

Financial circles and oil circuit: financial instruments for investment in Petrobras' activities and suppliers

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Financial circles and oil circuit: financial instruments for investment in Petrobras' activities and suppliers

Abstract

After Petrobras went public in the 1990s, the State-owned oil company intensified the use of financial instruments to fund its main activities through the capital market. Among these, we highlight capitalization through public offerings of shares, project finance, credit rights investment funds (FIDC) and equity investment funds (FIP). By analyzing the use of these instruments by Petrobras, we seek to show how this company increases its resources and expands its activities in the oil circuit, as well as anticipates capital to its extensive chain of product and service suppliers. We verified that the use of these instruments creates and reinforces commitments between agents of the oil circuit in the national territory and a wide range of private agents linked to financial services. This leads to a deepening of the logic of financial valuation in guiding the productive activities of Petrobras, also imposing it on other companies and places that participate in the oil circuit directly or indirectly.

Keywords: Financialization. Oil production. Investment fund. Brazilian territory. Capital market.

Círculos financeiros e circuito do petróleo: instrumentos financeiros para investimento em atividades e fornecedores da Petrobras

Resumo

Após a abertura de capital da Petrobras, na década de 1990, a empresa petrolífera de capital misto passou a intensificar o uso de instrumentos financeiros para viabilizar suas principais atividades via mercado de capitais. Entre eles, destacamos a capitalização por meio de oferta pública de ações, as estruturas financeiras (*project finance*), os fundos de investimento em direitos creditórios (FIDC) e os fundos de investimento em participações (FIP). Pela análise do uso desses

instrumentos pela Petrobras, buscamos mostrar como a empresa incrementa seus recursos e expande suas atividades no circuito do petróleo, bem como antecipa capitais a sua extensa cadeia de fornecedores de produtos e serviços. Verificamos que o emprego desses instrumentos cria e reforça compromissos do circuito do petróleo no território nacional com um amplo conjunto de agentes privados ligados aos serviços financeiros, levando ao aprofundamento da lógica da valorização financeira na orientação das atividades produtivas da empresa estatal e também impondo-a a outras empresas e lugares que, direta ou indiretamente, participam desse circuito.

Palavras-chave: Financeirização. Produção de petróleo. Fundos de investimento. Território brasileiro. Mercado de capitais.

Círculos financieros y circuito petrolero: instrumentos financieros para inversión en actividades y proveedores de Petrobras

Resumen

Con la oferta pública de Petrobras en los 1990, la compañía petrolera de capital mixto intensificó el uso de instrumentos financieros para hacer viables sus actividades principales a través del mercado de capitales. Entre estos, destacamos la capitalización a través de ofertas públicas de acciones, *project finance*, fondos de inversión en derechos de crédito (FIDC) y fondos de inversión de capital (FIP). A partir del análisis del uso de estos instrumentos por parte de Petrobras, buscamos mostrar cómo esta empresa incrementa sus recursos y expande sus actividades en el circuito petrolero, además de anticipar capital a su extensa cadena de proveedores de productos y servicios. Encontramos que el uso de estos instrumentos genera y refuerza compromisos del circuito petrolero en el territorio nacional con una amplia gama de agentes privados vinculados a los servicios financieros, lo que lleva a profundizar la lógica de valoración financiera en la orientación de las actividades productivas de la empresa estatal, imponiéndose también a otras empresas y lugares que, directa o indirectamente, participan en este circuito.

Palabras Clave: Financiarización. Producción de petróleo. Fondos de inversión. Territorio brasileño. Mercado de capitales.

Introduction

Due to the centrality of the finance variable in the globalization period, it becomes increasingly important to analyze how companies, especially those linked to more globalized production circuits, seek new means and instruments to finance their production activities. After all, if in the current period of history circulation prevails over production (Santos, 2009, p. 168), it is reaffirmed by capital in its financial expression, given its power of command over productive activities, which respond more and more to the demands of return on investments made globally. If large companies progressively structure themselves in the logic of global commodity networks (Coe; Yeung, 2015; Henderson et al., 2002), their priorities are no longer to distribute their products and activities, but rather to speed up, organize and interconnect piecemeal works that are carried out in a dispersed way in the territory, especially for information (Pereira; Kahil, 2006) and for finance.

This is not to reduce the importance of the analysis on the “spatiality of production-distribution-exchange-consumption as a constant circular movement” (Moraes, 2017, p. 27) and how these steps are expressed in a specific branch of production that has a given product as a central element (Santos, 1986). On the contrary, it is to understand how productive spatial circuits, such as oil - especially discussed in this article - increasingly establish various circles of cooperation in space that often precede and are a condition for the very beginning of productive activities, such as financial investments.

Circles of cooperation in space are understood as ways of connecting agents and places that, even not acting directly in the dominant activity, participate by offering services, equipment, and capital necessary for its development, involving relations between companies, public authorities, and the institutions and organizations (Castillo; Frederico, 2010). In this sense, it can be said that their role is to make a large group of agents, who do not necessarily maintain relationships with each other in the production process, act in a coordinated manner, to commonly stimulate and favor the expansion of networks and the reach of productive spatial circuits (Antas Jr., 2013). In the current period, the main ways to make these productive stages cooperate, the various agents and places directly or indirectly linked to production processes are carried out mainly via immaterial flows, through messages, orders, capital, and information (Santos; Silveira, 2001).

In addition to analyzing how cooperation circles in space extend, integrate, and enhance productive spatial circuits, it is equally necessary to understand how these, specifically in the figure of instruments, agents, and financial logics, increasingly condition the operations and the direction of central companies that make up the circuits. Thus, financialization refers to how transnational companies and globalized productive spatial circuits “are increasingly controlled, monitored and disciplined by the financial markets, via notions such as shareholder value, risk calculation and market perception” (Coe; Lai; Wójcik, 2014, p. 767), and how this is increasingly expressed among large oil companies (Bridge; Le Billon, 2017).

One of the ways to analyze new modes of operation of companies and productive spatial circuits is to verify the dominance of financial instruments over new forms of relationship offered to consumers and/or imposed on workers by non-financial companies (Baud; Durand, 2012). Thus, we will seek to discuss how Petrobras, *Petróleo Brasileiro SA*, a company that, despite being focused on oil production in national territory, develops cooperation with a wide spectrum of globally distributed agents, has used, in recent decades, new financial instruments aimed at expanding its activities, as well as supporting its suppliers and service providers.

With this objective, we list and analyze the main financing modalities adopted by Petrobras through the capital market, especially in the last thirty years, highlighting share capital, project finance, Participation Investment Funds (FIP), and Investment Funds in Credit Rights (FIDC). As a state-owned and publicly traded company, much open information about its financial operations is made available. Thus, we used data available in corporate reports published on Petrobras' investor communication portal, as well as information available in databases of the Brazilian Securities Commission (CVM), especially on investment funds.

From this survey, we will investigate the dynamics, values, and forms of use of these financial instruments by the national oil exploration company. After that, we will discuss the motivations and consequences of adopting new economic practices oriented towards the financial market in a company whose main activity is the exploration of natural resources in the Brazilian territory. Finally, we point out how these specific financing modalities can be shown as empirical elements of the control power of finance over the oil productive spatial circuit and hence over the own Brazilian territory.

