Dynamics of Interorganizational Relationships: A Case Study of Upstream Partnerships of Petrobras

Alberto Castro de OLIVEIRA LOPES
Luiz Alberto Nascimento CAMPOS FILHO
Lourdes CASANOVA
2011/85/ST
Dynamics of Interorganizational Relationships:
A Case Study of Upstream Partnerships of Petrobras

Alberto Castro de Oliveira Lopes*
Luiz Alberto Nascimento Campos Filho**
Lourdes Casanova***

An earlier version of this paper was presented at 27th EGOS Colloquium
(European Group for Organizational Studies, EGOS 2011)

* Manager, Petrobras, Brazil. Email: albertooliveira@petrobras.com.br

** Assistant Professor at Ibmec, Av. Presidente Wilson, 118 – CEP. 20030-020 - Centro - Rio de Janeiro, Brazil. Email: camposfo@gmail.com

*** Lecturer, Strategy Department at INSEAD, Boulevard de Constance 77305 Fontainebleau, France. Email: Lourdes.casanova@insead.edu

A Working Paper is the author’s intellectual property. It is intended as a means to promote research to interested readers. Its content should not be copied or hosted on any server without written permission from publications.fb@insead.edu

Click here to access the INSEAD Working Paper collection
Dynamics of Interorganizational Relationships: A case study of upstream partnerships of Petrobras

ABSTRACT

Interorganizational relationships (IOR) arise under many different structures and can take the form of alliances, networks, partnerships and joint ventures, amongst others. This study looks at such relationships using a static approach that reverts to the starting point of interorganizational relationships, without, however, allowing for the dynamics of these relationships in the results presented. The main approaches to dynamic analysis are reviewed and a case study on the upstream partnerships of Petrobras is developed. The results underline the importance of the contractual structure applied to Petrobras's partnership models.

Key Words: partnerships, interorganizational relationships, performance, outcomes
1. INTRODUCTION

The rapid pace of technological advances and the globalization of markets have greatly increased the complexity of organizational tasks, making it ever harder for companies to enter markets alone or produce successful products (Ariño et al., 1998). This in large part explains the growing presence of various types of interorganizational relationships (IORs).

While most studies on the formation of IORs involve a static analysis, their dynamics have been less explored. However, a dynamic approach has many advantages because it allows for analysis of the evolution of relationships, the process of interaction, and their implications for performance of IORs (Das & Teng, 2002; Reuer et al., 2002; Ring & Van de Ven, 1994).

In this context we investigate the dynamics of upstream partnerships and the resulting performance, mainly focusing upon the governance structures applied and disseminated in the oil industry.

We have chosen to study the case of Petrobras, which in recent years has formed a large number of partnerships with other international oil companies for oilfield exploration and production (mainly offshore) in Brazil. For this purpose we have applied the method proposed by Eisenhardt (1989). Among research strategies, the case study is particularly appropriate given the objective (to answer questions of “how” and “why”) and the peculiarities of the dynamics of this industry.

From among Petrobras’s many upstream partnerships, we chose 14, which were distributed across the regions of Brazil and had been operating for more than two years, thus allowing us to assess their dynamics.

The study was conducted between August and December 2009. The primary data were obtained through 18 interviews with the Operational Committee Representatives of Petrobras, each lasting about 70 minutes. At the same time as the field study, we obtained secondary data from sources such as the records of the management systems, models of the company’s joint operating agreement, the concession contracts with the National Petroleum Agency, consortium agreements with partners, strategic plans, and other documents. We tabulated the results of the interviews and analyzed them using content analysis techniques (Bardin, 2004).

We then sought to establish points of convergence with the secondary data to give consistency and robustness to the analysis and address the limitations of the case study method.

The results obtained show that these upstream partnerships, because of the inherent business risks in the oil industry, have contractually well-defined governance structures and that relational aspects have no complementary role in these partnerships.
The paper has five sections including this introduction. The second section contains a brief review of the literature on IORs, while the third sets out the methodology and the fourth contains the case study itself and discussion of the results. The fifth section summarizes our conclusions and their implications, and suggests avenues for future research.

