt levels of SOEs in the 500 largest international companies in 1975, 1985, and 1995 differ from privately-owned firms in the same samples. After controlling for business cycle effects, they find strong evidence that private companies are significantly (often dramatically) more profitable than SOEs, and also have lower levels of indebtedness and less labor-intensive production processes than their state-owned counterparts.

Two other recent studies empirically address the state versus private ownership question using data from a single country or a single industry, and these strongly support the overwhelming advantages of private ownership. Ehrlich, Gallais-Hamonno, Liu, and Lutter (1994) document that state ownership tends to lower the long-run rate of productivity growth and/or cost decline in their sample of 23 international airlines, which they study over the period 1973-83. A full switch to private ownership may increase the rate of cost decline by 1.7 percent per year, but only full privatization can achieve these savings. Finally, Majumdar (1996) empirically answers the long-brewing debate between the efficiency of public versus private ownership in India strongly in favor of the latter. Using aggregate (industry-level) survey data, the author finds that SOEs owned by the central and state governments have average efficiency scores of 0.658 and 0.638, respectively, over the period 1973-89, while mixed enterprises have scores of 0.92 and private enterprises have scores of 0.975. Though researchers find performance improvements for SOEs in those periods when the Indian government was making a concerted deregulation effort, these proved fleeting, and the author concludes that only private ownership can improve India's woeful long-term economic performance.

Taken as a whole, the academic evidence now strongly favors private over public ownership of business enterprise on both efficiency and profitability grounds. In the next section, we examine whether the policy of privatization has been successful in transforming former SOEs into svelte, competitive private enterprises. Before doing so, however, we will briefly pause to examine whether there is a viable policy alternative to full-scale privatization--such as deregulation or liberalization--or whether only the hard stuff (full divestiture) will suffice.

3.2. *Are there policy alternatives to privatization?*

We have discussed many of the important theoretical and survey articles which predict that competition and/or deregulation is more important than privatization [Yarrow (1986), Kay and Thompson (1986), Vernon-Wortzel and Wortzel (1989), Bishop and Kay (1989), Vickers and Yarrow (1991), and Bardhan and Roemer (1992)], as well as those that maintain that only privatization will do [Vining and Boardman (1992), Boycko, Shleifer, and Vishny (1994, 1996), Nellis (1994), Brada (1996), and Shleifer

(1999)], we focus here on four empirical studies that examine countries where economic reform has been implemented instead of--or prior to--full privatization.

First, Sachs (1992) assessed the prospects for economic transformation early in Russia's reform period, when the Soviet system had collapsed, but before large-scale privatization had occurred. His analysis suggested that only rapid and economy-wide privatization offered any real hope for addressing the systemic crisis faced by the state sector. Since literally thousands of firms would have to be divested, he recommended the authorities take a multi-prong approach--auctioning off small shops, "commercializing" larger firms and turning them into stock companies prior to distributing shares to workers and outsiders, and allowing worker buy-outs of mid-size firms. He felt special attention had to be paid to privatizing banks, which should be sold off first so they could play a vital corporate governance and disciplinary role. Unfortunately, even though the Russian government implemented many of these proposals, no serious attempt was ever made to replace SOE managers and other insiders who opposed (or were incapable of embracing) reform, and the result six years later has been economic calamity for Russia.¹⁵

Pinto, Belka, and Krajewski (1993) examine how the Polish state sector responded in the three years following Poland's "Big Bang" reforms of January 1990. These reforms deregulated prices, introduced foreign competition to many industries, and signaled that tight monetary and fiscal policies would be pursued--but the Polish government did not immediately launch a large-scale privatization program. The authors document significant performance improvements on the part of most manufacturing firms due, they conclude, to the imposition of hard budget constraints reinforced by tighter bank lending behavior, consistency in the government's "no bailout signal," import competition, and reputational concerns on the part of SOE managers.

Third, Li (1997) documents marked improvements in the marginal productivity of factors and in the total factor productivity of 272 Chinese SOEs over the period 1980-89 as a result of economic reforms initiated in 1979. This is evidence that enterprise restructuring that concentrates on improving the allocation of property rights and incentives can yield large benefits even without privatization. Finally, the Majumdar (1996) article cited above also suggests that reform can improve SOE performance. Though the distinctive result of this paper is that private firms are vastly more efficient than SOEs, the author also shows that the

¹⁵ The flaws in Russia's privatization program are analyzed in Boycko, Shleifer, and Vishny (1994) and Frydman, Pistor, and Rapaczynski (1996). As of September 1998, the Russian government had defaulted on its domestic and international debt and the country was in an economic free fall, with the ruble depreciating from 6.2 per dollar to over 20 in less than one month, and with the RTS stock market index falling almost 90 percent from its level eleven months earlier.

gap between the two types of firms partly closes during those periods when governments are pushing reform agendas.

This literature suggests that economic reform alone *can* improve economic performance. Naturally, this begs the question whether economic reform coupled *with* privatization can lead to even greater performance improvements. Given their relative lack of technological sophistication, developing countries (especially those in sub-Saharan Africa) may need market and political reform, as well as privatization and joint ventures with foreign technical partners, to ensure the success of private enterprise. That, is numerous changes are required to underpin the privatization process, although we still need research on the appropriate combination of policies to use in a reform process. Further, we do not yet know the impact of the current recession in Southeast Asia on the willingness and ability of governments to continue economic reforms. Nevertheless, we now turn to evaluating the results of empirical studies of privatization itself.

4. Has privatization improved the performance of divested firms?

Since privatization has been part of government policy tool-kits for almost two decades now, enough time has passed that academic researchers have been able to generate a wide range of empirical studies of the effect of divestment on the operating performance of former SOEs. We identify fifteen such papers, eight of which examine either a single industry or a single country, and seven which use a multi-national, multi-industry sample of firms. We examine each group of studies in turn, beginning with the industry and/or country-specific studies.

4.1. *Single-industry and single-country empirical studies*

The eight studies we examine in this section are summarized in table 3, which lists each paper's author(s) and title, describes the sample and methodology employed, and briefly describes the principal empirical findings. Three of these works study the British privatization program, two focus on individual firm divestitures, and two examine how privatization has affected a specific industry.

****** Insert Table 3 about here ******

First, Martin and Parker (1995) examine whether 11 British firms privatized during 1981-88 improve profitability (measured as return on invested capital) and efficiency (annual growth in value-added per employee-hour) after being divested. They find mixed results. After adjusting for business cycle effects, fewer than half the firms performed better after being privatized. The authors do find evidence of a “shake-out” effect, where several firms improve performance prior to being privatized (but not afterward), though they cannot determine whether performance could have been improved without the spur of incipient divestiture or whether performance could have been improved without subsequent privatization. Continuing

the theme of ambiguous British results, Newberry and Pollitt (1997) perform a social cost-benefit analysis of the 1990 restructuring and privatization of the Central Electricity Generating Board (CEGB). They compare the actual performance of the privatized firms to a counter-factual expectation of how they would have performed had they remained SOEs. Newberry and Pollitt document significant post-privatization performance improvements, with their central estimate being a permanent cost reduction of five percent per year, equivalent to an extra 40 percent return on assets. However, the producers and their shareholders capture all of this benefit and more, whereas the government and consumers lose out. The authors conclude that CEGB's restructuring and privatization was in fact "worth it," but that these steps could have been implemented more efficiently and with greater concern for the public's welfare.¹⁶

On the other hand, the third study to use U.K. data finds strong evidence that privatization improves performance. Eckel, Eckel, and Singal (1997) examine the effect of British Airways' 1987 privatization on *competitors* stock prices and on fares charged in those routes where BA competes directly with foreign airlines. They find that the stock prices of U.S. competitors fall, on average, by a significant seven percent upon BA's privatization, implying that stock traders anticipate a much more competitive BA would result from the divestiture. Further, airfares in markets served by BA fall by a significant 14.3 percent after privatization. The authors also examine the two-stage privatization of Air Canada (from 100 percent state ownership to 57 percent, then to zero). Unlike BA, Air Canada does not compete with U.S. carriers on many routes, so there is no significant competitor stock price effect resulting from its divestiture. Air Canada's fares do not fall after the first, partial privatization, but fall a significant 13.7 percent after the final, complete divestiture of state ownership.

The fourth and fifth studies examine the privatization experiences of two eastern European countries. Barberis, Boycko, Shleifer, and Vishny (1996) study post-sale performance changes in a sample of 452 Russian (retail) shops divested during the early-1990s. They specifically test for factors that increase the probability that these shops will be restructured in a value-maximizing way after their transfer to private ownership (the condition of these shops under the Soviet system was truly dreadful). The authors document that the presence of new owners and managers raises the likelihood of restructuring, but that offering equity incentives to existing workers does not. This highlights the importance of new human capital in effecting

¹⁶ The privatization and liberalization of the British electricity industry is also discussed at length in Newberry (1997) and Vickers and Yarrow (1991), while the regulatory regime adopted for earlier utility privatizations is described in Beesley and Littlechild (1989). None of these works showers the Thatcher government with praise for its policy decisions, though Beesley and Littlechild do find the RPI-X price regulation system adopted in the U.K. to be much superior to the U.S. rate of return regulatory regime. (A British observer pointed out to us that the British are often reluctant to praise their political leaders).

economic transformation. Claessens, Djankov, and Pohl (1997) examine the cross-sectional determinants of performance improvements during 1992-95 for a sample of 706 Czech firms involved in the mass privatizations of 1991-92. Using a Tobins-Q measure, they document that privatized firms do prosper, primarily because of the concentrated ownership structures that result from privatization. They further show that the more concentrated the post-privatization ownership structure the higher is the firm's profitability and market valuation. Large ownership through bank-sponsored investment funds and strategic investors appears to be particularly important in improving corporate governance and financial performance.¹⁷

The sixth empirical study, LaPorta and López-de-Silanes (1997), tests whether the performance of a sample of 218 Mexican SOEs privatized through June 1992 improves after divestiture. The authors compare the profitability, employment, and efficiency levels of the privatized firms to an industry-matched control group, and find that the former SOEs rapidly close the yawning performance gap that had existed prior to divestment. These firms go from being highly unprofitable before privatization (SOEs required subsidies and transfers equal to 12.7 percent of Mexico's GDP in 1982) to being very profitable thereafter; in fact privatized firms show a 39.9 percentage point increase in their net profit margin (net income ÷ sales), to +27 percent. Output increases 54.3 percent, in spite of a reduced level of investment spending, and sales per employee roughly doubles. The privatized firms reduce (blue and white-collar) employment by half, but those workers who remain are paid significantly more. The authors attribute 52 percent of the performance improvement to productivity gains resulting from better incentives, with only one-fifth of the improvement being attributable to reduced employment costs. Finally, the authors document that deregulation--particularly the removal of trade barriers and price and quantity controls--is associated with more rapid convergence to industry performance norms.

Seventh, Ramamurti (1997) examines the 1990 restructuring and privatization of Ferrocarrilla Argentinos, the Argentine national freight and passenger railway system. This SOE, which was massively unprofitable (requiring subsidies equal to one percent of GDP) prior to restructuring/privatization, was broken up and sold off by the new, nominally-Peronist administration of Carlos Menem. The author documents a nearly-incredible 370 percent improvement in labor productivity and an equally-striking (and not unrelated) 78.7 percent decline in employment--from 92,000 to 18,682 workers.¹⁸ Operating subsidies

¹⁷ We should note that Harper's (1997) study of Czech privatizations finds exactly the opposite result--performance declines for privatized firms.

¹⁸ Ramamurti details the intense political maneuvering that accompanied the attempt to restructure and slim down FA. The generous severance payments awarded to displaced workers were instrumental in winning union acquiescence in the restructuring plan, while the presence of effective road transport

declined almost to zero, and consumers benefited from expanded (and better quality) service and lower costs. Capital investment spending dropped by one-third, but became more economic and hence better directed. Ramamurti concludes that these performance improvements could not have been achieved without privatization.

The final focused empirical study, D'Souza (1998), examines performance changes following the privatization by share offering of 17 national telecommunications companies during the period 1981-94. She finds persuasive evidence that profitability, output, operating efficiency, capital investment spending, the number of access lines (a proxy for units of physical output) and average salary per employee all increase significantly after privatization. Leverage declines significantly, while employment declines insignificantly. She then examines the determinants of performance improvements, and finds that the adoption of employee share ownership and option plans, the presence of a foreign strategic investor, the passing of operating control to private investors, and having an exclusive dealing area all improve operating and financial performance. Finally, removing cross-subsidy requirements reduces output, but increases profitability.

In addition to these eight empirical studies, several other papers survey extant research for a region (Ramamurti (1996), McDonald (1993), Bennell (1997), Molz and Hafsi (1997)), country (Caves (1990)), industry (Wasserfallen and Müller (1998)), or for the entire developing world (Kikeri, Nellis, and Shirley (1992)). With the exception of the first two U.K. studies discussed above (Martin and Parker (1995) and Newberry and Pollitt (1997)) and the Caves overview piece, all of the country/industry-specific empirical studies and the survey articles strongly support the conclusion that privatization significantly improves the operating and financial performance of divested firms--and does so in a remarkably short time-frame after ownership is transferred from state to private hands. We now turn to what are arguably the most persuasive empirical privatization studies, those which examine samples drawn from many countries and many different industries. As we will see, the conclusion these studies draw is, if anything, even more flattering for privatization--since all seven document significant performance enhancements either in anticipation of or subsequent to firm divestiture.