Financing Petrobras' activities through the capital market

Understanding the adoption of new instruments and new financial logic by a company like Petrobras becomes even more relevant when taking into account the company's ownership structure and shareholding control. In 2020, the Brazilian government holds the equivalent of 36.75% of the company's capital, including more than 50.5% of common shares, with voting rights¹. Thus, it is configured as a mixed capital company whose control is ultimately carried out by Brazilian State. When taking into account the financial engineering carried out by the company, it appears agents participating in the capital market have significant relevance in decisions of the company's board of directors, not only through their voting rights but also through the operation and running of projects and new investments.

When it was created in 1954, after a long debate about what the company's legal nature should be, Petrobras chose to be a "joint stock corporation", therefore it could sell securities to the public in the form of registered common shares, which could be acquired by government organizations and private companies. To avoid control of the company by private capital, mechanisms were provided to keep them in a minority position, private agents not being able to individually acquire more than 1% of the shares with voting rights (Carvalho, 1976), which limited their presence in the ownership structure, decisions and financing of activities. It is important to emphasize that among these private capitals participation was almost exclusively of national origin.

Until the 1990s, Brazilian legislation guaranteed Petrobras' monopoly regime over mining, exploration, and production of oil, prohibiting the operation of other oil companies in the national territory². The penetration of financial agents in this important branch of production was also difficult since the only means would be the purchase of a very limited number of company shares

1 The percentage of Federal Government shares includes the portion held through the National Bank for Economic and Social Development (BNDES), according to data available at <https://www.investidorpetrobras.com.br/>

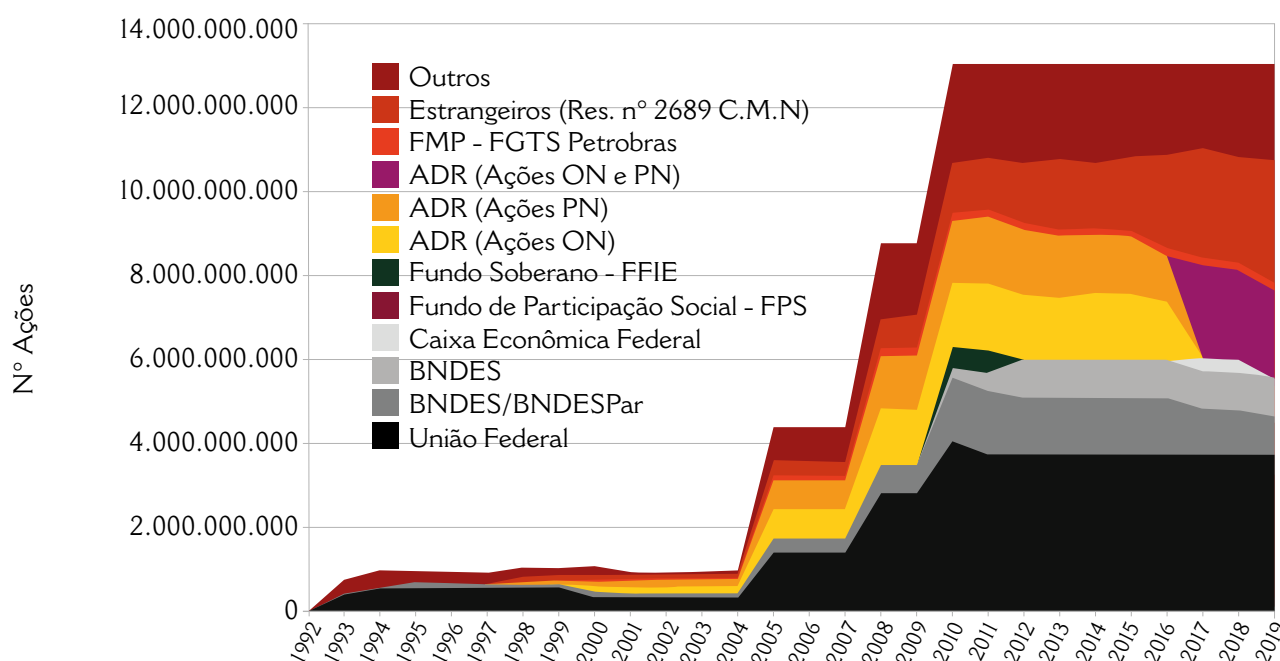
2 It is important to point out that, despite the official Petrobras monopoly regime having been in force until the promulgation of the Petroleum Law in 1997, between the years 1975-1988, Risk Contracts were signed with international private oil companies (CARVALHO, 1976), which guaranteed a greater penetration of foreign capital in the oil circuit in Brazilian territory.

or investment in private companies that could be contracted by Petrobras to provide services and/or supply of goods for production. Thus, in addition to public offerings of shares and income from the sale of its products, the company - and the oil circuit almost as a whole - relied almost exclusively on federal government investments and its sources of financing, such as funds fed by taxes and public banks.

Share capital

Amid neoliberal policies of the 1990s, the fronts of entry of financial agents in the oil circuit in Brazilian territory were diversified. Among them, the amendment to Petrobras' bylaws is a major example, it resulted from the publication of the well-known Petroleum Law of 1997, which authorizes the trading of its shares on the stock exchanges where they are listed, allowing trading by national and international private investors of common and preferred stocks, with and without voting rights. As it can be seen in Graph 1, after these changes the American Depositary Receipts (ADRs³) were launched on the New York Stock Exchange followed by an intense movement of private agents, including foreigners, to purchase the company's financial assets, some of them authorizing participation on its board of directors (Lessa, 2006). From this process emerges the logic of shareholder value (Aglietta; Rebérioux, 2005) within the company (Jesus Júnior; Sarti; Ferreira Júnior, 2017) and, by relation, in the oil production circuit in the Brazilian territory. In the circuit, the participation of financial agents also grows due to the breaking of the monopoly, especially with the participation of international oil companies, already deeply imbricated with the capital market.

Graph 1 – Evolution of Petrobras' share capital (1992-2017)



source: Own elaboration, with data from Petrobras.

3 Issuance of receipt corresponding to the trading of shares from companies listed on stock exchanges outside the United States on the New York Stock Exchange, in practice allowing the trading of foreign shares on this market.

In the context of neo-developmental economic policies (Schutte, 2013), especially after discovering large oil reservoirs in the Brazilian pre-salt in 2007, the participation of financial agents in the oil circuit once again expanded in the Brazilian territory. This is largely due to the action of the federal government, which sought to carry out, in 2010, a new operation to capitalize Petrobras. As Paulo César Ribeiro Lima (2011) describes, this financial procedure involved a set of three actions by State, Petrobras, and financial agents (public and private). The first one was the execution of onerous assignment agreements⁴, under which the Federal Government ceded to Petrobras the right to research and mine oil and natural gas in pre-salt areas without having to go through bidding processes, but limiting exploration to 5 billion barrels (Ribeiro; Novaes, 2014). The second was the use of federal public debt securities, held by Petrobras and arising from the acquisition of new shares by the Union, to pay for assigned areas, which configures anticipation of resources from the Union (Sousa, 2011). The third was the subscription and issuance of new shares of Petrobras' capital in the stock market, a significant part of which was acquired by federal entities and by the Union.

After the completion of subscription and issuance of new shares and after the Federal Government has carried out its priority offer and discounted the onerous assignment agreements, Petrobras verified that, with the end of the over-allotment offerings, the capitalization resulted in an increase of approximately R\$ 120 billion in the company's share capital, making it fourth-largest company in the world in terms of market value. This amount had as its main source the Federal Government and other federal entities (BNDES, BNDESPar, FPS, and FFIE), which translated into an increase from 39.8% to 48.3% of its participation in the company's share capital (Sousa, 2011, p. 13), as can be seen in Graph 1. This capitalization also meant an increase, albeit proportionally less substantial, of R\$ 40.2 billion in private sector participation (Lima, 2011).

