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Resource Security: Competition for Global Resources, Strategic Intent, and Governments as Owners

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Resource Security: Competition for Global Resources, Strategic Intent, and Governments

as Owners

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Resource Security: Competition for Global Resources, Strategic Intent, and Governments as Owners

ABSTRACT

We develop a resource security perspective by examining the resources that multinational firms acquire when investing abroad. Firms can acquire resources to increase power and decrease dependence for long-term security (exploration) or acquire resources for relatively shorter-term gains and consumption (exploitation). We find state owned enterprises (SOEs) acquire resources for exploration, and pay more for these resources than non-state owned enterprises (NSOEs). We contribute to the literature by suggesting that long-term resource security is of immediate importance to SOEs and their home countries, that ownership influences resource acquisitions, and investments can be a safeguard for the SOE's home country's future.

Keywords: energy, oil and gas, resource dependence theory, securing natural resources, state owned enterprises

Resource Security: Competition for Global Resources, Strategic Intent, and Governments as Owners

INTRODUCTION

State owned enterprises (SOEs) have an increasing presence in global markets and are more powerful than ever (Büge, Egeland, Kowalski, & Sztajerowska, 2013; Marcel, 2006). This is especially true in "strategic industries" or industries specific to the extraction or treatment of natural resources, particularly energy (Kowalski, Büge, Sztajerowska, & Egeland, 2013; Marcel, 2006). In these and other industries, SOEs are competing head-to-head with other SOEs as well as non-state owned enterprises (NSOEs)—and are proving to be fierce competitors. For example, in the global petroleum industry, SOEs control an estimated 90% of the world's oil and gas reserves and are responsible for approximately 75% of the world's oil and gas reserves production (Tordo, Tracy, & Arfaa, 2011). With stable financial backing from their home country governments, SOEs are rising national champions that compete for more than just wealth maximization. SOEs are also concerned with "wealth re-distribution, jobs creation, general economic development, [and] economic and energy security" (Pirog, 2007: 1). SOEs, operating as foreign-policy instruments of their government owners, compete to enhance long-term viability, geopolitical position, and power of the home country government. Thus, the strategic activities in which SOEs engage must satisfy both business intent through wealth maximization and political intent through geopolitical position and power of the home country government (Cuervo-Cazurra & Dau, 2009; Zif, 1981, 1983).

How SOEs acquire resources, especially valuable, natural resources, is of immense importance to their home governments (Chang, 2007). For SOEs, natural resources are important because they can boost economic and national security while raising geopolitical power of the home country. Using Resource Dependence Theory (RDT), firms with access to and equity ownership in the most natural resources have less of a need, and therefore less dependence, on other firms (and counties) for these resources (Pfeffer & Salancik, 1978; Wry, Cobb, & Aldrich, 2013). The desire of SOEs for reduced dependence on other firms

and countries for natural resources is apparent across industries focused on natural resources—SOEs have a 34% share in the extraction of crude petroleum and natural gas sector, a 35% share in the mining of coal and lignite sector, and a 40% share in the land transport and transport via pipelines sector (Kowalski et al., 2013). The strong presence of SOEs across these sectors indicates that SOEs are increasing their presence (and power) (Büge et al., 2013). However, a more nuanced approach to why these SOEs have strong presence in these industries, and their strategic activities, remain in question. As such, is it more important for SOEs to invest in these resources for the long-term to secure future access to them (resource security), or do SOEs need these resources for short-term security just to be exploited for consumption?

To address this question, we utilize the exploration vs. exploitation framework (He & Wong, 2004; Levinthal & March, 1993; March, 1991; Uotila, Maula, Keil, & Zahra, 2009). Although this framework is traditionally used to better understand knowledge management, innovation, organizational design, and strategic alliances, much can be gained from extending this framework's application to other arenas (Lavie, Stettner, & Tushman, 2010). For example, Voss et al (2008: 147) generalize the exploration vs. exploitation framework to examine product repertoire in nonprofit theaters. In doing so, they broadly suggest that there is a "higher level of risk inherent in exploratory activities, which require significant investments with uncertain payoffs (Gupta, Smith, & Shalley, 2006). Exploitation creates value through existing or minimally modified competencies that sustain longterm viability following successful exploration" (citation in original). In this paper we utilize this logic underlying the exploration vs. exploitation framework to examine the broad strategic emphasis of multinational firms (Siggelkow & Levinthal, 2003; Voss et al., 2008) and argue that these two strategic activities are instrumental in dictating how multinationals acquire resources. By integrating the exploration vs. exploitation framework with RDT, we offer that multinationals can either search or discover these resources to increase power and decrease dependence for long-term security (exploration) or produce and refine these resources for relatively shorter-term security and consumption (exploitation) (Gaille, 2010; Karev, 2013).

Because SOEs attend to both business and political intents, they are more concerned with resource security through exploration of resources than resource consumption by virtue of exploitation of resources.

This is because once discovered through exploration activities, the SOE can hold the resources in reserve to satisfy future demand of their home country. More importantly, however, by having access to these resources, the SOE has increased its geopolitical position and power by decreasing its future dependence on other firms and countries for these same resources (Gaille, 2010). Conversely, SOEs are less concerned with exploiting resources for consumption because once consumed, the resource, and its strategic benefits including power, geopolitical position, and economic gains, are also depleted. Our primary arguments are: (1) multinationals with a greater extent of state ownership are more likely to acquire resources for exploration to enhance resource security, (2) multinationals with a greater extent of state ownership pay more for resources for exploration because resource security is important to them, and (3) the target country's resource-richness and the multinational's experience in the target country influence the above-mentioned relationships because they both provide more abundant opportunities for the multinational to enhance resource security. In addition, we suggest that heterogeneity exists among SOEs such that SOEs with more exploration experience are more likely to acquire resources for exploration.

To examine these relationships, we use the global upstream petroleum industry as the setting for our study. This industry is appropriate because, in the words of French industrialist and Senator, Henri Berenger, "he who owns the oil will own the world." This statement echoes the sentiment that firms (and countries) with access to valuable resources, such as oil, have the most power and least dependence on other firms (and countries) for these resources. This is because petroleum (oil) is one of the world's most important energy resources (US Department of Energy, 2012), needed across the world in developed and especially developing economies (BP, 2012; CIA Factbook, 2010). Yet, for firms operating in this industry, gaining access to petroleum resources is difficult for several reasons. First, competition for these non-renewable resources is increasing as demand increases (EIA, 2012a). Second, petroleum resources are unevenly dispersed across the globe, which requires many firms to operate as multinationals. Third, the industry is a complex web of numerous players ranging from governments and state owned enterprises (also termed National Oil Companies, NOCs) to non-state owned publicly-traded and privately-held firms. Despite this, firms in this industry acquire petroleum resources through exploration or exploitation

activities. Exploration (search for availability of petroleum) and exploitation (petroleum production) are both necessary activities in the petroleum industry, and activities in which firms can choose to engage in either or both.

Our study offers several implications for theory. First, we examine how multinationals with state ownership pursue resource security through the resources they acquire. Our findings illustrate that the strategic emphasis of SOEs is to acquire resources for exploration. For some multinationals, resources that secure the firm's (or home country's) future are worth more than those resources that can be exploited for consumption to provide relatively short-term gains. These multinational secure resources to decrease their resource dependence (thus ensuring their resource independence) in the future. Second, we highlight how ownership differences influence the attitudes of multinationals toward reducing resource dependence and increasing geopolitical power with the objective of achieving greater resource security. State ownership typically orients firms to secure resources in a way that will ensure resource independence and geopolitical power for the home country in the future. Third, we explain why multinationals investing abroad to acquire resources can be beneficial for the home country. At surface-level, an investment abroad by a multinational appears as an investment lost at home. However, we suggest that while the investment outflow might be perceived as a short-term loss for the home country, the investment abroad can help the SOE acquire resources to secure the country's future. In sum, SOEs are under pressure to build economic value outside the home country to secure its future. This pressure to align their priorities with that of home country drives SOEs to adopt a multi-polar view of resource acquisition.

RESOURCE DEPENDENCE AND RESOURCE SECURITY

Resource Dependence Theory (RDT) is traditionally used to investigate why and how firms operating in the same environment vie for external resources from a finite resource pool. Firms with the most resources have the most power and the least dependence on other firms, and firms with the least resources and power have the most dependence on other firms (Pfeffer & Salancik, 1978). External resources are created or exist outside the boundaries of the firm, can be located in a multitude of geographic locations, and therefore may be dispersed unevenly. Operating across borders to gain access to external

resources exposes multinationals to layers of complexity beyond those experienced by domestic firms (Crilly, 2011; Wry et al., 2013). Multinationals, like domestic firms, are concerned with obtaining the rights to, or acquiring, resources from the external environment. However, unlike domestic firms, multinationals are also concerned with gaining access to locations in which these resources exist (Luo, 2003).

A "recent renaissance of resource dependence" (Katila, Rosenberger, & Eisenhardt, 2008): p. 321) stems from theoretically engaging in the theory's core insights (Casciaro & Piskorski, 2005; Katila et al., 2008))—differences in intents among firms contribute to differential access to external resources and power (Wry et al., 2013). In this study, we specifically examine how owners influence the intents of multinationals, which undergird resource acquisitions and related firm activities. Owners provide the necessary support, including capital, to facilitate a multinational firm's activities directed toward acquiring externally available resources. During these activities, the intent of the firm should align with the directions provided by the owners (Demsetz, 1983; Wry et al., 2013). The owner can dictate the intent of the firm, and subsequently influence how and where the firm competes to acquire resources.

Once resources are acquired, they can be secured through exploration, or made for consumption through exploitation activities. In its traditional flavor, the exploration vs. exploitation framework (March, 1991) is used to describe activities related to the development of knowledge resources where exploration is associated with long-term benefits and exploitation with short-term (He & Wong, 2004; March, 1991; Uotila et al., 2009). As applied to knowledge, Levinthal and March (1993: 105) suggest exploration is "a pursuit of new knowledge," and exploitation is "the use and development of things already known." The exploration vs. exploitation framework suggests that firms search, discover, or experiment to explore for (internal) knowledge resources (exploration) or produce, refine, and execute to exploit (internal) knowledge resources (exploitation) (March, 1991). However, exploration or exploitation activities can be for resources other than knowledge (Lavie et al., 2010). Adopting this broad description, exploration is a pursuit of new resources that are not known to exist and exploitation is the production of resources already known to exist (Vermeulen & Barkema, 2001).

Using insights from RDT, we develop a resource security perspective by examining how firms secure resources across the world through exploration or exploitation activities. We suggest that firms can either search or discover external resources to increase power and decrease dependence for long-term security (exploration) or produce and refine external resources for relatively shorter-term security through consumption (exploitation). Conventionally, RDT argues for increasing power by reducing dependency. However, it is largely silent on the intent with which firms acquire and secure resources. More specifically, it does not indicate whether resources are secured with the intent of consumption or as a safeguard for the future. We attempt to fill this theoretical gap by developing a resource security perspective. We suggest that firms view resource security differently, and pursue resource security differently. On the one hand, firms strategizing for the short-term acquire resources to satisfy short-term needs, such as consumption, and do so through exploitation activities. On the other hand, firms strategizing for the long-term acquire resources to achieve resource security by converting their current resource dependence (i.e., dependence on external/foreign entities that hold the resources) into future resource independence through exploration activities.

