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ADBI Working Paper Series

**STATE OWNERSHIP AND
NATIONALIZATION IN ENERGY
SECTOR: THE CASE OF
KAZAKHSTAN'S OIL INDUSTRY**

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Abstract

State-owned enterprises (SOEs) have been declining in numbers in most industries. However, in the oil and gas industry, state-owned national oil companies (NOCs) continue to secure dominant positions in most of the oil-producing countries. In some instances, energy-exporting countries conducted nationalization of their resources, while in other cases they tightened control over the privately owned firms. This paper begins with broader questions of why countries choose to have state-owned enterprises and why energy-rich states prefer to nationalize their oil and gas industries. Next, this paper explores a case of nationalization policies in Kazakhstan's oil and gas industry in the post-Soviet period. Although the full nationalization of the energy sector had not happened, the government's intervention in the industry had become more pervasive. As a result, multinationals were forced to form partnerships with the domestic national oil company (NOC), KazMunaiGas, in major oil and gas projects. We further explore the role of KazMunaiGas NOC in Kazakhstan's hydrocarbon sector. At the beginning of the 2000s, Kazakhstan consolidated its dispersed state-owned enterprises in the energy sector to create KazMunaiGas. Since then, Kazakhstan has set an objective to ensure more active participation of the domestic NOC in big-scale energy projects. Although KazMunaiGas was shaped as a fully integrated NOC with an increasingly visible role in the industry, it has to deal with challenges that many NOCs face globally. These challenges include improving technological capabilities, access to capital and financial independence, as well as strategic human resource management.

Keywords: state ownership, nationalization, oil sector, national oil company, Kazakhstan

JEL Classification: Z18, F52, H11

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1. INTRODUCTION

There is no universally accepted definition of state-owned enterprise (SOE), whereas the level of state intervention varies greatly across countries and industries. A state-owned company or SOE is generally referred to as a company that belongs to the government directly or through government holding shares of the company. This can be an entirely state-controlled company, or the government can be a legal owner of a proportion of shares of the company. In some cases, government controls companies through specially established holding companies or government-linked companies. This is a popular model in Kazakhstan, Malaysia, and Singapore, where domestic sovereign wealth funds act as majority shareholders in various corporations.

The task of identifying the motives for the creation of an SOE is not an easy one. Sometimes there may be several reasons for establishing one, while in other cases the reasons are not clear or are even contradictory. In his analysis of state-owned enterprises in twentieth-century Europe, Toninelli (2000) identified political (ideological), social and economic reasons for maintaining SOEs. Although nationalization patterns vary across countries, at least one, and possibly all three of these reasons can be identified in almost every case of nationalization.

Major nationalization waves took place in Europe between the 1930s and 1960s, which was influenced by two critical junctures. First, industries suffered severely from the economic crisis, and European states attempted to rescue their economies by taking control in some of the major industries. Before the Great Depression, industries mainly related to the military, such as metallurgy, railways, and oil sectors, were under the control of the state. By the end of the 1930s, Nazi regimes in Germany, Italy, and Spain established state presence in an increasing number of industries, including banking, food, chemicals, power generation, coal and iron mining, and construction (Toninelli 2000). The Nazi ideologists saw government control over the industries as a means to achieve social order and economic progress.

After the Second World War, many European states continued to rely on state-owned companies in order to rebuild their devastated economies. However, the popularity of SOEs declined after the 1960s. Neoliberal economic theory argued that it is impossible for state-governed companies to avoid the destructive effects of political influence and political shocks. The argument about the superiority of privately owned companies in their efficiency had become pervasive. The World Bank study concluded in 1997:

The sad reality is that, although some committed governments have reformed their state enterprises in the short term, making these reforms stick is much harder. World Development Report 1983 spotlighted a number of well-performing state enterprises around the world; by 1993 a majority of these had sunk into decline (World Bank 1997, p. 64)

In recent decades, state-owned enterprises (SOEs) received largely negative evaluation. This is due to the fact that SOEs are created mainly through the nationalization of industries, which naturally puts SOEs as in contrast to private firms (Phi et al. 2019). As the mainstream economic thinking promoted privatization to achieve the maximum efficiency in production, nationalization is often seen as an impediment to the development of the economy. In addition, scholars emphasize that there are a number of difficulties in managing the SOE that are related to their public and political nature.

Furthermore, state ownership can be an impediment to a company's successful integration in the global market (Bellini 2000). This is mainly because international investors and partners seek to avoid business environments with high public sector interference. For them, the absence of the public sector engagement provides assurance for contract safety and compliance with the free market rules. Thus, the need to attract foreign investment has been one of the factors for developing countries to privatize certain industries.

From the beginning of the 1980s, the World Bank and the International Monetary Fund have become active in promulgating privatization policies (Babai 1988). The negative evaluation of the SOE performance has dominated economic thought. The World Bank suggested that state-owned enterprises remain an important obstacle to better economic performance (World Bank 1995). Britain was at the forefront of privatization during the Thatcher government between 1978 and 1991. The share of the gross domestic product contribution by SOEs declined from 6.1% to 1.9% in this period (World Bank 1995).

By the end of the 1980s the wave of economic reforms that included privatization, deregulation and promulgation of the free market came to East European countries, former Soviet Union countries and many other developing regions. The collapse of the Soviet Union served as an illustration of the failure of the all-encompassing government intervention in the economy. The Soviet example highlighted limitations of a centrally planned economy, which failed to cope with the global challenges. Consecutively, the retreat of the communist regimes in Eastern European countries forged the liberalization of economies in these countries, which emphasized nationalization reforms. The People's Republic of China also changed its course to introduce market reforms, managing to combine it with the communist ideology.

