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**Transaction Cost and Host Country's Opportunistic Behavior in Oil
E&P Project**

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Abstract

Transaction Cost and Host Country's Opportunistic Behavior in Oil E&P Project

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The purpose of this paper is to understand why a host country (HC) shows ex post opportunistic behaviors in E&P projects and frequently forces international oil companies (IOCs) to renegotiate previously signed contracts. This research employs the concept of asset specificity and hold-up problem in transaction cost economics (TCE). It then examines the unique characteristics of E&P projects, HC's opportunistic behaviors, and IOCs' safeguards. For a case study analyzing the implications between the economic theory and HC's ex post opportunism in oil E&P project, I have selected Kazakhstan. The result is that HC's ex post opportunism can be explained by a hold-up problem resulting from IOCs' sunk investments and the unique characteristics of the oil E&P industry. When IOCs' important capital assets become sunk investments and the price of oil increases rapidly, HC has a strong incentive to appropriate IOCs' profits through ex post opportunism. Yet at the same time, HC must consider the damage to its reputation when deciding the extent and ways of its ex post opportunistic behaviors in oil E&P projects.

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Chapter 1: Introduction

1.1 THESIS STATEMENT

In oil exploration and production (E&P) projects, there are generally two parties involved. One is the international oil company (IOC); the other is the host country (HC). HC includes its national oil company (NOC), which is in charge of E&P project planning, fiscal terms, environmental and safety issues in the host country. For the commercial development of HC's natural resources, IOCs need to invest large amounts of capital to build the necessary facilities for each E&P project. In these cases, IOCs are likely to encounter "hold-up" problem by HC's ex post opportunism because these specific assets cannot be easily moved to alternative E&P projects. According to transaction cost economics (TCE), there is a "lock-in" effect caused by "assets specificity" in oil E&P projects. HC has an incentive to exploit IOCs for greater rents by taking advantage of IOCs' sunk investments. To counter such behaviors, IOCs need to develop effective safeguards to protect their sunk investments and avoid HC's opportunism in oil E&P projects.

1.2 OBJECTIVE AND METHOD OF THE THESIS

The objective of this thesis is to investigate why HCs behave ex post opportunistically in oil E&P projects. To carry out this research, I employ the concepts of asset specificity and hold-up problem in transaction cost economics (TCE). I then

examine the unique characteristics of E&P projects, HC's opportunistic behaviors, and IOCs' safeguards. Kazakhstan will be used as a case study to analyze the relationships between economic theory and HC's ex post opportunism in oil E&P projects.

1.3 ORGANIZATION OF THE THESIS

In Chapter 2, I review the theoretical concept and basic assumptions of transaction cost economics. Such a review helps explain HC's ex post opportunistic behaviors and the shift in bargaining power between IOC and HC. Chapter 3 summarizes the unique characteristics of E&P projects and the types of oil E&P contracts as well as the main contractual terms. In Chapter 4, I discuss the main factors and conditions behind HC's ex post opportunistic behaviors and IOC's possible responses to such behaviors. Chapter 5 looks at Kazakhstan as a case study to analyze the implications of transaction cost economic theory and the Kazakh government's opportunistic behaviors in E&P projects. Chapter 6 summarizes the main findings and offers my conclusions.

Chapter 2: Transaction Cost Economics

2.1 THE THEORETICAL CONCEPT AND BASIC ASSUMPTIONS

2.1.1 The Theoretical Concept

The notion of transaction costs was first suggested in 1937 by Coase. He argued that there is a cost of searching for relevant prices, negotiating, and making a contract and firms will appear when these costs are too high. Williamson (1985) improved transaction cost economics (TCE) more practically by focusing on the economic actors' behavioral assumptions and transaction attributes (see Figure 1). He described transaction costs as "the economic equivalent of friction in physical systems" (Williamson, 1985, p. 19). According to Williamson, economic actors are assumed to be characterized by bounded rationality and may behave opportunistically. In addition, uncertainties about the future state of nature always exist. As a result, most contracts tend to be incomplete and account for only part of all possible contingencies. In particular, ex post bilateral dependencies resulting from investments in relationship-specific assets will cause ex post opportunistic behaviors between two parties.

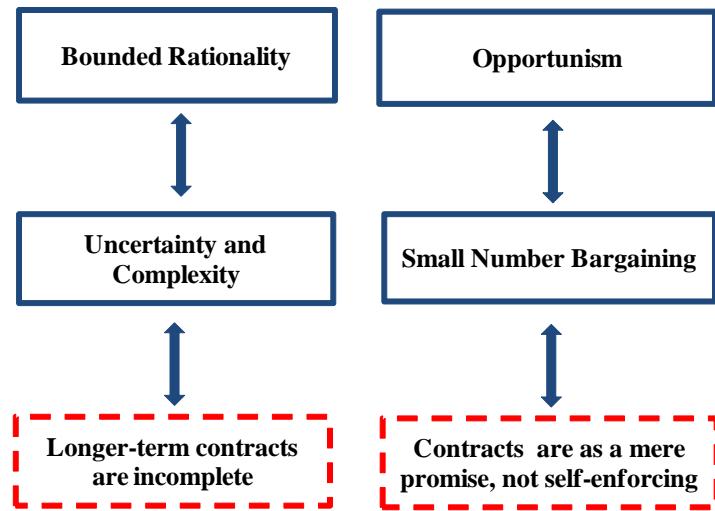


Figure 1: Organizational failure framework in TCE (Source: Ruester, 2010)

2.1.2 Basic Assumptions

Economic actors' behavioral assumptions and transaction attributes, as developed by Williamson (1985), are as follows:

- **Bounded rationality**

Economic actors are characterized by bounded rationality because they have limited cognitive abilities and cannot receive, store, retrieve, and process all information without errors. Although they try to be perfectly rational, their rationalities will be limited.

- **Opportunism**

Economic actors tend to behave opportunistically through self-interest. This opportunism includes both active and passive forms or ex ante and ex post types. For example, opportunistic behaviors include lying, stealing, cheating, and the incomplete or distorted disclosure of information, and so forth.

- **Uncertainty**

The institutional environment may be characterized by uncertainty about the future state of nature. Economic actors are faced with several exchange risks that require contractual safeguards. Within exchange relationships, the most significant uncertainty is counter party's opportunistic behavior seeking potential gain.

2.2 ASSET SPECIFICITY AND HOLD-UP PROBLEM

2.2.1 Asset Specificity

Asset specificity refers to the “durable investments that are undertaken in support of particular transactions” (Williamson, 1985, p. 55). The opportunity cost of these assets is much lower in best alternative uses. The four types of asset specificity are: site specificity, physical asset specificity, human asset specificity, and dedicated assets (Williamson, 1983). Joskow (1985) summarized these four different types of asset specific sunk investments as:

- **Site specificity:**

Buyer and seller are in a “cheek-by-jowl” relationship, reflecting *ex ante* decisions to minimize inventory and transportation expense.

- **Physical asset specificity:**

One or both parties to the transaction invest in equipment and machinery, which involve design characteristics specific to the transaction and which have lower values in alternative uses.

- **Human-capital specificity:**

This type results from learning-by-doing, investment, and transfer of skills specific to a particular relationship.

- **Dedicated assets:**

These are general investments that take place only for the purpose of selling a significant amount of product to a particular customer. If the contract is terminated prematurely, it leaves the supplier with significant excess capacity.

Williamson (1985) described contracting process as four types (see Table 1), depending on economic actors' behavioral assumptions and the presence of asset specificity. According to his explanation, contract execution problems can be easily resolved by planning, promise, or competition if one of three conditions (bounded rationality, opportunism, and asset specificity) does not exist. On the contrary, when asset specificity is joined with bounded rationality and opportunism, economic actors need to develop governance to safeguard their specific assets and themselves against the hazard of opportunism in the contracting process.

Asset specificity takes on importance only in the case of bounded rationality, opportunism, and the presence of uncertainty in TCE. The reason is that transaction-specific sunk investments produce an incentive for one party to hold up the other ex post, given an incomplete contract due to bounded rationality and uncertainty. As a result, it is necessary to develop ex ante governance structures in the contract to reduce ex post haggling problems.

Table 1: Behavioral assumptions and attributes of the contracting process

Bounded rationality	Opportunism	Asset specificity	Contracting process
-	+	+	Planning
+	-	+	Promise
+	+	-	Competition
+	+	+	Governance

(Source: Williamson, 1985)

2.2.2 Hold-Up Problem

A hold-up problem, closely related to asset specificity, refers to irreversible and specialized investments. The presence of a relationship-specific investment transforms an exchange relationship from an *ex ante* competition to an *ex post* bilateral dependency. As a result, *ex post* bilateral dependency provides one party an incentive to hold up, through opportunistic behaviors, the other party who invested in relationship-specific assets. The party may breach the contract or renegotiate opportunistically. Williamson (1985, p. 61) called this change in relationship a “fundamental transformation.”

Klein et al. (1978) provides an example of specialized assets that create *ex post* appropriable quasi rents. Say a party invests in a machine whose functioning is highly dependent on another person. If that other person withdraws from using that machine, the machine will lose its specific quasi rent. Because the *ex post* value of this specified machine in alternative use is low, a significant quasi rent can be appropriated by the opportunistic party. Therefore, when a company invests in relationship-specific assets, they make themselves vulnerable to *ex post* opportunism of specific quasi rent appropriation.

In general, investment in E&P contracts is highly specific to the project with international oil companies (IOCs) usually taking on all the risks and costs for exploration, development and production. Host countries (HCs) offer IOCs favorable contract terms to attract direct foreign investment in their natural resources. Once IOCs sign a contract and start to invest in the project, these investments might, due to the

characteristics of oil industry, become sunk. In such situations, IOCs are exposed to hold-up problems; the host country, by using ex post opportunism caused by asset specificity, appropriates more return than previously agreed upon (Teece, 1986).

2.3 THE SHIFT IN BARGAINING POWER BETWEEN IOC AND HC

2.3.1 Obsolescing Bargain Model

Bargaining power can be influenced by the structure of industry, the position and interests of a firm, the political and economic objectives of the host country, and the relative negotiating skills of each party (Smith et al., 1975, pp. 6-7).

Vernon (1971) developed the obsolescing bargain model. His model states that a bargain between an IOC and an HC should, at the time of entry, favor the IOC. However, the bargain is likely to, over time, obsolesce as HC's perceptions of benefits and costs change. Before the IOC makes a contract, the relative bargaining power is assumed to be in their favor. Since the IOC has a range of alternatives, the HC tries to offer them favorable conditions (low tax rates, freedom to remit profits abroad, etc.). However, once the IOC has completed its relationship-specific investments in the project, these assets could be sunk and held hostage by an opportunistic host government. Bargaining power would thus shift to the HC. For every sunk investment, the HC gains a greater advantage in bargaining.

