



**International
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Ph.D. Program**

THESIS SUMMARY

Attila Hugyecz

**Cooperation in the petroleum industry in light of the
corporate strategies**

Ph.D. dissertation

Supervisor:

Zoltán Pogátsa, Ph.D.

associate professor

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Department of World Economy

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I. Introduction and the importance of the research

In the last 150 years, the energy industry went through significant transformations and these changes did not avoid the petroleum industry, either. In the 1970s, the oil sectors of the Middle Eastern countries were nationalized through which the big international oil companies (IOCs) lost their rights to possess and produce the oil reserves and this right was taken over by the national oil companies (NOCs). Through the nationalization, national oil companies with huge oil reserves were formed. These companies can be found in the countries of the Middle East, in Venezuela and several other countries where significant oil reserves can be found. In most of the cases, these new NOCs did not offer access to their reserves the international oil companies. As a result, the replacement of the produced oil and gas became the main task of international oil companies.

Keeping this in mind, an outsider could divide the oil companies into two different groups: first, international oil companies seeking oil reserves and having the capability to produce them and, second, national oil companies having access to a significant amount of petroleum resources. Based

on this, the cooperation between the two groups seemed logical: NOCs are going to offer petroleum reserves the international oil companies in exchange of the technology to produce them. However, the petroleum industry was significantly affected by several developments at the beginning of the 2000s. New national oil companies seeking petroleum reserves emerged quickly and became competitors of the international oil companies.

Based on this, many (*Abdeal (2008) or Oliveira-Stark-Lawrie (2006)*), imply that in the future NOCs will not need the capabilities of IOCs as they will be replaced by the services of the newly emerging NOCs. However, there are others (*Ledesma (2009) or Isobel Rea (2008)*) who do not share this view. It is striking that none of the papers carry out analyses on a company level.

Based on the corporate experiences, therefore, the author of this dissertation would like to answer the question, how the relationship between NOCs and IOCs and between NOCs themselves developed. Through this, we would like to get to know whether the strengthening of the NOC-NOC relationships can be observed and if so, then whether it raises

the question that the position of the international oil companies in the future deteriorates.

Unlike others having a view from above, the macro level, the author of this dissertation seeks to conduct this research by analyzing the forms and existence of the cooperation among the companies, themselves, on a micro level.

In our research we analyze the relations of four national oil companies between 2000 and 2010. These companies are as follows:

- 1) Saudi Aramco
- 2) National Iranian Oil Company
- 3) Petróleos de Venezuela SA
- 4) Petrobras.

We chose them for the reasons below.

Saudi Aramco is the most significant oil company in the world. Based on its production, it is the biggest oil company globally, based on its reserves, starting from 2010 it is the second biggest behind Venezuela. It has access to roughly one fifth of the global oil reserves. It has an oil production

capacity of 12 Mbpd¹, this accounts for 13-14% of the production capacity worldwide. The company's single owner is the Saudi state.

The National Iranian Oil Company, NIOC is fully owned by the Iranian state. It has access to 10% of the global oil reserves and to 16% of the global gas reserves. In 2010 it produced roughly 3,5 million barrels of oil per day².

Petróleos de Venezuela, PDVSA is the national oil company of Venezuela. Based on its proved reserves, it took over the first place from Saudi Arabia in 2010. Recently, its reserves were increased by heavy and extra heavy oil, between 2006 and 2010 its total reserves were more than tripled. The cooperation of PDVSA is interesting not only for this reason but because the production of its reserves requires special technology.

We drew the Brazilian national oil company, Petrobras into our analysis because it is a national oil company serving as a model for several other NOCs. Another reason for having chosen it is that the company is a specialist in the field of deep-water oil and gas exploration and production. In the future, these capabilities might become a major competitive

¹ Million barrels per day.

² OPEC (2011): OPEC Annual Statistical Bulletin 2010-11, Vienna.

advantage for the firm as recent new oil provinces are located in the deep waters of seas and oceans. Such highly promising provinces have been found in Western Africa (starting from Nigeria as far as the shores of Sierra Leone), the offshore areas of Brasilia, the South-China Sea, the deep-waters of Australia and the Alaskan waters might prove to be prolific areas, too. This might raise the value of the deep-water capabilities and technology of Petrobras.

In 2010, the four companies chosen had free access to the half of global oil reserves and extracted roughly 20% of the oil produced globally³.

In our dissertation we analyze the upstream and downstream sectors separately. Our hypotheses are as follows:

1. hypothesis: during our research period, in the upstream cooperation system of the analyzed national oil companies the role of the cooperation with national oil companies increased.