STATE OWNED VERSUS NON-STATE OWNED ENTERPRISES

To develop a resource security perspective, we highlight the relevance of multinational SOEs and their strategies in the international business landscape. SOEs operate under an economic logic of state capitalism in which both political and business goals dominate where and how these firms compete (Cuervo-Cazurra & Dau, 2009; Zif, 1981). Contrastingly, NSOEs operate under the logic of market capitalism, and operate solely with business intent. Business intent requires both SOEs and NSOEs to attend to market incentives, including pursuit of wealth maximization. However, SOEs and NSOEs pursue wealth for differing purposes. NSOEs pursue wealth for maximization of shareholder value (Gaille, 2010; Sundaram & Inkpen, 2004). Thus, NSOEs must focus on short-term profitability and return on investment for shareholders. Rather than fulfill demands of shareholders, SOEs maximize wealth so that it can be redistributed in the home country to create jobs and fund economic development (Pirog, 2007). Thus, SOEs compete to ensure long-term viability and profitability for themselves and their home country governments.

In addition to business intent, SOEs also operate with a political intent (Zif, 1981). Political intent requires SOEs to operate in a way that supports general economic development and energy security (Pirog, 2007). As such, SOEs are subject to political demands projected by their government owners (Gaille, 2010). This may require the SOE to be sensitive to political interests and public accountability (Mascarenhas, 1989; Ramaswamy, Li, & Veliyath, 2002). SOEs are also concerned with goals of government owners in terms of ensuring energy security in the present and the future, as well as attaining foreign and strategic policy goals for the government owner (Gaille, 2010). Thus, many SOEs operate to support the state and enhance the government's geopolitical position and the home country's power (Bradshaw, 2009; Bremmer, 2009; Luo & Tung, 2007).

In addition to differences in intents, SOEs and NSOEs also differ in access to financial capital and efficiency considerations, both of which influence the activities they choose to pursue. Many SOEs have state owners with relatively strong capital backing (Katusa, 2012) and can gain financial resources through loan guarantees from their state owners (governments) (Dewenter & Malatesta, 2001; Lioukas, Bourantas, & Papadakis, 1993). This makes capital intensive projects and industries more accessible (Lin, Cai, & Li, 1998). Further, SOEs are often less efficient than their NSOE counterparts, This creates more difficulties for SOEs to create positive returns from projects and operations requiring efficiency (Bremmer, 2009; Gaille, 2010; Lin et al., 1998; Wurgler, 2000). Avoiding activities that require efficient operation safeguards the SOE against marginal returns and wealth depletion—both of which threaten the business intent of the SOE.

Competition between State Owned and Non-State Owned Enterprises for Resources

State ownership influences likelihood of acquiring resources for exploration. We suggest that SOEs are more likely to acquire resources for exploration (resource security) than exploitation (resource consumption). SOEs need to satisfy the political intents of their home country governments, which are generally concerned with long-term viability (Katusa, 2012; Musacchio & Flores-Macias, 2009; Musacchio & Sergio G. Lazzarini, in press). Exploration activities are associated with long-term returns (He & Wong, 2004; Uotila et al., 2009; Voss et al., 2008), and thus may better support resource security

for SOEs and their home countries. The notion that exploration efforts are directed toward long-term, rather than short-term, goals is supported by a statement made by an executive of ARC Financial, a capital venture firm, in reference to firm investments in resources for exploration: "A dollar spent today is typically felt five-to-10 years hence."

Given this directed focus among SOEs on the future, resources that enhance the home country's long-term viability through future power by way of decreased dependence {Emerson, 1962} and geopolitical position are of high priority. Considering that exploitation follows exploration (Lavie et al., 2010; Voss et al., 2008), exploration of resources now provides potential to exploit resources in the future. That is, resources can be secured now through exploration efforts to be exploited in the future for consumption. Exploration of resources provides SOEs the flexibility to wait to exploit the resources until they are needed (i.e. when they are needed to satisfy home country demand) (Kaplowitz, 2004). Thus, exploration of resources now positions SOEs to be less dependent on firms and countries for resources in the future, enhancing the future geopolitical position of the SOE and its home country government. As suggested by the Chief Operating Officer of a Canadian international oil company (IOC), "[SOEs] place more importance on strategic benefits, in particular, security of national energy supply for the future." These strategic benefits of decreased dependence and enhanced geopolitical position lean SOEs toward exploration of resources to further satisfy their political intents.

Additionally, SOEs tend to be more inefficient and technologically weaker than their NSOE counterparts (Gaille, 2010; Mascarenhas, 1989; Musacchio & Flores-Macias, 2009). For SOEs to satisfy their business intent of maximizing wealth, the resources acquired must not require efficient operations to create value. Resources for exploration do not require the same technical skills and expertise (focused on search and discovery) that are required for exploitation (focused on production and efficiency) (Lavie et al., 2010; Levinthal & March, 1993; March, 1991). For SOEs, acquiring resources for exploitation only exposes the technological weakness and inefficiencies of the firm, which jeopardizes the potential to satisfy the SOE's business intent. For these reasons, we suggest that the extent of state ownership increases the likelihood of acquiring resources for exploration.

Hypothesis 1. Multinationals with greater state ownership are more likely to acquire resources for exploration and less likely to acquire resources for exploitation.

State ownership influences price paid for resources for exploration. Multinationals pay differential amounts for the same resources based on the firm's valuation as well as the market value of the resource (McAfee & McMillan, 1987). A firm's valuation of a resource is determined by multiple attributes (Chen, Liaw, & Leung, 2003), such as the firm's experience in the geographic area, the firm's technical competence, the firm's experience with similar deals of similar resources, etc. Market value of the resource is determined mainly by supply and demand (McAfee & McMillan, 1987). Thus, in global markets, market value is relatively equivalent across countries, and subsequently, for all multinationals. Therefore, firm valuation is a more significant driver of differentials in prices paid for resource acquisitions than market value.

SOEs place greater value on acquiring resources for exploration for two reasons. First, they do not require efficiency and technical competence (which many SOEs lack and many NSOEs have expertise in) (Gaille, 2010; Zif, 1981). Resources for exploitation expose this technical inferiority of SOEs, and threaten the business intent of wealth maximization for these firms. Second, exploration of resources is a way for the SOE to ensure it has access to resources that can potentially satisfy future demand. Paying more for such resources benefits the SOE because exploration of resources helps secure the future of the SOE's home country in terms of national security and geopolitical position (Klein & Robinson, 2011). As stated by an executive of a private oil and gas firm in reference to investments in exploration of resources, "[SOEs] ascribe a premium to the value…above and beyond the risked economic potential of the investment as seen by [NSOEs]." Finally, SOEs tend to be highly-funded, with access to low-cost capital provided from the stable backing of their host governments (Katusa, 2012). Thus, access to financial resources to pay a premium for exploration of resources is less of a concern for SOEs. This sentiment is echoed in a statement from an executive of a Chinese SOE with reference to investments in exploration of resources: "most [SOEs] have significant ability to purchase and fund development…They also invest for the long term, and are not as concerned about current quarter profit reporting, as public companies are. " Thus, we argue that,

compared to NSOEs, SOEs place higher value on exploration of resources and are willing to pay a premium for the same.

Hypothesis 2. Multinationals with greater state ownership pay higher prices for acquiring resources for exploration and lower prices for resources for exploitation.

Moderators: Target Country's Resource-Richness and Target Country-Specific Experience

Moderators of the influence of state ownership on likelihood of acquiring resources for exploration. Geographic location can influence environmental complexity, access to resources (Amburgey & Rao., 1996; Wry et al., 2013), and subsequently the resource acquisition behaviors of multinationals. Because SOEs are more likely to acquire resources for exploration, they may look to regions that are resource-rich and in which they have previous experience. Resource-rich countries have higher resource potential (Almeida & Phene, 2004). That is, these countries have more resources that are currently being exploited and/or can be explored for. In a practical sense, these countries have what SOEs want—resources that can be explored for now and exploited in the future. Resource-richness is even more important to SOEs because of the strategic benefits gleaned from exploration of resources in such countries. For SOEs, satisfying business and political intents concurrently is of high priority. Like NSOEs, targeting resource-rich countries provides the firm (SOE or NSOE) with the opportunity to explore for resources that can satisfy the business intent of wealth maximization. However, unlike NSOEs, SOEs also satisfy political intent when targeting resource-rich countries. In doing so, the SOE gains a foothold in countries that can enhance the SOE's geopolitical position and decrease its dependence on other firms and countries for resources.

Further, target country-specific experience indicates the SOE's knowledge and familiarity with the country. The SOE is more willing to acquire resources in countries in which it has experience. The SOE is more familiar with the country and has location-specific knowledge about the country's resources. Thus, in making the decision to acquire the resources, SOEs may be more likely to acquire resources for exploration, especially in countries that are resource-rich and in which they have more exploration experience.

Hypothesis 3a. Multinationals with greater state ownership are much more likely to acquire resources for exploration when the target country's resource-richness is high.

Hypothesis 3b. Multinationals with greater state ownership are much more likely to acquire resources for exploration when the multinational's target country-specific experience is high.

Moderators of the influence of state ownership on price paid for resources for exploration. Extending the above argument to prices paid, we suggest that SOEs pay much higher prices for resources for exploration when the target country is resource-rich or when the SOE has more target country-specific experience. Resource-rich countries offer a highly desirable commodity not only to SOEs, but also to those multinationals interested in gaining access to resources for exploration. As such, SOEs want to penetrate these resource-rich countries and gain access to these resources to protect the energy security and geopolitical position of their home governments. Paying more for resources for exploration in resource-rich countries could be worthwhile for at least two reasons. First, SOEs have the option to develop the resources in the future at any time of their choosing, perhaps whenever their home country needs the resources the most. Second, SOEs have the option of selling the undeveloped resources to other firms who are eager to exploit the resources. The potential to exploit resources in the future or sell the resources to others ensures the long-term viability of the SOE. Similarly, an SOE may place more value on resources in countries in which it has more experience. In these locations, the SOE has more familiarity with the country and location-specific knowledge about the country's resources. This familiarity further enhances the SOE's ability to satisfy political intent of enhanced geopolitical position and power and business intent of wealth maximization. In sum, we suggest that SOEs pay much higher prices for resources for exploration both when the target country is resource-rich and when the firm's target country-specific experience is high.

Hypothesis 4a. Multinationals with greater state ownership pay much higher prices for resources for exploration when the target country's resource-richness is high.

Hypothesis 4b. Multinationals with greater state ownership pay much higher prices for resources for exploration when the target country-specific experience of the multinationals is high.