4.2. *Multi-industry and multi-national empirical studies*

Most any empirical privatization study must make an explicit trade-off between depth and breadth of coverage. While a researcher performing a study limited to a single country or industry usually has access to consistent data and extensive coverage of the events in secondary news media, researchers seeking to make international and inter-industry comparisons almost inevitably must settle for lowest-common-denominator

competition for rail traffic reduced the threat of a potentially crippling strike weapon.

data that is universally available. Additionally, due to the necessity of obtaining comparable pre- versus post-privatization financial data, most of the studies covered here examine firms that are privatized via public share offering rather than via vouchers or direct sales. The benefit of multi-national and multi-industry studies is, of course, the generalizability of the empirical conclusions drawn from the analyses. With this caveat in mind, we now turn to a discussion of seven broad-coverage empirical studies, which are summarized in table 4.

****** Insert Table 4 about here ******

The first study we examine is also one of the most influential, partly because of the rigor of its methodology and partly because it was sponsored by the World Bank. Galal, Jones, Tandon, and Vogelsang (1992) compare the actual post-privatization performance of 12 large firms--mostly airlines and regulated utilities--in Britain, Chile, Malaysia, and Mexico to the predicted performance of these firms had they not been divested. This counter-factual approach allows for a social welfare analysis to be performed, which is an important alternative to comparing pre- and post-privatization performance as do most of the other studies cited below. The authors document net welfare gains in 11 of the 12 cases considered which equal, on average, 26 percent of the firm's pre-divestiture sales. They find no case where workers are made significantly worse off, and three where workers significantly benefit.

Two studies examine the privatization experiences of central and eastern Europe. Frydman, Gray, Hessel, and Rapaczynski (1998) (FGHR) compare the performance of a sample of 128 privatized and 90 state-owned firms in the Czech Republic, Hungary, and Poland during the years after privatization began in 1990-93. They argue that the findings of other privatization studies may be somewhat limited because they have not disaggregated their data sufficiently or controlled for sample selection biases. An example of potential sample selection bias is that the nature of firms privatized and those remaining state-owned may be very different. Therefore, FGHR examine the average effects of privatization depending on the ownership structure of the firms, specifically whether the firm is privatized to corporate insiders (management and/or employees) or outside owners. In addition, to control for potential sample selection biases, they estimate fixed-effects models of privatization using different control groups and attempting to control for the macroeconomic environment. FGHR incorporate measures of the rate of growth of revenue, employment, labor productivity, and costs per unit of output in their study. They find that while on average privatization has increased performance, the main effects are immediate increases in revenue and productivity of firms privatized to outside owners. They find no evidence of employment effects; in fact, firms sold to outside foreign owners have fewer layoffs compared to state firms,.

Pohl, Anderson, Claessens, and Djankov (1997) compare the extent of restructuring achieved by over 6,300 private and state-owned firms in seven eastern European countries during 1992-95. They use six measures of performance to examine which restructuring strategies improve performance the most, and find that privatization dramatically increases the likelihood of restructuring and the probability that it will be successful. A firm in private hands for four years will, on average, increase productivity 3-5 times more than will an otherwise similar SOE. Interestingly, the authors find that the method of privatization--voucher, asset sale, or share issue--does not significantly impact the likelihood of successful restructuring, but ownership and financing effects do.

Fourth, Dewenter and Malatesta (1998) compare the pre- versus post-privatization performance of 63 large, high-information companies divested during 1981-93. In contrast to the last three studies examined below, these authors examine performance changes over both a short time frame around privatization--comparing event years (-3 to -1) with (+1 to +3)--as well as examining a longer time period, (-10 to -1) with (+1 to +5). They document significant post-privatization increases in profitability (using net income) and significant decreases in leverage and labor intensity (employees /sales) over the period immediately preceding privatization and the period after privatization. However, they find that operating profits increase *prior to* divestiture, but may actually decrease somewhat afterwards--a result they interpret as indicating that governments efficiently restructure at least some firms before selling them, but that the actual change of ownership does not give rise to further efficiency gains subsequently.

We examine the last three studies as a group because they all use similar sampling and testing methodologies, and thus generate directly comparable tests of the impact of privatization on a large sample of companies from over 40 countries. Megginson, Nash, and van Randenborgh (1994) compare three-year average post-privatization financial and operating performance measures with the same three-year pre-privatization performance measures for 61 companies from 18 countries and 32 industries that were divested during 1961-89. Boubakri and Cosset (1998) use the same methodology in their analysis of 79 companies from 21 developing countries and 32 industries divested during the period 1980-92, while D'Souza and Megginson (1998) do the same for 78 companies from 10 developing and 15 developed (OECD) countries privatized during 1990-94. Once overlapping firms are accounted for, these three studies examine 204 companies from 41 countries. Ninety-eight of these firms are from 16 developed countries, while 106 are from 25 developing nations.

In addition to presenting summaries of these works in table 4, table 5 presents a detailed listing of the findings of the three studies for seven different performance criteria. This table also lists a weighted average of the mean values from the three works, and all three studies generate remarkably similar results.

Profitability, defined as net income divided by sales, increases from an average value of 8.4 percent before privatization to 12.4 percent afterwards, with between 63 and 72 percent of the firms in each sample experiencing increased profitability.¹⁹ All of the test statistics are significant at the one percent level or higher. Efficiency, defined as real (inflation-adjusted) sales per employee, increases from an average level of 97.3 percent of year 0 (the year of privatization) sales during years -3 to -1 to an average level of 177.1 percent during the +1 to +3 post-privatization period. Although the scale of this increase is driven by the D'Souza and Megginson (DM) finding of a 170 percentage point productivity leap, all three studies find efficiency improvements that are significant at the one percent level or better and between 80 and 88 percent of the firms see output-per-worker increases.

****** Insert Table 5 about here ******

While all three studies document post-privatization increases in capital investment spending, only in the Megginson, et al (MNR) and Boubakri and Cosset (BC) papers are the increases significant. On average, capital spending rises from 12.3 percent of sales prior to divestment to 18.7 percent afterwards, and between 59 and 67 percent of all firms raise investment outlays. These capital investment increases help explain the dramatic jumps in output (inflation-adjusted sales revenue) all three papers document. On average, real sales revenues rise from 94.3 percent of year 0 levels prior to divestment to 170.5 percent thereafter. Once again, a 170 percentage point increase found by DM drives the magnitude of this result, but the output increase is significant at the one percent level in all three studies, and between 75 and 85 percent of all firms increase real sales.

The most politically-charged performance measure is, of course, how privatization impacts employment levels in divested SOEs, and here the three studies diverge somewhat. MNR and BC document employment increases, while DM find that the work force declines after divestiture. All three studies report that median employment levels do not change significantly, but the fact that 63 percent of the firms in DM's study shed workers implies that a significant fraction of the firms in their study reduce employment. The three studies collectively find that average employment in a SOE being privatized increases from 21,065 pre-divestiture to 21,613 afterwards, and 83 of the 164 firms (50.7 percent) examined show an increase in total employment.

¹⁹ Although all three studies compute most of the performance ratios using a variety of different measures, whenever possible the authors focus on ratios of current-dollar flow measures (i.e., net income ÷ sales), rather than balance-sheet stock measures (property, plant and equipment ÷ total assets) in order to minimize inflation-induced valuation errors and to finesse the impact of different national accounting standards. The other measures generally yield qualitatively similar results.

The final two variables studied are measures of financial performance, and are thus of only secondary interest to most governments--though they are naturally of greater concern to firm managers and stockholders. All three studies find that leverage, defined as total debt divided by total assets, declines significantly after privatization, and between 63 and 73 percent of all firms experience reduced debt levels. On average, the debt-to-asset ratio falls from 0.48 prior to divestiture to 0.44 afterwards. Finally, the two studies (MNR and BC) that examine dividend payments document significant increases. On average, cash dividend payments rise from 2.3 percent of sales during the pre-privatization period to 4.4 percent of sales after divestiture, and over 80 percent of the firms in the two samples increase dividend payments.

Taken together, the fifteen empirical studies surveyed in this section document very strong performance improvements as a result of privatization. Collectively, these papers examine several thousand companies from roughly fifty countries and virtually every imaginable industry, and speak with a consistent voice documenting privatization-induced output, efficiency, and profitability increases. Most also find that capital investment spending increases and leverage declines after a firm is transferred to private ownership. Finally, while the evidence on privatization-related changes in employment levels is ambiguous, it is fair to say that in those cases where employment is indeed cut there is invariably a major offsetting performance improvement. Clearly, privatization has proven to be very successful as an economic policy, so we have answered the question *whether* governments should privatize affirmatively. We now turn to the trickier question of *how* governments should privatize.

5. Methods of divesting state-owned assets and sequencing of privatizations

Governments that have made the decision to privatize face a series of often excruciatingly difficult policy decisions concerning the method of selling state-owned assets, whether SOEs should be sold *en masse* or sequentially, whether the SOEs should be restructured prior to sale or sold off as is, and whether to allow foreign participation in the sale--and if so, to what degree? We will attempt to systematically address each of these questions in turn, and begin our analysis with a description of the different methods a government can employ to divest state-owned assets.

5.1. Determinants of the choice of privatization methods

Although numerous authors present a taxonomy of privatization methods, one of the simplest and most complete is that found in Brada (1996). While the context of his paper is central and eastern Europe, his classification of four principal divestment methods is quite general. The first is *privatization through restitution*, which is an appropriate method when land or other easily-identifiable property that was

expropriated in years past can be returned to the original owner--or to his or her heirs. Not surprisingly, this form of privatization is rarely observed outside of eastern Europe, and there only in a limited set of circumstances (i.e., restitution of agricultural lands). Second, *privatization through sale of state property* involves a government trading its ownership claim for an explicit cash payment. This takes two important forms, which we will focus on throughout most of the rest of this survey: (1) *direct sales* (or asset sales) of state-owned enterprises (or some parts thereof) to an individual, an existing corporation, or a group of investors; and (2) *share issue privatizations*, where some or all of a government's equity stake in a SOE is sold to investors through a public share offering. Brada's third divestment method is *mass or voucher privatization*, wherein eligible citizens can use vouchers, distributed free or at nominal cost, to bid for stakes in SOEs or other assets being privatized. While this method has been employed only in the transition economies of central and eastern Europe, it has fundamentally changed the ownership of business assets in those countries--if not always the effective control. The final method of changing an economy's ownership structure is *privatization from below*, through the startup of new private businesses in formerly socialist countries.²⁰

Although privatization from below has progressed very rapidly in many regions--including China, the transition economies of central and eastern Europe, Latin America, and sub-Saharan Africa--a survey of this phenomenon is being the scope of our paper. We focus instead on the second and third methods, privatization by sale of state property and voucher privatization. We begin by examining the choice between divestment via asset sales versus using share issue privatizations, and then consider the decisions a government wishing to divest through asset sales must make in order to maximize sales revenue and achieve other economic and political objectives. We conclude this section with a brief survey of the key issues governments must face when they decide to adopt a voucher privatization strategy. Given the importance of SIPs as a privatization method, and the fact that this is our primary area of expertise, we defer to section 6 an in-depth discussion of the decisions a government must make when developing a public offering strategy.

5.2. *The choice between asset sales and share offerings as methods of selling state property*

From a purely normative point of view, one of the most helpful delineations of the decisions facing a government wishing to privatize through cash sales is provided in Gibbon (1997). He discusses the steps

²⁰ Interestingly, the term "privatization" in the United States means something quite different from any of these strategies. As López-de-Silanes, Shleifer, and Vishny (1997) document, the privatization debate in the U.S. refers to the choice between in-house provision of goods and services by (state and local) government employees and the contracting out of that production to private contractors. Their empirical study finds that the more binding are state fiscal constraints, and the less powerful are public-sector unions, the greater the likelihood of privatization.

such a government must take in developing a divestment program, including setting up a structure for privatization (including legislation, if necessary), providing adequate performance records for SOEs being sold (generating believable accounting data), developing any new regulatory structures needed, and determining the appropriate post-sale relationship between the firm and the government. He then discusses privatization techniques and the relative merits of direct sales versus SIPs. Other authors who examine non-pricing issues relating to the actual divestment contracts involved in privatization include Baldwin and Bhattacharya (1991), Schmidt (1996), Shafik (1996), and Cornelli and Li (1997).

To our knowledge, however, the only academic paper that explicitly studies the choice between asset sales and share issue privatization is Megginson, Nash, Netter, and Poulsen (1998). Using a sample of 1,389 privatizations, they examine why 558 firms worth \$417.5 billion are divested using share offerings, while 831 companies worth \$176.0 billion are privatized via direct sales. Characteristics of each sample are summarized below as table 6. They find that SOEs are more likely to be sold through a share offering the larger is the firm, when the company being sold is a telecom, and the more developed is the national stock market. Asset sales are more likely when per capita national income is low and the divesting government's budget deficit is high. After accounting for these factors in a regression equation, a government's level of spending as a percent of GDP, and whether that country is a member of OECD, are not significant explanatory variables in the SIP versus asset sale choice.

