



# A neoinstitutionalist interpretation of the changes in the Russian oil model

Catherine Locatelli \*, Sylvain Rossiaud

LEPII, Université de Grenoble, CNRS, BP 47, F-38040 Grenoble Cedex 9, France

## ARTICLE INFO

### Article history:

Received 21 January 2011

Accepted 21 April 2011

### Keywords:

Russia

Oil industry

Institutional coherence

## ABSTRACT

This paper deals with the current change of the institutional and organizational framework of the Russian oil industry. Regarding this evolution, the main characteristic is the increasing involvement of national oil companies in the upstream activities. The point is to explain this reorganization by relying on the New Institutional Economics framework. These theoretical works highlight that institutional environment and governance structures complement each other. We argue that the current reorganization in an attempt to increase the coherence of the institutional arrangement governing the transaction between the Russian state and the private oil companies.

© 2011 Elsevier Ltd. All rights reserved.

## 0. Introduction

Since the beginning of the 1990s the Russian oil industry has undergone major reforms that have affected its organizational model. The model that resulted from the reorganization and privatization of the Soviet industry, which had led to the emergence of an oligopoly structured around large private industrial-financial groups, is now undergoing major adjustments. The growing role of national oil companies (NOCs) in the industry is the factor most often mentioned to characterize the changes currently taking place. Russia is caught up in the movement known as “new oil nationalism” (Bremmer and Johnston, 2009; Domjan and Stone, 2010). Briefly, the interpretations put forward stress the short-term opportunistic behaviour of those in political power, who benefit from price increases and the ensuing shift in the balance of power to establish control over the country's most profitable assets. Clearly these developments encompass quite different changes that cannot be interpreted in terms of renationalization and short-term opportunism. Two important agreements signed recently between BP and Rosneft and between Bashneft and India's Oil & Natural Gas Corporation (ONGC)<sup>1</sup> bear witness to what is happening in terms of oil industry policy and suggest that, paradoxically, the expanding role of NOCs has been a forerunner to Russia further opening its upstream oil sector to investment from international oil companies.

The changes now taking place must be analysed in light of the somewhat mixed and ambiguous judgement that might be passed on the results of the reforms. While there is no denying that Russia has established itself as a vital player in the international

oil market, with an output of 9.96 mbd, the country is also having to face up to a major crisis in exploration. Contrary to what Russia had hoped for, the reforms of the 1990s did not enable the Russian oil industry to move toward growth patterns that would secure its long-term development. The conditions for renewing oil reserves are in fact not guaranteed.

The hypothesis advanced here to explain this paradox is as follows. The lack of coherence of the oil model introduced in the 1990s with the Russian institutional environment explains its incapacity to secure the conditions needed for renewal of oil resources. From a neoinstitutionalist point of view, the institutional and organizational framework put in place by the state to regulate the activities of oil companies determines the various incentives that influence companies in their choice of strategies to manage their subsoil resources. Thus, the exploration crisis is rooted in the short-term behaviour of players that followed the reorganization and privatization of the industry.

Our aim here is to provide an alternative explanation for the changes in the Russian oil model by examining the current changes from a neoinstitutionalist standpoint. Thus the current reforms can be interpreted as the reflection of a desire for greater institutional coherence between the oil model and the Russian environment. Increased state control of this sector may be justified by the state's interest in the management of its subsoil resources.

This paper is divided into three sections. The first section reviews the main institutional concepts relevant to the issues under discussion. Special attention is paid to the most recent developments in new institutional economics. In this respect, it is important to mention the attempt to develop a standardized framework for the different levels of analysis of institutions on which NIE has been built: the microeconomic level of governance structures developed by Williamson (2005), and the more macro-analytical analysis of the institutional environment by North (1990). This development in neo-institutional research has

\* Corresponding author. Tel.: +33 4 56 52 85 75; fax: +33 4 56 52 85 71.

E-mail address: [catherine.locatelli@upmf-grenoble.fr](mailto:catherine.locatelli@upmf-grenoble.fr) (C. Locatelli).

<sup>1</sup> “Has Moscow Changed Its Tune On Investment?”. *Petroleum Intelligence Weekly*, Vol. L, 11, 21 March 2011.

resulted in a tendency to structure research around the ideas of institutional complementarity and coherence. In the second section, the role of the institutional reforms of the beginning of the 1990s in inducing a certain institutional ineffectiveness is examined. Most importantly, the definition of private property rights on assets resulted in the emergence of new private actors focussing on short terms strategies. Furthermore, regulation by contracts proved ineffective in stabilizing transactions. The final section conducts a review of the recent changes in the organizational and institutional framework governing the Russian oil industry. It is argued that the increasing involvement of NOCs is an organizational answer to institutional incoherence.

## 1. New institutional economics: towards a research programme focusing on the issue of institutional complementarity

The multi-level analysis of NIE provides the base of this approach (Williamson, 2000; Dixit, 2009). Analysis focuses here on the levels represented by the institutional environment, in the sense used by North, and by the governance structures of Williamson. Each of these two levels introduces the different functional roles attributed to institutions by NIE. One way of understanding institutions is that proposed by North. This author considers institutions as the rules of the game of a society (North, 1990). This broad approach encompasses both the rules governing private transactions and the legal and regulatory environment. Furthermore, informal institutions introduce the cultural, social and cognitive process that provide a range of norms shaping human interaction (Vanderberg, 2002). According to the authors adopting this perspective, the functional role of institutions is two-fold. First, institutions help decrease the uncertainty faced by individuals and therefore there are an important factor in determining the timeframe in which various individuals interact.

Another way to look at institutions in NIE is that advocated by transaction costs economics (TCE). Economic institutions are viewed as the governance structures put in place by agents for managing their transactions. Governance structures are defined as the “explicit or implicit contractual framework” governing a transaction (Williamson, 2005). The distinction between implicit and explicit is based on the fact that governance structures have both a contractual aspect and an organizational one. According to Williamson, every type of organization (firm, market and hybrid) is based on a specific contractual rule (Williamson, 1991). These private-order rules and this type of organization are essential for agents to protect themselves against the opportunism of their partner. By relying on this behavioural assumption, new institutional economists are concerned with all negative consequences that may occur because of asymmetries of information (Stiglitz, 2002). Unlike other theories of contract that concentrate on defining contractual arrangements capable of overcoming these issues (agency theory and incomplete contracts theory), TCE posits that problems of coordination can only be partly solved by *ex ante* incentive arrangements. The reason lies in the second behavioural assumption of NIE: bounded rationality. Aimed at stressing the limited cognitive capacity of agents, this assumption suggests the impossibility for agents to deal with all their conflicts of interest at the time of the transaction. Necessarily, contracts are incomplete. While recognizing the importance of *ex ante* contractual devices, TCE stresses that *ex post* opportunism is still probable. The prime goal of a governance structure is therefore to minimize the risks of its occurrence (Brousseau and Glachant, 2002).

