Hybrid governance: state management of national oil companies

DAVID R. HULTS

1 Introduction

In this chapter, I analyze how states govern national oil companies (NOCs)—typically their chief sources of revenue and technocratic expertise. Some governance systems set clearly defined lines of authority, separating policymaker, regulator, and operator responsibilities, whereas others blur those lines almost completely. States differ in their control over NOC budgets, appointments, investments, and contracting arrangements with international oil companies (IOCs).

Despite these differences, a common thread exists: Most NOC governance systems are a hybrid of corporate governance, public administration, and regulation. Many NOCs' founding laws and organizational by-laws mimic private sector corporate governance models. NOCs typically have a board of directors, hold annual shareholder meetings (with the state as the only or more important shareholder), and pay dividends. Many states also subject their NOCs to the same public administration tools that states use to control government agencies, like legislative budget approvals. And several states use regulatory powers to indirectly control their NOCs, with some also commandeering their NOCs as energy regulators. NOC governance reflects this hybrid blend because of the special challenges posed by managing oil companies. NOCs are almost invariably the leading state-owned enterprise (SOE) and often the largest domestic company, public or private, in the domestic economy. And unlike the perennial problem in many SOEs, which lose money, NOCs usually produce copious rents.

Previous research has mined key questions of NOC governance. One thread considers state oversight of both NOCs and IOCs: Representative works include Mommer (2002), which reviews oil sector governance since the commercialization of oil, and Eifert et al. (2003), which suggests links between five regime typologies and oil sector governance. Other scholarship takes a narrower perspective by exploring the formal administrative structures for controlling NOCs. In this vein are Khan (1985), evaluating the legal form, structure, and financing arrangements for NOCs, and Bentham and Smith (1986), cataloging various aspects of NOC founding laws for seventeen countries. Another branch of literature consists of case studies, which are highly dependent on case selection and analyst focus. For example, Al-Kasim (2006) discusses the "Norwegian model" of governance, and Boshchev (2007) employs an intricate checklist to analyze NOC governance in Nigeria, Norway, and Saudi Arabia. And some work is explicitly policy-oriented, typically with the aim of detailing best practices and other reforms that NOCs might adopt—such as the studies by Myers and Lahn (2006) and Lahn et al. (2007).

Although this research derives important implications, little of it tests the links between governance and the performance of NOCs. This gap in the NOC literature is surprising because scholars have developed useful theories on the performance of large organizations (such as bureaucracies and corporations) and because NOCs, as a result of their economic predominance and complexity, present an interesting opportunity to apply and contribute to those theories.

To help fill this gap, I investigate the relationship between specific aspects of NOC governance and performance. I draw upon organizational theory to devise NOC governance into three essential, widely studied forms. These forms are as follows. First, the rule setting, or institutional context in which the rule is made, ranges from highly unified (frequently with the head of state or oil ministry wielding near-total control) to fragmented (control being distributed across such players as the head of state, executive agencies, and legislature). Second the rule function, or the way in which the state uses a rule to exert control, spans ex ante procedures (giving the state authority to approve or make NOC decisions in advance) and ex post monitoring (giving the state greater authority to track those decisions after the fact). Third, the rule form, or the concreteness of the rule, ranges from highly law-based (legal frameworks channeling...
and constraining governance decisions) to personalistic and informal (social ties between state and NOC leadership mediating those decisions). Figure 3.1 depicts these three elements of NOC governance. This chapter explores the interactions among these elements and tests their links to NOC performance.

I offer the following three hypotheses on the relationships between these governance elements and NOC performance:

1) NOCs perform better in states that have unified control over the companies and worse in states that have fragmented control;
2) NOC performance is positively related to monitoring-heavy oversight systems and negatively related to procedure-heavy systems; and
3) NOCs perform better when their home states primarily rely on law-based mechanisms to administer them and worse when states depend mostly on informal mechanisms.

By carrying out simple but revealing tests of these hypotheses for the fifteen NOCs in this volume, I reach these four findings:

First, in support of hypothesis 1, NOCs are generally higher performing when state institutions exercise power over the company through a centralized government authority. I explain this finding in part by noting that state institutions commonly hold multiple, complex, and shifting NOC objectives (e.g., generating profits, employing workers, advancing foreign policy through oil diplomacy). When state institutions speak with one voice to the NOC, policy becomes coherent. As a result, NOCs juggle a smaller number of competing goals, can make long-term investments in furtherance of those goals, and function more effectively. All of the best performing NOCs in this volume are governed by states that have consolidated authority over the companies. This finding comes with an important caveat, however. Some states with unified control have poor-performing NOCs because the leader in charge sets inefficient objectives (e.g., saddling the NOC with widespread social responsibilities or patronage goals).

Second, backing hypothesis 2, NOCs tend to succeed in oversight systems that monitor company decisions after the fact (through, e.g., annual audits, occasional inspections, robust price signaling) but exert little advance approval of those decisions. Indeed, not one of the high-performing NOCs in this volume operates in a procedure-heavy environment. One explanation for this result is that monitoring-heavy systems give greater company flexibility to adopt mechanisms conducive to high performance. Not all forms of monitoring are essential, however. Competition for equity or upstream projects are often cited as useful tools for gauging company performance. But some countries that do not permit competition have highly successful NOCs because they delegate managerial control to the companies and use other forms of benchmarking aggressively.

Third, lending slight support to hypothesis 3, NOCs are a bit more likely to thrive when states rely on law-based mechanisms to govern the companies. This relationship is modest at best, however. It is possible that NOCs perform better in highly formal environments because laws, when enforced, limit political masters’ opportunities to place ad hoc demands upon the company. But this pattern is fraught with many exceptions. In several instances, laws enshrine deeply inefficient governance systems (e.g., government approval of NOC procurement decisions). And elsewhere well-defined informal constraints (e.g., tight social networks) effectively substitute for the law, at least in the short term. One possible reason for these exceptions is that the links between rule of law and company performance are highly attenuated.

Fourth, in decomposing NOC governance into its central functions, this study shows how particular institutional arrangements affect government choice and capacity to carry out that choice. Many states that have fragmented control over their NOCs, for example,
govern the company through *ex ante* procedures rather than through *ex post* monitoring mechanisms because each procedure gives a state actor its own lever of authority over the company (e.g., a head of state may control NOC appointment power, a legislature may approve the NOC budget). Particular institutional arrangements may also have a lasting legacy effect. For example, some governments still rely on procedures rather than monitoring because constitutional constraints, founding laws, or NOC political resistance prevent the introduction of competition (and its attendant monitoring benefits) into the oil sector. (A recent example is Mexico, where constitutional constraints on domestic foreign competition in the oil sector diluted government efforts at reform. See Chapter 7.)

I proceed as follows. In section 2, I provide background. I first frame NOC governance within the widely applied principal–agent model and then add context by comparing NOC governance with three other forms of administration: corporate governance, public administration, and regulation. In section 3, I test the NOC governance-performance relationship for the fifteen NOCs in this volume across three dimensions of governance: 1) organization of state actors with significant authority over the NOC; 2) mix of oversight mechanisms; and 3) obedience to the rule of law. Section 4 discusses some implications based on this analysis, both for NOCs and for broader theories of organization. Section 5 concludes. Closing the chapter is an appendix detailing the data sources and empirical assessments.

2 Background on NOC governance

2.1 NOC governance within the principal–agent model

To provide a simplifying framework for analysis, I situate NOC governance systems within the principal–agent model. (Many of the ideas in this model motivated policymakers to establish NOCs in the 1970s. For more, see Chapter 1.) At their foundation, NOC governance systems function as a type of contract between state and NOC in which the state has authority over the NOC. The state, acting as principal, relies on its governance system to direct the NOC, serving as agent, to fulfill state objectives or “national missions” (generating profits, securing employment, etc.) (Marcel 2006). (Other work in this volume explores these objectives in greater detail. See Chapter 2.)

Because of its day-to-day expertise, the NOC has greater information than the state about NOC activities, particularly in countries with weak administrative systems (Mommer 2002). NOC managers also have distinct interests from the state, including political advancement, reputation enhancement, and self-enrichment. The state’s challenge is thus to motivate the NOC to do the state’s bidding despite differing interests and incomplete information. To surmount this challenge, states rely on a combination of tools that form the core of NOC governance.

The NOC governance toolkit varies, among other respects, by rule function and form. Two key functional approaches are: 1) *ex ante* procedures to approve or mandate NOC decisions (contract partners, employee salaries, etc.); and 2) *ex post* monitoring to track those decisions (audits, investigations, price signals). States use *ex ante* procedures to dictate NOC decision making and thereby overcome the differing incentives of the agent in the principal–agent relationship. States use *ex post* monitoring, in turn, to reduce some of the information asymmetries inherent in the principal–agent relationship. The form of NOC governance ranges, among other ways, from: 1) formal, de jure instruments embedded in the state’s legal framework and NOC organizational by-laws; to 2) informal, de facto instruments that embody the interpersonal ties and power relationships between state and NOC. A particular governance instrument can serve as an informal procedure (e.g., energy ministry blessing of NOC foreign investment decisions to ensure those decisions have political cover), formal monitoring (mandatory NOC annual reports), or any combination therein. Some governance instruments defy easy categorization; periodic government inspections of NOC operations, for example, are a form of company monitoring that also functions as procedure.