****** Insert Table 6 about here ******

One other factor that Megginson, Nash, Netter, and Poulsen (1998) do not study also *seems* to significantly influence the preference of governments to privatize via share offerings, though it is difficult to examine empirically. That is their desire to promote development of their national stock markets. As we discussed in section 2, almost all privatizing governments since Germany's Adenauer administration have listed this as a goal of their divestment program, but recent academic research has much more conclusively established a link between economic growth and financial market development [see especially Levine (1997), Levine and Zervos (1998), Rajan and Zingales (1998), and Subrahmanyam and Titman (1998)]. Furthermore, several authors have recently demonstrated both theoretically and empirically that developing strict legal and regulatory protections for debt and equity investors is a prerequisite to establishing the proper institutional setting required for financial investment to flourish [see North (1994), LaPorta, López-de-Silanes, Shleifer, and Vishny (1997a,b) and Bortolotti, Fantini, Siniscalco, and Vitalini (1998)]. Privatizing via share offering allows a country without a history of share offerings to establish a reputation for protecting investors through repeated, fair issues. This same strategy also allows a country with an existing poor reputation to change it using the same strategy. Finally, Rapaczynski (1996) stresses the importance of privatization transactions in

establishing property rights in those societies where they are either non-existent or inadequately-defined. This work makes clear that, in transition economies, it is not enough simply to adopt someone else's legal and regulatory regime--a viable property rights protection system must arise as a result of market transactions.

5.3. *The importance of sequencing and staging of SOE sales*

Several academic authors examine how best to sequence the sale of state property in order to maximize sale proceeds and/or to achieve an economically efficient outcome. In a pair of articles, Katz and Owen (1993, 1995) examine aspects of this question. The first paper theoretically models how a government concerned with maximizing output over some specified period by privatizing inefficient SOEs can accomplish this through the sequencing of SOE sales. This model is driven by the assumption that the government is also subject to a binding political constraint on the maximum level of unemployment that will result from privatization (and the opening up of the state sector to competition). The second article examines how a privatization authority selects the optimal plan for privatizing a formerly state-controlled industry. In this model, potential buyers of the firms face a plan specifying the percentage of ownership being offered, the payment (or subsidy) required, and the number of individual firms the government will create in the industry; they then make utility-maximizing bids based on expected profit, effort required and a random element. A lower bound on the buyer's ownership share is then derived.

Another theoretical model that emphasizes the importance of the ownership stake to be sold to the purchaser--in this case a foreign purchaser--of a SOE is presented in Cornelli and Li (1997). They show that a divesting government faces a particularly difficult trade-off between trying to obtain the highest possible payment (the revenue objective) and identifying the company that will operate the divested firm most productively in the future (the efficiency objective) when the foreign buyers may be able to capture high private benefits from gaining control of the SOE. The foreign bidder may, for example, find it privately optimal to simply close the former-SOE and thus remove potential competition to its own exports, which would clearly not be in the divesting government's best interests. In this situation, the government should grant more shares (a larger ownership stake) to the winning bidder, rather than merely committing to the sale of a fixed number of shares. The intuition behind this clever and counter-intuitive result is that an efficient investor should wish to purchase as many shares as possible, since they will soon have a higher value, while an investor interested mostly in the private benefits of control attaches less value to the shares in excess of the minimum required to control the firm.²¹

²¹ This model explicitly assumes the government is willing to trade off a financial objective (revenue maximization) for an economic one (long-run efficiency maximization). As we discuss at length in the next section, Jones, Megginson, Nash, and Netter (1999) document such behavior empirically.

Two other studies examine how the industrial characteristics of SOEs being considered for privatization influence their optimal sequencing. Husain and Sahay (1992) analyze the allocative efficiency implications of alternative divestment sequences in a reforming economy with two sectors--an input-producing upstream sector and a finished-goods-producing downstream sector. They show that the inflexibility of public firms in responding to exogenous shocks seriously constrains private firms that depend on SOEs as input suppliers. Glaeser and Scheinkman (1996) also emphasize the importance of responsiveness to outside shocks in their sequencing model. They show that, when a primary advantage of private over public ownership is the former's greater responsiveness to information about consumer demand and input costs, privatization should begin where uncertainty or ignorance is greatest and in areas that transmit information to other agents.

Laban and Wolf (1993) study the very real problem of choosing between a gradual approach to privatization in a transition economy and the much quicker, but also more socially disruptive, "big bang" approach of massive divestiture. To explain the slow progress of transformation in eastern Europe, the authors present a model based on positive spill-over effects between aggregate privatization and the individual expected return to privatization when there is a significant danger of "backsliding" on economic reforms. The model allows for the simultaneous existence of both a zero-privatization trap and an optimistic full-privatization equilibrium. Laban and Wolf argue that the value of an individual enterprise offered for sale depends positively on the overall success of the privatization program, and this implied "critical mass" effect distinguishes privatization programs in transition economies from those in OECD countries. The challenge to policy-makers is to determine the optimal degree of gradualism as a tradeoff between efficiency losses from slower reform and the gain in political stability accompanying a more gradual approach. On the other hand, and with several additional years of observable data, Shleifer (1997) looks at much the same institutional environment (eastern Europe) and concludes unambiguously that the evidence indicates that countries that have adopted "shock therapy" have suffered less and recovered more rapidly than those that delayed reform. He also (almost uniquely) emphasizes the need to transform both government and economic institutions in order to successfully transition to a market economy.

The special case of banking

Although much of the privatization sequencing literature offers ambiguous or qualified advice to policy-makers, there is one particular industry that all agree is absolutely essential to privatize well, and most agree is best to privatize first: banking. A healthy commercial banking industry is important even in advanced countries--in transition economies, well-functioning banks are indispensable. Since these countries are trying to develop an effective financial system literally from scratch, they cannot rely on capital markets either to

provide investment funding to non-financial companies or to discipline wayward managers through the threat of a takeover. Instead, banks will provide whatever funding and monitoring will be on offer.

Four papers examine the special problems encountered by banks in the transition economies. Perotti (1993) shows that banks in these countries have a strong, perverse incentive to fund former debtors, although these SOEs are less efficient and more risky than private firms, because by doing so they gain the potential repayment of previous debts. This inevitably leads to lower productivity of investment and a greater concentration of risk. Furthermore, since privately-owned banks feel this incentive just as strongly as state-owned ones, merely privatizing the banking industry will not solve the problem. The incentive to subsidize former debtors is, however, magnified in the all-too-frequent case where the state retains significant influence over the banks or the debtor companies (or both) after these are nominally privatized. Perotti concludes that liquidation of economically-hopeless SOEs will generally be preferable to eternal subsidization, since this will both recognize the true value of the debt and remove the “debt overhang” from banks so they can increase their lending to the more dynamic private sector.

Meyendorff and Snyder (1997) study the “transactional structures” of banking privatizations in central and eastern Europe, which they define as having three elements: (1) antecedent actions that determine the characteristics of the unit being privatized; (2) ownership transfer and governance after privatization; and (3) follow-on actions and ongoing government intervention. They note that most of the governments in the region made similar policy choices when they began privatizing their banking systems, which have proven highly influential over time. As examples, most governments chose not to seriously break up the socialist monobank system, and most severely restricted new competition--particularly from foreign banks. For these reasons, the former monobanks retain dominant market shares in most of the transition economies almost a decade after reforms were initiated. Further, none of the politically-feasible ownership transfer methods (voucher privatization, insider sales) brought in new capital or talent, so all the region’s banking systems remain weak and noncompetitive. The prospect of EU membership in the foreseeable future does, however, offer some hope that true restructuring might begin soon.²²

Third, Berglof and Roland (1998) focus on the pernicious problem of soft budget constraints in transition economies. They demonstrate the pervasiveness of this problem, and show how difficult it is to effectively solve. Whenever governments directly or indirectly influence credit-granting decisions, soft budget constraints arise endogenously due to the government’s lack of credibility regarding liquidating a project (or

²² Hersch, Kemme and Netter (1997) find that in Hungary small private sector firms controlled by former members of the *nomeklatura* had an easier time getting bank loans than did other firms.

SOE) rather than refinancing it. Hence, mechanisms for hardening the budget constraint require endogenously restoring the credibility of liquidation. The fact that this implies--in plain language--that a government must be willing to allow troubled SOEs to go bankrupt and/or workers to be restructured out of employment suggests just how painful true banking reform can often be.

Finally, Verbrugge, Megginson, and Lee (1998) examine how privatization changes the financial and operating performance of a sample 61 commercial banks fully or (much more often) partially divested by 24 countries between 1985 and 1997. Though at a very tentative stage, this paper indicates that privatization yields performance improvements for banks comparable to that observed for non-financial corporations, and that both the short- and long-run return to investors in share issue privatizations seems to be significantly positive. Unfortunately, the difficulty of generating a large sample of internationally-comparable banking privatizations seriously hinders research on this important topic.²³

5.4. *Should SOEs be restructured prior to sale?*

One of the most commonly-asked practical questions about privatization is whether governments should restructure SOEs (i.e., layoff redundant workers) prior to sale or leave any such restructuring to private buyers. The early advice from the World Bank (Nellis and Kikeri (1989)) was that governments should restructure SOEs prior to divestment, both because they are better able than are private owners to cushion the financial blow to any displaced workers (through unemployment and/or pension payments) and in order to provide a private buyer of the SOE with a "clean slate." For example, preparing companies for privatization was the standard practice in the U.K., in part to smooth the transition with the trade unions.

By 1992 the same authors (Kikeri, Nellis, and Shirley (1992)) had become much more nuanced in their interpretation of the optimal strategy. They said (p. 54) that small and medium-sized SOEs "should be sold 'as is' at the best price possible, as quickly as possible." However, they also noted that in all cases (p. 60) new investments "should be left to private owners once a decision has been made to privatise the enterprise." They did suggest that governments might profit from bringing in new management, preferably

²³ At a recent conference on Bank Privatization co-sponsored by the Federal Reserve Bank of Dallas and the World Bank, numerous theoretical and empirical papers explore the pitfalls and opportunities offered by bank divestment around the world. Several conclusions emerged from this conference: (1) given the centrality of banking to all economies--especially developing ones--the cost of a botched privatization program can be extremely high; (2) successful privatization programs almost invariably allow foreign participation, and the more aggressively foreign direct investment is courted the more successful bank privatization is likely to be; (3) the pervasive problem of bad loan portfolios makes bank privatization in transition and developing economies extremely costly and difficult; (4) the implied put option offered to a bank purchaser by deposit insurance gives the purchaser unusual and often perverse incentives not encountered in other types of privatizations.

from the private sector, as a pre-sale reform (the evidence presented in Lopez-de-Silanes (1997) supports this approach).

Other empirical evidence suggests that governments are much better served if they simply divest as rapidly as possible. Boycko, Shleifer, and Vishny (1996b) point out that it is often inappropriate to assume that a benevolent government is making economic decisions solely in the interests of its citizenry. Instead, in many transition economies, the more appropriate theoretical model of a severely *divided* government yields far different policy prescriptions concerning the optimal pace of privatization. Since both SOE managers and the ministers overseeing state-controlled industries will oppose pre-privatization restructuring--and a divided government will be unable to force restructuring on them--a gradual approach to privatization will allow these defenders of the status quo far greater latitude to sabotage reform than will a faster divestment strategy. Instead of embracing competition and pursuing efficiency improvements, these managers will focus on "restructuring" by making new investments, paid for with additional subsidies. In other words, privatization is the only viable alternative for entrenched industries unwilling to effectively restructure, and Barberis, Boycko, Shleifer, and Tsukanova (1996) document empirically the need for replacing existing managers with new talent, more open to reform.

More general evidence suggests, especially at a macroeconomic level in Eastern Europe, that a gradual approach to privatization has advantages. A comparison of the superior growth and macroeconomic performance of the slower (but better) privatization programs in Poland and Hungary with the faster (but less successful) programs in the Czech Republic and Russia illustrates the importance of transaction quality. This is, however, only anecdotal evidence and there are many factors at play in these economies.

Dyck (1997) studies the unique privatization experience of eastern Germany, and concentrates on three facts of the German economic transition. First, the agency charged with expeditiously divesting SOEs, the *Treuhand*, focused on rapid divestment rather than state-led restructuring despite the financial ability to make new investment or hire new managers. Second, the Treuhand relied on sales rather than giveaways or vouchers despite the knowledge that this would reduce the likelihood of significant equity ownership by eastern German citizens. Third, eastern firms were purchased predominantly by established western companies (especially west German firms), rather than by eastern Germans or capital funds. This suggests how a value-maximizing, and (relatively) politically-unconstrained, divesting agency would choose to run a

privatization when it could select an optimal strategy. Dyck also documents the importance of managerial replacement to successful privatization.²⁴

Finally, López-de-Silanes (1997) examines whether prior government restructuring of SOEs improves the net price received for the company, and finds strong evidence that it does not. In fact, he shows that net prices would have increased by 71 cents per dollar of assets if the only restructuring steps taken by the government were to fire the CEO and emphasize speed--succeeding in divesting assets in one year's less time than average. Other restructuring steps slowed the process down and consumed too many resources to be worthwhile. Since, on average, the government only received 54 cents on the dollar for the assets it divested, a 71 cent per dollar improvement would have been significant indeed.

5.5. *Voucher privatizations in transition economies*

No survey of privatization research would be complete without a discussion of the literature on voucher privatizations. We provide a brief survey, noting that a complete survey would require more space than we can allocate in this paper. Further, we are just beginning to learn about the effects of voucher privatization and it is necessary to wait for the new evidence before making a detailed review of the effects of voucher privatization.