2.3.2 The Shift in Bargaining Power in Oil E&P Projects

Throughout the lifecycle of oil E&P project (contract signature, commercial discovery, facilities investments, oil production, and payout), the bargaining power of the IOC and HC changes dramatically. The bargaining power of the IOC is strongest prior to signing

any contract; the source of strength is the IOC's power to commit large investments for the commercial development. Once the IOC completes specific investments in the project and oil production has successfully begun, the IOC's bargaining power begins to decrease. For in fact these invested assets are sunk and can be quite vulnerable to HC's opportunistic behaviors. Payout is also an important factor to explain the shift in bargaining power. When the IOC has recovered all its costs in an E&P project, its profitability may seem, to the HC, excessive. The HC will, in turn, demand contractual renegotiations to check whether IOC's profitability is fair or not (Johnston, 1994). Consequently, the relative bargaining positions shift during the cycle of oil exploration and production depending on the IOC and HC's bargaining power (see Figure 2).

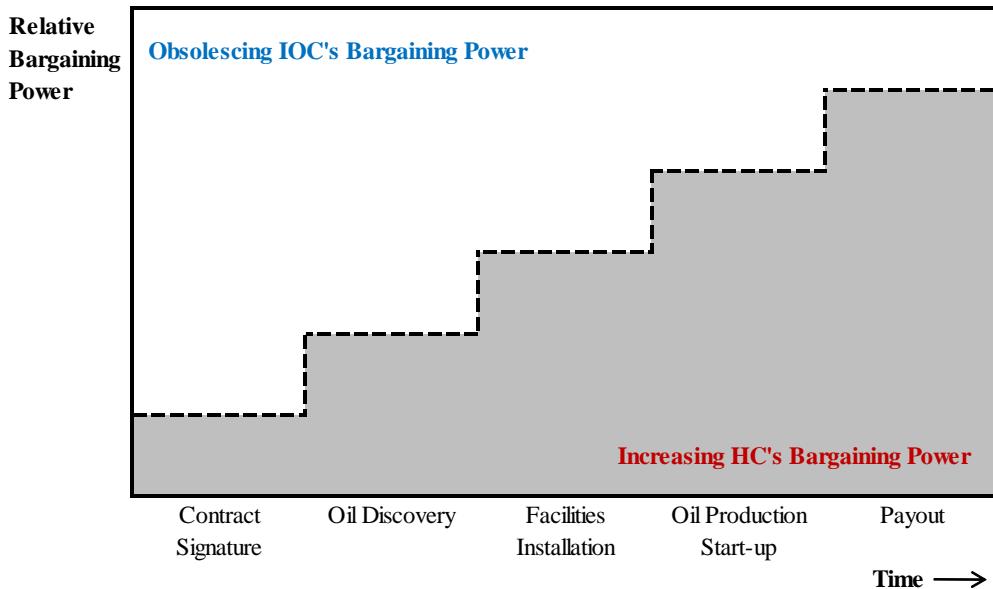


Figure 2: The shift of relative bargaining power (Source: Johnston, 1994)

2.4 SAFEGUARDS AGAINST OPPORTUNISTIC BEHAVIORS

Once relationship-specific assets are deployed, the IOC, having invested in specialized assets for a particular E&P project, will become locked in an ex post bilateral dependency problem. In the absence of some safeguards, it is highly possible that the HC will have an incentive to opportunistically hold up the IOC. The HC could exploit the IOC's being locked into specific asset investments with little option to abandon that project at a lower cost. Hence, the IOC needs to develop some safeguards to help secure its transaction-specific investments and prevent ex post opportunism in the E&P project.

The IOC can, in two ways, safeguard transaction-specific investments against ex post opportunism. One way is through vertical integration, where contracting parties merge and have a common interest. The other includes mutual hostages, partial ownership, and a variety of governance structures through contractual arrangements (Shelanski et al., 1995).

2.4.1 Long-Term Contractual Relationship

Klein et al. (1978) argue that, as a solution to the ex post opportunism, a long-term contractual relationship may be the best alternative to vertical integration. This is true if transaction costs are important and vertical integration is not economical due to diseconomies related to internal production. Such an economically enforceable long-term contract would include incentives and restrictions that can induce contracting parties to honor the original terms, even though different contingency may arise.

The two types of long-term contracts are explicit and implicit. An explicit long-term contract can solve ex post opportunism through legal settlements. An implicit one can solve such opportunism through market mechanisms. The costs of the former, however, are great. All possible contingencies must be specified; violations must be detected; the contract must be enforced in court. On the other hand, an implicit contract includes contractual guarantees enforced by the market mechanism of withdrawing future business in the case of an ex post hold-up problem (Telser, 1980). Contracting parties need not specify all possible ex post contingencies. Moreover, they can economize transaction costs and create more flexibility in the implicit contract.

Williamson (1985, pp. 34 - 35) gives three examples of protective safeguards (realigned incentives, a specialized governance structure, and trading regularity). He argues that asset specificity, safeguards, and price should be interdependent as each closely affects the other in the making of contractual arrangements.

2.4.2 Safeguards in Oil E&P Contract

In oil E&P projects, the long-term contract is constructed as a solution to the problem of HC's ex post opportunism. Important safeguards are included in the enforceable long-term E&P contract. With the HC's potential for ex post opportunism, its unique position in an E&P contract is another reason for safeguards. Through its legislative and administrative powers in the host country, the HC can maintain effective control over its relationship with the IOC. The most common safeguards included in the E&P contract are a stabilization clause, a dispute settlement clause, a currency convertibility clause, and a profit repatriation clause (Brinsmead, 2007).

- **Stabilization clause**

The HC commits to not unilaterally changing its laws or regulations that could negatively affect the terms of contract. The IOC keeps the original contract terms as initially agreed on by the inclusion of a stabilization clause.

- **Dispute settlement clause**

IOCs prefer to resolve disputes with HCs through international commercial arbitration. Arbitration ensures that disputes can be resolved through neutral laws and judgments.

- **Convertibility and profit repatriation clause**

The IOC might, according to the agreed contract, sell produced oil to the HC or supply it to the local community. If so, the IOC needs the right to convert the

revenue from the local currency into its own currency and transfer profits without any obstacle.

In addition, contractual provisions can be included to lessen the problem of the asset specificity and sunk cost in the E&P project. For example, the HC can allow the IOC to deduct its exploration cost for income tax purposes or may consent to reimburse some part of the IOC's exploration costs by contractual provisions that would make HC a partner in the exploration phase (Aghion and Quesada, 2010).

Given the unique position of the HC and its holding of the executive, legislative, and judiciary powers, an appropriate renegotiation clause could also reduce the ex post opportunism. This renegotiation clause would specify the conditions under which renegotiation could occur. As a result, the IOC is able to prepare for future renegotiation (Aghion et al., 1994).

Chapter 3: E&P Project and Contract between IOC and HC

3.1 CHARACTERISTICS OF E&P PROJECTS

3.1.1 Uncertainties and Risks in E&P Project

E&P projects are risky. They are risky due to various uncertainties – geological, political, legal, and so forth – that cannot be perfectly anticipated. Regarding the geological uncertainties, the existence, size, and quantity of the oil field cannot be precisely estimated at an early stage. And even if a deposit is discovered, its economic viability is not guaranteed. Indeed, drilling costs can change with the characteristics of the oil field. For example, drilling costs can vary from \$10,000 to \$1 million per day, and the time required to drill can range from a few days to several years.

HC's sovereignty over its natural resource can sometimes cause political risks like forced renegotiation or expropriation to the IOC. Most developing HCs have sovereignty over their natural resources (Brown, 1984, p. 221). As a result, IOCs are subject to the forced contract renegotiation and expropriation by opportunistic host governments in the name of sovereignty. Bindemann (1999) points to the difficulty IOC's face in determining precisely advance information on reserves, production costs, and future market prices. To spread out the risks of E&P projects, many large IOCs drill wells, at the same time, in different locations in a country and across different countries. They anticipate a few E&P projects to have high returns that will offset the many other unsuccessful projects (Mikesell, 1984, p. 34).

3.1.2 Asset Specificity and Sunk Investment

Oil E&P projects require large capital investments and a large proportion of these investments are sunk costs. For example, seismic data, exploration & production wells, pipelines, facilities are specific assets and sunk investments (Manzano et al., 2010). In general, IOCs incur all the costs of the exploration phase and take on the responsibility of investing in relationship-specific durable assets closely connected to each E&P project according to the *ex ante* agreed on in the oil E&P contract (Barrows, 1983). These investments in oil E&P projects are highly specific to each oil field in nature and are sunk costs, becoming a hostage of the host country (Berger, 2003, p. 1349). The reason is that once these specific assets are deployed, IOCs have little choice but to accept HC's opportunistic behaviors. As a result, IOCs are exposed to HC's opportunistic behaviors and hold-up problems.

3.1.3 Significant Economic Rent and its Volatility

A successful E&P project generates significant economic rents which can be heavily affected by international oil price, fiscal terms, capital and operating costs, production rates, the quantity and quality of the oil reserves. In particular, economic rents of E&P projects are likely to be volatile because of the volatility of the international oil price.

Economic rent in an oil E&P project can be defined as “the surplus of revenue over full economic costs of producing oil” (Mikesell, 1984, p. 30). Or: “the difference

between total revenues and total cost including the costs of management and an appropriate risk premium" (Hossain, 1979, p. 84). By these definitions, the costs include not only normal exploration, development, and operating costs but an appropriate share of profit from the E&P project. The HC tries to collect as much economic rent as possible through bonuses, royalties, taxes, and various levies.

3.1.4 Time-Inconsistency of Investments and Payout

There is time-inconsistency between capital investments and revenue payout in oil E&P projects. That is, there are many year gaps between the first capital investment and the first commercial oil production, and most investments take place before any revenue flows. Moreover, this investment is very specific to each project and oil field, it may be considered sunk. Most of the facilities installed for one project cannot be cheaply shifted to another. This characteristic of the oil industry induces the HC to opportunistically capture more revenue than the ex ante agreements (Hogan et al., 2010).

3.2 OBJECTIVES OF IOC AND HC IN E&P PROJECTS

As most HCs lack the technology and financial resources to discover and develop their own natural resources, it is essential for IOCs to participate and invest in the HC's E&P project. In such cases, inevitable conflicts arise due to the different interests and objectives of the two parties. The IOC wants to recover its E&P costs and retain as much profit as possible. The HC, while trying to ensure that the IOC stays with the project, wants to get as much revenue as possible. Sunley et al. (2003) put it this way, "Both want to maximize rewards and shift as much risk as possible to the other party."