The state and NOC rely on governance and “counter-governance” tools, respectively, to advance their own interests. As a state uses procedures and monitoring to incentivize NOCs, an NOC lobbies the state, both directly and indirectly, to secure certain advantages (e.g., preferences in domestic bidding for hydrocarbon projects). Some NOCs also try to blunt the force of the state by adopting wall-building strategies that move the bulk of company activities abroad and therefore outside the state’s direct reach. (In the 1980s, PDVSA aggressively adopted these strategies by acquiring significant downstream assets overseas. For more, see Chapter 10.) Because of its hierarchical
supremacy, the state probably has more power to influence an NOC than the reverse, but prominent exceptions exist. These include NOCs that have become powerful enough to acquire the moniker of “states within a state” (Stevens 2008a), such as 1990s Gazprom and PDVSA (see Chapter 15 and Chapter 10, respectively).

Within both state and NOC are various self-interested players. For the purposes of this chapter, the most significant players are the state’s multiple principals, including the national leader, legislature, and government agencies. In many NOC governance systems, each of these principals has separate authority over, and objectives for, the NOC. The state’s leader, for example, may hold authority to name senior management to the NOC and prioritize NOC profit generation (so that the leader can capture those profits for his or her own purposes). A legislature, by contrast, may have separate power to approve the NOC’s annual budget and seek localized NOC projects in different legislative districts (so that individual legislators benefit politically from company activities). Each of the principals’ objectives may shift depending on the principals’ political, rent-seeking, and ideological motivations. As I argue below, the interaction among multiple principals and their objectives substantially affects the administration of NOCs.

Pulling these points together, Figure 3.2 illustrates NOC governance within the context of the principal–agent relationship. This model helps clarify the ways in which state actors manage their NOCs. The model also provides a useful framework for testing the governance-performance relationship, which I analyze in section 3.

Note that this simple principal–agent model suffers from some inadequacies. For one, it suggests a clean division between state and NOC even though the distinctions may be faint at best. For example, the Iranian government’s relationship with the National Iranian Oil Company (NIOC) is so deeply intertwined that it is often difficult to separate government and company (see Chapter 6). Moreover, this basic model is static. A more dynamic approach would account for the frictions between underlying interest group incentives (which spur changes in the governance system) and institutional rigidities (which impede those changes). In reality, government and NOC participate in a repeated game of back-and-forth that evolves in context- and history-specific ways. Therefore, the “game” that is most conducive to NOC performance in one country may not be replicable or even desirable in another. My analysis below brings out some of these complexities.

Despite some shortcomings, the principal–agent framework is a useful starting point for understanding NOC governance systems. I now review the nuts and bolts of these systems by reference to three governance models: corporate governance, public administration, and regulation. I describe these models in a stylized way—recognizing that particular cases may deviate considerably—to illustrate broad linkages. In general, nearly all NOC governance systems reflect the veneer of corporate governance, though some more closely resemble public administration and, to a lesser extent, regulation. Corporate governance is my initial point of departure for illustration.

2.2 NOC governance as corporate governance

NOC governance mirrors corporate governance because of superficial similarities between NOCs and private companies and because the corporate model is a deeply influential form of administration. (In states that created their NOCs via nationalization, NOC governance may also derive from the governance models of their private company predecessors.) In both NOC governance and corporate governance,
principals typically share at least one common objective for their company agent: profit generation. Over its history, corporate governance has developed a broadly shared set of formal practices for governing large organizations concerned with profit generation (informal practices diverge, however; see Khanna et al. 2006). NOC governance echoes many of these practices.

The most direct links between NOC governance and corporate governance systems are in their common legal structures. Since the 1980s, most NOCs have, like their private sector counterparts, taken the form of corporations that are legally separate from the state. Incorporation confers a range of formal powers and responsibilities upon NOCs, ostensibly buffering them from state influence — and the state from politically controversial company decisions (Lucas 1985). Most significantly, incorporated NOCs are typically subject to commercial — rather than administrative — law, exempt from most state privileges and immunities, formally free from state employment requirements, and legally under state control only through a state’s authority as shareholder. (The controlling and often sole shareholder of the NOC is the state or state representative, however.)

The shareholder relationship between an NOC and its parent state is, in turn, associated with a set of corporate governance-style authorities over the company. Overseeing many NOCs is a board of directors that has responsibility for hiring and firing senior management, reviewing company strategy, and approving major investment decisions. (Because of the state’s position as controlling shareholder, many NOC boards are stacked with government members or appointees, and the board’s power may be perfunctory.) In addition to this managerial role, boards also monitor NOCs through audits and other forms of information-gathering. The board then reports to shareholder(s) — including, most importantly, the state — at annual or special shareholder meetings. NOC shareholder(s) have the power to name members of the board, approve major corporate transformations, and propose resolutions affecting the company. In addition, most NOCs are, like their private sector brethren, subject to some financial disclosure, often to satisfy external creditor expectations. These assorted controls color the relationship between states and NOCs, though other factors, discussed below, sometimes outweigh them in importance.

In a select few states, the parallels between NOC and corporate governance run deeper. Like private companies, NOCs compete for the domestic right to exploit and develop hydrocarbons in Brazil, India, Norway, Russia, and (partially) China; their home states use competition, among other purposes, as a benchmarking and external discipline tool. (China straddles the line by restricting outside competition but owning multiple NOCs and permitting some competition between them; see Chapter 9.) The degree of competition is often watered down, however, because these NOCs lobby and exploit home market knowledge to secure large stakes in most domestic projects. Some NOCs also compete internationally for upstream projects, especially if they hail from states in which domestic hydrocarbon resources are or were once perceived to be scarce, like China, Malaysia, Norway, or Brazil. Moreover, NOCs in Brazil, India, Norway, Russia, and (in part) China compete for minority equity investment on stock market exchanges; their home states use stock price listings to assess the capital market performance of the companies. Stock price listings have limited value, however, because NOCs are immune from the threats of takeover or bankruptcy — which serve as major external controls on privately owned companies (Vives 2000).

Though the superficial similarities are considerable, NOC governance and corporate governance sometimes sharply diverge. To explain these differences, I turn to the issue of public administration.

2.3 NOC governance as public administration

For several reasons, the substantive work in NOC governance sometimes follows from public administration rather than corporate governance. The multiple principals (leader, legislature, etc.) and wide-ranging objectives (energy subsidization, employment generation, etc.) affecting many NOCs more closely matches the principal–agent dynamics of public agencies than of privately owned companies. (By contrast, owners of publicly traded companies tend to hold few objectives and employ few mechanisms of authority, due to the mediating effect of capital markets.) States also use public administration tools to manage NOCs because it is, for them, a familiar form of governance.

Thus numerous states supplement or bypass board of director formalities and, as in traditional public administration (Batley and Larbi
2.4 NOC governance as regulation

Even when a state lacks express authority over NOC decisions, its principals can indirectly coax agent compliance through command-and-control or economic incentive regulation (Morgan and Yeung 2007). OPEC states set production limits to domestically enforce quotas issued by their cartel. Several countries regulate licensing or tax their NOCs to control the pace of petroleum development and resource extraction (as in Norway and Saudi Arabia). And bureaucratic agencies in Norway and Mexico, among others, promulgate health, safety, and environmental regulations to substantially modify NOC behavior. (In many NOC home states these regulatory safeguards remain weak.)

In addition to being subject to regulation, many NOCs act as state regulators and policymakers— to a greater degree than do most other SOEs. On the downstream side, NOCs frequently serve as de facto domestic energy regulators by overseeing gasoline subsidies, refinery supply arrangements, and other instruments. NOC roles on the upstream side are more uneven, but in some states—including modern-day Angola and Malaysia—the NOC stands in for the state in negotiating contracts with IOCs. This arrangement may create conflicts between the NOC’s regulatory and commercial functions.

3 Testing links between NOC governance and performance

Building upon this overview of NOC governance systems, I now evaluate the relationship between those systems and company performance for the fifteen NOCs in this volume. I first explain my methodology and then conduct basic tests across each of the three governance dimensions: 1) organization of state actors with authority over the NOC; 2) mix of oversight mechanisms; and 3) reliance on rule of law. In the appendix to this chapter, I elaborate on my assessments.

3.1 Research methods

Taking advantage of its rich qualitative data, I use the fifteen NOCs in this volume as my sample set. As elaborated in Chapter 1, one basis for selecting NOCs in this volume was their variation in governance. Although a sample of this size inevitably misses some differences, it is nevertheless large and diverse enough to yield a roughly accurate representation of the world’s most important NOC governance systems.

I carry out cross-sectional, rather than time-series, analysis. In accord with institutional theories of “stickiness” (North 1990; Boettke et al. 2008), I argue that NOC governance systems are often slow to change because of the high transactional cost of reform. (Exceptions occur; I address those below.) As a consequence, I analyze the performance–governance relationship by holding time constant at present, i.e., considering current-day NOC performance and governance systems.

To test the NOC performance–governance relationship, I rely on the holistic measure of company performance detailed in Appendix A to this volume. This measure sorts overall NOC performance into four categories: high, upper middle, lower middle, and low.

I adopt a similar method to determine the three dimensions of NOC governance evaluated here. Because these dimensions aggregate many factors and my data is mostly qualitative, I make general, rather than fine-grained, comparisons across NOCs. My comparisons work as follows: for each of the three dimensions, I classify NOC governance systems into one of three categories. With respect to the mix of NOC oversight mechanisms, for example, I score each governance system as either monitoring-heavy, varied, or rules-heavy. These categories...
are approximate and do not have strict boundaries between them. Because of coding complications and my limited sample size, I draw findings cautiously.