HETEROGENEITY AMONG STATE OWNED ENTERPRISES

Not all SOEs operate in the same way. As noted earlier, ownership influences the intent and subsequent activities of the firm. That is, to the extent that the state owns the SOE, the SOE operates with

an intent that more or less reflects the national agenda of the state. Hence, differing business and political intents exist among SOEs (Zif, 1981). For instance, when the SOE adopts a more political orientation, it must satisfy the interests of the public including "the public-at-large, political representatives (parties, government agencies, etc.) and special interest groups (labor unions, trade organizations, etc.)," (Zif, 1981: p. 1328).

In previous sections, our focus was on comparing SOEs to NSOEs. We hypothesized that SOEs are more likely than NSOEs to acquire resources for exploration and pay higher prices for the same. This is not to say that SOEs always acquire resources for exploration and never acquire resources for exploitation. We focused on differentiating between SOEs and NSOEs in terms of their long- or short-term resource security concerns; nonetheless, there is heterogeneity among SOEs in terms of the resources they choose to acquire.

Heterogeneity in the Ratio of Exploration to Exploitation Experience among SOEs

Although there are differences in competencies between SOEs and NSOEs (Gaille, 2010), differences in competencies also exist among SOEs. As indicated above, SOEs tend to be less efficient and technologically competent than their NSOE counterparts (Gaille, 2010; Mascarenhas, 1989). However, even among SOEs, some are more efficient than others. That is, some SOEs have more technological competence and operate more efficiently (Karev, 2013). Among SOEs, those that have developed greater technological competence over time in exploitation (i.e. developed skills in production efficiency) are more willing to acquire resources for exploitation than those SOEs without these skills. SOEs without these skills can afford to secure the resources through exploration. The significance of the development of exploitation skills (in addition to exploration skills) is that these SOEs operate less like their other SOE counterparts (that are more likely to acquire resources for exploration) and more like their NSOE counterparts (that are more likely to acquire resources for exploitation) or a hybrid form of SOE that is equally competent in both exploration and exploitation. Thus, we suggest that SOEs that have developed more exploitation experience create a unique form of SOE that retains its focus on both political and business intents (Zif, 1981, 1983) but operates more like an NSOE in terms of acquiring resources for exploitation. These SOEs are aware

that "technology and technical expertise are major factors shaping resource policies" and as such, will be "increasingly encouraged to play quasi-governmental roles, but must balance these requirements with market expectations" (Karev, 2013: 17).

Among SOEs, the valuation of the price paid for resources can differ (Chen et al., 2003). The valuation is derived from various attributes, which can include the firm's past experience with similar deals for similar resources. SOEs that have participated in more exploration activities in the past have more confidence in the benefits of exploration and are willing to pay higher prices and outbid others (especially other SOEs) for exploration opportunities. In contrast, SOEs that have participated in fewer exploration deals in the past are either inexperienced in these types of deals or possibly have a stronger business intent and short-term outlook that favors relatively short-term benefits from exploitation of resources for consumption. As such, their valuation of resources that require exploration prior to exploitation is lower. To secure the benefits of exploitation, these SOEs are willing to pay higher prices to acquire resources for exploitation. This is because these SOEs place a higher valuation of resources for exploitation based on previous experience and success and need to satisfy business intent through relatively short-term gains from exploitation. Thus, we believe that there is heterogeneity among SOEs in the ratio of their exploration to exploitation experience, and we hypothesize that this ratio influences the prices they pay for the resources.

Hypothesis 5a. Among state owned multinationals, those with higher ratio of exploration to exploitation experience pay higher prices for resources for exploration.

Hypothesis 5b. Among state owned multinationals, those with lower ratio of exploration to exploitation experience pay higher prices for resources for exploitation.

METHODS

While SOEs are present in a wide variety of industries such as service industries (e.g., banking, construction, transportation, etc.), manufacturing industries (e.g., telecommunication, automobile, etc.), and utility industries (e.g., hydro, thermal, or nuclear power generation), a critical focus area of governments and their SOEs has been on the natural-resource based industries (Büge et al., 2013). Natural-resource based industries include metallic minerals (e.g., iron, copper, bauxite, etc.), non-metallic minerals (limestone,

quartz, gemstones, etc.), and hydrocarbons (e.g., methane, coal, and petroleum). Among the natural-resource based industries, the petroleum (i.e. oil and gas) industry has gained special attention of governments because the world economy has become heavily dependent on petroleum and consumption for these resources in on the rise (Karev, 2013). Securing petroleum resources across the world to safeguard the country's future has become a national priority for many countries (Gaille, 2010; Karev, 2013).

The setting for this study is the upstream sector of the petroleum industry. The upstream sector of the petroleum industry is an appropriate setting for this study because the multinational enterprises in this industry sector actively attempt to acquire resources around the world. With regard to ownership types, the industry includes SOEs as well as privately-held and publicly-traded NSOEs. SOEs play a major role in this industry (Tordo et al., 2011). A more detailed introduction to the petroleum industry is provided in the Appendix.

Data and Procedure

Our data consists of market-based transactions for petroleum resources by multinational enterprises (both SOEs and NSOEs) across the world. We compiled the data from various sources such as company websites, annual reports, trade journals, finance portals, industry lists, trade publications, and petroleum industry sources that track petroleum transactions(Derrick Petroleum, 2012; PLS, 2012). We focused on the period 2005 to 2012. Though thousands of transactions were announced during this period, a constraint we faced is that limited or no data were publicly-available for a large majority of the transactions. Hence, we put substantial efforts into identifying transactions with as much non-missing data as possible for the variables of interest. Further, while thousands of transactions were announced during the period 2005 to 2012, only a fraction were cross-border (i.e. transactions where the resource was located in a country that was foreign to either the acquirer firm, seller firm, or both firms). Hence, we focused our data collection efforts on multinational enterprises involved in such transactions. We were able to collect data on 404 transactions involving SOEs and NSOEs acquiring petroleum resources across the world. Some of our regressions (in the results section) use this entire sample size of 404 market-based transactions while other regressions use slightly reduced sample sizes because of missing data in some of the variables in interest.

The characteristics of the sample are provided in Table 1. The transaction value, that is the purchase price, is USD 787 million on average. The sample consisted of transactions for acquiring resources for exploitation (34.9%) and exploration (28.7%). Fifty-eight percent of the transactions in our sample had a SOE as an acquirer or seller of resources. We highlight the involvement of SOEs in our sample in Figure 1, which illustrates a few examples from our sample (of national governments, their SOEs, and their target countries).

Insert Table 1 about here

Insert Figure 1 about here

Measures of Dependent Variables

Exploration and exploitation are such essential behaviors for firms operating in the petroleum industry that they are a part of the industry's standard nomenclature (Gaille, 2010; PLS, 2012; SPE, 2007, 2012). Our binary measures for firms acquiring resources for exploration versus exploitation and our continuous measures for the prices paid are described below. The data for these dependent variables are from one of the years between 2005 and 2012 (whenever the event, i.e., transaction announcement, occurred).

Acquiring resources for exploration. This dependent variable is measured as a binary variable. It has a value of 1 if the transaction type clearly indicates resources for exploration. These are transactions of undeveloped resources, or resources that are "expected to be recovered through future investments" (SPE, 2007: 27). These transactions of undeveloped resources are classified as exploration of resources for the first time (new exploration awards), resources that have been awarded but no exploration activity has occurred (exploration blocks previously awarded), or exploration of petroleum resources in areas where discoveries have previously been made, but have not been developed and put into production (discoveries

not yet under development) (PLS, 2012). It has a value of 0 for all other transaction types, such as those indicating exploitation or those that do not clearly fall in the category of either exploration or exploitation (e.g., mix of various asset types, corporate M&A, or fields under development).

When a firm acquires petroleum resources for exploration, it cannot immediately start generating returns from the resources. This is because the resources (i.e., fields) cannot be exploited (production-related activities) until they have initially been explored (exploration-related activities) and successfully developed into producible fields. Hence, the main benefit of acquiring resources for exploration is that it provides the firm with a long-term reserve of unexploited resources that could be used in the future (SPE, 2007).

Price paid for acquiring resources for exploration. We use two proxies to measure the price paid to acquire resources for exploration: (i) value of undeveloped acres purchased, and (ii) deal value per unit acre for exploration (PLS, 2012; SPE, 2012).

First, the *value of undeveloped acres purchased* is measured as the dollar value of the undeveloped portion of the acreage acquired by the multinational. The net undeveloped acreage, in acres, refers to the lease acreage on which wells have not been completed to a point of testing or allowing production (SPE, 2012). The dollar value of this acreage, as evaluated by the firm and auditors, provides the measure of the price paid to acquire resources for exploration (Crawford, 1970; Lin, Peng, Yang, & Sun, 2009).

Second, the *price per unit acre for exploration* is measured as the total purchase price (amount in $) divided by portion of acreage available for exploration. This measure incorporates how much was paid in total for the deal (in $) as the numerator, divided by the amount of area (in acres) that can be used for exploration. The ratio, in dollars per acre, is used as another measure of the price paid to acquire resources for exploration (PLS, 2012).

Acquiring resources for exploitation. This dependent variable is measured as a binary variable. It has a value of 1 if the transaction type clearly indicates resources for exploitation. These are transactions of developed resources, or resources of "expected quantities to be recovered from existing wells and facilities."(SPE, 2007: 27). These transactions of developed resources are classified as operation of fields

in geographic areas where petroleum resources have been found and are currently in production (producing fields), or in geographic areas that were once producing, but operation of these fields has previously ceased and has since been revitalized (redevelopment fields) (PLS, 2012). It has a value of 0 for all other transaction types, such as those indicating exploration or those that do not clearly fall in the category of either exploration of exploitation. Once a firm acquires petroleum resources for exploitation, it can generate returns from the resources through production (Gaille, 2010; He & Wong, 2004).

Price paid for acquiring resources for exploitation. We use two proxies to measure the price paid to acquire resources for exploitation: (i) transaction premium for proved and probable reserves, and (ii) transaction value per unit of production (PLS, 2012; SPE, 2012).

First, the *premium paid for proved and probable reserves* is measured as a ratio minus the average of that ratio for all transactions made that year. Specifically, it is the [purchase price in $ / sum of proved and probable reserves in barrels of oil equivalent] for the focal transaction minus the average of the [purchase price in $ / sum of proved and probable reserves in barrels of oil equivalent] for all petroleum transactions that were made that year around the world by various parties. This difference reflects the extent to which the firm paid a premium (difference is a positive value) or a discount (difference is a negative value). The denominator of the ratio, proved and probable reserves, is calculated as the net reserves expected to accrue to the firm after the host government takes its share under a production sharing agreement/contract (PLS, 2012). Technically, "proved reserves are those quantities of petroleum, which by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be commercially recoverable, from a given date forward, from known reservoirs and under defined economic conditions, operating methods, and government regulations," (SPE, 2007: p. 28).