The 15 new republics that obtained their independence from the former Soviet Union were looking to rebuild their economies weakened by the continuous crisis. The former Soviet Union countries, including Kazakhstan, embraced privatization reforms hoping to save their economies from the catastrophic fall in production throughout the industries. However, beginning from the early 2000s, Kazakhstan attempted to increase state participation in its oil industry. The creation of the state-owned KazMuniGas national oil company (NOC) indicated the beginning of a new period in the development of the industry. We focused on the case study of Kazakhstan because it is the biggest economy in the Central Asian region, while its economy relies heavily on oil exports as the primary source of revenues.

Due to the strategic importance of the industry, the level of state intervention in the oil sector is evident and often comes under criticism. The country is endowed with significant oil and natural gas reserves. Kazakhstan is ranked 12th in the world with proven oil reserves of 30 billion barrels, and its proven gas reserves are 1.3 trillion cubic metres (BP 2014). Experts estimate that more oil and gas reserves are yet to be discovered in Kazakhstan. To discover these potential energy deposits, several large-scale exploration projects have been launched recently in the Caspian Basin. In this context, this paper aims to explore the dynamics of nationalization in Kazakhstan's oil industry, the role of the state-owned company as well as the challenges faced by the national oil companies and how they can be addressed. The paper's contribution adds to our understanding of SOEs in the oil sector and their challenges, which are specific due to the nature of the industry. Furthermore, we aim to highlight the specificity of reforms and policy challenges in the Kazakhstani context, which is an economy in transition from centrally planned to a market-driven institutional setting.

This paper is structured as follows. The next section reviews the existing scholarly contributions on the role of national oil companies and nationalization policies in the

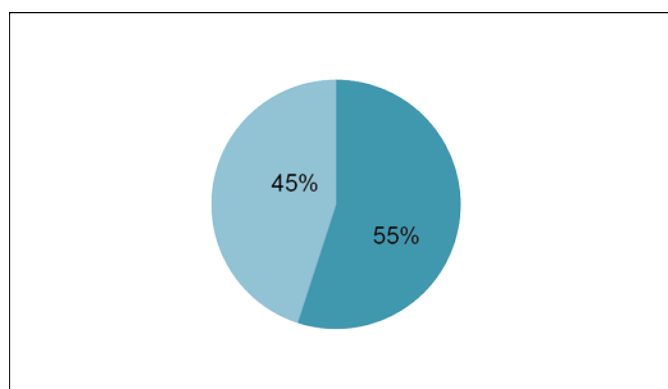
global oil industry. This is followed by a case study of Kazakhstan's oil sector, where enterprises were privatized in the 1990s and then domestic firms consolidated in the next decade under the state-owned NOC KazMunaiGas. Next, we discuss the challenges for NOCs that can be identified and offer policy recommendations for tackling those challenges. The final section concludes.

2. STATE OWNERSHIP AND NATIONALIZATION IN THE OIL SECTOR

2.1 Nationalization and National Oil Companies

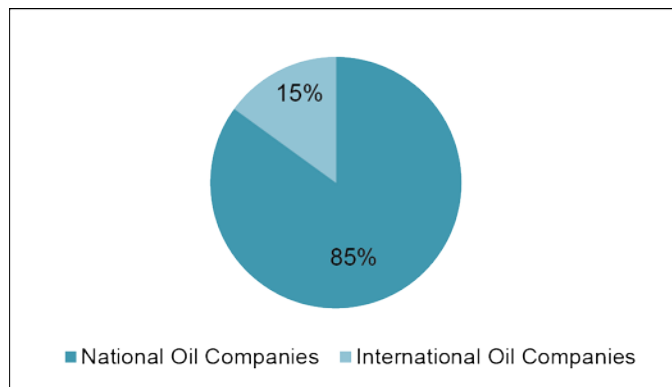
State-owned enterprises have been declining in numbers since the 1970s in most industries worldwide due to privatization reforms. However, in the oil and gas industry, state-owned national oil companies (NOCs) continue to secure important roles. The importance of NOCs is predicted to grow as the International Energy Agency (IEA) estimated that by 2030, NOCs will contribute up to 80% of the total rise in world oil and gas production (IEA 2008). It is often argued that state-owned companies ended the domination of the oil multinationals in the global energy industry (Hartley and Medlock 2008). Estimates of NOC reserves range between 80% and 90% (see Figure 1 and Figure 2), according to different sources (*The Economist* 2011). In the past four decades, NOCs have substantially entrenched their role as key players in the industry. With high oil prices, NOCs gained access to capital to invest in new energy projects. However, NOCs are also often subject to criticism for their inefficiency (Victor 2007; Tordo 2011). In many cases, this can be explained by their close ties with their respective home governments, which assign NOCs to perform a range of noncommercial activities.

Figure 1: The Distribution of Global Oil Production between NOCs and IOCs (2011–2017)



Source: The_NOC_Database 2019.