Based on these actions, an attempt was made to leverage the financial instrument of capitalization via the market, ensuring better accounting conditions for Petrobras to develop its capacity to participate in consortium contracts that would integrate the auction rounds of Production Sharing⁵. The company would be required to participate with at least 30% of the consortia's total resources, thus guaranteeing its role as the sole operator⁶ of pre-salt exploratory blocks and production fields (Sousa, 2011), which required even more substantial investments coming from Petrobras.

With the end of the capitalization operation, the company managed, thanks to the increase in the total volume of shares traded, to raise a significant amount of capital. At first, however, the issuance of these new stocks along with other variables specific to the stock market caused the unit value of shares to go through a devaluation process, which would require Petrobras to adopt a position more in line with the dictates from private investors and risk rating

4 Special legal regime of exploration rights that was regulated by law nº 12.276/2010.

5 The oil exploration regime was established after the enactment of Law No. 12,351, of 2010. Although it still provides for public auctions, just like the concession model - still in force in areas outside the pre-salt -, the sharing guarantees greater participation by the Union in contracts, whether in decision-making, through another public company called Pré-sal SA, or in the right to obtain a portion of the production, paid in oil.

6 The articles dealing with this matter were revoked by a bill that was drafted in the Federal Senate in 2015 and sanctioned in 2016, shortly after the establishment of the new federal government, more clearly neoliberal.

agencies in the future. The reduction in the unit value of shares would still be quite accentuated after the news of the operations of investigation of possible illegalities in Petrobras contracts with some supplier companies. This led to the beginning of a new cycle of strategic definitions for the state-owned company to resume the degree of private investment and appreciation of its securities, especially by complying with the guidelines established by main risk rating agencies.

In short, the capitalization operation had as its main objective to finance new exploration and production activities that would be initiated by Petrobras in the pre-salt area, which, in turn, requires high investments and had high technical, operational, and financial risks. In contradiction, this mechanism was able to reinforce State's presence in the company's share capital and, although not proportionally, to expand the number of private shareholders.

Project finance

Project finance is a financial instrument based on the old concept of investing directly in projects, directing the application of capital not to companies but a set of specific activities. This has several consequences, the main one being the possibility that the company receiving investments will deal with interests and dividends outside its balance of payments, freeing up revenue for other investments. This mechanism requires a series of complex operations, with the project finance structure being “an exercise of financial engineering that allows the parties involved in a project to carry it out, assuming different responsibilities or different combinations of risk and return, according to their respective preferences” (Bonomi; Malvessi, 2018, p. 21).

This financing allows investors to accept future project revenues as well as ownership of the built facilities as collateral. Thus, “it can preserve the company's internally generated cash flow to be applied in projects that involve exclusive technology or are otherwise sensitive to the disclosure of information about it” (Finnerty, 2001, p. 34), being especially useful to companies that explore natural resources such as minerals and oil, as they need to update themselves in development of new prospecting techniques and the search for and control of new exploration areas. Therefore, such activities are not compromised by projects that are already well established, with low risk and standardized technology. The internationalization of investments and the formation of global project portfolios, as well as the “world process of deregulation and privatization of public sector capital investments” (Yescombe, 2002, p. 5), concurred to increase its use, which had its first experiences in the 1970s motivated precisely by high risks and investments required for oil and gas activities.

Petrobras found in project finance⁷ a way to finance the production and exploration of new fields, mainly those located offshore, where risks and costs involved were still very high. The first attempt at financial structuring was made, without success, to finance the Bijupirá-Salema field in 1998 (Ward, 2006), whose experience served to organize a project for

7 Petrobras went through a period without accessing the ditional financial markets due to the moratorium on external debt practiced by the Sarney government in 1986, returning to funding and operations only in 1992 and using sale-leaseback (Ward, 2006). The company's preparation to incorporate the new financial possibilities began with the creation of a project financing coordination subordinate to the General Affairs Division (DIAGE), then, in 1998, the creation of the Financial Structuring and New Business Association (ANEF). the following year becoming the Project Financing Advisory (ASFIP), followed by the creation of the Project Financing Executive Management in 2000.

the exploration of the Marlim field. The structuring aimed to circumvent “political, regulatory, legal, financial and strategic restrictions” (Bonomi; Malvessi, 2018, p. 354) relative to its status as a state-owned company in the energy sector, and the National Bank for Economic and Social Development (BNDES) played an important role in eliminating barriers and carrying out the financial structuring of the project⁸. The model excluded investments from state-owned company’s balance sheet, as it guaranteed the future oil production in the field, and involved the constitution of Companhia Petrolífera Marlim SA, a special purpose entity⁹ in charge of acquiring equipment and contracting services with the funds raised - therefore, it is the point of contact between production operations and decision-making power of financial agents.

Since then, it becomes clear company’s stance on new forms of funding, adhered to traditional such as bank credit. The constitution of project finance, in combination with banks and other financial agents that work both in the formulation of financial engineering and in the supply of funds and purchase of shares, becomes part of the planning and decisions taken by the company. Several project finance is now structured within the scope of Petrobras: Yescombe (2002, p. 23) states that the volume raised by this type of instrument in the country rose from US\$ 336 million in 1996 to an expressive US\$ 9.2 billion in 2000, “mainly based on some large oil and gas projects”. Board 1 shows the main financial structuring projects carried out by Petrobras, most of them focused on oil exploration and production.

Board 1 – Petrobras Project Finance

Project	Special Purpose Entity	Start	Value (US\$ bi)	Function
Marlim	Companhia Petrolífera Marlim (CPM)	1999	1,5	E&P
Cabiúnas	Cayman Cabiúnas Investment Co	2000	0,85	Gas transport
Barracuda e Caratinga	Barracuda & Caratinga Holding BV	2000	3,1	E&P
Espadarte, Voador e Marimbá (EVM)	EVM Leasing Corporation	2000	1,08	E&P
Albacora	Albacora Japão Petróleo Ltda	2000	0,17	E&P
Albacora-Petros	Fundação Petros de Seguridade Social	2001	0,24	E&P
Nova Marlim	NovaMarlim Petróleo S.A.	2001	0,83	E&P
Pargo-Carapeba-Garoupa-Cherne-Congro (PCGC)	Companhia de Recuperação Secundária S.A	2001	0,09	E&P
Malhas	Transportadora Nordeste Sudeste (TNS) Nova Transportadora do Nordeste S.A. Nova Transportadora do Sudeste S.A.1	2006	1,00	Transporte de gás
Gasoduto Urucu-Coari-Manaus e Termelétrica de Manaus (Amazônia)	Transportadora Urucu-Manaus S.A. Companhia de Geração Termelétrica Manauara S.A. Codajas Coari Participações Ltda	2004	1,3*	Transporte de gás/ Termelétrica
Marlim Leste (P-53)	Charter Development LLC - CDC	2004	1,18*	E&P

⁸ BNDES Participações participates as a shareholder in the established Special Purpose Entity (SPE).

⁹ Project finance involves a distinct legal entity (Finnerty|N2001, p. 2), taking the form of a Special Purpose Entity (SPE) in Brazil, generally configured as a corporation, delimiting the object of the enterprise.