1 LITERATURE REVIEW - IORs

Business alliances are a common phenomenon (Gulati, 1998; Gulati & Singh, 1998; Reuer et al., 2002; Ariño et al., 1998, Reuer & Ariño, 2007). However, as observed by Provan et al. (2007), no standard term is applied to these arrangements; expressions include partnerships, strategic alliances, coalitions, joint ventures, cooperative arrangements or collaboration agreements, among others. Ring & Van de Ven (1994) employ a construct they dub “interorganizational relationships” (IORs), which we use in this study. More particularly, we focus on strategic alliances, defined as voluntary arrangements between companies involving exchange, sharing and joint development of products, technologies and services (Gulati, 1995, 1998; Gulati & Singh, 1998), in a dyadic relationship (between peers). These arise for a huge variety of reasons and objectives and assume a range of forms (formal or informal alliances, partnerships, joint ventures, etc.), involving vertical and/or horizontal arrangements (Gulati, 1998). Despite their dyadic nature, alliances can operate in collaborative form as networks (Provan et al., 2007).

1.1.1 Governance Structure

IORs are structured in many ways, one of which is a formal contractual structure, which in the final analysis represents a mechanism to manage the risks and uncertainties of the undertaking. These risks can be classified into three categories (Poppo & Zenger, 2002; Jones et al., 1997):

- associated with investments in physical assets or human capital;
- associated with the difficulty of measuring performance; and
- associated with the existing uncertainties (adaptation to the environment due to unforeseen changes and challenges).

These risks are managed by the inclusion of hierarchical controls in the alliance governance mechanism, composed of a command structure or system of authority, incentive systems that
facilitate measurement of performance, standard operating procedures, dispute resolution procedures and pricing systems. However, the governance of alliances goes beyond formal contracts, since transactions are typically repeated and integrated in social relationships (Poppo & Zenger, 2002).

In the governance framework, contracts serve to manage the risks and uncertainties of transactions, establish the scope of the collaboration, and divide the work by establishing rules and responsibilities (Reuer & Ariño, 2007). Hence the more risks and uncertainties involved, the more complex the contractual arrangement tend to be, due to the need for greater specification of commitments, obligations and dispute-resolution mechanisms, resulting in increased costs (Poppo & Zenger, 2002).

According to Poppo & Zenger (2002), there is a complementary relationship between contractual instruments and relational governance. The process of developing complex contracts in response to risks and uncertainties positively affects the performance of alliances by enhancing the development of social relations. Therefore, relational governance complements the specification of limits and expectations.

1.2 DYNAMICS OF INTERORGANIZATIONAL RELATIONSHIPS (IORs)

The dynamics of alliances (or IORs) remain little explored, since most published studies have focused on the moments preceding the creation of these arrangements and their structural forms in comparison with other possible structures (Das & Teng, 2002; Doz, 1996; Koka et al., 2006; Reuer et al., 2002; Ring & Van de Ven, 1994).

The static analysis of IORs examines the motivations and antecedents of their formation by evidencing and analyzing the questions associated with the choice of partners, motivations, strategic objectives, influence of relationship networks, sharing of resources, and risks and uncertainties at the moment of formation. Although many studies take a static approach to IORs, some researchers do not disregard the importance of the dynamics of relationships. According to Ariño et al. (1998), many researchers interested in strategic alliances and networks, while taking a static perspective, recognize the limitations associated with a focus on the organizational format as the determinant of the alliance’s efficiency while dynamic considerations influence the evolution of the alliance. The dynamic approach consists of analyzing the evolution of IORs, the interaction process, stages of development, and factors
that influence this evolution and their implications for performance (Ariño et al., 1998; Das & Teng, 2002; Gulati, 1998; Reuer et al., 2002; Ring & Van de Ven, 1994).

In reviewing the literature, we identified five methodological approaches for analyzing the dynamics of IORs, with a focus on interactions between the partners as well as aspects associated with cooperation and mutual learning, and the influence of these on achieving the expected performance – mainly in terms of efficiency and fairness. The chart below summarizes the main aspects addressed in each model.
<table>
<thead>
<tr>
<th>Authors/Year</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBSCO Citations</td>
<td>558</td>
<td>276</td>
<td>32</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>Focus</td>
<td>Process of development starting from IORs</td>
<td>Learning process</td>
<td>Relationships + learning processes</td>
<td>Development process of the alliance</td>
<td>Ex post changes in governance</td>
</tr>
<tr>
<td>Frontiers</td>
<td>Internal to IORs</td>
<td>Internal to alliances</td>
<td>Internal to alliances</td>
<td>Internal and external to alliances</td>
<td>Internal to alliances</td>
</tr>
<tr>
<td>Stages</td>
<td>Negotiation</td>
<td>Commitment</td>
<td>Execution</td>
<td>Revision</td>
<td>Adjustment</td>
</tr>
<tr>
<td>Criteria for Revision / Adjustment (Performance)</td>
<td>• Efficiency</td>
<td>• Efficiency</td>
<td>• Efficiency</td>
<td>• Results + conditions of the alliances</td>
<td>• Characteristic</td>
</tr>
<tr>
<td>Initial Conditions (Formation)</td>
<td>• Not applied</td>
<td>• Definition of tasks</td>
<td>• Routine of the partners</td>
<td>• Interface structure</td>
<td>• Expectations of performance, behavior and motives</td>
</tr>
</tbody>
</table>

