State-Owned Enterprise Reform in Latin America

Issues and Possible Solutions

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Abstract

This paper examines the challenges governments in Latin America face to control their state-owned enterprises (SOEs). It argues that, absent privatization, governments can rely on a variety of reforms to address some of the main problems affecting SOEs. These problems are divided into corporate governance problems—which include agency and multiple-principals problems—and the fiscal governance problem, which has to do with the discretionary nature of the fiscal relationship between the government and its enterprises. Then the paper discusses a variety of solutions for each of these problems. Rather than providing a single recipe, it argues that governments can design governance mechanisms that rely on the market (e.g., by partially privatizing a firm and listing it on a stock exchange), on ex-ante administrative controls, or on hybrid solutions that combine both. Thus, the paper argues that the mechanisms to deal with the problems of SOEs have to be designed on a case-by-case basis, taking into account the specific problems of the public enterprise in question and the economic (and political) environment affecting it.

JEL Codes: H11, H50, H77, G30
Keywords: State-owned enterprises, privatization, state reform, Latin America, corporate governance, fiscal decentralization

Introduction

After almost three decades of privatization and state reform, governments in Latin America still own and control a large number of state-owned enterprises (SOEs). Despite reform efforts in the region, especially to the corporate governance of large firms, the majority of countries are still tackling the issue of how to better control the operation of their SOEs. Furthermore, the governments that have enacted corporate governance reforms to improve the performance of their SOEs have done it in a few large firms. Thus, there is still large heterogeneity in the financial results of SOEs within countries. In this paper we not only identify these problems, but develop a simple framework for governments to diagnose the problems of their SOEs, and provide a tool kit to design potential solutions. Rather than focusing only on privatization and corporate governance reforms for SOEs, we provide a mix of policy tools that range from governance reforms to ex-ante administrative controls and price formulas for regulated industries.

We start by acknowledging that, notwithstanding the initial wave of privatizations, governments in Latin America kept the largest strategic firms under their control.[1] As a consequence, SOE output by country is, on average, 15 percent of GDP, very close to its pre-privatization level (Sheshinski and Lopez-Calva, 2003). Furthermore, privatizations have met with resistance, and there have been significant reversals in the privatization of important public services (Chong and Lopez-de-Silanes, 2005).

Part of the reason why state ownership of companies has been so resilient in the region is that privatization turned out to be politically costly. Users and voters perceived the outcomes of privatization efforts in the region as unsatisfactory, either because service quality and coverage did not meet the standards set out by regulators, or because public monopolies became private monopolies (Chong and Lopez-de-Silanes, 2005; Ramamurti, 1996).

In some of the largest economies in the region, the SOEs that remained in the state's hands have either been partially privatized or reformed and brought under tighter scrutiny by the government. For instance, Brazil, Peru, Chile, and Colombia each have (a) a department overseeing SOEs, (b) boards of directors in their SOEs to conduct direct oversight of management, and (c) various auditing instances for SOEs, such as internal auditors, federal

[1] In this paper, strategic state-owned enterprises (SOEs) refer to mostly two types of firms. First, strategic SOEs are defined as those in charge of exploiting non-renewable natural resources that represent a significant proportion of national wealth, e.g., oil, gas, and mining enterprises. Second, strategic SOEs are defined as firms that are in charge of providing basic public services that are critical for economic and social reasons, such as firms in the electricity, water and sewage, and waste management sectors. All of these "strategic" firms, when operated by private parties,

auditors, and, in some cases, external auditors. Yet, even in countries in which some of the largest firms have had significant corporate governance reforms, the outcomes of such reforms have been uneven because governments have focused their reform efforts mostly on large public enterprises. Therefore, most governments in Latin America have not pursued major corporate governance reforms in all of their SOEs and still operate with oversight models, making it challenging for them to keep SOEs under tight control and scrutiny. As a consequence, the large majority of SOEs in the region still present financial shortfalls, or even losses, that lead to continuous fiscal transfers from the government to sustain the operation of such firms (see Figure 1 below).

The problems that persist in Latin American SOEs can be divided broadly into two categories. On the one hand, there is a corporate governance problem (which we refer to as the Type I problem). There are very few SOEs that are listed on stock markets and have private investors or financial analysts monitoring their activities. Thus, it is the bureaucracies in charge of monitoring SOEs in Latin America that have to do most of the work, and they are still struggling to impose a set of administrative procedures to improve the incentives of managers, the timeliness and quality of financial reporting, and the quality of the boards of directors and internal auditing bodies of SOEs.

On the other hand, across the board there is also a fiscal governance problem (which we refer to as the Type II problem). Most SOEs in Latin America are funded *directly* from the government's budget, with few or no rules to control such transfers. Therefore, the financial relation between SOEs and the government has enough discretion to operate as a de facto soft budget constraint. This discretion also allows governments to extract surpluses from SOEs on an ad hoc basis, leaving the SOEs either with losses or with little capital with which to fund their own projects. For example, in most Latin American countries, the prices at which the main SOEs can sell their goods or services are determined by the government and not by markets or independent regulators. By setting tariffs for public services (or prices for goods) below market levels, governments implicitly subsidize specific sectors and extract rents from SOEs. Thus, there is an urgent need to create formulas for determining prices that can reduce the use of SOEs for nontransparent transfers that benefit specific industrial groups or specific groups of voters at the expense of the financial sustainability of the SOEs and of the governments themselves.

In our view, the evidence provided in this paper implies that there is still room to reform and improve the public management of state-owned enterprises. This paper therefore (a) proposes a framework to diagnose the problems of SOEs, (b) provides options by which to

tackle those problems, and (c) provides a menu of governance structures with which to implement those solutions.

State Ownership in Latin America and its Problems

In Table 1 we present estimates of the number of financial and nonfinancial SOEs, SOEs per million people, SOE employment to GDP, and operating surplus of SOEs in some of the largest countries in Latin America. According to this data, governments in the region each control tens of SOEs, mostly in the energy and public services sectors. Table 1 also makes it easy to see that only in very few instances have governments carried out partial privatizations, listing SOEs on stock markets. That is, only in a few countries has the government relied on the market (i.e., investors, rating agencies, and external auditing firms) to do the monitoring of SOEs. In fact, in most countries, governments kept full control of the strategic firms they did not privatize. The exceptions are Brazil, Argentina, Colombia (at least with regard to companies such as Ecopetrol, ISA, and ISAGEN), and Chile (especially due to the companies in which CORFO, the national investment fund, invests). In Argentina, it is not so much that the state restructured SOEs by listing them on stock markets, but rather that the government ended up as owner of publicly traded corporations as a consequence of renationalization and bailouts.

Table 1. Basic SOE Statistics for Selected Latin American Countries, 2014

	Non-financial SOEs (federal)	Financial SOEs (federal)	Number of SOEs listed	% of stock market cap.	SOEs as % of total employment	SOE operating surplus (% of 2013 GDP)	Taxes & fees paid by SOEs (as % of GDP)
Argentina	40	n.a.	17	n.a.	n.a.	n.a.	n.a.
Bolivia	26	n.a.	0	0	n.a.	2.4	n.a.
Brazil	128	19	8	25	0.7	0	3
Chile	32	1	6	n.a.	0.7	3.4	2.5
Colombia	22	15	3	15	0.1	0.1	1.3
Costa Rica	6	19	0	0	n.a.	0.0004	n.a.
Ecuador	24		0	0	1	n.a.	n.a.
Mexico	90	4	0	0		-1.7	6.1
Panama	n.a.	n.a.	n.a.	n.a.	n.a.	0.5	n.a.
Paraguay	10	3	n.a.	n.a.	0.01	0.4	n.a.
Peru	27	4	9	n.a.	0.3	n.a.	2.4
Uruguay	15	n.a.	n.a.	n.a.	2.3	0.6	n.a.
Venezuela	15	8	0	0	n.a.	n.a.	n.a.

Source: World Bank (2014), Ministries of Finance, and IMF Article IV reports for 2013 for each country, available at www.imf.org.

Notes: For Mexico, the SOE operating surplus is calculated as the difference between the traditional balance and the augmented balance (in the IMF Article IV report for 2013), which also includes social security, so it most likely exaggerates the deficit of the SOE sector. The number of SOEs for Venezuela comes from http://www.venezuelasite.com/portal/11/85/more2.html and is probably an underestimation. The number of SOEs in Bolivia includes only the 16 strategic companies of the Morales government and the 10 subsidiaries of the national oil and gas company, YPFB. The operating balance of SOEs in Brazil does not take into account the capitalization of BNDES and Petrobras.

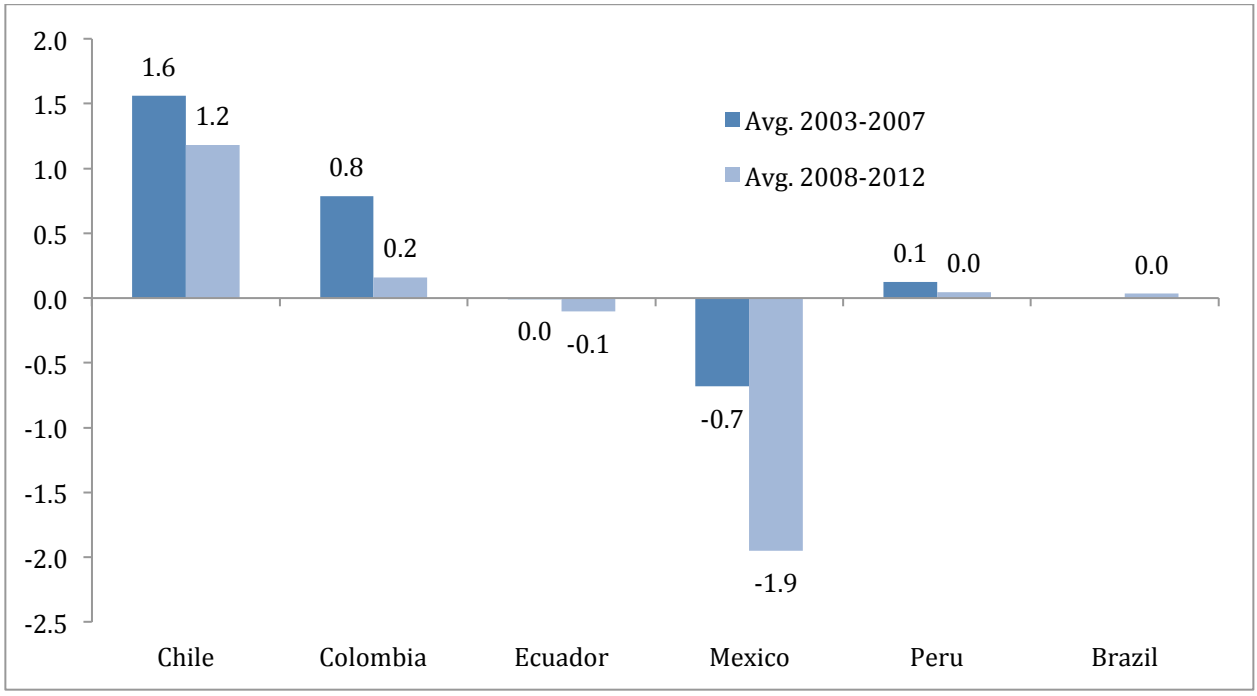
In summary, Table 1 shows that Latin American governments still have many large SOEs and that very few Latin American governments have relied on market mechanisms to improve the management and monitoring of their SOEs through partial privatizations.