3.2.1 Objectives of the IOC

The objective of the IOC is to maximize its wealth by finding and producing oil at the lowest possible cost and the highest profit margin. This means that the net present value (NPV) of all IOC's E&P projects should be greater than zero and be maximized. The conditions for the IOC to achieve this objective are as follows (Ramadan et al., 2002):

- a good probability of locating sufficient reserves to warrant production
- an acceptable level of political risk
- a firm foundation of legal framework for the project
- a guarantee for the repatriation of profits
- no restriction on exporting produced oil

3.2.2 Objectives of the HC

The objective of the HC is to maximize its revenues from the development of is natural resources by helping sustain the IOC's appropriate level of E&P activities. Therefore, host governments should consider the following conditions (Ramadan et al., 2002):

- maximization of revenue, ensuring IOCs earn a fair return on their investments
- maximization of control over the IOC's operations to ensure that E&P programs are carried out in the best oil fields
- maximization of direct participation in petroleum operational activities
- full exploitation of the local petroleum production for the HC

3.2.3 Conflict of Interests between the IOC and the HC

Both the IOC and the HC want to maximize the economic rent from successfully exploring and developing natural resources. Nevertheless, they cannot avoid the conflict that comes with the sharing of the rent from a successful E&P project. Each party wants the greatest possible share. Dividing up the economic rent is the main conflict between the IOC and HC. The conflict may be resolved through each party's relative bargaining power in the negotiation (Demirmen, 2010). Figure 3 shows the possibility that there can be a conflict of interests between the HC and IOC because they have either the same or different objectives in an E&P project.

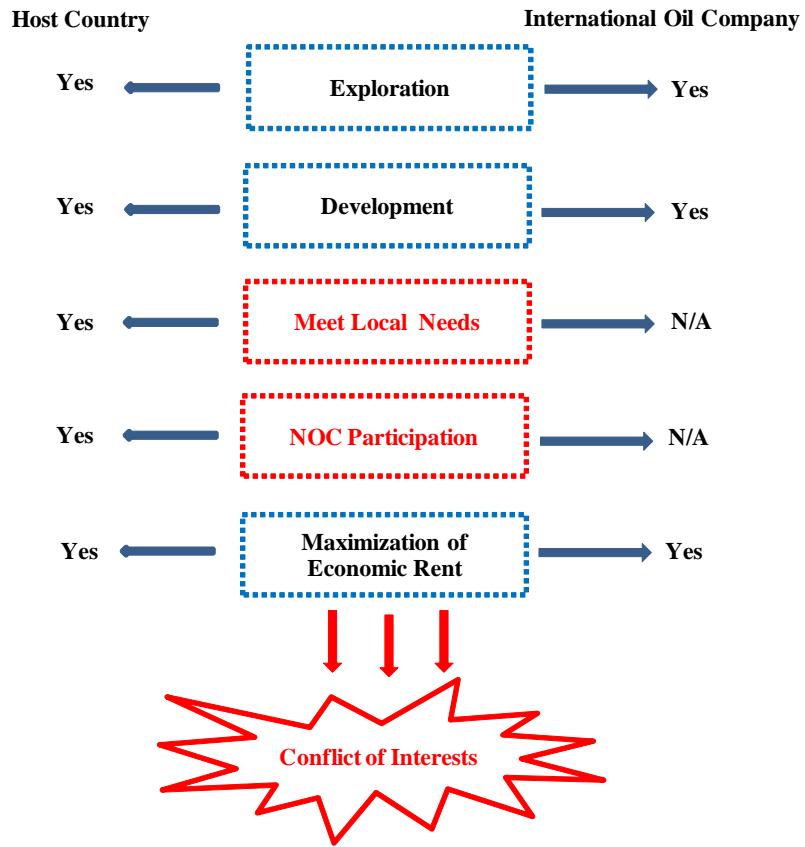


Figure 3: Conflict of interests between IOC and HC (Source: Demirmen, 2010)

3.3 TYPES OF OIL CONTRACTS IN E&P PROJECTS

Current oil contracts are mainly distinguished by the ownership of extracted oil which affects the ways to allocate costs and profits between IOC and HC (see Table 2). Oil contract types in E&P project have been divided into four major categories: concession, production sharing contract, service contract, and joint venture (Mikesell, 1984, p. 26). Meanwhile, Broadman (1985) classified oil contracts into five categories by dividing service contracts into risk and non-risk service contracts. Figure 4 shows in detailed fiscal terms the classification of oil contracts.

Table 2: Comparison of fiscal terms in oil E&P contracts

Fiscal terms	Concession (Royalty)	Production sharing contract (PSC)	Service contract
Global frequency	44%	48%	8%
Ownership of facilities	IOC	HC, NOC	HC, NOC
IOC ownership of produced oil	gross production - royalty oil	cost oil + profit oil	-
Financial obligation	IOC 100%	IOC 100%	IOC 100%
Cost recovery limit	-	usually	sometimes
HC control	low	high	high
HC participation	not common	common	very common
IOC control	high	low to moderate	low

(Source: Johnston, 2007)

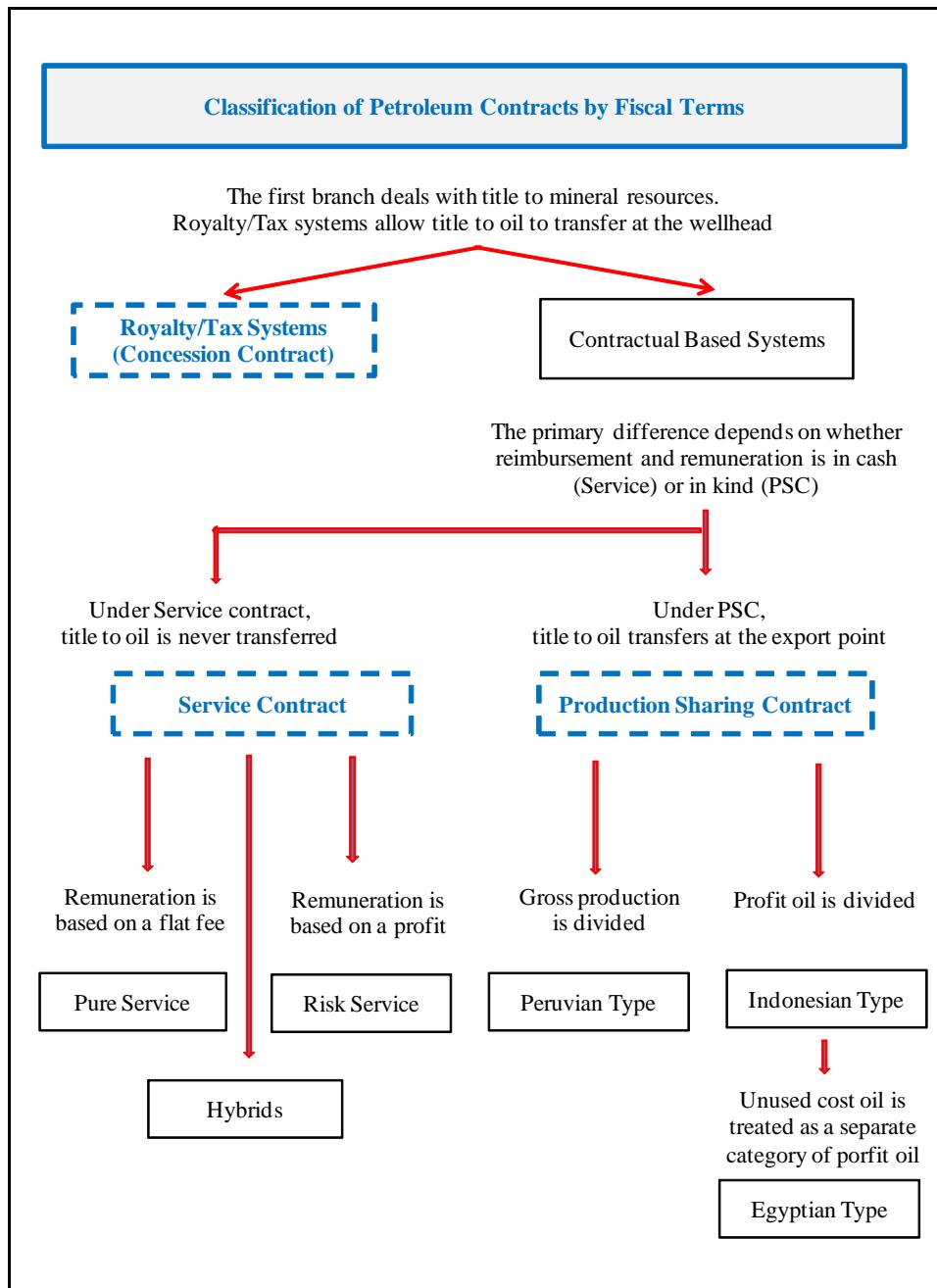


Figure 4: Classification of petroleum contracts by fiscal terms (Johnston, 2003)

3.3.1 Concession

First of all, concession has been the most common agreement between IOCs and HCs. Under the concession contract, the HC exercises no control over the IOC. The host government gives the IOC the exclusive right to explore, develop, and produce oil in the fixed area for the specific period. The IOC has to pay, from the production and sale of discovered oil, royalties and income tax to the host government. In return, the IOC can hold title to all oil produced during the agreed effective period instead of taking all risks and costs for oil E&P project. The royalty is paid by an agreed on portion of petroleum production.

3.3.2 Production-Sharing Contract (PSC)

PSCs were first introduced in Indonesia in 1966 and since then have become the most important contract in developing countries. In a PSC, the HC participates in the E&P project indirectly. For example, decisions for commercial development are made by the IOC after consulting with the HC, and the IOC needs to report or submit information on the E&P project. Production-sharing contracts give the HC more control over its oil resources because the host government can hold a share of the produced oil instead of receiving only cash, such as royalties and income tax. There are three basic components in a production-sharing contract. These are cost recovery, profit oil split, and income tax. The IOC can recover the costs of exploration, development, and production by setting aside a portion of oil production. Costs are recovered in incurred year or can be amortized

over a fixed period. Profit oil is the remaining production after cost recovery oil has been deducted from total oil production. Profit oil is divided between host governments and oil companies according to the contracted fiscal terms. Income tax is also levied on the oil companies' profits.

3.3.3 Service Contract

In a service contract, the HC takes full control over oil production and operation after commercial oil is discovered. Johnston (2003) mentions three possible types of service contracts: pure service, risk service, and hybrids of these two. In a pure service contract, the HC pays IOCs a flat fee for exploration and the development of an oil field regardless of the result. The IOC provides the HC with services and skills needed for the oil E&P activity and get an agreed on fixed fee or the right to purchase oil at a negotiated price. In a risk service contract, the IOC produces oil for the HC and the HC promises a price for each unit of oil production. The IOC must provide the initial capital and skills for the oil E&P project. If the oil E&P project is successful, the IOC can recover all its costs on the projects through profits. If the oil E&P project fails, the IOC has accepted the risk of bearing all incurred exploration costs. Payments to the IOC are usually made in oil.

3.3.4 Joint Venture

Under the joint venture, the HC takes part in the development and production of the oil field as a joint operator. According to the participation of the IOC and the HC in the E&P project, they share ownership of oil production. The host government and the IOC participate actively in the operation of the oil field. As a result, the government can share in the profits but must bear a share of the development and operation costs. In many cases, the IOC bears all exploration costs and the host government enters the joint venture only after a commercial oil discovery (Johnston, 1994 and 2003).