For much the same reasons, I do not explicitly control for economic, political, and cultural variation in NOC operating environments — though these factors differ extensively. (Consider, for example, the dissimilarities in NNPC's and Statoil's home states.) In all likelihood, the relationship between NOC governance and performance is entangled with other variables, like economic development and political regime (as these variables are linked to one another). But these linkages are complex. With respect to NOC performance, high-performing NOCs crop up in states that are wealthy and democratic (Norway), semi-wealthy and authoritarian (Saudi Arabia), and even poor and authoritarian (Angola). (See Chapter 2 for more discussion of the effects of political regimes on NOCs.) And as for NOC governance, economic and political conditions bear little obvious relationship to the number of NOC principals, mix of oversight mechanisms, and — to a lesser extent — rule of law. As a result of this variance, I make no claims about the relevance of specific government regimes or economic conditions to my findings.

Similarly, governance accounts for only part of the variation in NOC performance. Other potential factors include level of state ownership, degree of upstream or downstream internationalization, political regimes, and economic development. See Appendix A for more discussion.

A final methodological comment before continuing: in two groups of countries, major changes in either NOC governance systems or performance have occurred recently. First, Russia and Venezuela tightened control over NOC governance between 2000 and 2010, and the performance of those companies has suffered. (See Chapter 15 and Chapter 10, respectively.) Second, Brazil and Norway have freed their NOCs from some government requirements during the late 1990s, though Brazil may now be undergoing a partial policy reversal; the performance of both of these companies has remained high. (See Chapter 12 and Chapter 14, respectively.) To simplify matters, I focus on the current-day conditions of these four countries (and their NOCs) in this section. I discuss changes over time in section 5.

Having laid out my methodological approach, I explain my hypotheses for each of the three selected NOC governance dimensions.

3.2 Hypotheses

First, I consider the effect of multiple principals on public agencies. In a seminal work on the economic theory of organizations in US bureaucracy, Moe (1984) proposes that multiple principals compete for control over an agent by putting restraints on one another to preserve each principal's unique interests. This coordination problem among competing principals leads to greater agent independence. Dixit (1997) formalizes a similar intuition in a model showing that multiple principals decrease a public agent's incentives to comply with its political masters. Shifting from autonomy to performance, Whitford (2005) argues that multiple principals' sequential efforts to control agencies lead to a damaging "whiplash" effect. Similarly, Estrin (1998) claims that multiple principles' layered, shifting objectives subvert the performance of SOEs.

In accord with Whitford (2005) and Estrin (1998), I hypothesize that centralization of authority leads to greater clarity in governance roles. And as suggested by Moe (1984), I further hypothesize that fragmented authority may lead to greater NOC autonomy and that this autonomy may in some contexts be beneficial, too. On balance, I propose that the advantages of policy coherence outweigh those from NOC autonomy based on the theory that higher autonomy does not necessarily result in better performance. I thus offer this hypothesis:

1) NOCs perform better in states that have unified control over the companies and worse in states that have fragmented control.

Second, I evaluate the links between ex ante procedures, ex post monitoring, and public agent performance. Thompson and Jones (1986) and Vining and Weiner (1990) suggest that procedure-heavy systems may work better when state missions are fuzzy because rules limit an agent's opportunity to profit from ambiguity and greater knowledge about its own activities. When objectives are vague, Estrin (1998) argues that direct management of a public agent (itself a form of ex ante administration) may reduce the risk of that agent carrying out hidden actions (mismanagement, graft). Procedure-heavy systems may thus reduce agent opportunities for waste. However, these systems also reduce efficiency. They impose administrative costs, invite petty corruption over procedural compliance, and limit a public agent's managerial discretion to internally motivate good work.
(through salary raises, overtime, and personal perks) (Vining and Weimer 1990). Monitoring-heavy systems, for their part, function more effectively when national missions are concrete because these systems measure mission achievement accurately (Vining and Weimer 1990). Nevertheless, ex post monitoring of agent activities carries administrative costs of its own (Macey 2008).

In line with the work of Vining and Weimer (1990), I propose that the efficiency costs of procedure-heavy systems outweigh their potential benefits in reducing waste. Following the same theory, I also propose that monitoring-heavy systems are on balance better for performance because they give principals (or the NOC managers delegated with oversight authority) the ability to monitor NOC performance and to remedy it, as necessary, through sanction powers. I thus offer the following hypothesis:

2) NOCs' performance is positively related to monitoring-heavy oversight systems and negatively related to procedure-heavy systems.

Moving lastly from rule function to form, I consider the relationship between NOC performance and a state's reliance on law-based mechanisms in administering those companies. Rule of law correlates strongly with "veto points" (Andrews and Montinola 2004) although the former embeds the idea of "legal culture," or norms, constraining individual behavior. Building on the scholarship of Williamson (1985) and Barzel (1997), Haggard et al. (2008) propose a logic in which rule of law – acting through well-enforced contracts and property rights – incentivizes individuals to invest and carry out mutually beneficial trades. Increased investment and trade, in turn, foster economic growth. At the macro level, Rigobon and Rodrik (2004) find a robust causal relationship between rule of law and personal income. At the firm level, several law and finance scholars (Johnson et al. 2000; La Porta et al. 2002; Lemmon and Lins 2003) find positive correlations between rule of law and a corporation's performance. This finding has narrow applicability to NOCs, however, because it is rooted in legal protections for minority shareholders (often absent in the NOC universe). Research on the rule of law's importance for SOEs, including for NOCs, is scant.

Applying the work above to the world of NOCs, I propose that strong rule of law has benefits – in particular, protecting an NOC from unpredictable government predation. These benefits outweigh any negative effects (e.g., codifying inefficient rules as law that become resistant to change). My last hypothesis is thus as follows:

3) NOCs are higher-performing when their home states primarily rely on law-based mechanisms to administer them and worse when states depend mostly on informal mechanisms.
I test each of these three hypotheses in turn.

3.3 Analysis

First, I consider the organization of state actors exercising control over NOCs. Looking descriptively at my data sample, a recurring group of state actors emerge. National leaders, energy ministries, or specialized NOC governing bodies are typically the most influential. However, these entities rarely share power with another; leaders tend to overshadow institutional bodies (as in Chávez-era Venezuela) or delegate most authority to them (as in Norway). The finance ministry or, in less institutional regimes, a ruling clan may separately exercise policymaking control through positions on an NOC board. Administrative agencies may also affect NOC decision making because of their power to review procurement, contracting, and regulatory compliance. Outside the executive branch, the legislature sometimes has power to approve NOC budgets and major investment decisions; informal influence also occurs. And in a few states, subnational institutions shape NOC plans by lobbying for operations in their home jurisdictions. Judiciaries across all countries wield relatively little direct power. Reflecting the case studies in this volume, Table 3.1 shows how commonly different principals exert authority over an NOC.

Across my data sample, the following NOCs operate in states with centralized authority: ADNOC, Gazprom, PDVSA, Petrobras, Petronas, Saudi Aramco, Sonangol, and Statoil. As suggested above, the locus of NOC authority in these states tends to be national leaders, energy ministries, or specialized oil authorities. National leaders typically control NOC governance in states that are oil dependent economically and highly consolidated politically (Angola, Malaysia, Putin-era Russia, Saudi Arabia, Chávez-era Venezuela after 2003). In some leader-dominant regimes, such as
current-day Russia and Venezuela, national leaders or their advisers closely oversee NOC decision making. In others, like Malaysia, leaders exercise control selectively and entrust authority to trusted allies within the company. Similarly, specialized oil authorities tend to occur in states, like Abu Dhabi, that reach consensus arrangements between senior NOC leadership and national leaders. (See Chapter 11.) Energy ministries, by contrast, predominate in states that have a multiplicity of interests but have reached institutional agreements among those interests to give the ministry primary NOC governance control (as in Brazil and Norway).79 (NOCs, for their part, often capitalize on their personal ties with the political establishment to secure advantages for the companies. Sonangol's leadership, for example, enjoys direct lines of communication with Angola's president and uses that access to preserve company independence. See Chapter 19.)

By contrast, the NOCs within my data set operating in fragmented governance systems are as follows: KPC, NOIC, NNPC, ONGC, and PEMEX. Many of these states have competing interests in the executive and legislative branches.21 Each interest maintains separate lines of NOC authority and, in some cases, wrestles with one another over oil policy.22

Based on this data sample, I test hypothesis 1 that low company performance is related to fragmented authority and high company performance is tied to unified authority. Figure 3.3 compares individual NOC performance against the relationship among principals governing the companies.23

Consistent with hypothesis 1, I find a positive relationship between performance and centralization of authority over the company. Most of the NOCs in this sample closely conform to this relationship. Two notable exceptions are current-day Gazprom and PDVSA, which struggle despite operating in single-principal environments. I offer an account for these exceptions and discuss some implications in section 5.

Second, I analyze the mix of oversight mechanisms for NOCs. Across my sample, most states have a common set of oversight mechanisms. This common set embodies the corporate governance template and includes board of director power to discipline senior NOC leadership;74 approve annual budgets; review major investment decisions, strategies, and goals; and receive (public or non-public)25 audits

---

Table 3.1: Frequency of state actors having significant authority over an NOC

<table>
<thead>
<tr>
<th>State actors with authority over NOC</th>
<th>Near universal</th>
<th>Common</th>
<th>Occasional</th>
<th>Infrequent</th>
<th>Very rare</th>
</tr>
</thead>
<tbody>
<tr>
<td>State leader</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leader's family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy ministry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialized oil authority</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance ministry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-policy executive agencies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative institutions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Use the word “significant authority,” as shorthand to describe consistent, major decision-making power in NOC governance. This power may be formal or informal.

NOCs: 1. "National" in which this category applies to nearly all states with NOCs; 2. "Common" in which the category applies to some states with NOCs; 3. "Occasional" in which the category applies to a few states with NOCs; and 4. "Very rare," in which the category applies to almost no states with NOCs. Source: NOC case studies in this volume.
systems expose their NOCs to competition or conduct robust comparative assessments. Most of these systems occur in states with warring multiple principals (as in KPC, NNPC, Petronas, and Gazprom), each of which holds distinct objectives and mechanisms of authority. In PDVSA's governance system, a single principal (President Hugo Chávez) dominates NOC governance and has assigned the company a long list of company objectives (see Chapter 10).