There are, however, several good overviews of the existing evidence on voucher privatization programs adopted by different countries in central and eastern Europe now available. Goldstein and Gultekin (1995) reduce the various mass privatization schemes to three stylized processes: (1) freely distributing actual shares; (2) freely distributing vouchers to be used to bid for shares; and (3) the creation of mutual funds which will hold shares. After surveying the experiences of several countries, these authors conclude that none of the actual programs performed as finance theory would predict or as the governments launching the programs had hoped. Ramachandran (1997) examines whether voucher schemes have any impact on the monetary policies of countries where they are distributed, and concludes they do not--despite the fact that vouchers, like currency, have a face value. Alexandrowicz (1994a) describes the mechanics and eligibility requirements of voucher schemes in several former Soviet-bloc countries, and stresses that both political commitment and a public education program are essential ingredients for success. Alexandrowicz (1994b) examines the key decisions a policy-maker designing a voucher scheme must confront, and concludes that

²⁴ This usually involved replacement of incumbent eastern Germans by more-qualified west German managers. In a somewhat related study, Anderson, Makhija, and Spiro (1997) empirically study the determinants of foreign participation in the Czech voucher privatization process. Although the overall foreign participation rate was quite low, they found that when foreigners did participate they sought profitable Czech firms in which they could exercise unchallenged influence, and then structured their equity stakes to mitigate agency costs and political risks.

mass privatization is a viable alternative to a case-by-case approach to divestment. Two other primarily descriptive papers are Drum (1994) and Shafik (1995), who examine mass privatization programs in the Ukraine and the Czech Republic, respectively.

More theoretically, Boycko, Shleifer, and Vishny (1994) show that the decision to pursue mass privatization, and even the specific design of the programs, are largely dictated by politics. The types of privatization programs practiced in western Europe and elsewhere were politically very difficult to execute in eastern Europe, although Hungary, Estonia and Poland used case-by-case privatizations, which have been successful at a macro level.²⁵ Nonetheless, voucher privatization schemes can be made attractive from an economic perspective in terms of maximizing value, fostering free and efficient markets, and promoting effective corporate governance. Katz and Owen (1997) investigate what they call the “voucher portfolio problem,” which results whenever the proportion of ownership resulting from a given voucher bid is unknown, yet the post-privatization performance of a divested company largely depends on the skills of the new owners and their respective ownership stakes. These authors also provide a good discussion of the philosophical differences between the Czech program (which relied heavily on vouchers and prohibited post-sale trading of stock) and the Russian program--which privatized relatively small (29 percent on average) stakes in most firms and allowed unrestricted trading of vouchers.

Although the actual experience of most countries with vouchers must be judged as quite poor, none has been quite as dismal as Russia's. While a variety of factors have played a role, Frydman, Pistor, and Rapaczynski (1996) show that insider control of privatized firms has been by far the most important impediment to effective reform. The Russian government initially had high hopes that the “voucher privatization funds” (VPFs) which formed during the initial voucher distributions might be able to overcome the collective action problem inherent in mass privatization programs and use their concentrated ownership in privatized firms to force managers to restructure. Though most funds attempted to be active--to exercise their “voice” in corporate boardrooms--insider dominance completely blocked their efforts, so the VPFs turned instead to their “exit” option and sold shares on the secondary market. Pistor and Spicer (1997) also examine the early promise and subsequent failure of privatization investment funds in Russia and the Czech Republic. In both countries, citizens have become owners of the worst-performing privatized assets, while the “crown jewels” all fell under insider control. As the authors phrase it, “establishing property rights is a longer and much more complicated process than allocating title.”

²⁵ Nellis (1996) describes how the Estonians, in a sub-set of firms, sold off majority shares to strategic investors and then exchanged the minority shares for vouchers.

That sentiment is echoed in Blanchard and Aghion (1996), who conclude that privatization is proceeding slowly in eastern Europe largely because insiders, who currently have control of firms but no property rights, oppose outsider privatization. Given this reality, the authors examine whether privatization would proceed more rapidly if governments were simply to allocate property rights to insiders (insider privatization). This strategy would seem to have two major efficiency arguments in its favor: (1) it aligns control and property rights, and; (2) if the insiders cannot do the job themselves, they at least will have the right incentive to sell the firm to someone more capable. The authors then show, however, that there is a wedge between the private value of the firm to insiders and its value to an outsider that might well preclude value-increasing exchanges. Given the actual experience with insider dominance of most voucher privatizations, we must conclude that this wedge is in fact alive, well, and fully operant.

Lest we conclude this discussion of voucher privatization on a completely downbeat note, it should be pointed out that most of the countries which opted for this divestment strategy had little real option to use another technique given political realities. Furthermore, in many of these countries--particularly Poland, Hungary, and the Czech Republic--true economic renaissance is at least becoming a realistic prospect, if not yet a tangible achievement. We now turn to a discussion of the decisions governments wishing to privatize SOEs either through asset sales or through share offerings must make regarding the selection of pricing and other offering terms.

6. Pricing and allocation of control and ownership in SOE sales

Although mass privatization programs have attracted a great deal of academic interest, asset sales and SIPs actually account for the vast bulk of the assets that have been moved from state to private employment during the past two decades.²⁶ We therefore focus on these two divestment methods in the next two sections, with most of our attention being given to SIPs. We begin by examining how the pricing decisions a government makes in asset sales impacts the net revenue it will raise.

6.1. Pricing decisions in asset sales

²⁶ It is also true, however, that a much larger *number* of companies have been transferred to private ownership through mass privatization programs. It is also likely that more employees have been from firms that were transferred in mass schemes than from firms that were sold in SIPs.

Three papers bear directly on the revenue impact of SOE direct sale pricing decisions.²⁷ At a theoretical level, Bulow and Kemperer (1996) ask whether it is more profitable to sell a company through an auction--with no reserve price--or an optimally structured direct negotiation with one less bidder. They show that, under most conditions, a simple competitive auction with N+1 bidders will yield more expected revenue than a seller could expect to earn by fully exploiting his or her monopoly selling position against N bidders. This theoretical conclusion that maximizing the number of bidders in an open auction is usually the best way to maximize revenues is strongly supported empirically by López-de-Silanes' (1997) study of Mexican privatizations.²⁸ He finds that prices received are very sensitive to the level of competition in the auction process, but that the Mexican government frequently restricted participation (particularly by foreigners) in spite of this fact. Nonetheless, the amount of revenue generated was the main criteria in selecting the winning bidder for more than 98 percent of the SOEs sold.

Although the third study actually examines a voucher privatization program--the first round of the Czech Republic's mass privatization in 1991--the mechanics of how companies are divested by this government are actually more similar to an asset sale than to any other method, so voucher pricing issues are discussed here. Hingorani, Lehn, and Makhija (1997) test whether the level of share demand, as measured by voucher redemptions by Czech citizens, effectively predicts the actual level of stock prices in the secondary market. The authors confirm this prediction, and also document that share demand is positively related to the level of insider shareholdings and the extent of foreign ownership in a company being sold. Additionally, they find that share demand is positively related to the level of past firm profitability (which itself shows that even imperfect accounting statements convey useful information) and inversely related to the firm's market risk, measured as the post-offering coefficient of variation of stock prices.²⁹

6.2. *Pricing and share and control allocation decisions in share issue privatizations (SIPs)*

Any government wishing to privatize SOEs using public share offerings must face three sets of inter-related decisions: (1) how to transfer control, (2) how to price the offer, and (3) how to allocate shares. *The*

²⁷ In addition to the papers cited here, the previously-discussed Cornelli and Li (1997) study examines how governments can manipulate ownership allocations, as well as offer pricing, to balance competing revenue and efficiency objectives in direct SOE sales when foreign bidders may have private benefits of control.

²⁸ The Mexican program relied almost exclusively on direct sales, rather than SIPs, as its principal divestment technique.

²⁹ Other aspects of the Czech Republic's two-stage voucher privatization program are analyzed in Claessens (1997) and Makhija and Patton (1998).

control transfer decision includes whether to sell the SOE all at once or through a series of partial sales, and if the latter, how large a fraction of the company's shares to issue in the initial versus subsequent offers, as well as whether to insert any post-privatization restrictions on corporate control. *The pricing decision* involves determining the amount of underpricing, whether the offer price should be set by a tender offer, a book-building exercise, or at a fixed price--and if the latter, whether the offering price should be set immediately prior to the offer or many weeks in advance. *The share allocation decision* includes the question of whether to favor one group of potential investors over another (i.e., domestic investors and/or SOE employees over foreign and institutional investors), as well as whether to use the best available investment banker as lead underwriter (regardless of nationality) or to favor a national champion.

Several papers empirically examine the choices governments actually make in designing SIP programs. Menyah and Paudyal (1995) and Inganyete, Menyah and Paudyal (1996) investigate how the aims and objectives of privatization influence the procedures and incentives used in the sale of state-owned shares on the London Stock Exchange by the U.K. government. They document that: (1) British SIPs are significantly more underpriced than private-sector offers; (2) these issues have numerous politically-inspired offering terms that are different from those found in private-sector share offers, and (3) SIPs yield economically and statistically significant positive long-run returns to investors, a result echoed by Levis (1993). Dewenter and Malatesta (1997) examine the underpricing of SIPs in eight countries, and conclude there is little evidence that governments deliberately underprice privatizing offerings any more than do private-sector issuers from the same countries. While they also find that British SIPs are significantly more underpriced than are private offers in the U.K., Dewenter and Malatesta find exactly the opposite result for Canada and Malaysia and generally insignificant results for the other five countries studied.

To date, however, the most comprehensive studies of the pricing and share and control allocation decisions made by governments disposing of SOEs through public share offering are presented in Jones, Megginson, Nash, and Netter (1999) and Huang (1997). Both studies document similar findings, and we concentrate on the forthcoming Jones, et al paper here. These authors, hereafter referred to as JMNN, analyze how political and economic factors influence the design of share offering terms using a sample of 630 SIPs from 59 countries made over the period June 1977 to July 1997. These offers raise a total of \$446 billion (\$232 billion in initial SIPs) for selling governments. Although two countries, the U.K. and China, account

for 133 of the offers (21 percent of the total), every inhabited continent is represented, and there is a good cross-section of developed and developing countries in their sample.³⁰

The theoretical framework for JMNN's work draws on Perotti's (1995) and Biais and Perotti's (1997) models of how SIP terms can be structured to achieve various policy objectives. Their models illustrate the impact of information asymmetry between a privatizing government and investors about the government's ability and willingness to commit to privatization on the terms of share issue privatizations, including the level of underpricing and the amount of the SOE sold in an offer.³¹

JMNN, whose results are summarized in table 7, provide evidence of how political factors impact the offer pricing, share allocation and other terms in share issue privatizations (SIPs) that is very consistent with the predictions of the Perotti (1995) and Biais and Perotti (1997) models. One very striking result JMNN document is the sheer size of SIP offers. Whereas other U.S. and international stock offering studies find average issue sizes in the range of \$13-\$48 million, the average (median) size of the initial SIPs in JMNN is \$555.7 million (\$104.0 million) and the mean size of seasoned issues is \$1.069 *billion* (median \$311.0 million).³² Additionally, tests using the pricing variables reveal that SIPs are in fact significantly underpriced by government sellers. The mean (median) level of underpricing for initial SIPs--those where shares are sold to the public for the first time (unseasoned issues)--is 34.1 percent (12.4 percent), and even the seasoned SIP offers are underpriced on average by 9.4 percent (median 3.3 percent).³³ Further, governments rely almost exclusively on fixed price offerings, despite the fact that they could raise far more revenue through a

³⁰ Though JMNN rely primarily on *Privatisation International* for the data used in this study, one of the authors has also developed from secondary sources (primarily the *Financial Times*, but also publications such as Price Waterhouse (1989b)) an appendix that details similar information for over 500 SIPs. This appendix can be obtained upon request by contacting the senior author at wmegginson@ou.edu.

³¹ In addition to these studies, the issue of staging SIPs (selling firms all at once or in several smaller offerings) is also addressed in Perotti and Guney (1993) and Fluck, John, and Ravid (1995).

³² Aggarwal and Rivoli (1990), Ritter (1991), Hanley (1993), Jain and Kini (1994), and Spiess and Pettway (1997) find that average U.S. IPOs range in size from \$13 to \$31 million, while Asquith and Mullins (1986), Masulis and Korwar (1986), Mikkelsen and Partch (1986), Spiess and Affleck-Graves (1995), and Spiess and Pettway (1997) document average U.S. seasoned equity offering sizes of between \$26 and \$39 million. Loughran, Ritter, and Rydqvist (1994) and others note that international (mostly private-sector) IPOs have an even smaller average size.

³³ Chowdry and Sherman (1996) offer an intriguing explanation of why issuers should favor deliberate underpricing in certain British Commonwealth countries. Doing so leads to tremendous excess demand for shares and, since investors must pay in advance for all the shares they request, issuers make a tidy profit off the interest on the prepayment checks.

competitive tender offer.³⁴ On average, 85 percent (median 100 percent) of the initial and 61 percent (median 100 percent) of the seasoned offers are sold at a fixed price, and where tender offer pricing is observed it invariably is used only for the foreign tranche of a SIP. These findings of significant underpricing of offerings sold primarily at a fixed offer price help explain the final pricing results in table 7. The 4.4 percent mean (3.3 percent median) level of costs of sales as a percent of an issue (mostly cash expenses and underwriter discounts) that JMNN document is significantly lower than similar levels observed in private-sector stock offerings by Ibbotson, Sindelar, and Ritter (1994) and Lee, Lochhead, Ritter, and Zhou (1996). Low selling costs make sense if government issuers are deliberately underpricing SIP offers, because then the underwriters bear little risk the offer will fail and they will be left holding unsold shares.