3.4 THE MAIN TERMS AND PROVISIONS OF PETROLEUM CONTRACT

3.4.1 The Typical Terms in Petroleum Contract

Regardless of types of petroleum contracts, each E&P contract contains five essential terms: duration of contract, relinquishment, exploration obligations, HC's participation or control over operations, and the fiscal terms (see Table 3). These five contractual terms are briefly summarized as below (Manopimoke, 1989):

- **Duration of contract**

Duration of contract is the specified period that the IOC will work for the HC. The contracted period are separated into two periods, exploration and exploitation periods. In general, the period of exploration phase is from 5 to 7 years and the period of exploitation phase is from 20 to 25 years.

- **Relinquishment**

This means that at the end of each exploration phase the IOC should, if oil has not been found, surrender a certain percentage of the granted area to the HC.

- **Exploration obligations**

The most common exploration obligation is that IOCs bear all exploration risks and are, in the exploration stage, in charge of financial and technical resources. Minimum work program and minimum expenditure obligations are required by

the HC. In addition, the IOC should submit, during the exploration activities, periodical reports and all acquired geological information to the HC.

- **HC's control over operations**

The extent of HC's control over operations can differ depending on the type of petroleum contract. If the HC decides that the oil discovery is commercial, it has the right, in some types, to require the IOC to develop an oil well. Other types allow the IOC greater discretion.

- **Fiscal terms**

Fiscal terms in petroleum contracts indicate how the IOC and the HC share costs and benefits in an E&P project. Concession includes fiscal terms based on revenue sharing. The other types have fiscal terms based on profit sharing. The examples of fiscal terms in E&P contract are bonus, royalty, cost recovery limit, government participation, income tax, and so on.

Table 3: Comparison of five main terms in oil E&P contracts

Main terms	Concession	PSC	Joint venture	Service contract
<u>Exploration phase</u>				
Duration	10 years with periodical renewal	10 years with periodical renewal	12 years with periodical renewal	12 years with periodical renewal
Relinquishment	25% at 2th year 50% at 5th year 25% at 10th year	30% at 3th year 30% at 6th year 40% at 8th year	25% at 5th year 25% at 9th year 50% at 12th year	50% at 3th year 25% at 5th year 25% at 6th year
Exploration obligations	min. investment within specific time	min. investment within specific time	min. investment within specific time	min. investment within specific time
<u>Production phase</u>				
HC's control	-	work program & budget approval	joint operation, 50% of net profit	Owner, 100% of net profit
Payment system	royalty: 12.5% income tax: 50%	65/35 of profit in favor of HC	royalty: 12.5% income tax: 50%	income tax: 50% (purchase option)

(Source: Manopimoke, 1989)

3.4.2 Examples of Some Provisions in the Petroleum Contract

IOCs try to include provisions in the petroleum contract to protect themselves against HC's opportunistic behaviors and maintain their ex ante negotiated fiscal terms for their business. Examples of such provisions are stabilization clauses, dispute settlement clauses, currency conversion clauses, and renegotiation clauses.

- **Stabilization clause**

The purpose of a stabilization clause is to prevent the HC from enacting legislation which negatively affects the IOC's rights in the contract. In addition, this clause allows for the equalizing adjustment to neutralize the effect of any additional taxes or levies enacted after signing a contract. Chinese PSCs have the following stabilization clause:

If a material change occurs to the contractor's economic benefits due to new laws, decrees, rules, and regulations or any amendment to applicable laws, decrees, and regulations made by the government, the parties shall make necessary revisions to the contract to maintain the contractor's normal economic benefits (Johnston, 1994).

- **Dispute settlement clause**

The purpose of the dispute settlement clause is to make sure that any disputes between the IOC and the HC can be resolved by a neutral juridical body that is impartial to both parties. To guarantee this resolution, IOCs want to include the stipulation that any dispute will be resolved not by a local juridical body, but through international commercial arbitration. The example of a simple dispute settlement clause is as follows:

All disputes arising out of or in connection with the present contract shall be finally settled under the Rule of Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with the said Rules (Brinsmead, 1994).

- **Currency conversion clause**

The purpose of this clause is to provide IOCs with the right to convert all earnings from local currency into their own currency and the freedom to transfer profits. An example of the currency conversion clause follows:

The state shall permit the investor to convert all earnings from local currency into any other currency within five business days of a written request from an investor (Brinsmead, 1994).

- **Renegotiation clause**

This clause provides contracting parties with a way to reach an agreement on basic issues and set aside uncertain issues for future renegotiation. Indeed, it is impossible to anticipate all possible contingencies that might happen. An appropriate renegotiation clause specifies the conditions under which renegotiation can occur. The most typical example of renegotiation clause is the gas clause. A Chinese PSC gas clause follows:

The percentages of the allocation shall be adjusted by the parties through negotiations in the light of actual conditions in the gas field so that the contractor shall be able to obtain a reasonable benefit (Johnston, 1994).

Chapter 4: Host Country's ex post opportunism and IOC's Solutions

4.1 MAIN FACTORS AND CONDITIONS TO AFFECT HC'S EX POST OPPORTUNISM

4.1.1 What Are Main Factors to Cause HC's ex post Opportunism?

The political ideologies of host countries, based on their sovereignty over natural resources, can partly explain HC's opportunistic behaviors in oil E&P contracts. However, to more completely understand HC's opportunism in E&P projects, we should consider the following main factors that result from the characteristics of E&P contracts and oil industry (Hogan et al., 2010).

- Complexity and incompleteness of E&P contracts**

According to TCE, contracts can be incomplete because human rationality is bounded and future possibilities are too complex to know precisely *ex ante*. Oil E&P contracts can be even more complex and incomplete because possible contingencies increase due to a great deal of uncertainty, including such issues as geological viability, oil price, economic conditions, political climate, and others. As a result, the HC finds opportunities to force the IOC into opportunistic renegotiation.

- Asset specificity and sunk investment**

In general, oil exploration and extraction require a major proportion of sunk investments. Once the specific assets needed for oil development and production are deployed in each E&P project, the host government gains more bargaining power by

virtue of the fact that the IOC has little recourse with the HC's opportunistic renegotiation.

- **Significant economic rent in the successful E&P project**

Once commercial oil is discovered, oil extraction generates, depending on the international oil price, significant economic rents. If oil prices rise fast, the rent also rises, giving the IOC ever greater profits. Under such conditions, the HC demands a fair return of the profit and has an incentive to appropriate a significant share of it through opportunistic renegotiation.

- **Inconsistent contract terms with geological risks in E&P project**

Geological risk is much higher in the oil exploration phase than in the development and production phase. For example, it is estimated that the possibility of finding at least break-even commercial oil in drilling exploratory wells is less than 15% (Welker, 1985, p. 35). At the negotiating stage, the HC draws up favorable terms intended to ameliorate the IOC's high geological risk of oil exploration and to attract the IOC's direct foreign investment in E&P projects. These initial contractual terms are never consistent with the HC's ultimate objectives of the project once successful oil reserves have been developed. As a result, the HC with its increasing bargaining power wants to renegotiate the original contract terms to gain a greater share.

- **Volatility of international oil prices**

Oil prices on the international market can be volatile. Such potential causes not only volatility in economic rent, but induces the HC to behave opportunistically in E&P projects. For example, when there is a steep increase in the international oil price, the HC is eager to renegotiate contract terms to gain a greater share. When the opposite happens, however, and oil prices drop, the HC is unlikely to renegotiate the agreed-on contract terms. Duncan (2006b) points out that when the commodity prices of natural resources are high, host governments are more likely to engage in ex post opportunism.

4.1.2 What Conditions Make HC's ex post Opportunism More Advantageous?

Oil E&P projects are vulnerable to HC's opportunistic renegotiation because of this type of projects' unique characteristics (significant rents, high sunk costs, geological uncertainties, and volatile oil prices). Given this fact, HCs attain, if following conditions are satisfied, a better bargaining position in contract renegotiation that increases the government take and their control over the project (Manzano et al., 2010).

- **High possibility of oil discovery**

HCs can negotiate more advantageously when they have large proven oil reserves. Assured by the high possibility of discovering oil, IOCs are, in spite of unfavorable contract terms, interested in entering and staying in this type of country.

- **Enough financial resources for E&P project**

To develop HC's natural resources, a great deal of capital investment is needed. If HCs have enough financial resources for an E&P project, they are in a better position. In contrast, if HCs are in need of foreign direct investment, IOCs are in a better position.

- **Significant sunk investments**

When there are significant sunk investments and little new investment is required, HCs can expropriate the economic rents by changing, opportunistically, the contract terms including the taxes and regulations. In such a situation, IOCs want to continue the

project for as long as they can recover operational costs, even if they cannot recover the sunk investments.

- **Low reputational cost**

When a new E&P project begins and an HC is trying to attract direct foreign investment, the HCs will scarcely want to engage in opportunistic behaviors. They are, after all, in need of the IOC's capital investment. If they reneged on the ex ante agreed contract, the cost of their reputation would be high. In contrast, when the IOC has completed its capital investment and these assets have become sunk, or when the HC possesses sufficient financial resources, the cost to its reputation is low. Opportunistic behaviors are thus more likely.

4.2 TYPES OF HC'S OPPORTUNISTIC BEHAVIORS IN E&P PROJECT

Sometimes there is a confluence of the main factors causing HC's opportunistic behaviors and the main conditions for HC's opportunism in E&P project. When this happens, HCs show two types of opportunistic behaviors. The first is "direct expropriation" and the second is "indirect expropriation" (Hogan et al., 2010).

4.2.1 Direct Expropriation

In this type of expropriation, HCs behave opportunistically by directly taking over the IOC's rights to and control over oil production and by forcing the IOC to relinquish their rights regardless of any *ex ante* signed contract terms. Table 4 shows direct expropriation examples from the oil industry. Venezuela took steps to nationalize its oil industry and Bolivia did the same with its oil and mining industry. The Russian government took control of the Sakhalin Gas Project and seized the assets of Yukos (the largest private oil company in Russia).

Table 4: Active cases of direct expropriation in 2007

Country	Industry	IOCs involved	Actions taken
Russia	gas	ExxonMobil, Shell, and others	took over Sakhalin-2 project, criticized foreign participation in Sakhalin-1 project
Ecuador	oil	Occidental Petroleum	seized Occidental assets
Kyrgyzstan	mining	Oxus	continuing dispute over revoked license in Jeeroy gold mine
Congo	mining	Various	seeks contract cancellations and renegotiations
Venezuela	oil	ConocoPhillips, Exxon Mobil, etc.	nationalizing industry
Algeria	gas	Repsol and Gas Natural	canceled contract and seeks reparations, alleging delays and cost overruns
Bolivia	mining	Glencore	nationalized Glencore's tin smelter
Russia	oil	Yukos	seized assets after alleging bankruptcy, auctioned off assets
Bolivia	oil and gas	Petrobras and others	nationalizing industry
Zimbabwe	mining	African consolidated Resources	revoked claim on diamond mine from British firm, gave it to state firm

(Source: Hogan et al., 2010)

4.2.2 Indirect Expropriation

In this type of expropriation, HCs focus on increasing their shares of E&P projects through opportunistic contract renegotiations (the change of contract terms or contract types), increasing taxes, and tightening regulations in oil industry. Indirect expropriation is also called “creeping expropriation.” This expropriation is more difficult to detect than direct expropriation and it is hard for an IOC to figure out the HC’s exact intention when it changes laws and regulations. Although indirect expropriation can reduce the IOC’s profits, this method at least allows IOCs to continue E&P projects in HCs’ natural resources.

