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Goldstein, Andrea

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The Emergence of Multilatinas: The Petrobras Experience*

La aparición de las multilatinas:
La experiencia de Petrobras

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Andrea Goldstein¹
Econpubblica, Università
Bocconi, Milan, Italy
✉
AGOLDSTEIN@club-
internet.fr

I. INTRODUCTION

As other papers in this issue document and explain, corporate multinationalization –once the privilege of companies in developed economies– is now becoming a diffuse phenomenon in emerging economies, including Latin America. Latin America is now home to some of the most internationally-oriented oil companies: PDVSA, in particular, has long been ranked among the world-largest multinational companies (MNCs) from developing countries (UNCTAD 2008). This study analyzes the emergence of a leading Latin MNC, Petrobras, whose development has garnered substantial attention in both business and policy circles abroad. There are various reasons why studying the tenth most valuable company in the world (at end-July 2009²) is important for advancing our understanding of *multilatinas*³. The first reason is that the oil sector has traditionally been one of the most global in terms of trade and foreign direct investment (FDI) flows and that analyzing the growth and development of oil MNCs is therefore crucial for analyzing changes in the geography of international business. In fact, “it was in petroleum that some of the world’s largest [MNCs] were to develop” (Jones 2005, p. 47); in 2006, there were four oil companies among the world’s top eight non-financial MNCs, ranked by foreign assets (UNCTAD 2008, Table A.I.15). The second reason is the industry’s relatively strong long-term dynamism (Maugeri 2006). Between 1928 and 1973, seven large ver-

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EXECUTIVE SUMMARY

This paper examines the history of Petrobras and its multinational expansion. The Petrobras experience confirms that the rise of emerging economies is leading to a transformation in global business in which foreign direct investment is driven not only by the exploitation of traditional firm-specific competencies (although, at least in the case of Petrobras, these are far from minor) but also by the exploration of new patterns of organizational innovation and ways of accessing markets.

RESUMEN DEL ARTÍCULO

Este trabajo examina la historia de Petrobras y su expansión internacional. La experiencia de Petrobras confirma que el crecimiento de las economías en desarrollo esta llevando a la transformación de los negocios internacional en los que la inversión directa en el extranjero esta motivada no solo por la explotación de las competencias de la empresa (aunque en el caso de Petrobras estas no son pocas) sino también por la exploración de nuevas pautas de innovación organizativa y modos de entrada en mercados..

tically-integrated MNCs (or International Oil Companies, IOCs) were major market players and price setters⁴. Later on, producing countries carried out successive nationalization processes, and by 1973, they controlled most of their oil production. Some of these countries (including Ecuador and Venezuela in Latin America) formed the Organization of the Petroleum Exporting Countries (OPEC) to coordinate and unify petroleum policies, in order to secure fair and stable prices for petroleum producers; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the industry. The Seven Sisters' share of the world's oil trade fell from about 70 per cent in 1970 to around 50 per cent by 1980.

State-owned national oil companies (NOCs) have increased their share of worldwide hydrocarbon resource endowments, as well as many of the major oil and gas infrastructure systems. Petrobras is one such NOC: a powerful organization within the state apparatus that addresses a number of non-commercial aspirations (such as employment generation and price controls), in common with most other state-owned enterprises (SOEs), but at the same time enjoys some managerial autonomy and is expected to perform commercially. From this a conflict often emerges in their relationship with the national budget – NOCs often place significant demands on public funds and compete with other urgent development priorities, but they are also a major cash cow⁵. Although with major variations, all NOCs are transforming themselves from state-dominated and bureaucratic entities that rely on a monopolistic position in their home country and are only accountable to the government, to at least partly private-owned ones with corresponding modifications in their governance mechanisms. Moreover, with the acceleration of globalization since the early 1990s, exclusive access to oil reserves has made NOCs from the South leading players in the oil market⁶. Some of them have expanded their operations globally – both upstream to diversify their geographical portfolio and downstream (into petrochemicals, refineries, and distribution) to reach consumers directly. Access to capital, technology and knowledge are driving forces behind these ventures. While such transformation has brought made the NOCs closer to IOCs, marked differences persist in other key areas, notably issues of sovereignty and the role that the oil sector can play in developing and sustaining national economies (Khelil 2008).

How do all these different factors play out in the case of Petrobras?



The first objective of the paper is to provide a descriptive account of the company's evolution and of the underlying drivers – the shaping of governance and internal organization, the evolution of innovation and technological capability. The historical context (the relationships between the companies and their respective governments, as well as between the latter and authorities in countries where they invest) is necessary for providing a clear background to the environment out of which the NOCs have developed. The analysis of the internationalization of Petrobras describes worldwide spread across regions and activities and also other dimensions such as the extent of foreign exposure among executive managers. In the fourth section the peculiarities of Petrobras as a corporate actor, especially the political economy of its recent growth, are explored.

