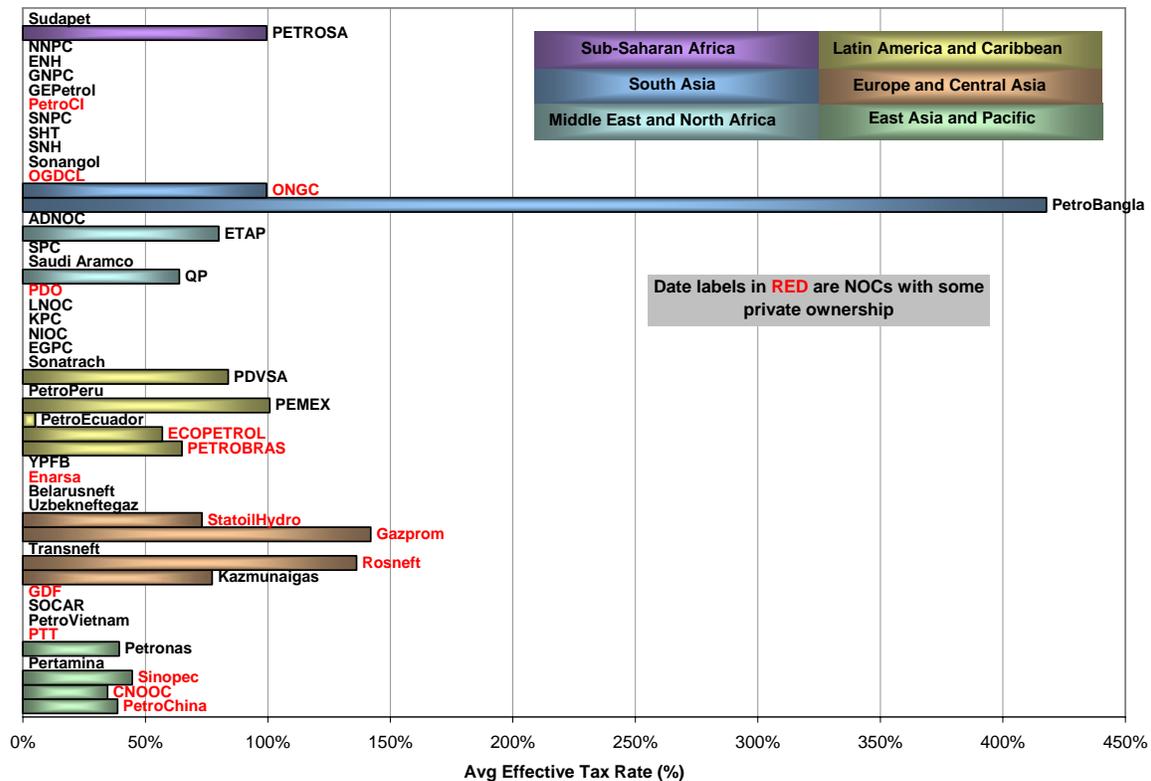
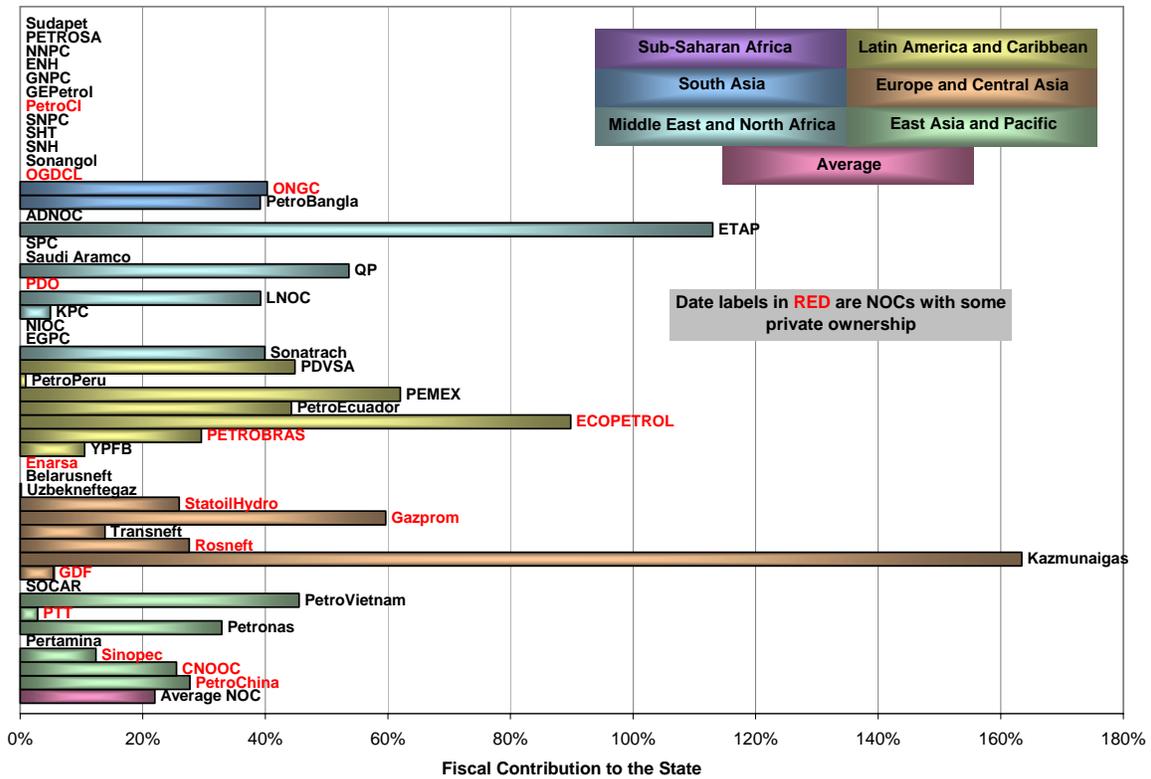