By contrast, four NOCs – ADNOC, Petrobras, Petronas, and Statoil – operate in monitoring-heavy systems. Unlike procedure-heavy systems, monitoring-heavy systems grant NOCs wide decision-making power but empower state institutions to review those decisions after the fact. These institutions typically monitor company performance through professional-style audits and at least some exposure to competition in upstream or equity markets. (Petronas, for example, faces tough competition in international markets even as it retains some monopoly privileges at home (see Chapter 18). Following a performance review, states may exercise their sanction powers to reward or punish NOC decisions. State review of NOC performance is not a technocratic exercise, however. At least two NOCs in monitoring-heavy systems, Petrobras and Statoil, have at times used their political influence to at least partially circumvent state oversight bodies. See Chapter 12 and Chapter 14, respectively.

I use this data sample to test hypothesis 2: high NOC performance is associated with monitoring-heavy systems and low performance is associated with procedure-heavy systems. Figure 3.4 compares the performance of individual NOCs against the composition of oversight mechanisms for the NOCs in this volume.

Supporting hypothesis 2, I find that procedure-heavy oversight mechanisms and poor performance go hand in hand. All of the worst-performing NOCs in this sample operate in procedure-heavy or mixed environments. Moreover, all of the monitoring-heavy systems have high- or above-average-performing NOCs. Slight outliers occur, including Gazprom and ONGC (both relatively poor-performing despite some competition) and Saudi Aramco, Sonangol, and Petronas (relatively high-performing though no competition occurs). I discuss these findings further in section 5.

Third, I examine the effect of rule of law on NOC performance. In reviewing the data sample, I note that states employ an array of
<table>
<thead>
<tr>
<th>Type of oversight mechanism (whether formal or informal)</th>
<th>Ex ante procedure</th>
<th>Authority over senior NOC leadership</th>
<th>Board power</th>
<th>Authority over annual budgets</th>
<th>Authority over NOC expenditures</th>
<th>Board approval of major expenditures</th>
<th>Board decision making on expenditures</th>
<th>State approval of major expenditures</th>
<th>Approval of procurement</th>
<th>Approval of contracting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near universal</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Occasional</td>
<td>Common</td>
<td>Infrequent</td>
<td>Very rare</td>
<td>Government taxation also acts as a surrogate form of control.</td>
<td>Source: NOC case studies in this volume.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
formal and informal mechanisms to govern the companies. Nearly all states have laws or law-like instruments on the books governing NOCs. The latter instruments include executive decrees, oil sector regulations, and NOC organizational by-laws carrying the force of law. Also common are government policy guidelines, which tend to be more amorphous than laws but which also shape company behavior. In some states, these formal and semi-formal mechanisms effectively set rules of the game for NOC governance. In others, however, these mechanisms are “ink on paper” (Li and Xia 2007) with little practical significance. Informal tools reign instead. These informal tools include implicit signaling of policy preferences, public political pressure, interpersonal ties, and strong-armed political influence. (Even states committed to the rule of law make use of informal tools, though probably to lesser effect. See Chapter 14, for the Norwegian account.) And lurking in the background of all governance systems are norms that establish expectations for state and company behavior. Gleaned from the sample in this volume, Table 3.3 depicts how often states use these formal and informal tools to govern their NOCs.

Several governance systems in this volume are strongly law-based: The corresponding NOCs are ONGC, Petrobras, Pemex, and StatOil. In general, law-based systems occur in states that have a vibrant separation of powers (and that may or may not have reached institutional agreements over the allocation of oil sector governance roles). In these otherwise dissimilar states, the law acts as an effective channel and constraint; state actors use legal mechanisms to manage NOCs and have limited capacity, at least in the short term, to act outside those mechanisms. 79
rule of law. (One proxy for reliance on law-based mechanisms is the World Bank governance data. The data there is not NOC-specific, however. My assessments reflect a combination of general trends and case-specific insights.)

Based on the sample in this volume, I find a slightly positive but probably insignificant relationship between rule of law and NOC performance. Fitting the hypothesis are high-flyers like Petrobras and Statoil and poor performers like NNPC. But many exceptions exist. Sonangol operates in a relatively informal environment but nevertheless performs fairly well. Conversely, Mexico’s Pemex struggles despite operating within a scrupulously followed law-based framework. I discuss the implications of this relationship below.

4 Implications

Having presented my research findings for the three elements of NOC governance, I turn to possible inferences from those findings. I address these inferences sequentially.

4.1 Organization of state actors having significant authority over the NOC

First, in finding a positive relationship between corporate performance and centralized authority, my work applies existing scholarship on multiple principals to the context of NOCs. Consistent with Whitford (2005) and Estrin (1998), NOCs may respond to multiple principals by inconclusively lurching between state objectives or by pursuing interests of their own (e.g., self-enrichment). However, the existence of multiple principals does not necessarily increase the independence of the NOCs. Rather, competing principals seem to affect NOCs in two main ways, only the first of which is autonomy-enhancing: 1) shielding the NOC from other principals to preserve their particular interests (or in response to lobbying from the NOC); and 2) actively interfering in the NOC to further those interests (especially the interest in rent collection). Perhaps because of the large rents at stake, active interference seems more common than political shielding. Exceptions may occur when the future of those rents is on the line. But even then, political shielding may remain weak. Consider, for example, Mexico. Although consistent decreases in Pemex’s...
production spurred governance reforms in late 2008, those reforms were tepid. See Chapter 7.)

One reason that principals may interfere in NOC operations but insulate other institutions from meddling is because NOC rents are comparatively direct. A government patent agency, for example, can give intellectual property protections to favored political constituencies, but those rents are oblique and accrue over the long term. An NOC, by contrast, can deliver rents to principals directly (by, e.g., giving the principal cash, over or under the table). The immediacy of NOC rents creates a sort of coordination problem within the principal itself, above and beyond the commonly studied coordination problem across multiple principals. Institutional “principals” are aggregations of numerous, shifting actors (e.g., legislatures with changing legislators, public agencies with turnover of bureaucrats). These institutions may be unable to internally agree on a long-term political insulation strategy when an NOC could provide immediate rents instead. By contrast, institutions may be better able to coordinate internally – and thus protect the public agent politically – when the only way to secure rents from the agent is by protecting it from micro-management. Further work, particularly in game theory, may shed light on these issues.84

My work also suggests that some NOCs suffer even in single-principal environments (Russia, Venezuela). One rationale for this result – consistent with the work of Bueno de Mesquita et al. (2003) and Acemoglu and Johnson (2005) – is that single principals with an insecure grasp on power may press their NOCs for short-term political gains.85 (For example, Venezuelan President Chávez obliges PDVSA to spend its proceeds on patronage in part because he fears the strength of the political opposition – which ousted him from power in a short-lived 2002 coup. See Chapter 10.) Another explanation is that some principals rely on clientelism to maintain power. This explanation partly applies to Russia, Venezuela, and a poor-performing NOC outside this sample: Indonesia’s Pertamina, when President Suharto was in power (Hertzmark 2007). By contrast, single principals seem to take a longer-term perspective in states with iron-clad rule (Angola, Saudi Arabia) or highly institutionalized environments (Brazil, Norway).86 This explanation is mostly conjecture, however, because I do not test for it specifically. (See Chapter 2, for rigorous tests of the effect of leaders’ time horizons on major oil sector decisions.)

Although my research did not uncover instances of NOCs thriving in multiple principal settings, I suspect that such cases indeed occur. Examples of this phenomenon might include the more extreme “states within a state,” like pre-Chávez PDVSA. These NOCs, presumably small in number, prosper in part by taking advantage of political infighting to create autonomy for themselves (in conformity with Moe 1984). These companies may eventually lose their autonomy if the political factions coalesce or one faction wins out.87

4.2 Mix of NOC oversight mechanisms

Second, in showing a link between a monitoring-heavy system and positive NOC performance, I reinforce theoretical arguments favoring monitoring (Vining and Weimer 1990) and add an element of state choice. In an idealized, politics-free world, states would set highly measurable NOC objectives, institute monitoring-heavy oversight systems to track those objectives, and reap the resulting performance benefits. I offer several reasons why many states follow a different script. First and most obviously, some state actors desire goals beyond performance; a leader teetering on the edge of political survival, for example, may prefer immediate employment generation instead. Second, NOCs may lobby the government to maintain their domestic preferences and thereby deprive the states of the benefits from monitoring (as arguably occurred when Saudi Aramco squelched its government’s 1998 plans to spur domestic upstream competition; see Chapter 5). And third, state actors may resist greater monitoring because it could come at the expense of short-term rent extraction. A state could monitor its NOC better by allowing company shares to float on a stock exchange, for example, but doing so would require the state to share NOC profits with private shareholders.88 Similarly, a state could acquire greater knowledge about an NOC by conducting public audits, but doing so could reveal corruption that the state prefers to hide.

In a similar vein, my analysis offers some reasons procedure-based systems endure. Most importantly, state principals jealously guard their own NOC oversight mechanisms – and in the process, cloud the
governance system with procedures – because the procedures serve as vehicles for rent appropriation, both explicit and implicit (i.e., graft). Moreover, state actors may retain procedures to rein in NOCs that had become, from the government’s perspective, “states within a state” (e.g., in Venezuela). The institutional legacy of existing rules (e.g., constitutional provisions or founding laws) may also impede reform (as in Mexico or Kuwait, respectively).