KEY WORDS

Petrobras, multilatinas, emerging market multinational companies, oil industry, competencies, Brazil

PALABRAS CLAVE

Petrobras, multilatinas, multinacionales de países emergentes, empresas multinacionales, industria petrolera, competencias, Brasil

2. HISTORY, GOVERNANCE AND TECHNOLOGY

Petrobras was founded in 1953, making it one of the oldest NOCs worldwide. It formed a lynchpin of the *Estado Novo's* inward-oriented industrialization drive of the time. Under the terms of Law No. 2,004, Petrobras was granted sole rights over domestic upstream oil exploration and production (E&P). It also came to dominate domestic refining activity, although the major foreign oil firms were allowed to retain a role in the downstream distribution sector. In the 1960s Petrobras further diversified into petrochemicals, partly to kick-start the growth of this dynamic new industry in Brazil, partly to prevent foreign MNCs from dominating it (Treat 1983).

In the 1990s, in particular under President Cardoso, Brazil embraced the so-called Washington Consensus in economic policy-making and embarked in an ambitious program of SOEs' privatization and market liberalization (Goldstein 1999). Petrobras has operated in a competitive environment since 1997, when the government scrapped its monopoly on oil-related activities, freed oil prices from state control, and opened the sector to competition. It completed the process in January 2002 by abolishing price controls and removing Petrobras's monopoly on importing oil products. The principal government agency charged with monitoring the oil sector is the National Petroleum Agency (ANP), which holds responsibility for issuing E&P licenses and ensuring compliance with relevant regulations.

On 9 August 2000, Petrobras issued US\$4.3 billion in an IPO in Brazil and in the New York Stock Exchange. For the first time in Brazil, shares were offered not only to institutional investors, but also to re-

tail investors through the banking network. More than 400,000 Brazilians and an unknown number of foreign individuals and institutions bought shares. The government controls Petrobras with a 55.7 per cent voting stake, but it owns only 33.2 per cent of the company’s total shares (39.80 per cent including BNDESPar). Although the board is currently chaired by the chief-of-staff of President Lula, Petrobras operates rather independently from government and raises private financing through project finance.

Petrobras oil and gas production has grown very fast over the past few years – both in Brazil and overseas (**Table 1**). These recent advances are a result of considerable effort made by Petrobras in order to face the challenges of deep and ultra-deep water environments, heavy oil production and High Pressure/High Temperature (HPHT) reservoirs (Pessôa *et al.* 2006). As Acha and Finch (2005) note, “particularly in the 1980s and 1990s, the success of Petrobras’ expertise and technology in the geoscience and engineering of deepwater has been underscored by drilling milestones and technology awards”. Its research center (Centro de Pesquisas e Desenvolvimento Leopoldo A. Miguez de Mello, CENPES), established in Rio de Janeiro in 1966, has provided an environment for research, innovation and de-

Table 1. **Key corporate data**

	1999	2002	2005	2008
Financial				
Total assets	33,733	32,154	78,638	
Total revenues	23,467	32,987	56,234	
Total net income	727	2,311	10,344	18,879
Capital and exploratory expenses	4,351	4,911	10,635	
Operating				
Oil production ('000 bpd)	422	542	643	1,979
Natural gas production ('000 boed)	263	495	741	421
Oil reserves (billion barrels)	8,279	8,955	9,716	12,508
Natural gas reserves	7,498	9,473	12,352	

Sources: *Oil and Gas Journal* and company.

velopment (Mansoori *et al.* 2001). Petrobras has set a number of world records, including, at one point, the record for the world's deepest exploration well (2,853 m in the Roncador field)⁷. Since 1992, 1 per cent of Petrobras gross receipts have been earmarked for R&D. This genuine effort at developing internal technological competencies has allowed Petrobras to extract the full potential from cooperative R&D to gain access to the new subsea boosting technology. Petrobras has won the OTC award twice (1992 and 2001) for "excellence in deep water operations". Its 2007/08 R&D expenditures are similar to those of BP and Shell and well in excess of those of comparable US- and EU-based IOCs (Exxon, Chevron and Conoco and Total, ENI and RepsolYPF, respectively) (Goldstein 2009, **Table 2**). These efforts have resulted in 172 USPTO patents since 1976 – which compares with nine for CNPC/Petrochina, the world's largest company by market capitalization (see footnote 1).