Chart 1 – Comparison of the Approaches
Source: Prepared by the authors

From the above summary it can be seen that the approach of Ring & Van de Vem (1994) is strongly oriented toward relationships and their consequences, while Doz (1996) delves more deeply into questions of relationships and the dynamics of the process, considering learning to be the main factor driving, facilitating or hindering change.
Regarding the frontiers of the proposed models, those of Ring & Van De Ven (1994), Doz (1996) and Ariño et al. (1998) focus internally on IORs, while the models of Das & Teng (2002) and Reuer et al. (2002) expand the frontiers to include common aspects involving the influence of alliances on the companies, and firm characteristics that impact on the alliance.

Specifically, the model of Das & Teng (2002) focuses on the development of alliances through stages and a process of co-evolution, affirming that the alliance’s evolution influences the characteristics of the firms and that these in turn influence the conditions of the alliance.

Doz (1996) proposes that a set of initial conditions based on the definition of tasks, the partners’ routines, the structure of the interface, and expectations of performance, behavior and motivation will determine the process of learning and the evolution of the alliance.

Das & Teng (2002) do not specify the initial conditions, unlike Doz, but use the concept of the conditions of the alliance (collective effort, conflicts between partners and interdependencies) with greater scope than originally postulated in the initial conditions of Doz (1996), because these are present in all stages of the alliance.

In the various approaches to the dynamics of alliances, an adjustment process occurs due to access to references based on efficiency (of the interorganizational relationship), the perception of fairness, the adaptability of the partners (Doz, 1996; Ring & Van de Ven, 1994), and the comparison of this perception with the expectations of the partner firms.

1.2.1 Approach of Ring & Van de Ven (1994)

Ring & Van De Ven (1994) examine the dynamics of IORs from the perspective of the development of cooperative processes. In their view, processes are important for the management of IORs and crucial for their performance, because to manage an interorganizational relationship each partner must know more than the initial conditions, investments and types of governance. The way they negotiate, execute and modify the relationship will influence the vision the partners have of the efficiency of the relationship, contributing to its continuity or termination positively, negatively or neutrally. Therefore, the mechanisms are constructed socially, by a collective effort, and are continually redesigned and restructured by the actions and interpretations of the partners. The governance
structure establishes an initial context for action between the partners and subsequent interactions forge a new governance network. The stages of an alliance involve a number of interactions whose results are assessed in terms of efficiency and fairness. The model proposed for the development process of IORs is shown in Figure 1.

This model proposes three stages: (i) negotiation, in which the parties form their respective expectations; (ii) commitment, in which the parties contractually formalize their obligations and functions; and (iii) execution, when the rules committed to are carried out. Via a series of interactions the parties become more familiar with each other and trust starts to increase. Over time, however, misunderstandings, disagreements and changes in expectations are bound to occur, prompting the parties to rethink the terms of the relationship. At this point, new negotiations may take place to resolve differences and establish new arrangements.

1.2.2 Approach of Doz (1996)

Doz (1996) investigated how the evolution of cooperation in strategic alliances is associated with the various learning processes that mediate the initial conditions and the results of the
alliance. In his view, the initial conditions are not only important per se, but also for their influence on the subsequent learning processes. Figure 2 illustrates the process proposed by Doz (1996).

Here, the initial conditions determine if and how learning will occur between the partners, with the conditions defined as the tasks to be executed in the partnership, the set of organizational routines brought by each partner, the design of the interfaces between the partners, and a series of expectations about the performance of the alliance and the behavior of the partners. These conditions can facilitate or hinder later learning about the environment, as well as the tasks and processes of the partnership and the capabilities of the partners.

