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The Changing Role of National Oil Companies in International Energy Markets

Introduction and Summary Conclusions

Amy Myers Jaffe

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James A. Baker III Institute for Public Policy
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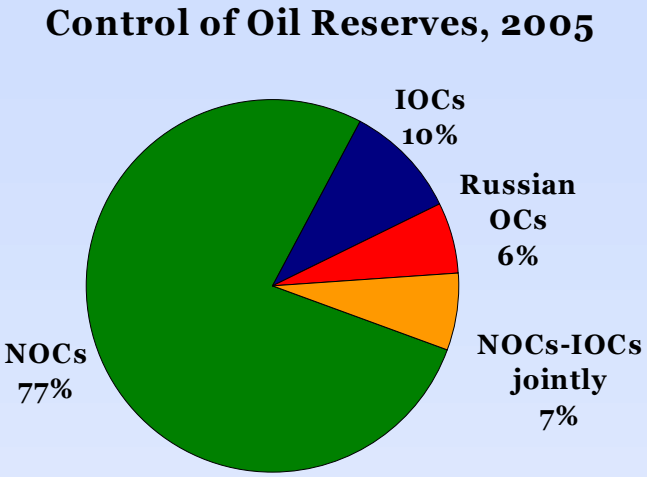
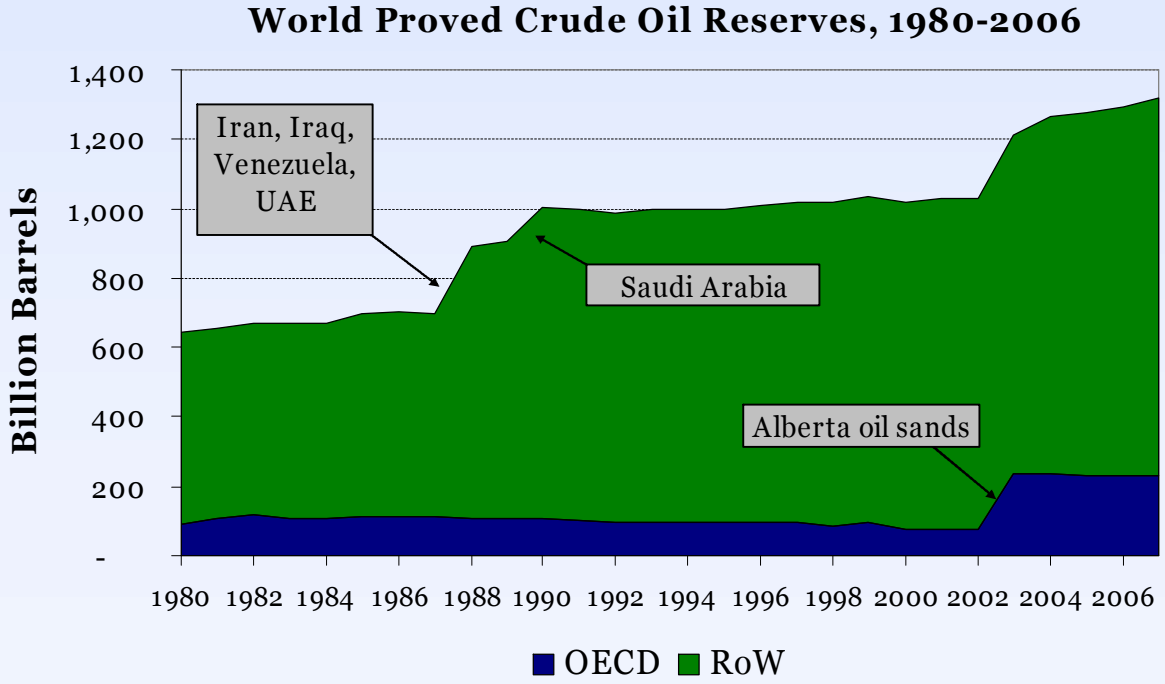
Control of World Oil Reserves