Board I – Continuation

Project	Special Purpose Entity	Start	Value (US\$ bi)	Function
Plano Diretor de Escoamento e Tratamento de Óleo da Bacia de Campos (PDET)	PDET Offshore S.A.	2005	1,27	E&P
Bacia de Campos	Companhia Locadora de Equipamentos Petrolíferos S.A. - CLEP	2005	1,25	E&P
Gasene	Transportadora Gasene S.A.	2004-2005	2*	Gas transport
Aquisição TermoMacaé	Consórcio Macaé Merchant	2005	0,35	Financial operation
Mexilhão (plataforma PMXL-1)	Companhia Mexilhão do Brasil (CMB)	2006	0,595	E&P
Ampliação Revap - Refinaria Henrique Lage	Companhia de Desenvolvimento e Modernização de Plantas Industriais - CDMPI	2006	0,9	E&P
Direitos da ABB-EV na Termobahia	Blade Securities Limited	2006	0,04	Financial operation
Roncador e Jubarte (P-55 e P-57)	Deepwater Charter LLC	2006	1,96	E&P

*Southeast-Northeast Integration Gas Pipeline

source: Own elaboration, with data from Petrobras' financial reports.

One of the most prominent financial structurings was the Gasene project, which dealt with the construction of the largest Brazilian gas pipeline, aiming to integrate the country's northeast and southeast networks - connecting the Cabiúnas (RJ) and Catu (BA) gas pipelines - and increase capillarity of national gas distribution (Mendes, 2012, p. 103). With a low rate of return, the project would have low priority in Petrobras' portfolio. The structuring, with financing by BNDES, China Development Bank, and by international promissory notes, allowed for the generation of its own revenue to pay creditors through the creation of Transportadora Gasene S.A., with no shareholding. Gasene guaranteed its revenues through a gas transportation contract with Petrobras intermediated by TAG, with operation and maintenance by Transpetro.

Other structures involved: the exploration of oil fields (Marlim, Nova Marlim, Marlim Leste, Albacora, Barracuda and Caratinga, PCGC, EVM); new platforms (Mexilhão, Roncador, and Jubarte); reformulation of infrastructure and equipment (Campos, Revap), transport (Malhas, Gasene, Urucu-Manaus, Cabiúnas), and acquisition of portions of thermoelectric plants (Termomacé, Termobahia). We can see the proliferation of this form of financing for various activities of the company between 1999 and 2006. With this, exploration and production projects, equipment renovation, and infrastructure expansion could be carried out without becoming budgetary obstacles, even with low income and long-term returns.

In 2005, after CVM issued Instruction n. 408/2004, obliging Petrobras to include in its consolidated financial statements the special purpose entities whose activities were directly or indirectly controlled by the company, it was observed that part of the risks involved in its businesses was segregated in the SPE (Szuster et al., 2007). This allowed the development of long-term and high-cost projects in various parts of the territory, providing the company with greater infrastructure and boosting a series of services and productions that became part of the oil circuit.

Investment funds

As of 2006, two main reasons led to the disuse of project finance by Petrobras: the rise in oil prices on the world market, providing large revenues and allowing the release of capital for activities without compromising new investments; and the discovery of pre-Salt, which caused the company's efforts and investments to be redirected, causing alternative sources of financing to be sought. It can be noted while the first financial structurings are related to the Campos Basin, the latter show greater diversification, including the Mexilhão project being located in the Santos Basin, where Petrobras starts to act more intensely after the discovery of the pre-salt. In this scenario, Petrobras is once again resorting to the capital market and new financial instruments and agents begin to gain weight in its financial structure, such as investment funds, namely the FIP and FIDC. With this, circles of financial cooperation are widened.

FIDCs were created in Brazil in 2001, gaining ground only two years later, when they grew as an alternative to raise funds for productive activities in an environment of bank credit shortage (Anbima, 2006, p. 17). As they do not require the creation of a specific corporation, these funds bring relief of various costs to the sponsoring company. In addition, they are backed by a portfolio whose risk is lower than the company itself, and are interesting financing alternatives for small and medium-sized companies and even for privately-held companies, since they have a low cost, do not encumber credit limit with banks, and link resources to contractual terms (Ferreira; Coelho, 2008, p. 4). With this, the financialization of the oil circuit is enhanced and extends even further across the territory, as smaller companies, whose products and services were not linked to appreciation in the capital market, end up also resorting to investment funds for credit, thus connecting to intentions of its investors.

The resources gathered are intended for applications in credit rights that can be distributed in the form of an open or closed condominium¹⁰ and thus a large company can finance "its suppliers of goods and services through the constitution of a FIDC, based on the credits these have against it" (Anbima, 2006, p. 23). With the possibility of anticipating resources at lower costs than banking, suppliers may also reduce their expenses, which in the future may lead to a reduction in the price of their products and services.

¹⁰ Investment in the form of condominiums is based on the distribution of shares to be acquired from the fund's equity, which will have their value corrected as the assets appreciate. The fund can organize this distribution openly, allowing the entry or exit of investors at any time, or closed, raising funds, and then retaining the same shareholders until the end of the fund's duration.

Board 2 – Funds used to finance Petrobras activities

Type	Name	Term	Asset value (2019)
FIP	Sondas Multiestratégia	2011-current	R\$ -1.432.957,26
	Multiestratégia Brasil Petróleo I	2011-current	R\$ 57.146.798,21
	Multiestratégia Brasil Petróleo II	2011-current	R\$ 32.883.383,63
	NTS (Nova Transportadora do Sudeste)	2016-current	R\$ 9.040.857.671,06
FIDC	Fornecedores Petrobras - Industrial e Serviços	2006-2006 2010-2012	Cancelled
	Fornecedores Petrobras BR1 - Industrial e Serviços	2007-2008	Cancelled
	Fornecedores Petrobras BR2	2009	Cancelled
	NP do Sistema Petrobras	2007-current	R\$ 35.883.355.942,92
	Patrocinado Sistema Petrobras	2013-2016	Cancelled
FII	FII RB Logística	2000-current	53.094.397,93

Source: Own elaboration, with data from the Brazilian Securities and Exchange Commission (2019).

As seen in Board 2, three different short-term FIDC were created to finance Petrobras' suppliers between 2006 and 2012. The large company has the possibility of raising capital for its suppliers and customers by setting up this type of fund, ensuring the anticipation of resources at a lower cost than bank credit. Thus, Petrobras can articulate and make its network of suppliers efficient without having to mobilize its capital in the form of advances. And making credit for the suppliers feasible can even result in a "retreat in the prices of products and services provided to the company that is paid" and in "supplier loyalty" (Silva, 2010, p. 54). This helps to strengthen and boost links between the large oil companies and their extensive network of suppliers.

The high-valued FIDC, however, is the Non-Standardized FIDC of Petrobras System¹¹. The difference to standardized funds is the greater flexibility regarding the risk of credit securities that can be purchased. In the case of Petrobras, this FIDC gained a very specific function, as its shareholders are only companies of Petrobras group itself, working not for raising funds in the capital market, but as an internal mechanism for transferring resources, constituting a "way of transferring resources between companies of the same economic group, which is not allowed otherwise" (Silva, 2010, p. 14).

As we deal with funds providing capital not only for Petrobras' activities but also for infrastructure, it is worth mentioning the existence of a specific Real Estate Investment Fund for Petrobras, created by Rio Bravo Investimentos to build infrastructure for Petrobras, the RB Logística Participações. The purpose of the fund is to raise resources to invest in real estate projects in order to lease them to Petrobras and/or affiliated or controlled companies.