One of the latest developments in NIE is the study of the complementarity links between the different components of the

institutional environment, on one hand, and between governance structures and the institutional environment on the other. According to the concept of institutional complementarity, the functioning of an institution is conditioned by interactions with other institutions (Höpner, 2005). Consequently, the idea is abandoned that a particular institutional form is intrinsically more efficient than another in fulfilling the coordination functions that might be attributed to it (Dutraive, 2009).

North’s work reflects this gradual shift away from all normative and universalist notions of institutions. To evaluate the potential impact of a new formal institution on economic and institutional dynamics as a whole, it is important to consider the complementarities between formal institutions, informal institutions and the implementation mechanisms. Consequently no one institution is intrinsically more efficient than any other in ensuring adequate reduction of uncertainty, a decrease in transaction costs and an appropriate incentive structure. Theoretically, the challenge is now to improve the understanding of the variety of institutional forms capable of supporting production and trade activities. At this stage, discussion is focusing on the “second-best institutions” (Rodrik, 2008) and the “institutions of transition economies” (Murrell, 2005).

With respect to TCE, it was originally considered that the specific characteristics of transactions, and therefore the particular coordination problems they posed, should form the only basis for gauging the relevance of the modalities adopted by the various governance structures. It has since become necessary to also take into consideration the characteristics of the institutional environment (Brousseau, 2008). Attention has focused on two complementarity links between the institutional environment and the choice of an appropriate governance structure. First, the forms taken by the formal institutions are, much like the specific features of the transaction itself, determining factors in the problems of coordination, for which governance structures must find an answer. This is due to their influence over the incentives affecting individuals and their varying ability to reduce the uncertainty facing individuals in their interactions (Williamson, 1991). Second, the specific features of the institutional environment, primarily the legal institutions and administrative bodies of a country, have an impact on the feasibility of implementing any particular governance structure. Contractual arrangements that have proved their worth in surmounting the specific problems of coordination induced by a given transaction may prove ineffective in a different institutional environment (Levy and Spiller, 1996). The institutional environment therefore imposes specific constraints on the choice of the right governance structure to control a transaction: it affects both the intrinsic relative effectiveness of governance structures and the scope for their deployment.

## 2. The dynamics of the 1990s Russian oil model

Following the collapse of the Soviet Union, the Russian oil industry, which was organized under a ministry, underwent far-reaching reforms. The prime aim of the reforms was to provide an incentive for efficient practices, through the definition of private property rights. Such practices were supposed to guarantee the long-term growth of the oil industry thanks to major productivity gains (or rationalization of the use of production factors), but also through more balanced development (in particular between production and exploration) securing the renewal of reserves. This approach was intended to take the place of the widespread, short-term management of hydrocarbon resources inherited from a form of coordination and development rooted in the planned economy. The second aim of the reform was therefore to modify the coordination mechanisms in order to stabilize the

transactions between the main actors of the oil industry. Given these objectives the results seem ambiguous, in so far as the long-term evolution of the Russian oil industry (particularly regarding growth in output) seems just as uncertain as it was at the end of the 1980s. Moreover, the governance structure defined at the beginning of the 1990s proved to be quite ineffective in stabilizing transactions.

### 2.1. The governance structure resulting from the privatization movement of the 1990s

The reforms of the 1990s resulted in the introduction of a governance structure that we shall term “liberal”. Upstream oil sector operations were delegated to private domestic or international companies and any transactions were governed by contracts. This kind of governance structure can be compared to a “hybrid” governance structure characterized by the presence of a NOC that operates in cooperation-competition with private oil companies. A third type of governance structure is what might be called “hierarchical”, where the NOCs have a monopoly position regarding access to resources. In Russia, operations in the upstream sector of the oil industry were delegated to varying degrees to private companies. These companies emerged following the different privatization movements of the 1990s, mass privatization using the voucher system in 1992–1993 and the Loans for Shares programme of 1995.<sup>2</sup> Even if one state-controlled company (Rosneft) remained, it was at the time very small, as were the so-called regional companies. In 2003 Rosneft accounted for less than 5% of Russian oil production. Furthermore, this company was not involved in the main production sharing agreements of the 1990s (for example Kharyaga), apart from Sakhalin I in which it had a 20% stake (Krysiek, 2007).

On the other hand, the state's inalienable ownership of the subsoil was ratified by the adoption of the Subsoil Law of 1992. This law and its amendments of 1995 established the conditions of access to hydrocarbon resources, as well as the rights and obligations of the different parties involved, through of a system of exploration and production licences. A principle of joint decisions between federal and regional authorities on allocation of licences was established in the law (two-key principle, Skyner, 2006). The 1995 law on Production Sharing Agreements also introduced the contractual form of PSAs to control access to Russia's hydrocarbon reserves. Finally, the 1995 law on the Continental Shelf of the Russian Federation was introduced to regulate offshore activities (Polonsky et al., 2005). Until 2004, exploration and production licences were managed by the Ministry of Natural Resources. Since 2004, this responsibility has been shared between two agencies under the jurisdiction of the Ministry of Natural Resources, the Federal Agency for Subsoil Use (which organizes calls for tender and bidding procedures) and the Federal Service for Supervision of Nature Use.

### 2.2. An unbalanced development model

The reform process did not yield the expected results of balanced development of the Russian oil industry. In fact there is considerable ambiguity where two major characteristics are concerned. On the one hand, with output of 9.96 mbd in 2009

Russia is the world's second largest oil producer after Saudi Arabia. Between 1998 and 2005 growth in production was considerable, of the order of 55%, even though this growth rate is now declining somewhat. On the other hand, the authorities<sup>3</sup> and even the oil companies<sup>4</sup> continue to denounce the serious problems in the exploration sector, problems that ultimately will be a major obstacle to growth in output.

Russia is thus faced with an enormous exploration crisis. The decline in the renewal rate of reserves since the Soviet era is one of the main indications of this (Moe and Kryukov, 2010) and reinforces other factors. Half of the additional reserves in 2005–2006 were in fact attributable to a reassessment of the potential of existing reserves in light of the use of new technologies. They were not newly discovered reserves (Kryukov and Moe, 2007). Furthermore, the contribution of proven and recoverable reserves (categories A+B in Soviet classification) to the overall total of explored reserves has dropped considerably (Dienes, 2004), falling from 67.8% in 1958 to only 26.5% in 2000.

This exploration crisis is accompanied by three main trends that reflect in a number of ways the structural change in the Russian oil industry with the exhaustion of reserves in Western Siberia. The first two trends concern the physical nature of the reserves, which are often smaller oil fields that are of a lesser quality. According to the IEA, 60% of proven reserves fall into the “difficult to recover” category (IEA, 2003). The third factor is that production areas now tend to be in geographic regions where conditions are infinitely more challenging, namely in Eastern Siberia, the northern territories (Timan Pechora and the Komi Republic), and the offshore Sakhalin project area (Sagers, 2006). The contribution of Eastern Siberia and the Russian Far East to the country's oil output should thus reach 18–19% by 2030 compared with 3% in 2008 (Institute of Energy Strategy, 2010). Considerable investment will be needed to develop these frontier areas. All of these factors will have a serious impact on production costs.