****** Insert Table 7 about here ******

JMNN also find that governments allocate shares in the politically-inspired manner predicted by Biais and Perotti (1997). Fully 91 percent of all initial SIPs, and 65.8 percent of seasoned offers, preferentially allocate shares to the employees of the SOE being divested. The mean (median) percent of the offer reserved for employees is 8.5 percent (7.0 percent) in initial offers, and 4.8 percent in seasoned issues. Additionally, 28.4 percent (11.5 percent) of all initial offers and 35.9 percent (32.5 percent) of seasoned issues explicitly allocate shares to foreign investors. In fact, most large SIP offers explicitly target share tranches to the U.S. stock market, where the American depository receipts (ADRs) so offered have proven very popular with institutional and retail investors. Smith and Sofianos (1997) also document that foreign ADR issuers benefit from increased liquidity in their home market, as well as in the U.S.

The last set of variables examined, those relating to control allocation, also support a political interpretation of the divesting governments' motives. JMNN note that Megginson, Nash, and van Randenborgh (1994) find that virtually all SIPs are pure secondary offerings, where only the government sells its shares and no money flows to the firm itself. Since the divesting government sells an average (median) 43.9 percent (35.0 percent) of the SOE's capital in initial offers, and 22.7 percent (18.1 percent) in seasoned issues, the offers JMNN study represent significant reductions in direct government stock ownership. Additionally, the authors find that governments typically surrender day-to-day operating control of the SOE to private owners in the initial SIP, though they retain effective veto power through a variety of techniques. The most common of these are retention by the government of a "golden share," which gives it the power to veto certain actions (such as foreign takeovers), or insertion of contractual terms in a privatized firm's

³⁴ On the other hand, Benveniste and Wilhelm (1997) show that fixed-price offers have an advantage over book-building techniques used in the U.S. stock market in that they are less likely to fail at the offer price.

corporate charter giving the government the right to mandate the nationality of the firm's CEO, the maximum share of the company that foreigners can own, or other terms designed to pacify domestic nationalistic feelings.

Finally, JMNN perform regression analyses to isolate the factors influencing the amount of underpricing observed in initial SIPs. Using two-stage least squares methodology, they find that initial returns (underpricing) are significantly positively related to the fraction of the firm's capital sold and to the degree of income inequality (Gini coefficient) in a country.³⁵ Further, British offers are more underpriced than non-U.K. issues, and initial returns are negatively related to the level of government spending as a fraction of GDP (a proxy for how "socialistic" a society is) and to a dummy variable indicating that more than 50 percent of a company's stock is being sold. Collectively, these findings strongly support the predictions of Perotti (1995) and Biais and Perotti (1997) that: (1) "committed" and/or right-wing governments are willing to underprice more than are "populist" governments; (2) the degree of income inequality significantly positively impacts the amount of initial offer underpricing, and (3) the selling-off of large government ownership stakes is associated with reduced investor demand, and thus lower measured initial returns. The finding that issue size, measured various ways, *does not* significantly impact underpricing clearly indicates that initial returns in SIPs are not being driven by asymmetric information between issuers and investors over firm asset quality and growth prospects--as various authors have found to be the case for private-sector offerings.³⁶

7. The long-run return to investors in share issue privatizations

As the previous section demonstrates, most empirical privatization studies find that investors who are lucky (or politically favored) enough to be allocated shares in an initial SIP offering are able to earn significantly positive returns by selling those shares immediately after stock trading begins. But what about those investors who act as governments hope they will and retain their shares for the long term--what return do they earn? As we discuss below, they have done quite well.

³⁵ The data used to construct this variable are available online through World Bank (1998).

³⁶ Information asymmetry can lead to underpricing through the winner's curse problem identified in Rock (1986). Studies documenting a negative relationship between IPO initial returns and issue size--and interpreting this as a measure of asymmetric information--include Ritter (1987), Slovin and Young (1990), Ibbotson, Sindelar, and Ritter (1994), Beatty and Welch (1996), and Lee, Lochhead, Ritter, and Zhao (1996). Other studies, however, do not find size to be significantly related to initial returns. These include Tinic (1988), Muscarella and Vetsuypens (1989), Megginson and Weiss (1991), and Dewenter and Malatesta (1997).

Economists specializing in areas other than finance might be surprised to learn two things about financial research into the long-term return earned by investors who purchase unseasoned and seasoned stock: (1) that academic finance paid very little attention to this issue until recently; and (2) the number of articles on long-run returns published in top tier journals since the seminal Ritter (1991) paper has been so large. The vast majority of these papers document significantly negative long-term returns, whether they examine U.S. offerings [Aggarwal and Rivoli (1990), Loughran and Ritter (1995), Spiess and Affleck-Graves (1995), Lee (1997), Rajan and Servaes (1997), Loughran and Ritter (1997), and Carter, Dark, and Singh (1998)] or international stock issues [Keloharju (1993), Levis (1993), Aggarwal, Leal, and Hernandez (1993), Lee, Taylor, and Walter (1996a), Cai and Wei (1997), Firth (1997), and Page and Reyneke (1997)]. A few studies document insignificantly positive long-term performance [Kunz and Aggarwal (1994), Kim, Krinsky, and Lee (1995), and Lee, Taylor, and Walter (1996), Brav and Gompers (1997), Foerster and Karolyi (1997), and Eckbo, Masulis, and Norli (1998)], but only Kiyamaz (1997) finds significantly positive long-run excess returns for his sample of Turkish IPOs.³⁷

Far fewer papers examine the returns earned by investors who buy and hold privatization stock issues. Levis (1993), Menyah, Paudyal, and Inganyete (1995), and Menyah and Paudyal (1996) all document significantly positive long-run abnormal returns for UK SIPs, but Aggarwal, Leal, and Hernandez (1993) find the opposite result for their sample of Chilean SIPs. Even the practitioner-oriented studies by Davidson and Rösigen (1996), Davidson, Rösigen, and Simon (1997), and Davidson (1998) reach contradictory conclusions regarding the long-run (one-year) net return on European SIPs--finding them to be largely negative for France and Italy (but positive for Austria and the U.K.) during the period 1990-March 1996, but positive overall for most European countries in the years after March 1996. Surprisingly, three unpublished academic studies that specifically examine the long-run return for SIPs also yield somewhat contradictory results. Boardman and Laurin (1996) document economically and statistically significant positive long-run abnormal returns for their sample of 87 SIPs and Dewenter and Malatesta (1998) find similar results for their sample of 102 SIPs from eight countries. On the other hand, while Huang (1997) finds generally positive long-run net returns for

³⁷ In addition to these studies of long-term excess returns following stock issues, a sizeable body of research examines the tricky methodological issues that must be addressed to accurately measure long-run returns subsequent to any financial event. This literature includes Barber and Lyon (1997), Kothari and Warner (1997), Lyon, Barber, and Tsai (1998), and Canina, Michaely, Thaler, and Womack (1998). Two studies--Boardman and Vining (1998) and Antoniou, Barr, and Priestley (1997)--examine methodological problems complicating the measurement of the long-term returns earned by investors who purchased stock in the privatized British utility companies.

the SIPs from most of the nine countries examined, only the positive abnormal returns for German, Turkish, Singaporean, and British SIPs are consistently significant.

The most comprehensive study we know of that does examine the long-run returns earned by SIP investors is Megginson, Nash, Netter, and Schwartz (1998). These authors, hereafter referred to as MNNS examine the long-run buy-and-hold returns earned by domestic, international, and U.S. investors who purchase shares at the first open-market price in 264 share issue privatizations (201 unseasoned and 63 seasoned issues) from 36 countries during the period 1981-1997. Their principal methodological contribution to the long-run return literature is to compute one, three, and five-year local currency and US dollar net returns with respect to domestic, international, and U.S. market indices--and also with respect to currency, size, and industry-matched comparison samples. This multi-pronged approach is dictated by the findings of other studies, which indicate that long-run return computations are not robust to different computational techniques; in particular, comparing a security's long run return versus that of an index frequently yields a different (usually higher) net return measure than does the technique of comparing a security's returns to that of a size or industry-matched firm. MNNS compare an individual SIP's return to three different market indices--a national market index, the *Financial Times* World Index (in dollars), and the S&P 500 Index of U.S. stocks--as well as to currency, size, and industry-matched control firms, yielding six comparisons in all. They also compute net returns three ways--as a standard market-adjusted net return (actual SIP return - return on reference index or matching firm), using the wealth relative technique developed by Ritter (1991), and by computing the fraction of SIP portfolio returns exceeding those of their reference index or matched firm (percent positive). The findings of their study are discussed briefly below, and are summarized in tables 8-10.

Table 8 summarizes MNNS' findings on the performance of unseasoned SIP offerings versus alternative market indices over one, three, and five-year holding periods. The results in Panel A suggest that local, international, and U.S. investors receive significantly better one-year returns from purchasing unseasoned SIP offerings than they could, over the same time period, by investing in the national market index (in local currency), or in either the world or U.S. market index (in dollars). The mean (median) one-year holding-period return for unseasoned SIPs is 31.7 percent (23.8 percent), while the mean (median) local currency return on the national market index is 12.7 percent (10.9 percent). The U.S.-dollar returns on the FT World Index and the S&P 500 Index over the same one-year holding period are 10.5 percent (11.5 percent) and 15.0 percent (14.3 percent), respectively. These values yield mean (median) net returns for SIPs versus the three indices of 19.0 percent (9.7 percent), 20.7 percent (15.1 percent), and 16.3 percent (8.8 percent), respectively, all of which are significantly positive at the one percent significance level. The wealth relative (WR) measures for these unseasoned SIPs versus the local market index is 1.17, which means that an investor

would have to invest 1.17 units of local currency in the domestic market to achieve the same terminal wealth as a one-unit investment in an unseasoned SIP offering over the same twelve-month period. The wealth relatives for SIPs versus the world and U.S. indices are 1.180 and 1.132, respectively. In addition, a statistically significant 57.7, 60.0, and 58.1 percent of these SIPs out-perform the local, world, and U.S. markets over a one-year holding period.

****** Insert Table 8 about here ******

Panels B and C of table 8 present these same measures for SIPs over three and five-year holding periods, and the story these panels tell is even more flattering to privatizing share offerings. Depending upon the specific net return measure employed, SIPs yield excess returns of between 28.7 and 47.9 percent over three years, and between 58 and 66 percent of SIPs out-perform their reference indices. Over the five-year holding period, the mean net returns are between 76.6 percent for the comparison with the U.S. index and *108.4 percent* versus the world index (both measured in dollars), and between 67.0 and 73.6 percent of all SIPs out-perform their reference indices.

Table 9 presents one, three, and five-year net returns for SIP investors when the returns are compared to those of matching firm samples. Though the magnitudes of the net returns computed versus matching firms are generally somewhat smaller than those measured against reference indices, the excess returns are all significantly positive and between 61 and 74 percent of all SIP samples out-perform the matching firm samples. We should point out that MNNS also compute net returns in numerous other ways, such as using value-weighted SIP portfolios rather than equally-weighted ones, comparing the net returns of British SIPs to those of non-UK SIPs, and using median returns rather than means. In these subsample tests, equally-weighted returns are higher than value-weighted returns, mean returns exceed medians, local currency returns exceed dollar returns, and UK offers are more profitable than non-UK issues; however, all categories of unseasoned SIPs yield significantly positive net returns.

****** Insert Table 9 about here ******

Finally, table 10 presents net return computations for seasoned SIPs versus the three reference indices. Both equally-weighted and value-weighted return calculations are presented, since in these measurements the two techniques yield qualitatively different results, especially when the especially dismal long-run stock price performance of Nippon Telegraph and Telephone (NTT) is included in the value-weighted samples. Since NTT lost more than 40 percent of its market over the one-year holding period, and over two-thirds of its value over five years, its inclusion yields significantly negative long-run net returns for seasoned SIPs. Many of the percent positive measures paint a similarly negative picture, but most of the

equally-weighted net returns and the wealth relative measures suggest seasoned SIP investors roughly broke even.

In a recent empirical study of long-run SIP returns, Huibers and Perotti (1998) examine whether privatization share pricing reflects a heightened risk sensitivity using a sample of 134 SIPs from 19 countries. They test whether country risk changes have a stronger effect on the returns of SIPs than on the returns of the market as a whole in emerging market countries. They document that SIPs do exhibit a greater sensitivity to changes in perceived risk, but that this sensitivity progressively disappears after the sale, suggesting that uncertainty over government policy affecting the privatized firm tends to be resolved over time. They suggest that MNNS' findings of superior long-term returns for SIPs reflects a period of progressive resolution of policy risk, at least in emerging markets.

8. The lessons of privatization research

Though we should be careful not to draw too many (or too cosmic) conclusions from this survey of privatization research, we would be remiss not to at least attempt a few summarizing remarks. The points listed below are presented in the order we summarized the topics, not necessarily in order of importance. Our reading of the extant literature on privatization suggests the following general conclusions:

1. The privatization programs of the last twenty years have significantly reduced the role of state-owned enterprises in the economic life of industrialized countries, but thus far these programs have not significantly reduced the role of SOEs in most developing economies. The SOE share of "global GDP" has declined from a little over nine percent in 1978 to perhaps six percent today.³⁸
2. The weight of academic research is now decidedly in favor of the proposition that privately-owned firms are more efficient and more profitable than otherwise-comparable state-owned firms, and the multilateral aid agencies that "count" in the developing world (particularly the World Bank) now firmly advise countries to reduce the size of their state sectors. The limited empirical evidence that exists suggests that non-privatizing reform measures, such as price deregulation and market liberalization, can improve the efficiency of SOEs, but it also seems likely that these reforms would be even more effective if coupled with privatization.

³⁸ These figures are based on the data in World Bank (1995), and on the observation that OECD countries represent about three-quarters of world GDP and developing countries account for the remaining 25 percent.