The national relevance of Petrobras technology has taken a new dimension since the April 2006 announcement that Brazil has become self-sufficient in oil supply, after the opening of a major ultra-deepwater exploration platform in the Campos Basin. The discovery of the Tupi oil field off the Southeastern coast in November 2007, the biggest in the world since a discovery in Kazakhstan in 2000, has the potential to transform Brazil into a global energy powerhouse. To coax the oil from Tupi field, Petrobras' engineers will have to drill up to 4,800 meters below the sea floor through salt and rocks, in water depths of up to 3,000 meters, an undertaking that is at the frontier of the industry's technological ability.

3. INTERNATIONAL EXPANSION

Multinationalization (in order to spread technical and political risk) is a natural stage in the development of companies in an oligopolistic industry (Graham 1998). Petrobras's long history of international expansion started with the creation of Braspetro in 1972. At the time, oil imports covered more than 80 per cent of domestic demand and Petrobras' international branch had as its main purpose to guarantee supply security. The first investments were made in Iraq⁹, Colombia's Caribbean Sea, Angola (1979), and the Gulf of Mexico, where Petrobras currently owns more than 300 deepwater blocs.

Nowadays, Petrobras holds more than 100 production licenses in 27 countries in Latin America (Argentina and Venezuela), Gulf of Mexico, and Africa (Angola, Nigeria, Tanzania, Libya). The Bolivia pipeli-

ne strengthened gas business in the Southern Cone. Argentina has become the second most important market for Petrobras following the Perez Companac acquisition in 2002. Moreover, overseas refining capacity has gone from zero barrels in 2000 to 126.2 thousand barrels of oil per day in 2007 (Petrobras 2008). Reserves outside Brazil were less than 12 per cent in 2002, to rise to 17 per cent by 2010 (Carvalho and Goldstein 2009). According to its 2009-13 strategic plans, Petrobras expects to realize overseas investments of US\$15.9 billion in both exploration and production, along with the expansion of international biofuels production, mostly biodiesel and ethanol.

**Multinationalization
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UNCTAD transnationalization index captures the foreign dimension of MNC activities by averaging three ratios: foreign assets to total assets, foreign sales to total sales, and foreign employment to total employment. For Petrobras, its value has grown from 7 in 1999 to 16 in 2007 – still lower than for IOCs and Petronas, but higher than for CNPC. The financial and corporate governance dimension of internationalization is equally important, although its study is not as well developed. Following Hassel *et al.* (2003), three variables which might be useful for measuring this dimension are Foreign Ownership as Percentage of Total Ownership (FOTO), the number of listings in foreign stock exchanges (FSE), and the presence of foreign board members (FBM). For Petrobras, FOTO and FSE show levels in line with IOCs such as ENI and Shell. In the case of directors and managers, on the other hand, at Petrobras all of them are Brazilian. In fact most oil companies seem to prefer nationals, with Shell being an exception with its very international profile (Goldstein 2009). Zooming on the foreign experience of top management, the President of Petrobras has a PhD in Economics from Boston University, but otherwise Petrobras senior management is not very international in terms of education (at Petronas of Malaysia, for instance, seven of the top nine managers for which this background is available have a foreign degree)¹⁰.

How to make sense of these broad phenomena? The starting point is that NOC executives' ambitions are no different from those of their IOC counterparts (Grayson 1981). Diversification in downstream activities such as petrochemicals, refineries, and distribution and international expansion serve to increase managerial autonomy and secure technical and financial independence. For Petrobras producing

and exploring for oil in a variety of different places around the world diversifies risk and lowers international financing costs (Amman 2009). If Petrobras buys a second U.S. refinery, it will have an asset that generates hard currency and lowers its financial risk. Also, generating revenues in U.S. dollars gives Petrobras the cash to pay off its debt obligations abroad and increase its credit rating.

Thanks to the success in both finding and extracting oil in Brazil and in developing ethanol technology, energy security is a less important motivation for Petrobras than for other non-OPEC NOCs such as China's and India's. On the other hand, competitive pressures to internationalize act more strongly on Petrobras' management. Until 1997, Petrobras had the monopoly of exploration in the Brazilian territory but since the opening of the domestic market nine concession rounds have been conducted and 71 concessionaires (35 of which foreign investors) are currently operating in the Brazilian offshore. Given this reduced scope for deploying its core competencies at home, it is not surprising that Petrobras has ventured further overseas (Amman 2009). In addition, Petrobras does not have much idle refining capacity left; it is now refining 1.7 million barrels of its 2 million barrels-per-day capacity. More refining abroad and the planned construction of a lubricants factory in Cuba through a joint venture with PDVSA and Cubapetroleo would allow Petrobras to refine oil that the company will, in the near future, have trouble processing in Brazil. Selling the output from such a refinery would also generate additional hard currency in dollars.