Through the learning process, the partners reassess the alliance in terms of efficiency, and each evaluates the fairness of the relationship and their own adaptability to the partnership, leading to a revision of the initial conditions. While advocating the importance of learning, Doz (1996) stresses that this learning does not automatically lead to corrective action to adjust the initial conditions, not only because cognitive learning is easier than behavioral learning, but also because corrective action depends on the goodwill of the partners to maintain the arrangement. Therefore, successful alliances evolve in a cycle of learning, re-evaluation and adjustment.
1.2.3 Approach of Ariño et al. (1998)

The model proposed by Ariño et al. (1998) is based on the approaches developed by Ring & Van de Ven (1994) and by Doz (1996), incorporating aspects of both. Figure 3 illustrates this model.

<table>
<thead>
<tr>
<th>Experimental Model of the Evolution of Joint Ventures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negotiation</td>
</tr>
<tr>
<td>Initial Conditions</td>
</tr>
</tbody>
</table>

**Figure 3 – Experimental Model of the Evolution of Joint Ventures**

Source: Adapted from Ariño et al. (1998)

Here, the initial conditions are the result of the negotiation and preliminary agreements reached by the parties to satisfy their objectives efficiently and equitably. These conditions are those proposed by Doz (1996), and include a number of operational elements necessary to manage the alliance.

With the finalization of the negotiating process and initial agreements, the operational stage begins, during which the agreements are carried out and the learning process occurs, with uncertainties about the future being resolved in the process of learning about the external environment, and uncertainties regarding the partner’s behavior being resolved by the process of learning more about the partner, targets and objectives.

These learning processes allow the partners to evaluate the results of the alliance so far. Changes in any variable determining the value of the alliance for each partner will cause a change in its perceived efficiency and fairness. Any such changes can lead to reassessment of the initial conditions, in turn prompting a new sequence of negotiations and agreements by which the initial conditions will be revised, followed by a new execution stage.
1.2.3.1 Approach of Das & Teng (2002)

According to Das & Teng (2002), a broad vision of the development of alliances is critical to understanding them and distinguishing them from formal or hierarchical organizations in the forms that they take.

The proposed model associates the conditions of an alliance with its development process. Essentially it emphasizes that the **conditions of alliances** are key to understanding their transition from one stage to another, because they evolve from one stage to the next only if certain conditions are present.

The conditions for alliance proposed and analyzed in the model are:

a) Collective forces – the aggregated resources provided by each company in the relationship to reach the specific strategic objectives shared by the partners.

b) Conflicts between partners.

c) Interdependences – the dependence on resources causes companies to engage in various interorganizational relationships.

The conditions of an alliance are influenced by the characteristics of the firms involved. These include market attributes, competitive position, resource profile and reputation. The proposed model, taking into account the initial conditions, the environment in which the alliance is framed, and the characteristics of the firms, is described in Figure 4.

![Figure 4 - Conditions for Development of Alliances](image)

*Source: Adapted from Das & Teng (2002)*

Another aspect considered by Das & Teng (2002) is the co-evolution of alliances and their environments, the idea of co-evolution being rooted in the ecology of populations and the theory of evolution. When these aspects are applied to strategic alliances, their development is
not only influenced by the environment; their activities also affect the environment. Likewise, the evolution of alliances also affects the evolution of the partners.

1.2.3.2 Approach of Reuer et al. (2002)

Reuer et al. (2002) propose that ex post changes in agreements for collaboration are affected by the firm’s experience of alliances and by the characteristics of the alliances themselves. According to them, ex post changes in the governance of alliances include contractual alterations, changes in direction, and the introduction or formalization of control mechanisms. From this focus the authors develop the model for analysis shown in Figure 5, which they utilize for empirical validation of their propositions about ex post changes.

![Figure 5 – Antecedents of Ex Post Changes in the Governance of Strategic Alliances](image)

In this model, the accumulation of experience with alliances is seen as providing companies with different capacities for their formation and management, with two effects on the probability of subsequent changes in alliance governance. First, organizational learning processes prompt firms with experience in forming alliances to design their governance more effectively in advance by anticipating contingencies that may arise after formalization of the agreement. Second, previous experience provides firms with the expertise necessary to manage alliances, giving them a greater capacity and flexibility to modify the governance mechanisms when necessary.

Another aspect dealt within the model is technological experience in similar fields, which can reduce the probability of ex post changes because firms with experience of alliances in areas that are close to the objectives of the collaboration have a broader and more specific vision of the functions and responsibilities during an alliance’s cycle, ensuring the governance and
division of work better reflect the anticipated evolution of the technology and market conditions, thus reducing the need for future interventions.