³ OPEC (2011): OPEC Annual Statistical Bulletin 2010-11, Vienna.

2. hypothesis: during our research period, in the downstream cooperation system of the analyzed national oil companies the role of the cooperation with national oil companies increased.

II. Methodology

In our research we strived to underpin our arguments by using quantitative methods. However, it was clear already at the beginning of the research that it will not be feasible and we were convinced that it would not be sufficient, either.

There are several hurdles to use quantitative methods:

- 1) The subjects of our analysis are national oil companies. Several of them are the national oil companies of countries where not democracy is the main source of power and their data are not public.
- 2) The other hurdle is that oil industry data are generally a secret. The exact size of oil reserves or the depletion rates of different fields for instance are in several cases not published.
- 3) Third, even if national oil companies publish their annual reports (PDVSA has not done so for years already), they often paint an overly optimistic future for themselves and present themselves in an overly positive way. It is especially true for national companies which are “national champions” and based on which the

people of the country assess the performance of the county's leadership.

The use of quantitative methods would not be sufficient because through them, we would not be able to reveal the true picture of the cooperation of the relevant oil companies. It might namely happen that between 2000 and 2005 a company carries out its activities on its own and starts to have common exploration projects with other oil companies in 2006. As these exploration efforts do not result in petroleum production until 2010, our quantitative data would not show any upstream cooperation of the company which would be misleading.

Because of this (namely the lack of full data coverage and the insufficiency described above), we do not make any conclusions based solely on the available quantitative data. Besides these data, we always look into the ambitions and goals of the company, first of all into the performance achieved, the planned and realized projects, as well. As you will see, there is often a huge gap between the projects planned or communicated and realized.

In our research, we do not only reveal projects realized but those too which the company strived to realize but for a reason these efforts turned out to be superfluous. From these efforts and goals we can conclude what the company needs, what are the services it seeks to get from other companies. It means we can reveal the motivation behind its willingness to cooperate.

One of the major elements of our methodology is that we put the activities and the cooperation system of the companies together by using mainly news resources of the petroleum industry. We create this picture as a puzzle. The news found are categorized and they represent the data of our research. We intend to use academic publications only for control reasons. We do so as we do not want to lean on sources containing a selected set of operations of our analyzed companies.

Using news materials for the relevant years (2000-2010) offers the advantage of being able to find information currently not available in libraries or on the internet. Such pieces of information are e.g. the annual reports of the corporations from the early 2000s, the comments of the managers, press reports but they might include the numerical

data of several common projects planned or realized that time (e.g. initial production data of oil fields).

If the national oil company subject to our analysis realized many common projects or only some but for the analyzed NOC significant ones with other national oil companies or it made significant efforts to realize such projects, we accept our hypotheses.

III. Results of the thesis

Our results from the research on the upstream cooperation are as follows:

- 1) The National Iranian Oil Company had good a relationship to international oil companies in 2000. From 2005 on this has changed. By the end of our research period the company clearly had turned to national oil companies.
- 2) The cooperation of the Saudi Aramco with foreign oil companies was negligible at the beginning and at the end of our research period, too. The company did not have extensive cooperation with IOCs or NOCs, either.
- 3) In 2000, Petróleos de Venezuela had fruitful upstream oil relationships to several international oil companies. By 2010 it had changed completely. By that time, its new partners were national oil companies. In its gas relationships, there was only a minor change: in the biggest part of the research period it was the IOCs which got exploration and production rights, but at the end of the 2000-2010 period, national oil companies had such

rights, too. However, no significant cooperation had developed.

- 4) During our research period, the cooperation of Petrobras with foreign oil companies resulted in very minor common projects if at all. The Brazilian company enjoyed good relationship to the international oil companies, however, the production of the common projects was not significant. The company carried out common projects abroad with international and national oil companies, too, but their significance was low.

Based on these results, we accept our first hypothesis. In the upstream cooperation system of two of the analyzed four companies the role of the cooperation with national oil companies increased. In case of the other two companies the role of the cooperation with NOCs did not change.

Our results from the research on the downstream cooperation are as follows:

- 1) At the beginning of the research period the National Iranian Oil Company had only negotiations with

international oil companies about common downstream projects. By the end of the 2000-2010 period, NIOC had turned to national oil companies. However, the results of the cooperation with NOCs remained moderate.