Second, the *price per unit of production* is measured as the purchase price (amount in $) divided by the daily production (i.e., daily extraction, in barrels of oil equivalent) from the purchased asset. This measure incorporates how much was paid in total (in $) as the numerator, divided by the volume of actual crude petroleum (oil and natural gas) extraction each day. The denominator refers to the net production

expected to accrue to the firm after the host government takes its share under a production sharing agreement/contract (PLS, 2012).

Measures of Independent Variables

We lag the independent variables behind the dependent variables to indicate the longitudinal direction of the influence being tested. While the data for the dependent variables are from one of the years between 2005 and 2012, the corresponding data for independent variables 'extent of state ownership' and 'target country's resource-richness' are from the years 2002 to 2009. Results of regressions are similar when alternative lag periods (such as one, two, or four years) are used. The data for independent variables 'firm's target country-specific experience' and 'firm's ratio of exploration to exploitation experience' are from the five years preceding the date of the focal purchase transaction.

Extent of state ownership. This is measured as the percentage of equity shares of the multinational that is owned by the national government of the multinational's home country.

Target country's resource-richness. The target country's resource-richness is measured, in dollars, as the ratio of the value of the stock of energy resources to the remaining reserve lifetime. It covers coal, crude oil, and natural gas. It is equivalent to the product of unit resource rents and the physical quantities of energy extraction in the country. Data are obtained from the World Bank, which collects the data from various sources such as the OECD, British Petroleum, IEA, International Petroleum Encyclopedia, UN, and national sources (World Bank, 2011).

Firm's target country-specific experience. A multinational firm's target country-specific experience is measured in terms of frequency of past involvement in the target country. That is, the number of purchase transactions in the target country during the five years preceding the date of the focal purchase transaction.

Firm's ratio of exploration to exploitation experience. This ratio is measured in terms of relative frequency of past involvement in exploration versus exploitation across the world. It is calculated as the number of purchases of resources for exploration divided by the number of purchases of resources for exploitation during the five years preceding the date of the focal transaction.

Measures of Control Variables

Dummy variables for year of transaction. Dummy variables are created to control for the year in which the transaction was announced. The relevant period in our sample ranges from 2005 to 2012. This period has been a turbulent time for the global economy, with earlier years being mostly favorable for the global economy and later years being mostly unfavorable.

Dummy variables for region where resource is located. Dummy variables are created to control for ten global regions where the resource (field, well, etc.) being acquired is located. The ten global regions are listed in Table 1. By including dummy variables for the regions, we attempt to control for numerous extraneous factors (e.g., political and civic unrest, infrastructure, geological features, extraction difficulties, etc.) that can contribute to differences across locations (Holditch & Ayers, 2009).

Hydrocarbon source. This is a binary variable that accounts for whether the hydrocarbon is conventional (e.g., oil, gas, and coal) or unconventional (e.g., tight sands, coalbed, and shale) (Holditch & Ayers, 2009; SPE, 2012). Compared to conventional resources, unconventional resources are more difficult to extract and require more technological capabilities (Holditch & Ayers, 2009).

Foreign direct investment. This is measured as ratio of the foreign direct investment inflow to gross domestic product of the target country (World Bank, 2011). Inflow of FDI is both an indication of, and a contributor to, better investment climates, and hence we control for the same.

RESULTS

Insert Table 2 about here

Table 2 provides the descriptive statistics and correlations for our study. Logistic regressions are used to test hypotheses where the dependent variables are binary. These are hypotheses 1, 3a, and 3b. OLS regressions are used to test the hypotheses where the measures of the dependent variables are continuous. These are hypotheses 2, 4a, 4b, 5a, and 5b. The regressions results are presented in Tables 3 to 5. For obtaining the regression results presented, all the independent variables were centered and standardized.

Further, as explained in the measures section, we took advantage of the availability of longitudinal data to lag the independent variables behind the dependent variables.

Insert Table 3 about here

Competition between State Owned and Non-State Owned Enterprises for Resources

Likelihood of acquiring resources for exploration versus exploitation. The hypotheses related to the *extent of state ownership* of multinationals and their decisions to acquire resources for exploration/exploitation are supported. Consistent with hypothesis 1, the extent of state ownership has a significantly *positive* influence on the probability of a multinational deciding to acquire resources for *exploration* ($\beta = 0.24$ with $p < 0.01$ in model A2 of Table 3). Additionally, the extent of state ownership has a significantly *negative* influence on the probability of a multinational deciding to acquire resources for *exploitation* ($\beta = -0.26$ with $p < 0.001$ in model B2 of Table 3). The findings suggest that, when comparing SOEs to NSOEs, SOEs are more likely to acquire resources for exploration, and NSOEs are more likely to acquire resources for exploitation.

To contextualize this finding, we provide supportive examples from our data. Consider Australia as the destination country where resources were bought. We find that many SOEs bought resources for exploration in Australia; for example, CNOOC (100% owned by China) in 2010 and 2012, Statoil (67% owned by Norway.) in 2012, Petrobras (54% owned by Brazil) in 2010, and ENI (30.3% owned by Italy) in 2011. In comparison, we find that many NSOEs bought resources for exploitation in Australia; for example, Itochu (Japan) in 2007, Sojitz (Japan) in 2008, and Vermilion Energy (Canada) in 2007. Similarly, consider Canada as the destination country where fields were bought. Again, we find that SOEs tended to buy resources for exploration in Canada; for example Sinopec (100% owned by China) in 2005 and Korea Gas (27% owned by South Korea) in 2010. In comparison, we find that NSOEs tended to buy resources for exploitation in Canada; for example, Centrica (Britain) in 2010 and Quicksilver (USA) in 2010.

Insert Table 4 about here

Price paid by SOEs versus NSOEs for resources for exploration versus exploitation. The hypotheses related to the *extent of state ownership* of multinationals and the prices paid to acquire resources for exploration/exploitation are supported. Consistent with hypothesis 2, the extent of state ownership has a significantly *positive* influence on the price paid to acquire resources for *exploration* ($\beta = 0.16$ with $p < 0.01$ in model C2 and $\beta = 0.18$ with $p < 0.001$ in model D2 of Table 4). Additionally, the extent of state ownership has a significantly *negative* influence on the price paid to acquire resources for *exploitation* ($\beta = -0.23$ with $p < 0.001$ in model E2 and $\beta = -0.16$ with $p < 0.01$ in model F2 of Table 4). The findings suggest that, when comparing SOEs to NSOEs, SOEs tend to pay higher prices than NSOEs to acquire resources for exploration, and NSOEs tend to pay higher prices than SOEs to acquire resources for exploitation.

Insert Figure 2 about here

Moderators of the influence on the likelihood of acquiring resources for exploration. Consistent with hypotheses 3a and 3b, the influence of state ownership on the probability of acquiring resources for exploration is moderated by the target country's resource-richness ($\beta = 0.14$ with $p = 0.06$ in model A3 of Table 3) and the firm's target country-specific experience ($\beta = 0.20$ with $p < 0.05$ in model A4 of Table 3). Figure 2 provides the interaction plots (the moderator variables are continuous, but only lines representing high, mean, and low values of the moderators are plotted for ease of visualization). As shown in the interaction plots in Figure 2, the influence of state ownership on the probability of a multinational acquiring resources for exploration is more strongly positive both when the target country's resource-richness is high and when the firm's target country-specific experience is high. The findings suggest that, when these moderator variables are high, SOEs are much more likely than NSOEs to acquire resources for exploration.

Moderators of the influence on the price paid for resources for exploration. Consistent with hypotheses 4a and 4b, the influence of the state ownership on the price paid to acquire resources for exploration is moderated by the target country's resource-richness ($\beta = 0.28$ with $p < 0.001$ in model C3 and $\beta = 0.23$ with $p < 0.001$ in model D3 of Table 4) and the firm's target country-specific experience ($\beta = 0.18$ with $p < 0.001$ in model C4 and $\beta = 0.21$ with $p < 0.001$ in model D4 of Table 4). As shown in the interaction plots in Figure 4, the influence of state ownership on the price paid to acquire resources for exploration is more strongly positive both when the target country's resource-richness is high and when the firm's target country-specific experience is high. The findings suggest that, when these moderator variables are high, SOEs pay much higher prices than NSOEs to acquire resources for exploration.

Insert Table 5 about here

Heterogeneity among SOEs

Highlighting heterogeneity among SOEs, we find that the *ratio of exploration to exploitation experience* of an SOE has a significant influence on the price paid by the SOE to acquire resources for either exploration or exploitation. Consistent with hypothesis 5a, the ratio of exploration to exploitation experience of SOEs has a significantly *positive* influence on the prices the SOEs pay to acquire resources for *exploration* ($\beta = 0.16$ with $p < 0.05$ in model G2 and $\beta = 0.30$ with $p < 0.001$ in model H2 of Table 5). Consistent with hypothesis 5b, the ratio of exploration to exploitation experience of SOEs has a significantly *negative* influence on the prices the SOEs pay to acquire resources for *exploitation* ($\beta = -0.25$ with $p < 0.001$ in model I2 and $\beta = -0.23$ with $p < 0.05$ in model J2 of Table 5). The findings suggest evidence of heterogeneity among SOEs. On the one hand, SOEs that have a higher ratio of exploration to exploitation experience pay higher prices to outbid other SOEs to acquire resources for exploration. On the other hand, SOEs that have a lower ratio of exploration to exploitation experience pay higher prices to outbid other SOEs to acquire resources for exploitation.

CONCLUSION

SOEs are pushing the boundaries across industries in international markets. They play a major role in globally competitive industries by acquiring resources that will secure their and their home countries' futures. This study demonstrates that governments, via SOEs, play the role of enablers of cross-border business activity. By acquiring resources in foreign countries, SOEs reduce their country's future dependence on importing resources from foreign entities. By becoming more resource independent, the SOEs and the home countries also become positioned to be more geopolitically powerful in the future.

SOEs that invest abroad to acquire resources operate at the crucial intersection between the political economy and international business, and our study offers insights into the same. Specifically, it offers insights into how home countries encourage SOEs to invest abroad to acquire resources in support of national priorities. Our results suggest that many governments encourage SOEs to acquire resources in foreign countries with the future resource security of their countries in mind. For instance, the government of China has facilitated its SOEs to acquire petroleum resources from the international market (Mehta, 2013), not necessarily for immediate benefits, but as a safeguard for the country's economic and geopolitical future. To stay competitive, other governments might need to do the same via their SOEs. This ensures that their SOEs do not miss out on opportunities to acquire increasingly important resources. SOEs that are constrained rather than encouraged by their home country governments risk falling behind in the global race for finite, natural resources.