Given these uncertainties, the industry has to deal with the vital question as to whether in the coming years it will have sufficient reserves to maintain or even increase current output. Russia's contribution to world supply will depend on how the industry responds to this problem. Forecasts for 2020–2030 show the scale of the uncertainty surrounding Russian output, with estimates varying between 9 and 11.9 mbd for 2020, and between 9.7 and 12 mbd for 2030, depending on the scenario (see Table 1). The latest official forecasts (Energy Strategy 2030 endorsed in 2009) place output at 10.6–10.7 mbd for 2030, equivalent to an average annual growth rate between 2008 and 2030 of no more than 0.4%. The IEA has also made a drastic revision to its forecast for 2030. According to the latest World Energy Outlook (IEA 2010) Russian output will be only 9.2 mbd by 2030 in contrast to the 10.6 mbd forecast in the WEO of 2004 (IEA, 2004).

Lack of investment from oil companies, whether in exploration or development, is one of the main reasons for the increasingly difficult renewal of oil reserves and the slow progress in developing reserves in Eastern Siberia (at least to the extent where they would have a significant impact on production levels). In the 1990s and the early 2000s, the state gradually reduced its funding and its role in oil exploration but the oil companies did not take on responsibility for this sector of activity (Moe, Kryukov, 2010). Consequently, between 1988 and 1994, investment in

<sup>2</sup> These companies can be divided into three main groups: the private industrial and financial groups composed of five large companies, vertically integrated from production through to distribution (Lukoil, Yukos, TNK, Surgutneftegaz and Sibneft); the small and medium sized non vertically-integrated companies; and integrated or non integrated companies in which the state or the regional governments have majority holdings.

<sup>3</sup> In particular, Natural Resources Minister Yuri Trutnev.

<sup>4</sup> In 2005, Lukoil President V. Alekperov drew attention to the imminent risk of a decline in Russian oil production due to the situation regarding the development of reserves (Kryukov and Moe, 2007).

**Table 1**  
Russian oil production scenarios, mbd. 2020–2030.

	2010	2015	2020	2030
WEO, 2010, IEA		10.2	9.5	9.2
WEO, 2009, IEA		9.2		9.0
WEO 2008, IEA		10.4		9.7
WEO 2004, IEA	10.4			10.6
Energy Strategy 2030, approved in 2009		9.8–9.9	10.1–10.5	10.6–10.7
Energy Strategy 2020				
Optimistic variant	9.8	10.1	10.4	–
Moderate variant	8.9	9.0	9.0	–
Critical variant	7.2	–	6.3	–

Sources: IEA (2010) *World Energy Outlook* (Paris, OECD); IEA (2009) *World Energy Outlook* (Paris, OECD); IEA (2008) *World Energy Outlook* (Paris, OECD); IEA (2004) *World Energy Outlook* (Paris, OECD, 2008); Gromov (2009). Strategic development of the Russian gas industry for the year 2030. Seminar. The future of the European gas markets. LEPII, Grenoble, 24 April; Hanson (2009). Russian energy policy and the global crisis. *Energy Economist*, 336, October, pp. 5–7; *Energy strategy of Russia for the period 2030*. Institute of Energy Strategy, Moscow, 2010.

prospecting fell by 60%, and then declined by 30% in 2002 and 2003.<sup>5</sup> Thus, the increase in the reserves of the different companies was not a result of exploration efforts but rather of mergers and acquisitions that took place in the 1990s and the early 2000s. These growth factors cannot really be sustained in the long term except perhaps in the event of a strategy of internationalization of the Russian oil companies, which so far has been very limited. However in any event, they do not contribute to increasing reserves in Russia.

### 2.3. An oil model called into question by Russia's institutional environment

The unbalanced way in which the Russian oil industry developed in the 1990s can be attributed to the cash stripping and asset stripping practised by the main companies formed in the wake of the reforms of the 1990s. These short-term strategies were aimed at maximizing production and exports at the expense of more long-term strategies involving investment in exploration that would ensure the renewal of reserves. The aversion to risk displayed by companies, reflected in the low investment in exploration, was fostered by the incentives of the liberal governance structure introduced in the 1990s. The liberal governance structure proved to be institutionally incoherent with the Russian environment. The use of contractual arrangements, intended to overcome problems of coordination between the state and the oil producing companies, appears problematic in an environment characterized by weak market institutions and more generally the absence of the rule of law. In the 1990s, the state was unable to persuade private operators to take its own interests into consideration (Tompson, 2008) through the use of classic market economy incentives—tax regimes and contractual relations (licences or production sharing agreements).

#### 2.3.1. The hybrid model called into question by the insecurity of property rights

The problem of securing property rights that has been widely examined in the literature (Tompson, 2008; Runov, 2004; Hedlund, 2001) is the main factor behind the strategy of maximizing production at the expense of exploration, which carries greater risks especially in the frontier areas (Gaddy and Ickes, 2005). Privatization of rent industries took place in an environment in

which the market institutions necessary to ensure the effectiveness of property rights were not particularly developed. First, dominant players were able to manipulate the bankruptcy law, largely diverting it from its traditional objectives and using it as a means for asset stripping and cash stripping. The first bankruptcy law was adopted in 1992 and remained in force until 1998. But the ineffectiveness of the threat of bankruptcy quickly became clear during this period. In the hydrocarbons sector, the bankruptcy law led to initiate liquidation procedures against companies, certainly without liquid assets as a result of non-payments and bartering, but potentially solvent and profitable.<sup>6</sup> Relations characterized by non-payment and barter imply that criteria of profitability and efficiency are not important. As a result, privatization was not a sufficiently strong condition for “tightening” budgetary constraints on enterprises (Dewatripont and Roland, 2000). A “soft budget constraint” characteristic of planned economies persists. The situation implies large-scale transfer of assets when restructuring becomes necessary, regardless of whether or not the business is profitable.

Furthermore, property rights were called into question by the privatization procedures which were widely felt to be illegitimate and serving the interests of lobby groups close to those in power (Deacon and Mueller, 2004). The credibility of the state's commitment was thus thrown into doubt. In this situation, the state chose to retain ultimate authority for coordinating rights to dispose of assets in sectors considered strategic, such as the oil industry (Tompson, 2005). In the final instance it is the state that decides whether to authorize or block the sale of oil company assets.