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**CEE's Research on National Oil Companies (NOCs)  
By Michelle Michot Foss & Miranda Ferrell Wainberg**

In 2007, CEE released a working paper titled *Commercial Frameworks for National Oil Companies* (see CEE WEB LINK to download paper) authored by Ms. Wainberg, Dr. Michot Foss and Mr. Dmitry Volkov. That paper encompassed initial thinking and logic for evaluating operating and financial performance of national oil companies (NOCs), given their prominence in global oil and gas supply and their unique positions in global oil and gas industry organization. In 2008, CEE initiated cooperation with the World Bank on a longer term study effort. The first releases from the World Bank program are now available. The CEE two-part report, *A Citizen's Guide to National Oil Companies*, was compiled by the entire CEE research team with input from many CEE advisors and colleagues in our global networks. Leading the effort was Ms. Silvana Tordo, lead energy economist, Oil, Gas & Mining Division; associates in the Division provided critical peer review. Our reports are part of a larger effort within the Bank to improve understanding of these organizations and the role they play within its country's economic development trajectory. NOCs control a majority of worldwide petroleum reserves, produce a majority of the world's crude oil and own much of the world's oil and gas infrastructure. Consequently, the way they are managed can have a large impact on the global energy supply. At the domestic level, critics have complained that developing countries with NOCs often miss out on their potential to strengthen economies and improve the quality of human life. The Study on NOCs and Value Creation, launched by the World Bank in 2008, will analyze the factors that explain the creation of value, and test their relative importance on the basis of the experience of a selected group of NOCs. The objective of the Study, which is expected to be completed in 2010, is to improve the awareness of the relative effectiveness and suitability of alternative policies for the management and oversight of the petroleum sector, with particular reference to role and functioning of NOCs. Information on the CEE reports can be obtained at <http://www.beg.utexas.edu/energyecon/nocs/>. The World Bank link, <http://web.worldbank.org/noc>, provides background information on the Bank's effort, the CEE reports and other information.

Reporting, and quality of reporting, are both constrained and many issues exist with how performance by NOCs should be evaluated in independent analysis. However, NOCs face particular challenges, even those companies that might be considered "hybrids" (i.e., some equity traded in private markets). NOCs have varying degrees of independence with respect to budget and investment decision making; they give up considerable revenue, providing very large fiscal contributions to their home governments under a wide assortment of arrangements (see charts below, total fiscal contributions to the state – all sources of revenue supplied by NOCs – and average effective tax rates). The obligations to home governments often leave limited funding for re-investment in or enhancement of core businesses. In many cases, results are low or negative reserve replacement rates and production declines.



Although some NOCs and their governments are aggressively seeking participation in partnerships/joint ventures within and outside their countries, investment and decision-making constraints at times hinder their ability to meet required capital contributions to these partnerships/joint ventures.

With some exceptions, mainly the “hybrids” and a few others (Aramco, Petronas, Qatar), NOCs are more focused on exploitation than exploration. The public interest consequences of placing sovereign funds at dry hole risk are considerable. This focus on exploitation leaves NOCs short on technology and the project management skills necessary to grow reserves and production.

For a variety of reasons, including inadequate or maturing resource endowments in their home countries and in some instances reliance on hydrocarbon imports, several NOCs have engaged in foreign direct investment (FDI), participating in upstream transactions in a variety of countries and regions. NOCs engaged in outbound investment face the same risks and uncertainties as international oil companies (IOCs). To date, most NOC’s international upstream cost structures exceed (greatly exceed, in some cases) those of their comparable domestic operations. This suggests that international upstream fiscal terms that are unattractive for IOCs are also unattractive for NOCs. Further, if upstream fiscal terms in the home countries of NOCs are unattractive for IOCs, they will also be unattractive for the NOCs as well without preferential treatment.