Table 1 also reveals the important fact that not all Latin American countries publish fiscal figures for their SOEs. Most governments publish only the data for the general government (central and decentralized public administration and sub-national governments). In contrast, more developed countries aggregate figures for their SOEs as part of the consolidated public sector and publicly guaranteed debt. Moreover, in most Latin American countries, only a fraction of SOEs adhere to international financial reporting standards, the notable exceptions being Brazil and Chile. Even in Brazil, however, many provincial SOEs do not follow such high standards of financial reporting. Thus, there is ample room to improve the reporting of basic financials and, more specifically, the accounting of contingent liabilities such as pensions. For

instance, the contingent pension liabilities for PEMEX, the Mexican national oil company, account for close to 10 percent of GDP, yet they are not properly accounted for in its public balance sheet.[2]

The second important fact about the relation between the government and SOEs in Latin America is that despite all the reforms, in the largest economies in the region the overall fiscal result of these enterprises has been less than stellar. Figure 1 shows the average surplus/deficit of SOEs as a percentage of GDP between 2002 and 2012 in the largest economies in Latin America. Only in Chile and Colombia do these enterprises have systematic surpluses. In Mexico, the net income of the largest SOEs is negative, but the government obtains substantial tax revenues from their operation. Yet, the fact that they have negative income affects the capacity of these firms to invest in new capital and equipment. Figure 1 shows the overall performance of SOEs, or the average surplus/deficit, as a percentage of GDP, for the period 2003–12.

Figure 1. Overall Fiscal Surplus/Deficit of Non-Financial Public Enterprises, as a percentage of GDP (2003–12)

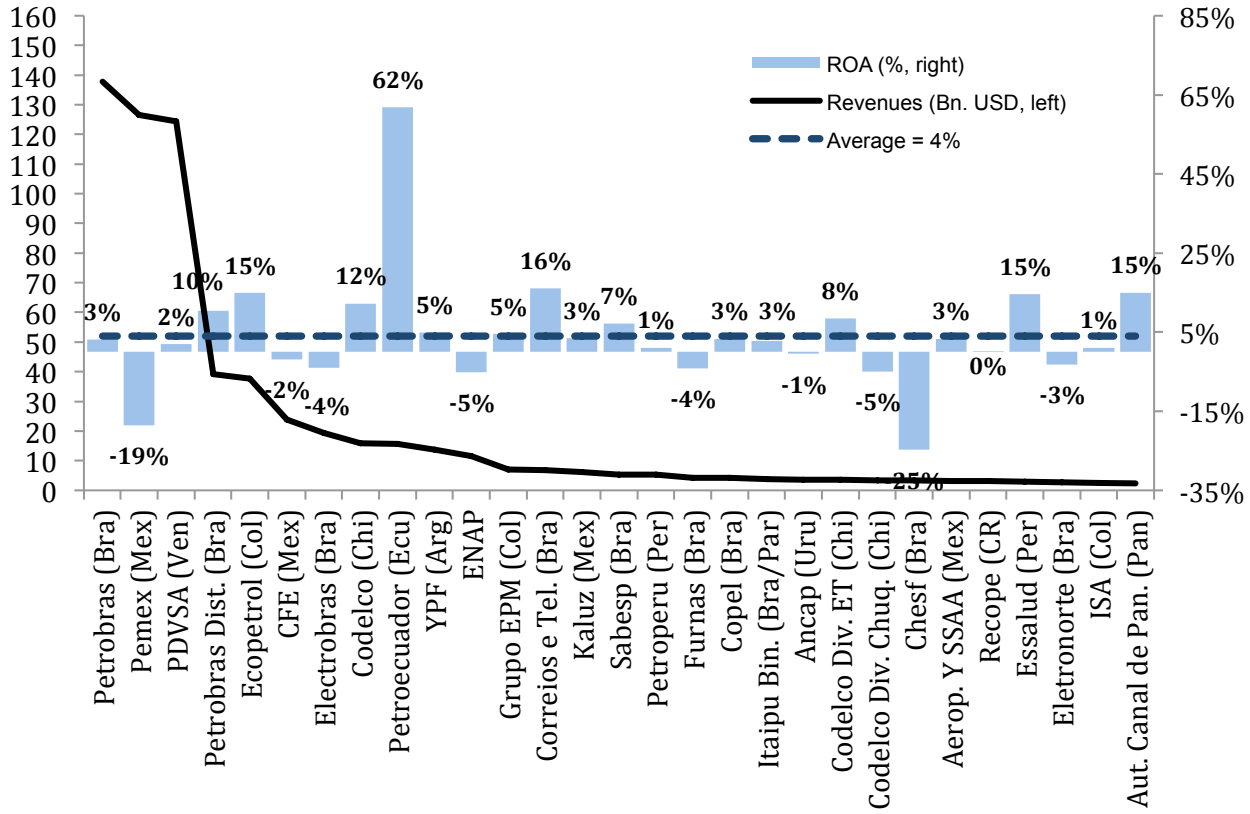


Source: FONAFE (2012).
Note: Data for Brazil are only for 2010–12.

[2] For a discussion on how this contingent liability is effectively considered public debt, see http://www.milenio.com/politica/SHCP-Pemex-urge-reformar-pensiones_0_348565179.html

Some governments in the largest economies of the region have partially privatized their largest strategic enterprises, have pursued corporate governance reforms that have professionalized the management and improved the checks and balances in those firms, and have also had major improvements in financial reporting. This has translated to better financial results for some of the largest SOEs, but not across the board. Figure 2 shows that there is wide variation in financial performance in the largest non-financial SOEs in Latin America, using data from America Economía, an economics magazine, for 2012.

Figure 2. Largest SOEs in LAC: Revenues (USD bn) and Return on Assets (%), 2012



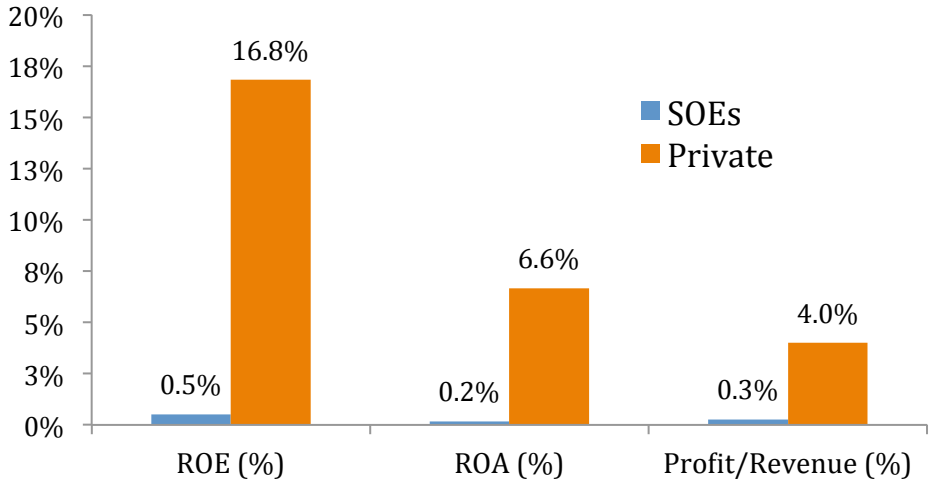
Source: America Economía (2012).

The weak financial performance of some of these large SOEs that have had overhauls in their corporate governance systems is clearer when we compare their results with those of large private firms in the region.[3] In Figure 3 we depict the basic performance ratios of the largest

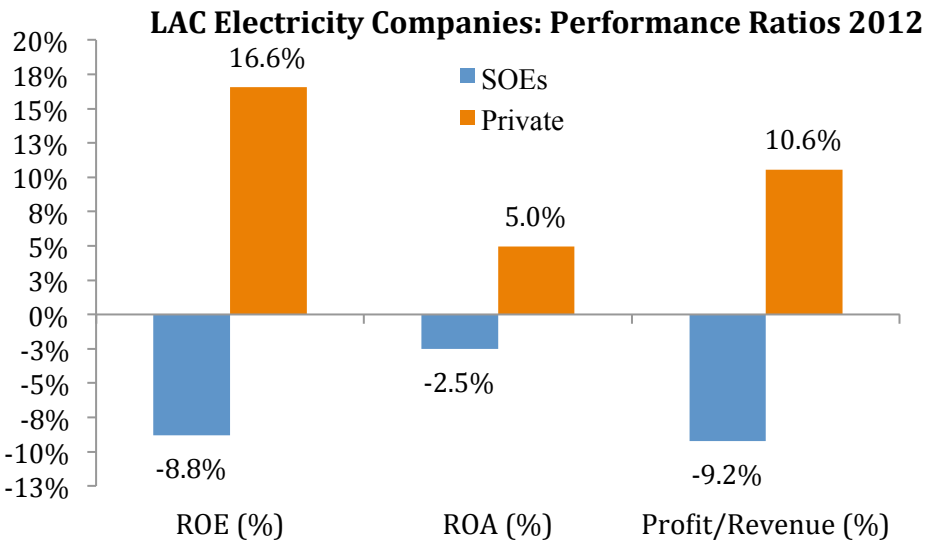
[3] This is not a perfect matching exercise; it is just to illustrate possible shortfalls in the performance of SOEs in Latin America. Exercises using matching techniques comparing SOEs that have had reforms in their corporate governance

SOE and private companies in the oil and gas and electricity sectors, and it shows that public enterprises still have a significant performance gap. In subsequent sections of this paper we argue that the weak performance of energy companies in Latin America is still linked to the discretionary way in which governments can extract resources from SOEs, by, for instance, setting the price of important goods and services below market price and transferring the cost of the subsidy to the public enterprise, rather than reporting it on the government finances, referred to here as the fiscal extraction, one of the SOEs' Type II problems.

Figure 3. Performance of Large SOEs vs. Private Companies in the Oil and Gas and Electricity Sectors, Latin America and the Caribbean, 2012



with similar private companies find no performance differences between the two during times of prosperity, but find a significant gap in favor of private firms during recessions (Lazzarini and Musacchio, 2015).



Source: America Economía (2012).

Even if some of the largest SOEs in the region have had corporate governance reforms, those reforms still have two shortfalls. First, the reforms have not completely shielded the firms from the intervention of politicians. The recent corruption scandal in Petrobras is an illustration of how such reforms did not prevent a major fraud by having politically appointed officers run fake auctions to benefit construction and engineering companies that bribed government officials and congressmen. Second, despite the improvements in performance of some of the largest SOEs in the region, during times of crisis, or when SOEs underperform, governments still need to transfer fiscal resources to these enterprises.

SOEs and Their Problems

There is already a large literature examining the reasons why SOEs are less efficient than their private counterparts.[4] Most of that literature summarizes the reasons for such results as a combination of agency problems. In this paper, we simplify those arguments and augment them with the fiscal dimension. Thus, in our view, SOEs face two types of problems. For simplicity we call them the Type I and Type II problems, but each is actually a collection of problems that have to do either with principal-agent issues—the corporate governance or Type I problem—or

[4] For a review of the literature, see Megginson and Netter (2001).

with opportunism in the fiscal relation between SOEs and the government—the fiscal governance or Type II problem. Each is explained below.

The Type I or Corporate Governance Problem in SOEs: Agency and Multiple Principals

The Type I problem of SOEs is a corporate governance problem caused by at least two factors. First, there is a principal-agent problem that is a consequence of the information asymmetry between the SOE and the ministry or department that monitors it. That is, SOE managers know more than their monitors do about the enterprises, their actual costs, and the benefits different social groups derive from their products and services. This information asymmetry between principals and agents stems to a large extent from the fact that obtaining that information may be too costly for the entities responsible for monitoring the SOEs. SOE managers can take advantage of their private information in various ways; for example, they can undersupply the goods and services they produce, they can extract personal benefits from the firms for themselves or their cronies, or they can simply shirk their responsibilities. Therefore, regulators have the challenge of reducing the agency problem in a cost-effective way, including the cost of their own time (Moe, 1984; Shapiro and Willig, 1990).