The problem of securing the rights to access and use mineral resources is the last factor contributing to the lack of investment in exploration in Russia. Licences and tendering procedures have been the main tools used by Russia to manage its natural resources, even if in principle the law does not prohibit auctions. Despite the fact that these provisions were set forth in the Subsoil Law of 1992 and the amendments of 1995, the process of gaining access to hydrocarbon resources through licences has remained largely opaque. Furthermore, obligations (work programme, level of exploration, duration, etc.) included in the licences and regulated by the Subsoil Law were not always clearly defined (Adachi, 2009).<sup>7</sup> Finally, discretionary reallocation of licences by the state at the end of the 1990s and in the early 2000s contributed to the

<sup>5</sup> In 2009, following the drop in oil prices, the major Russian companies, Lukoil, Gazpromneft, TNK-BP and Rosneft reduced their investment programmes (PIW, 12 October 2009). Thus for the period January–September 2009, investments in fossil fuel production fell by 17.8% compared with the same period in 2008.

<sup>6</sup> Remember that in the 1990s only 10–20% of domestic oil and petroleum product sales were paid in currency, these payments benefiting from discounts of up to 50% (Bobylev, 1997).

<sup>7</sup> 40% of the licences allocated between 1992 and 1995 were devoid of any real obligations for resource users (Adachi, 2009).



**Box 1**–Main characteristics of Russia's oil sector taxation policy.

Russia has two principal oil taxes:

- the Mineral Extraction Tax, of the order of \$17.40 per barrel,
- and an export duty that varies with the international price of crude oil.

Today, oil companies pay between 75% and 80% of their revenue in taxes. These high levels of taxation are often quoted as one of the reasons for the lack of investment from oil companies, especially in areas where production costs are high such as Eastern Siberia, offshore fields and the Yamal peninsula.

Given this situation and the urgent need to renew investment in exploration, the government has agreed to a certain number of tax breaks. The main ones are as follows:

- A "tax holiday" for oil companies developing offshore fields (for 15 years), fields in Eastern Siberia (for 10–15 years) and the fields of Timan Pechora and the Yamal (for 7 years).
- The mineral extraction tax would be applied only above the threshold of \$15 per barrel compared with 9 at present.
- A zero export tax for certain fields in Eastern Siberia. A list of oil fields has already been approved by the government. It could be lengthened to include other fields. No details have yet been released on when this tax break will be introduced or for how long it will be effective.

The export duty remains unchanged, although different rates could be introduced according to the quality of the petroleum products. However, since adjustments should reflect oil price trends they would be made more rapidly to avoid having the highest tax rate at the moment when prices fall.

A reform of the oil taxation regime is under preparation. In particular, there could be a changeover from a revenue-based system to one based on profits, which would help lighten the tax burden of oil companies. According to the authorities, the aim is to restimulate investment in exploration, more specifically in new oil provinces.

*Sources:* "Petroleum Moscow Urged to Clarify Output Policy", *Petroleum Intelligence Weekly*, 22 September 2008; "More tax breaks for offshore fields", *Argus FSU Energy*, 31 July 2009; "Russia redesigns fiscal policy to boost oil E&P", *Oil and Gas Journal*, 20 April 2009, pp. 18–21; "More fields lined up for zero duty", *Argus FSU Energy*, 20 November 2009; "Duty calls", *Argus FSU Energy*, 5 February 2010; "Tax Changes Key To Russia's 2020 (and 2030) Vision", *Petroleum Intelligence Weekly*, 8 November 2010.

climate of insecurity concerning the rights of companies to use resources. Contrary to the provisions of the Subsoil Law and for the sake of effectiveness, licences were allocated to newly formed companies by means of strictly administrative procedures and without conducting calls for tender. They could thus be revoked by the state on the basis of their non-conformity with the law.

### 2.3.2. The hybrid model called into question by the weakness of market institutions: the fiscal regime

The state's incapacity to effectively create a progressive fiscal regime that will encourage investment in exploration in frontier areas reflects the lack of coherence of the governance structure of

Russia's oil model with the Russian environment. Inspired by practice in Western economies, Russia's fiscal regime is organized around two main taxes. The first one concerns the mining of mineral resources (Mineral Extraction Tax) and imposes a tax akin to a royalty, based on the value of the oil production. The second is a duty on exports. A further tax is levied on profits (see Box 1).

The fiscal regime in place is based essentially on revenue and not on profits. The tax base of the mineral extraction tax is the company's production volume. It is therefore invariable and does not depend on differences between production costs or on fluctuations in crude prices. Similarly, the export tax based on exported volumes does not vary depending on production costs. Compared with the tax regimes in place in market economies such as Norway or the UK, it seems in many respects to be fairly basic or at least to pay little attention to the particular exploration and development conditions of the various oil fields (especially differences in costs related to geographic location and geological conditions). Given its particularities, Russia's oil taxation system has offered very little in the way of incentives to induce oil companies to commit themselves to the higher-risk investments required for developing areas with the most adverse production conditions. The regressive nature of the system casts serious doubts on the profitability of developing all the frontier areas, as shown by Rosneft's experience with the Vankor field.<sup>8</sup> On the other hand, these measures have reinforced the strategies of companies to produce easily recoverable oil from existing fields ("skimming the cream").

Given the institutional conditions in Russia, one wonders about the state's ability to set up a complex tax regime and ensure its implementation. In particular, in view of the uncertainties regarding the value of output (problem of estimating real production costs and widespread use of transfer prices) and the tax evasion schemes that started to appear in the 1990s (Dienes, 2004) it would be unrealistic to hope for any fine-tuned management of the oil industry through a detailed tax system. Conversely, the current system is fairly easy to manage since the only figures the tax authorities need to calculate taxes are the volumes produced, the volumes exported and the price of crude (Muslumov, 2010). The state has thus had to find a compromise between *ex ante* definition of incentives to persuade companies to invest heavily in exploration through a progressive tax and the *ex post* control and monitoring costs resulting from such measures. These institutional conditions no doubt justified adoption of the more general approach.

### 2.3.3. Stabilization of relations between agents through informal rules

In the institutional context in Russia in the 1990s relations between economic agents in the energy sector were shaped and determined by a very particular hybridization of the formal market institutions with informal rules and specific coordination mechanisms left over from the planned economy. Relations based on bargaining with federal and local authorities, which were a fundamental informal institution during the era of the planned economy and accompanied the formal institution of the Communist party (Hoff and Stiglitz, 2002), survived despite the disappearance of its principal institutions.<sup>9</sup> Two aspects are important for the survival of oil companies. The first is access to mineral

<sup>8</sup> The profitability of Vankor is assured by the tax breaks introduced in recent years for fields in Eastern Siberia. In fact Rosneft's agreement to develop the field was conditional on these tax breaks.