Table 5 shows indirect expropriation cases in the oil industry. Kazakhstan, to increase its revenues, forced IOCs to renegotiate oil contracts; the country also demanded a larger ownership share. Libya increased its production share through renegotiation. Ecuador raised profit taxes on oil companies and Algeria enacted an oil windfall tax. In addition, Argentina prevented oil exports and shut down an oil refinery in the name of environmental protection.

Table 5: Active cases of indirect expropriation in 2007

Country	Industry	IOCs involved	Actions taken
Kazakhstan	oil	Eni, Shell, ExxonMobil, etc.	seeks cash payment and larger ownership share
Ecuador	oil	Repsol, Andes Petroleum	raised profit tax on other firms
Libya	oil	Petro-Canada	increased production share
Ivory Coast	oil and gas	Various	seeks renegotiation
Kyrgyzstan	mining	Centerra Gold	assumed greater share of Kumtor gold mine
Congo	mining	Various	seeks contract cancellations and renegotiations
Canada	oil	Various	increase revenue share
Argentina	oil	Shell Argentina	prevented exportation, shut down refinery because of pollution concern
Bolivia	mining	Various	plans to raise taxes on profits
Algeria	oil	Various	enacted oil windfall tax
Mongolia	mining	Various	raise taxes on projects, state can buy into deposits

(Source: Hogan et al., 2010)

4.3 HC'S BENEFITS AND REPUTATIONAL COSTS OF EX POST OPPORTUNISM

4.3.1 HC's Reputational Cost Model

In theory, if there is no cost to HC's ex post opportunism, HCs always try to hold up IOC's significant economic rents by direct expropriation or forced contract renegotiations. However, the reality is different. HCs sustain a reputational cost in the form of losing access to future investments and this reputational cost plays an important role in restraining host governments from ex post opportunism in E&P projects.

Manopimoke (1989) offers the following model to show the relationship between HC's reputational cost and ex post opportunistic behaviors:

- A contractor completes the specific investments and produces products from $t = 0$ to $t = n$ (infinite). There is the contractor's specific economic rent during production period.
- The host country receives the same amount of revenue, R , and also pays the same production cost, C , in each period from $t = 0$ to $t = n$.
- The host country's long term profits are :

$$(R - C)(1 + \beta + \beta^2 + \dots + \beta^n) = (R - C)/(1 - \beta) \\ = \frac{1+r}{r}(R - C) \quad (4-1)$$

(where, r is the market interest rate, $\beta=1/(1+r)$, is the discount factor)

- If the host country decides to take over the specific assets or appropriate the contractor's specific economic rent, its short term benefit is the trade-off between the one time profit, R , and reputational cost (the loss of future business), C_0 :

$$R - C_0 \quad (4-2)$$

- Therefore, the host country will be honest as long as its long term profits are equal to or greater than its short term benefits by ex post opportunism; the necessary conditions can be expressed as:

$$\frac{1+r}{r}(R - C) \geq R - C_0 \quad (4-3)$$

- The equation (4-3) can be rearranged as below:

$$R + rR - C - rC \geq rR - rC_0$$

$$rC_0 \geq C + rC - R$$

$$rC_0 \geq (1 + r)C - R$$

$$C_0 \geq \frac{(1+r)}{r}C - \frac{1}{r}R \quad (4-4)$$

- The new equation (4-4) shows that the host country can behave opportunistically if it cares little about its reputation or there is a change in other variables (see Table 6).

Table 6: Possibility of HC's ex post opportunism when circumstances change

Change in variable	Left side	Right side		Results
-	C_0	$\frac{(1+r)}{r}C - \frac{1}{r}R$		$LS = RS$
$C_0 \downarrow$	$C_0 \downarrow$	$\frac{(1+r)}{r}C - \frac{1}{r}R$		$LS < RS$
$r \uparrow$	C_0	$\frac{(1+r)}{r}C - \frac{1}{r}R$	\uparrow	$LS < RS$
$C \uparrow$	C_0	$\frac{(1+r)}{r}C - \frac{1}{r}R$	\uparrow	$LS < RS$
p (price) \uparrow	C_0	$\frac{(1+r)}{r}C - \frac{1}{r}R$	\uparrow	$LS < RS$

(Source: Manopimoke, 1989)

4.3.2 The Benefit and Cost of ex post Opportunism

In E&P project, an HC's ex post opportunism produces for the government both benefits and costs. Through the direct expropriation or forced contract renegotiation, HCs can appropriate significant economic rents or increase their shares of the profits. However, HCs also have to bear two important costs (the loss of access to future investment and direct sanctions). That is, the HC will lose the IOC's future investments including the transfer of skills because an IOC can punish the host country by withholding further investment or imposing direct sanctions such as trade embargo. In addition, the blemish on the HC's reputation might influence other future possible foreign investors (Tomz et al., 2010). Duncan (2006a) confirmed empirically that an HC absorbs a significant cost in the form of lower growth after HC's direct or indirect expropriations.

4.4 IOC'S POSSIBLE SOLUTIONS TO HC'S EX POST OPPORTUNISM

IOCs are, quite simply, vulnerable to HCs' ex post opportunistic behaviors. Moreover, the contracting party – the host government – controls the legal system, leaving IOCs' a limited number of solutions. IOCs certainly cannot expect an enforceable legal system to resolve HC's ex post opportunism. IOCs may rely, instead on arbitration, which is expected to be fair and enforceable. However, arbitration also has a disadvantage in that it requires a lot of time and administrative costs to settle disputes with HC. Rather than unenforceable legal resolution, IOCs can find more effective solutions in the following methods (Hogan et al., 2010):

4.4.1 Stabilization and Renegotiation Clauses in Oil E&P Contract

IOCs can protect themselves indirectly from HCs' ex post opportunism by including in oil E&P contracts such safeguards as stabilization clauses or renegotiation clauses. Such clauses provide IOCs with different types of safeguards. A stabilization clause is to help IOCs keep their originally signed contract terms and to maintain profitability in E&P project. That is, stabilization clauses provide IOCs with safeguards by specifying that any change in HCs' laws or regulations that adversely affect IOCs' fiscal terms and profits will not be applied to the original contract terms. The problem with stabilization clauses is that, while widely included in E&P contracts, they hold no guarantee that HCs will respect them. Indeed, an HC's national sovereignty allows them the freedom to change their laws in spite of agreed E&P contracts (Coale, 2002).

Renegotiation clauses, on the other hand, provide IOCs a chance to prepare for future renegotiation by specifying the explicit conditions under which renegotiation can occur in E&P contracts. As a result, IOCs can share the potential benefits and risks from future contingencies by renegotiating new terms in the contracts. Their limitation is that it is difficult to make specific designs and implementations of these clauses because uncertainties exist as to which events trigger renegotiations, whether renegotiations lead to resolution, and so forth. (Berger, 2003).

4.4.2 Punishment as the Denial of Future Investments

IOCs can punish HC's expropriation and forced renegotiation by withdrawing future investments in other E&P projects. Eaton and Gersovitz (1981) showed that if creditors have no direct control over debtors and can punish their defaults solely by denying them future credit, such a method is sufficient to make debtors repay their loans – sufficient as long as debtors have no other means to borrow money from the international credit market. When that is the case, debtors are permanently excluded from the credit market and are unable to borrow money.

This type of solution can be applied to an HC's ex post opportunism. That is, after IOCs (creditors) make direct foreign investments (loans) in HCs (debtors), IOCs can handle – as long as HCs have no other financial resources than IOCs' investments – HCs' ex post opportunism (default) by denying any future investments.

The key of course is whether such a denial is sufficient to induce HCs to hold up their end of the agreed contract. Nevertheless, a high possibility exists that an HC could easily find another foreign investor to take over the oil development and production stage once commercial oil has been found.

4.4.3 Reputational Spillover Effect as a Restraint for HC's Opportunism

Another solution to ex post opportunism is a host government's concern about damage to its reputation. Eaton (1996) indicated that sovereign debtors repay their debts to maintain credibility in the international credit market. Indeed, debtors are concerned about their reputation losses and wish to avoid adverse consequences from a default. In addition, Cole et al. (1995, 1998) showed that there is the possibility of reputational spillover effect and if a host government has a bad reputation in one relationship, this country will be treated as untrustworthy in other relationships.

This type of solution can also be applied to HCs' ex post opportunism. Since they rely on IOCs (creditors)' investments (loans) for the development of their resources, HCs (debtors) have an incentive to preserve their reputation. Also, they know that if they expropriate (default), the resulting bad reputation will influence future E&P projects. As a result, HCs will try to maintain a good reputation to attract IOCs' investments in E&P projects. Host governments can build a good reputation by complying with the agreed contract terms.

The effect of this solution can vary depending on HCs' tendencies with their reputations. If host governments continue to last and care about their reputation, this concern provides HCs with enough incentive to respect the contract terms. In contrast, if host governments have enough of their own capital and care little about their reputation, they are likely to behave opportunistically.

Chapter 5: Case Study of Kazakhstan's Opportunistic Behaviors

5.1 BACKGROUND ON KAZAKHSTAN'S OIL INDUSTRY

5.1.1 Overview of Kazakhstan

Kazakhstan gained its independence from the former Soviet Union in 1991. Since then, IOCs have invested heavily – in spite of unfavorable country location (see Figure 5) – in E&P projects regarding Kazakhstan's natural resources. Why? Among the former Soviet republics, Kazakhstan has the second largest supply, after Russia, of oil reserves as well as the second largest amount of oil production. According to BP Statistical Review of World Energy 2010, its proven oil and gas reserves were, at the end of 2009, 39.8 billion barrels of oil, and 64.4 trillion cubic feet of natural gas. Its share of the world's total proved reserves are about three percent (oil) and one percent (gas).



Figure 5: The location of Kazakhstan (Source: EIA)

5.1.2 Kazakhstan's Main Proven Oil Reserves and the Oil industry

Main Proven Oil Reserves in Kazakhstan

Kazakhstan's oil deposits are mainly located in the western part of the country, near and under the Caspian Sea. The most important proven oil reserves are three (Tengiz, Karachaganak, and Kashagan) and IOCs have been focusing on investing in the E&P projects of these three proven oil reserves (see Table 7).

Tengiz oil field is located along the northern shores of the Caspian Sea and is one of the largest and deepest oil fields in the world. This reserve was first discovered in 1974. In 1993, Chevron and Kazakhstan government formed a 50:50 joint venture to develop the field, and this field accounts for about 21 percent of total oil production in Kazakhstan. Recoverable oil reserves are estimated at six to nine billion barrels.

Karachaganak oil and gas condensate field is located in the northern part of the country and is one of the largest gas condensate fields in the world. This reserve is producing about 18 percent of total oil production. Recoverable oil reserves are estimated at 2.4 - 6 billion barrels. In 2003, after completing the construction of pipeline between Kazakhstan and China, Karachaganak's bargaining power improved significantly.