Contributions to Theory

Our study offers several theoretical implications for the literature. First, we examine how multinationals, and especially SOEs, secure the future in terms of the resources they acquire. Existing conceptualizations of RDT focus on the resources firms need now to be powerful at present (Pfeffer & Salancik, 1978; Wry et al., 2013). The only mention of future firm action is in relation to constraining firm behavior: "response to the demands of one group constrains the organization in its future actions" (Pfeffer & Nowak, 1976: 43) This study adds to the RDT literature by suggesting that forward-looking valuation of resources is needed. As shown in this study, for some multinationals, acquiring resources that secure the firm's (or home government's) future is worth more than acquiring resources that are valuable at present.

Our research suggests that to secure the future, multinationals must manage their dependence. The more acquisition of resources a multinational makes now, the less dependent the multinational and its home country will be on foreign entities for resources in the future. Explicitly, securing the future is about securing future resource independence. For SOEs, resource independence stems from acquiring resources for exploration that can potentially satisfy the future demand and enhance geopolitical position of their home countries. It provides SOEs with solace in knowing that they have secured resources that, though not yet exploited, could certainly be exploited in the future when the need arises.

Second, we provide insight into ownership considerations. Many SOEs are actively supported by governments of their home countries to invest abroad to acquire resources. We connect the notion of differences in ownership orientations to differences in the resources acquired. SOEs have strong stakes in pursuing agendas that ensure future prospects, energy and economic security, and geopolitical position. SOEs also operate as capitalist, foreign-policy arms of their home country governments. SOEs, operating with both political and business intents, are more likely to acquire resources for exploration. Resources for exploration fit well with SOEs' interests and objectives. These resources can be held 'in reserve' until the SOE either needs to develop them due to demand, or can sell them via market-based transactions. Ownership also explains differences in how firms mobilize internal resources to gain access to external resources. Once the decision has been made by the firm to acquire external resources, the amount paid for the resources is largely related to the ownership of the firm. We find that SOEs are willing to pay higher prices than NSOEs for resources for exploration. This means that SOEs find these resources to be more valuable due to their political and business intents (Zif). In satisfying their business and political intents, SOEs that acquire these resources decrease their future dependence on other firms in the industry and provide resource security to their home country.

Third, we provide insight into the importance of multinational enterprises and the need to encourage them to invest abroad to acquire resources. When a multinational enterprise invests abroad, this investment outflow might be perceived as a short-term loss for the home country. However, we suggest that investments abroad can help the home country in the long-term if it is to acquire resources to secure the country's future.

Apart from reducing future dependence on foreign entities, multinationals also cross borders because of political intent. SOEs operate multinationally to gain access to resources in a way that secures the home country's future in terms of economic gains, geopolitical position, and power.

Finally, our study offers a conceptualization of exploration and exploitation from a resource security perspective. Most previous research using the exploration vs. exploitation framework uses the resource-based view as a theoretical background (Lavie et al., 2010), and applied it to a wide variety of settings including product-based markets (Hoang & Rothaermel, 2010; McNamara & Baden-Fuller, 2007), retail banking and insurance (Flier et al., 2003; Volberda et al., 2001), professional service firms and investment banks (Groysberg & Lee, 2009), and theaters (Voss et al., 2008), among others. See Figure 3 for some examples. All of these and similar studies examine how internal resources are explored or exploited. Our contribution lies in our suggestion that exploration vs. exploitation activities can be analyzed from a resource security perspective. Acquiring resources for exploration increases long-term resource security because it involves securing resources as a safeguard for the future. Acquiring resources for exploitation increases relatively short-term security and gains through resource production and consumption. We find that SOEs opt for long-term resource security whereas NSOEs tend to opt for shorter-term security for resource consumption.

Insert Figure 3 about here

Implications for Policy and Practice

Insights into the complexities of the petroleum industry. SOEs in the petroleum industry (National Oil Companies, or NOCs) secure the futures for their home countries. Within this industry, it is largely recognized that, "NOCs' immediate priority is to secure oil supplies" (Karev, 2013: 18). They represent nationalism of their home countries while creating and redistributing domestic wealth to their citizens. At a fundamental level, then, why do NOCs cross borders and compete abroad? Future energy security stems from building an international petroleum resource portfolio (Mehta, 2013). Given the complexity, and at

times instability, of the petroleum market, governments can secure their countries' futures by directing their NOCs to acquire petroleum resources in foreign countries. These countries with NOCs feel secure in having a globally dispersed petroleum resource portfolio that can be tapped when needed at present or in the future. Thus, an investment made abroad is not necessarily a loss of investment at home. An investment abroad in terms of acquiring petroleum resources means securing control of these resources now as a safeguard for the country's future.

Insert Figure 4 about here

Heterogeneity in home country's internal resource demand. The lack of sufficient resources within a country to meet the country's internal demands can make the country dependent on imports from foreign entities. Such countries are net importers of resources (Karev, 2013). In order to reduce dependence on imports from foreign entities, the governments of these countries are likely to encourage their NOCs to invest abroad to acquire the resources in foreign locales. In our sample, as illustrated in Figure 4, this holds true for the following countries: China, India, Italy, South Korea, Brazil, and Poland. Select examples of NOCs from these countries and their destinations for acquiring resources were illustrated in Figure 1.

In contrast, there are countries that have more than enough resources to satisfy the countries' internal demands and are therefore not dependent on imports from foreign entities. Such countries are often net exporters of resources (Karev, 2013). With abundance of resources at home available for export, the governments of such countries do not necessarily need to encourage their NOCs to invest abroad to acquire more resources (Marcel, 2006). Accordingly, we observed that numerous NOCs (such as those from countries in the Middle East—Aramco of Saudi Arabia, KPC of Kuwait, NIOC of Iran, North Oil Company of Iraq, etc.) do not appear in our sample. As illustrated in Figure 4, there are at least 23 countries that are net exporters and have NOCs, but their NOCs have not invested abroad to acquire resources.

The exceptions—net exporters investing abroad to acquire even more resources. There are exceptions to the above logic. There are multiple countries that have more than enough resources within

their borders to satisfy internal demands and are net exporters of resources. Yet, these countries' NOCs still invest abroad to acquire more resources. As shown in Figure 4, there are at least seven countries that are net exporters and yet with NOCs investing abroad: Norway, Algeria, United Arab Emirates, Colombia, Russia, Indonesia, and Malaysia.

Take Russia as an example from this group. NOCs from Russia, including Gazprom and Roseneft, are increasingly investing abroad. This is a surprising finding since Russia, as shown in Figure 4, is a net exporter. Why are Russian NOCs making cross-border acquisition of petroleum resources despite having plentiful resources within the country's borders? We believe this surprising fact highlights an interesting complexity that is only made explicit when studying multinational NOCs. We therefore examined publicly available corporate documentation (press releases, presentations, and transcripts from Q&A sessions with investors) to understand this complexity further. We found that following a transaction in which Rosneft, a Russian NOC, bought resources for exploration in the US from ExxonMobil, an executive from Rosneft commented:

> "[Rosneft lays] the foundation for long-term growth of the Russian oil and gas industry…[This] unique experience will allow Rosneft to become one of the global leaders in the oil and gas industry."

Similarly, in reference to a transaction in which Gazprom, a Russian NOC, acquired resources for exploration in Iraq, an executive for Gazprom commented:

> "Based on our positive experience in cooperation with the Republic of Iraq…the company had decided to expand its presence in this country. Carrying out these projects will allow Gazprom… to expand its presence abroad."

By investing abroad to acquire more resources despite their abundance at home, Russian NOCs will have many available resources that they can choose to exploit now or wait to exploit in the future. If Russian NOCs continue to explore for resources within their own borders and increase their presence abroad in terms of resource acquisitions, in the future, other countries (and their NOCs and IOCs) may be dependent on Russia (and Russian NOCs) to access these resources (Pfeffer & Salancik, 1978). Further, investments in resources for exploration by Russian NOCs (and other NOCs) abroad also enhance geopolitical position

of the home country. For example, since 2005, Russian NOCs have invested in resources acquisitions in countries such as Iraq, Libya, and Venezuela, which are of major geopolitical concern to the world.

Finally, in the last few decades, most of these net exporting countries—Norway, United Arab Emirates, Algeria, and Russia—have created sovereign wealth funds (SWFs) from revenues from the export of petroleum resources. Norway's "Government Pension Fund" has assets of more than $800 billion, UAE's "Abu Dhabi Investment Authority" and other smaller SWFs have combined assets of more than $800 billion, Russia's "National Welfare Fund", "Reserve Fund", and "Russian Direct Investment Fund" have combined assets of more than $185 billion, and Algeria's "Revenue Regulation Fund" has assets of more than $75 billion {SWF, 2013}. Governments direct their SWFs to channel financial capital into international investments that directly or indirectly help NOCs acquire petroleum resources across the world. The presence and influence of SWFs in the acquisition of petroleum resources highlights another complexity in the global petroleum industry.

The dominance of Chinese NOCs. Both China and Russia have substantial amounts of petroleum resources within their borders. However, unlike Russia, China is a net importer. This is because, as illustrated by the energy use and GDP numbers in Figure 4, the demand for resources within China is very high and the resources within China's borders are not sufficient. China is projected to increase its demand for natural gas alone by over 300% over the next 20 years (Karev, 2013). For Chinese NOCs, investing abroad to acquire resources is not just about securing the future in terms of geopolitical position and power—it is also about securing the future in terms of the need to satisfy future demand. We see this sentiment reflected in the headlines related to Sinopec, a Chinese NOC, that spent over $20 billion acquiring resources for exploration in just the nine months from March to December 2010: Mar 28— 'Sinopec acquires interest in Angola Block 18 from parent for $2.5B', Apr 12— 'ConocoPhillips sells interest in Syncrude Project to Sinopec for $4.65B', Aug 18— 'Hupecol sells interests in four Llanos Basin blocks to Sinopec for $281M', Aug 31— 'Sinopec acquires 50% interest in Kazakhstan project from Mittal Investments for $1.4B', Oct 1— 'Sinopec acquires 40% interest in Repsol's Brazilian business for $7.1B',

Dec 2— 'Sinopec acquires 18% interest in Gendalo-Gehem project from Chevron for $680M', and Dec 10— 'Sinopec acquires Argentina unit of Oxy for $2.5B'.

Our data suggest that Chinese NOCs are acquiring resources wherever possible: Angola, Argentina, Australia, Cameroon, Canada, Chad, Colombia, Ecuador, Indonesia, Kazakhstan, Libya, Nigeria, Russia, Syria, Trinidad and Tobago, Turkmenistan, Uganda, UK, and USA. This also indicates that their competitors—IOCs and other NOCs—may experience stiff competition, possibly resulting in bidding wars for resources across the world.

Limitations and Future Research

We acknowledge limitations of our current study that can be addressed by future research. First, essentially there are three categorizations of competition—SOEs vs. NSOEs, SOEs vs. SOEs, and NSOEs vs. NSOEs. In this paper, we examine two of these categorizations (SOEs vs. NSOEs, SOEs vs. SOEs). Because our study focuses on state ownership, it is outside the scope of this paper to examine the competition among NSOEs in acquiring resources for exploration or exploitation. Future research not specifically focused on SOEs could include this third category of competition—NSOEs vs. NSOEs—and examine differences in how these multinationals compete in relation to competition examined in this study (SOEs vs. NSOEs, SOEs vs. SOEs).