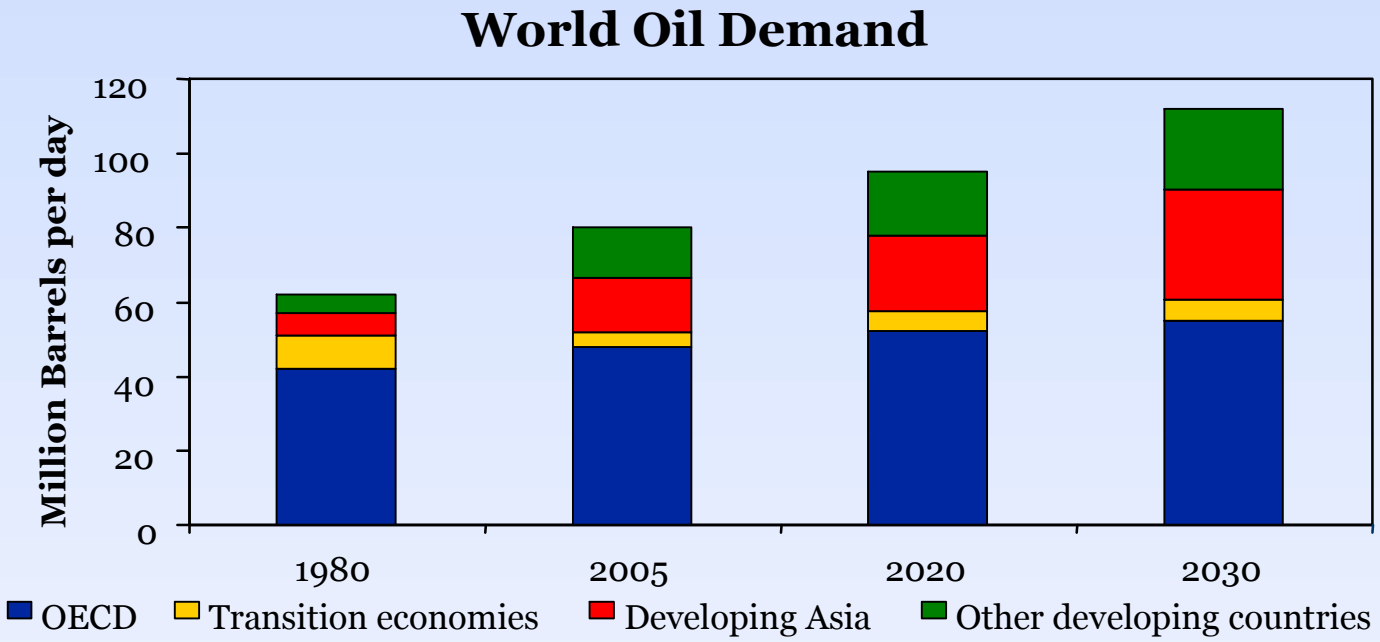


Majority of remaining oil resources are controlled by traditional state monopolies and emerging partially privatized firms.



Meeting Growth of Global Oil Demand

- IEA projects that $2.2 trillion in new investments is needed in the next 30 years to meet rising world oil demand.