Kashagan oil reserve is located off the northern shores of the Caspian Sea. Its discovery was the world's largest discovery in three decades (see Figure 6). Although the former Soviet republics first identified the potential of this reserve in the early 1970s, this field was not drilled because of uncertain geological information and high environmental

costs. Recoverable oil reserves are estimated seven to nine billion barrels (Kaiser et al., 2007). In addition, expected revenues from the development of Kashagan fields could exceed one trillion dollars offsetting the tens of billions of dollars in oil exploration and development costs (Johnston, 2003).

Table 7: Three main proven oil fields in Kazakhstan

	Tengiz	Kashagan	Karachaganak
Recoverable reserves (billion bbl)	6-9	7-9 (or more)	2.4-6
Location	On shore	Off shore	On shore
Investment to Date (\$ billion)	10	5	4
Expected Investments (\$ billion)	23	29	8
Ownership	Chevron 50% ExxonMobil 25% KMG 20% LukARCO 5%	ENI/Agip 18.52% ExxonMobil 18.52% Shell 18.52% Total 18.52% ConocoPhillips 9.26% KMG 8.33% Inpex 8.33%	BG 32.5% ENI/Agip 32.5% Chevron 20% Lukoil 15%

(Source: Kaiser et al., 2007)

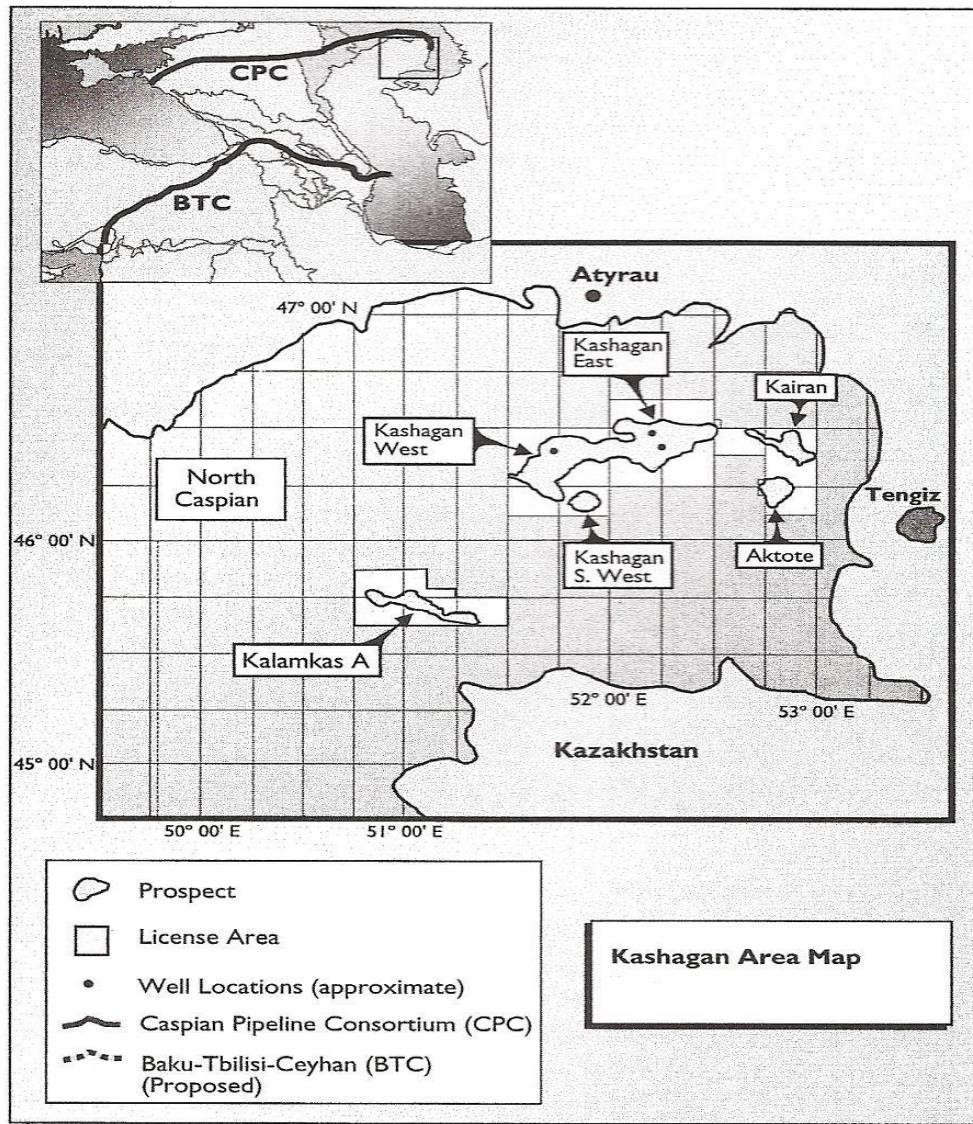


Figure 6: Kashagan oil field area map (Source: Johnston, 2003)

Importance of the Oil Industry to Kazakhstan's Economy

The oil industry, which continues to grow rapidly, plays an important role in the development of Kazakhstan's economy. As of 2009, the oil sector accounted for about 27 percent of gross domestic product (GDP), 50 percent of total industry, and 74 percent of total exports. In addition, a large amount of direct foreign investments in oil E&P projects have been made since 1999. For example, IOCs' foreign direct investment in oil E&P project was nearly \$12.8 billion, accounting for about 70% of the total direct foreign investments in 2009 (see Table 8).

Table 8: Importance of the oil industry to Kazakhstan's economy, 2006-2009

	2006	2007	2008	2009
GDP growth rate (%)	9.7	8.2	3.2	1.2
Share of oil sector in GDP (%)	31.5	29.4	32.8	27.1
Share of oil sector in total industry (%)	49.4	48.3	51.7	50.5
Share of oil sector in total exports (%)	71.9	69.7	73.0	74.0
Share of oil sector in total FDI (%)	69.8	63.4	51.4	69.8

(Source: Agency of Statistics of the Republic of Kazakhstan)

Oil Production and Ownership of Oil Industry

After Kazakhstan gained independence, oil production temporarily decreased for three years (1992-1994), with the lowest level of oil production coming in 1994 with 20.3 million tonnes. Oil production has been on the rise since 1995. By 2004, 60.6 million tonnes of oil production had been achieved. In particular, between 1999 and 2004, oil production increased at an annual rate of over 10% and, in 2009, oil production was about 78 million tonnes (1.6 million barrels per day) (see Figure 7).

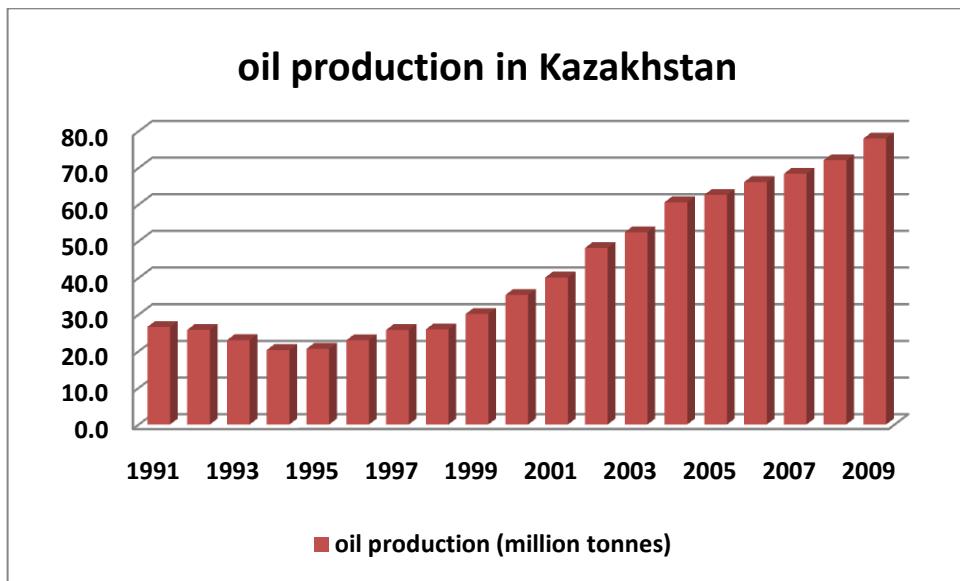


Figure 7: Oil production in Kazakhstan, 1991-2009 (Source: BP)

The ownership structure of Kazakhstan's oil industry have changed several times through mergers and acquisitions, seven oil companies serve as the major oil producers in Kazakhstan. At present, these IOCs account for nearly 90 percent of oil production in Kazakhstan (see Table 9). The largest oil producer in Kazakhstan is Tengizchevroil (TCO) led by the Chevroil Consortium consisting of international oil companies

(Chevron, BP, BG, ConocoPhillips, ENI, ExxonMobil, Shell, and Total). Kazakhstan's national oil company, KazMunaiGas (KMG) is increasing its share in the oil industry through the Kazakhstan government's support.

Table 9: Major oil producers in Kazakhstan, 2004

Consortium	Oil production (million tonnes)	Share (%)
Tengizchevoil LLP (TCO)	13.6	23
Petrokazakhstan (PKK)	9.9	17
KazMunaiGaz (KMG)	8.9	15
Karachaganak Pct. Oper. B.V. (KIO)	8.5	14
Mangistaumunaygas (MMG)	5.3	9
CNPC-Actobcmunaygas JSC (AMG)	4.8	8
Karazhambasmunay (KM)	2.3	4
Other	5.9	10

(Source: Kaiser et al., 2007)

5.2 KAZAKHSTAN'S OIL E&P CONTRACT TYPES AND MAIN FISCAL TERMS

5.2.1 Contract Types of Kazakhstan Oil E&P Project

In Kazakhstan oil E&P projects, IOCs and Kazakh government have usually conducted negotiations through three types of E&P contracts: the concession (royalty/tax) contract, the production-sharing contract (PSC), and the joint venture. Each type of contract provides IOCs and the Kazakh government with varying levels of control, participation, and return on the project. Under the concession contract, the Kazakh government gives IOCs exclusive rights to explore, develop, and produce oil for a specified period. The IOCs bear all costs and risks of E&P project and in turn pay royalties and taxes. Under PSC, Kazakh government still holds the ownership of oil resources and IOCs are contracted to explore and develop oil fields. IOCs can recover their costs of E&P activity and gain the revenue through sharing the profits with Kazakh government. Under a joint venture, the Kazakh government and IOCs manage the operations and share the risk and return of the project through a joint operation agreement. In a joint venture, Kazakhstan's national oil company (KMG) is commonly involved in the E&P project (Kaiser et. al, 2006a).

Joint ventures combined with concession contracts or PSC are the most common types of contracts. Tengiz and most of the old and small onshore oil fields have been operated by concession contracts. On the other hand, Kashagan and offshore oil fields have been signed according to PSC types (see Table 10).