Second, future research could examine differences between ownership and control (Musacchio & Sergio G. Lazzarini, in press). Although we focus on ownership in this study, comparing ownership and control—for SOEs and NSOEs— could provide more insight into the relationships in this study. Additionally, we include an objective measure of target country's resource-richness in our study. However, we acknowledge that evaluative measures can also be used to assess target countries (e.g., evaluation of fit with the firms' existing resource portfolio or cooperative strategies with other firms operating in those locations). Future research could combine the objective measures of target country's resource-richness, as included in this study, with more evaluative measures.

Finally, we acknowledge some countries may be less inviting for SOEs than others. Some host country governments may make it more difficult for multinationals to engage in transactions for resources.

As such, SOEs, no matter how focused they are on acquiring resources, will still face many difficulties in entering and operating in these markets. The role of government not as an owner, but as an approving mechanism that foreign acquirers have to face, can be an avenue for future research.

In sum, this study examines the state ownership phenomenon to develop a new theoretical perspective —resource security— that improves our understanding of the complexities associated with firms investing to acquire global resources. For SOEs, resource security implies having sufficient resources as a safeguard for the future. By acquiring resources with a long-term perspective, SOEs can secure the country's future not only by reducing dependence on foreign entities but also by increasing geopolitical position and power of the country.

REFERENCES

TABLES AND FIGURES

Table 1.
Sample characteristics: Market-based transactions for petroleum resources by multinationals

Average Financial and Operations Data of Transactions:	Mean
Transaction Value, in millions of dollars	787.3
Exploration: Value of Undeveloped Acres, in millions of dollars	50.9
Exploration: Purchased Acreage Available for Exploration, in acres	825,092.1
Exploitation: Net Proved + Probable Reserves, in barrels of oil equivalent	125,903,459.0
Exploitation: Daily Production (Extraction), in barrels of oil equivalent	19,910.8
Distribution of Transactions by Calendar Year of Announcement:	Freq (%)
2005	1.5%
2006	7.9%
2007	17.1%
2008	11.9%
2009	12.6%
2010	21.3%
2011	17.3%
2012 (first three quarters of year)	10.4%
Distribution of Transactions by State Ownership:	Freq (%)
• No State Ownership Involved: Neither Acquirer nor Seller is State Owned	41.8%
• State Ownership Involved: Either (or Both) Acquirer and Seller is State Owned	58.2%
Distribution of Transactions: Exploitation vs Exploration	Freq (%)
• Exploration (New exploration awards, Exploration blocks previously awarded, Discoveries not yet under development)	28.7%
• Exploitation (Producing fields, Redevelopment fields)	34.9%
• Others (Mix of various asset types, Corporate M&A, Fields under development)	36.4%
Distribution of Transactions by Hydrocarbon Type:	Freq (%)
Oil	41.3%
Gas	24.5%
Oil + Gas	18.8%
Coal Bed Methane (CBM) Gas	4.0%
Oilsands	2.2%
Not specified	9.2%
Distribution of Transactions by Regions Where Hydrocarbon Field Being Bought is Located:	Freq (%)
Africa	9.6%
Middle East	2.0%
Former Soviet Union	17.6%
Asia (Excluding Middle East and Former Soviet Regions)	7.2%
Europe's North Sea	8.7%
Rest of Europe (Excluding North Sea and Former Soviet Regions)	1.7%
Australia	5.9%
North America's Gulf of Mexico	5.0%
North America (Excluding Gulf of Mexico)	30.9%
South/Central America	11.4%

Sample size: 404 market-based transactions (events).

Table 2.
Descriptive statistics and correlations: Transactions by multinational enterprises

Variable	Mean	Std Dev	1	2	3	4	5	6	7	8	9	10	11
Dependent Variables													
1 Resources for Exploration: resource acquisition	0.29	0.45	1.00										
2 Resources for Exploitation: resource acquisition	0.35	0.48	-0.46	1.00									
3 Price Paid (Exploration): value of undeveloped acres pur. (millions $)	50.91	307.97	-0.03	-0.11	1.00								
4 Price Paid (Exploration): price per unit acre for exploration ($/acre)	360.19	1732.00	-0.05	-0.16	0.65	1.00							
5 Price Paid (Exploitation): premium for proved & probable res. ($/BOE)	4.07	9.99	-0.66	0.40	0.09	-0.09	1.00						
6 Price Paid (Exploitation): price per unit of production ($/BOE)	5.28E+04	6.68E+04	-0.60	0.23	-0.01	-0.04	0.50	1.00					
Control Variables [#]													
7 Hydrocarbon Source	0.87	0.33	0.12	0.16	-0.38	-0.46	-0.08	-0.30	1.00				
8 Foreign Direct Investment (%)	3.17	3.06	-0.03	-0.03	-0.07	-0.05	0.05	-0.01	0.02	1.00			
Independent Variables													
9 Extent of State Ownership in Firm (%)	37.61	41.91	0.18	-0.22	0.13	0.12	-0.33	-0.15	-0.11	-0.01	1.00		
10 Target Country's Resource-Richness ($)	6.16E+10	6.46E+10	0.19	-0.10	0.26	0.34	-0.29	-0.20	-0.10	-0.09	0.04	1.00	
11 Firm's Target Country-Specific Experience	2.03	3.75	0.22	-0.14	0.14	0.21	-0.06	-0.13	-0.12	-0.03	-0.01	0.50	1.00
12 Firm's Ratio of Exploration to Exploitation Experience	0.86	1.85	0.17	-0.17	0.28	0.39	-0.27	-0.17	-0.17	-0.10	0.17	0.28	0.39

Additional control variables that are used in this study but not reported above are: dummy variables for *Year of Transaction* [2005 to 2012] and dummy variables for *Region Where Field is Located* [Africa, Middle East, former Soviet Union, Asia (excluding Middle East and former Soviet regions), Europe's North Sea, rest of Europe (excluding North Sea and former Soviet regions), Australia, North America's Gulf of Mexico, North America (excluding Gulf of Mexico), South/Central America]

Table 3.
Logistic regressions: Resource acquisition is influenced by extent of state ownership

| | Logistic Regressions: Standardized Parameter Estimates β Dependent variables: **Acquire Resources** … | | | | | |
| | … for Exploration | | | | … for Exploitation | |
	A1	A2	A3	A4	B1	B2
Controls						
Dummy Variables for Year	✓	✓	✓	✓	✓	✓
Dummy Variables for Region	✓	✓	✓	✓	✓	✓
Hydrocarbon Source	0.17†	0.26**	0.33**	0.33**	0.28***	0.21*
Foreign Direct Investment	-0.03	-0.05	-0.01	-0.01	-0.05	-0.05
Predictors						
H1: Extent of State Ownership		**0.24****	0.28**	0.36***		**-0.26****
Moderators and Interaction Effects						
Target Country's Resource-Richness			0.15†			
Firm's Target Country Specific Experience				0.31***		
H3a: (Extent of State Ownership × Target Country's Resource-Richness)			**0.14†**			
H3b: (Extent of State Ownership × Firm's Target Country Specific Experience)				**0.20***		
Prediction Accuracy (% Concordant)	75.6%	76.9%	77.3%	80.7%	67.7%	71.0%
Pseudo (Nagelkerke) R-square	0.241	0.267	0.289	0.363	0.136	0.174
Likelihood Ratio χ²	74.50	83.27	90.97	112.05	42.03	54.62
p-value	<0.0001	<0.0001	<0.0001	<0.0001	0.0011	<0.0001
Hosmer and Lemeshow Goodness of Fit Test: χ2	4.46	8.99	7.19	10.26	5.99	7.67
(…. non-significance indicates good fit) p-value	0.81	0.34	0.52	0.25	0.65	0.47

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, † $p \leq 0.10$ (conservative two-tailed tests)

Sample size = 404 transactions (events). Sample consists of purchase transactions by both SOEs and NSOEs, because the hypotheses compare SOEs to NSOEs. Dependent variable is with regard to events (announcements of transactions) between the years 2005 and 2012. Independent variables are lagged behind the dependent variable. Independent variables are centered (mean = 0) and standardized. Max VIF = 1.28, indicating no evidence of multicollinearity. Results are very similar when independent variables are winsorized at 0.5 and 99.5 percentiles, which indicates that the results are not influenced by outliers.

Table 4.
OLS regressions: Price paid for resources is influenced by extent of state ownership

	OLS Regressions: Standardized Parameter Estimates β Dependent variables: **Price Paid for Resources …**											
	… for Exploration								**… for Exploitation**			
	Value of undeveloped acres purchased				Price paid per unit acre available for exploration				Premium paid for proved & probable reserves		Price paid per unit of production	
	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	F1	F2
Controls												
Dummies for Year	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dummies for Region	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hydrocarbon Source	-0.40***	-0.36***	-0.26***	0.24***	-0.46***	-0.41***	0.32***	0.38***	-0.06	-0.11	-0.24***	-0.28***
Foreign Direct Investment	-0.07	-0.07	-0.03	-0.05	-0.09†	-0.09†	-0.04	-0.07	0.00	0.02	-0.01	-0.01
Predictors												
H2: Extent of State Ownership		**0.16****	0.25***	0.24***		**0.18*****	0.24***	0.27***		**-0.23*****		**-0.16****
Moderators and Interaction Effects												
Target Country's Resource-Richness			0.25 ***				0.31***					
Target Country Specific Experience				0.09†				0.15**				
H4a: (Extent of State Ownership × Target Country's Resource-Richness)			**0.28 *****				**0.23*****					
H4b: (Extent of State Ownership × Target Country Specific Experience)				**0.18*****				**0.21*****				
R²	0.1850	0.2027	0.2951	0.2317	0.2901	0.3126	0.4019	0.3579	0.2207	0.2557	0.2149	0.2302
F-Value	4.41	4.67	6.92	4.71	7.79	8.19	10.88	8.52	4.04	4.63	4.51	4.71
P-Value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Δ R²		0.0177	0.0924	0.0290		0.0225	0.0893	0.0453		0.0350		0.0153
F-Value		7.74	22.73	5.98		11.22	25.37	24.84		12.03		6.72
P-Value		0.006	<.001	0.003		0.001	<.001	<.001		<.001		0.010

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, † $p \leq 0.10$

Sample sizes: 369 transactions (events) for models C1 to C4, 361 for models D1 to D4, 276 for models E1 and E2, and 319 transactions (events) for models F1 and F2. Samples consist of purchase transactions by both SOEs and NSOEs, because the hypotheses compare SOEs to NSOEs. Variations in sample sizes are due to missing data for variables. Dependent variable is with regard to events (announcements of transactions) between the years 2005 and 2012. Independent variables are lagged behind the dependent variable. Variables are centered (mean = 0) and standardized. Max VIF = 1.21, indicating no evidence of multicollinearity. Results are very similar when independent variables are winsorized at 0.5 and 99.5 percentiles, which indicates that the results are not influenced by outliers.