Moreover, SOE managers have weaker and more diverse incentives than managers of private companies do. For instance, they are commonly not incentivized to maximize profits; that is, they lack the high-powered incentives of pay-for-performance contracts (Shleifer, 1998). Furthermore, SOE managers do not reap benefits from increasing revenues, but "they will bear many of the costs (i.e., angry workers, disgruntled suppliers)… Thus, managers of SOEs have no incentive to improve efficiency or develop innovative new products" (Megginson, 2005: 39).

Second, agents in SOEs may be poorly monitored because there is a "multiple principals" or collective action problem. That is, SOEs have too many principals—which could include boards of directors, ministries, Congress, the executive, and others—and none of these principals wants to bear the full cost of monitoring because none reaps benefits from it (Dixit, 1997). The problem stems from the fact that because normal oversight of an SOE consumes bureaucratic time, a ministry may delegate the task to some other agency or to the Ministry of Finance (MOF); that is, it will shift the cost of monitoring (McCubbins, Noll, and Weingast, 1987). For instance, in many Latin American countries, SOEs are monitored by the ministry of their sector, while their finances are monitored by the MOF or a central agency or department. This model of dual monitoring and control worsens the multiple-principals problem, leading to

free riding among ministries and to weak monitoring of SOE managers overall. That is, the multiple-principals problem leaves the managers of SOEs with considerable discretion to pursue their own agendas (Vickers and Yarrow, 1991). Therefore, they often end up running inefficient enterprises, shirking their responsibilities and focusing on their private benefit (Boardman and Vining, 1989; La Porta and López-de-Silanes, 1999; Shirley and Nellis. 1991; Shleifer, 1998; Vickers and Yarrow, 1988).

Although the boards of directors of SOEs should help control the multiple-principals problem by consolidating the demands of the multiple principals, they instead tend to make the problem worse. In private firms, boards of directors have the power and the tools to monitor managers and act as a single principal, intermediating between shareholders and managers. Moreover, they tend to have tools with which to monitor the actions of managers, and they design and approve the compensation of top executives, including its pay-for-performance component. To carry out that function, boards usually have auditing and compensation committees that include experienced board members. SOEs, however, have boards of directors that represent multiple principals and that lack the power or the capacity to monitor and—if necessary—punish managers. In SOEs, the shareholder—that is, the government—packs the board of directors with representatives from multiple ministries, exacerbating rather than alleviating the multiple-principals problem. Moreover, in many countries, especially in Latin America, the boards of directors of SOEs lack committees or executives capable of monitoring managers, and they have neither the power nor the capacity to design mechanisms to align the incentives of managers with those of the government.

The Type II or Fiscal Governance Problem in SOEs: Soft-budget Constraints and the Public Benefits of Control

The Type II problem is related to the discretionary and opportunistic nature of the financial relation between SOEs and the government. We divide this problem into two parts: first, the discretionary nature in which SOEs demand financial flows from the government ends up providing a soft-budget constraint, with adverse consequences for the SOE's performance; second, the discretion that governments have to extract resources from SOEs generates perverse incentives and leads the SOEs to have losses or shortfalls, thus preventing them from funding their capital expenditure programs.

Soft-budget Constraints in SOEs

The problem of the soft-budget constraint is generated because SOEs can go over budget, request emergency funding to finish a capital project, request funds for cost overruns, or declare an emergency to avoid defaulting on pension liabilities, and governments have a hard time denying such funding requests. Thus, the managers of SOEs have little incentive to perform financially because they know the government will bail them out if they fail. This soft-budget constraint leads to moral hazard in at least two ways: it creates incentives for excessive risk-taking, and it leads managers to take a complacent approach when running their firms (Kornai, 1979; Shleifer and Vishny, 1998). Thus, the Type II problem includes a form of extraction of fiscal resources *by* the SOEs.

The government can impose ex-ante controls over some SOE expenditures, but ex-post, there is no way for the government to commit *not* to bail out its SOEs, especially those that are too big or too politically sensitive to fail. That is why the problem is exacerbated when there are discretionary transfers between the central government and the SOE.

When an SOE has important social rather than commercial objectives and its revenues are not sufficient to cover its costs, it is not credible that the government will not bail it out. Moreover, when SOEs do not produce adequate and timely financial information that facilitates monitoring, it is hard for governments to commit, ex-post, not to bail them out. Finally, when SOEs face no competition, governments find it very hard not to bail them out when they face financial difficulties.

The problem is multiplied by the fact that SOEs usually are in the business of providing crucial inputs to domestic industries or basic services to society. Thus, when facing an unexpected shock, they may not have the flexibility of raising additional revenues (especially because their tariffs are highly regulated) and their managers may be in the uncomfortable position of (a) having to reduce their output, (b) having to suspend payments to suppliers, employees, or pensioners, or (c) having to request additional funding from the central government. Under such circumstances, it is hard for the government to commit *not* to bail out its SOEs.

This mutual dependence between the government and the SOE resembles the mutual dependence between subnational units and the central government in countries that have decentralized federal systems with highly transfer-dependent local governments (Rodden, 2002). As Rodden (2002: 672) explains, “when a highly transfer-dependent local government faces an unexpected adverse fiscal shock, it may not have the flexibility to raise additional revenue, forcing it either to cut services, run deficits, or rely on arrears to employees and

contractors (…) eventually pressure from voters and creditors will likely be directed at the central government, which quite likely *can* resolve the crisis."

Fiscal Extraction from SOEs or the Public Benefits of Controlling SOEs

The Type II fiscal governance problem of SOEs also includes a form of extraction *from* SOEs *by* the government. We call this form of extraction either "fiscal extraction from SOEs" or "public benefits of controlling SOEs." There is a large literature studying the "private benefits of control" for private companies or the fact that controlling shareholders have disproportionate pecuniary and nonpecuniary benefits from running the firm (Barclay and Holderness, 1989; Claessens, Djankov and Lang, 2000; Dyck and Zingales, 2004; Lin and Milhaupt, 2011; Nenova, 2005). In private firms, it is easier to understand what the "private benefits of control" entail. Such is the case when controlling shareholders steer the firm to tunnel or transfer resources to a related firm; for example, by selling assets or products at a below-market price (Johnson, La Porta, Lopez-de-Silanes and Shleifer, 2000). In SOEs, the "public benefits of control" can also entail having the government tunneling away resources from the public enterprise; for example, by steering these firms to sell output such as gasoline, electricity, or gas at a below-market price either to "related" firms, such as national champions, that the government wants to support, or to voters to gain political support. Additionally, governments, as controlling shareholders of SOEs, can tunnel resources away from the firms to finance their own budget deficits or to pay for public projects, thus leaving such firms without enough resources to pursue their own capital expenditures.

In other words, because extracting resources from public enterprises yields political benefits and fiscal revenues, there is a commitment problem that makes it hard or impossible for government to resist intervening in SOEs. The problem is compounded because SOEs can be very effective tools of redistributive politics. For instance, they can be structured deliberately to implicitly transfer benefits from unaware groups in society to provide subsidies to the supporters of specific politicians (Megginson, 2005: 41). Precisely because of the opaqueness of their finances or the fact that most SOE accounts are kept off the government's balance sheet, SOEs can be particularly attractive vehicles by which to transfer wealth between groups, to provide costly subsidies to specific political groups without revealing the opportunity cost of such subsidies, or to issue debt in local or foreign currency without affecting the government's credit rating. In fact, using SOEs to perform such transactions is also easier because it involves less convoluted procedures than trying to accomplish the same things through the more transparent

budgetary process (Boyko, Shleifer and Vishny, 1996; Jones, 1980; Kikeri and Nellis, 2004; Shirley and Walsh, 2000).

The soft-budget constraint and the government extraction of rents from SOEs are closely connected. When there are discretionary transfers from the government to SOEs (that is, when there is a soft-budget constraint), the government also has an incentive for discretionary extraction from SOEs. The latter can happen in a number of ways; for example, through an extraordinary dividend or by transferring a subsidy to an SOE rather than keeping it in the budget.

Table 2 summarizes the Type I and Type II problems and the consequences they have for the performance of SOEs. The main messages are that (a) the agency problems are complex, (b) opportunistic extraction can take place in both directions—from the government to the SOE (the soft-budget constraint problem) or from the SOE to the government (the public benefits of control problem) and (c) as long as these transfers are discretionary, there will be mutual dependence and no commitment to stop the extraction.

Table 2. Corporate and Fiscal Governance Problems in SOEs

Typology of problems	**Main issues**	**How does the problem manifest and how does it affect SOE performance?**
Type I corporate governance problem in SOEs	Two principal-agent problems:	
	Information asymmetry and weak incentives	-Managers have more information than their monitors. They do not report transparent figures. -They do not maximize the return for the owner. -Managers do not have high-powered incentives or pay-for-performance contracts. -Managers are selected poorly.
	Multiple-principals problem	-No clear principal/monitor. -Weak monitoring by ministries, departments, and boards because they all want to shift the cost of monitoring to each other (free riding).
Type II fiscal governance problem in SOEs	Two problems associated with the discretionary nature of fiscal extraction by and from SOEs:	
	Soft-budget constraint	-No formulas or specific timelines restricting when SOEs can request funding. -Governments cannot commit ex-post not to bail out SOEs. -Managers take on too much risk or embark on grandiose projects.

	Public extraction from SOEs or public benefits of control	-Governments extract resources from SOEs in an ad hoc fashion. There are no formulas to specify timing and amount of such transfers. -Governments obtain political rents from such extraction because they benefit other firms (e.g., by selling inputs cheaply) or voters. -Governments extract resources from SOEs to finance deficit, leaving them without resources to finance capital and operational expenditures.

Type I and Type II Problems in Latin America and Their Risks

In Latin America, there is still significant discretion in the fiscal/financial interaction between the national government and its SOEs. This can be observed, for example, in the way national governments establish energy prices. In the majority of countries in the region, the national government has the final say on most of the important energy prices, such as gasoline and electricity, which has a significant impact on the finances of the SOEs that provide energy. By subsidizing the prices without establishing a transparent, formula-based way of assuming the cost of this subsidy, the central governments are creating two problems.

First, they are de facto extracting resources from SOEs, and they are doing so in unpredictable amounts, depending on the difference between the costs of production and the controlled prices. This is what we call public benefits of control, because the government has the capacity to tunnel away resources from the SOEs to fund its budget.

Second, by extracting resources through price controls, governments are creating a bargaining space for SOE managers to constantly ask for transfers from the government to cover the losses generated by such price controls, rather than trying focus on improving the efficiency or the quality of the goods or services their firms provide. In other words, the discretionary nature of the fiscal exchanges between the government and its SOEs generates a soft-budget constraint.

Examples of such discretionary extraction of resources abound. For instance, Petrobras and its shareholders face losses that in part stem from the incomplete pass-through of international oil prices to domestic prices. Since the government controls gasoline prices in Brazil, Petrobras, including its minority shareholders, are de facto subsidizing gasoline consumers. In Mexico, retail electricity tariffs are subsidized on average around 40 percent, but there is no explicit mechanism to record and finance the cost of the subsidy. The Federal Electricity Commission (CFE), the SOE that generates and distributes electricity in Mexico,

therefore either faces losses due to the direction its owner gives it or makes use of inefficient cross-subsidies between retail and industrial tariffs. Either of these comes at the expense of the capital and operational expenses necessary to maintain the firm as a going concern. A final example of transfer from the national government to a SOE is the case of Aerolineas Argentinas, which since 2008 has received US$3.9 billion in transfers and subsidies from the government.