3. Little doubt now remains that privatization “works,” in the sense that divested firms almost always become more efficient, more profitable, increase their capital investment spending, and become financially healthier. Both single-country, single-industry and multi-national, multi-industry empirical studies document significant (often dramatic) performance improvements. Perhaps surprisingly, even the question of whether privatization generally costs at least some SOE workers their jobs is still unresolved; some studies find employment declines after government divestiture, but other studies document employment increases. However, it is clear that whenever employment is cut there is almost invariably a large compensating performance improvement. Several studies also highlight the need to bring new, entrepreneurially-oriented management into privatized firms to maximize performance improvements.
4. Governments use three basic techniques to privatize their SOEs--share issue privatizations (SIPs), asset sales, and voucher or mass privatizations--and the determinants of the method selected in specific circumstances are beginning to be understood. SIPs are generally preferred over asset sales for large SOE divestitures, in countries with more developed capital markets, and where income per capita is relatively high, while asset sales are preferred when a government is in greater need of immediate income from sales receipts. When asset sales are used, it is generally better (more revenue is raised) to increase the number of bidders in an open auction than to rely on direct negotiations with a smaller number of bidders. Finally, voucher privatizations are the least economically-productive divestment technique, but those governments adopting it generally have few other realistic options.
5. Governments attempt to craft the offering terms of SIPs to balance competing economic, political, and financial objectives. Most governments deliberately underprice share offerings (particularly initial offerings) and then favor domestic over foreign investors with targeted share allocations. SOE employees are particularly favored, receiving preferential allocations in 91 percent of offers. Governments frequently retain “golden shares” giving them veto power over certain control changes, and also insert various other control restrictions into the corporate charters of privatized firms. All of these actions indicate that governments willingly trade off maximum offering proceeds to achieve political and economic objectives--one of which is to make privatization politically irreversible.
6. Investors who purchase initial SIP shares at their first post-offer trading price--and then retain those shares for one, three, or five-year holding periods--earn significantly positive net returns that approach 100 percent by some measures over a five-year holding period. Investors in seasoned SIPs roughly break even.

We should stress that many unanswered questions remain. In particular, little research has focused on how privatized firms resolve the problems that arise from the immensely dispersed ownership structure that results from most SIP offerings; in fact, no study we know of has even systematically documented the ownership structures that do result from SIPs. Additionally, very little research has examined the performance of firms privatized through asset sales outside of eastern Europe, primarily due to the difficulty of obtaining internationally-comparable performance data on these companies--which tend to become divisions of larger western firms. Most important of all will be assessing whether privatized firms are able to weather the gathering economic storm in many emerging markets. The temptation for the state to reassert control during a period of economic stress will surely be great, the evidence summarized here clearly suggests they should refrain from doing so, but an objective economist (or historian) knows better than to predict the outcome of such a contest. For the sake of *humanus economicus*, let's hope the private sector wins.

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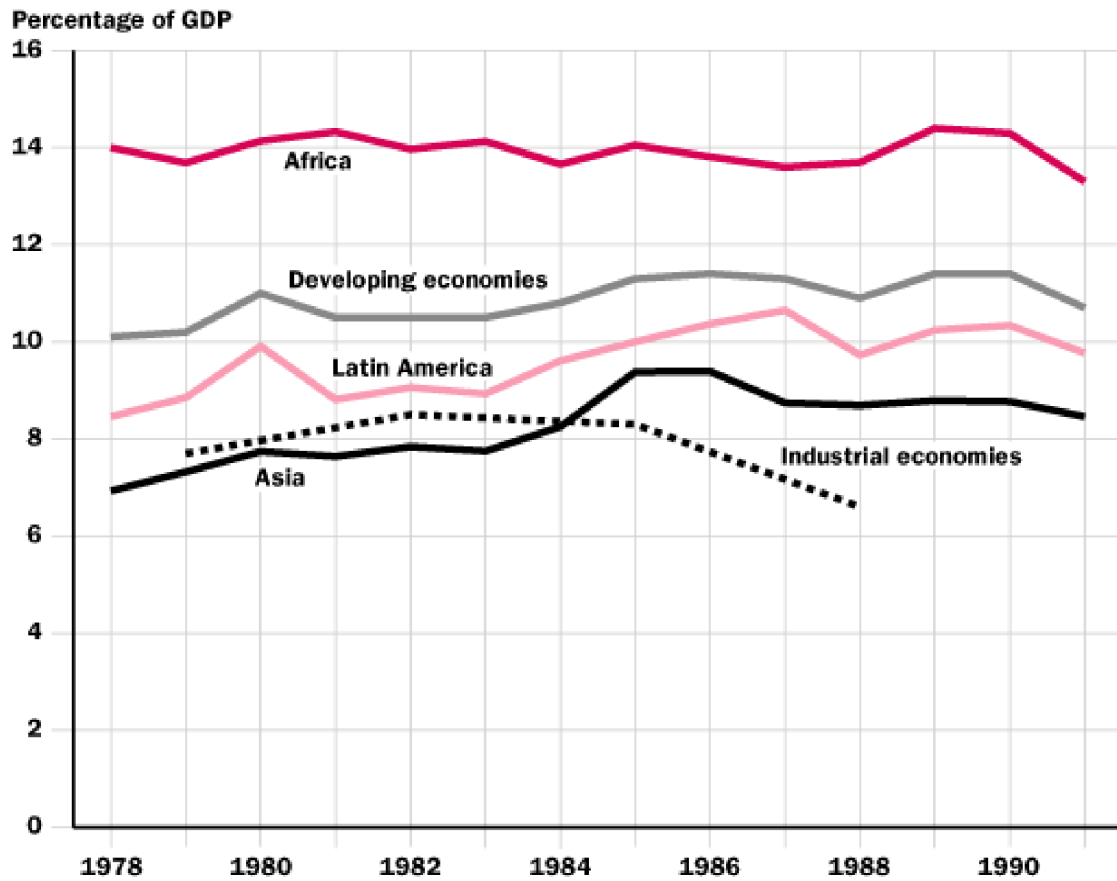
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Figure 1: Share of State-Owned Enterprises in Gross Domestic Product, by Region, 1978-1991



Source: World Bank, 1995, *Bureaucrats in Business* (Washington, D.C.). Viewable at: <http://www.worldbank.org/html/extpb/Bureaucrats/figure2.htm>.

Table 1: Market Value, Sales, and Profits of the 34 Largest, Publicly-Traded Privatized Firms

This table details the stock market value, total sales, and total profits--in millions of US dollars (translated at the contemporaneous exchange rate)--of the 34 publicly-traded privatized firms worth at least US \$15 billion as of May 28, 1998. Market value is calculated as the stock price times the latest available number of shares outstanding. Firms are classified as privatized if any shares of a state-owned enterprise have been sold to private investors through a public share offering, even if the government still retains a majority of the company's outstanding shares. The issues are described in an appendix to this paper. Information is from Morgan Stanley Capital International, as reported in "The Business Week Global 1000," *Business Week* (July 13, 1998), pp. 52-92. Global 1000 Rank refers to the company's global ranking based on market valuation, while Country Rank refers to the company's relative position among those firms from their country on the Global 1000 List.

Company Name	Country	Global 1000 Rank	Country Rank	Market Value US \$mil	Total Sales US \$mil	Total Profits US\$mil
Nippon Telegraph & Telephone	Japan	8	1	130,911	63,665	1,081
British Petroleum	United Kingdom	26	2	85,283	70,870	4,600
Deutsche Telekom	Germany	32	2	73,640	37,891	1,853
British Telecommunications	United Kingdom	40	6	66,261	25,504	3,307
ENI	Italy	57	1	56,424	34,551	2,913
France Telecom	France	59	1	56,011	26,197	2,484
Telecom Italia	Italy	67	2	51,301	24,372	1,963
Telefonica	Spain	78	1	45,854	15,617	1,256
Elf Aquitaine	France	91	2	38,123	42,507	1,702
VEBA	Germany	116	10	32,686	42,667	1,576
Volkswagen	Germany	122	11	30,938	63,521	749
Total	France	127	6	38,345	31,939	1,272
Gazprom	Russia	128 ^a	1	32,906	20,462	1,456
Telebras	Brazil	129 ^a	1	32,759	13,739	3,390
Telstra	Australia	130	1	30,278	9,668	1,608
Koninklijke PTT Nederland	Netherlands	150	7	26,420	7,590	1,339
Cable & Wireless	United Kingdom	156	17	25,601	11,417	1,194
Endesa	Spain	164	4	24,950	8,475	1,102
Singapore Telecommunications	Singapore	189	1	21,499	2,952	1,127
Hong Kong Telecommunications	Hong Kong	190	1	21,440	4,522	2,197
China Telecom	China	199 ^a	1	20,676	1,871	599
BG	United Kingdom	204	21	20,246	7,012	820
Rhone-Poulenc	France	207	10	20,122	15,042	571
Telefonos de Mexico	Mexico	209 ^a	1	19,999	6,873	1,455
Commonwealth Bank	Australia	211	3	19,828	NA	1,391
Societe Generale	France	216	12	19,548	NA	1,021
East Japan Railways	Japan	221	18	18,995	18,142	510
Banque Nationale de Paris	France	231	15	18,214	NA	997
Compagnie de Saint-Gobain	France	239	16	17,603	17,898	939
Repsol	Spain	256	5	16,694	21,208	833
Paribas	France	261	17	16,327	NA	1,099
Credito Italiano	Italy	265	6	16,113	NA	274
British Aerospace	United Kingdom	266	27	15,918	11,850	695
Electricidade de Portugal	Portugal	268	1	15,785	3,132	510

^a These firms are from a companion "Top 100 Emerging-Market Companies" in the same issue, and subsequent rankings are adjusted to reflect their inclusion in the Global 1000 List.

Table 2: The World's 48 Largest Share Offerings

This table details the 41 largest public and 7 largest private-sector share offerings in financial history, through August 1998. Offers are reported in nominal amounts (not inflation-adjusted), and are translated into millions of US dollars (\$mil) using the contemporaneous exchange rate. *Private-sector offerings* are presented in bold-face, italicized type, while share issue privatizations (SIPs) are presented in normal typeface. An initial public offering is indicated as an IPO, while a seasoned equity offers is designated an SEO, although only the private-sector offerings were actually capital-raising events (SIPs were almost exclusively secondary offerings of shares held by the national government). Amounts reported for SIP offers are taken from an appendix to this paper, and are recorded as described in the *Financial Times* at the time of the issue (or as detailed in the *Privatisation International* database if a definitive amount was not reported at the time of issuance). Private-sector offering amounts are as reported in the *Securities Data Corporation* datafile in August 1998, updated through November 1998 from secondary sources.

Date	Company	Country	Amount (\$mil)	IPO/SEO
Nov 87	Nippon Telegraph & Telephone	Japan	\$40,260	SEO
Oct 88	Nippon Telegraph & Telephone	Japan	22,400	SEO
Oct 98	NTT DoCoMo	Japan	18,000	IPO
Oct 97	Telecom Italia	Italy	15,500	SEO
Feb 87	Nippon Telegraph & Telephone	Japan	15,097	IPO
Nov 96	Deutsche Telekom	Germany	13,300	IPO
Oct 87	British Petroleum	United Kingdom	12,430	SEO
Nov 97	Telstra	Australia	10,530	IPO
Dec 90	Regional Electricity Companies ^a	United Kingdom	9,995	IPO
Dec 91	British Telecom	United Kingdom	9,927	SEO
Dec 89	U.K. Water Authorities ^a	United Kingdom	8,679	IPO
Dec 86	British Gas	United Kingdom	8,012	IPO
Jun 98	Endesa	Spain	8,000	SEO
Jul 97	ENI	Italy	7,800	SEO
Jul 93	British Telecom	U.K.	7,360	SEO
Oct 93	Japan Railroad East	Japan	7,312	IPO
Oct 97	France Telecom	France	7,080	IPO
Feb 94	Elf Aquitaine	France	6,823	SEO
Jun 97	Halifax Building Society	United Kingdom	6,813	IPO
Jun 98	ENI	Italy	6,740	SEO
Oct 98	Swisscom	Switzerland	6,000	IPO
May 94	Autoliv Sverige	Sweden	5,818	IPO
Oct 96	ENI	Italy	5,864	SEO
Oct 93	Banque Nationale de Paris	France	4,920	IPO
Nov 84	British Telecom	U.K.	4,763	IPO
Jun 97	Norwich Union	United Kingdom	4,722	IPO
Dec 87	Japan Air Lines	Japan	4,645	IPO
Dec 88	British Steel	U.K.	4,645	IPO
Oct 97	Endesa	Spain	4,500	SEO
Oct 98	Conoco	U.S.	4,400	IPO
Oct 96	Japan Railroad West	Japan	4,400	IPO
Feb 97	Telefonica	Spain	4,360	SEO
May 91	Hydro-Electric, Scottish Power ^a	United Kingdom	4,313	IPO
Jul 92	Wellcome PLC	United Kingdom	4,118	IPO
Oct 97	China Telecom	China (HK/SAR)	4,000	IPO

Table 2: (Continued)

Date	Company	Country	Amount (\$mil)	IPO/SEO
Jul 95	Usinor Sacilor	France	3,930	IPO
Nov 95	ENI	Italy	3,907	IPO
Jun 94	Koninklijke PTT Nederland	Netherlands	3,868	IPO
Jun 98	Alstom	UK/France	3,720	IPO
Mar 95	National Power, PowerGen Ltd ^a	United Kingdom	3,657	IPO
Jun 87	Societe Generale	France	3,577	IPO
Oct 95	Koninklijke PTT Nederland	Netherlands	3,514	SEO
Jun 88	Pohang Iron and Steel	Korea	3,400	IPO
Sep 94	Japan Tobacco	Japan	3,400	IPO
Apr 94	Union des Assurances de Paris	France	3,250	SEO
Jul 96	Commonwealth Bank	Australia	3,100	SEO
Jun 94	Istituto Nazionale de Assicurazioni	Italy	3,100	IPO
Apr 96	Lucent Technologies	USA	3,025	IPO

^a Indicates a group offering of multiple companies that trade separately after the IPO.