1.3 CRITIQUES OF THE DYNAMICS OF IORs

Bell et al. (2006) make criticisms of research on the dynamics of cooperation. In their view, the literature is fragmented and lacks coherence to allow for proper comparison of the results. Other authors have commented that the models proposed are overly general and do not specifically address practical questions (Zeng et al., 2003), and that they fail to explain how the experience acquired in alliances translates into capabilities (Heimeriks et al., 2006). Another point of criticism refers to the over-simplification of the treatment given to changes or renegotiations, as if the adjustments necessary occurred smoothly and without impact (Kim et al., 2006).

1.4 PERFORMANCE

The performance of alliances has received less attention than other areas due to the obstacles associated with measuring performance and the challenge of collecting the necessary data (Gulati, 1998; Lunnan & Haugland, 2008). Moreover, differences in objectives often make purely financial analysis difficult (Lunnan & Haugland, 2008; Zollo et al., 2002).

However, there is convergence among researchers that the dynamics of IORs influence their performance (Ariño et al., 1998; Das & Teng, 2002; Ring & Van de Ven, 1994). Ring & Van de Ven’s (1994) approach assumes that the dynamics of the stages of negotiation, commitment and execution are constantly evaluated as to efficiency and fairness. In addition, changes in the representatives of the partners at the execution stage will impact performance (Ring & Van de Ven; 1994; Lunnan & Haugland; 2008).

2 METHODOLOGY

The choice of a methodology requires a coherent analysis of the existing approaches (Yin, 2005). Analyzing the dynamics of IORs entails consideration of two aspects: a) analysis of the dynamics of IORs and their performance involves questions of “how” and “why”, which
are inserted in a dynamic and ongoing real-life context, and b) In dynamic analysis it is hard to control for relevant behavioral aspects. We opted for a case study as the best alternative, structuring it according to Eisenhardt’s (1989) recommendations on the development of theories based on case studies.

When analysing IORs in the upstream oil industry in Brazil, Petrobras is the obvious target for a case study, given its dominant position in this segment in the country. We chose 14 of the company’s upstream partnerships, notably for their regional diversity (partnerships in the states of Rio de Janeiro, São Paulo, Espírito Santo, Bahia and Rio Grande do Norte) and the degree of alignment with the research question. We gave preference to those in progress for more than two years, to provide a dynamic view of these IORs.

The field research was conducted in August and September 2009, consisting of a series of interviews lasting an average of 70 minutes with the Operational Committee representatives or their formal substitutes, for a total of 21 hours of interviews. In parallel, we gathered secondary data from the records of the partnership management systems, the model joint operating agreement (JOA) used by Petrobras, the model contracts with the National Petroleum Agency the consortium and other agreements with the upstream partners, strategic plans, documents reflecting the decision structure of the partnerships, and other pertinent documents.

2.1 ANALYSIS OF THE DATA

The primary data were analyzed using the interview content analysis techniques proposed by Bardin (2004). The evidence was then constructed from the multiple sources (interviews and secondary data), also supported by content analysis, and the conclusions reached were thus based on the results of the case study and convergence of the evidence from a comprehensive analysis of the data collected.

2.2 LIMITATIONS

According to Yin (2005), the limitations of the case study technique are related to the lack of rigor of case studies and the possible acceptance of erroneous or misleading evidence or bias that influence the results obtained.
To counter these concerns we opted for a single case study, based on multiple sources of evidence (14 upstream partnerships), permitting a more complete and robust analysis by the convergence of evidence from more than one source. To eliminate possible bias resulting from partial analysis of the phenomenon by the researcher we used the content analysis methodology (Bardin, 2004).

Besides the limitations associated specifically with the case study methodology, empirical studies typically focus on only one level of analysis (Bell et al. 2006). The decision to interview only the representatives of Petrobras may create some limitations in the results, because of the unilateral vision of the phenomenon inherent to the fact that only one partner in each relationship was interviewed.

3 CASE STUDY

All the upstream partnerships investigated in order to shed light on the formation and dynamics of IORs were those where Petrobras was the firm responsible for operation.