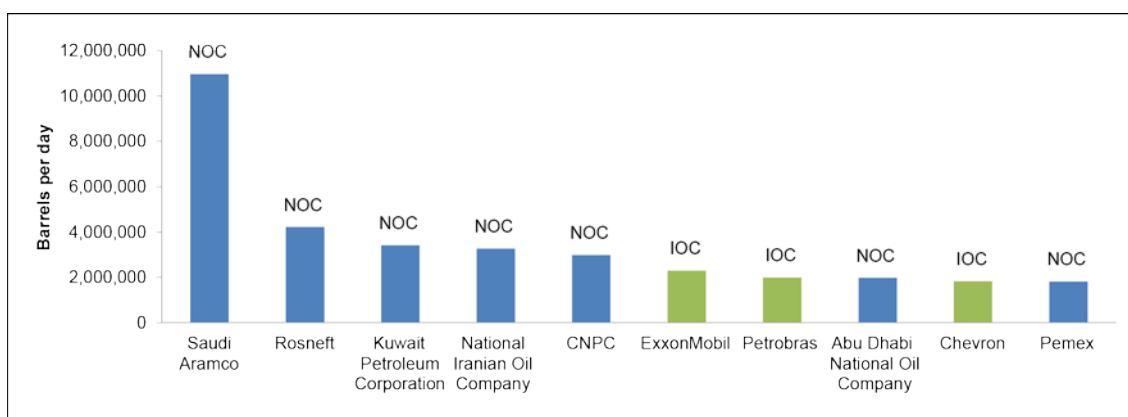
Figure 2: The Distribution of the World's Oil Reserves between NOCs and IOCs (2018)



Source: KPMG (2018).

Entrenched state participation in extractive industries is commonly perceived as a declaration of state sovereignty over the possession of national wealth. Thus, many oil-producing countries attempted to concentrate their energy resources in the hands of their domestic NOCs. Since the 1970s, state-owned oil companies started to play an increasingly important role in the global petroleum industry. A national oil company is an enterprise, in which a state holds full or a majority of shares. A state can manage the shares of an NOC directly (through government ownership) or through a state holding company, as in the case of Kazakhstan’s KazMunaiGas NOC. State-owned NOCs can be found mostly in oil-exporting states, e.g., Saudi Aramco (Saudi Arabia), Gazprom (the Russian Federation), Petroleos de Venezuela (PdVSA, Venezuela), but also in oil-importing states, e.g., Oil and Natural Gas Corporation (ONGC, India), China National Petroleum Corporation (CNPC), China National Offshore Oil Corporation (CNOOC) (Figure 3).

Figure 3: Top Ten Global Oil Companies by Oil Production (2018)



NOC = national oil company, IOC = international oil company, CNPC = China National Petroleum Corporation.

Source: Based on data from (Offshore_Technology 2019).

In comparative studies of SOEs and privately owned companies, much discussion revolves around the measures that are used to access the performance forms. As Aharoni stated: "...much of the debate about the comparative efficiency of privately owned firms and SOEs is waged on ideological grounds, generating much heat but very

little light” (2000:53). He further argues that the challenging task is to compare the firm’s efficiency, productivity or any other criteria because it not possible to find two comparable firms within one industry or even within one country. Therefore, research that compares the performances of the SOEs and private firms are subject to subjectivity.

The existing literature on NOCs focuses largely on ownership structure and its implications for performance. Studies that emphasize profitability and economic efficiency generally arrive at the conclusion that privately owned firms are better performers (Tordo 2011; Wolf 2009). While profit-making of SOEs is essential, focusing on profitability as the sole criterion will mislead policy makers, keeping in mind also that the nature of many SOEs is to generate social welfare and not profit (Taghizadeh-Hesary et al. 2019). Noncommercial objectives of SOEs were referred to as ‘the national mission’ (Stevens 2008). Such goals may include regional development, equal distribution of income, technological development, reduction of unemployment, and other social goals. Objectives of NOCs may vary, depending on whether the company originates from the oil-exporting or oil-importing country. For an oil-importing country, this objective could be quite straightforward – to ensure the security of sufficient energy supplies for its home country. For example, state-owned companies in the PRC and India have been increasingly active in purchasing equity in oil projects around the world.

As for energy-exporting countries, the NOC’s objectives can be more ambiguous, such as representing the home government in energy projects, building expertise in the industry, ensuring the security of national interest, and so on. In many developing countries, an NOC is seen as an institution, which is not only able to drive the economy but also through which a state’s technological and managerial capacity in the oil industry is upgraded. NOCs often play an important symbolic role, which can be illustrated by the Mexican example, where the anniversary of Pemex NOC is celebrated as a national holiday.

The nationalization process in the energy sector commonly, but not necessarily, involves expansion of the influence of national oil companies in host countries (Kalyuzhnova and Nygaard 2009; Palazuelos and Fernández 2012). This paper will explore how the role of the NOC KazMunaiGas changed in Kazakhstan with the government’s increased intervention in the domestic energy sector. KazMunaiGas is a fully integrated NOC, which currently holds shares in most of the major oil-extracting projects. The company was formed in 2002 by the decree of the President of Kazakhstan, through merging Kazakhoil and Oil and Gas Transportation. During the second decade after independence, Kazakhstan put much effort into strengthening the role of the country’s NOC KazMunaiGas in the energy sector. Amendments to the existing legislation in 2005 allowed the state to exercise preemption rights on any oil assets put up for sale in the country, while the new legislation also stipulates that Kazakhstan shall own at least 50% of shares in new oil and gas projects in the country. These measures helped KazMunaiGas to substantially increase its participation in the local hydrocarbon industry.