¹¹ Non-Standardized FIDCs were created at the end of 2006 by CVM instruction n. 444 to "demobilize the illiquid assets on the balance sheet of the institutions ceding the receivables by the originators" and provide greater remuneration to investors, seeking to "ensure greater efficiency in the cash management of the group companies by reconciling the excess of resources in some of them with the need to raise from the others" (Andima, 2015, p. 40).

Finally, the FIP gained considerable relevance after 2006, allowing Petrobras to raise investments for some of its projects considered of low financial return - at least in short term - but necessary for expanding the company's activities and renovation technique. Among FIP, there are two for investment in oil and gas companies (Brasil Petróleo 1 and 2), one for Nova Transportadora do Sudeste gas transport project, and one for the acquisition of rigs, the latter with an emphasis on technical innovation from the company. The last two fostered the creation of companies that started to finance rigs and gas pipelines for Petrobras.

Board 3 – Companies involved in financing Petrobras activities

Corporate name	Constitution	Project	Shareholders
Sete Brasil Participações S.A.	2010	Management of processes related to rigs (contracting shipyards, supervision of the monitoring of works, and reporting to Petrobras)	Shipyards Atlântico Sul, Rio Grande, Jurong Aracruz, Enseada do Paraguaçu, BrasFels/KeppeFELS
Nova Transportadora do Sudeste S.A.	2017	Restructuring of the Southeast gas pipeline network	Brookfield, GIC, CIC, e bclMC (Itaú Investimentos)

Source: Own elaboration.

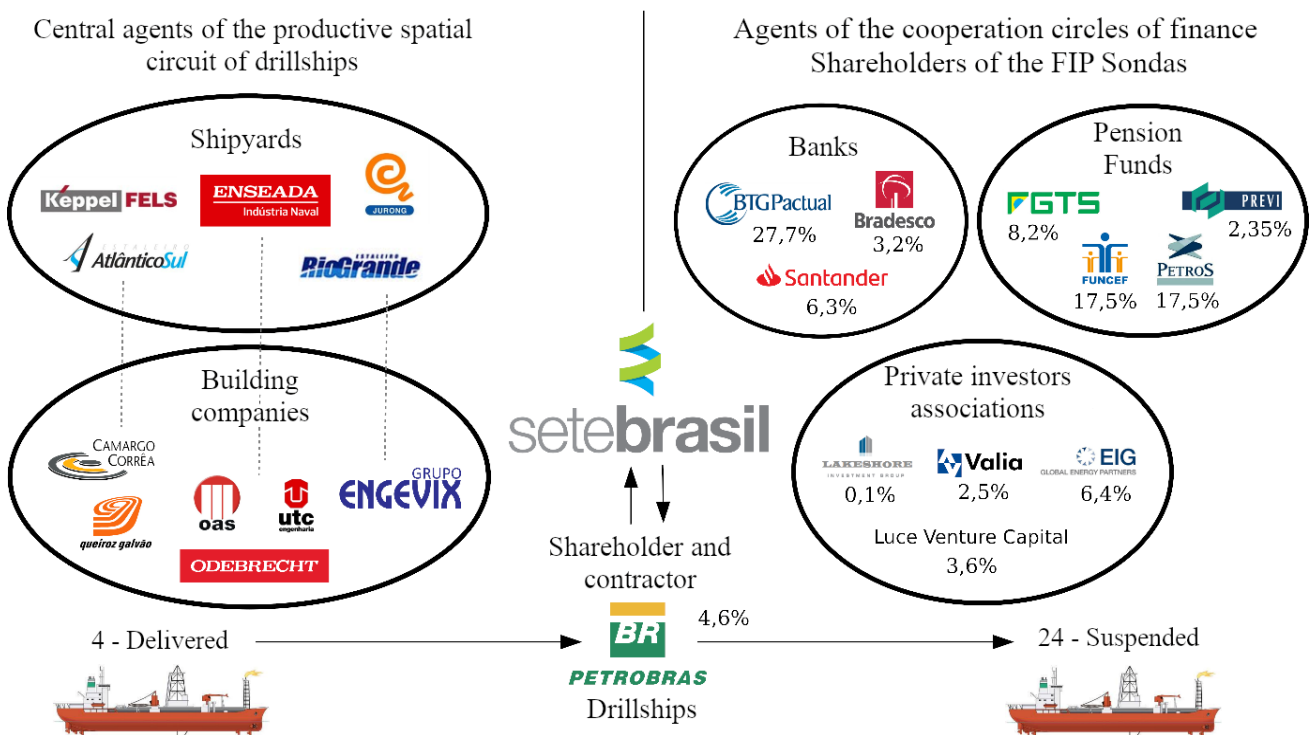
When production and exploration activities are mostly carried out at sea, the rigs are loaded on duly adapted ships, called drillships. The rigs a piece of complex and central equipment in oil exploration and production activities, as they carry out the drilling of wells. In general, such equipment is provided by technically specialized global firms - para-oil companies or oil service companies - which, in addition to being technically capable, also have a sufficient financial structure to share the risks with the oil companies (Bridge, 2008).

Drillships are a significant example of how the oil circuit can have relationships with other productive spatial circuits, such as the naval, making up a wide network of suppliers. The dynamics of the naval circuit were profoundly changed in the national territory after the advent of Pre-salt, the reinforcement of the Local Content policy, and the increase in Petrobras' orders for new support vessels, platforms, relief ships, and drillships (Azevedo, 2018). In the context of Petrobras, among the various forms of the interrelationship between oil and naval circuits, a circle of financial cooperation was constituted, composed of a large number of agents (Figure 1), aggregated from the mobilization of financial instruments, such as the FIPs.

According to Martins (2014, p. 20), "it became necessary for Petrobras, as operator of pre-salt reserves, to invest in the development of drilling rigs". Thus, a company focused on these ventures was created, named Sete Brasil SA, which started operating in 2011 to invest, via joint ventures with rig operators, in the construction of drillships aimed at drilling activities in Pre-salt's

ultra-deep waters and the management of these assets, whose investors and companies are shown in Figure 1. According to Jesus (2016, p. 696), the company would provide 28 rigs for the exploration of pre-salt, but did not have “money to continue the works and became in default with shipyards and suppliers (...)”, pointing out that, at the time, a solution was being negotiated for the “new scenario of cheap oil”, ending up going into court-supervised reorganization in 2016.

Figure 1 – Main agents in the construction of drillships and finance at Sete Brasil



Source: Own elaboration.

We can observe, as well as project finance, FIDC had a limited life, except for the aforementioned FIDC-NP of the Petrobras System, whose function is different. FIP, in turn, survives despite the acquisition of rigs having reached major complications. By using onerous assignment contracts, such as those carried out in 2010, the capitalization engineering ended up opening another financing side, alternative both to direct public financing and to the proportional expansion of private shareholders in the composition of Petrobras’ share capital, thus establishing a tense relationship between state financial agents (mainly BNDES) and the capital market. What we see, therefore, is a movement in phases, through which Petrobras adopts financial innovations, explores its possibilities, and uses financial engineering to invest in its activities until it finds new forms of funding.

Financial control of the oil circuit

We can relate the characteristics of oil exploration activity to market conditions (prices) practiced, as Dicken (2001, p. 254) observes, who associates periods of high prices with a wave of exploration and, conversely, a decrease in enterprises when prices fall, with investors withdrawing their capital from higher-risk activities. As more accessible sources run out and

there is a need to advance in underexplored areas, extraction conditions are invariably difficult and become more costly and risky. Also, according to Mendes (2012, p. 99), technical (volume reserves) and economic (barrel price) uncertainties are the two basic types involved in the exploration and production of an oil field.