In our view, the discretionary nature of the fiscal transfers to and from SOEs carries two types of risk. First, there is a potential financial risk for the government balance sheet. For instance, government budgets can suffer if SOEs that issue debt with government guarantees cannot repay it or if there are SOE liabilities with implicit guarantees by the government, such as pensions and debt that could eventually become liabilities of the government itself. Often times, even if there are no explicit guarantees for the debt of SOEs by the government, creditors assume that SOEs will be bailed out and, therefore, they misprice the risk implicit in their contracts. That is why the financial decisions of SOEs carry both a financial and a reputational risk for the government (Ter-Minassian, 2014).

Second, the discretionary extraction from SOEs carries out an operational risk, which may also transform into a fiscal risk for the government down the line. When SOEs delay critical investment projects because of the lack of resources that results from the public extraction of rents, operational risks arise that can, in turn, become financial risks down the road. Think about SOEs that provide critical services—fiscal extraction from these SOEs could cause unexpected expenditures later on, particularly if the service could be interrupted or stopped altogether. Then, the government would face mounting and/or unexpected pressure to find resources to keep those services running. Sometimes those resources have to be obtained when market conditions are not favorable and therefore could end up being costlier than the resources the government initially extracted from the SOE. These operational risks are particularly acute when fixed investments are significantly delayed for long periods of time because of government extraction of rents.

Possible Solutions

Once the main sources of SOE inefficiency or fiscal instability have been identified, the problem becomes how to devise solutions to these problems. Many of the theoretical solutions to the agency and fiscal problems outlined above have steep political costs, and governments tend

either to shy away from such solutions or, when they do implement them, need to find hybrid solutions that minimize the political costs. Even when there is a will to enact solutions that have high political costs, implementing such plans takes time, and government needs to find interim solutions to deal with SOEs, improve their performance, and minimize the fiscal risks emanating from their operation.

In this section, we describe a set of solutions to the individual problems outlined above. Rather than trying to provide a single right way to respond to each of these problems, we provide a menu of options. We divide the solutions into three: (a) those that require ex-ante administrative controls, (b) those that decentralize monitoring and control to the market (or to private investors), and (c) those that focus on improving transparency, no matter whether they are done using ex-ante controls or market monitoring. We also suggest some hybrid solutions in which governments can use markets to monitor some of their SOEs, while controlling them using centralized ownership structures and a series of administrative controls. In the end, governments will have to decide when it makes sense to rely more on market solutions or administrative controls, depending on the costs and tradeoffs of each solution in each specific setting.

Reforms to Address the Type I Problems

Reducing Information Asymmetries with Ex-ante Administrative Controls

One of the most important challenges governments face in managing and monitoring their SOEs is that they do not have enough information about these enterprises and, therefore, they find out too late whether or not the managers of SOEs have met their targets. This information asymmetry provides the managers of SOEs with considerable autonomy and complicates the government's task of monitoring and managing its SOEs. This problem is mostly created by the lack of transparency in the financial reporting of SOEs, and can be addressed using a combination of (a) improvements in financial and operational reporting and (b) ex-ante administrative controls. Traditionally, the mechanisms available to governments with which to change the behavior of SOEs and their managers are ex-post budget reviews, investigations, sanctions, and even judicial prosecutions of managers for corruption or embezzlement. Yet these mechanisms of ex-post reward and punishment may all be too costly and ineffective. If the managers of SOEs deviate from their mandates, the punishments governments have at hand for such behavior will hardly act to correct the SOE's course and achieve its initial objectives. More often than not, ex-post monitoring will punish managers rather than correct the course of the SOE (McCubbins, Noll and Weingast, 1987).

Thus the problem of information asymmetry requires ex-ante solutions. We identify two ways to tackle this problem. First, the literature on delegation and control in public bureaucracies suggests a solution that relies on regulating ex-ante what SOEs and their managers can do; that is, imposing administrative procedures that control the actions of agents (Moe, 2012), such as more detailed and frequent reporting of activities, timelines for the reporting of goals and outcomes, etc. Second, we describe how governments can use corporatization or partial privatization of SOEs to change the incentives of managers and to delegate the monitoring of management to the market.

Improving Financial, Operational and Quality Measurement and Reporting for SOEs

No administrative control or market monitoring mechanism will work to prevent the Type I and Type II problems in SOEs if they are not accompanied by an overhaul in the reporting tools governments have to monitor what their SOEs are doing. Financial reporting should comply with international accounting standards, should be regular, and should be as detailed as possible. As we explain in Box 1, the Brazilian government required detailed strategic plans, balance sheets, profit and loss statements, and monthly cash flow statements from its SOEs. Those reports, however, are not enough, as we explain in Box 3; it is also important to have different measures of the quality of the operational performance. The Ministry of Finance and Strategy in Korea, for instance, asks SOEs to track operational performance, benchmarking it against the performance of similar SOEs in other countries (e.g., to measure if Korail, the Korean state-owned railway company, has its trains running on time, they have to track the percentage of trains running on time and compare them with the rail systems of Japan, Singapore, and others). As we also explain below, customer satisfaction is an important element to track whether the quality of the public services has improved beyond simple measures of operational performance. For example, Tucuman Airport in Panama, which is an SOE, has had major operational improvements in recent years, and its management tracks those accomplishments. Yet, customer satisfaction is not measured in a systematic way and used to award employee incentives. In Box 3, we explain how the Korean government incorporates such indicators into a scorecard used to award bonuses to SOE managers.

Ex-ante Administrative Procedures to Reduce Information Asymmetries in SOEs

Governments can reduce the informational disadvantage faced by the ministries overseeing an SOE by instituting administrative procedures that regulate information collection and

dissemination, limit the choices available to SOE managers, and direct SOE managers to make the decisions that the government would want made.

The central idea is that governments can "stack the deck" by instituting procedures to operate SOEs; for example, procedures that force SOEs to reveal information, to open their internal processes, or to follow formal timetables and formulas determining when and in what quantity financial resources will flow to and from them. Thus, administrative procedures can control the agenda and reduce the discretion SOE managers have to set their own agendas. Another form of stacking the deck to make sure SOEs accomplish their mandates is to create rules requiring that the managers of SOEs have certain technical expertise; that is, that they should be technocrats. With such tools, governments can direct SOE managers to enforce government mandates and can keep them from getting tangled up in the confusion of trying to satisfy multiple constituents such as unions and other stakeholders. Stacking the deck with strict procedures and technocratic personnel can also make it harder for future politicians to alter the company's mandates, to intervene politically in it, or to use managerial appointments as political tools of control (Moe, 2012).

We identify at least four levels of control that governments can use. The first one is having timely and detailed financial reporting of SOE activities, from cash flow statements to detailed accounting of debt and contingent liabilities, including profit-and-loss statements and balance sheets (see Box 1, "Ex-Ante Controls at the Departamento de Coordenação e Governança das Empresas Estatais in Brazil").

Second, governments can introduce ex-ante approval of SOEs' strategic and investment plans, including medium- and long-term debt plans. These plans should be strategic in the sense that they consider future market conditions (for example, three to five years ahead). These plans should also include a detailed plan for capital expenditures and should include calculations of the expected debt levels and the potential liabilities this debt could generate for the government's balance sheet. Furthermore, SOEs should include complete reports of contingent liabilities to the government, especially to the Ministry of Finance and Congress (such as potential pension liabilities and potential risks that may trigger a bailout) (Ter-Minassian, 2014). Finally, governments can impose limits to payroll and can control salary increases as a way to prevent possible abuses by managers.

Box 1. Ex-ante Controls at the Departamento de Coordenação e Governança das Empresas Estatais (DEST) in Brazil: Timely Reporting and Financial Transparency

In 1979, as a consequence of the second oil shock and as a way to control the expenses and indebtedness of state-owned enterprises, the federal government of Brazil created the Secretariat for Control of State-Owned Enterprises (known as SEST in Portuguese) under the Ministry of Planning. Initially, SEST forced the over 100 federal state-owned enterprises to comply with the timely reporting of balance sheets, profit-and-loss statements, and detailed cash flow statements. After the debt crisis of 1982, SEST and the Ministry of Planning further tightened control and began setting limits for expenditures and debt issues for all SOEs. Foreign debt issues, which were common before 1982, were then restricted and closely monitored by SEST. SEST continued to collect financial information and, after 1990, aided the government in the National Privatization Plan. In the 1990s, SEST was transferred to the Ministry of Finance and disappeared for a few years. Yet between 1999 and 2000, the administration of Fernando Henrique Cardoso revived it, renamed it Department of Coordination and Control of SOEs (DEST), got it involved in the National Privatization Program again, and gave it back its role as the central agency in charge of promoting financial transparency in SOEs, providing them with guidance in publishing annual detailed financials (including extremely detailed cash flow statements). Since 1979, DEST has made all federal SOEs in Brazil report monthly cash flow statements and annual balance sheets and profit-and-loss statements. Thus, since 1979, Brazil has had the most comprehensive system of financial indicators for federal SOEs in Latin America. These financials are not only published in a timely fashion, but are also publicly available and are audited by well-known auditing firms. Additionally, DEST supervises and approves strategic and investment plans and reviews all major expenses that SOEs have to make. When an SOE is deviating from its strategic plan or its financials look weaker than expected, DEST procedures take force. The SOE must then follow specific cost and expenditure controls. DEST has also been active in designing pay-for- performance contracts for the managers of SOEs, setting goals and bonuses for complying with such targets, and penalties for missing the state goals. In 2009, President Lula transformed DEST again (Decree 6,929 of August 2009), charging it also with setting corporate governance standards in SOEs and monitoring the performance of these firms according to a variety of governance indicators.

Source: DEST's web page, available at www.planejamento.gov.br/ministerio.asp?index=4, Musacchio and Lazzarini (2014).

The Ministry of Finance should be involved in the monitoring of financials and the approval of SOE budgets because ultimately it bears the risk of having to bail them out. The financial reports that SOEs produce, therefore, should be timely and frequent and there should be harsh penalties for noncompliance (e.g., compliance with reporting can be one of the

objectives evaluated in the balanced scorecard used to design the pay-for-performance compensation of SOE managers).

A third mechanism of ex-ante control is for governments to retain the capacity to appoint top executives of the firm; that is, the capacity to stack the deck by appointing capable technocrats—preferably with experience monitoring that particular industry—to key executive positions. For example, appointing a technocrat to the CFO position can help the government to make sure ex-ante controls are enforced.

Box 2. Ex-ante Administrative Controls in Mexico's National Oil Company, PEMEX

PEMEX is a state-owned monopoly with around 150,000 employees and plays a crucial role in Mexico's public finances and the economy as a whole. Given the acute presence of agency problems and soft budget constraints along with the political constraints to use market mechanisms, by 2012 the Mexican Government had built a comprehensive and complex oversight system based mostly on ex-ante controls. The Ministry of Finance (SHCP) and the Sectorial Ministry of Energy (SENER) presided over a series of ex-ante controls that regulated and monitored PEMEX's daily operations. These controls included:

i) Budget management process. As part of the federal budget, PEMEX's budget envelope was set annually, subject to a ceiling on investment and debt and an agreement with SHCP outlining its operating expenditures. Throughout the year Congress could approve changes to expenditures within a certain range, unless such expenditures were funded by windfall revenues or covered by lower outlays elsewhere in the public sector.

ii) Project approval. Projects at PEMEX had to be approved by the committees of its board of directors and must be registered with and approved by the Investment Unit (IU) at the SHCP. The IU was required to approve all public sector investment projects above a certain size; it evaluated only the profitability of projects, and not their technical feasibility.

iii) Pricing policy. To avoid cross-subsidization among PEMEX's subsidiaries there was a committee in charge of setting up internal and external prices based on international formula-based references.