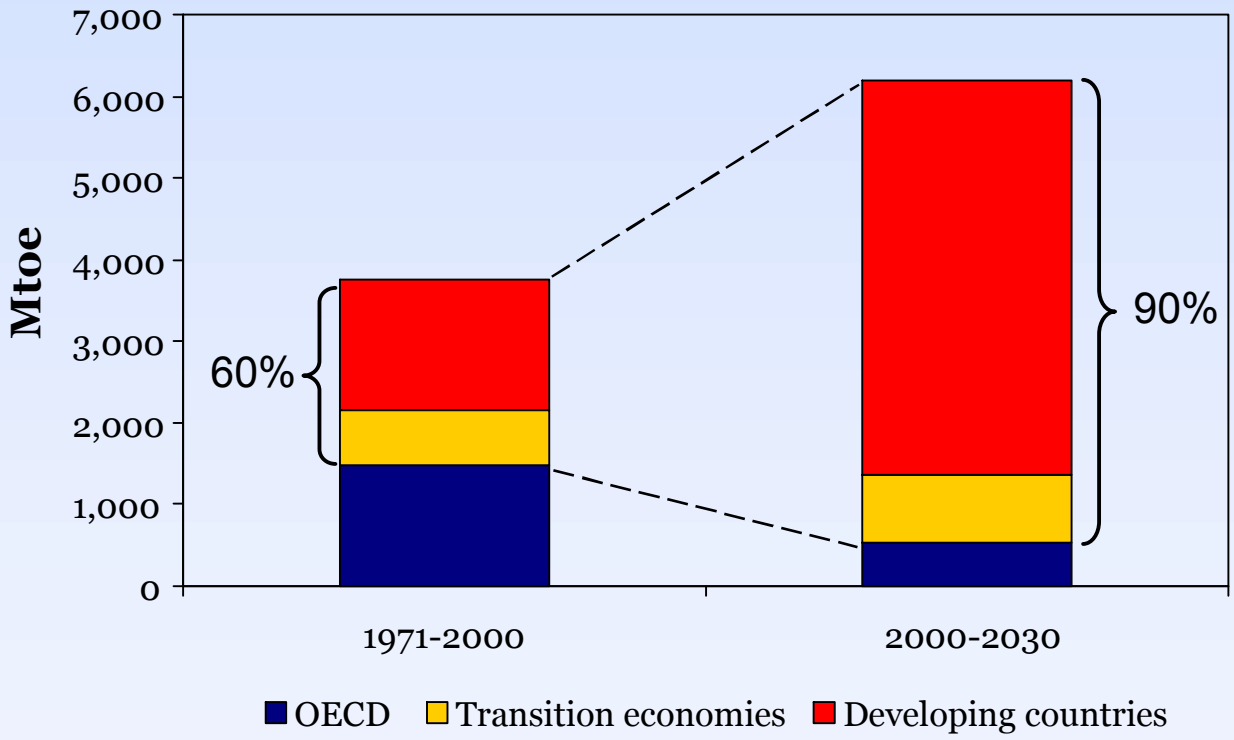
Source: International Energy Agency, *World Energy Outlook 2007*

Can timely development of the vast resources under the control of NOCs take place given constraints imposed by geopolitical and domestic political influences?

NOCs Gaining Increasing Control of Future Energy Production

- The IEA projects that the OECD will supply just 10% of the increase in world primary energy supply in the next 3 decades, as compared to 40% over the last 3 decades.

Increase in World Primary Energy Production



Source: International Energy Agency, *World Energy Outlook 2002*

90% of new primary energy production is projected to come from transitioning and developing economies, up from 60% in previous 3 decades.

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The Changing Role of NOCs in International Energy Markets

The challenge to meet rising global oil demand in the face of other pressing domestic priorities is prompting many NOCs to reevaluate and adjust business strategies.

Their choices will have significant consequences for the international oil and gas market.

- *The Changing Role of National Oil Companies in International Energy Markets* is aimed at providing an effective framework to analyze the strategy, objectives and performance of NOCs.
- The study consists of:
  - 13 case studies examining the history and formation of 15 state-owned oil companies,
  - An economic model of the operation and development of a national oil company,
  - An empirical study of the consequences of noncommercial objectives on operational efficiency,
  - A study of the impact of NOC operations abroad on the societies where they work, and
  - A study of international oil field investment.

Case Study Selection

- Asset base, mission, and strategies are analyzed to understand the impact of the NOC on international oil supply, pricing, and geopolitics.
- The case studies were selected based on:
  - 4 major categories of historical origin: pre-1960s, 1960s to early 1970s, 1980s, and 1990s to present,
  - Organizational structure: state monopolies, partially privatized NOCs, and fully privatized NOCs,
  - Size and importance of reserves and production,
  - Geographical location and flexibility in the direction of oil sales,
  - Degree of autonomy from national government, and
  - Its potential as a business model for other national oil strategies.