- 2) At the beginning and at the end of the 2000-2010 period, it were the international oil companies which were the downstream partners of Saudi Aramco. In fact, their role (IOCs) had slightly increased by 2010. A new refinery in China built with a Chinese NOC does not change the dominance of IOCs in the downstream cooperation of Saudi Aramco.
- 3) In its downstream cooperation, the Petróleos de Venezuela clearly turned to the national oil companies. However, the fruits of this cooperation remained insignificant, they are mostly formulated in plans only.
- 4) The downstream cooperation of Petrobras was negligible at the beginning and at the end of the research period, too. Between 2000 and 2010, the Brazilian company bought a few downstream assets, in which its partners were international oil companies.

Based on these results, we accept our second hypothesis. In case of two of the analyzed four companies (Saudi Aramco and Petrobras), the role of the national or international oil companies in the downstream cooperation system hardly changed. In the downstream cooperation system of the National Iranian Oil Company and the Petróleos de Venezuela, the national oil companies gained round. However, the results of their cooperation with the NOCs remained low.

IV. Conclusions

The main question of our research was whether the emerging NOCs displace the IOCs from their role as a partner of NOCs. In this question the literature was divided. We answered this question by conducting research on the relationships of national oil companies. As a result of our research, about this, the following can be said.

Our micro-level research has shown that the group of NOCs is divided. There are national oil companies (like PDVSA and NIOC) which in the research period turned from the international oil companies to the national ones and sought to substitute for the services of the previous ones with those of the latter ones. This was observed both in the upstream and downstream sectors. However, it can be shown, too that until 2010 the results of this cooperation were not significant (this might be subject to change later!). Neither the NIOC, nor the PDVSA built a refinery in cooperation with any national oil company, nor did the upstream cooperation resulted in projects measurable in oil or gas production.

The other two companies analyzed (Saudi Aramco and Petrobras) did not strive for the substitution of the international oil companies.

From this, two conclusions could be drawn.

First, the group of national oil companies is not homogenous. The level of analysis of the relationship between NOCs and IOCs or NOCs and NOCs is therefore mistaken. The right level of analysis is one level lower: the analyses should be carried out on the level of the companies themselves and not on the level of the groups (NOC/IOC). Further, it is important to note that the group of NOCs can be divided into two more subgroups: one is made up of NOCs from emerging countries (China and India for instance) looking for resources, the second consists of the national oil companies of the oil exporting countries. Even more can be said: these subgroups are not homogenous, either. Although Saudi Aramco and PDVSA belong to the same subgroup (NOCs of oil exporting countries), you cannot say they are similar in their relationships to other NOCs, their efforts to shape them or their goals to create them.

Our second conclusion is that national oil companies (NOCs) generally cannot substitute for the operations of the international oil companies (IOCs) as a whole, therefore it can be said that NOCs do not pose a threat to the existence of IOCs (at least for the moment). This, of course, does not mean that there aren't any fields where the NOCs are not highly competitive with the international oil companies. Such fields are for instance the biddings for oil and gas production rights, the use of conventional technologies and the development of less complex projects. Moreover, there are a few NOCs that excel in some fields. Petrobras excels in its deep-water technology, Petronas and Sonatrach have become strong competitors with their substantial experience in the LNG sector.

International oil companies can secure their existence through their excellence in capabilities NOCs do not possess. Such capabilities are first of all the use of certain technologies (EOR, production of non-conventional resources) and their experience in the downstream sector. For the IOCs, therefore the keeping of the downstream division is important for the reason as this can be the center of the future NOC-IOC relationship.

From the acceptance of our hypotheses we can conclude a third finding, namely that in general the cooperation among the national oil companies increases (in some cases they are strengthening, in others they do not change). The result of this is that in the global petroleum industry there are more and more products which are the results of cooperation among parties that do not always make their decisions based on profitability. As NOCs have good relationships to their governments and as these governments do have impact on their NOCs, the state influence in the petroleum industry is increasing.

And the fact that there are companies emerging in the petroleum industry managing their operations based not solely on profitability, has to impact the strategies of the international oil companies. The IOCs should become aware of this and they should adapt their strategy accordingly.

Further, the governments of the IOCs (if identifiable) have to become aware of this, too. The fact that the role of intergovernmental relations in the global petroleum industry is increasing means that a company having governmental support through the right development of foreign policy can be more successful on the petroleum market.

The strengthening of the intergovernmental relations, as a factor of competitiveness should be an incentive for the foreign and energy policymakers to not only keep the interests of the domestic oil company in mind but to actively represent and support it, as well.

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