This reinforces the advance and development of new exploratory frontiers, among which it is possible to recognize expansion towards types of oil known as “non-conventional”¹². In addition, there is also an advance in production for little or not explored environments, which despite being considered “conventional” (with high value in the global market), also demand high investment costs and involve high technical and financial risks, as in the cases of exploration in the Arctic (Bridge; Le Billon, 2017) and in ultra-deep waters, which have Brazilian pre-salt as the main example.

In the current scenario of the oil and gas sector, exploration and production (E&P) stages have gained greater importance, involving strong investments in technological innovation and highly complex industrial services and products, interconnecting the circuit with sectors such as naval, machinery, and specialized technical services (Kupferet al., 2000). Due to the complexities of the exploration environment where new reserves are found, such as Brazilian pre-salt¹³, high-cost equipment and services are used, which involve profound financial risk and a high technological challenge. These are reserve data acquisition services, which adopt sets of advanced exploratory methods, such as seismic and geophysical analysis; drillships, capable of drilling wells in ultra-deep waters; marine equipment (subsea), which are installed in the marine substrate; and the specialized platforms for these environments, generally those of the FPSO (floating production storage and offloading) type.

During the neo-developmental experience, the federal government sought to strengthen the national industry linked to the oil sector based on greater integration and the capacity of national companies to respond to demands of ultra-deep E&P activities. Examples were the adoption of local content policy and the Program for the Mobilization of the National Oil and Natural Gas Industry (Prominp) and Fleet Modernization and Expansion Program (Promef) programs. Petrobras played an important role in this process, especially as the main operator of production fields in Brazil. This was reinforced with the Law of Sharing, which until 2019 kept it as the only operator in the pre-salt area. Thus, a state-owned company associated with E&P activities was crucial insofar as “the equipment and services required throughout the production cycle originate from the operator, who is responsible for transforming reserves into product, the one which defines the specifications and service level requirements for the chain as a whole” (Fernandez y Fernandez; MUSSO, 2011, p. 4), especially insofar as the great purchasing power of a company like Petrobras is considered fundamental when thinking about the dynamics of country’s industrialization (De Negri et al., 2010).

12 In addition to lower values in international markets, the so-called “non-conventional” oil are more expensive to extract, with higher environmental, technical, and financial risks, among which we highlight the American shale oil and shale gas, the tar sands of Canada, and Venezuela’s ultra-heavy oil.

13 The current Brazilian pre-salt reservoirs are located at a depth of 6000 to 7000 meters deep, with 2000 meters in water depth and 3000 to 4000 meters in rock. In addition, they are located approximately 300 kilometers off the Brazilian coast, requiring complex logistical operations and new infrastructure for the flow of natural gas, platforms, and equipment adapted to such conditions and more precise control and safety systems.

According to Dicken (2001), the State is central to extractive industries and all global production networks, especially because of its role as a regulator. However, transnational corporations have sought to increase strategic alliances with the private sector, especially for research-oriented enterprises - which involve rapid technological changes and operate at high risks, requiring constant interaction between companies. This has been a considerable source of tension between the State and companies, in addition to the fact that “the spatial/territorial structures of companies and company systems rarely, if at all, coincide with political-territorial units” (Dicken; Malmberg, 2009, p. 354).

In addition to the majority shareholding control, the presence of the State is attested by the strong participation of other public bodies in the company’s activities, the main one being BNDES, which has been working with great commitment to develop and implement new financial instruments for Petrobras, acting from the acquisition of part of the company’s share capital to the participation in project finance and some of the funds. On the other hand, as we have seen, these instruments end up creating other points from which the investment of capital in Petrobras is commanded, controlled, and supervised.

Project finance, for example, makes it possible to circumvent restrictions on the company’s debt contracts (Finnerty, 2001, p. 305), linking the projects to the conditions of this new contract, which is more specific and conditioned by the financing agents. It is a way, among others, to allow a company under state control to skip regulatory ties, as project financing runs in parallel to the company’s management. The funds, on the other hand, bring operations from different segments of the company to the attention of investors interested in obtaining the pre-calculated resources and, therefore, there is pressure on the management of the oil company, but also on the other financed companies, so that they return these invested capitals in an appropriate time and amounts. In a much more complex way, the recurrent issuance of company’s shares in the capital market brings to the management the necessity to adequately correspond to investors’ wills, as the stock price, although not directly following corporate results, exerts frequent pressures, especially over the company’s profit and balance sheet, closely followed by the set of investors.

This brings into the state-controlled company a series of monitoring and forms of pressure and association coming from the capital market. If, on the one hand, the availability of invested capital can increase the company’s possibilities insofar as it allows the release of resources from its activities, on the other hand, it causes the projects to be linked to the wills of financiers. Likewise, suppliers themselves and other participants in the oil circuit end up within the logic of financial valuation which, at the same time as it allows them to capitalize, binds them to the whims of investors and the need to respond to them. It is also a change in the relationship with creditors, as unlike bank credit, with which a direct relationship is established, these forms of financing involve various investors and intermediaries, including even companies whose main activity is not financial, individual investors and pension funds - even Petrobras’ pension fund, known as Petros.

Finally, it is essential to mention the various consequences of Operation Lava Jato, which, since 2014, has acquired fundamental importance in the operation and financial life of Petrobras, which caused a profound “reputational crisis” for the company (Pinto, 2020). This is evidenced by the rapid downgrade of the company’s ratings according to the main rating agencies (Moody’s,

Fitch, and Standard & Poor's), which placed Petrobras below the recommended investment level. Public companies came under pressure to carry out several governance adjustments (Pinto, 2020), especially after the administration of Aldemir Bendine (2015-2016), when significant changes were operated to their strategic and political plans. The adoption of practices more in line with the criteria of these important capital market agents, such as reducing the company's indebtedness level, resulted in the deepening of divestment and sale of assets policies.

Another consequence of the investigation was the scrutiny of a large part of the company's financial operations, whether legal or not, causing a decline in the adoption of new investment instruments and the interruption of some in progress. The contradictions established in the relationship between the State, the capital market, and the oil circuit are exemplified, in the context of the operation, by the suspension of Petrobras negotiations for the expansion of the naval sector and the organization of an industry for the construction of rigs and platforms (Colombini, 2020). This is even more evident in the relationship between the national oil company, BNDES, and Sete Brasil, considering that after the start of the investigation into the alleged involvement of the president and director of operations of the naval company in receiving bribes in rig contracts, the creditors of short-term financing withdrew investments from the company, and thousands of workers were fired or left without wages (Schutte, 2016).

Like Sete Brasil, other financial operations were called into question. The great complexity of these new types of financial instruments - generally adopted by large companies operating nationally and internationally - implies legal plots that are sometimes quite gray, involving operations in offshore centers, which figure in several of the cases analyzed. According to Coe, Lai, and Wójcik (2014), offshore jurisdiction is today one of the challenges to understanding the performance of transnational companies. The participation of companies from different countries in Petrobras' financial structures and funds - such as Cayman Cabiúnas Investment Co., based in the Cayman Islands and Barracuda-Caratinga BV, based in the Netherlands - is the result of the internationalization and financial engineering behind these financing initiatives, which seek to evade fees and taxes and make connections with foreign investors feasible. However, they leave behind a complex trail of negotiations that can include investments of illicit capital and present various outlet points of the company's money.