Table 5.
Heterogeneity in Ratio of Exploration to Exploitation Experience among SOEs Influences the Prices Paid

	OLS Regressions: Standardized Parameter Estimates β Dependent variables: **Price Paid by SOE for Resources** …							
	… for Exploration				… for Exploitation			
	Value of undeveloped acres purchased		Price paid per unit acre available for exploration		Premium paid for proved & probable reserves		Price paid per unit of production	
	G1	G2	H1	H1	I1	I2	J1	J2
Controls								
Dummies for Year	✓	✓	✓	✓	✓	✓	✓	✓
Dummies for Region	✓	✓	✓	✓	✓	✓	✓	✓
Hydrocarbon Source	-0.30*	-0.27*	-0.30**	-0.25*	0.07	0.08	-0.40**	-0.43**
Foreign Direct Investment	-0.07	-0.05	-0.07	-0.04	0.09	0.07	0.01	0.00
Predictors								
H5: SOE's Ratio of Exploration to Exploitation Experience		**0.16***		**0.30*****		**-0.25*****		**-0.23***
R^2	0.2978	0.3152	0.4697	0.5281	0.3119	0.3521	0.2977	0.3353
F-Value	3.51	3.59	7.08	8.42	2.32	2.60	2.71	3.03
P-Value	<.001	<.001	<.001	<.001	0.005	0.0013	<.001	<.001
ΔR^2		0.0174		0.0584		0.0402		0.0376
F-Value		3.96		17.70		5.65		6.46
P-Value		0.048		<.001		0.020		0.012

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, † $p \leq 0.10$

Sample sizes: 168 transactions (events) for models G1 and G2, 163 for models H1 and H2, 111 for models I1 and I2, and 134 transactions (events) for models J1 and J2. Samples consist of purchase transactions by SOEs only, because the hypotheses are about heterogeneity among SOEs. Variations in sample sizes are due to missing data for variables. Dependent variable is with regard to events (announcements of transactions) between the years 2005 and 2012. Independent variables are lagged behind the dependent variable. Variables are centered (mean = 0) and standardized. Max VIF = 1.21, indicating no evidence of multicollinearity. Results are very similar when independent variables are winsorized at 0.5 and 99.5 percentiles, which indicates that the results are not influenced by outliers.

Figure 1.
Select examples of governments, their SOEs, and their global destinations (target countries) for acquiring petroleum resources

Govt. of Norway
• SOE: Statoil
• Destinations: Australia, Brazil, Canada, Indonesia, UK, USA

Govt. of Poland
• SOE: PGNIG
• Destinations: Denmark, Libya, Norway

Govt. of Italy
• SOE: ENI
• Destinations: Algeria, Australia, Congo, India, Indonesia, Nigeria, Norway, Russia, Uganda, Ukraine, UK, USA

Govt. of Russia
• SOEs: Gazprom, Rosneft
• Destinations: Iraq, Libya, Serbia, Venezuela

Govt. of China
• SOEs: CNOOC, CNPC, SINOPEC
• Destinations: Angola, Argentina, Australia, Brazil, Cameroon, Canada, Chad, Colombia, Ecuador, Indonesia, Kazakhstan, Libya, Nigeria, Russia, Syria, Trinidad And Tobago, Turkmenistan, Uganda, UK, USA

Govt. of Columbia
• SOE: Ecopetrol
• Destinations: Peru, USA

Govt. of S Korea
• SOEs: KNOC, Korea Gas
• Destinations: Australia, Canada, Congo, Indonesia, Kazakhstan, Nigeria, Peru, Somalia

Govt. of Brazil
• SOE: Petrobras
• Destinations: Argentina, Australia, Bolivia, USA

Govt. of Malaysia
• SOE: Petronas
• Destinations: Australia, Canada, Greenland, Indonesia, Ireland, Mauritania, UK

Govt. of United Arab Emirates (UAE)
• SOEs: Mubadala, ENOC
• Destinations: Indonesia, Kazakhstan, Libya, Tanzania, Turkmenistan

Govt. of India
• SOEs: ONGC, Indian Oil, Oil India
• Destinations: Azerbaijan, Colombia, Egypt, Gabon, Kazakhstan, Libya, Nigeria, Russia, Syria, USA, Venezuela

Govt. of Indonesia
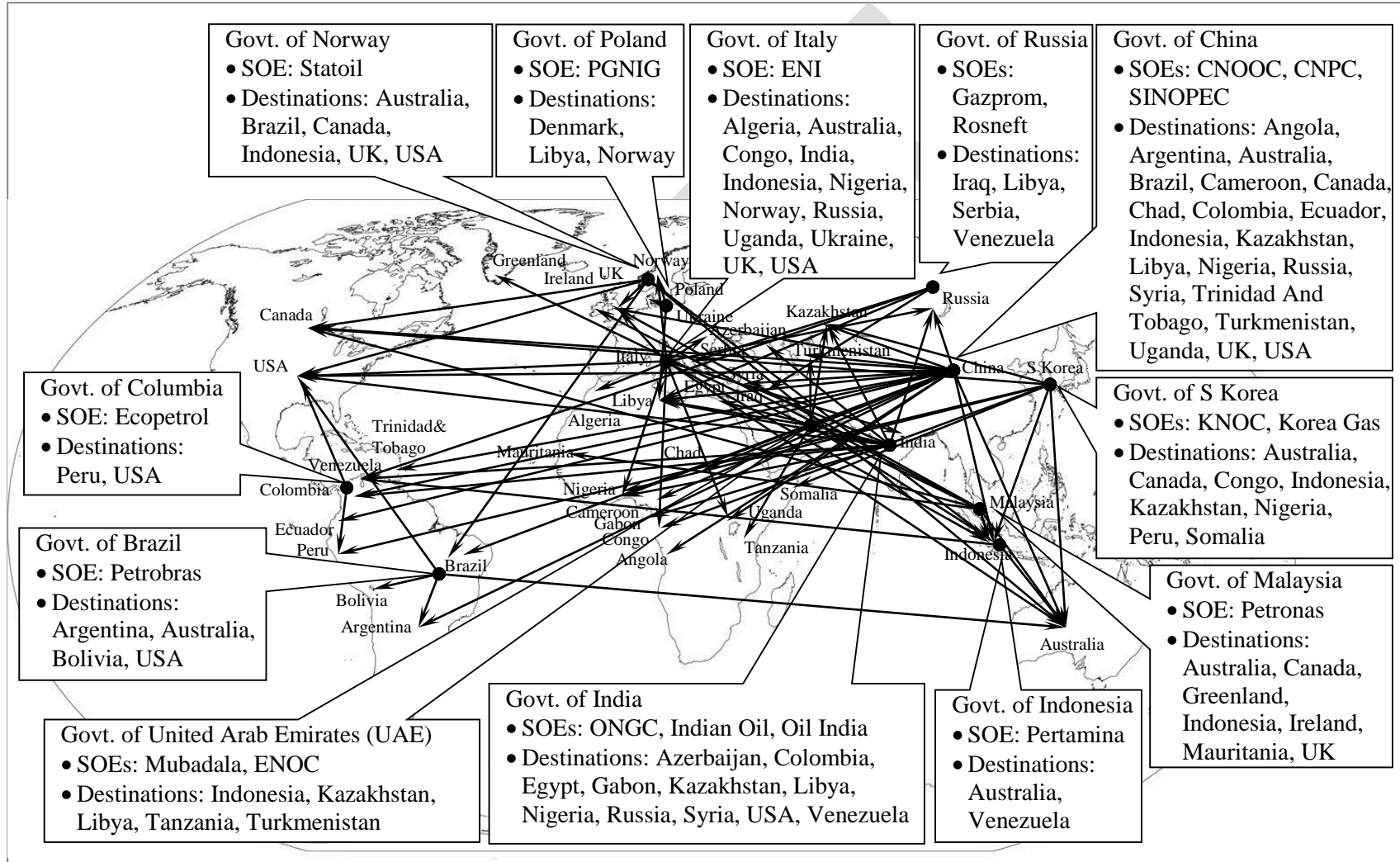• SOE: Pertamina
• Destinations: Australia, Venezuela

Figure 2.
Interaction plots: Influence of state ownership on the acquisition of resources for exploration