Table 10: Contract types of oil fields in Kazakhstan

Oil field	Contract type	Proven & probable reserves (billion bbl)
Aktobe	Concession	1.0
Emba	Concession	0.7
Kumkol	Concession	0.6
Tengiz	Concession	9.0
Karachaganak	PSC	2.4
Kashagan	PSC	15.0
Kurmangazy	PSC	5.5-7.7
Tub-Karagan	PSC	2.2

(Source: Kaiser et al., 2006a)

5.2.2 Main Fiscal Terms of Oil E&P Contracts in Kazakhstan

At the beginning of oil E&P contracts, Kazakh government offered IOCs favorable fiscal terms (simple bonuses or flat rate royalty) to attract direct foreign investments. However, fiscal terms of E&P contracts should be progressive to provide the HC with increasing revenues as the profitability improves (Mian, 2010). As a result, the Kazakh government introduced complicated and flexible royalties and taxes to get more revenue as Kazakhstan gained more information and experience (Kaiser et al., 2006b).

Main Fiscal Terms of Concession (Royalty/Tax) contract

Under concession contracts, IOCs have to pay various taxes (corporate income tax, economic rent tax, and excess profit tax) and other payments (signature and discovery bonuses, royalty). A signature bonus is paid when a contract is signed and a

discovery bonus is paid when a commercial oil discovery is announced. IOCs pay royalties to the Kazakh government for the right to produce oil; the royalty payment is calculated by the value of produced oil. Royalty rates are determined by the volume of accumulated oil production, from 2% to 6%. Corporate income tax (CIT) is 30% of taxable income calculated by the difference in annual income and deducting all expenses.

IOCs exporting oil are required to pay an export tax known as the economic rent tax (ERT). ERTs are based on a sliding scale with 19 different tax rates, from 1% when oil price is less than \$19/bbl to 33% when oil price is greater than \$40/bbl.

IOCs are subject to excess profit tax (EPT) based on net income in excess of 20% of tax deductions and tax rates are from 0% to 60% depending on the ratio of cumulative aggregate income to cumulative aggregate tax deductions.

Main Fiscal Terms of Production Sharing contract (PSC)

In a PSC, IOCs' cost recovery is limited to 75 percent of gross production before payback and 50 percent of gross production after payback. The profit oil split can be negotiated depending on the risks and costs of the project, but the Kazakh government's total take must be at least 10 percent before payback and 40 percent after payback. In addition, IOCs have to pay a corporate income tax, 30 percent of IOCs' profits according to the tax law in Kazakhstan.

5.3 ANALYSIS BETWEEN ECONOMIC THEORIES AND KAZAKHSTAN'S OPPORTUNISM

5.3.1 Kazakh Government's ex post Opportunistic Behaviors in Oil E&P project

Kazakhstan has not engaged in “direct expropriation” as did Venezuela, Russia, and Bolivia. Nevertheless, the Kazakh government has obviously been engaging in ex post opportunistic behaviors through “indirect expropriation.” At the beginning of its E&P projects, Kazakhstan offered IOCs favorable and relaxed contractual terms to attract their much needed investments.

Since 1998, however, the Kazakh government’s attitude to IOCs changed from friendly to aggressive, focusing on rebalancing the terms of existing E&P contracts. Kazakhstan has enacted or amended its laws, taxes, and regulations to increase its revenues and to gain more powerful control over the E&P projects. In particular, the Kazakh government unilaterally revised existing E&P contracts and forced IOCs to renegotiate the original terms of production-sharing contracts (see Table 11).

Of the many indirect expropriation examples in Kazakhstan, some important opportunistic behaviors that have caused conflicts between IOCs and the Kazakh government are briefly summarized below (Kaiser et al., 2006c, 2007):

Law amendment for state preemptive right in E&P project

The most remarkable Kazakh government's ex post opportunistic behavior was to change the law, in 2004, on subsurface and subsurface use so as to guarantee its preemptive right in an E&P project. In the name of preserving and strengthening its oil reserves, Kazakhstan insisted that the state should have a preemptive right to acquire any oil field use right or equity interest that any oil field user wishes to transfer. The problem is that this amendment can be applied to not only new future E&P contracts, but also all current signed contracts. As a result, KMG (Kazakhstan national oil company) can get a right to participate in all oil and gas E&P projects and purchase 8.33 percent share of Kashagan consortium from BG (British Gas) in spite of other consortium participants' preemptive right of first refusal in 2005.

Changes of Fiscal Terms and New Regulations on E&P projects

The Kazakhstan government amended its petroleum law and added new regulations to increase its revenues and to get more rights in oil E&P projects. The main changes in the contracts' fiscal terms are: the IOCs' cost recovery limit, minimum government take, removal of a tax stability clause, a sliding scale export tax on new concession contracts, and KMG's right to share 50 % ownership of new oil fields. Moreover, new regulations on E&P projects ensure that violations face aggressive measures, such as contract suspension, termination, a lot of fines. For example, a \$50 million fine for the delay of Kashagan project was annually imposed by Kazakh government.

Table 11: Examples of Kazakhstan's ex post opportunistic behaviors

Year	Opportunistic actions taken
1995	- Excess profit tax (EPT) and ring fencing are introduced by tax decree.
1996	- A tax stability clause is introduced by petroleum law.
1997	- The tax stability provision restoring economic interests of the parties is repealed by amendment to the tax decree.
2001	- Contrary to U.S.-Kazakhstan tax treaty, the Ministry of Finance imposes Parker Drilling to pay \$29 million for unpaid taxes.
2002	- The entire tax stability clause is repealed for all E&P contracts signed after December 31, 2001 by new tax code. - Kazakh government seeks to revise agreements unilaterally; revision would divert oil profits to government. - TengizChevroil is fined \$71 million by Kazakh court for ecological damages.
2003	- The protections and exemptions for foreign investors are reduced and foreign investors' right of resolving disputes by international arbitration is removed by new foreign investment law.
2004	- Kazakh government changes tax policy: concession contracts are subject to taxes and other obligatory payments in accord with the tax legislation in effect on the date the tax liabilities arise. - Kazakh government changes its legislation governing preemptive purchase rights. KMG can now buy back into Agip KCO. - Kazakh government adopts new law for environmental issues. - IOCs pay fine of \$150 million to Kazakh government for Kashagan E&P project delays.
2007	- Kazakh government suspends Kashagan project for three months, citing "environmental" concerns. - Kazakh government asks for "adequate compensation" for cost overrun and production delays; and wants KMG to become joint operator of Kashagan project. - Kazakh parliament accepts amendments to Law on Subsurface and Subsurface Use. Amendments give Kazakh government the right to unilaterally review and break contracts with subsoil users. - Kazakh government fines TengizChevroil \$609 million for environmental violations. - Kazakh government announces that Agip KCO may be fined an additional \$10 billion for Kashagan production delays.

(Source: Sunley et al., 2003, Kaiser et al., 2007, Reich, 2010, Encyclopedia 2010)

5.3.2 Reasons for Kazakhstan's ex post Opportunism in Oil E&P Project

In this part, Kazakhstan's ex post opportunism in oil E&P project can be explained by applying the following factors to Kazakhstan's oil industry and E&P contracts.

IOCs' Asset Specificity and Sunk Investment in Kazakhstan E&P Projects

Since 1991, when Kazakhstan gained its independence, IOCs have been investing heavily in the exploration and development of Kazakhstan's natural resources. Due to the nature of the oil industry, these investments are highly specific assets to each project and become sunk costs for IOCs. As a result, the Kazakh government, knowing that IOCs have little recourse against its ex post opportunism, has an incentive to appropriate IOCs' profits from E&P projects; this is the hold-up problem explained by Transaction Cost Economics (TCE).

The amount of IOCs' sunk investments in oil E&P projects can be estimated by direct foreign investments in Kazakhstan oil fields since 1993. As of 2009, the accumulated foreign investment in oil E&P projects amounted to about \$71 billion. In particular, for 2009 the total direct foreign investment (\$18.4 billion), and for oil E&P projects \$12.8 billion (\$4.0 billion in oil extraction and \$8.8 billion in oil exploration activities). Figure 8 shows that IOCs' direct foreign investment in Kazakhstan oil E&P project has increased greatly since 2000.

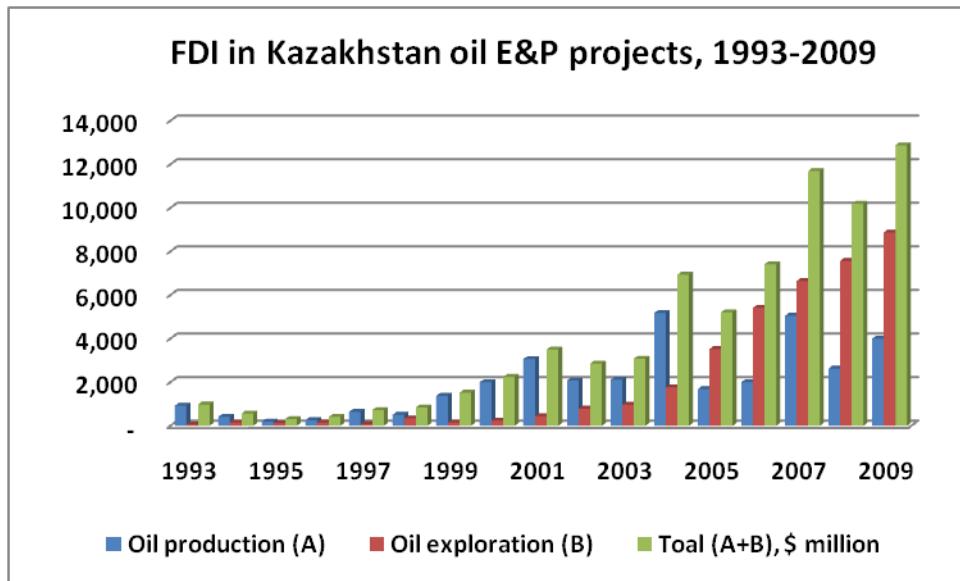


Figure 8: FDI in Kazakhstan oil E&P projects, 1993-2009 (Source: Olcott, 2010)

The rise of International Oil Price and Significant Economic Rent

When oil prices dropped, the Kazakh government offered IOCs favorable and more relaxed contractual terms to ensure IOCs' profitability and to attract more investments. During the oil exploration phase, once a commercial oil field has been discovered, oil extraction provides IOCs and Kazakh government with significant economic rent, which is heavily affected by fluctuations in international oil prices. During the 1990s, oil prices were stable or even declining and the Kazakh government had no opportunity for ex post opportunistic renegotiations. However, as the international oil price (average brent spot crude oil) rose steeply from a low of \$12.72/bbl (1998) to a high of \$97.26/bbl (2008) (see Figure 9), this economic rent became larger and IOCs earned greater profits in the project. To rebalance the division of profits, the Kazakh government demands a fair return on E&P projects and tries to appropriate IOCs' excessive profits by forced contract renegotiation.