CNOOC, China*	PDVSA, Venezuela
CNPC, China	Pertamina, Indonesia
Iraq Oil Ministry	Petronas, Malaysia
Kazmuniagaz, Kazakhstan	Rosneft, Russia
LUKOIL, Russia**	Saudi Aramco, Saudi Arabia
NIOC, Iran	Sinopec, China*
NNPC, Nigeria	Statoil, Norway*
ONGC, India*	

Note: * denotes partially privatized. **LUKOIL is fully privatized.

Summary of Key Findings and Conclusions: NOC Objectives

- NOCs have important national goals that go beyond the maximization of return on capital to shareholders.
- These include:
  - Oil wealth redistribution to society at large,
  - Wealth creation for the nation,
  - Industrialization and economic development,
  - Energy security, including assurance of domestic fuel supply and security of demand for producing nations,
  - Foreign and strategic policy and alliance building, and
  - Participation in national level politics.

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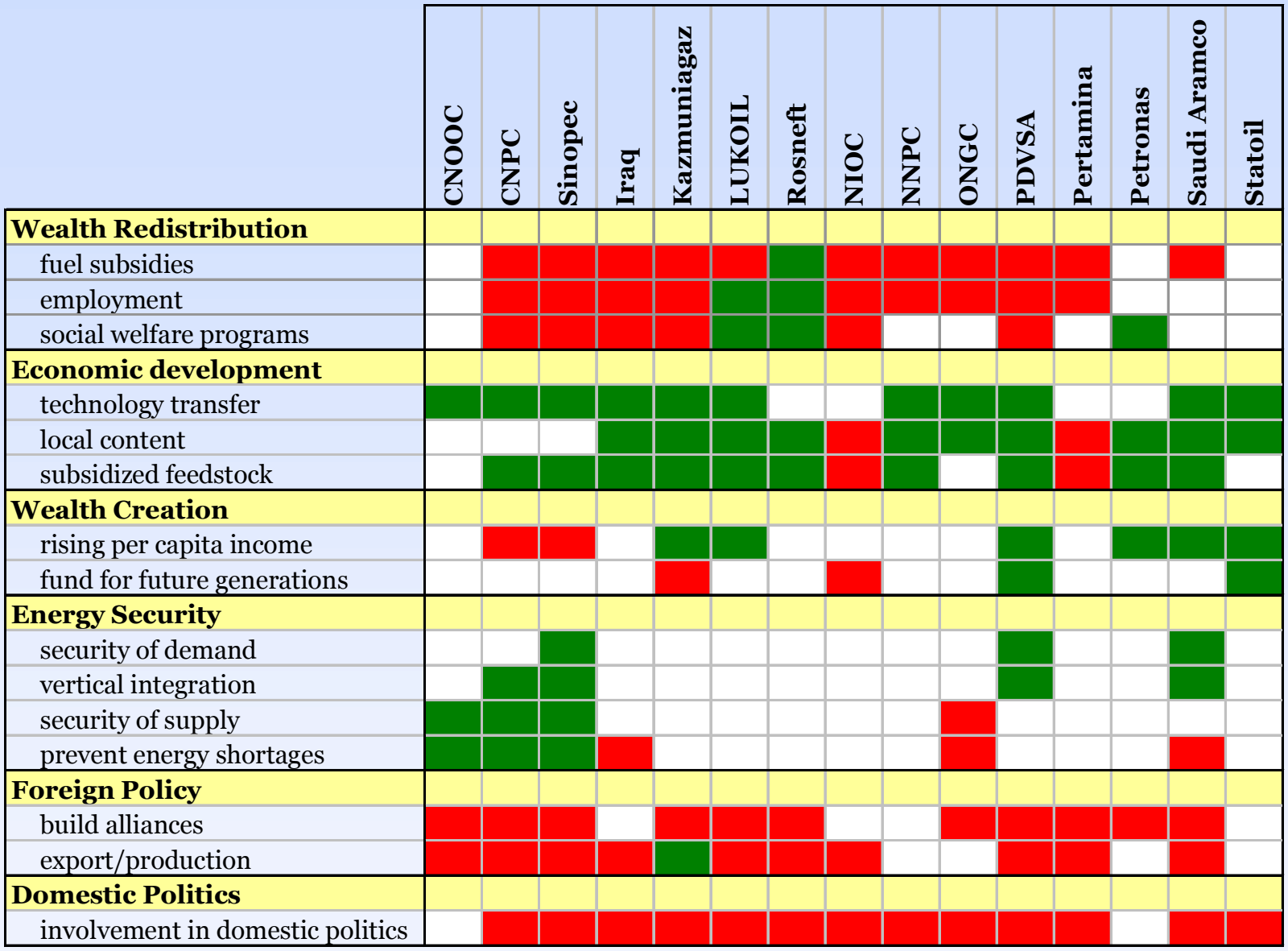
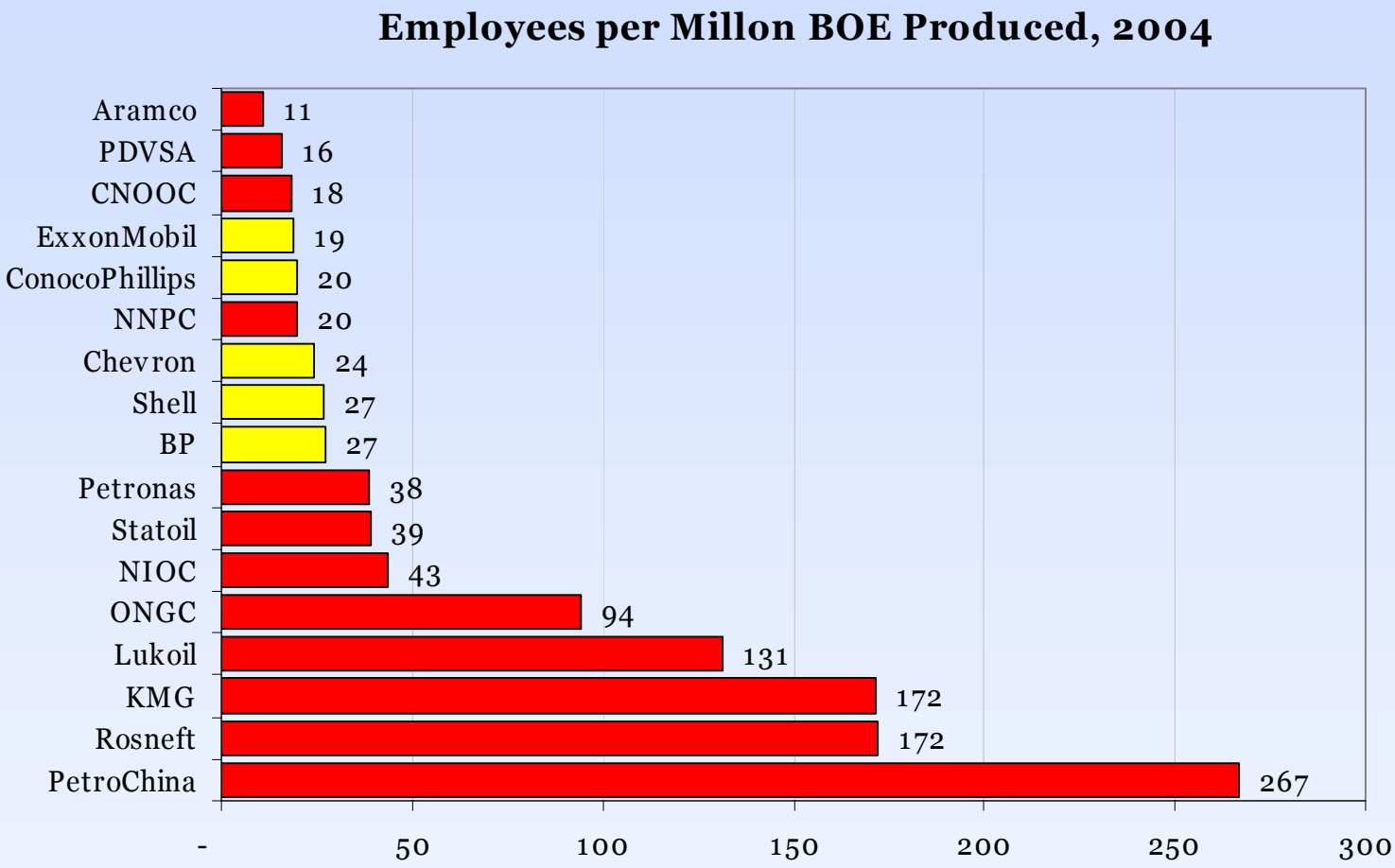
Summary of Key Findings and Conclusions: NOC Objectives