4. PETROBRAS AND THE POLITICAL ECONOMY OF OIL FDI

Oil companies choose their investments mode according to three considerations: technical capabilities and (to a lesser extent) the compatibility of the oil in the ground with the refineries back home; the intensity of competition; and an assessment of political risk (Aykut and Goldstein 2007). Technology is clearly key: Petrobras has extracted from Brazilian deep waters since 1972 and then expanded towards other areas where similar exploration conditions existed.

The politics of NOC expansion has been a matter of great controversy. Insofar as the mode of FDI in oil sector is mostly shaped by the government policies in the host country, attention over the past few years have been mostly placed on governance issues. In particular, many observers have pointed out that Asian and other NOCs, by

investing in strife-torn oil-producing countries where political risk or sentiment have frightened off many bigger players, may be hampering efforts to bring peace and security (Taylor 2006). For Petrobras, the ability to use Brazil's developing country status has been important: in June 1972 it was the first foreign firm to take Iraqi oil and thus break a blockade against Iraq called by BP after the nationalization of IPC; in Angola, it has taken advantage of the fact that Brazil had been the first country to recognize the new government after independence. Nonetheless, sometimes political friendship is not sufficient. When President Morales decided to nationalize Bolivia's gas reserves, Petrobras was not spared.

An equally heated debate surrounds the contribution that oil companies can make to national development in producing countries. Natural resources exploitation necessitates huge finance, technology and expertise resources to which IOCs have relatively easy access, whereas few developing countries can raise the amount of capital or possess crucial skills and technology. Oil FDI can also generate employment opportunities, create backward (and, more rarely, forward) linkages locally and contribute to infrastructure development. Howe-

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Table 2. CSR uptake – Petrobras vs. selected competitors

	COVALENCE ETHICAL RANKING Q1 2009 (RANKING AMONG OIL AND GAS COMPANIES)	2009 GLOBAL REPUTATION PULSE (RANKING AMONG OIL AND GAS COMPANIES)	EITI PRINCIPLES AND CRITERIA	2008 REPORT ON REVENUE TRANSPARENCY OF OIL AND GAS COMPANIES ^A
Petrobras	3	1	Endorsed	High
<i>Selected NOCs</i>				
CNPC	n.a.	n.a.	Nor endorsed	Low
ONGC	n.a.	n.a.	Nor endorsed	Low
Petronas	n.a.	n.a.	Nor endorsed	Low
<i>Selected IOCs</i>				
ENI	20	6	Endorsed	Middle
Shell	25	n.a.	Endorsed	High

ver, the experience of resource-rich developing countries indicates that this type of wealth can be a mixed blessing (Sachs and Warner 1995). The extraction of non-renewable resources may have adverse social or environmental costs. The oil boom may also widen income inequalities, imperil good governance and aggravate corruption. Also, extractive industries may exacerbate the negative consequences of macroeconomic mismanagement: the presence of mining will inflate wages and keep the exchange rate strong, which can prevent other sectors, for example, agriculture, from being internationally competitive and thus from realizing the opportunity for export-driven growth.

Over the past few years, various initiatives have been taken to enhance the role that MNCs play in the long-term planning of a host country's natural resources, to ensure better alignment between private agents' actions and the national economic development agenda and good-quality governance, and to enact and implement correct regulations and codes. Virtually every company has developed guidelines for staff on how to behave when confronted with dilemmas such as conflict of interests, gifts, theft, insider trading, pay-offs and bribery. The ultimate aim is to embed international markets and firms in a framework of global rules and norms by establishing standards for responsible business conduct and corporate social responsibility (CSR) as well as mechanisms for promoting compliance with them.

As **Table 2** shows, there are obvious differences in response between companies, with the Asian NOCs performing rather poorly and Petrobras being on a par with some IOCs, when not above. In line with the results of a study of ExxonMobil, Shell, BP, and (then) TotalFinaElf (Skjærseth *et al.* 2004), these differences can be explained by a combination of company-specific features and different home-base countries: in the case of Petrobras, the fact that foreign exchange listing exposes it to enhanced stakeholders' scrutiny and more generally the spread of a CSR culture in Brazil (Araya 2006). At any rate, considerable skepticism surrounds CSR, particularly at the rhetorical level, which companies themselves see as a tool to achieve compliance with mandatory social and environmental legislation, in particular with regard to climate change and bribery, rather than to make efforts that go beyond minimal formal requirements (Boasson *et al.* 2006).



