



Opinion paper

The Brazilian 2010 oil regulatory framework and its crowding-out investment effects



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HIGHLIGHTS

- The Brazilian regulatory oil framework deters investments in the country.
- The governance setting between entities is one of its worse aspects.
- It causes agency problems and moral hazard situations.
- Brazil has to urgently tackle these investment hindrances.

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ABSTRACT

Investment is an essential variable in the oil sector. It is even more important in the vast Brazilian pre-salt domains, where the technological requirements are high and sophisticated. The Brazilian National Oil Company, Petrobras, is facing severe financial limitations to undertake these disbursements. Other oil companies will therefore have to be significantly engaged in the endeavour, which reinforces further the importance of attracting investments in Brazil. Yet this article shows that the governance architecture established in the 2010 Brazilian oil framework will deter investments in several ways, giving rise to agency problems among entities and moral hazard situations because of contractual legal liabilities. There are some credible indications that the government of President Lula overestimated the attractiveness of the Brazilian pre-salt oil discoveries and their capacity to draw investments when proposing the 2010 changes. Little attention was given to the careful examination of how the framework would affect investors, under the assumption that the favourable geological conditions would be sufficiently attractive in themselves. Even though the 2010 reforms have brought some minor advancements and there have been some signs that the government has been recently attempting to mitigate some of the problems examined in this article, that is not enough.

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1. Introduction

The oil industry's upstream segment is highly capital intensive. The sector's capital expenditures (CAPEX) to sales ratio is approximately 17%, while the average percentage rate for industries in general is somewhere between 6% and 7%.¹ Sectoral start-up capital requirements are normally so significant that they are considered an important industrial barrier to entry.² Oil

companies' stock exchange values, moreover, are directly dependent on the amount of proven productive reserves they own. This demands constant investments for the discovery of new production areas to replace the old and less productive locations and to cope with the depletion rates of current reserves. A standard petroleum field normally has an average life span of 15–20 years and an annual depletion rate that varies from less than 3%, in newer locations, to more than 10%, in more mature areas.³ For a given annual depletion rate of 5%, after 10 years 50% of the current production level ought to be replaced by new ones.

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¹ This refers only to Europe and the US. Cf. Nadine Bret Rouzaut and Jean Pierre Favennec, *Petóleo & Gás Natural: Como Produzir e a que Custo* (Synergia 2011) 162.

² Helder Queiroz Pinto Jr and Mariana Iooty, 'Perspectivas de Desenvolvimento do Setor Petróleo e Gás no Brasil' (2010) 55 Serie Eixos do Desenvolvimento Brasileiro.

³ Nadine Bret Rouzaut and Jean Pierre Favennec, *Petóleo & Gás Natural: Como Produzir e a que Custo* (Synergia 2011) 161.

Oil companies are therefore constantly exploring new production frontiers and investing in innovative technologies to gain access to them. The high risks associated with the significant investment amounts are another feature of the oil industry. Assets at the exploration and production phase are considered sector specific. Alternative uses are therefore costly and rarely possible and sunk costs, as a result, significant. High sunk costs have an adverse effect on investment decisions. Geological risks involved are equally paramount. The average exploration success rate at the upstream sector in the last 13 years has been of approximately 25%. In other words, on average three out of four exploration wells will not lead to oil discoveries in a commercially viable amount.⁴ This is one of the reasons for companies' tendency to diversify their activities as much as possible around the globe. By having a diversified international exploration portfolio, they reduce the chances of not finding oil in viable commercial amounts.

Technology, in turn, is one of the main investment components in the oil industry and is expected to gain even more relevance in the future. Most of the easier exploration oil fields around the globe have already been discovered and future findings are forecasted to happen in areas of more difficult access, where exploration techniques require sophisticated equipment, of higher cost. In the Brazilian pre-salt area, for example, investments in technology are significant and considered one of the main challenges for viable future production.⁵

It is quite evident, therefore, why investments are so important in the upstream oil sector. The discovery of the pre-salt oil deposits in Brazil has only been possible because of the continuous projects undertaken by Petrobras in offshore areas. They all involved significant investment amounts and the development of complicated technologies to extract oil at a 5 km depth, beneath 2 km of thick salt layers. The prospects for developing production further in the area, moreover, involve considerable future disbursements. The Brazilian Bank for National Economic and Social Development (BNDES) estimates investments of between US\$ 264 billion and US\$ 742.5 billion are necessary in the Brazilian oil sector until the year 2027.⁶

Against such backdrop of fostering investment levels, independent regulatory agencies were designed and delegated certain competences, aiming at reducing the risk of political pressure's interference in business activities.⁷ The goal was to confer more predictability, certainty and credibility to the sector, fomenting, as a consequence, investments to the regulated industry and insulating important technical decisions from undesirable political interference. When referring to the delegation process from governmental branches to agencies, Paulo Correa et al. suggest "The degree of delegation reflects the degree to which the executive, the legislature, or both, seek to bind their hands in order to acquire credibility".⁸ Neo-institutionalists, in particular, contend that regulatory frameworks should be sufficiently predictable, stable and protected from governmental and private entities' interference so as to incentivise investments in institutional settings that naturally

tend to be risky and prone to political pressures.⁹

This rationale has certainly been present in the Brazilian oil sector. The Brazilian literature recognises that one of the main goals for the creation of regulatory agencies in the country was to provide a reliable and unequivocal commitment to investors that politics would not interfere with regulated business sectors. This is commonly referred to as the "Credible Commitment Hypothesis",¹⁰ which has influenced the 1995 Brazilian regulatory framework in a very positive way according to most specialists, attracting significant investments to the country in the last two decades.¹¹