More speculatively, my work hints that competition, while useful, is not the sine qua non of NOC success. Several NOCs flourish even though they do not compete for hydrocarbon projects domestically or invite equity investment (as is true for Petronas, Saudi Aramco, and Sonangol). In limited circumstances, entrenched corporate cultures may compensate for a lack of competition, particularly when the state maintains close ties with senior NOC management, as is true for Saudi Aramco (see Chapter 5). Moreover, protection from competition may nurture the early growth of an NOC, as arguably is the case for infant industries generally (Ranis 2003) (though the political dynamic for removing protection at a later stage may prove difficult). Key examples include Statoil and, in particular, Petrobras before the late 1990s (see Chapter 14 and Chapter 12, respectively). Similarly, competition does not necessarily alleviate an NOC of its ills. A few NOCs struggle despite being subject to some competition (as is the case with Gazprom and ONGC). Though my sample is small and I did not test this matter explicitly, competition may offer limited benefits if it remains accompanied by a bevy of procedures and a soft budget constraint.

Lastly, on the issue of oversight, my research speculatively suggests that another type of NOC monitoring – transparency – may have limited benefits for performance. External transparency seems to matter most when the public partly (or indirectly) owns the NOC, as in the cases of Petrobras or Statoil. In these cases, large private investors and the state use publicly available financial information, stock prices, and other signals to supervise corporate performance effectively. But when the state holds sole ownership of the NOC, internal transparency may suffice; at least one highly successful NOC, Saudi Aramco, gives the state benchmarking data but divulges little of it to the public at large (see Chapter 5). Public NOC transparency programs – including the Extractive Industries

Transparency Initiative (EITI) – may therefore bolster civil society or governmental accountability, but their effects on NOC performance may be highly case-dependent. At least some NOCs that have opened up their books, like PEMEX, remain poor-performing.

4.3 Rule of law in NOC governance

Lastly, I am unable to draw many implications from state adherence to the rule of law because my findings on that issue are tenuous. Respect for the rule of law may improve NOC performance by shaping and checking state actors’ behavior, but my research methods are too coarse to detect much of a relationship. Alternatively, rule of law may have little to no relationship with NOC performance at all. Future studies may reveal the potential links.

One explanation for the weak relationship between rule of law and NOC performance is that formal and informal mechanisms effectively substitute for one another in NOC governance. Because several NOCs prosper in semi-formal or informal environments, interpersonal ties and political pressure may serve as effective governance tools. (Less clear, however, is whether informal mechanisms sustain their efficacy over the long term.) As a result – in line with the caution of Haggard et al. (2008) – externally imposed rule of law reforms may have narrow effects on NOC governance. The Nigerian oil sector, for example, has undergone frequent and sometimes far-reaching legal reforms – often at the prodding of international developmental institutions – but the underlying, entrenched informal mechanisms remain much the same (see Chapter 16). More promising, albeit tentative, legal reforms have occurred in Angola and Kazakhstan, where the governments have used their NOCs, Sonangol and KazMunaiGas respectively, as instruments to formalize and modernize their oil sectors (Chapter 19; Olcuc 2007). But even in these cases, rule of law reform seems like a consequence, rather than cause, of NOC success.

5 Conclusion

This chapter explores the deep, abiding connections between NOC governance and company performance. Based on the fifteen NOCs in this volume, my research indicates that NOCs tend to thrive in
centralized, monitoring-heavy systems. NOCs usually suffer, by contrast, in systems beset by a dispersed system of authority and bevy of procedures. My work suggests a weak nexus between NOC performance and state reliance on the rule of law.

Though I test here for correlation only, the causal links between NOC governance and performance probably flow in both directions. NOC governance almost certainly affects company performance (through, inter alia, shifts in national missions, the accumulation of state-mandated procedures, and the absence or presence of competition). And company performance also shapes governance, though the links here are less clear. In response to high NOC performance, for example, some states may relax regulations in the hope of creating rents for the long haul (as arguably occurred in 1990s Brazil and Norway). Others may respond to high performance by setting new rules to cash in on the company’s rents (though examples here are scant). Some NOCs may also use their lobbying power to push through reforms themselves (in the 1990s, PDVSA instigated an opening in the Venezuelan upstream sector). Further work may help tease out these causal chains.

More generally, NOC governance mechanisms reflect interest group struggles and broad, structural factors. Interest groups—which line up behind particular institutions or factions within those institutions—affect how states settle on particular governance mechanisms. Once these interest groups reach an equilibrium, either through formal agreements or de facto working arrangements, the broad contours of that equilibrium may persist for long periods of time (as in Kuwait and Mexico). In this institutional inertia, minor shifts in underlying interests yield little change. However, abrupt shocks may destabilize the system. I mention four such shocks here: changes in 1) oil and natural gas prices (Chang et al. 2009), such as the oil price rise from 2000 to 2008 and the decline during 2008 and 2009; 2) investment cycles (Chapter 4); 3) political regime (Chapter 2), such as the transition from democratic to semi-autocratic rule in Venezuela from 1999 to 2009; and 4) resource endowment, as may be occurring in Brazil today with the discovery of large subsalt fields offshore (see Chapter 12). Depending on their direction, these changes may induce pro-performance measures or policy backsliding (as in Algeria’s 2006 partial reversal of its 2005 pro-liberalization hydrocarbons law; see Chapter 13).

Given the importance of interest groups and extrinsic factors, my work invites caution for NOC policy reform. Although some governance systems seem more likely to improve NOC performance than others, implementing a reform agenda is challenging, unless the external shocks referenced above come into play. Leading state actors are likely to resist shifting from a procedure-based to monitoring-based system, for example, because the existing system better provides for their narrow interests. Even if policymakers introduce formal governance reforms, countervailing changes in informal governance may occur—such as greater reliance on personal connections and political persuasion. And when NOC governance undergoes real change, the triggers for change often lie outside policymakers’ control. In this context, policymakers are far from impotent; but their prospects for success remain highly contingent on other factors.
Appendix: detailed research findings

Assessments of NOC performance

<table>
<thead>
<tr>
<th>NOC (home country)</th>
<th>Performance</th>
<th>Source for assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADNOC (Abu Dhabi)</td>
<td>Upper middle</td>
<td>Appendix A; Chapter 11</td>
</tr>
<tr>
<td>CNPC (China)</td>
<td>Upper middle</td>
<td>Appendix A; Chapter 9</td>
</tr>
<tr>
<td>Gazprom (Russia)</td>
<td>Lower middle</td>
<td>Appendix A; Chapter 15</td>
</tr>
<tr>
<td>KPC (Kuwait)</td>
<td>Low</td>
<td>Appendix A; Chapter 8</td>
</tr>
<tr>
<td>NIOC (Iran)</td>
<td>Low</td>
<td>Appendix A; Chapter 6</td>
</tr>
<tr>
<td>NNPC (Nigeria)</td>
<td>Low</td>
<td>Appendix A; Chapter 16</td>
</tr>
<tr>
<td>ONGC (India)</td>
<td>Lower middle</td>
<td>Appendix A; Chapter 17</td>
</tr>
<tr>
<td>Pemex (Mexico)</td>
<td>Lower middle</td>
<td>Appendix A; Chapter 7</td>
</tr>
<tr>
<td>Petrobras (Brazil)</td>
<td>High</td>
<td>Appendix A; Chapter 12</td>
</tr>
<tr>
<td>PDVSA (Venezuela)</td>
<td>Lower middle</td>
<td>Appendix A; Chapter 10</td>
</tr>
<tr>
<td>Petronas (Malaysia)</td>
<td>Upper middle</td>
<td>Appendix A; Chapter 18</td>
</tr>
<tr>
<td>Saudi Aramco</td>
<td>Upper middle</td>
<td>Appendix A; Chapter 5</td>
</tr>
<tr>
<td>Sonangol (Angola)</td>
<td>Upper middle</td>
<td>Appendix A; Chapter 19</td>
</tr>
<tr>
<td>Sonatrach (Algeria)</td>
<td>Lower middle</td>
<td>Appendix A; Chapter 13</td>
</tr>
<tr>
<td>Statoil (Norway)</td>
<td>High</td>
<td>Appendix A; Chapter 14</td>
</tr>
</tbody>
</table>