Table 3: Summary of Country and Industry-Specific Empirical Studies of Privatization

This table summarizes the sample selection criteria, methodologies, and empirical findings of several recent academic studies of privatization that focus on specific industries or countries. Only articles that present new empirical results--as contrasted with articles that survey other papers--are summarized.

Study authors, (date) and title	Sample description, study period, and methodology	Summary of empirical findings and conclusions
Martin & Parker (1995): "Privatization and Economic Performance Throughout the UK Business Cycle."	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 improved 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 improved prior to divestiture, indicating an initial "shake-out" effect upon privatization announcement.
Barberis, Boycko, Shleifer, and Tsukanova (1996): "How Does Privatization Work? Evidence From the Russian Shops."	Surveys 452 Russian shops sold during the early-1990s to measure the importance of alternative channels through which privatization promotes restructuring.	Document that presence of new owners and managers raises the likelihood of value-increasing restructuring. Finds equity incentives do not improve performance; instead points to importance of new human capital in economic transformation.
Ramamurti (1997): "Testing the Limits of Privatization: Argentine Railroads."	Examines restructuring and privatization of Ferrocarril Argentino, 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.
LaPorta and López-de-Silanes (1997): "Benefits of Privatization--Evidence From Mexico."	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.	Finds that output of privatized firms increased by 54.3%, while employment declined by half (though wages for remaining workers increased). Firms achieved a 40 percentage point increase in profitability, eliminating need for subsidies equal to 12.7% of GDP. Industry effects explain only 20% of improvement; productivity gains due to better incentives account for 52%.

<p>Claessens, Djankov, and Pohl (1997): "Ownership and Corporate Governance: Evidence from the Czech Republic."</p>	<p>Examines cross-sectional determinants of performance improvements for a sample of 706 Czech firms privatized during 1992-95. Using a Tobins-Q measure, tests whether concentrated ownership structure or presence of outside monitor (bank or investment fund) improves Q more than dispersed ownership.</p>	<p>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</p>
<p>Eckel, Eckel, and Singal (1997): "Privatization and Efficiency: Industry Effects of the Sale of British Airways."</p>	<p>Examine the effect of British Airways' privatization on the stock prices of competitors. Also tests whether fares on competitive routes decline after privatization. Such findings would suggest a more competitive BA resulting from privatization.</p>	<p>Stock prices of US competitors decline on average by 7 percent upon BA's privatization, and fares on routes served by BA and competitors fall by 14.3 percent after divestiture. Compensation of BA executives increases and becomes more performance-contingent.</p>
<p>Newberry and Pollitt (1997): "The Restructuring and Privatization of Briatin's CEGB--Was it Worth It?"</p>	<p>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.</p>	<p>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.</p>
<p>D'Souza (1998): "Privatization of Telecommunications Companies: An Empirical Analysis."</p>	<p>Examine pre- versus post-privatization performance changes for 17 national telecommunications companies privatized through share offerings during 1981-94.</p>	<p>Finds that profitability, output, operating efficiency, capital spending, number of access lines, and average salary per employee all increase significantly after privatization. Leverage declines significantly; employment declines insignificantly.</p>

Table 4: Summary of Multi-National, Multi-Industry Empirical Studies of Privatization

This table summarizes the sample selection criteria, methodologies, and empirical findings of several recent academic studies of privatization that employ samples from more than one country and more than one industry. Only articles that present new empirical results--as contrasted with articles that survey other papers--are summarized.

Study authors, (date) and title	Sample description, study period, and methodology	Summary of empirical findings and conclusions
Galal, Jones, Tandon, and Vogelsang (1992): “Welfare Consequences of Selling Public Enterprises.”	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 which equal, on average, 26% of the firms’ pre-privatization sales. Find no case where workers were made worse off, and 3 where workers were made significantly better off.
Meggison, Nash, and van Randenborgh (1994): “The Financial and Operating Performance of Newly-Privatized Companies: An International Empirical Analysis.”	Compare 3-year average post-privatization financial and operating performance ratios to the 3-year pre-privatization values for 61 companies from 18 countries and 32 industries over the period 1961-1989. Tests for the significance of median changes in ratio values in post versus pre-privatization period. Also 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, and dividend payments, as well as significant decreases in leverage. No evidence of employment declines after privatization, but significant changes in firm directors.
Frydman, Gray, Hessel, and Rapaczynski (1998): “Private Ownership and Corporate Performance: Some Lessons from Transition Economies.”	Compare the performance of a sample of 128 privatized and 90 state-owned firms in the Czech Republic, Hungary, and Poland during the years after privatization began in 1990-93. Examine changes in revenues, costs, labor productivity and employment among different types of privatized firms (classified by ownership) and firms which remain SOEs.	Find strong evidence that the positive effects of privatization on corporate performance are not uniform across types of firms and measures of performance. Private ownership increases revenue and productivity on firms that are controlled by outside owners not on firms controlled by insiders..
Pohl, Anderson, Claessens, and Djankov (1997): “Privatization and Restructuring in Central and Eastern Europe.”	Compare the extent of restructuring achieved by over 6,300 private and state-owned firms in seven eastern European countries during 1992-95. Use six measures of performance improvements to examine which restructuring strategies improve performance the most.	Find that 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.

<p>Boubakri and Cosset (1998): “The Financial and Operating Performance of Newly Privatized Firms: Evidence from Developing Countries.”</p>	<p>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 binomial tests for percentage of firms changing as predicted.</p>	<p>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.</p>
<p>D’Souza and Megginson (1998): “The Financial and Operating Performance of Privatized Firms During the 1990s.”</p>	<p>Compare 3-year average post-privatization financial and operating performance ratios to the 3-year pre-privatization values for 78 companies from 10 developing and 15 developed countries over the period 1990-94. Tests for the significance of median changes in ratio values in post versus pre-privatization period. Also binomial tests for percentage of firms changing as predicted.</p>	<p>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.</p>
<p>Dewenter and Malatesta (1998): “State-Owned and Privately-Owned Firms: An Empirical Analysis of Profitability, Leverage, and Labor Intensity.”</p>	<p>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.</p>	<p>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 <i>prior to</i> 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.</p>

Table 5: Summarized Results From Three Empirical Studies of the Financial and Operating Performance of Newly-Privatized Firms (Compared to Their Performance as State-Owned Enterprises)

This table summarizes the empirical results of three directly-comparable academic studies comparing the three-year average operating and financial performance of a combined sample of 204 newly-privatized firms with the average performance of those same firms during their last three years as state-owned enterprises (SOEs). The table presents, for each study and for each empirical proxy, the number of useable observations, the mean (median) values of the proxy for the three-year periods prior to and subsequent to privatization, the mean (median) change in the proxy's value after versus before privatization, and a test of significance of the median change. Weighted averages of the mean pre- and post-privatization values, as well as the mean change, are also presented. All three studies employ the Wilcoxon rank sum test (with its z-statistic) as the test of significance for the change in median value. The final two columns detail, for each study and for each proxy, the percentage of firms whose performance improved after privatization. All three studies employ multiple proxies for most of the economic variables being measured; in this table we summarize only one proxy per topic, and emphasize the one highlighted in the studies (almost invariably, the variable that uses either physical measures--such as number of employees--or financial ratios using current-dollar measures in the numerator or denominator, or both). Profitability, investment, leverage, and dividend measures are in percent. Efficiency and output measures are index values, where the value during the year of privatization is defined as 1.000, and inflation-adjusted sales figures are used in the efficiency and output measures.

Variables and Studies cited	Number of Observations	Mean value Before Privatization	Mean value After Privatization	Mean change Due to Privatization	Z-Statistic for Difference in Performance	% of Firms With improved Performance	Z-Statistic for Significance of % change
PROFITABILITY (Net Income÷Sales)							
Megginson, Nash and van Randenborgh (1994)	55	0.0552 (0.0442)	0.0799 (0.0611)	0.0249 (0.0140)	3.15***	69.1	3.06***
Boubakri & Cosset (1998)	78	0.0493 (0.0460)	0.1098 (0.0799)	0.0605 (0.0181)	3.16***	62.8	2.29**
D'Souza & Megginson (1998)	78	0.14 (0.05)	0.17 (0.08)	0.03 (0.03)	3.85***	72	4.28***
<i>Weighted average</i>	<i>211^a</i>	<i>0.0843</i>	<i>0.1243</i>	<i>0.0399</i>			
EFFICIENCY (Real Sales per Employee)							
Megginson, Nash and van Randenborgh (1994)	51	0.956 (0.942)	1.062 (1.055)	0.1064 (0.1157)	3.66***	85.7	6.03***
Boubakri & Cosset (1998)	56	0.9224 (0.9056)	1.1703 (1.1265)	0.2479 (0.2414)	4.79***	80.4	4.60***
D'Souza & Megginson (1998)	61	1.03 (0.81)	2.73 (1.75)	1.70 (0.94)	6.05***	88	9.44***
<i>Weighted average</i>	<i>152</i>	<i>0.9733</i>	<i>1.7713</i>	<i>0.7981</i>			

Table 5: (Continued)

INVESTMENT (Capital Expenditures ÷ Sales)

Megginson, Nash and van Randenborgh (1994)	43	0.1169 (0.0668)	0.1689 (0.1221)	0.0521 (0.0159)	2.35**	67.4	2.44**
Boubakri & Cosset (1998)	48	0.1052 (0.0649)	0.2375 (0.1043)	0.1322 (0.0137)	2.28**	62.5	1.74*
D'Souza & Megginson (1998)	63	0.14 (0.09)	0.16 (0.10)	0.02 (0.01)	1.45	59	1.41
<i>Weighted average</i>	<i>154</i>	<i>0.1227</i>	<i>0.1866</i>	<i>0.0639</i>			

OUTPUT (Real Sales (adjusted by CPI))

Megginson, Nash and van Randenborgh (1994)	57	0.899 (0.890)	1.140 (1.105)	0.241 (0.190)	4.77***	75.4	4.46***
Boubakri & Cosset (1998)	78	0.9691 (0.9165)	1.220 (1.123)	0.2530 (0.1892)	5.19***	75.6	4.58***
D'Souza & Megginson (1998)	74	0.95 (0.75)	2.65 (1.84)	1.70 (1.09)	6.61***	85	8.50***
<i>Weighted average</i>	<i>209^a</i>	<i>0.9432</i>	<i>1.7045</i>	<i>0.7621</i>			

EMPLOYMENT (Total Employees)

Megginson, Nash and van Randenborgh (1994)	39	40,850 (19,360)	43,200 (23,720)	2,346 (276)	0.96	64.1	1.84*
Boubakri & Cosset (1998)	57	10,672 (3,388)	10,811 (3,745)	139 (104)	1.48	57.9	1.19
D'Souza & Megginson (1998)	68	18,430 (9,187)	18,287 (8,743)	-143 (-444)	-1.39	37	-2.14**
<i>Weighted average</i>	<i>164</i>	<i>21,065</i>	<i>21,613</i>	<i>547</i>			

Table 5: (Continued)

LEVERAGE (Total Debt ÷ Total Assets)							
Megginson, Nash and van Randenborgh (1994)	53	0.6622 (0.7039)	0.6379 (0.6618)	-0.0243 (-0.0234)	-2.41**	71.7	3.51***
Boubakri & Cosset (1998)	65	0.5495 (0.5575)	0.4986 (0.4789)	-0.0508 (-0.0162)	-2.48**	63.1	2.11**
D'Souza & Megginson (1998)	70	0.29 (0.25)	0.23 (0.17)	-0.06 (-0.08)	-3.07***	67	3.05***
<i>Weighted average</i>	<i>188</i>	<i>0.4846</i>	<i>0.4379</i>	<i>-0.0468</i>			
DIVIDENDS (Cash Dividends ÷ Sales)							
Megginson, Nash and van Randenborgh (1994)	39	0.0128 (0.0054)	0.0300 (0.0223)	0.0172 (0.0121)	4.63***	89.7	8.18***
Boubakri & Cosset (1998)	67	0.0284 (0.0089)	0.0528 (0.0305)	0.0244 (0.0130)	4.37***	76.1	4.28***
<i>Weighted average</i>	<i>106</i>	<i>0.0227</i>	<i>0.0444</i>	<i>0.0218</i>			

a Number exceeds 204 because of overlapping firms in different samples.

*** Indicates significance at the 1 percent level

** Indicates significance at the 5 percent level

* Indicates significance at the 10 percent level

Sources: William L. Megginson, Robert C. Nash, and Matthias van Randenborgh, 1994, The financial and operating performance of newly privatized firms: An international empirical analysis, *Journal of Finance* 49, 403-452; Narjess Boubakri and Jean-Claude Cosset, 1998, The financial and operating performance of newly privatized firms: Evidence from developing countries, *Journal of Finance* 53, 1081-1110; and Juliet D'Souza and William L. Megginson, 1998, The financial and operating performance of newly privatized firms during the 1990s, Working paper (University of Oklahoma).

Table 6: Characteristics of Asset Sales and Share Issue Privatizations (SIPs)

This table summarizes key features of privatizations that have been executed by direct asset sales and public share offerings over the period 1980-1997. Values in parentheses are medians. Dollar values are in millions of US dollars as of the time of privatization.