<sup>9</sup> Bargaining between companies and their supervising ministry or between ministries and the central authorities was traditional behaviour in the centrally planned economy. It was an integral part of the process of preparing companies' annual plans and the five-year plan, in particular with respect to input allocation

resources. The tendering system based on the principle of joint allocation of licences turned out to be wide open to rigging by the most powerful oil companies in particular through their relations with regional authorities (Fortescue, 2010). This resulted in bargaining and conflicts between the federal state, the regions and the oil companies (Locatelli, 2001). The second is access to the international oil market. The search for liquidity that accompanied the predation of assets suggests privileged access to export networks and oil pipelines, which remained under state control through national oil companies Transneft and Transneft-product. This access to export structures was governed by bargaining and power struggles between the energy companies and the federal and regional authorities. The terms of negotiation were as follows (Desai and Goldberg, 2001). The aim of the local and federal authorities was to preserve employment. Regional authorities did this by allocating indirect subsidies to companies by allowing non-payment of energy bills or barter payment. In this configuration of relations, the influential oil companies benefited from discretionary quotas for transportation capacity and favourable network access tariffs.

### 3. Toward a coherent oil model compatible with Russia's institutional framework

Long-term production and export trends will depend on the investment strategies of Russian oil companies concerning the development of new oil provinces. The main task facing Russia today is therefore to change the incentives to persuade investors to adopt long-term strategies. It is from this perspective that the seemingly paradoxical changes in the institutional and organizational framework can be understood. On the one hand, the NOC is playing an increasingly important role in upstream oil transactions, while on the other the contractual mechanisms for regulating transactions between the state and the operators have become increasingly effective. In this context, the hypothesis that the NOC is a “transition institution” makes sense.

#### 3.1. The hybrid governance structure: how does it fit in with the Russian institutional environment?

The developments that can be observed in Russia's oil model can be interpreted as an attempt by the authorities to define a model that is more compatible with Russia's current institutional endowment. Two factors characterize the changes now taking place in comparison with the model of the 1990s. First, state-controlled companies appear as the key players in the new institutional arrangements for the hydrocarbon industry. Second, a change in the contractual aspects of the governance structure can be observed. Although this model is not yet stabilized, there is a clear trend towards a hybrid governance structure with contractual arrangements and the involvement of NOCs.

##### 3.1.1. State-controlled companies: the main feature of the new governance structure

State-controlled companies, essentially Rosneft and Gazprom (through its subsidiary Gazpromneft), are the new important players of the Russian oil industry. In 2003, state-controlled companies accounted for 4.3% of oil production. This figure reached 39.7% in 2009 (see Table 2). But the oil industry is still characterized by a significant private sector, with the presence of

**Table 2**

Principal Russian oil companies in 2009 (according to output).

	Oil companies	Production in mbd
<b>Private companies</b>	Lukoil	1.80
	TNK-BP	1.41
	Surgutneftegaz	1.18
	Slavneft (50 private, 50 public)	0.31
	RussNeft	0.24
<b>State-controlled companies</b>	Rosneft	2.41
	Gazprom	1.05
	Incl. GazpromNeft	0.59
<b>Regional companies</b>	Tatneft	0.52
	Bashneft	0.25
<b>Others (including PSA)</b>		0.79
<b>Total</b>		9.96

Source: “Russian oil production”. Argus FSUE, 29 January 2010.

Lukoil and TNK-BP. Indeed BP, a foreign investor, holds a 50% share in the latter company.

There are several factors that might suggest that a “hybrid governance” structure is better adapted to the Russian institutional environment. First, state-controlled companies can serve as a remedy/substitute for the shortcomings of the market institutional arrangements in a rent sector, taking into account the particular institutional context. In fact, if the state has direct control of the country's national oil companies it has the possibility of using hierarchical coordination in order to impose its preferences in matters concerning exploration and depletion rates. Hierarchical coordination would seem to be best suited to the institutional conditions resulting from Russia's privatization programme. State-controlled oil companies are particularly appropriate instruments for ensuring exploration and development of frontier areas.

The counter-argument often found in the literature is that public ownership does not encourage operational efficiency. However, two points should be made. The first is that neither of the two national companies is 100% owned by the state. Rosneft and Gazprom are partially privatized and listed on the Moscow and London stock exchanges. Also, the main issue at the moment is to stabilize expectations in order to encourage operators to work with longer time horizons. The security of property rights would seem to be the important question. Here we touch on the second element that suggests that a hybrid governance structure is better aligned with the Russian institutional environment. The state-controlled oil company provides a way of doing away with the need to stabilize the expectations of companies through the rule of law. In fact, the personalization of relations between the heads of the state-owned companies and those in power in Russia suggests that the question of securing the property rights of these oil companies is not quite as serious as it is for private companies. The same is true as regards safeguarding access rights.

Thus, the expanding role of state-controlled oil companies seems to be accompanied by a diminishing desire on the part of the authorities to try and stabilize the expectations of private companies, both domestic and international, through contractual arrangements. Three factors support this supposition. First, a decrease in the number of production sharing agreements (PSA) can be observed. An amendment introduced in 2003 has tended to marginalize this type of agreement. The second indication that there is no longer a desire to stabilize the expectations of private companies, and thus to reduce uncertainty through the use of a contractual framework, is the abandoning of the project to bring

(footnote continued)

and determination of quantitative production objectives. Renegotiation of these plans also involved bargaining (Andreff, 1993).

sweeping reforms to the legal regime governing licensing. And third, the Russian authorities have officially announced their rejection of the Energy Charter treaty.

### 3.1.2. Changes in the contractual aspects of the “hybrid governance structure”

The increasing role of state-controlled oil companies does not account for all the changes in the governance structure defined to supervise operations in the upstream oil sector in Russia. Changes to the contractual framework governing transactions between the state and public and private operators, both domestic and international, must also be considered.

In this respect, a number of trends can be observed. First, changes in legislation bear witness to a desire on the part of federal authorities to tighten control over licence allocation. The increasing share of state-controlled companies in oil production has been accompanied by tougher conditions for access to the country's hydrocarbon resources, or at the very least by tight government control over access to resources for national actors and international investors (Box 2). The pre-eminence of the federal state over the regions has been reaffirmed in matters of subsoil resource management and thus federal control over the resource allocation process. Abolition of the two-key principle, which represented a compromise between federal and regional governments, has weakened the power of the regions in the sector and the centralized licensing process has put an end to any possibility of collusion with regional companies when allocating reserves. Competitive access to resources has been restricted in order to place state-controlled companies in a privileged position. This can be confirmed by the monopoly position given to national oil companies concerning access to offshore fields and the preference given to allocating licences through administrative procedures. In Russia, there are two conflicting rationales, reflecting different visions about access to hydrocarbon resources and what role the state should have in the matter (Fortescue, 2010). One view favours the licence and tendering procedure, a system that should ensure that the authorities have more direct control over subsoil resources. The other favours concessions (contracts) and auctions. Given that the resources are allocated to the highest bidder, the state is in a weaker position when it comes to insisting on its preferences.<sup>10</sup> Current legislation does not prohibit auctions, but in practice it tends to sanction the licensing and tendering procedure.<sup>11–13</sup>