These ex-ante controls helped the Mexican government to mitigate some of the Type I agency problems, and served well in terms of maintaining fiscal and macro-stability in the face of shocks. However, by 2013 it was clear they had been ineffective in addressing PEMEX's costs, which remained above industry benchmarks, with significant losses particularly in the downstream operations. Although political factors such as the inability to fire any employees in the loss making units and overstaffed operations were at the core of these inefficiencies, the case of PEMEX shows some of the limitations of ex-ante controls in improving the operational efficiency of large and complex enterprises. In 2013, the Mexican Government approved a transformational reform to open up the oil sector to private and international investors, forcing PEMEX to compete in all of its operations. Under this new competitive environment, the Mexican

Government scratched most ex-ante controls, eliminated the link PEMEX had with the federal budget (i.e., it gave PEMEX financial autonomy), and reduced its supervision of the company, limiting the controls except when it came to establishing debt limits. At the same time, after the reform PEMEX will have to comply with all the transparency and financial disclosure standards of publicly traded corporations.

Source: SHCP.

Finally, governments can implement tighter controls, such as line-by-line budget approvals and control over all procurement decisions and all hiring and firing at the SOE. However, while such controls may be necessary during turnover episodes, they may hinder the firm's capacity to make investment decisions under normal circumstances.

A key insight from the bureaucratic control literature is that ministries regulating SOEs face a trade-off between expertise and political control. All else being equal, the regulating ministries benefit when they impose the abovementioned ex-ante controls to force the SOE to target the "right" goals. But these very restrictions render it difficult for the SOE to adapt to changing circumstances—such as new technologies and new problems—and thus to use its expertise effectively (Moe, 2012). Furthermore, what constitutes the right mix between ex-ante control and delegation will be contingent on the capacity of the SOE. For example, a principal can often obtain better policy outcomes by delegating to competent SOE managers that are not close to the government than to low-capacity SOE managers that are closer to policy circles (Huber and McCarty, 2004).

We want to emphasize the fact that even when governments rely on markets to do the monitoring of their SOEs (e.g., when they partially privatize a firm), it is necessary to have strong tools of ex-ante monitoring to prevent sudden increases in the government's liabilities. Thus, introducing capable auditing teams in SOEs and forcing them to conduct audits in a timely fashion, following standardized procedures and methodologies, is a necessary step to improve the control of SOEs.

Governments have improved the auditing procedures and standards of SOEs in the last two decades, and there is usually a central agency, as well as a congressional office, auditing SOE financials on a regular basis, sometimes even monthly. Unfortunately, in many countries, SOEs publish financials only annually and usually with little detail of cash flows, contingent liabilities, and potential risks. It is widely known that auditing teams are one of the hardest things to staff especially when each SOE has to staff its own auditing team. Furthermore, auditing

procedures tend not to be standardized among SOEs, complicating the transmission of knowledge and best practices across such firms.

Some state-owned holding companies (SOHCs), such as Peru's FONAFE, have standardized procedures and focus their energy and time on developing capable auditing teams. In other countries, auditing teams follow such standardized procedures that they can be rotated among SOEs to disseminate best practices and to train new members of the team.

In many countries, SOE financials are not only internally audited but also audited by an external auditing company, usually a global auditing firm with a strong reputation. This does not substitute for the internal auditing team and should serve only as an additional check to guarantee that the financials have no red flags and meet international accounting standards.

Managerial incentives and Performance Contracts

Another way to impose controls to lead SOEs to achieve goals set forth by the government is to change the managerial incentives and to introduce performance contracts. Given the information asymmetries prevalent in SOEs and their weak monitoring, governments have two options for aligning the incentives of managers so that they steer their SOEs to follow the strategic plans set forward by the government and its ministries. One option, discussed above, is to have strict ex-ante administrative procedures that have to be followed by SOE managers; this avoids allowing the managers excessive discretion, which could lead them to stray from the firm's objectives.

Another option currently being implemented in some of the larger Latin American economies is to have ex-post controls in the form of management contracts that align the incentives of SOE executives with those of the principal by including pay-for-performance clauses. In these contracts, performance is evaluated according to whether managers hit the targets outlined in their strategic plans. The literature on principal-agent problems has long discussed mechanisms to create contracts that align the incentives of agents with those of the principal (Jensen and Meckling, 1976; Tirole, 1988). The remedies for principal-agent misalignment normally involve performance-contingent incentive contracts for managers, direct monitoring by principals, or a combination of both. Those remedies, however, are difficult to implement when there are no clear objectives—readily observable performance metrics such as profits or share prices—available (Holmstrom and Milgrom, 1991; Shirley, 1989). Because SOEs sometimes have noncommercial objectives and are not publicly traded, it has traditionally been difficult to use qualitative measures in performance contracts to align the incentives of managers. In fact, the World Bank and some developing countries experimented with

performance contracts for managers in the 1980s and early 1990s, but the goals were hard to evaluate and within a few years, the SOEs went off plan (Bai and Xu, 2005; Shirley, 1996; Shirley and Xu, 1998).

However, incentive-compatible contracts for SOEs may be easier to design and evaluate today, given the advances and new techniques private businesses use to design and evaluate balanced scorecards, which include both quantitative and qualitative indicators (Kaplan and Norton, 2001). In fact, managers of SOEs in the Republic of Korea have been evaluated since the 1980s on a combination of performance metrics and social goals. Today, the evaluation uses a balanced scorecard, 40 percent of which is quantitative metrics (based on historical trends) and 60 percent of which is based on qualitative metrics, such as improvements in service and soundness of the plan. The managers then have either a bonus for outstanding performance—200 to 500 percent of their monthly salary—or a penalty if their SOE's performance is among the worst three (Korea, 2013).

Governments in the largest Latin America economies are also now using performance contracts that include bonuses for managers, to align their incentives with those of the government. Brazil, Chile, Paraguay, Peru, and Uruguay all use performance contracts in one-way or another (see Table 3). In most Brazilian publicly traded SOEs, the CEO has a pay-for-performance contract linked to financial performance (and also to some social goals outlined in the company's strategic plan). Because pay is linked to financial performance, CEOs have more incentive to undertake policies that are value-enhancing for the SOE and its minority shareholders (Musacchio and Lazzarini, 2014).

Box 3. Ex-post Monitoring of Quality of Service: The Korean Case

The performance of SOEs in the Republic of Korea relies on a pay-for-performance contract for SOE managers, using a variety of quantitative and qualitative measures. Goals are determined by the Ministry of Strategy and Finance with support from the Research Center for State-owned Enterprises, a think tank. Mid- and long-term goals are set using historical trends and allowing for a margin of variation. Goals are usually set in accordance with the trends of the last five years, and the upper and lower bounds for such goals are set using the standard deviation of the past five years. Every year, a Management Committee, composed of independent experts such as professors and certified accountants, evaluates the performance of SOEs and whether they met their targets for the year. The government then uses the results of this evaluation to pay a bonus to managers, depending on whether their department or SOE met the goals the government had set. About one percent of managers get a bonus between 200 percent and 500 percent, while the majority gets between 0 percent and 200 percent. The evaluation not only

includes positive incentives, but it also penalizes underperforming firms by paying zero or a minimum bonus and by either firing CEOs and directors or requiring them to submit a turnaround plan. The scorecard used to evaluate SOEs and their managers has a quantitative component (weighted 60 percent of the total), judged on the basis of objective performance measures, and a qualitative component (weighted 40 percent of the total), which depends on survey evaluations by customers, workers, and other stakeholders. Table 3A shows an example.

Table 3A Scorecard to Evaluate SOE Performance in the Republic of Korea

Quantitative component (60% weight)	Qualitative component (40% weight)
Labor and asset productivity indicators	Accountable management
Customer satisfaction index	Corporate social responsibility
Growth rate in total personnel remuneration	Labor-management control

One peculiarity of the Korean evaluation system is its focus on ex-post evaluation of the quality of SOE services and their social impact. In this system, independent companies run surveys of the SOE's customers, who evaluate both the quality of the service and their overall satisfaction. The evaluation committee also looks at corporate social responsibility surveys for their evaluation. Still, despite the focus the Koreans put on management autonomy and ex-post rewards, they mix such evaluation mechanisms with ex-ante controls on transparency and timeliness of information disclosure, the size of the workforce, debt levels, budgets, and expansion plans. For example, all expansion plans are accompanied by feasibility studies. In sum, despite the powerful ex-post incentives for SOE managers, the Korean government uses a variety of hybrid solutions to manage and control its SOEs.

Source: Park (2012).

Reducing Information Asymmetries by Delegating Monitoring to the Market

Beyond administrative controls, governments can also delegate the monitoring of SOEs and their managers to the market. They traditionally do so by corporatizing or privatizing the SOE and forcing it to comply with the financial disclosure standards of publicly traded corporations. In Mexico, for example, rather than privatizing PEMEX, the government allowed the firm to issue corporate bonds in Mexico and New York, thus forcing it to report its financials annually following Generally Accepted Accounting Principles (GAAP) and putting it under the purview of financial analysts and credit rating agencies. This mechanism has been used for Saudi Arabia's national oil company, Aramco, and a variety of firms in China.

Another option is to partly privatize SOEs to introduce a new set of monitors for the firm. Governments privatize part of the capital of their SOEs as a way to invite private capital to

participate in the ownership and monitoring of the firm. Governments can accomplish this by privatizing the majority or minority of an SOE's equity. The market-monitoring model can therefore have the government as a majority or minority shareholder. In Table 5, we explain how those two options would mitigate the Type I and II problems. In the majority control model, governments can privatize a small fraction of the total equity in an SOE, retaining control of the firm. It is easy to see how typical agency problems (Type I problems) are solved by introducing better incentives for managers and better monitoring by boards and by improving financial disclosure by forcing the SOE to comply with the stock market's disclosure requirements. More importantly, in this option, the firm has private shareholders that are directly vested in the firm's performance and, in theory, should act as tough monitors of its managers. Because the government keeps control, there are risks of Type II extraction, so the shareholders of these partially privatized firms should be of a type active enough to monitor and prevent the extraction of public benefits of control (Pargendler, Musacchio and Lazzarini, 2013).

In the government minority shareholder model, the government privatizes control of an SOE while retaining a minority shareholder position. As we explain in Table 5, with this option the Type I problems should be reduced significantly as management is professionalized and incentivized with pay-for-performance contracts; private investors have more incentive to closely monitor the firm, and they can punish managers for misbehavior by pushing down the stock price. That is, under the minority shareholder model, the government outsources the management and monitoring to the private sector and keeps minority equity to keep receiving dividends. Under this solution, governments usually keep a golden share that gives them veto power over major decisions, such as the location of the headquarters or mergers and acquisitions.[5]

When the government is a majority or minority shareholder in a company, private investors can require boards of directors to select managers from a pool of professionals with experience in the industry rather than having politicians appointing them. These managers can also have pay-for-performance contracts that align their incentives with those of the shareholders. Those contracts should reduce the problem of information asymmetry by aligning the actions of managers with the targets set forth by the shareholders.

[5] The golden share in fact limits how much the market can punish executives for mismanagement because it is literally designed to avoid hostile takeover bids. By allowing the government to veto any takeover or merger offer, the golden share prevents investors from disciplining managers as they could in a purely private firm. The threat of renationalization is perhaps the best tool governments have in partially privatized firms to ensure that managers meet their targets and create value for the government and the private shareholders.