Variables	SIPs	Asset Sales
Number of privatizations	558	831
Number of countries	58	71
Percent of capital sold	44%	71%
	(30%)	(76%)
\$US amount of offer	\$748	\$212
	(\$137.5)	(\$49.5)
Total \$US sold	\$417,532	\$175,988

Source: Data are from *Privatisation International*; empirical results reported in William L. Megginson, Robert C. Nash, Jeffrey M. Netter, and Annette B. Poulsen, 1998, The choice of privatization method: An empirical analysis, Working paper (University of Georgia).

Table 7: Pricing, Share Allocation, and Control Allocation Patterns in Share Issue Privatizations

This table provides summary statistics on pricing, share allocation, and control allocation patterns for a sample of 630 share issue privatizations (SIPs) executed by 59 national governments during the period 1977-1997. Measures are broken down for the 417 initial public offerings of SIP shares and the 213 seasoned SIP offerings. **Pricing variables** include *Initial return* (also known as initial underpricing), which is a measure of one-day return an investor who purchased shares at the offering price could earn by reselling those shares at the end of the first day's trading; *Percent of offers at a fixed price*, which measures the fraction of an issue offered to investors at a pre-determined, fixed price rather than at an auction-determined price; and *Cost of sales as a percent of issue size* is a measure of the sum of cash expenses and underwriter discount charged by the investment banking syndicate managing the issue. The **Share allocation variables** measure the fraction of an issue specifically allocated to employees and foreigners, while the **Control allocation variables** describe how corporate control is parceled out as a result of the offering. *Percent of capital sold* measures the fraction of a firm's total common equity (which is not necessarily synonymous with total voting rights) sold in an offering.

Measure	Initial SIPS			Seasoned Offers		
	Mean	Median	Number	Mean	Median	Number
Pricing Variables						
Issue size (US\$ million)	555.7	104.0	417	1,068.9	311.0	172
Initial return	34.1	12.4	242	9.4	3.3	55
Percent of offer at fixed price	85.0	100.0	273	61.0	100.0	77
Cost of sales as a percent of issue	4.4	3.3	178	2.5	2.6	61
Share Allocation Variables						
Percent of offer allocated to employees	8.5	7.0	255	4.8	2.6	76
Fraction of offers with some allocation to employees	91.0		255	65.8		76
Percent of offer allocated to foreigners	28.4	11.5	348	35.9	32.5	142
Percent of offers with some allocation to foreigners	57.1		348	67.6		142
Control Allocation Variables						
Percent of capital sold in offer	43.9	35.0	384	22.7	18.1	154
Percent of offers where 100% of capital sold	11.5		384	0		154
Percent of capital where 50% or more of capital sold	28.9		384	8.4		154

Source: Steven Jones, William Megginson, Robert Nash, and Jeffrey Netter, 1998, Share issue privatizations as financial means to political and economic ends, *Journal of Financial Economics* (forthcoming).

Table 8: The Performance of Unseasoned Share Issue Privatizations versus Alternative Indices Over One, Three, and Five-year Holding Periods

This table measures the net return earned by investors in share issue privatizations as compared with three different market indices. The share issue privatization (SIP) holding period return (HPR) represents a buy-and-hold return with dividends reinvested in the respective security and is calculated using the Datastream return index (RI) datatype. When not available on Datastream, these values are collected from the *Financial Times*. The SIP return uses the first available (base date) post-issue closing price from Datastream, so the initial returns are not reflected. For the country (local currency) tests, SIP's are matched to the appropriate national stock market return index provided by Datastream. The world index test compares the US dollar return on the SIP issues (after 1986) with the dollar return on an investment in the *Financial Times* World Index. The S&P index test compares the (US dollar) HPR on the SIP issues with that of the S&P 500 index. The Wilcoxon (Z) statistic identifies the differences in median values between the groups. The mean t-statistic tests whether the HPR for the SIP minus the HPR for the index (the net return) is significantly greater than 0. The percent positive measure (binomial test) examines the number of times the SIP HPR is greater than that of the matching index or firm. The percent positive t-statistic tests whether the percent of SIP HPR's that exceed their respective matching firms is greater than 50 percent. The wealth relative (WR) is computed

as $\left[\frac{\sum (1+R_{SIP})}{\sum (1+R_{match})} \right]$ and is the same as in Loughran and Ritter (1995).

Panel A: One-year holding period (178 companies)

	SIP Country (local currency)				World Index (\$based)			S&P 500 Index (\$based)		
	HPR	HPR	Differences	WR	HPR	Differences	WR	HPR	Differences	WR
Mean	31.7%	12.7%	19.0%	1.17	10.5%	20.7%	1.19	15.0%	16.3%	1.14
Median	23.8%	10.9%	9.7%		11.5%	15.1%		14.3%	8.8%	
Percent Positive	SIP>Country 59% (t=2.4)				SIP>World 61% (t=3.0)			SIP>S&P500 58% (t=2.2)		

Panel B: Three-year holding period (134 companies)

	SIP Country (local currency)				World Index (\$based)			S&P 500 Index (\$based)		
	HPR	HPR	Differences	WR	HPR	Differences	WR	HPR	Differences	WR
Mean	102.2%	47.2%	54.9%	1.37	35.0%	47.9%	1.35	54.1%	28.7%	1.19
Median	65.0%	44.1%	26%		38.0%	32.7%		53.8%	18.1%	
Percent Positive	SIP>Country 60% (t=2.2)				SIP>World 66% (t=3.6)			SIP>S&P500 58% (t=1.9)		

Panel C: Five-year holding period (82 companies)

	SIP Country (local currency)				World Index (\$based)			S&P 500 Index (\$based)		
	HPR	HPR	Differences	WR	HPR	Differences	WR	HPR	Differences	WR
Mean	190.9%	83.0%	107.9%	1.59	60.8%	108.4%	1.67	92.6%	76.6%	1.40
Median	161.3%	77.6%	88.6%		61.0%	95.0%		97.0%	62.2%	
Percent Positive	SIP>Country 72% (t=4.0)				SIP>World 72% (t=4.0)			SIP>S&P500 67% (t=3.1)		

Source: William L. Megginson, Robert C. Nash, Jeffrey M. Netter, and Adam L. Schwartz, 1998, The long-run return to investors in share issue privatizations, Working paper (University of Georgia).

Table 9: The Performance of Unseasoned Share Issue Privatizations versus Alternative Matching-Firm Samples Over One, Three, and Five-year Holding Periods

This table measures the net return earned by investors in share issue privatizations (SIPs) as compared with three different techniques of matching firms. Holding period return (HPR) represents a buy-and-hold return with dividends reinvested in the respective security and is calculated using the Datastream return index (RI) datatype. When not available on Datastream, these values are collected from the *Financial Times*. The SIP return uses the first available (base date) post-issue closing price from Datastream, so the initial returns are not reflected. The Wilcoxon (Z) statistic identifies the differences in median values between the groups. The mean t-statistic tests whether the HPR for the SIP minus the HPR for the firm (the net return) is significantly greater than 0. The percent positive measure (binomial test) examines the number of times the SIP HPR is greater than that of the matching index or firm. The percent positive t-statistic tests whether the percent of SIP HPR's that exceed their respective matching firms is greater than 50 percent.

The wealth relative (WR) is computed as $\left[\frac{\sum (1+R_{SIP})}{\sum (1+R_{match})} \right]$ and is the same as that used in Loughran and Ritter (1995). The firm chosen for a particular random match is selected from non-SIP Datastream firms in the same country with a base date before the SIP share issue. The regional match is chosen from firms in the region with market values in the issue year approximately equal to that of the SIP. The industry match is a US or Canadian firm with the same two-digit SIC code as the SIP. Regional and Industry matching firms are chosen using the April 1997 Worldscope Global Researcher, and they are compared to the SIP HPR's converted to US dollars (not shown).

Panel A: One-year holding period (178 companies)

	SIP				Random(local currency)			Regional Match (\$based)			Industry Match (\$based)		
	HPR	HPR	Differences	WR	HPR	Differences	WR	HPR	Differences	WR	HPR	Differences	WR
Mean	31.7%	18.4	13.3%	1.11	13.2%	18.0%	1.16	14.5%	16.7%	1.15			
Median	23.8%	3.7%	14.2%		4.6%	17.1%		8.5%	13.3%				
Percent Positive		SIP>Random 62% (t=3.1)			SIP>Region 62% (t=3.3)			SIP>Industry 61% (t=2.8)					

Panel B: Three-year holding period (134 companies)

	SIP				Random(local currency)			Regional Match (\$based)			Industry Match (\$based)		
	HPR	HPR	Differences	WR	HPR	Differences	WR	HPR	Differences	WR	HPR	Differences	WR
Mean	102.2%	67.0%	35.2%	1.21	56.0%	26.9%	1.17	52.9%	30.0%	1.20			
Median	65.0%	35.4%	31.9%		24.9%	39.1%		35.8%	36.2%				
Percent Positive		SIP>Random 61% (t=2.6)			SIP>Region 62% (t=2.8)			SIP>Industry 63% (t=2.9)					

Panel C: Five-year holding period (82 companies)

	SIP				Random(local currency)			Regional Match (\$based)			Industry Match (\$based)		
	HPR	HPR	Differences	WR	HPR	Differences	WR	HPR	Differences	WR	HPR	Differences	WR
Mean	190.9%	141.4%	49.5%	1.21	87.9%	81.3%	1.43	100.3%	68.9%	1.34			
Median	161.3%	67.0%	66.6%		37.8%	85.1%		55.1%	92.5%				
Percent Positive		SIP>Random 67% (t=3.1)			SIP>Region 69% (t=3.5)			SIP>Industry 74% (t=4.4)					

Source: William L. Megginson, Robert C. Nash, Jeffrey M. Netter, and Adam L. Schwartz, 1998, The long-run return to investors in share issue privatizations, Working paper (University of Georgia).

Table 10: The Performance of Seasoned Share Issue Privatizations versus Alternative Indices

This table presents net returns--measured return versus national, world, and U.S. stock market indices--for seasoned share issue privatizations, using the same methodology as in Table 8. The total sample consists of 63 offers, some from the same firm. The value weights are based on the initial offer size, and have been adjusted to November 1997 dollars.

Panel A: One-year holding period; Equally-weighted portfolio

	Country (local currency)				World Index (\$based)			S&P 500 Index (\$based)		
	SIP	HPR	Differences	Wealth	HPR	Differences	Wealth	HPR	Differences	Wealth
Mean	16.5%	18.2%	-1.7%	0.985	10.7%	1.6%	1.014	16.7%	-4.4%	0.962
Median	9.8%	14.8%	-7.1%		11.9%	-3.1%		16.0%	-7.8%	
Percent Positive	SIP>Country 43% (t=-1.1)				SIP>World 44% (t=-0.9)			SIP>S&P500 38% (t=-1.9)		

Panel B: One-year holding period; Value-weighted portfolio

	SIP	Country HPR	World Index	S&P 500
Mean	-9.2%	14.5%	13.0%	13.1%
Mean Ex-I:NTT	8.8%	12.9%	7.6%	12.0%

The mean-ex J:NTT computes the mean return excluding Nippon Telegraph and Telephone which comprises 41% of the sample value and lost 35.1% one year after issue.

Panel C: Three-year holding period; Equally-weighted portfolio

	Country (local currency)				World Index (\$based)			S&P 500 Index (\$based)		
	SIP	HPR	Differences	Wealth	HPR	Differences	Wealth	HPR	Differences	Wealth
Mean	62.1%	47.1%	15%	1.102	36.7%	13.3%	1.097	53.8%	-3.8%	0.974
Median	41.9%	42.2%	0.1		36.3%	12.5%		50.5%	-15.5%	
Percent Positive	SIP>Country 50% (t=0)				SIP>World 63% (t=1.6)			SIP>S&P500 40% (t=-1.3)		

Panel D: Three-year holding period; Value-weighted portfolio

	SIP	Country HPR	World Index	S&P 500
Mean	-10.8%	17.8%	26.0%	35.2%
Mean Ex-I:NTT	39.0%	38.4%	26.9%	35.9%

The mean-ex J:NTT computes the mean return excluding Nippon Telegraph and Telephone which comprises 50.9% of the sample value and lost 61.5% three years after issue.

Panel E: Five-year holding period; Equally-weighted portfolio

	Country (local currency)				World Index (\$based)			S&P 500 Index (\$based)		
	SIP	HPR	Differences	Wealth	HPR	Differences	Wealth	HPR	Differences	Wealth
Mean	94.1%	87.1%	7.0%	1.037	68.6%	17.0%	1.100	97.5%	-11.9%	0.940
Median	41.9%	56.4%	-14.3%		65.2%	-10.9%		97.7%	-46.0%	
Percent Positive	SIP>Country 38% (t=-				SIP>World 63% (t=1.6)			SIP>S&P500 35% (t=-1.6)		

Panel F: Five-year holding period; Value-weighted portfolio

	SIP	Country HPR	World Index	S&P 500
Mean	-23.7%	16.7%	45.4%	92.0%
Mean Ex-I:NTT	39.6%	68.6%	54.2%	88.8%

The mean-ex J:NTT computes the mean return excluding Nippon Telegraph and Telephone which comprises 54.1% of the sample value and lost 78.2% five years after issue.

Source: William L. Megginson, Robert C. Nash, Jeffrey M. Netter, and Adam L. Schwartz, 1998, The long-run return to investors in share issue privatizations, Working paper (University of Georgia).