2.2 Nationalization Waves in the Global Petroleum Industry

Although a “textbook type” nationalism is a rare phenomenon, there have been attempts to categorize resource nationalism. For example, Bremmer and Johnston (2009) distinguished four different categories of resource nationalism. A revolutionary type of resource nationalism expresses itself as all-sweeping radical changes in the ownership type, which may happen within a short time period (as illustrated by events in the Russian Federation and Venezuela at the beginning of the 2000s). The economic type is

underpinned by the motivation to increase economic rents. This category is often referred to in relation to the case of Kazakhstan. A legacy resource nationalism seeks to maintain national ownership over the resources. Governments there often face fierce opposition to any attempts to invite foreign investors (e.g., Kuwait and Mexico). A soft resource nationalism takes place through changes in the regulatory regime without imposing pressure on foreign investors. This type of resource nationalism is rampant in some of the OECD countries, including Britain and the United States.

After the Asian financial crisis of 1997 and the economic crisis in the Russian Federation in 1998, many were questioning the liberalization of markets and noninterventionist policies. In light of this, state ownership has become popular and especially in the petroleum sector. Access to technology remains a problem for developing states, while the rise of the NOCs and service firms such as Halliburton and Schlumberger increased industry competition. All this led to the events of the period between 2002 and 2013 when numerous energy exporters, including Bolivia, the Russian Federation, and Venezuela introduced nationalization reforms to tighten their grip over the strategic resource exporting industries.

The past two decades can be characterized by the increasing role of energy exporters and their domestic NOCs. All top ten oil exporters (excluding the US and Canada) established their state-owned NOCs to operate in energy projects. Resource nationalization movement in the Middle East countries led to the formation of the Organization of Petroleum Exporting Countries (OPEC) in 1960. The formation of OPEC symbolized a turning point when oil-producing states attempted to exercise control over the sale of their natural resources. Currently, eight out of ten top oil exporters are members of OPEC. In aggregate, OPEC countries possess more than three quarters of the total world reserves. Therefore, attempts by OPEC countries to exercise their monopoly over oil production and price-setting caused several oil shocks in the 1970s.

Given that the major oil-importing countries possess only a small fraction of global oil reserves, security of energy supplies became one of the priority issues in their policy agendas. None of the major oil importers (excluding the People's Republic of China and India) has a state-owned NOC. Analysis of the data on world energy reserves reveals that the decision to privatize oil enterprises is linked to the reserves/consumption ratio. If the reserves/consumption ratio is bigger, it is more likely that the country will privatize its oil industry. Therefore, many oil multinationals originate from major oil-importing countries. In fact, the majority of the existing oil multinationals started off as state-owned companies and were later privatized. For instance, BP (UK) was privatized by the end of the 1970s, and ENI (Italy) was privatized during the 1990s.

Since the beginning of the 1970s, international oil companies (IOCs) faced numerous challenges attributed to the rise of resource nationalism in developing countries. NOCs challenged the monopolistic position of multinationals in many oil-rich regions. Nationalization waves in the Middle East and several other oil-rich regions resulted in a substantial decrease in IOC's reserves, which currently account for only about 13% of world reserves. With the general acceptance of the argument that the age of major oil discoveries is over, the reserves replacement ratio of multinational enterprises (MNEs) is on the decline. Not surprisingly, with the disintegration of the Soviet Union multinationals rushed into the region to get hold of the region's vast untapped reserves. The next section will provide an overview of privatization reforms and the nationalization of the energy sector in Kazakhstan.

3. A CASE OF KAZAKHSTAN'S OIL SECTOR: PRIVATIZATION, NATIONALIZATION, AND THE NATIONAL OIL COMPANY

With the collapse of the Soviet Union, Kazakhstan inherited a highly centralized state-controlled economy with about 37,000 registered state-owned enterprises in literally all sectors of the economy (World Bank 1996). Shortly after the independence, to revitalize stagnated industries and attract foreign capital to the country, Kazakhstan's government launched the privatization programme, which the *Financial Times* dubbed "the sale of the century."¹ With the guidance and assistance from the United States Agency for International Development (USAID) and the World Bank, the government developed the mass privatization program (Jermakowicz, Kozarzewski, and Pankow 1996).

The program envisaged three stages of realization. In the first stage (1991–1992), the government planned to sell to private owners up to half of the small and medium-sized enterprises with 200–5,000 employees. These were mainly enterprises in industry, agriculture, and services. About one third of all enterprises were privatized during this stage (Jermakowicz, Kozarzewski, and Pankow 1996). In the second phase (1993–1996), the medium and large enterprises were privatized. Finally, in the third phase of privatization (1997–2000), the country's biggest and most important enterprises were privatized on a case-by-case basis through tenders. At this stage, the government planned to transfer the ownership rights of 142 large enterprises. The scale and speed of privatization were overwhelming, and the public perception of such hasty reforms was largely sceptical.

Kazakhstan's proven oil reserves are around 30 billion barrels, which makes it one of the top ten oil-rich countries in the world (BP 2014). Not surprisingly, the oil sector attracted the lion's share of foreign direct investment (FDI) compared with other industries. It had been calculated that about half of the \$14 billion total FDI inflows to Kazakhstan's economy were directed into the petroleum sector (Olcott 2010). All major Western companies in Kazakhstan are privately owned, whereas PRC companies are state-owned. Although the Russian Federation government had a minority stake in Lukoil and the company was later fully privatized, it is still regarded as a state-controlled company.² In addition, smaller independent oil firms, such as Central Asia Petroleum (Indonesia) and Hurricane Hydrocarbons (Canada) operated in Kazakhstan.