Table 3. Models of SOE Control in Selected Latin American Nations, circa 2014

Country	Special department monitoring SOEs	Diversified holding co's	Holding companies by industry	Performance contracts in some SOEs	Gov't approves SOE budgets
Bolivia	n.a.	Yes, Servicio de Desarrollo de las Emp. Públicas Productivas (SEDEM)	Not at federal level	n.a.	n.a.
Brazil	Department of Public Enterprises (DEST)	Yes, BNDESPAR (for minority equity holdings)	Yes, Eletrobras in electricity, Petrobras in oil & gas, and Banco do Brasil in banking	Yes	Yes
Chile	Sistema de Emp. Públicas (SEP)	Yes, CORFO	No	Yes	Yes
Colombia	Dept. Nacional Planeación (DNP)	Not at federal level	Not at federal level	No	Yes
Mexico	No, MOF and sector ministries oversee SOEs	Not at federal level	Yes, for oil & gas; Pemex has a holding co. that oversees subsidiaries	No	Yes
Paraguay	Consejo Nac. de Emp. Públicas (CNEP)	No	No	Yes	Yes
Peru	Nat. Fund for Financing of State Business Activity (FONAFE)	Yes, FONAFE	No	Yes	Yes, but not for FONAFE
Uruguay	Dept. of Public Enterprises of Office of Budget	No	No	Yes	Yes
Spain	No, mostly holding co's	Yes, Sociedad Estatal de Participaciones Industriales (SEPI)	No	Yes	Yes

Source: Created with data from the World Bank (2014).

To understand what targets are possible, the government and the private investors need to have benchmarks, either because the SOE has competition in the domestic market or because international benchmarks are used to set those targets. Without such benchmarks, the problem of information asymmetry may persist.

Moreover, an important element of the model that relies on market monitoring to reduce information asymmetry is that listing SOEs on stock markets requires that these firms comply with the strict financial disclosure requirements that publicly traded firms face. Thus, under this model, SOEs should, in theory, improve their financial reporting standards, disclose their financials more often, and improve corporate governance to standards closer to those prevalent in private companies. For instance, stock exchanges usually require that listed firms comply with Generally Accepted Accounting Principles (GAAP) or International Financial Reporting Standards (IFRS) or with a variant of these two, thus improving the SOEs' level of transparency.

For the market-monitoring model to succeed in reducing information asymmetries and achieving better results for the government, SOEs need to have strong internal and external monitors; that is what determines whether or not the financials reported to external investors are an accurate reflection of reality. Moreover, SOEs should have annual, semiannual, or quarterly financials audited as well by reputable auditing firms. It has to be clear that the reputation of such firms is at stake if they ignore problems. Both of these auditing bodies must provide timely and accurate financials to facilitate the monitoring work that analysts and credit rating agencies do.

Finally, boards need to play a role in auditing and in the design of the pay-for-performance contracts of partially privatized firms. For instance, boards of directors should have auditing and compensation committees, staffed with executives who have experience in the industry and who have had auditing and/or compensation experience in other firms.

Dealing with Multiple Principals

Beyond information asymmetry, the Type I governance problem also includes the challenge of having multiple principals. This usually happens when there are multiple agencies or ministries monitoring SOEs. Thus, a key to mitigating this problem is to centralize the ownership function so that an SOE's managers deal mostly with one principal. This can be done using ex-ante administrative controls or centralized management structures or by partially privatizing firms and relying on boards of directors to act as the only principal.

The set of administrative ex-ante controls described above can also be used to reduce the multiple-principals problem. Ex-ante controls can reduce the multiple-principals problem by

outlining clearly what each ministry or Congress are tasked to do (McCubbins, Noll, and Weingast, 1987). For instance, it can be clearly mandated which ministries or agencies are in charge of monitoring SOEs, who is in charge of approving strategic and investment plans, the timing for such approvals, and so on.

Thus, tackling the multiple-principals problem requires an efficient body of monitors who can outline and review strategic plans and budgets, put into place ex-ante monitoring procedures, and carry out the regular task of monitoring SOEs. There is obviously no single ownership and management model that can address all of the problems of SOEs, because different problems require different solutions. Below, we discuss three models that have commonly been used around the world to improve the ownership and management of SOEs: (i) reforming boards of directors without privatization, (ii) the centralized model of control, and (iii) the market management model.

Reforming Boards of Directors without Privatization

In theory, one way to align the incentives of managers is to have tight scrutiny or monitoring of their activities and productivity. Ministries, government agencies, and boards of directors are usually in charge of monitoring the performance of managers in SOEs. Boards of directors, however, have traditionally proven to be inefficient at monitoring managers because most board members do not have their own incentives aligned with those of the firm or the government and because they do not have good information with which to monitor what the SOE's executives are doing. Unlike shareholders of private firms, SOE board members traditionally do not have their own wealth at stake when executing their monitoring duties, so their own incentives are not aligned with those of the firm. SOE boards of directors have traditionally been packed with representatives of various ministries, such as the Ministry of Finance and the ministry of the particular industrial sector, and by a large group of executives from the SOE itself. Moreover, when an SOE is monitored by a group of government officials from different ministries, there may be free riding among them, with weak monitoring as a consequence. With such weak monitoring, without power to punish executives, and without access to detailed information on the SOE's financial health, boards of directors have not been served as instruments to monitor managers but mostly as tools governments use to influence SOE management.

As a consequence of these problems, SOE boards of directors have been undergoing an intense process of reform worldwide. The most important changes in large SOEs around the world—and, specifically, in large Latin American economies—have included the following three ingredients: First, boards have clearer mandates, that is, fiduciary duties. Second, they have

been rebalanced to include independent or external members who can bring outside expertise and—above all—who can use their veto power both to control the actions of managers and to hinder government intervention and extraction of financial resources. Ideally, external members should make up between one-third and one-half of the board or enough to serve as a check to managers and also as a balance to ad hoc financial interventions by the government (Christiansen, 2011; OECD, 2005; OECD, 2011). Finally, it is also common practice to have someone other than the CEO of the SOE serve as chairman of the board, and the number of board positions occupied by executives of the company is usually kept to a minimum.

Reforming boards can thus be a good way to reduce agency problems, but it may still fail to curve the multiple-principals problem and may allow governments to appropriate public benefits of control. That is why some of the board reforms have to be accompanied by reforms in the way in which governments monitor SOEs.

The Centralized Model of SOE Management and Control

In this model of SOE control, the government centralizes the monitoring of its SOEs under one agency or holding company, which in turn is monitored by one central ministry, usually the Ministry of Finance. Governments have created a central SOE agency or a department of SOEs to undertake the monitoring, evaluation, and even the privatization of SOEs (see Table 3). These departments require financials from SOEs to monitor their performance on a regular basis and are in charge of working with the SOEs to design and then revise annual strategic plans, to approve the annual budget and submit it to the MOF or Congress for approval, and, finally, to monitor the execution of such plans.

Alternatively, a few Latin American governments have created a central holding company to control a portfolio of SOEs. In both cases, the SOE agency or the holding company reports to a central ministry (usually the MOF) and follows strategic guidelines provided by that ministry.

In Table 3, we provide a summary of the different models of SOE management in large Latin American economies. Most countries have an agency monitoring SOEs that depends directly on the Ministry of Finance. Yet in Peru, Chile, and Bolivia, there are also holding companies that manage a diversified set of commercial SOEs for the government.

The reason for the variation in ownership models within countries is that governments often need to regulate separately those SOEs in complex industries that require technical and industry-specific expertise. For instance, the Ministry of Energy usually supervises oil and gas

SOEs, rather than the MOF. In the same way, more technical ministries tend to be in charge of monitoring firms in high-technology sectors.

Nevertheless, the centralized model of management and control is the model preferred by the OECD and the World Bank, because it reduces the multiple-principals problem, facilitates the introduction of ex-ante procedures to guide the behavior of SOE managers, and helps to standardize the disclosure requirements, timelines, procurement policies, and auditing procedures of SOEs. The OECD has spent much time and effort convincing governments of these advantages. In its reports, it recommends having a centralized ownership structure and outlines the disadvantages of the more decentralized model in which different ministries monitor SOEs at a sectorial level (OECD, 2005; OECD, 2011).

The decentralized approach was commonly used in mixed and centrally planned economies in the 1960s, 1970s, and 1980s because of its usefulness for industrial policy, but such decentralization, together with poor incentives for managers, led to the need for continuous bailouts, especially after the oil shocks of the 1970s and the liquidity crisis of the early 1980s. Moreover, having a decentralized model leads to the multiple-principals problem—to free riding and weak monitoring—and allows SOEs to have nonstandardized procedures for auditing, financial reporting, promotions, compensation, procurement, debt issuance, and risk management.

OECD countries that follow the centralized model, with one ministry and one SOE agency monitoring public enterprises, include Australia, Belgium, the Czech Republic, Denmark, Greece, the Netherlands, New Zealand, Norway, Poland, Slovakia, and Sweden. In Korea, SOEs have been overseen by an interministerial committee, under the leadership of the Ministry of Strategy and Finance, since 2007 (Korea, 2013).

The centralized model with a holding company managing state-owned enterprises is also common in OECD countries. According to the OECD (Christiansen, 2005, 2011), among the countries that have holding companies is the United Kingdom, which has centralized the ownership and monitoring of 27 SOEs under the Shareholder Executive since 2003. This organization hired a large proportion of its staff from the private sector, mostly from investment banking, accounting, private equity, and consulting firms. In 2003, France created the Agence des Participations d'État (APE), under the supervision of the Ministry of Finance, to monitor SOEs, appoint their executives, and "reduce as far as possible the day to day management intervention by the state" (OECD, 2005: 55). In 2008, Finland centralized its shareholdings by creating two holding companies, one to manage companies in which the government has majority ownership and one, called Solidium Oy, that manages and oversees nine companies

that are publicly traded and nonstrategic and in which the government holds minority ownership (OECD, 2011). Hungary established the Hungarian State Holding Company (MNV) in 2008, merging three holding companies and agencies that held SOE equity.

Advantages of the State-Owned Holding Company

One of the advantages governments can get from establishing a SOHC to manage and control a portfolio of SOEs is that there are economies of scale to rationalize production. Another advantage of SOHCs that control a variety of subsidiaries, sometimes with majority or minority equity ownership by the government, is the capacity of the government to monitor, coordinate, and facilitate collaboration among firms. The literature that has studied private business groups, especially in emerging markets, sees their development as a response to failures in capital, labor, and product markets. State-owned business groups can also have internal markets for products (for example, an oil company may sell crude oil to a refinery) and can have an internal talent markets. Typically, the SOHC can train managers, test them in some firms, and then rotate the most capable ones to run underperforming firms or new companies.

Other less obvious advantages of SOHCs are the following:

1. They consolidate a variety of firms under one principal, reducing the multiple-principals problem.
2. They can have professional management entirely dedicated to monitoring and managing SOEs, designing strategic plans, and processing information coming from SOEs, reducing information asymmetry (the Type I problem).
3. If the holding company has financial autonomy and is in charge of approving an SOE's investment plans, it can act as a buffer between the government and the SOE, reducing the possibility of having extraction from SOEs and reducing the soft-budget constraint, as long as there is no discretion in the way it disburses funds to SOEs, (both Type II problems).
4. If the holding company is legally a private entity following corporate law, it can restructure firms and fire and hire workers with more flexibility than when SOEs are treated as government subsidiaries following administrative law.
5. SOHCs can share know-how and best practices in a variety of areas. For example, holding companies can centralize:
    a. Procurement for the entire portfolio of firms, and take advantage of scale to increase their bargaining power with suppliers.

b. IT to monitor the operations of all firms in the portfolio and also to standardize software, the reporting and processing of data, and communications in all SOEs in the portfolio.
c. Hiring, firing, compensation, and training of executives and staff of all SOEs in the portfolio.
d. Auditing and the training of auditors for all SOEs in the portfolio.