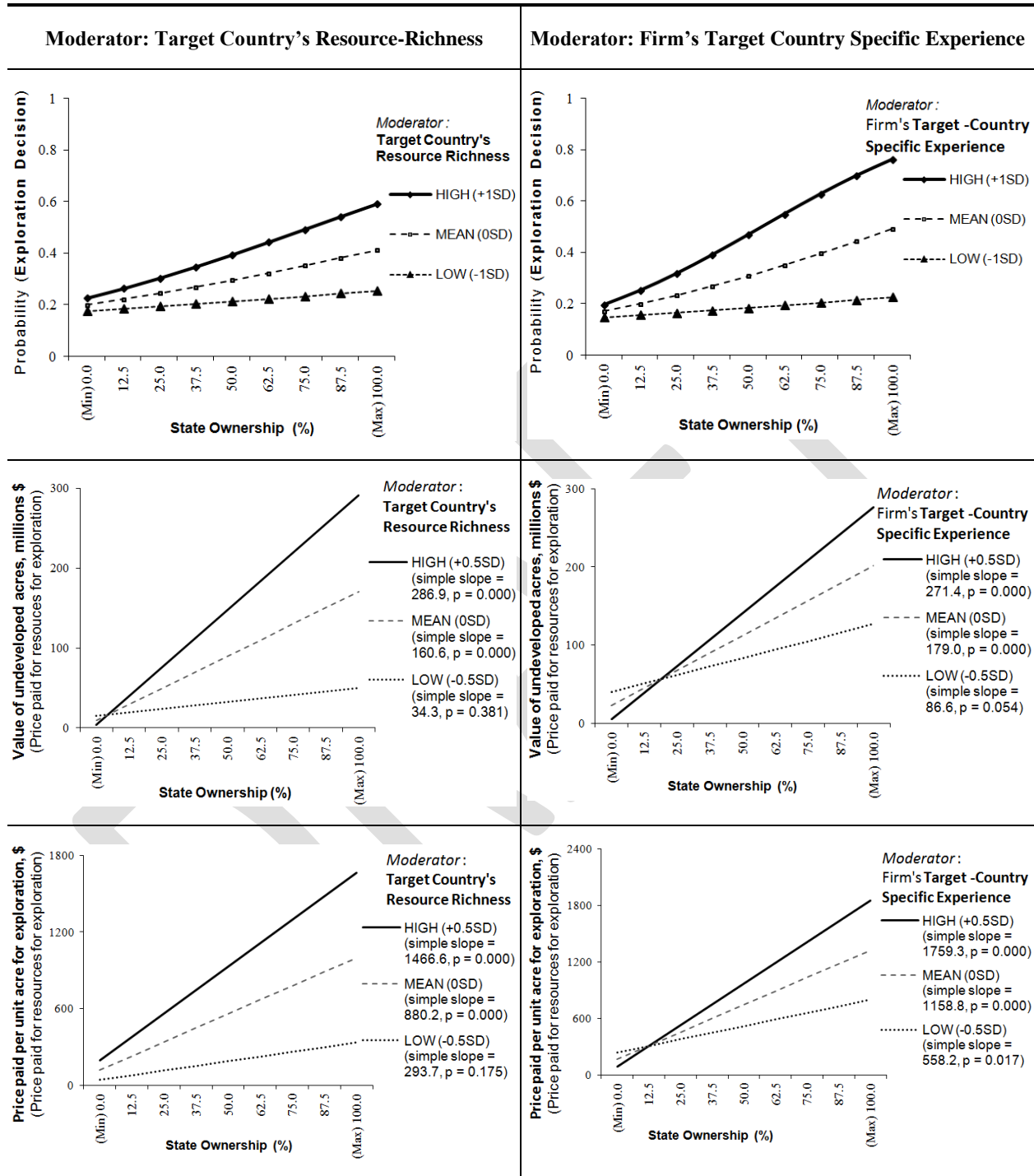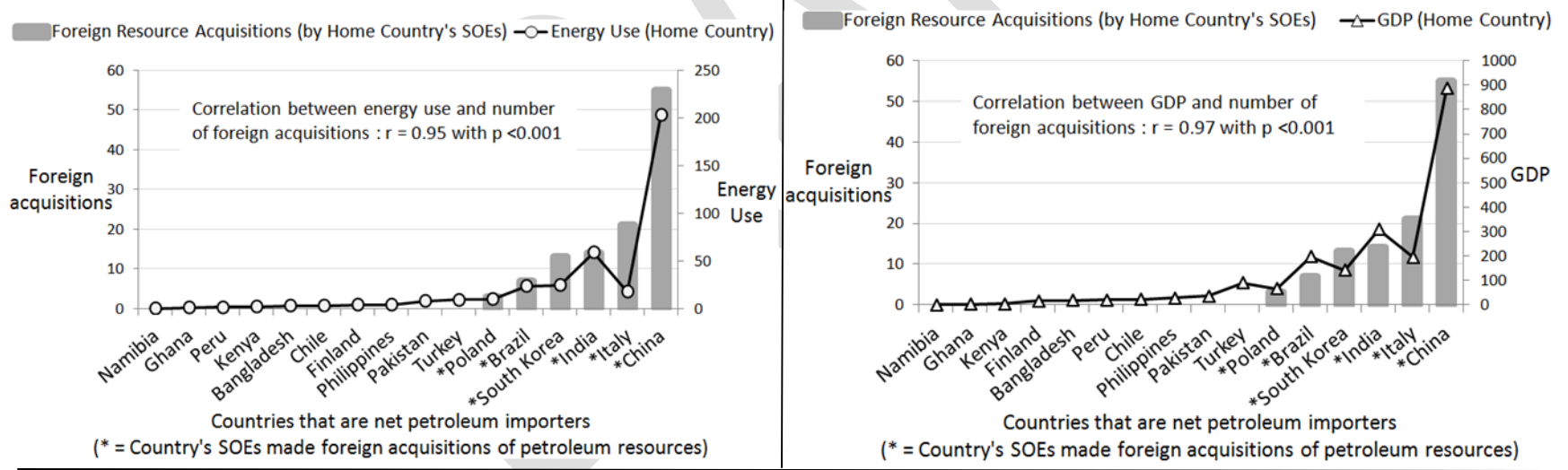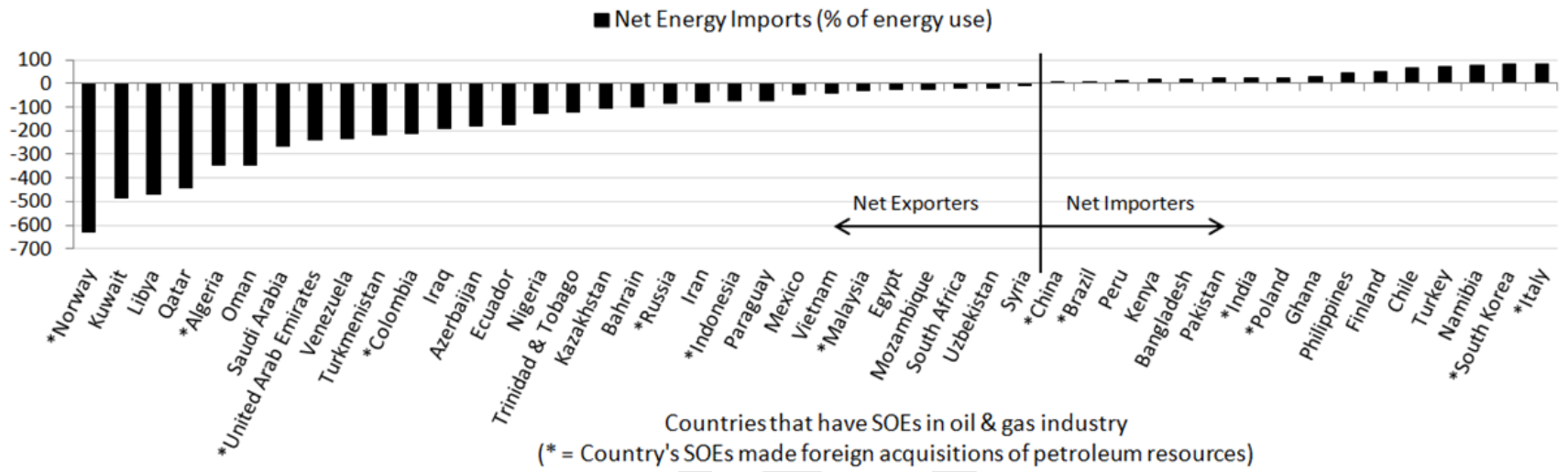**Figure 3. Exploration versus exploitation in the literature: Theories and industry proxies**

<u>**Figure 3a. Theories**</u>

Theoretical Perspective	Exploration	Exploitation
Resource Dependence Theory (*reducing dependency on external resources*)	Increase power and reduce dependency by acquisition of external resources that are available for exploration	Increase power and reduce dependency by acquisition of external resources that are available for exploitation
Resource Based View (*utilizing internal resources*)	Exploration of internal resources allows for eventual exploitation of the internal resources	Exploitation of internal resources helps improve performance
Resource Security (*acquiring external resources*)	Resources are secured to enhance long-term resource security as a safeguard for the future	Resources are secured for immediate benefits gained from resource consumption

<u>**Figure 3b. Industry Proxies**</u>

Proxies for Operationalization

Industry	Exploration	Exploitation
Product-Based Industries (Hoang & Rothaermel, 2010; McNamara & Baden-Fuller, 2007)	R&D / Learning / Experimenting	Commercialization/Manufacturing
Retail Banking/ Insurance (Flier, Bosch, & Volberda, 2003; Volberda, van den Bosch, Flier, & Gedajlovic, 2001)	Entering new markets and product/service innovation	Increasing efficiency in existing markets using existing products/services
Investment Banking/Venture Funding (McNamara & Baden-Fuller, 2007)	Funding new ventures for new products/services that are not currently available	Funding new or existing ventures for refinement of existing products/services
Professional service firms (Groysberg & Lee, 2009)	Initiate new analyses of sectors in which the firm has performed no previous research	Analyze a sector in which the firm has already established research
Theaters (Voss, Sirdeshmukh, & Voss, 2008)	Creation of new-to-the-world plays and the injection of creative new forms of artistic expression	Incrementally modified/refined productions from the existing canon of plays
Petroleum Industry (this study)	Exploring for petroleum on land that is made available for exploration for the first time, on awarded land where no exploration activity has occurred, or in areas where discoveries have previously been made, but have not been developed and put into production	Operation of fields in geographic areas where petroleum has been found and are currently in production, or in geographic areas that were once producing, but operation of these fields has previously ceased and has since been revitalized

Figure 4. Home countries of SOEs: Net importers, energy use, GDP, and foreign resource acquisitions

■ Net Energy Imports (% of energy use)

Net Exporters ← → Net Importers

Countries that have SOEs in oil & gas industry
(* = Country's SOEs made foreign acquisitions of petroleum resources)

▢ Foreign Resource Acquisitions (by Home Country's SOEs) —○— Energy Use (Home Country)

Correlation between energy use and number of foreign acquisitions : r = 0.95 with p <0.001

Countries that are net petroleum importers
(* = Country's SOEs made foreign acquisitions of petroleum resources)

▢ Foreign Resource Acquisitions (by Home Country's SOEs) —△— GDP (Home Country)

Correlation between GDP and number of foreign acquisitions : r = 0.97 with p <0.001

Countries that are net petroleum importers
(* = Country's SOEs made foreign acquisitions of petroleum resources)

Net energy imports (% of energy use): [(energy use – production) / energy use]; positive = net importer; negative = net exporter.

Energy use: in 10^4 kt of oil equivalent; indigenous production plus imports and stock, minus exports.

GDP: Gross domestic product in 10^{10} dollars using purchasing power parity rates.

APPENDIX

Appendix A: Petroleum Industry

Strategy for firms in the petroleum industry involves business, engineering, geological, legal, and even political considerations. The petroleum industry is separated into three sectors: upstream, midstream, and downstream. The upstream sector involves exploration and exploitation (production) (E&P) of petroleum resources. Par with industry nomenclature, exploitation and production are used synonymously. Petroleum resources include both oil and gas. Oil is defined as "the portion of petroleum that exists in the liquid phase in natural underground reservoirs and remains liquid at atmospheric conditions of pressure and temperature" (SPE, 2007). Gas (sometimes referred to as natural gas), is defined as "the portion of petroleum that exists either in the gaseous phase or is in solution in crude oil in natural underground reservoirs, and which is gaseous at atmospheric conditions of pressure and temperature" [Reference: (SPE, 2007)]. Petroleum resources maintain functioning of developed countries—by fueling cars, heating buildings, and driving communication and transportation. These resources also help developing countries continue to develop—by generating electricity, providing energy for infrastructure, and fueling industrial activities (Sagar, 2005). Because of their value to both developed and developing countries, petroleum resources are elemental to national policies and competitiveness (Pirog, 2007; Schwab et al., 2009). Further, the location of these resources contributes to national wealth and energy security (Bradshaw, 2009).

There are only a few non-OPEC countries that are energy independent—among them Russia, Canada, and Australia (Katusa, 2012). For these countries, the goal is to alter "fiscal structures and ownership rules so as to glean as much benefit as possible from their riches, while still reserving sufficient supplies to fuel their futures," (Katusa, 2012). For every other country that is not energy independent, however, there are essentially two major priorities: (i) meet current demands for petroleum by importing from foreign suppliers, and (ii) secure the country's future by taking actions to reduce dependence on foreign suppliers—such as by acquiring the resources in foreign countries (EIA, 2012b).

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