From 1999, the economy recovered and grew rapidly, fueled by increased prices in world markets for Kazakhstan's leading exports – oil and gas. In 2000, Kazakhstan's GDP grew by 9.6%, and from this point, during the next decade GDP growth rates have been among the highest in the world. Throughout the period between 1999 and 2014, the government rejoiced in the impressive growth of the economy. However, the resource-exports-based growth eventually proved its unsustainability, as revealed by the recession of the country's economy in 2015. Kazakhstan's currency lost almost half of its value as it was devaluated with the new floating exchange rate by the National Bank. This served as another illustration of how important oil is for the country's economy. Oil price fluctuations have a significant impact on the macroeconomic situation of the country and also on the stability of the financial system (Dosmagambet et al. 2018). This highlights that not only oil exports have an impact on the economy but also the performance of the oil sector

¹ "Kazakhstan's Sale of the Century," *The Financial Times*, 25 October 1996.

² Lukoil's President, Alekperov, is a former senior Soviet energy official.

players such as the KazMunaiGas NOC potentially has a profound impact on the economic status of the country.

Prior to independence, Kazakhstan's local oil-producing fields were managed exclusively by state-owned enterprises. Most of the country's oil output came from the five largest state enterprises: Aktobemunaigas, Embamunaigas, Mangistaumunaigas, Tengiznunaigas, and Yuzhneftegas. The largest gas-producing field, Karachaganak, was managed by the Kazakhgazprom concern, in which the state owned 90% of shares and the remaining 10% belonged to workers of the enterprise (Luong and Weinthal 2010). Before 1991, these enterprises enjoyed a high degree of independence from local authorities, and only the Moscow-based Ministry of Energy was regulating their activities. Shortly after independence, the government created the Kazakhstanmunaigas holding company to consolidate control over energy enterprises.

The concept of the state-owned oil company or 'national oil company' was initially legislated in 1999, in the revised version of Kazakhstan's Law on Subsoil and Subsoil Use. At the beginning of independence, the country inherited state enterprises (i.e., Yuzhneftegaz, Mangistaumunaigas, Aktobemunaigas), which operated independently from each other. To coordinate their activities centrally, the government established the Kazakhstan Oil and Gas Corporation in July 1991. In 1992, the corporation later was renamed as the Kazakhstanmunaigas holding company. In 1997, Kazakhstanmunaigas was partitioned to form the Kazakhoil state oil company and Kaztransoil and Kaztransgas transportation companies. The two transportation companies Kaztransoil and Kaztransgas were merged in 2001 to form the Oil and Gas Transportation company (OGT).³ OGT managed hydrocarbon transportation, pipeline infrastructure development, and the export and import of oil and gas products.

In 2002 the government merged Kazakhoil and OGT into a superstructure in the form of the national oil company KazMunaiGas. The government's official statements on the creation of the NOC iterated that the oil and gas sector bears strategic importance for the country as the economy relies heavily on revenues from energy exports. Hence, the state attempted to become a visible actor in the energy sector through nurturing its own "national champion" – an integrated NOC. As the company quickly rose to the third position in terms of oil production in the domestic market, it has become one of the most significant assets of the government with high strategic importance.

Amendments, introduced to the governing law in 2005, enabled the state to exercise a first-buyer right on energy assets publicly offered for sale in the country. This allowed KazMunaiGas to secure larger shares in major energy projects. At the time of writing, the company holds 16.8% of shares in Kashagan, 20% in Tengiz and 10% in Karachaganak fields. The new legislation also stipulates that Kazakhstan shall own at least 50% of shares in new oil and gas projects in the country. These measures have helped KazMunaiGas to substantially increase its participation in the domestic energy sector since 2002.

A decade after its formation, KazMunaiGas consolidated within itself more than 200 firms, operating domestically and internationally. The company owns majority shares in the London Stock Exchange-listed KazMunaiGas Exploration and Production (KMG EP). The NOC participates as a shareholder in managing three refineries in Kazakhstan, namely in the cities of Pavlodar, Atyrau, and Shymkent, as well as two oil refineries in Romania.⁴ It is investing in the modernization of Kazakhstan's refineries, with the prime objective being to allow self-sufficiency of the local market with domestically produced

³ History of KazMunaiGas, company website. <http://kmg.kz/en/about/> (retrieved 5 December 2018).

⁴ KMG company website. http://kmg.kz/en/investors/for_investors/# (accessed 6 December 2018).

petrol. Additionally, KazMunaiGas most of the oil- and gas-transporting operations, including exports through its subsidiary companies KazTransOil and Kaztransgas.

Initially, KazMunaiGas was directly owned by the government of Kazakhstan. In 2006, the government implemented reforms, concentrating state shares in different sectors of the economy within the newly created Samruk holding company. Thus, the shares of KazMunaiGas were transferred to Samruk, together with shares of several other state enterprises, such as KazPost, KazakhTelecom, Kazakh Railways and Kegoc (national power grid company). The government later merged Samruk with another holding company, Kazyna, to form the Samruk–Kazyna sovereign wealth fund, under which most of the national companies were consolidated. The sovereign wealth fund was designed to become the “entrepreneurial hand” of the state, which will manage strategic SOEs and reinvest the government’s capital. In July 2015, the government decreed that Samruk–Kazyna will sell 10% equity shares in KazMunaiGas to Kazakhstan’s National Bank for \$4 billion. Thus, KazMunaiGas is now owned by two shareholders, Samruk–Kazyna and National Bank, though this will not greatly affect its strategy, as both shareholders are governmental institutions. The state provides political backing for the NOC, whereas the financial institutions supply capital for various investments. At the same time, KazMunaiGas is Samruk–Kazyna’s biggest and most profitable subsidiary.