- NOC's national priorities sometimes interfere with the firm's ability to:
  - Maximize the value of oil resources,
  - Replace reserves
  - Expand production, and
  - Perform in a technically efficient manner.

NOCs and Socio-economic Policy Objectives



Relative Employment Practices



On average, NOC employment is high relative to total production.

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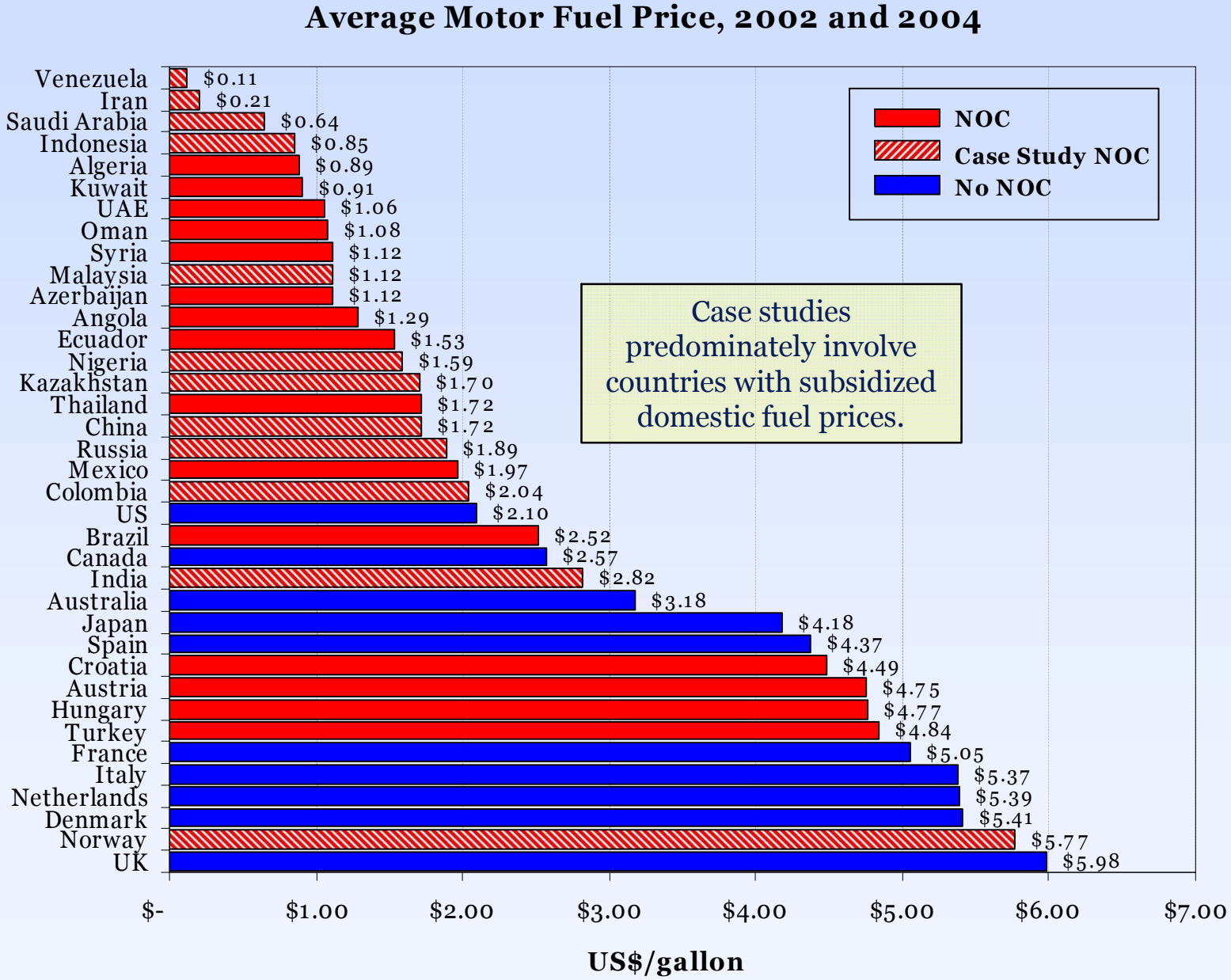
Subsidized Domestic Prices