3.1 THE CONTRACTUAL INSTRUMENTS OF UPSTREAM PARTNERSHIPS

The upstream oil and gas sector in Brazil was opened to competition in 1997 by Law 9,478 (the Petroleum Law), which also established the National Petroleum Agency (now called the National Petroleum, Natural Gas and Biofuels Agency) as the sector regulator. In accordance with Section III of the law, the National Petroleum Agency holds bidding rounds for exploratory blocks. Invitations to bid set out the definition of the blocks to be auctioned, the period of the exploratory phase and the entire concession, the minimum exploratory investment required, the rules on voluntary abandonment or forfeiture, and a range of other aspects. Because of the risks inherent in finding rich hydrocarbon deposits, particularly in the deepwater offshore fields where most of Brazil’s deposits are located, oil companies typically form consortiums to bid in these auctions. In these cases, the winning consortium then signs the respective concession agreement with the National Petroleum Agency, and the consortium members sign a private contract to regulate their relationship. When Petrobras is the consortium leader, the contract follows the model of its standard joint operating agreement, with modifications according to the specific situation and partners establishing the conditions for development of the partnership.
3.1.1 Joint Operating Agreement

The joint operating agreement used by Petrobras follows the global industry standards established by the Association of International Petroleum Negotiators. Its clauses cover the command structure, system of authority, rights, obligations and potential liabilities of the partners, system of incentives and measurement of results, dispute-resolution mechanisms and other governance aspects (Petrobras, 2003).

Under the Joint Operating Agreement, the operator is responsible for the activities related to the partnership, carried out according to the decisions of the Operating Committee (OPCOM) formed by representatives of all the consortium members, with voting rights according to their respective participation. Among other obligations, the operator must submit to the OPCOM the work programs and budgets and obtain authorization to incur relevant expenses. The operator is responsible for obtaining the licenses and other authorizations, and its activities may be audited by the representatives of the other parties. The Joint Operating Agreement also establishes subcommittees, as shown in Figure 6.

![Figure 6 – Model of Decision Committees](source: Adapted from Petrobras (2003))

The Joint Operating Agreement also establishes the possibility of sole risk, whereby one partner assumes the risk of an operation that will not be shared with the other partners by incurring all of the costs and enjoying all of the resulting revenues. Provision is made for cases of default, when one of the parties fails to pay its share of the expenses or meet other contractual obligations. Dispute resolution is governed by Brazilian law. When disputes cannot be resolved through negotiation they are submitted to international arbitration,
according to the arbitration rules of the United Nations Commission on International Trade Law, under the administration of the International Court of Arbitration.

3.1.2 Common and conflicting aspects

The concession contract and the joint operating agreement are the main contractual instruments that the parties must observe during the evolution of the partnership. They are complementary in nature, since the concession contract establishes the relationship between the partners and the National Petroleum Agency, and the Joint Operating Agreement establishes and regulates the relations within the partnership, with the former prevailing in the case of any divergence. There is a sharp distinction between these two agreements, since under the concession contract there are no partners, only a single concessionaire, which is the legal entity responsible for the concession, while under the Joint Operating Agreement there is no concessionaire, only the operator and the other partner or partners.

The sole risk provision is another conflicting aspect of these two instruments, since under the concession contract all the rights and duties of the consortium members are shared – it makes no mention of private arrangements within the partnership. In turn, the Joint Operating Agreement allows one or more parties to assume sole risk (while also solely enjoying the resulting benefits, if any).

3.2 UPSTREAM PARTNERSHIPS

As mentioned, until 1997 Petrobras held a monopoly (originally established upon its founding in 1953) on all upstream oil and gas activities in the country. Despite the end of its monopoly with the enactment of Law 9,478/97, it still holds a preeminent position. As shown in Figure 7, Petrobras has participation in or solely holds 87% of the concessions under development or in production.
In its 2009-2013 Business Plan, Petrobras states its aim to become one of the five largest integrated energy companies in the world, with production of approximately 5.7 millions of barrels/day in 2020 (Petrobras, 2009a). To achieve its goals the company plans to invest some US$174 billion, of which US$104 billion will go to upstream activities. Of this, 17% will go to develop the substantial new subsalt deposits announced by the company in 2008. To spread its investment capacity and share risk, Petrobras has formed partnerships to bid for concessions of many exploratory blocks. Today, its participation accounts for around 33% of the oil and gas projects in Brazil in 2009. Under the new regulatory framework for the subsalt deposits it will have at least 30% participation in all upstream partnerships.

3.2.1 The partner companies

There are 17 partner companies that make up the consortiums holding the concessions in our sample, 18% of them with national capital and 82% with foreign capital. There are substantial differences between Petrobras and its domestic partners in terms of size and experience, mainly because the previous monopoly regime restricted their existence. This is not the case

---

1 These deposits will be developed under a new legal regime, through production sharing agreements instead of concessions.
with the majority of the foreign companies, which include most of the major international oil companies.