The second trend is perhaps of greater importance, even though it is often still a source of uncertainty, and this concerns the greater effectiveness observed over the last few years of regulation through contracts. In fact, Rosneft and Gazprom are now working more within what might be called a commercial framework (ESMAP, 2007). Through their contracts signed with the authorities they have preferential access to resources. They also have financial and operational autonomy insofar as their budget is no longer an integral part of the state budget. In this framework, a hierarchical governance system cannot entirely act as a substitute for regulation by contracts. To put it simply, the presence of a national oil company modifies the coordination

#### Box 2—Access to Russian hydrocarbon resources.

Since 2002, efforts have been made to implement new legislation on access to subsoil resources in Russia. With the various ministries (Natural Resources, Energy, Economic Development) and private and public companies unable to reach a consensus on issues concerning subsoil ownership and use, various amendments have been introduced to the Subsoil Law that was signed in 1992 and revised 1995. The amendments are designed to toughen conditions of access to hydrocarbon resources in Russia:

- These tougher access conditions affected the regions first, with the end to the principle of joint allocation by state and regions of exploration and development licences (the two-key principle), with the state taking full control (LeBoeuf et al., 2005).
- International investors have also been affected by the tougher conditions.

The government has drawn up a list of “strategic” oil fields and defined the conditions of access to Russia's hydrocarbon resources for foreign investors. Only companies that are majority-owned by Russian investors will be granted exploration and development licences for these strategic fields. Some strategic fields are not subject to the principle of tendering required by law; instead the state reserves the right to select the companies to be granted exploration and development licences. Strategic fields are defined as oil fields with proven deposits of over 70 million tonnes and natural gas fields containing over 50 G m<sup>3</sup> of gas.

Furthermore, the provisions of the law on foreign investment in strategic sectors, which entered into force in May 2008, apply to the hydrocarbon sector. This law limits private foreign investment in a Russian hydrocarbon company to 10%, and to 5% in the case of investment by a foreign state-owned company. Any investment beyond these thresholds requires special authorization by a commission headed by the prime minister. The Subsoil law and the law on investment in Russia's strategic sectors are thus directly linked one with the other:

- Licences to develop the (major) deposits in offshore fields will go exclusively to state companies (currently Rosneft and Gazprom).
- Finally the Gas Supply Law of 1999 created a regulatory framework for natural gas exploration, production, transportation and storage (Polonsky et al., 2005). The state can award production and exploration licences (for fields of federal significance) without recourse to a tendering procedure.

problems between the State and the operators in the oil transactions. This presence therefore changes the conditions of effectiveness of the contracts governing transactions.

In particular, the presence of a national oil company can help improve information sharing between state and operators. This reduction in information asymmetry and *ex post* monitoring costs might be an important condition for the effectiveness of contractual arrangements. This is particularly so in the case of fiscal instruments. The national oil company can help ease the basic tension between the two types of transaction costs identified earlier. This tension stems from the fact that progressive fiscal regimes – in other words regimes that enable the state to secure the differential rent while still being able to use *ex ante* incentives to encourage investment – lead to significant *ex post* monitoring costs for the state. The government must be able to monitor both

<sup>10</sup> For opponents, this procedure is part of the process of privatization of state-controlled natural resources (Fortescue, 2009).

<sup>11</sup> The regions still have a presence on the boards that decide on licence allocation, but their role is now only advisory.

<sup>12</sup> It is on the basis of this principle that Gazprom was given the licence to develop the Chayandinskoye natural gas field, which is listed as a strategic reserve. The reserves of this field in the Sakha (Yakutia) Republic in eastern Siberia are estimated at 1260 bcm. “Gazprom given licence to drill”. *FSU Energy, Petroleum Argus*, Vol. XIII, 15, 18 April 2008.

<sup>13</sup> “Russia: Duma passes law limiting foreign investment in strategic enterprises”. *BOFIT Weekly*, 13. 28.03.2008.



the prices at which the subsidiaries sell their crude as well as production costs in order to define a tax base for the oil rent.

Recent negotiations between the main players, energy ministries, the finance ministry and public and private companies on the question of export duty exemptions provide some insight on this subject. In January 2009, a provision was introduced exempting fields developed in Eastern Siberia from export duty. Two important aspects are worth noting. It is significant that these exemptions were granted after Rosneft made its position clear. While private companies have been asking for such exemptions for a long time,<sup>14</sup> Rosneft also made it known that the profitability of the Vankor field would depend on exemptions of this kind. This stand taken by the NOC was a decisive factor in the authorities' decision to grant exemptions (Brower, 2008). The benchmarking role played by Rosneft is very clear. Another point concerns the flexibility introduced in June 2010 in the provisions governing these exemptions. This flexibility provided for a partial reintroduction of the export duty effective from 1 July 2010 for Eastern Siberian crude transported via the ESPO pipeline to Asian markets. In addition, in accordance with the proposal made by energy minister S. Shmatko, the government will look at each case individually on the basis of the characteristics of each field. More specifically, this duty is expected to be reintroduced fully in the case of projects that reach a 15% rate of return on investment.<sup>15</sup> This reference to rates of return is an indication that the authorities are now in a position to obtain information about the production costs of fields. Furthermore, the 15% rate of return is the figure estimated by Rosneft for the Vankor field. Yet again, Rosneft is clearly being used as benchmark.

### 3.2. The specific aspects of the Russian oil model

The interest of an approach in terms of institutional complementarity and oil models is that it can be used to characterize the changes taking place. In Russia, these changes can be seen as changes in the governance structure and are an attempt by the authorities to provide a remedy to avoid a crisis in exploration. Viewed from this perspective, it is possible to extend the analysis by identifying the specific aspects of the Russian oil model so that they can be understood in light of certain recent developments. The first concerns the question of the relationship between the authorities and the state-controlled oil companies. The second concerns the form of foreign investment in the country's upstream oil sector.

According to Williamson, all governance structures are flawed. Compromises are necessary. In the case of a hybrid governance structure for a transaction involving the opening up of the upstream oil sector, the principal compromise is clearly highlighted in the literature on national oil companies. It prompts us to ask the question as to the relations between the state and the national oil companies. The terms of this compromise are as follows. On the one hand, if NOCs are to be considered a replacement or complement for coordination through contractual arrangements, then national and private oil companies must operate on a same level playing field. On the other hand, the problem of relations between "agent" and "principal" may have to be dealt with (Stevens, 2008). Again, the negotiations over

export duty exemptions can throw some light on the relations between the state and its national oil companies.