6. Holding companies also have the advantage of an internal capital market, which can serve to use surpluses from some firms to help finance the capital expansion of other enterprises when those projects are evaluated as profitable. Having such internal capital markets can also help state-owned business groups protect affiliated firms from industry or firm-specific shocks (Khanna and Yafeh, 2007; Lin and Milhaupt, 2011).

The holding company structure can help reduce the Type II problem not only by reducing the soft-budget constraint problem by monitoring SOEs to minimize the risk of unexpected bailouts, but also by reducing the government's capacity to extract public benefits of control. Holding companies introduce a degree of separation between the government and SOEs. Since an autonomous body of professionals usually staffs SOHCs, they can create a buffer to separate SOEs from politicians. In Peru, FONAFE not only monitors the budgets and capital projects of SOEs, but it is also the only organization in charge of approving SOE expenditures and projects and has the financial autonomy to provide funds to these SOEs to make such expenditures.

Holding companies also provide governments with more flexibility in the design of their ownership structures. Their portfolios can include companies that are 100 percent owned by the government and partially privatized firms with either majority or minority state ownership. In Qatar, the richest nation of the world in per capita terms, the government has two large holding companies to manage the bulk of its productive companies. One is Qatar Petroleum, which has investments in another holding company focused on manufacturing, an oil company, a steel company, and a fertilizer firm. The other is Qatar Investment Authority, which has a variety of investments outside Qatar and which also acts as controller for Qatar Holding, a SOHC that controls a bank, a telecommunications company, construction companies, other firms, and a nonprofit foundation, known as the Qatar Foundation. Thus, in this case, there are many ownership schemes under the holding structures, and there are many degrees of separation between Qatar's royal family and the firms they own.

Despite the advantages of holding companies, they have two disadvantages. First, they cannot fully eliminate the Type II problem, because they cannot prevent governments from

controlling prices and thus financially affecting the SOEs they control. Having independent regulatory agencies in place can therefore help holding companies do their jobs, by minimizing random changes in price carried out to accommodate political needs.

A second problem is that as holding companies become larger and more complex, there is the risk that the information asymmetries between the holding company and each of the SOEs may increase. That is, as complexity increases, so does the likelihood of an acute Type I problem. Therefore, in some instances, the optimal size and diversification for the holding structure is relatively small. Some countries in Asia have experimented with large holding companies—with 70 or more holdings—with mixed results. For instance, in Malaysia, Khazanah Nasional Berhad has been less effective at promoting financial efficiency among its portfolio firms than Singapore's Temasek, which has a smaller, yet diversified, portfolio of extremely efficient firms.

Thus, to reduce the complexities of monitoring a large number of firms from many industries, many countries have holdings at the industry level. In Spain, Brazil, and—more recently—China, the government created holding companies in specific industries. In Spain, in the late 1970s and early 1980s the government created three holding companies—the INI Group for manufacturing, the INH Group for oil and gas, and the Patrimonio Group for telecommunications, banking, and other services—to manage firms and to privatize them if they were inefficient. Today, the majority of SOEs in Spain, both majority- and minority-owned, are controlled by a single holding company called SEPI. In Brazil, in the early 1970s, the government created holding companies by industry, including Petrobras for oil and gas, Siderbras for steel mills, Eletrobras for electricity companies, Nuclebras for the nuclear energy complex, and REFASA for railways (Trebat, 1983). In sum, the holding company structure offers multiple advantages that stem from centralization and economies of scale, but it can also suffer disadvantages.

Reforms to Address the Type II Problems

Soft-budget Constraint

In this section, we provide solutions to the problem of the soft-budget constraint (a Type II fiscal governance problem). The parallels between the rationales for bailouts of subnational units and of SOEs are so close that we can draw some lessons from the vast literature on federalism and apply it to the case of public enterprise management (Rodden, 2002). In this literature, there are two options to solve the soft-budget constraint or mutual dependency commitment problem:

more centralization, or more hierarchical control, of the subnational units or more reliance on markets to set the correct incentives for subnational units.

Under more hierarchical control, the solution to the soft-budget constraint problem is to reduce the subnational units' capacity to extract resources from the central government by imposing fiscal rules, improving the transparency of the finances of such units, and denying them access to preferential borrowing from the government (or from third parties). That is, the first solution is to use hierarchical control to harden the budget constraint for subnational units. to accomplish this, there have to be strict procedures for financial disclosure and clear formulas outlining when and how much such subnational units will receive.

In the case of SOEs, hierarchical control can achieve the same objectives by following similar procedures. Imagine there is only one short period per year when the government can transfer resources to SOEs, and the transfer will respond only to what is outlined in a strategic plan that has to be approved by the Ministry of Finance and/or Congress. During this period, the MOF or Congress must also approve any large debt issue plan these SOEs would like to carry out. There must also be rules making it clear that there are no other opportunities to request funds or to issue debt in large amounts. Moreover, governments need to have access to audited financials and reports on operational/construction progress in projects on a regular basis, to prevent a situation in which an SOE may need additional funds. Finally, the government can impose an early warning system to detect when an SOE's finances seem to be off track and automatically impose procedures to cut costs and expenditures when certain thresholds of financial fragility are passed.

One could obviously think of situations in which SOEs that provide fundamental services have either an expansion project or service interrupted for lack of funds. In those cases it would be hard for governments to avoid a bailout. That is why the administrative controls suggested in this section need to go hand in hand with frequent financial and operational reports from SOEs. Now, if the interruptions are caused by lack of funds that are a consequence of an extraction of funds from the government, then it would be important to supplement ex-ante controls with mechanisms to prevent the discretionary extraction of resources from SOEs.

Need for a Bankruptcy Procedure for SOEs

One reason that the soft-budget constraint problem occurs is that when managers of SOEs underperform their peers or incur large losses, they usually face no consequence. For one thing, they do not face the threats of hostile takeover or bankruptcy because governments rarely let SOEs fail when they become insolvent (Shleifer, 1998; Vickers and Yarrow, 1988). Thus,

even with strict procedures to control SOEs, there can be situations in which SOEs face bankruptcy or near-bankruptcy, and governments are forced to bail them out. If the preventive measures outlined in the previous section are in place, then this should not happen. Nevertheless, governments may want to have a bankruptcy procedure for underperforming SOEs in place to serve as a credible threat to punish SOE managers who drive their firms into insolvency. In Spain, Peru, and Brazil, for example, government holding companies operate not only as controllers of SOEs, but also as privatization agents. Thus, SOE managers and employees know that when their firm underperforms on a regular basis, there is a real threat of bankruptcy or privatization.

The emirate city of Dubai provides an interesting case study of the importance of having a clear procedure to deal with bankruptcy. In Dubai, the royal family operates multiple SOEs and sovereign wealth funds using a variety of holding companies. Before 2009, those holding companies had little control over the indebtedness levels of their subsidiaries. In fact, the financials of the SOEs in Dubai were so opaque to the public that lenders to those companies assumed that the debt was implicitly guaranteed by the governments of Dubai and of the United Arab Emirates as a whole. When Emaar, a partly private, partly state-owned construction company, declared it could not pay the service on one of its bonds, a panic ensued. Eventually, the government of Dubai had to clarify that it would not bail out Emaar and outlined a new bankruptcy procedure for SOEs that allowed for a restructuring of the company and a renegotiation of its debt. Emaar's creditors ended up receiving only 60 cents on the dollar and interest payments on the original debt (Musacchio, 2012). After that episode, creditors to SOEs in Dubai changed the pricing of their loans, incorporating the risk of bankruptcy and taking into account that the government was not guaranteeing such issues.

We understand this recommendation may not be politically palatable or feasible in Latin America. Yet, to reduce the financial risk that SOE transactions have for the balance sheet of the government, reformers need to tighten ex-ante controls over debt, and to make it clear that the interest rate SOEs get for debt issue reflects the fundamentals of the company and not the fundamentals of the sovereign.

Market Discipline and Budget Constraints

Governments can use market discipline to harden the budget constraints of SOEs. This can be achieved by forcing SOEs to procure the bulk of their financing from private creditors or private investors; for example, by selling equity on stock markets or selling debt in private markets. Yet there are certain conditions that have to be met for governments to successfully delegate the

"hardening" of the budget constraint to the market. First, the SOE's funding should come only from non-state-owned financial institutions or from private investors. Otherwise, the monitoring by investors and credit rating agencies will not reflect the true price of capital for the firm (Lane, 1993; Singh and Plekhanov, 2005). Second, markets should be free and open, with no regulation on financial intermediaries that could place SOEs in the position of a privileged borrower. Third, adequate information on the SOE's outstanding debt and repayment capacity should be available to potential lenders. Fourth, there should be no perceived chance of a bailout by the central government or other governmental institution in the case of default. For market discipline to work smoothly, the borrower must respond to market signals (Lane, 1993; Goldstein, Mathieson and Lane, 1991). Finally, there has to be a bankruptcy framework for SOEs. That is, the government has to be willing to let SOEs fail or be restructured.

These conditions are more likely to be met in countries with deep financial markets. Most Latin America financial markets, however, are shallow, and the bankruptcy institutions are less sophisticated. Thus, there is a greater potential to have SOEs with excessive borrowing, and governments are therefore exposed to large contingent liabilities when SOEs run into financial difficulties. This is why governments that want to rely on market monitoring to harden SOEs' budget constraints need additional administrative controls to prevent a mispricing of debt in financial markets. Among the measures necessary to minimize the financial risk created by having SOEs issuing debt in public markets are administrative procedures limiting public funding for SOEs, policies and regulatory agencies that can facilitate the operation of capital markets, and, if possible, a bankruptcy law that allows for the failure of SOEs.

Public Benefits of Control

There are a variety of mechanisms governments can use to improve the performance of SOEs by reducing the discretionary nature of the public extraction of rents from these firms. In the first place, governments can create clearly formulated taxes or dividends that SOEs have to pay to the government each year and that leave no room for discretionary extraction, one-off dividend charges, or any other payment that is out of formula.

A second option is to have a compensation mechanism for SOEs when they are directed to pursue a policy that is of interest to the government but that is outside the firm's core objective, such as a subsidy that will benefit a related party, an industry, or set of firms, but that will also directly affect the SOE's bottom line. Sappington and Stiglitz (1987) suggest a procedure for government payments to help firms internalize the social value of the goods and services they provide. That is, instead of having opaque pricing mechanisms to hide subsidies

and burden SOEs with the cost of such programs, governments can compensate SOEs for selling their goods or services at below-market price by transferring the value of the subsidy back to the SOE. This is what the government of Chile does in practice and what the Peruvian government does when it charges any of the firms operated by the SOHC FONAFE. Obviously, the challenge for governments lies in how to calculate the value of such a subsidy so that it can be transferred back to the SOE and reflected in the national budget. Once those transactions are transparent, the government and its ministries internalize the costs of using SOEs to subsidize goods and services, and they help SOEs to be more financially stable, while still helping the government fulfill social objectives.

A third mechanism to reduce the discretionary nature of government extraction of rents from SOEs is to partially privatize the firm. In theory, because partially privatized SOEs have minority shareholders who can sue the government for abusing its control rights, governments will refrain from taking actions that may affect such shareholders' interests (Pargendler, Musacchio and Lazzarini, 2013). Investors and the market (that is, rating agencies, analysts, and so on) will monitor the Type II problems and will use legal mechanisms to prevent government extraction from SOEs.