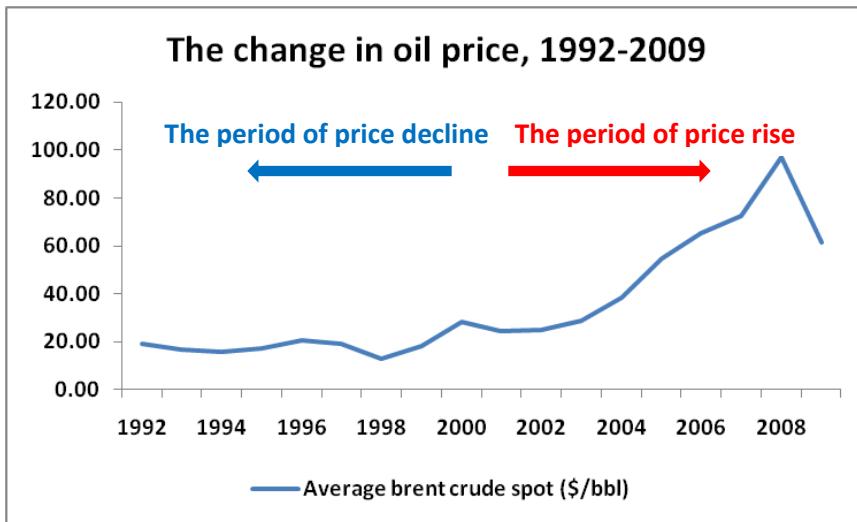


Figure 9: The change in international oil price, 1992-2009 (Source: BP)

Importance of Oil Industry in Kazakhstan Economy Development and Growth

Oil and gas are the primary sources of the Kazakh government's revenues. As the share of the oil industry in Kazakhstan economy is significantly large, Kazakhstan has considered the oil industry as a key player in its revenue increase and sustained economic development. In addition, the Kazakh government's revenue is mainly affected by not only the international oil price, but also the share of oil industry in total economy. For example, every one dollar change in oil price, in 2002, resulted in about \$100 million change in the Kazakh government's revenues (Tsalik et al., 2003).

As a result, the more important the share of oil industry in Kazakhstan economy is, the more likely Kazakh government has an incentive to increase its revenue through ex post opportunistic renegotiations. Since 2000, with the rise of international oil prices, the large share of oil industry in Kazakhstan economy made Kazakh government force IOCs

to renegotiate E&P contracts for its revenue increase and economic growth. Figure 10 shows that Kazakhstan's annual GDP growth is highly dependent on the international oil price, indicating the large share of oil industry in Kazakhstan economy.

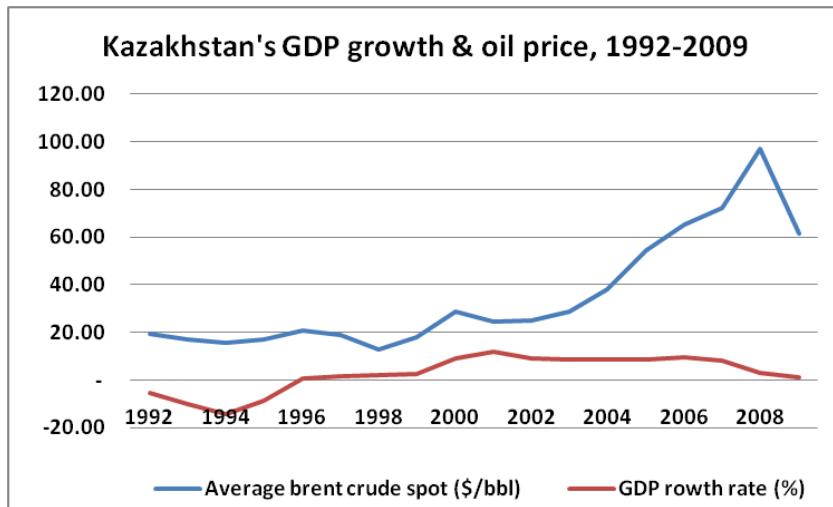


Figure 10: Kazakhstan's GDP growth and oil price (Source: BP, World Bank)

Inconsistent Contract Terms with HC's objectives and Improved Bargaining Power

In early oil E&P projects, the Kazakh government offered more favorable contract types and fiscal terms to compensate IOCs' high geological risks in Kazakhstan. Indeed, Kazakhstan needed to attract IOCs' capital investment and geological risk was much higher in the oil exploration stage than in the oil production stage. As a result, the contract type of early oil fields (Tengiz and most oil onshore fields) was decided as a concession agreement, which is preferred by IOCs. Fiscal terms of concession agreement include only simple royalties and taxes. However, as the Kazakh government gained bargaining power and experience in E&P contracts, it realized that concession contracts

and simple fiscal terms were inconsistent with Kazakhstan's objectives (maximization of revenues and its participation in E&P projects). Since 2000, with its improved bargaining power due to IOCs' sunk investments, the rise of oil price, and high potential of oil discovery, the Kazakh government began to exhibit, through KMG's participation, legal and illegal opportunistic behaviors to rebalance its share of the profit and to take more control of E&P projects. Figure 11 shows the world's normal range of HC's take depending on its geological potential in oil production sharing contract.

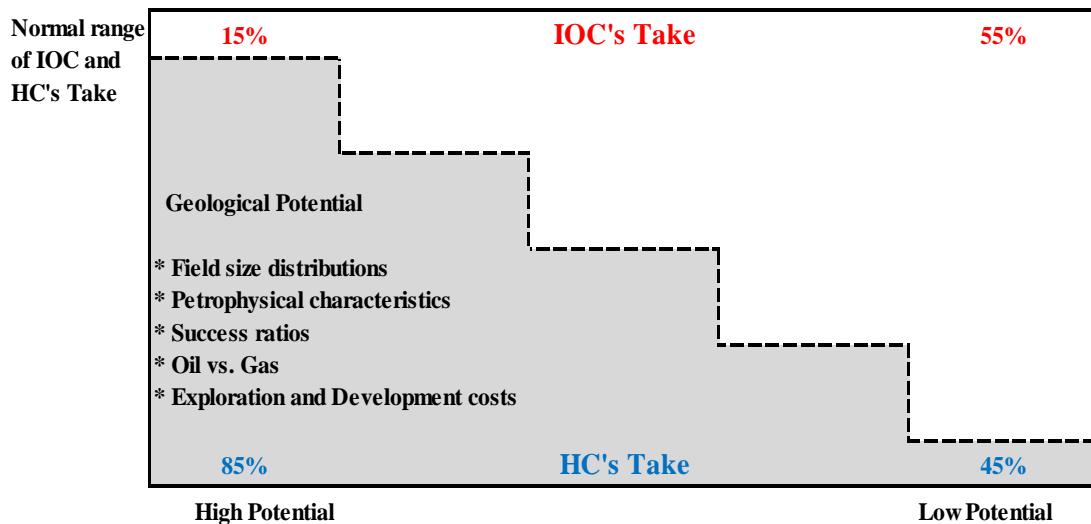


Figure 11: The geological potential and HC's take in PSC (Source: Johnston, 2003)

High Potential of Oil Discovery and the Increase of Proven Oil Reserves

The possibility of commercial oil discovery is high and Kazakhstan's proven oil reserves has, since 2000, increased greatly with the discovery of Kashagan offshore oil fields. The Kazakh government can force IOCs to renegotiate previously agreed contracts more easily because IOCs would still be interested and invest in oil E&P projects in spite of tough contractual terms. In detail, Kazakhstan's proven oil reserves jumped from 5.4 billion barrels (1997), 9 billion barrels (2003) to 30 billion barrels (2007) (Energy Information Administration, 2010).

Kazakh Government's Reputational Concern and the Loss of Future Investments

Kazakh government's reputational concern on ex post opportunistic expropriation plays an important role in restraining it from engaging in "direct expropriation" (nationalization of oil industry). If Kazakh government has enough of its own financial resources and skills for oil E&P projects and does not care about its reputational costs, Kazakhstan's ex post opportunistic behaviors will become much worse than now.

However, in the case of direct expropriation, IOCs can punish Kazakhstan by denying future investment in E&P projects and Kazakh government's bad reputation will be rapidly known throughout the world. In addition, as Kazakhstan still needs IOCs' future investment and skills for the development of its oil fields, Kazakhstan's ex post opportunism is limited to "indirect expropriation."

Chapter 6: Conclusion

This paper investigated the problem that why HC usually shows ex post opportunistic behaviors in E&P project, regardless of ex ante negotiated E&P contracts between IOCs and HC. To explain this issue, this research employed the concept of asset specificity and hold-up problem in transaction cost economics (TCE). It then examined the characteristics of E&P projects, HC's opportunistic behaviors, and IOCs' safeguards. Finally, Kazakhstan was selected as a case study to analyze the implications between economic theories and HC's ex post opportunism in oil E&P project.

In TCE, economic actors are assumed to be characterized by bounded rationality, opportunistic behaviors. And uncertainties about the future always exist. Under these assumptions, IOCs' relationship-specific assets and sunk investments in E&P projects result in hold-up problem where HC can appropriate IOCs' economic rent through its increased bargain power and ex post opportunistic behaviors. As a result, IOCs need to include safeguards which can prevent HC's ex post opportunism in E&P contract.

Oil E&P projects are risky due to various uncertainties and require a large amount of capital investment. This capital investment is specific to each project and becomes a sunk cost. There is time-inconsistency between IOCs' capital investment and revenue payout in E&P project. Besides, a successful E&P project generates a significant economic rent heavily dependent on the volatile oil price. These unique characteristics of oil E&P projects make it vulnerable to HC's ex post opportunism.

HC's ex post opportunistic behaviors can be classified into two types (direct expropriation and indirect expropriation). In direct expropriation, HC directly takes over IOCs' right to and control of oil E&P projects. More common HC's opportunism is indirect expropriation which intends to increase its revenue from and control over the project through forced renegotiation, changes of laws, taxes, and regulations. IOCs' possible solutions to this are to withdraw the possibility of future investment and to include safeguards in the contract.

The main findings from the case study of Kazakhstan's ex post opportunistic behaviors in oil E&P project are summarized as follows:

- **IOCs' asset specificity and sunk investments in Kazakhstan oil E&P projects cause hold-up problem and obsolescing bargain power to IOCs.**
- **In the period of oil price increase, Kazakh government demands a fair return and tries to appropriate IOCs' excessive profits by renegotiation.**
- **The large share of oil industry in Kazakhstan economy motivates Kazakh government to opportunistically renegotiate previously signed contracts.**
- **A high potential of oil discovery and increased proven reserves provide Kazakh government advantageous condition for forced renegotiation.**
- **Inconsistency of existing contractual terms and Kazakhstan's objectives induce Kazakhstan to demand rebalancing oil E&P agreements.**
- **Kazakh government's reputational concern and the loss of IOCs future investment prevent it from direct expropriation in E&P industry.**

Consequently, HC's ex post opportunism in oil E&P projects can be explained by the concept of asset specificity and hold-up problem with unique characteristics of the oil E&P industry. When IOCs' important capital assets become sunk investments and oil prices increase rapidly, HC has a strong incentive to appropriate IOCs' profits by ex post opportunism. At the same time, HC's reputational concern plays a significant role in limiting the extent and ways of its ex post opportunistic behaviors in oil E&P projects.

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