3.3 COMPARATIVE ANALYSIS OF THE RESULTS

The interviews were conducted both at Petrobras’s main headquarters in Rio de Janeiro and the offices of its regional upstream business units. We applied content analysis to the tabulated and validated interview responses, seeking to categorize them into focal themes associated with the aspects proposed in the dynamic model.

The first aspect refers to the expectations at the moment of forming the partnership, and permeated the entire process. On this point, 45.83% of the respondents did not participate in the formation process, since this involved people higher up the ranks. However, 33.33% stated they were aware that the strategic objectives were associated with sharing of risk, while 16.67% stated increased investment capacity as a motive, and only 4.17% mentioned exchange of experiences as a motivation. Nevertheless, previous experience was considered to be of great importance in the choice of partners.

In relation to expectations, these were associated with division of risks (35.71%), financial results (21.43%), exploratory success (28.57%) and aggregation of technical knowledge (only 7.14%). Regarding performance indicators, it was not clear to 61.11% of the respondents which of these were applicable to the management of the partnership.

The interviews allowed us to clearly identify that the main risks were associated with default (30.43%) and business risks (56.52%). All the respondents were aware of the command structure, system of authority, system of incentives/measurement, standard procedures and dispute-resolution mechanism, all of which are defined in the Joint Operating Agreement. However, division of tasks, usually established in contractual instruments, is not present in the upstream partnership agreements because the operator is responsible for executing all the activities necessary for the partnership.

The process of learning resulting from interactions between the partners to promote adjustment in routines came from the meetings of the OPCOM and the Technical Committee for 72.22% of the interviewees, and through e-mail or telephone interactions for 16.67% of them. The possibility of opportunistic behavior was evidenced in 71.24% of the partnerships, with a substantial presence in relation to the acquisition of privileged information (mentioned in 28.57% of the interviews), and in relation to economic questions associated with the scale
of the pool of services on which Petrobras can call (in 35.71% of the interviews). The main conflicts of interest in the evolution of the partnerships were associated with technical and commercial disagreements (in 61.54% of the interviews), and to problems of expenses and default (23.08%).

There had been changes in managers involving 77.78% of the partnerships analyzed, with major impact on interpersonal relationships due to a change in stance of managers and the rethinking and realignment necessary for the progress of the projects. In relation to changes in people on the teams, 50% of the respondents stated these had an impact on performance, basically associated with loss of agility and breaks in continuity. Despite the changes in managers and people on the teams, the level of cooperation achieved was viewed as good by the respondents in 64.29% of the partnerships.

Regarding the reassessment and renegotiation stage, changes in management were the main changes/adjustments in the partnerships (66.67% of the interviews), along with the exit of one of the partners (33.33%). Despite the occasional change of partners, in 85.71% of the partnerships there was no change in scope.

The performance of the partnerships was rated good or excellent in 60% of the cases. Performance was measured by project indicators and output by Petrobras in 71.43% of the partnerships, while in the others there was no clear definition of the indicators utilized.

3.4 Discussion

From the dynamic analysis models proposed we identified that in the formation stage upstream partnerships formed a very specific group of IORs, because of the high risk and huge investments necessary. In line with this, the results indicated that the strategic objectives and expectations were associated with risk sharing (33.33% of the interviews), increased capacity for investments (16.67% of the partnerships), and only to a small extent to exchange of experiences (4.17%).

All contracts were formal, based on industry practice as disseminated by AIPN\(^2\). The existence of formal contracts is directly related to the risks to which upstream partnerships are exposed. These range from the normal geological risks of oil and gas exploration to management questions and the possibility of default, corroborating the risk categories proposed by Poppo & Zenger (2002) and Jones et al. (1997), that is, the risk of investment in

\(^2\) Association of International Petroleum Negotiators
specific assets, of measuring performance, and due to uncertainties, which are typical in the exploratory process.

The joint operating agreement establishes the entire functioning of each partnership – its structure and decision process – serving to manage risks and uncertainties, as well as the scope of the collaboration, division of work, rules and responsibilities. This is in line with the definition of Reuer & Ariño (2007). Specifically in the case of the learning process, the contractual instruments in the upstream segment hinder this by defining the operator of the partnership (consortium), with responsibility for all operations and activities. This structure does not facilitate broad sharing of information, something that only occurs at meetings of the OPCOM and Technical Committee and at lower levels in day-to-day activities where there is a need for technical interaction.