In practice, however, using market monitoring to prevent Type II extraction has been hard to achieve. The Brazilian government, for example, has continued to extract public benefits of control from Petrobras by controlling prices and making the firm undertake projects for political gain. There are two clear examples of such extraction. First, when the Brazilian government decided to control gasoline prices that affected the returns of Petrobras's minority shareholders. They were allowed to sue the government for such abuses. Yet, the Brazilian judicial system and the regulatory agencies (such as the Comisao de Valores Mobiliarios) were not prepared to deal with such a case and, in fact, the minority shareholders did not formally sue the government or Petrobras for the losses generated by gasoline price controls. Therefore, partial privatization has not been very effective in reducing governments' discretionary power to extract resources from their SOEs using price controls because the supporting institutions, such as courts and regulatory agencies, were not ready to provide a level playing field for minority shareholders.

Another issue is the way in which the controlling shareholder—the government—decides to allocate capital expenditures. Petrobras's minority investors, for example, have complained that it is investing too much in refining capacity at a moment when there is global overcapacity and the financial returns of investing in refining are low. In particular, Petrobras has invested in refineries in partnership with SOEs from other countries, investments that make no sense

commercially but that seem to have a political/diplomatic objective. For example, Petrobras signed a deal in 2005 with the Venezuelan oil company PDVSA to build a refinery in the Brazilian state of Pernambuco. The project was originally budgeted at approximately US$2.3 billion, but by 2014, the cost overruns put the project over US$20 billion. The project carries on, despite the fact that, in 2012, a group of minority shareholders sent a letter to the CEO criticizing the company's investment plan for its excessive expenditures on refining capacity (Musacchio and Lazzarini, 2014).

A fourth policy to deal with extraction from SOEs—one recommended by the OECD—is to give them financial autonomy and have the government set directives for management only through its seats on the board of directors. To have checks and balances for government directives, SOE boards must also include a significant number of independent members who are not politicians and who are outsiders to the firm. There must also be a variety of ex-post pay-for-performance incentives.

Independent directors are usually industry experts or neutral parties who are on the board to serve as a counterweight to the power of the government. In theory, they would have the long-term success of the enterprise in mind when voting on proposed company policies, rather than the short-term benefit of the politicians who control the SOE. Nevertheless, in practice, independent directors are neither very powerful nor even independent, as they tend to be elected by political parties. In Mexico, for example, Congress selects PEMEX's full-time, non-executive independent directors. Furthermore, in practice, it is not clear that it is in the interest of independent directors to stir up a debate or "rock the boat" and vote against the controlling shareholders, especially the government. If the independent directors are appointed by the congress or the MOF, then one has to question (a) how independent they are and (b) what is the congress's or the MOF's incentive in appointing them? In 2001, the China Securities Regulatory Commission mandated in 2001 that one-third of the board of all publicly traded corporations in China should be independent directors, but research has shown that the independent directors tend to vote with the controlling shareholder and/or CEO. Those independent directors who do dissent, tend to end their careers as directors or executives soon afterward, while the majority of independent directors try to preserve a reputation for being supportive of management proposals (Ma and Khanna, 2013).

Even in SOEs for which the government has mandated independent directors, there are no best practice manuals such directors can follow. As an independent director of a large Latin American SOE confessed to us in a private communication, "Once I got appointed, I did not get any manual of procedures or best practices. In fact, there is no manual, period."

Therefore, the practice of using partial privatization and independent directors as a balance to the discretionary power of the government to extract from the SOEs is not a clear-cut solution. Either the culture around the institution of independent directors is not conducive to create a true balance against discretionary intervention by the government or the judicial system is not ready to adjudicate an SOE's deviation from its core mission. For these reasons, hybrid solutions should also be considered.

Need for Hybrid Solutions

We have, so far, explained how the solutions to many of the main problems of SOEs can rely on administrative controls or on markets. In practice, relying purely on market solutions requires a well-functioning judiciary system, bankruptcy procedures for SOEs, large and frictionless financial markets, a sophisticated system of codes of corporate governance, and a private or public system with enough teeth to punish governance violations by the government. That is, before many of the market solutions we recommend can be put into place, countries need to have in place sophisticated institutions, and those institutions are sometimes only developed after governments undertake major structural changes. In the short term, therefore, governments have to rely on hybrid solutions.

For example, one way to improve the performance of SOEs and the quality of the services they provide is to have them compete with private-sector peers (Bartel and Harrison, 2005). With competition, SOEs are forced to benchmark their performance and quality and governments can set realistic targets in their strategic plans. However, this solution may only work when competition is feasible (i.e., when the SOE is not a monopoly), and it would require having autonomous regulatory agencies that can set prices, mediate when there are antitrust issues, and so on. Unfortunately, it takes time to develop a system of autonomous regulators, and opening up strategic sectors is also politically complicated in Latin America. Therefore, ex-ante administrative controls—for example, to control for the quality of investments or to control monopoly pricing—and ex-post controls on quality, may be necessary to reduce basic Type I problems in the short run (see Box 3 on ex-post quality controls in Korea).

Many of the solutions that rely purely on administrative controls may impose too many procedures and red tape on the operation of SOEs, ultimately rendering them slow and inefficient. Therefore, there is a need for hybrid solutions that adapt to each particular situation and that can use ex-ante controls effectively without reducing the efficiency of SOEs too much. Governments can introduce administrative ex-ante controls to limit debt issues, formulas to determine the prices charged by monopolies according to international benchmarks, and

timelines to regulate transfers to and from SOEs, while also introducing boards with independent directors and/or market monitoring (for example, by having SOEs issue debt on stock markets).

Similarly, governments can try to maintain a degree of separation from their SOEs by introducing holding companies to manage a portfolio of SOEs. Yet not all SOEs have to be 100 percent government-owned. Holding companies may be more effective at achieving operational goals if they rely on market monitoring for some of their most complex firms, while introducing strict administrative procedures to control others. That is, ex-ante administrative controls and market mechanisms of control do not need to be mutually exclusive; they can be complementary.

In fact, as institutions improve, competition increases, and the capacity of regulatory agencies is consolidated, governments can replace many of the ex-ante administrative procedures discussed above with the market-based monitoring mechanisms discussed above.

What should also be clear by now is that there are common solutions for the Type I and Type II problems. Both types of problem need timely and complete financial reports to facilitate the monitoring of SOEs and to reduce the information asymmetry that pervades the relationship between governments and SOE managers. Additionally, SOE boards of directors need to include well-prepared professionals with industry experience and should include a healthy proportion of independent members. Finally, all solutions require that governments improve their own controls over the size of debt and other contingent liabilities in SOEs. That is, the government, as ultimate risk-taker, should have mechanisms to minimize the financial risks emanating from SOEs.

Conclusions

In this paper, we have done three things. First, we have described the most common and important problems governments face when trying to manage and control their SOEs. Second, we have provided a simple framework to diagnose these problems, dividing them into corporate governance problems (Type I) and fiscal governance problems (Type II). Third, we have discussed some of the solutions to these problems, emphasizing the fact that for every problem there are multiple solutions, including hybrid solutions that combine administrative and market mechanisms of control.

The paper makes two main arguments. First, we argue that privatization is not the only option for governments seeking to solve some of the main problems SOEs face. On the

contrary, we have shown that there are many other solutions that put in place the right incentives for both SOE managers and governments to create outcomes that respond to the objectives governments set forward for their public enterprises. Second, we argue that there is no one-size-fits-all solution for the problems of SOEs. None of the options— privatization, partial privatization, holding companies, and centralized models of management and control—will solve all or even most of the problems facing SOEs. We therefore argue that governments need to have teams in place to identify the particular problem they are trying to tackle in a particular SOE and to design a hybrid solution that is appropriate to the political economy of the moment and the country in question.

Table 4. SOE Problems and Their Solutions Using Ex-Ante Controls and Market Mechanisms

Type of corporate governance problem	**Main issue associated with SOEs**	**Centralized model with ex-ante controls** Ministry of Finance or Industry oversees SOE (+ SOE agency or holding company controls SOE)	**Market-based monitoring with the government as a majority shareholder**	**Market-based monitoring with the government as a minority shareholder**
Type I	Agency Problems	Manager incentives -Ex-ante controls limit managerial discretion -Performance plan: Incentive-compatible contracts based on qualitative and quantitative metrics. Bonuses for meeting targets, but also capacity to fire managers if they do not meet targets -Better selection of managers (using pool of talented managers and experts of SOE agency/holding co.) Board of directors -Need a clear mandate -Stacked with technical bureaucrats (with experience in the industry but coming from ministries) to monitor managers closely -Should be accountable (annual board evaluation using balanced scorecard—qualitative + quantitative criteria) Financial transparency -Ex-ante controls to force SOE to declare in timely fashion a vast array of financial and operational information necessary to monitor it closely -Stringent, standardized auditing procedures; continuous internal auditing by central SOE agency or holding company	Manager incentives -High-powered incentives (e.g., stock options) -Managers monitored by private investors, analysts, boards, and rating agencies -Managers can be fired if they underperform Boards of directors -Should not have a majority of politicians or bureaucrats -Independent or external directors to balance power of controlling shareholder -CEO should not be chair of board -Should have an auditing committee Transparency -Firms have to report financials regularly following stock market accounting requirements	Manager incentives -High-powered incentives (e.g., stock options) -Managers monitored by private investors, analysts, boards, and rating agencies -Managers can be fired if they underperform Boards of directors -Politicians/bureaucrats are at most a minority on the board -Independent or external directors to balance power of controlling shareholder -CEO should not be chair of board -Should have an auditing committee Transparency -Firms have to report financials regularly following stock market accounting requirements

	Multiple principals	-Holding company or SOE agency relatively autonomous to have a degree of separation between of ownership and control	-Boards of directors turn into principals -Works if there is true separation of ownership and policy	-Board of directors and controlling shareholders as principals
Type II	Soft-budget constraint	-Allocation of resources to SOEs is formula-based and renegotiation of such allocations requires painful renegotiations -Allocation of resources comes from a centralized, non-political agency or holding company -SOE agency or holding company monitors SOEs closely and asks for financial reports to prevent need for bailouts -SOE agency/holding company can also be the privatizing agency; thus, SOEs will have the threat of being privatized or restructured if they underperform	-No dependence on government to finance large projects or bail out firm -Most funding is obtained from equity and debt markets -Prices are determined by the market -Firm can go bankrupt (no "too big to fail"); clear bankruptcy or restructuring procedures	-No soft-budget constraint unless firm is too big to fail
	Public benefits of control	-The firm can be isolated from political intervention by having financial autonomy and having a majority of independent directors on the board (to act as counterweight to government power) -SOE agency or holding company structure creates a degree of separation from the government that should separate ownership and policy -If agency/holding company are autonomous from the government and are run by professionals, they should have financial objectives in mind -Policy objectives imposed on firm should be transparent and company should be compensated for them (e.g., the case of Chile)	-The firm can be isolated from political intervention by having financial autonomy, being publicly traded, and having a majority of independent directors on the board -Managers and controlling shareholders *can* get pecuniary and nonpecuniary benefits of control (e.g., selling assets below market price) by abusing control -But if policy objectives are explicit and the cost of such policies is paid by MOF to firms, it will reduce discretionary abuses. -Shielding against extraction and abuses of minority shareholder rights will depend on the judicial and corporate governance institutions of the country (e.g., stock markets, securities regulators, corporate laws, and court system)	-Firm isolated from political intervention by having financial autonomy -Firms can meet social objectives through corporate social responsibility programs -Shielding against extraction such as price controls will depend on the judicial institutions of the country

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