The organizational design of the energy industry separates commercial, policy-making, and regulatory functions. The government acts as a primary policy maker, while the Ministry of Energy (MOE) performs regulatory functions. The NOC in this triangle was supposed to mainly concentrate on commercial goals. This is similar to the Norwegian model of governance, which was designed to eliminate the conflict of business and regulatory interests (Al-Kasim 2006). In many instances, the NOC performs an intermediary function between the state and multinationals, representing the interests of the government. In that way, the NOC can help the government to reduce the negative impacts of information asymmetry as it is directly engaged in oil and gas projects.

After establishing a NOC, the government pursued the goal of expanding its participation in the local oil and gas industry. The NOC acquired 10% in Karachaganak Petroleum Operating (KPO), and 16.8% in Kashagan projects (Table 1). The local law allows KazMunaiGas to acquire at least 50% shares in new energy projects. Furthermore, the state bounded IOCs to form a “strategic partnership” with the NOC. It was pointed out that MNEs in Kazakhstan are “forced to work in one way or another” with the domestic firms (Olcott 2007:2). This can be considered as a form of “forced cooperation” between the international oil companies and local firms.

In essence, this partnership between MNEs and the NOC was supposed to foster the development of management expertise, allowing the upgrading of project management and technical capabilities along with the development of local engineering expertise. KazMunaiGas had professionals with superior knowledge of the geology of local oil and gas fields but lacked access to new technologies and know-how. International oil companies had technology and experience in managing complex projects. Therefore, the partnership between Western oil companies and KazMunaiGas is mutually beneficial.

The country’s determination to expand the participation of the NOC in the domestic energy sector is not a new phenomenon. With the discovery of oil deposits in the 1970s, the Norwegian Statoil national oil company followed a similar path during the initial years of its establishment. Rejecting the plans to form a nonoperational

managing oil firm, the government supported Statoil's joint projects with British Petroleum (BP) and other major MNEs to "speed-up the learning curve" (Al-Kasim 2006). In a similar vein, Kazakhstan aspires to follow the so-called "Norwegian model" in managing its oil and gas industry.

Table 1: Participation of KazMunaiGas NOC in the Major Domestic Energy Projects

Project	Original Contract (%)	1996 (%)	1998 (%)	2000 (%)	2005 (%)	2008 (%)	2011 (%)
Tengiz (TCO)	50	25	25	20	20	20	20
Karachaganak (KPO)	0	0	0	0	0	0	10
Kashagan (NCOC)	14.28	14.28	0	0	8.33	16.81	16.81

Source: Author's compilation, based on data from the Ministry of Energy (www.energo.gov.kz).

It was pointed out that Kazakhstan succeeded in shaping KazMunaiGas as an integrated oil company, which is an active actor in the domestic energy sector (Olcott 2007; Domjan and Stone 2010). The company has ambitions to become one of the top 30 oil companies in the world, as well as entering the list of top 500 Fortune-ranked firms. The government announced plans to sell NOC shares on the initial public offerings (IPO) market, which is expected to generate additional capital while improving the transparency and accountability of the company.

To achieve the aforementioned goals, KazMunaiGas introduced its "Innovation-based and Technological Development Strategy for 2014–2018." This strategy is aimed at resolving the existing technological problems and developing the main sectors of KazMunaiGas's industrial activity. The company strives to strengthen and develop its R&D capabilities, facilitate the transfer of technologies, and create the innovation-friendly infrastructure (KMG 2013). Among the benchmarks that the strategy sets, is the goal of forming a system of management, which will lead the innovation-based technological development in the company. The management plans to create the necessary conditions to facilitate the use of innovations and energy-efficient technologies.

Aiming to nurture KazMunaiGas as a domestic champion, Kazakhstan sought to upgrade the competitiveness of the NOC to the international level. Similar to its international counterparts, such as Statoil and Petrobras, KazMunaiGas aspired to become an "international national oil firm." The NOC started its international expansion in 2007, acquiring 75% of Romanian Rompetrol and completing the acquisition two years later with purchasing the remaining 25%. With this asset, KazMunaiGas is involved in the refining, trading, and marketing of oil products together with operating a petrochemical facility. KazMunaiGas has a base in the European market with access to trade routes in the Black Sea as it owns a 50% share of the Kherson oil refinery in Ukraine (KMG 2013).

Among the international acquisitions by KazMunaiGas is the purchase of a licence to develop a gas field in Iraq in 2010 (Heinrich and Pleines 2012). In the longer-term perspective, KazMunaiGas's hydrocarbon deposits and production facilities abroad could serve energy security goals for the time when the country's oil reserves will decrease. Most of the fields in the possession of KazMunaiGas are "brownfields," where the production is steadily declining. The company management is working on increasing the recovery rate and efficiency of the enterprise. Another goal of the government was to increase the number of local workers in the petroleum sector. However, as a proportion of the total population, the number of domestic employees in this sector remains minor, due to the low labor intensity of the industry.

4. CHALLENGES OF NATIONALIZATION FOR THE PETROLEUM INDUSTRY AND POLICY RECOMMENDATIONS

In this section, we will outline the most important contemporary challenges for national oil companies from emerging economies such as Kazakhstan. In particular, we will focus on technology, access to capital and financial independence, and human resources. At the end of this section, we will also propose policy recommendations to address these challenges.