5. CONCLUSIONS

This paper has documented the strategic trajectory of the growth and internationalization of Petrobras. Its recent accelerated development is impressive by all means, especially in terms of the considerable efforts to enhance management qualifications, modernize internal and external governance, and improve the science and technology base. Petrobras' story shows the crucial importance of accumulating technological capabilities to establish a leading international position. As Dantas and Bell (2006: 9) stress, Petrobras's capabilities "evolved from those of an imitative technology-user to those of a leading player at the international innovation frontier". Strategic intent was the key, together with the continuous evolution in the properties of Petrobras' knowledge networks to build greater complementarities with its partners (Dantas and Bell 2009).

What lessons does the analysis of Petrobras generate for policy makers and managers? The Petrobras experience confirms that the rise of emerging economies is leading to a transformation in global business (Goldstein 2007 and Guillén and García-Canal 2009). A new type of multinational enterprises is emerging in which foreign direct investment is driven not only by the exploitation of traditional firm-specific competencies (although, at least in the case of Petrobras, these are far from minor) but also by the exploration of new patterns of organizational innovation and ways of accessing markets. The latter include valuable capabilities developed in the home country, such as project-execution, and political and networking skills. In the case of Petrobras, the further accumulation of such resources depends on finding the right balance between corporate autonomy, state support, and contribution to national development. Especially in the new circumstances of the oil industry in Brazil and with the prospects of a huge bonanza, this calls for continued political dialogue on the complex issues raised by extractive industries and their contribution to socio-economic development objectives.



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NOTAS

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1. Contact author: Econpubblica, Università Bocconi; 49 avenue des Ternes ; 75017 Paris ; France.

2. "Shrinking giants," *The Economist*, 3 August 2009.

3. On the pros and cons of case study research, see Ghauri and Firth (2009).

4. These were Exxon, Gulf, Texaco, Mobil, Standard Oil Company of California, British Petroleum (BP), and Royal Dutch/Shell – the so-called seven sisters. France's Compagnie Française des Pétroles (later Total) was "virtually the eighth member of the seven sisters" (Jones 2005, p. 68). The "Seven Sisters" collaborated closely to tie-up oil supplies: the Arabian American Oil Company (Aramco) was jointly owned by Exxon, Chevron, Texaco, and Mobil; the Iranian Consortium involved all of them together with Total of France.

5. For example, Mexico's Pemex has no financial and economic autonomy; all its operations, including its budget, need congressional approval.

6. Two features are noteworthy here (Aykut and Goldstein 2007): oil FDI flows are not only North-South, but also, and increasingly South-South and South-North; and, far from maintaining an adversarial relationship, NOCs and IOCs sometimes form partnerships to gain access to reserves and production.

7. In the late 1980s, the discovery of enormous oil deposits in the Campos Basin, off the coast of Rio de Janeiro State, posed considerable physical challenges. The geology of the basin was not straightforward, and the water depths involved were far greater than those encountered in the other great offshore fields of the Gulf of Mexico, the North Sea and, more recently, the Gulf of Guinea. Thus, in 1986 Petrobras launched PROCAP (Programa Tecnológico Empresarial de Desenvolvimento em Exploração de Águas Ultraprofundas, or Deep Water Exploration Systems Program), that initially operated in the Marlin and Albacora fields, at 1,000 meters depth. Procap-2000 (1993) reached a depth of 1,867 meters in the Roncador field, while Procap-3000 aims at reaching 3,000 meters. Petrobras has other ad hoc programs such as the Programa Estratégico de Recuperação Avançada de Petróleo da Petrobras (Provap), the Programa de Desenvolvimento de Tecnologia Estratégicas de Refino (Proter), and the Programa Tecnológico para a Ampliação de Fronteiras Exploratórias (Profex).

8. On 31 August 2009 President Lula announced the proposed new oil E&P framework for the massive offshore pre-salt cluster, with Petrobras to be the sole operator of all blocks within this area that have not yet been awarded. In areas subject to public bids, Petrobras will have a minimum stake of 30 per cent with an additional right to participate in the bidding to increase its share. Under the new production sharing system, all oil output will belong to the federal government and participating companies will receive a share of the revenues.

9. In August 1972, Braspetro signed a 24-year "risk E&P and service contract" with INOC, including a 7-year exploration and appraisal period. The super giant Majnoon oil field with proven oil reserves of around 12 billion barrels was discovered in 1975.

10. Two Rio de Janeiro institutions appear particularly important in the education of the seven top managers, with UFRJ and FGV having four and three alumni respectively (in fact, the only woman, Maria das Graças Foster, Gas and Energy Director, has a first degree in nuclear engineering from UFRJ and a MBA from FGV).