This encouraging scenario, however, is progressively changing, since there are several elements in the 2010 Brazilian oil regulatory reform that discourage investments in the industry. In 2010 the Brazilian government made significant legal changes in its oil sector, inverting the previously undertaken market reforms and intensifying state interference in the sector. The main goal was to increase governmental strategic resource control to guarantee that future Brazilian generations could take advantage of the proceeds of the oil reserves. The reform, through Law 12,351, provided two major changes: the exploration of oil and gas in pre-salt and strategic regions according to a production-sharing regime¹²; and the creation of a Social Fund to invest a share of the proceeds of oil exploration in Brazil. The production-sharing regime only applies to areas of the pre-salt and those considered strategic. Law 9478 and Law 12,276 govern all other domains.¹³ The former sets forth the conditions for exploration of oil according to a concession regime while the latter provides for an onerous relinquishment regime.¹⁴ As a result of the legal changes, companies willing to invest in the Brazilian Pre-Salt area would have to thereafter form a consortium, in which an entirely created state owned company, PPSA, would have majority decision making power.¹⁵

The following sections will examine one specific aspect of the 2010 reform that will have significant detrimental effects on investment decisions: the governance setting resultant from the

⁹ Mariana Batista Batista, 'Mensurando A Independência Das Agências Regulatórias Brasileiras' (2011) Planejamento e Políticas Públicas 213.

¹⁰ Mariana Mota Prado, 'Implementing independent regulatory agencies in Brazil: The contrasting experiences in the electricity and telecommunications sectors' (2012) 6 Regulation & Governance 300.

¹¹ Cf. Helder Queiroz Pinto Jr and Mariana Iooty, 'Perspectivas de Desenvolvimento do Setor Petróleo e Gás no Brasil' (2010) 55 Serie Eixos do Desenvolvimento Brasileiro; Adriano Pires and others, *Petróleo: reforma e contrarreforma do setor petrolífero brasileiro* (Giambiagi and LUCAS eds, Elsevier Brasil 2013); Adilson De Oliveira, 'Oil and governance: state-owned enterprises and the world energy supply' in David Victor, David Hulst and Mark Thurber (eds), *Oil and Governance* (Cambridge University Press 2012), among others.

¹² The principal distinguishing feature of production-sharing regimes from other regimes is that the property of the extracted oil belongs to the state. After extraction, the production costs, labelled "cost oil", are reimbursed to the producing oil companies, while the remaining "profit oil" is split between state and producers. The percentage of "profit oil" that goes to each can be determined in several ways. In Brazil, an open bidding round, in which competing companies present their offers, starting from a minimum level previously stipulated in the Tender Protocol, sets the share between state and producing oil companies.

¹³ Law 12,276 institutes an onerous relinquishment regime in specific areas of the Brazilian continental shelf. The regime allowed the transference of 5 billion barrels of exploration rights from the Union to Petrobras, with due compensation. According to its provisions, the national oil company holds ownership of the produced hydrocarbons, which should be subject to royalties but not the Special Participation Tax.

¹⁴ The existence of several regimes is in itself a source of regulatory uncertainty that affects investment decisions.

¹⁵ Law 12,304 authorised the Executive branch to create PPSA (Pre-Sal Petróleo S.A.), a fully state-owned enterprise, linked to the Ministry of Mines and Energy, with the main task of managing the production-sharing contracts to be signed under Law 12,351. According to Law 12,304, PPSA is under the jurisdiction of private laws since it is a joint stock company. As such, it has to follow a statute and has a board of directors and an executive board. PPSA has been legally created with the enactment of Decree N° 8,063, of 1 August 2013.

⁴ Inadine Bret Rouzaut and Jean Pierre Favennec, *Petróleo & Gás Natural: Como Produzir e a que Custo* (Synergia 2011) 162.

⁵ Helder Queiroz Pinto Jr and Mariana Iooty, 'Perspectivas de Desenvolvimento do Setor Petróleo e Gás no Brasil' (2010) 55 Serie Eixos do Desenvolvimento Brasileiro.

⁶ Edmar Luiz de Almeida and Vinícius Accurso, 'Government take e Atratividade de Investimentos na Exploração e Produção de Hidrocarbonetos no Brasil' Discussion Paper 02/2013 – Grupo de Economia da Energia http://www.gee.ie.ufrj.br/index.php/component/cck/?task=download&file=textos_discussao_arquivo&id=4523.

⁷ This is one among several of the objectives. Another important goal in creating regulatory agencies is to foster competition.

⁸ Paulo Correa and others, 'Regulatory governance in Brazilian infrastructure industries' (2008) 48 The Quarterly Review of Economics and Finance 202.

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