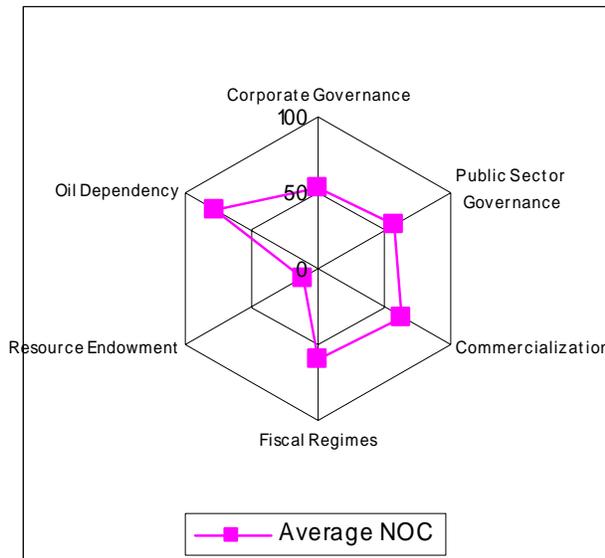
To evaluate the NOCs in our sample, we established a scoring approach that ranked NOCs on the basis of six criteria.

- **Corporate Governance (CG)** – relevant objectives, autonomy; independent board of directors; clear human resource policies based on merit; independent budget, auditing of results; financial oversight and corporate planning; ability to fund investments from cash flow.
- **Public Sector Governance (PSG)** – relevant policy and clear roles; relevant objectives; independent functions (NOC, ministry, regulator); requirements for non-commercial activity reporting and measurement; clear information on fiscal regime; independent hydrocarbon regulator.
- **Commercialization (C)** – domestic and/or international partnerships; profit centers with financial reporting.
- **Fiscal Regimes (FR)** – availability of external financing; investment by non-NOCs; adequate cash flow retention for investment.
- **Resource Endowment (RE)** – based on reserves (oil and/or natural gas).
- **Oil Dependency (OD)** – oil and/or natural gas export revenues relative to GDP (includes the absolute value of oil payments by net importing countries).

We also considered two measures that reflect the non-commercial burdens generally placed on NOCs and degree of international trade and openness for the home country.

- **Local Contribution (LC)** – reporting on non-commercial activities as indicated by the measure, *fiscal contribution to the state budget*.
- **Sector and Trade Openness (STO)** – WTO membership (positive), OPEC membership (negative); level of privatization (shares held by investors other than the state); presence of competition in the hydrocarbon sector.

The chart below shows how the average NOC scored for the six critical measures used by our research team. While many NOCs are characterized by very large resource endowments, many NOCs are based in countries that are relatively resource poor.



A key finding from our preliminary analysis for the World Bank is that there is no substitute for good governance, at both the public sector level (for oversight and regulation of hydrocarbon operations) and the corporate level.

Our testing of the 49 NOCs included in this first survey indicates generally positive relationships between NOCs/countries with high scores on commercial frameworks measures (corporate and public sector governance, extent of NOC commercialization, presence of competition, quality of fiscal regimes for hydrocarbons, trade and sector openness and the measures that reflect relative hydrocarbon

sector dominance among countries – resource endowment, oil dependency and non-commercial obligations for NOCs measured by fiscal contribution to the State) and NOCs with high scores on the value creation metrics (operating and profit margins, return on assets and return on capital employed). Additional testing with 21 “best reporting” NOCs produces even stronger results when value creation is matched against the average of all commercial frameworks scores (see first chart below). Further, for this smaller group a strong inverse relationship exists between fiscal contribution to the state and the average commercial frameworks scores; NOCs that contribute less revenue to the government in the form of taxes, royalties, dividends, price subsidies and direct social and economic expenditures have higher scores on the commercial frameworks measures (see second chart below). Finally, when the largest component of fiscal contribution to the state – effective tax rates – is mapped against the value creation indicator for our smaller group of NOCs, a very strong negative relationship is indicated. This captures the difficulty that NOCs with strong fiscal obligations to their home governments face when it comes to sustaining critical re-investment in their core businesses and achieving higher performance in value creation metrics (see third chart below).

Our research indicates a meaningful link between high scores on domestic commercial frameworks and value creation by NOCs. Good commercial frameworks (particularly corporate governance, fiscal regimes and commercialization) allow NOCs to fulfill their stewardship obligations, add value, optimize capital and manage costs. Transparency is critical at both the public and corporate levels.

How these issues shape the future and contribute to hydrocarbon supply risk and uncertainty is of great interest. Inadequate commercial frameworks for oil and gas investment affect NOCs as well as international investors and suppliers. The economic and geopolitical consequences are substantial.

How can (and should) commercial frameworks and NOCs evolve to meet the future hydrocarbon supply challenges, especially given pressures in global commodity markets? What are the right strategies and approaches? How should success be measured? What

adjustments do sovereign governments need to make in order to optimize the contributions from their hydrocarbon sectors? These critical questions are on deck for the CEE research team and our collaborators as our work progresses.