Controlling NOCs: the Supreme Petroleum Council (SPC), which is led by the ruling family and a few members of closely allied families. Although some recentralization has occurred, state authority remains split between the State Energy Commission (former Office of the National Energy Administration). The state council has influence over key company positions. Putin has installed allies on Gazprom’s board (at least eleven of eighteen total as of 2008) and exercises tight control over the company.
<table>
<thead>
<tr>
<th>Assessment of state actors with authority over NOCs (cont.)</th>
<th>KPC (Kuwait)</th>
<th>Source for assessment</th>
<th>List of relevant state actors</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOC (name country) with authority over NOC</td>
<td>KPC, KPC East, KPC West</td>
<td>Chapter 8</td>
<td>Fragmented</td>
</tr>
<tr>
<td>Source for assessment</td>
<td>Chapter 6</td>
<td>Fragmented</td>
<td>NIOC (Iran)</td>
</tr>
<tr>
<td>List of relevant state actors</td>
<td>Chapter 16</td>
<td>Fragmented</td>
<td>NNPC (Nigeria)</td>
</tr>
<tr>
<td>KPC control is divided between the government (particularly oil ministry) and state shareholding representative (Supreme Petroleum Council). Also significant are various state regulatory agencies (particularly the State Audit Bureau for procurement).</td>
<td>The president wields most power but shares it with National Assembly (legislative) and NNPC (policy-making); lower-level officials also exert influence through their ability to approve company decisions.</td>
<td>Although the Ministry of Petroleum and Natural Gas has primary authority, both parliament and multiple oversight agencies - the Central Vigilance Commission (CVC) and Comptroller and Auditor General (CAG) - exert considerable influence over the company.</td>
<td>Fragmented</td>
</tr>
<tr>
<td>National Economic Council (NEC)</td>
<td>Mexican president holds close control of the company, but since 1995 the Ministry of Finance (which supervises and controls the company) has a strong voice; Ministry of Finance also has a strong voice; Ministry of Finance also has a strong voice; Ministry of Finance also has a strong voice.</td>
<td>Fragmented</td>
<td>Pemex (Mexico)</td>
</tr>
<tr>
<td></td>
<td>Nigerian government exerts control through its majority voting shares and positions on the board of directors.</td>
<td>Unified</td>
<td>Petroleo Brasileiro (PETROBRAS)</td>
</tr>
<tr>
<td></td>
<td>Chavez's immediate confidants exert near-total control over company; government ministries and legislature have little independent authority.</td>
<td>Unified</td>
<td>PDVSA (Venezuela)</td>
</tr>
<tr>
<td>Chapter 14</td>
<td>United</td>
<td>Sinai (exclave)</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>--------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>Chapter 13</td>
<td>United</td>
<td>Somalia (province)</td>
<td></td>
</tr>
<tr>
<td>Chapter 19</td>
<td>United</td>
<td>South Sudan (province)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 5</th>
<th>United</th>
<th>Saudi Arabia</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Chapter 18</th>
<th>United</th>
<th>Partnership (subsidiary)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Statement of state actions with authority over NOC (cont.)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization of state actions</td>
<td></td>
</tr>
<tr>
<td>Assessment of mix of oversight mechanisms for governing NOCs</td>
<td>Procedure-heavy</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Mix of oversight mechanisms</td>
<td>Chapter 9</td>
</tr>
<tr>
<td>Source for assessment</td>
<td>CNPC (China)</td>
</tr>
<tr>
<td>Description of oversight mechanisms</td>
<td>Gazprom (Russia)</td>
</tr>
<tr>
<td>NOC (home country)</td>
<td>Varied</td>
</tr>
<tr>
<td>ADNOC (Abu Dhabi)</td>
<td>Varied</td>
</tr>
<tr>
<td>Monitoring-heavy</td>
<td>Varied</td>
</tr>
</tbody>
</table>

**Chapter 9**: Gazprom has nominal power over investment decisions, but the state frequently uses its informal authority to control decision making. Company formally competes for domestic projects, but in a de facto near-monopoly. Private companies receive minority equity investment, although some are linked to the Kremlin. The company conducts professional audits (though beset by scandal) and some investigations.

**Chapter 8**: There are some ex-post checks (in particular, audits), but the bulk of controls involve procedures. Company is subject to onerous requirements on sales (set by local Service Commission, procurement, and budget), and strategic (requiring more than thirty approvals). KPC is also under tight control, though other subsidiaries have greater freedom. The state does not subject companies to competition for equity investment or for domestic upstream projects. Despite "Project Kuwait" efforts at reform.

**Chapter 6**: The state primarily governs through Five Year Development Plans (FYPs), which set budgets, operations, and investments. FYP revisions frequently occur, setting new rules for the company. No competition occurs for equity investment or for domestic upstream projects, and there is little investment abroad.

**Chapter 16**: The executive exercises tight scrutiny over company investment and partnership decisions and frequently turns over NNPC and partnership decisions to the local presidency. NNPC is also subject to government legislative review. Employment is subject to government rules. NNPC conducts some monitoring of monetary flows through the Extractive Industries Transparency Initiative.
<table>
<thead>
<tr>
<th>Assessment of mix of oversight mechanisms for governing NOCs (cont.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOC (home country)</td>
</tr>
<tr>
<td>Pemex (Mexico)</td>
</tr>
<tr>
<td>Petrobras (Brazil)</td>
</tr>
<tr>
<td>ONC (India)</td>
</tr>
<tr>
<td>PDO (Vietnam)</td>
</tr>
<tr>
<td>PetroChina (China)</td>
</tr>
<tr>
<td>Assessment of mix of oversight mechanisms for governing NOCs (cont.)</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>NOC (home country)</strong></td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Saudi Aramco (Saudi Arabia)</td>
</tr>
<tr>
<td>Sonatrach (Algeria)</td>
</tr>
<tr>
<td>Statoil (Norway)</td>
</tr>
<tr>
<td>Assessment of reliance on rule of law in governing NOCs</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>NOC (home country)</td>
</tr>
<tr>
<td>CNPC (China)</td>
</tr>
<tr>
<td>Gazprom (Russia)</td>
</tr>
<tr>
<td>KPC (Kuwait)</td>
</tr>
<tr>
<td>NOC (Iran)</td>
</tr>
<tr>
<td>ONGC (India)</td>
</tr>
<tr>
<td>Pemex (Mexico)</td>
</tr>
<tr>
<td>Petróbras (Brazil)</td>
</tr>
<tr>
<td>NOC (Home country)</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Perusahaan (Malaysia)</td>
</tr>
<tr>
<td>Saudi Aramco (Saudi Arabia)</td>
</tr>
<tr>
<td>Sonangol (Angola)</td>
</tr>
<tr>
<td>Sonatrach (Algeria)</td>
</tr>
<tr>
<td>Statoil (Norway)</td>
</tr>
</tbody>
</table>
Summary table of performance and governance data for the fifteen NOCs in this volume

<table>
<thead>
<tr>
<th>NOC (home country)</th>
<th>Performance</th>
<th>Organization of state actors with authority over NOC</th>
<th>Mix of oversight mechanisms</th>
<th>Reliance on rule of law</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADNOC (Abu Dhabi)</td>
<td>Upper middle</td>
<td>Unified</td>
<td>Monitoring-heavy</td>
<td>Varied</td>
</tr>
<tr>
<td>CNPC (China)</td>
<td>Upper middle</td>
<td>Mixed</td>
<td>Varied</td>
<td>Varied</td>
</tr>
<tr>
<td>Gazprom (Russia)</td>
<td>Lower middle</td>
<td>Unified</td>
<td>Varied</td>
<td>Informal</td>
</tr>
<tr>
<td>KPC (Kuwait)</td>
<td>Low</td>
<td>Fragmented</td>
<td>Procedure-heavy</td>
<td>Law-based</td>
</tr>
<tr>
<td>NIOC (Iran)</td>
<td>Low</td>
<td>Fragmented</td>
<td>Procedure-heavy</td>
<td>Varied</td>
</tr>
<tr>
<td>NNPC (Nigeria)</td>
<td>Low</td>
<td>Fragmented</td>
<td>Procedure-heavy</td>
<td>Informal</td>
</tr>
<tr>
<td>ONGC (India)</td>
<td>Lower middle</td>
<td>Fragmented</td>
<td>Procedure-heavy</td>
<td>Law-based</td>
</tr>
<tr>
<td>Pemex (Mexico)</td>
<td>Low</td>
<td>Fragmented</td>
<td>Procedure-heavy</td>
<td>Varied</td>
</tr>
<tr>
<td>Petrobras (Brazil)</td>
<td>High</td>
<td>Unified</td>
<td>Monitoring-heavy</td>
<td>Law-based</td>
</tr>
<tr>
<td>PDVSA (Venezuela)</td>
<td>Lower middle</td>
<td>Unified</td>
<td>Procedure-heavy</td>
<td>Informal</td>
</tr>
<tr>
<td>Petronas (Malaysia)</td>
<td>Upper middle</td>
<td>Unified</td>
<td>Monitoring-heavy</td>
<td>Varied</td>
</tr>
<tr>
<td>Saudi Aramco (Saudi Arabia)</td>
<td>Upper middle</td>
<td>Unified</td>
<td>Monitoring-heavy</td>
<td>Varied</td>
</tr>
<tr>
<td>Sonangol (Angola)</td>
<td>Upper middle</td>
<td>Unified</td>
<td>Monitorin-heavy</td>
<td>Informal</td>
</tr>
<tr>
<td>Sonatrach (Algeria)</td>
<td>Lower middle</td>
<td>Mixed</td>
<td>Varied</td>
<td>Varied</td>
</tr>
<tr>
<td>Statoil (Norway)</td>
<td>High</td>
<td>Unified</td>
<td>Monitoring-heavy</td>
<td>Law-based</td>
</tr>
</tbody>
</table>