The partial reintroduction of the export duty came after negotiations between the energy minister, the oil companies, I. Sechin, in his dual role of deputy prime minister and president of the board of directors of Rosneft, and the minister of finance. The president of Rosneft S. Bogdanchikov and I. Sechin clearly took opposite sides during these negotiations, highlighting two aspects of the relations between Rosneft and the authorities. First, it can be seen quite clearly that Rosneft is operating in a commercial framework. Consequently, it is in the public company's interest to negotiate in favour of a contractual framework that will promote the profitability of operations. In this sense it supports the efforts of private oil companies to extend the duty exemption. Furthermore, Rosneft clearly stated its preference for a complete overhaul of the tax regime with provisions for greater flexibility and a taxation system that would take into account production costs and the level of depletion of each field. These developments show that there is a genuine risk of the "agent" acting against the "principal" and raise questions concerning the state's control over Rosneft.

In the opposite, I. Sechin came out in favour of partially restoring the export duty and introducing an internal rate of return of 15% as a threshold for the total restoration of the duty. This position provides an indication of the role played by I. Sechin in the control of Rosneft. In the longer term, the originality of the Russian governance structure could be contingent on normalization of NOCs by placing them in a situation of competition. Indeed, Rosneft, Gazpromneft and Bashneft have found themselves in competition for access to strategic fields.<sup>16</sup> Such an attempt to normalize the behaviour of state-controlled oil companies might be achieved by placing them in competition with one another rather than with private companies, thereby minimizing the risk of rent seeking from the NOCs.

An important aim of the current changes that are taking place is undoubtedly to define the role of foreign investors in the development of Russia's natural resources. For international oil companies, the amendments to the Subsoil Law contain both advantages and disadvantages, even if in the final count these amendments end up limiting their access to the country's hydrocarbon resources. Clearly defined rules restricting access for foreign operators to fields that have been identified as strategic have helped to clarify the investment policy framework (OECD, 2008). This clarification in itself could be a positive factor, but at the same time the 2008 law on strategic sectors applied to the hydrocarbon sector limits the number of participants eligible for the strategic fields and establishes the pre-eminence of NOCs for developing such fields.

The Russian territory is not completely closed. But the only viable way for international oil companies to invest in Russian hydrocarbons would seem to be through partnerships with the big state-controlled companies (OECD, 2008), at least where development of major fields is concerned. In this respect, the contractual framework defined to develop the Shtokman gas field could serve as a model not only for gas reserves but also for oil field development. This framework in fact adopted a new approach that differs from the classic framework of production sharing agreements.<sup>17</sup> Russia seems increasingly intent on making

<sup>14</sup> This lobbying by private companies was accompanied by a significant decline in output at the time of the drop in prices at the end of 2008. For example, in September 2008, Lukoil greatly reduced its production for the export market at the new South Khylchuyu field operated in partnership with Conoco-Phillips. Output dropped from 70,000 bbl in August to 43,000 bbl in September. "Market Turmoil Forces New Oil Role in Moscow"—*Petroleum Intelligence Weekly*, Vol. XLVII, 43, 27 October 2008.

<sup>15</sup> "Duty Deadlocks Ends". *Argus FSUE*, 18 June 2010.

<sup>16</sup> The right to develop the strategic Trebs and Titov fields recently granted to Bashneft suggests an increase in the relative importance of this company. (PIW, 13/12/2010).

<sup>17</sup> Development of the Shtokman deposit is to be led by a consortium named SDC (Shtokman Development Company), formed by Gazprom (51%), Total (25%) and Statoil (24%). While the term "Shtokman model" is not used, the agreement signed in 2007 nevertheless reflects certain specific features. It does not call into



access to its hydrocarbon resources conditional on it being given access to downstream activities in importing countries (cf. Box 2). The notion of reciprocity (Belyi, 2009) and the bilateral relations that it requires are at the heart of Russia's hydrocarbons strategy. It is also being confirmed as a key factor in Russia-EU energy relations.

The end to the principle of joint allocation of exploration and production licences by the state and regions could in itself be seen as a positive move in the eyes of international oil companies. In a context where international investors are competing with Russian companies, the end to this principle could be considered as a lowering of the barrier to entry. Foreign companies are not in the same position as national companies to form special relations with regional authorities, who in the past have given Russian companies preferential access to the hydrocarbon resources in their regions.

A decline in Russian oil production is likely to be observed unless significant investment is made in the development of new production areas. Such investment will depend to a great extent on the economic incentives resulting from the oil model that is implemented. The model introduced in the 1990s brought about significant changes. The important role adopted by the state, whether through oil companies (such as Rosneft and Gazprom-neft), or concerning conditions of access to hydrocarbon resources, is a vital aspect of the changes currently taking place. The principle challenge is to develop an oil model that is coherent with the country's institutional environment. Where this is concerned, institutionalist analyses of the oil models open the way for another interpretation of the presence of the state in the oil sector, a phenomenon generally termed oil nationalism.

Where Russia is concerned, a big question remains. Will the emerging institutional framework be perceived to be sufficiently secure and stable to promote long-term investment or will it be seen as an additional factor of uncertainty for the economic players, in particular foreign investors and private Russian companies? Some elements of a response could be proposed. Recent agreements between international oil companies and Russian state-controlled companies suggest that this new institutional arrangement might give some credibility to contractual relations. In Russia today, the state is an important factor in ensuring secure contractual relations and property rights.

## Acknowledgements

The authors acknowledge the Polinares FP7project (and specially Prof. Philip Andrews-Speed) in doing this research.

## References

- Adachi, Y., 2009. Subsoil law reform in Russia under the Putin administration. *Europe-Asia Studies* 61 (8), 1393–1414.
- Andreff, W., 1993. *La crise des économies socialistes: la rupture d'un système*. Presses universitaires de Grenoble.
- Belyi, A., 2009. Reciprocity as a factor of the energy investment regimes in the EU-Russia energy relations. *Journal of World Energy Law and Business* 2 (2), 117–128.

(footnote continued)

question Gazprom's export monopoly. Gas produced by the consortium will be sold to Gazprom at prices calculated on the basis of gas prices in Russia. The different members of the consortium will however be guaranteed a profit on export sales. Finally, it is Gazprom alone that owns the gas resources on Russian territory. The question remains entirely open as to whether the foreign partners will be able to book some of the reserves in proportion to their financial commitment; according to the consortium partners this question has been subject to contradictory statements. "Statoil fits the bill for Shtokman"—*Petroleum Intelligence Weekly*, Vol. XLVI, 45, 5 November 2007.