Thus, contradictions surrounding the adoption of financial instruments by Petrobras are very diverse. The Brazilian State has been actively participating, with the participation of public banks and other entities, in deepening the financialization of the company's activities and, therefore, of the Brazilian territory. Foreign capitals from a complex network are added to a national public and private investments and end up making it difficult to understand the corporate demands and the consequent decisions taken within the scope of Petrobras, which is required to present positive results and to dive even deeper into financial innovations.

Final considerations

What we point out here as the financialization of Petrobras' activities has developed above all in the last three decades, starting in the 1990s and going through a cycle of innovations in the company's capital management, which suffered a strong interruption after the company's involvement in Operation Car Wash, which began in March 2014. The adoption of financial

instruments puts the company in contact with a worldwide investment network, but it also encourages the financial services sector in the country, such as investment fund managers, who, as shown by Caio Alves (2017), are highly concentrated in the territory and evidence the primacy of the metropolis of São Paulo, which is all the more strengthened as this type of instrument becomes fundamental for the activity of large Brazilian corporations.

The economic policies experimented by the “neo-developmental” Brazilian governments made use of regulatory mechanisms such as the local content policy, which encouraged companies supplying the oil circuit. However, above all through Petrobras, it was necessary to seek instruments to put into effect the capacity for government intervention in this process. The adoption of these instruments helped to deepen the process of financialization of Brazilian territory, already pointed out by Santos and Silveira (2001). Although this process is characterized by its “low intensity” compared to more central countries of the capitalist system, the use of these financial instruments by a company like Petrobras reveals a diffusion of variables specific to more robust capital markets, such as the decrease in dependence of non-financial companies on banks (Contel, 2019).

On the other hand, attempts to adhere to financial innovations collaborated to shift Petrobras’ control from the State towards the financial market with greater force, even though the majority control remains governmental. These new control mechanisms may increase territorial vulnerability (Arroyo, 2006), which is noticeable in the reduction in Petrobras’ participation in almost all stages of oil production space circuit in the Brazilian territory, with the privatization of technical equipment and systems fundamental for the supply of oil and natural gas derivatives, such as gas pipelines and the subsidiary BR Distribuidora, in addition to the possibility of selling several refineries. In this way, significant portions of Brazilian territory are susceptible to changes in employment in activities in the circuit and in the supply of oil derivatives, whose prices are now unstable and parameterized by main international stock exchanges.

Although certain constraints posed by the price dynamics of the oil commodity, in recent years, have contributed to the weakening of these policies, it is also necessary to consider the deep capacity for interference and tension of agents and networks established by the expansion and incorporation of the instruments of financing and capitalization by Petrobras. If, on the one hand, more and more the activities of productive spatial circuits, especially the more globalized ones such as oil, demand the formation of complex circles of financial cooperation so that their activities can be carried out; these same have their meanings, forms of organization and dynamics increasingly conditioned by the logic of financial valuation, by the rationality of this market and its agents, and by the dynamics of globalized capital flows, which often have no direct link with the production itself.

References

- AGLIETTA, M.; REBÉRIOUX, A. **Corporate governance adrift: a critique of shareholder value**. Cheltenham, UK: Edward Elgar, 2005.
- ALVES, C. Z. J. Finanças, centros de gestão e complexos corporativos metropolitanos: análise dos fundos de investimento em Buenos Aires e São Paulo. In: COSTA, W. M.; VASCONCELOS, D. B. (Org.). **Geografia e geopolítica da América do Sul: integrações e conflitos**. São Paulo: FFLCH/USP, 2017. p. 152-171.

- ANBIMA. **Produtos de captação:** FIDC – fundo de investimento em direitos creditórios. Rio de Janeiro: Anbima/Cetip, 2006.
- ANTAS JR., R. M. Considerações sobre agentes relevantes nos círculos de cooperação do complexo industrial da saúde no território brasileiro. In: XIV ENCUESTRO DE GEÓGRAFOS DE AMÉRICA LATINA, 14., 2013, Lima. **Anais...** Lima, 2013.
- ARROYO, M. M. A vulnerabilidade dos territórios nacionais latino-americanos: o papel das finanças. In: LEMOS, A. I. G.; SILVEIRA, M. L.; ARROYO, M. (Org.). **Questões territoriais na América Latina**. Buenos Aires: Clacso, 2006. p. 177-190.
- AZEVEDO, M. N. **A reestruturação do circuito espacial de produção de embarcações:** uma análise dos estaleiros de Niterói e São Gonçalo (1970-2017). Dissertação (Mestrado em Geografia) – Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2018.
- BAUD, C.; DURAND, C. Financialization, globalization and the making of profits by leading retailers. **Socio-Economic Review**, v. 10, n. 2, p. 241-266, 2012. doi: <https://doi.org/10.1093/ser/mwr016>.
- BONOMI, C.; MALVESSI, O. **Project finance no Brasil**. São Paulo: All Print, 2018.
- BRIDGE, G. Global production networks and the extractive sector: governing resource-based development. **Journal of Economic Geography**, v. 8, n. 3, p. 389-419, 2008. doi: <https://doi.org/10.1093/jeg/lbn009>.
- BRIDGE, G.; LE BILLON, P. **Oil**. New Jersey: John Wiley & Sons, 2017.
- CARVALHO, G. **Petrobrás:** do monopólio aos contratos de risco. São Paulo: Forense-Universitária, 1976.
- CASTILLO, R. A.; FREDERICO, S. Espaço geográfico, produção e movimento: uma reflexão sobre o conceito de circuito espacial produtivo. **Sociedade & Natureza**, v. 22, n. 3, 2010. Disponível em: <http://www.seer.ufu.br/index.php/sociedadennatureza/article/view/11336>. Acesso em: 27 ago. 2021.
- COE, N. M.; LAI, K. P.Y.; WÓJCIK, D. Integrating Finance into Global Production Networks. **Regional Studies**, v. 48, n. 5, p. 761-777, 2014. doi: <https://doi.org/10.1080/00343404.2014.886772>.
- COE, N. M.; YEUNG, H. W. **Global Production Networks:** Theorizing Economic Development in an Interconnected World. Oxford: Oxford University Press, 2015.
- COLOMBINI, I. Crise da geopolítica do petróleo no Brasil e o “mundo invisível” das parapetroleiras. **Oikos**, Rio de Janeiro, v. 19, n. 1, p. 122-141, 2020. Disponível em: <http://www.revistaoikos.org/seer/index.php/oikos/article/view/638/327>. Acesso em: 27 ago. 2021.
- CONTEL, F. Financeirização na América Latina: das dinâmicas globais aos processos locais. In: POLO-ALMEIDA, P.; CARRIÓN, A.; LÓPEZ-SANDOVAL, M. F. (Org.). **Debates actuales de la geografía latinoamericana**. Quito: Asociación Geográfica del Ecuador, 2019. p. 237-248.