4.1 Technology

In the oil and gas industry, competitive advantage is achieved by advancing technology development. As in anywhere in the world, in Kazakhstan there is a need for new breakthroughs in technology that can help to explore and produce more oil and gas. The lack of technical capability to develop oil fields in Kazakhstan necessitated the need to invite more experienced oil multinationals in the early years of independence. Even during the Soviet period, the USSR Ministry of Energy appealed to Chevron for assistance in developing the Tengiz oil field in West Kazakhstan. At the time, the Soviet oil industry lacked the advanced expertise and technology needed to conduct production in such a challenging project (Gustafson 1989).

Technology is by far one the most important factors of success in developing deep-water offshore fields such as Kashagan in the Caspian Sea. Technological challenges in upstream oil production can be exacerbated in offshore and deep-water locations as well as in onshore new oil deposits with geological complexity or limited data. Development of some oil fields in Kazakhstan represents a unique combination of technical and supply chain complexity. For example, the development of offshore the Kashagan field combines engineering, logistical, and environmental challenges that make it one of the most complex and expensive industrial projects currently being developed in the world. In addition, due to environmental challenges, international companies must consider oil and gas production in a safe and efficient manner.

Similarly, even mature oil fields present technological challenges after reaching peak production volumes as the reserves become exhausted, posing difficulty in maintaining pressure. Two of Kazakhstan's three largest oil fields, Tengiz and Karachaganak, have been producing oil for more than 25 years, which means that such an issue will present real technological challenges in the years to come. Most of the cutting-edge technological developments in oil production and processing have been developed by international oil companies or service companies like Schlumberger and Halliburton. Most NOCs lack such technology and know-how with only a few exceptions, such as Petrobras (Brazil) and Statoil (Norway), which developed the capacity and R&D strength to have their own world-class technology.

Taking into account that producing oil from challenging fields such as the Kashagan offshore deposit and Tengiz poses immense technological challenges, the presence of MNEs seems to be necessary for Kazakhstan's energy sector. Therefore, in the most likely scenario, the government will attempt not to discourage MNEs from future investments in the country's energy projects (Orazgaliyev 2018). In tightening the regulation, the government was not inspired solely by opportunistic motivations to increase short-term rents from the oil exports. As is illustrated by Kashagan and Karachaganak cases of state intervention, the government aimed to strengthen the visibility and role of the KazMunaiGas NOC in the domestic energy sector.

4.2 Capital and Financial Independence

Shortage of capital was one of the main reasons for inviting international oil companies to develop oil projects in Kazakhstan in the 1990s. The country's economy was shattered by the crisis after the collapse of the Soviet Union. Prior to independence, the local industries mainly played a supplier role for the Soviet economy. This interdependence made the Kazakh industries extremely vulnerable when the linkages with the Soviet economy broke in 1991 (Orazgaliyev and Araral 2019). Kazakhstan found itself in urgent need of gaining cash through commodity exports.

As for the NOCs, access to capital to be able to invest in production, exploration, R&D, and other activities is another significant challenge. Large international oil companies generally do not experience such problems with accessing capital markets, while also being able to trade their shares, bonds, and other security instruments. Due to their proven financial track record, they can access capital at a relatively cheaper cost compared to small firms or SOEs. In contrast, NOCs are relatively more constrained in their options to access capital, and they have to rely on their governments to provide finances. In this category as well, there are exceptions, such as Saudi Arabia and Kuwait, as their financial reserves allow them greater financial freedom.

KazMunaiGas's annual report and the media coverage draws a somewhat idealistic picture of the company, as it is symbolically viewed as the country's "national champion." However, the efficiency of NOCs elsewhere had often been heavily criticized, and the NOC is not an exception in this regard. The root of the inefficiency of SOEs is seen in their struggle in balancing national interests and commercial goals, which represents a traditional dilemma for many NOCs. According to the Development Strategy of KazMunaiGas, the company's primary mission was set as commercial.⁵ At the same time, the NOC inevitably performs the so-called "national mission" objectives, which occasionally may conflict with corporate goals of maximizing shareholder value. Thus, the challenge for the NOC is to find a balance between commercial and national interests.

The government periodically pressures KazMunaiGas to set aside commercial interests, in favour of its national objectives. For example, KazMunaiGas EP is required to provide crude for domestic refineries for a subsidized price. Another subsidiary of KazMunaiGas, KazTransGas, provides subsidized gas for southern regions of Kazakhstan (Olcott 2007). KazMunaiGas also has social obligations, which include but are not limited to, developing local infrastructure and training new personnel for the petroleum sector. The NOC is also the primary sponsor of the country's Boxing Federation and the permanent sponsor of various sporting events in the country. Such noncommercial projects affect efficiency indicators of the company, but eventually, it is largely perceived as a contribution to the development of the local economy and as corporate social responsibility activity.

⁵ <http://www.kmg.kz/en/> (accessed 6 November 2018).

4.3 Human Capital

Lastly, it is important to highlight that new technology and equipment will require experienced and skilled technical professionals to operate them. The lack of skilled personnel in the hydrocarbon industry is a challenge in most parts of the world, and this issue is relevant in Kazakhstan. Processes in the upstream sector, such as exploration and production, require high technicality, and thus, there is a need for skilled and qualified personnel. This challenge has limited many operations in different parts of the world, and Kazakhstan is no exception. The capabilities of employees and their technical skills determine, to a considerable extent, the success of an organization. To some extent, Kazakhstan's local content development policies could help to address this issue, but there is more to be done to tackle the problem of qualified personnel shortage.