Changes in management and at lower levels cause a loss of agility and the need to redo certain tasks because of the arrival of new people, but do not represent a risk for the overall performance of the partnership. This aspect diverges from the propositions of Reuer et al. (2002), according to whom changes in direction and experience of the partners interfere with the cooperative environment and existing interactions. In the case considered here, cooperation was judged good despite the turnover of people, since the management mechanism remained the same.

In the partnerships studied there were no contractual adjustments or changes, except for changes in a partner, or change of control due to mergers and acquisitions or other commercial interests, many of them prompted by the global financial crisis after 2008. This is in line with the propositions of Reuer et al. (2002), according to whom technological experience in similar fields can reduce the possibility of ex post changes, because companies with experience with alliances in areas close to the objective of the collaboration have a broader vision of the functions and responsibilities during the alliance cycle.

4 FINAL CONSIDERATIONS

The dynamics of IORs is a broad field of study with many peculiarities. Our research aimed to investigate the dynamics, development and resulting performance of interorganizational relationships, particularly partnerships in the upstream oil industry in Brazil, with a focus on aspects related to the governance structure. We must stress, however, that the results are
limited by the fact the interviews were only conducted with the Operational Committee representatives of Petrobras.

Despite this limitation the results allow us to conclude that the dynamics of upstream partnerships have distinctive characteristics, chiefly the high investments necessary, the exploratory and commercial risks, and the clear definition of governance mechanisms through contractual instruments. In the latter case, this clearly makes the partnerships more contractual than relational. The contractually based governance structure interferes with the interorganizational learning process, in line with the propositions of Doz (1996), because such learning depends more on relational than contractual aspects.

The main implication of our study relates to the vision of the complementary nature of contractual instruments and relational aspects, as explored by Poppo & Zenger (2002). Our evidence argues against this theory, since in the upstream partnerships studied the contractual and relational aspects are not complementary. However, the governance mechanisms are highly complex due to the risks, as proposed by Reuer & Ariño (2007).

Given the contractual complexity, notwithstanding the structure involving regular meetings of the OPCOM and Technology Committee, learning is difficult, corroborating the propositions of Doz (1996), for whom learning is driven or facilitated by the initial conditions.

A further implication is the need for studies of Interorganizational Relationships to consider, in addition to aspects of the industry, the regulatory framework in which the partnerships exist, as this can have a major impact on the dynamics. Other aspects, such as technological experience, also need to be considered, as urged by Reuer et al. (2002), and the maturity of the industry. This is particularly relevant for the global petroleum industry and its highly consolidated practices, which are adopted by the partnerships—as in Brazil—through standard contractual instruments to regulate their operations.

A practical implication is the need to adapt contractual practices to allow better exploitation of the benefits of relational aspects, both functional and personal. This aspect is of particular importance for the Brazilian oil industry due to the advent of a new regulatory framework (Petrobras, 2009b), which calls for production-sharing agreements in which Petrobras must be the operator, either alone or in partnership, under government administration (through a new wholly state-owned company). The technical challenges of extracting oil and gas from the deepwater pre-salt layers are daunting, meaning the investments and risks will be higher than the already considerable levels.

In this context we can identify the following lines of research for future academic work: (i) deeper development of the partnership management model in Brazil, considering the new
reality for the exploitation of the pre-salt deposits; (ii) further evaluation of the governance structure of partnerships, paying more attention to the regulatory setting; and (iii) further investigation of the relational aspects in these models, taking into consideration cultural differences between partners and their impacts.

In closing, we believe this work provides a more accurate view of IORs by finding that their dynamics are not disassociated from the risks that exist.

REFERENCES


PETROBRAS. Joint Operating Agreement - JOA. 2003 *Modelo de JOA interno da Petrobras*. RJ.


Europe Campus
Boulevard de Constance
77305 Fontainebleau Cedex, France
Tel: +33 (0)1 60 72 40 00
Fax: +33 (0)1 60 74 55 00/01

Asia Campus
1 Ayer Rajah Avenue, Singapore 138676
Tel: +65 67 99 53 88
Fax: +65 67 99 53 99

Abu Dhabi Campus
Muroor Road - Street No 4
P.O. Box 48049
Abu Dhabi, United Arab Emirates
Tel: +971 2 651 5200
Fax: +971 2 443 9461

www.insead.edu