- DE NEGRI, J. A.; DE NEGRI, F.; TURCHI, L.; WOHLERS, M.; MORAIS, J. M.; CAVALCANTE, L. R. (Org.). **Poder de compra da Petrobras: impactos econômicos nos seus fornecedores**. Brasília: Ipea/Petrobras, 2010. Disponível em: https://www.ipea.gov.br/portal/images/stories/PDFs/livros/livros/Livro_poderdecompra.pdf. Acesso em: 27 ago. 2021.
- DICKEN, P. **Global Shift: mapping the changing contours of the World Economy**. New York: Guilford, 2001.
- DICKEN, P.; MALMBERG, A. Firms in territories: a relational perspective. **Economic Geography**, v. 77, n. 4, p. 345-363, 2009. doi: <https://doi.org/10.2307/3594105>.
- FERNÁNDEZ Y FERNÁNDEZ, E.; MUSSO, B. Oportunidades e desafios da agenda de competitividade para construção de uma política industrial na área de petróleo: propostas para um novo ciclo de desenvolvimento industrial. In: FÓRUM NACIONAL VISÃO DE BRASIL DESENVOLVIDO, 23., 16-19 maio 2011, Rio de Janeiro. **Anais...** Rio de Janeiro, 2011.
- FERREIRA, E.; COELHO, J. M. Metodologia de financiamento para pequenos produtores do mercado brasileiro de petróleo e gás natural, baseado nas experiências canadense e americana na quantificação, valoração e certificação de reservas. In: RIO OIL & GAS, 2008, Rio de Janeiro. **Anais...** Rio de Janeiro, 2008.
- FINNERTY, J. **Project finance: engenharia financeira baseada em ativos**. Rio de Janeiro: Qualitymark, 2001.
- HENDERSON, J.; DICKEN, P.; HESS, M.; COE, N.; YEUNG, H. W.-C. Global production networks and the analysis of economic development. **Review of international political economy**, v. 9, n. 3, p. 436-464, 2002. doi: <https://doi.org/10.1080/09692290210150842>.
- JESUS, C. G. Notas sobre a desconcentração regional da indústria da construção naval brasileira no princípio do século XXI. **RDE – Revista de Desenvolvimento Econômico**, v. 2, n. 34, p. 685-703, 2016. doi: <http://dx.doi.org/10.21452/rde.v2i34.4449>.
- JESUS JÚNIOR, L. B.; SARTI, F.; FERREIRA JÚNIOR, H. M. Petrobras, política de conteúdo local e maximização de valor para o acionista: uma sugestão de interpretação. **Economia e Sociedade**, Campinas: Unicamp, v. 26, n. 2, 2017. doi: <https://doi.org/10.1590/1982-3533.2017v26n2art4>.
- KUPFER, D.; HAGUENAUER, L.; YOUNG, C. E. F.; DANTAS, A. T. Impacto econômico da expansão da indústria do petróleo. **Relatório final**. Grupo indústria e competitividade– Instituto de Economia/UFRJ, 2000. Disponível em: https://www.researchgate.net/publication/288823334_IMPACTO_ECONOMICO_DA_EXPANSAO_DA_INDUSTRIA_DO_PETROLEO. Acesso em: 27 ago. 2021.
- LESSA, C. Prefácio. In: FEROLLA, S. X.; METRI, P. **Nem todo o petróleo é nosso**. São Paulo: Paz e Terra, 2006. p. 11-22.

- LIMA, P. C. R. **Pré-sal, o novo marco legal e a capitalização da Petrobras**. Rio de Janeiro: Synergia, 2011.
- MARTINS, E. **Avaliação financeira com alta alavancagem e estrutura de capital variável: um estudo de caso no setor de sondas de perfuração**. Dissertação (Mestrado em Administração de Empresas) – Pontifícia Universidade Católica, Rio de Janeiro, 2014.
- MENDES, R. **Opções reais em project finance: uma aplicação na indústria petrolífera**. Dissertação (Mestrado em Engenharia de Produção) – Pontifícia Universidade Católica, Rio de Janeiro, 2012.
- MORAES, A. C. R. Os circuitos espaciais da produção e os círculos de cooperação no espaço. In: DANTAS, A.; ARROYO, M.; CATAIA, M. (Org.). **Dos circuitos da economia urbana aos circuitos espaciais de produção: um diálogo com a teoria de Milton Santos**. Natal: Sebo Vermelho, 2017. p. 25-52.
- PEREIRA, M. F. V.; KAHIL, S. P. O território e as redes: considerações a partir das estratégias de grandes empresas. In: GIRARDI, L. H. O. G.; CARVALHO, P. F. (Org.). **Geografia: ações e reflexões**. Rio Claro, SP: Ageteo/IGCE/Unesp, 2006. p. 217-229.
- PINTO, E. C. Nacionalismo energético, Petrobras e desenvolvimento brasileiro: a retomada interdita. **Oikos**, Rio de Janeiro, v. 19, n. 1, p. 142-163, 2020. Disponível em: <http://www.revista-oikos.provisorio.ws/seer/index.php/oikos/article/view/639/328>. Acesso em: 27 ago. 2021.
- RIBEIRO, C. G.; NOVAES, H. T. Da “Lei do Petróleo” ao leilão de Libra: Petrobras de FHC a Dilma. **Revista da Sociedade Brasileira de Economia Política**, n. 39, p. 34-58, 2014.
- SANTOS, M. **A natureza do espaço: técnica e tempo, razão e emoção**. São Paulo: Edusp, 2009.
- SANTOS, M. Circuitos espaciais da produção: um comentário. In: BARROS, S. **A construção do espaço**. São Paulo: Nobel, 1986. p. 121-134.
- SANTOS, M.; SILVEIRA, M. L. **O Brasil: território e sociedade no início do século 21**. Rio de Janeiro: Record, 2001.
- SCHUTTE, G. R. Petrobras em marcha forçada. **Textos para Discussão**, São Paulo: NEEDDS-UFABC, v. 1, p. 1-96, 2016. Disponível em: <https://silo.tips/download/petrobras-em-marcha-forada>. Acesso em: 27 ago. 2021.
- SCHUTTE, G. R. Brazil: New Developmentalism and the Management of Offshore Oil Wealth. **Revista Europea de Estudios Latinoamericanos y del Caribe**, n. 95, p. 49-70, 2013. Disponível em: https://www.jstor.org/stable/23595692?seq=1#metadata_info_tab_contents. Acesso em: 27 ago. 2021.
- SILVA, R. M. **Securitização de recebíveis: uma visão sobre o mercado dos fundos de investimento em direitos creditórios (FIDC)**. Dissertação (Mestrado em Engenharia da Produção) – Universidade Federal Fluminense, Niterói, 2010.

- SOUSA, F.J. R. **A cessão onerosa de áreas do pré-sal e a capitalização da Petrobras.** Brasília, DF: Biblioteca Digital da Câmara dos Deputados, 2011.
- SZUSTER, N.; MARQUES, J. A. V. C.; SANTOS, O. M.; HOORY, R.; AMARL, M. A.; ALVEZ, C. R. R. O fim do *off-balance sheet* em *project finance*: um estudo dos aspectos contábeis da consolidação das sociedades de propósito específico. In: XXXI ENCONTRO DA ANPAD, 31., Rio de Janeiro. **Anais...** Rio de Janeiro, 2007.
- WARD, A. K. **Projeto Barracuda e Caratinga:** um estudo de caso de gestão de risco em financiamento de projetos no setor de petróleo. Dissertação (Mestrado em Administração) – Ibmec, São Paulo, 2006.
- YESCOMBE, E. **Principles of project finance.** San Diego, CA: Elsevier, 2002.

Authors' contribution:

Luciano Duarte: systematized the agents of the oil circuit, elaborated a discussion on the recent changes in Petrobras, worked on the theoretical development of productive spatial circuits and cooperation circles in space, proceeded with an analysis on Petrobras' instruments of financing.

Wagner Nabarro: developed a discussion on financialization and the financing of productive activities, systematized the mechanisms and funds involved in the financing of Petrobras, worked on the theoretical development of productive spatial circuits and cooperation circles in space, proceeded with an analysis on Petrobras' instruments of financing.

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