- Bobylev, Y., 1997. *The State of Major Branches of Russian Economy*. Institute of the Economy in Transition, Moscow.
- Bremmer, I., Johnston, R., 2009. The rise and fall of resource nationalism. *Survival* 51 (2), 149–158.
- Brousseau, E., 2008. Contracts: from bilateral sets of incentives to the multi-level governance of relations. In: Brousseau, E., Glachant, J.-M. (Eds.), *New Institutional Economics. A Guidebook*. Cambridge University Press, Cambridge, pp. 37–66.
- Brousseau, E., Glachant, J.-M., 2002. The economics of contracts and the renewal of economics. In: Brousseau, E., Glachant, J.-M. (Eds.), *The Economics of Contracts. Theories and Applications*. Cambridge University Press, Cambridge, pp. 3–30.
- Brower, D., 2008. Kremlin freshens up its energy strategy. *Petroleum Economist* 75 (6), 4.
- Deacon, R., Mueller, B., 2004. *Political economy and natural resource use*. Working Paper, UCSB, University of California.
- Desai, R., Goldberg, I., 2001. The politics of Russian enterprise reform: insiders, local governments, and the obstacles to restructuring. *World Bank of Research Observer* 16 (2), 219–240.
- Dewatripont, M., Roland, G., 2000. Soft budget constraints, transition and financial system. *Journal of International and Theoretical Economics* 156 (1), 254–260.
- Dienes, L., 2004. Observations on the problematic potential of Russian oil and the complexities of Siberia. *Eurasian Geography and Economics* 45 (5), 319–345.
- Dixit, A., 2009. Governance institutions and economic activity. *American Economic Review* 99 (1), 5–24.
- Domjan, P., Stone, M., 2010. A comparative study of resource nationalism in Russia and Kazakhstan. *Europe-Asia Studies* 62 (1), 35–62.
- Dutraive, D., 2009. Economic development and institutions. *Anatomy of the New Institutional Economics' research program*. *Revue de la régulation* (6). Available from: <<http://regulation.revues.org/index7609.html>>.
- ESMAP, 2007. Investing in oil in the Middle East and North Africa. Report No. 40405-MNA. ESMAP/World Bank, Washington, DC.
- Fortescue, S., 2009. The Russian law on subsurface resources: a policy marathon. *Post Soviet Affairs* 25 (2), 160–183.
- Fortescue, S., 2010. The Russian Law on Subsurface Resources: a Policy Marathon. *Post Soviet Affairs* 25 (2), 160–183.
- Gaddy, C., Ickes, B., 2005. Resource rents and the Russian economy. *Eurasian Geography and Economics* 46 (8), 559–583.
- Gromov, A., 2009. Strategic development of the Russian gas industry for the year 2030. The future of the European gas markets, seminar, 24 April 2009. LEPIL, Grenoble.
- Hanson, P., 2009. Russian energy policy and the global crisis. *Energy Economist* (336), 5–7.
- Hedlund, S., 2001. Property without rights: dimensions of Russian privatisation. *Europe-Asia Studies* 53 (2), 213–237.
- Hoff, K., Stiglitz, J., 2002. After the big bang? Obstacles to the emergence of the rule of law in post-communist societies. Working Paper 2934, World Bank Policy Research.
- Höpner, M., 2005. What connects industrial relations and corporate governance? Explaining institutional complementarity. *Socio-Economic Review* 3, 331–358.
- Institute of Energy Strategy, 2010. *Energy strategy of Russia for the period 2030*. Moscow.
- International Energy Agency, 2010. *World Energy Outlook*. OECD, Paris.
- International Energy Agency, 2009. *World Energy Outlook*. OECD, Paris.
- International Energy Agency, 2004. *World Energy Outlook*. OECD, Paris.
- International Energy Agency, 2008. *World Energy Outlook*. OECD, Paris.
- International Energy Agency, 2003. *World Energy Investment Outlook*. OECD, Paris.
- Krysiak, T., 2007. Agreements from another era: production sharing agreements in Putin's Russia, 2000–2007. Working Paper 34, Oxford Institute for Energy Studies.
- Kryukov, V., Moe, A., 2007. Russia's oil industry: risk aversion in a risk-prone environment. *Eurasian Geography and Economics* 48 (3), 341–357.
- LeBoeuf, Lamb, Greene, MacRae, L.L.P., 2005. Russian law news: subsoil law amendments: two-key to one key, and more. 25 January. Available from: <<http://www.russianlaws.com/subsoil3.html>>.
- Levy, B., Spiller, P.T. (Eds.), 1996. *Regulations, Institutions, and Commitment. Comparative Studies of Telecommunications*. Cambridge University Press, Cambridge.
- Locatelli, C., 2001. Transition économique et modèles d'organisation industrielle: le cas de l'industrie pétrolière russe. *Revue d'économie industrielle* 96, 29–54.
- Moe, A., Kryukov, V., 2010. Oil exploration in Russia: prospects for reforming a crucial sector. *Eurasian Geography and Economics* 51 (3), 312–329.
- Murrell, P., 2005. *Institutions and Firms in Transition Economies*. In: Ménard, C., Shirley, M. (Eds.), *Handbook of New Institutional Economics*. Springer, pp. 667–701.
- Muslimov, Z., 2010. Russia's Petroleum-taxation dilemma. *Petroleum Economist* 77 (9), 25–26.
- North, D., 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge University Press, Cambridge.
- OECD, 2008. *Russian Federation: strengthening the policy framework for investment*.
- Polonsky, M., Josefson, J., Stepanov, S., 2005. Overview of Russian oil and gas legislation. *Oil, Gas and Energy Law Intelligence* 3 (2), 1–19.
- Rodrik, D., 2008. Second best institution. *American Economic Review* 98 (2), 100–104.

- Runov, A., 2004. Demand for private property right in post-soviet Russia: causes and effects in manufacturing and extractive industries. In: Proceedings of the Eighth Annual Conference of the International Society for New Institutional Economics (ISNIE), 30 September–3 October.
- Sagers, M., 2006. The regional dimension of Russian oil production: is a sustained recovery in prospect? *Eurasian Geography and Economics* 47 (5), 505–545.
- Skyner, L., 2006. The regulation of subsoil resource usage: the erosion of the “Two key” principle and its inclusion into the framework of civil law. *Review of Central and East European Law* 31 (1), 81–110.
- Stevens, P., 2008. National oil companies and international oil companies in the Middle East: under the shadow of government and the resource nationalism cycle. *Journal of World Energy Law and Business* 1 (1), 5–29.
- Stiglitz, J., 2002. Information and the change in the paradigm in economics. *American Economic Review* 92 (3), 460–501.
- Tompson, W., 2008. Back to the future? Thoughts on the political economy of expanding state ownership in Russia. *Cahier de Russie*, CERI.
- Tompson, W., 2005. Réécrire la loi sur les sous-sols en Russie: de la souveraineté au droit civil ? *Russie. CEI Visions*, 3, IFRI, Paris.
- Vanderberg, P., 2002. North's institutionalism and the prospect of combining theoretical approaches. *Cambridge Journal of Economics* 26 (2), 217–235.
- Williamson, O.E., 2005. The economics of governance. *American Economic Association Papers and Proceedings* 95 (2), 1–18.
- Williamson, O.E., 2000. The new institutional economics: taking stock, looking ahead. *Journal of Economic Literature* 38 (3), 595–613.
- Williamson, O.E., 1991. Comparative organization: the analysis of discrete structural alternatives. *Administrative Science Quarterly* 36 (2), 269–296.