Notes
1. This separation of functions is sometimes known as the “Norwegian model” (Al-Kasim (2006)). Emulating this model is several other states—most notably Brazil (see Chapter 12).
2. As elsewhere in this volume, this chapter mostly focuses on the large, profitable NOCs in oil- and gas-exporting states. Nevertheless, I also consider several NOCs in states that import hydrocarbons (China, India).
3. SOEs are common in sectors that involve natural monopolies (air and rail transport, electricity, gas and water supply), network industries (broadcasting, telecommunications), and the financial sector (banking, insurance). For an overview of SOEs, see World Bank (2006b).
5. Stevens (2003c, 2008a) frames state-company relations (with respect to both IOCs and NOCs) within principal-agent analysis as part of a broad overview of NOCs.
6. See also Lucas (1985) for a discussion focused on Canada's (since-lapsed) NOC experience.
7. Using the lens of institutional economics, Boshcheev's checklist covers state decision making in, inter alia, NOC missions, oversight, and operational scope. Coming from a similar perspective, Kalyuzhnova and Nygaard (2008) introduce a dynamic model of oil sector governance for resource-rich transition countries in which NOCs emerge as an important form.
8. See World Bank (2006b) for best practices for SOEs generally.
9. Other scholars have analyzed the relationship between company governance and performance for SOEs generally. Chong and Lopez-de-Silanes (2003) argue that privatization of Latin American SOEs is in part successful because the private sector corporate governance framework – including increased disclosures and better accounting standards – allows privatized firms to access capital at lower costs.
11. The procedure/monitoring division in this chapter broadly corresponds with the one proposed by Thompson and Jones (1986) and Vining and Weimer (1990).
12. These three axes of NOC governance highly correlate with one another. See discussion below.
13. I make no claim about the primary, or necessarily most foundational, lenses through which to view NOC governance. It is possible that “rule form” is a function of institutional settings and that institutional settings, in turn, follow from cultural, economic, and/or political structures. My
claim here is more modest. These elements form an important part of the
theory underlying the performance of large organizations, which I test
here.
14 Throughout this chapter, I use the generic term “performance” to refer
to hydrocarbons performance as defined in Appendix A. I acknowledge
that some states highly value an NOC’s non-hydrocarbons performance.
This chapter nevertheless focuses on hydrocarbons performance; see again
Appendix A for discussion. To the extent non-hydrocarbon NOC goals are
linked to certain governance elements (e.g., an NOC may be more likely to
have non-core goals if it operates in a fragmented governance system), my
focus on hydrocarbons performance provides some rudimentary sense of
the cost of those non-hydrocarbon goals.
15 The NOCs are ADNOC (Abu Dhabi), CNPC (China), Gazprom (Russia),
KPC (Kuwait), NOC (Nigeria), NNPC (Nigeria), ONGC (India), PEMEX
(Mexico), Petrobras (Brazil), Petronas (Malaysia), PDVSA (Venezuela),
Saudi Aramco (Saudi Arabia), Sonangol (Angola), Sonatrach (Algeria), and
Statoil (Norway). As discussed in the Introduction, these NOCs operate in
states that have significantly different levels of economic development and
political organization.

16 Multiple objectives impose two costs of NOC performance: a direct oppor-
tunity cost (as resources are diverted toward achievement of those objec-
tives) and an indirect inefficiency cost (as corporate management strains to
juggle those objectives).

17 Note separately that causation may run in the other direction; i.e., the
existence of a monitoring-heavy governance system may induce the legis-
lature, executive, etc. to change its control over the company.

18 The literature on the principal–agent relationship is extensive. See, e.g.,
Spence and Zeckhauser (1971), Ross (1973); and Jensen (1983). I employ
this model for its simplicity and do not suggest that it provides a complete
explanation of NOC governance. For a critique of the principal–agent rela-
tionship focused on bureaucracy, see Waterman and Meier (1998).

19 For purposes of the principal–agent model, the state need not have an
ownership interest in the NOC.

20 The principal–agent relationship between state and NOC is part of a
longer chain. In democratic states, this chain begins with the relation-
ship between the citizenry, as principal, and the government, as agent. It
also includes the relationship between state and NOC, NOC leadership
and NOC junior personnel, and so forth. At some points in this chapter,
I address other links in this chain, but for the sake of economy I focus
mostly on the state–NOC relationship here. For more on the different links
in the principal–agent relationship within states, see Moe (1984).

21 Other factors also matter in principal–agent dynamics, including company
history, corporate culture, and organizational dynamics. I omit those fac-
tors here for reasons of parsimony. Other academics have suggested ways
of incorporating additional assumptions into the principal–agent model.
For a review, see, e.g., Lane (2005).

22 See, e.g., Tollison (1982) for a discussion of the differences in principal–
agent dynamics among public and private agents.

23 Audits and investigations roughly correspond to McCubbins and Schwartz’s
(1984) distinction between police patrols and fire alarms, respectively.

24 Scholars have categorized governance tools across a wide array of func-
tional approaches. In the context of corporate governance, Vives (2000)
divides governance into passive and active controls. McCubbins et al.
(1987) suggest a tripartite division of governance tools for US administra-
tive agencies: monitoring, sanctions, and administrative procedures. I use
the simpler division of ex ante procedures and ex post monitoring because
sanctions and procedures overlap heavily in the governance of NOCs.
For more on the rules/monitoring division, see, e.g., Vining and Weimer

25 As of 2009, Petrobras was lobbying the Brazilian state for preferential
access to the country’s lucrative subsalt fields. See Chapter 12.

26 In the public bureaucracy setting, Nikansen (1971, 1975) argues that
bureaucrats in some contexts have greater influence on politicians than
politicians do over bureaucrats.

27 Moe (1984) points out some problems in modeling public bureaus as sin-
gle agents. Bureaucratic superiors face widespread problems in monitor-
ing bureaucratic performance because goals are opaque and wide-ranging.
Therefore, they cannot easily coax compliance from their inferiors. As a
consequence, principal–agent models premised on a single agent represen-
tation of a public bureau may not accurately reflect the behavior of that
bureau. I argue that this problem is less prevalent in an NOC because moni-
toring of a subordinate entity in an NOC is often quite feasible (in some
cases, approximating that of monitoring within a corporation). In particu-
lar, NOC heads often receive some reward for good performance – reputa-
tion, a share of profits (regardless of whether those profits are disclosed to
the state) – that induce bosses to effectively monitor their subordinates.
For this reason and reasons of economy, I omit further discussion of the
multiple agents within NOCs here.

28 State principals are in part stand-ins for different private interests (e.g.,
organized interest groups).

29 These institutional rigidities include state constitutional provisions limit-
ing NOC activities (as in Mexico; see Chapter 7) or entrenched corporate
cultures within the NOCs (as in Saudi Aramco; see Chapter 5).
NOC governance systems broadly mirror the systems for other SOEs, with some exceptions. Because NOCs compete with other companies, they are at least conceptually more amenable to benchmarking than SOEs operating in natural monopoly environments. On the other hand, the enormous rents generated from NOCs create temptations for closer administration than for other SOEs. And the large size of NOCs makes them particularly useful vehicles, relative to other SOEs, for regulating the economy.

State actors value profit generation to achieve various self-interested goals, including (money-bought) political power and/or personal enrichment. In corporate governance, profits serve a different function; private investor principals value them because of their effect on stock prices and, less commonly, dividends. In some civil law corporate governance systems, shareholder profit maximization may be inferior to broader stakeholder goals, like worker protection or support for strategic enterprises (Macey 2008).

Gibson (2001), among others, explores how corporate governance arrangements differ and function (the latter involving differing formal arrangements to achieve the same functional result). See also Moore and Stewart (1998) for a discussion of corporate governance norms for nongovernmental organizations.

This pattern holds for SOEs generally. SOEs in OECD countries are more commonly private liability companies, followed by joint stock companies (OECD 2005). Several decades ago, many public firms took the form of “trading departments” that were a part of the state, but that phenomenon has partly died out (Lane 2003). Still, a range of SOE legal structures exist (World Bank 2006).

See Khan (1985) for more discussion. NOCs in Spanish- and Portuguese-speaking countries are typically classified as “anonymous societies,” which is the equivalent of a limited company. NOCs in the English-speaking world are typically classified simply as corporations.

In this sense, NOC governance more closely resembles corporate governance of closely held corporations than the governance of publicly traded corporations. When reformers call for greater independence in an NOC board, they typically desire greater independence from the company and the state.

NOC corporate governance more closely follows the “control block” model prevalent in some parts of Asia and Europe (in which ownership is concentrated in a small number of stockholders) (Macey 2008). Note that a few NOCs have outside board members. The board of Norway’s Statoil has no direct state participation, although shareholders—in which Norway holds a controlling stake—elect twelve of the eighteen members of the board. (Statoil employees elect the other six members.) See Chapter 14. In Saudi Aramco, retired CEOs sit on the board (Marcel 2006; Chapter 5).

And in late 2008, Mexico passed a law establishing that four of the company’s fifteen directors are independent of the state, company, and union; see Chapter 7.

The dual powers of management and monitoring create some conflicts for boards of directors, both in common-law corporate governance (Macey 2008) and NOC governance. Civil law corporate governance, by contrast, often employs a dual governance structure separating managerial and monitoring roles.

See Marcel (2009) for more discussion.

Another common strain among most NOCs is that, like privately owned companies, they are often exposed to some level of private creditor discipline. Unlike private companies, however, NOCs may also benefit from issuance of public debt on their behalf.

Many NOCs probably benefited from state protection in the early years of their development.

Algeria also proposed opening up its hydrocarbons sector in 2005 but has since backed away from that policy. See Chapter 13.

The same lack of competition may occur for private companies operating in monopolistic or oligopolistic markets.

Partially fitting within the group is China, which allows private shareholder investment in an NOC subsidiary. For several of these NOCs, both private investors and government-linked institutions (pension funds, state-affiliated banks, etc.) own part of the company.

States also choose to place their NOCs on stock markets for reasons other than assessing capital market performance. These reasons include windfall gains from the sale of shares and increasing financial autonomy for the NOC.

See Christensen and Laegreid (2006) for more discussion.

One possible parallel is with socially conscious investors, who hold a broader range of company objectives. For a discussion of the effects of the socially minded investors on corporate governance, see Aguilera et al. (2006).

Rigid procedural rules are a hallmark of traditional public administration. Vining and Weimer (1990) provide a theoretical basis for why governments use complex sets rules to control public agencies. For more on the traditional public administration approach, see Caudén (1991), Hughes (1998), and Flynn (2002). Since the early 1980s, OECD countries have reformed many of their traditional practices to incorporate private sector approaches. These reforms, known as new public administration (NPM), involve organizational restructuring toward decentralized management; increasing use of market-like mechanisms; and increasing emphasis on performance (Batley and Larbi 2004).
48 Command-and-control regulations set specific standards for various actions.