After the nationalization wave of the 1970s in the oil industry, many developing countries made efforts to invest in indigenous capacity building in their respective NOCs. This includes, but is not limited to the training of petroleum engineers, project managers in the energy sector, geologists, reservoir engineers, senior management, marketing executives, and finance specialists. Undoubtedly, problematic areas remain, such as criticism that NOC workers show lower efficiency and motivation compared to their counterparts in private firms. Another issue is that careers in the petroleum sector are becoming less attractive for the younger generations, which could create a capability vacuum in the profession. The more popular professions, such as in financial services, IT, and legal services are perceived to be more prestigious in the post-Soviet space, including in Kazakhstan. Therefore, this issue potentially bears strategic importance for policy makers in resource-rich countries.

4.4 Policy Recommendations

Based on the existing empirical and theoretical research, several policy recommendations can be made regarding state regulation of SOEs in the energy sector. First, SOEs can grow and acquire technical capacity when they operate in a competitive environment. As private companies are most efficient in a competitive environment (Vickers and Yarrow 1988), the same can be said in relation to SOEs. For instance, Caves and Christensen (1980) argued that the underperformance of some publicly owned companies is due to their isolation from the competition and has little connection with the ownership type. Therefore, it is not the ownership but the competitive environment, which is the decisive factor for the successful functioning of a company in a particular industry and country.

Furthermore, it is highly recommended for NOCs to invest in R&D and develop advanced technology that is relevant to their specific climate, geological conditions, and other specific environmental conditions. For example, the oil production in the Kashagan field in the Caspian Sea was delayed by another year after the start of production in 2013 due to the imported technology and equipment that could not adequately function in the severe winter conditions of Kazakhstan, where the sea surface can be covered with ice for several months. In addition, the technology increasingly can be imported from outside, while NOCs could also enter partnerships not only with IOCs but also have options of contracting-out some operations to specialist services companies.

As has been mentioned, some governments and their NOCs struggle to raise capital, whereas in other cases oil-backed loans are used for expenditures of the government that are not related to the petroleum sector. One example is an oil-backed loan that

Kazakhstan acquired from the People's Republic of China during the 2008–2009 financial crisis, which was used to mitigate the consequences of the economic recession. In many cases, the net profit made by an NOC is not reinvested in expansion or oil exploration but used by the government to meet obligations in other areas, such as social care, infrastructure, and others. Therefore, the appropriate strategy for NOCs will be not only in raising capital but also to consider operational, financial and environmental risks, as well as processes of the planning, management, and execution of such risks. Furthermore, it is vitally important for NOCs to strategically mitigate adverse outcomes of oil price volatility, which involves forecasting growth trends in world markets and energy demand projections.

As for the human capital challenge, it is not only limited to educating and attracting the personnel but also involves training and retaining the industry professionals, who might be tempted to move to competitor firms or other sectors. This strategic human resources management involves identifying jobs that are critical for the industry and providing adequate financial rewards, training, as well as attractive future prospects. The governments of resource-rich countries must ensure that local universities and colleges offer the relevant programs and professional training, while ensuring that young professionals also have an opportunity to acquire international experience by studying abroad with governmental scholarships and grants. Unlike private firms, wholly state-owned companies are not able to offer these options to their employees, but they should offer other incentives to motivate their workers. This may include performance-based compensation as well as fair and transparent promotion opportunities based on the principles of meritocracy.

With regard to the implications of this analysis, the acquisition of technology, capital, and human resources by NOCs will not necessarily indicate the end of the “big oil” firms. MNEs can tackle the obsolescing bargain through a number of strategies directed at influencing host governments. It is true that national oil companies in oil-exporting states have acquired substantial power and expanded their participation in their domestic energy industries. However, multinationals are responding to these challenges with consolidation, vertical and horizontal integration, and the building of strategic links between home and host governments. The MNE-host country bargaining model suggests that both host governments and multinationals pursue various strategies to build up their bargaining advantages. Multinational firms continuously build up their firm-specific advantages in order to increase their competitiveness and bargaining power. In a similar way, developing countries would be in a more advantageous position if they continuously upgrade the competitiveness of their NOCs and their country-specific advantages. This would also help these states to mitigate negative effects of resource-exports-based growth, including the Dutch Disease and the natural resource curse.

5. CONCLUSIONS

As the paper discussed, Kazakhstan's government attempted to advance indigenous industrialization through empowering local firms such as KazMunaiGas national oil company. The NOC enabled the government to build an integrated oil and gas production value chain, while its operations include not only upstream crude production and exports but also downstream activities, such as crude processing and refining. Furthermore, Kazakhstan sought to upgrade the competitiveness of the national oil company to an international level. This was promoted through a “forced partnership” between MNEs and KazMunaiGas in several joint ventures. Interactions between

multinationals and KazMunaiGas are ambiguous because the former have to cooperate and, at the same time, compete with the national oil company.

Although there are some challenges for oil sector development in Kazakhstan, as this paper showed, there are tremendous opportunities for businesses, which could be explored in future research. The oil industry is the most rapidly developing sector in Kazakhstan and the primary contributor to the country's economic growth. For this reason, new investment initiatives in the industry receive strong support from the government, including through legislation and co-investment. Additionally, the government is planning to enhance the national gas industry through an expansion of current gas pipeline capacity, including the construction of new pipelines and gas processing facilities, and the development of a gas-based power generation industry.

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