49 A state may regulate, inter alia, to amass power, to umpire among competing factions, or to fulfill other goals. Scholars debate the extent to which regulation embodies public interest, private interest, or institutional concerns. For a review, see Morgan and Yeung (2007).

50 NOCs plan for expected hydrocarbons demand and may have an interest in regulating demand so that it better coordinates with their supply.

51 Research on the links between the variables chosen and particular governance indicators has found mixed results in other contexts. See Haggard et al. (2008) for a discussion in the context of the rule of law. For more on the lasting effect of institutional frameworks on state agencies, see, e.g., McCubbins et al. (1987).

52 The links between centralization of NOC governance, political regime, and economic development are complex. Unified NOC governance systems exist in both a wealthy democracy (Norway) and a middle-income semi-authoritarian state (Venezuela). Fragmented NOC governance systems exist in a middle-income, maturing democracy (Mexico) and a poor, fragile democracy (Nigeria).

53 The procedures and monitoring in NOC governance interact with political and economic institutions in complex ways. Procedure-heavy systems occur in a wealthy monarchy (Kuwait) and a poor, fragile democracy (Nigeria); there are monitoring-heavy systems in a wealthy democracy (Norway) and a maturing middle-income democracy (Brazil).

54 Formalized systems of NOC governance tend to occur more often in wealthy, democratic states. But this tendency has exceptions. There are informal systems in a wealthy democracy (Norway), poor democracy (India), and wealthy monarchy (Kuwait). There are also informal systems in a poor, fragile democracy (Nigeria) and middle-income semi-authoritarian state (Russia).

55 I do not claim a causal relationship between NOC governance and performance in Russia and Venezuela; merely note that significant changes in both governance and performance occurred.

56 Multiple principals resemble the political science concept of “veto points” in that each principal can check the power of other principals to carry out actions. Importantly, however, principals have the power to both veto and approve.

57 For further discussion of multiple principals within the US government, see, e.g., Whitford (2005).

58 For further discussion in the corporate context, see, e.g., Jensen (2000).

59 These problems are known in the SOE literature as complex agency chain (referring to the complications created by multiple levels of government influencing SOE governance) and common agency (referring to the different interests among principals within government) (World Bank 2006b).

60 One ex ante procedure is a prohibition of fringe benefits. The state may wish to prohibit fringe benefits out of concern they provide avenues for corruption.

61 One metric related to the rule of law is the number of veto points, as measured by, e.g., Henisz (2000) and Keeler (2002), which assesses the ability of actors within a political system to change the policy status quo. Andrews and Montinola (2004) find a positive relationship between rule of law and veto points in emerging democracies. I focus here on rule of law rather than on veto points for several reasons. First, my data sources, primarily case studies of individual NOCs, more frequently address adherence to the rule of law than the power of other institutions to reject those rules (a feature of veto points). Second, previous scholarship has found a positive relationship between corporate performance and rule of law (Johnson et al. 2000; La Porta et al. 2002; Lemmon and Lins 2003). Third, my sample includes many non-democracies. Andrews and Montinola (2004) suggest a relationship between veto points and the rule of law, but that finding is limited to emerging democracies.

62 For more discussion, see, e.g., Torke (2001); Licht et al. (2007); Benton (2009).

63 Li and Xia (2007) find that weak rule of law in China incentivizes private firms to avoid investments with long time horizons. Weak rule of law has less of an effect on SOEs because of agency problems and because their political masters may reward long-term investments.

64 I note that non-state actors – those lacking any direct authority within the state – may also play important roles. Unions, in particular, have proven influential in NOCs in Algeria, Mexico, and other states. I thank Valerie Marcel for raising this point.

65 In a number of states, specialized governmental bodies, such as Abu Dhabi’s Supreme Petroleum Council or China’s energy administration, effectively take the place of an energy ministry. (See Chapters 9 and 11.) NOC boards of directors may also fill this role. As discussed above, however, NOC boards often play superficial roles and do not have a significant mediating effect on governance.

66 “Energy ministry” includes ministries with different names but equivalent functions, e.g., oil ministries.
Note that some states, particularly democracies, have multiple principals exercising independent control over government generally but few such principals in the oil sector specifically. Institutional agreements among the principals delegate authority over to the oil sector to a small number of principals. My focus here is on the oil sector specifically.

In the 1980s, PDVSA became embroiled in a conflict with the Venezuelan legislature over the latter's power to review company actions affecting the national interest. See Chapter 10.

In countries where the national leader takes the lead in NOC governance, the oil ministry usually plays a supporting role.

Other state actors exert influence even in states in which energy ministries dominate NOC governance. For example, legislators in Brazil frequently hold hearings to investigate corruption within Petrobras. See Chapter 12.

In most cases, however, these incidents have little effect on the NOC.

Regulatory agencies here may engage in mission creep or, in less institutionalized regimes, be absent altogether.

A state's oil or energy minister is usually chair of an NOC's board of directors, but other ministers—particularly the finance minister—often have seats on the board, too. (In Mexico, the board has seats for five ministers in addition to the chief of the president's office. See Chapter 7.

I base my performance assessments on the individual case study conclusions in this volume. Because those assessments are broad, I group performance into three simple categories: low, moderate, and high.

Some states maintain the tradition of naming persons experienced in the oil industry (as in Venezuela before Chávez) and/or keeping leadership in its position for a predetermined tenure.

Saudi Aramco provides non-public benchmarking data to the state. See Chapter 5.

Note that the state may use these tools for various reasons; e.g., a state may allow an NOC to compete for minority private capital investment both to monitor the NOC's performance and to secure on-off gains from a sale of NOC shares.

See Macer (2008) for a discussion of how managers capture boards of directors in many corporate governance settings.

I refer to "rule of law" or "reliance on law-based mechanisms" in the procedural sense. States that follow the rule of law incorporate: 1) values of fair process (transparency, predictability, enforceability, stability); 2) capable institutions (independence, accountability); and 3) legitimacy. This list is derived from Trebilcock and Daniels (2008). I rely on a procedural notion of rule of law because it provides a simple basis for comparison across NOC governance systems. Other scholars advocate "thicker," substantive notions of the rule of law that incorporate, inter alia, various individual rights. See Trebilcock and Daniels (2008) for more discussion. My focus is specifically on the rule of law in NOC governance. Other scholars have assessed rule of law across countries generally (Kaufmann et al. 1999–2009), and those assessments are instructive for NOC governance. As discussed below, some states rely more on law-based mechanisms in NOC governance than they do generally, and other states rely less on those mechanisms.

The law does not always act as a check on the behavior of state actors. In countries with well-functioning legal systems, laws are followed because both civil society (which lobbies and files citizen suits) and the press act as checks against non-compliance with the law. For more, see Bell (2005).

I thank Valerie Marcel for suggesting this last category.

For discussion in the USSR and environmental contexts, see Schwarzmüller (1986) and Bell (2005), respectively.

For a discussion of legal formalism—particularly in developing countries—see Bell (2005).

Both active inference and political shielding may lead to greater rent collection. A state actor may appropriate rents from an NOC by directly interfering with its revenue disbursement. That same actor may also appropriate rents by constraining other actors and thereby secure greater rents for itself.

In line with the work of Karl (1997), it is possible that principals have greater incentives to interfere in NOCs because taxes levied on NOCs result in less political blowback than other taxation methods. This finding, however, depends on the political power of NOCs, the freedom of press in the country, and other factors.

For research in this vein, see Bueno de Mesquita et al. (2003) and Acemoglu and Johnson (2005).

This speculation is consistent with Haggard and Kaufmann's (1995) discussion of the role of strong executives (authoritarian or democratic) in initiating economic reforms in transition countries. For further discussion on the effect of strong executives, see, e.g., Hallerberg and Marié (2004).

In Venezuela, pre-Chávez PDVSA reduced political influence by developing a reputation for technocratic excellence and by investing a significant proportion of assets overseas—and thus outside the immediate ambit of the state. Venezuelan state actors, for their part, remained too weak to exert much influence. This situation changed radically when Chávez came into power and consolidated command over the company. See Chapter 10.

In 2008 and 2009, the Brazilian government became concerned that private investors would enjoy too many of the profits from Petrobras's discovery of lucrative offshore oil fields. See Chapter 12.
4 On the state’s choice of oil company: risk management and the frontier of the petroleum industry

PETER A. NOLAN AND MARK C. THURBER

1 Introduction

The record of events that describe the petroleum industry (Yergin 1991; Parra 2004) and the analysis of these events (Jacoby 1974; Kobrin 1984b; Adelman 1995) provide a context from which to draw observations about the drivers and evolution of the structure of the industry. Private operating companies are seen to have been employed in the great majority of instances for the exploration and early development of a new “frontier” petroleum province, yet governments have often revisited those choices in favor of nationalization and the transfer of petroleum assets to a state operating company. Most notably, in the early 1970s, nationalizations in a host of countries, including all of the major developing world oil producers, left three-quarters of the world’s oil reserves in the hands of state-owned companies. Control of a major part of the oil industry—decisions on oil price, production, and investment in reserves replacement—passed from private enterprise to a small group of producer countries.

Conventional wisdom holds that nationalizations are rooted in political motives of the petroleum states, which perceive value in the direct control of resource development though a state enterprise. State motives are inarguably important and are considered in detail throughout this book, including in the introductory and concluding chapters, in Chapter 2 by Chris Warshaw on drivers of states’ expropriation and privatization behavior, and in all of the individual NOC case studies. At the same time, the argument presented in this chapter is that this motive to nationalize, whatever its cause, is in fact severely constrained by both the significant risks associated with the creation of petroleum reserves and the capacity of the petroleum state to take these risks.

We argue that constraints of risk significantly affect a state’s choice of which agent to employ to find, develop, and produce its