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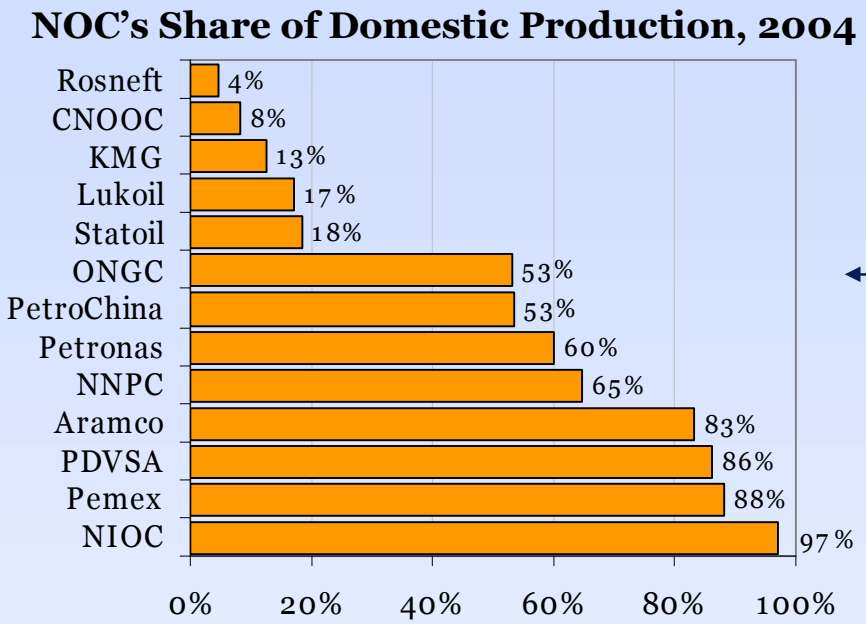
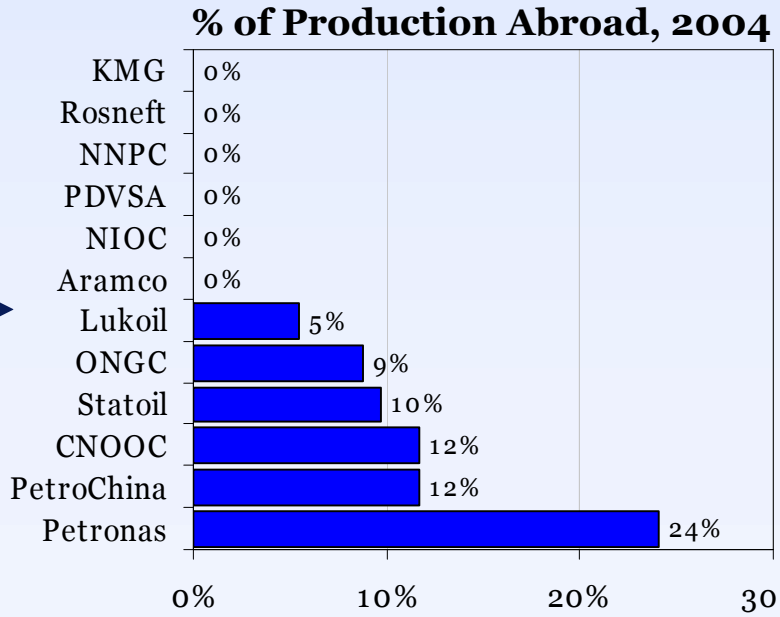
Exposure to Competitive Environments

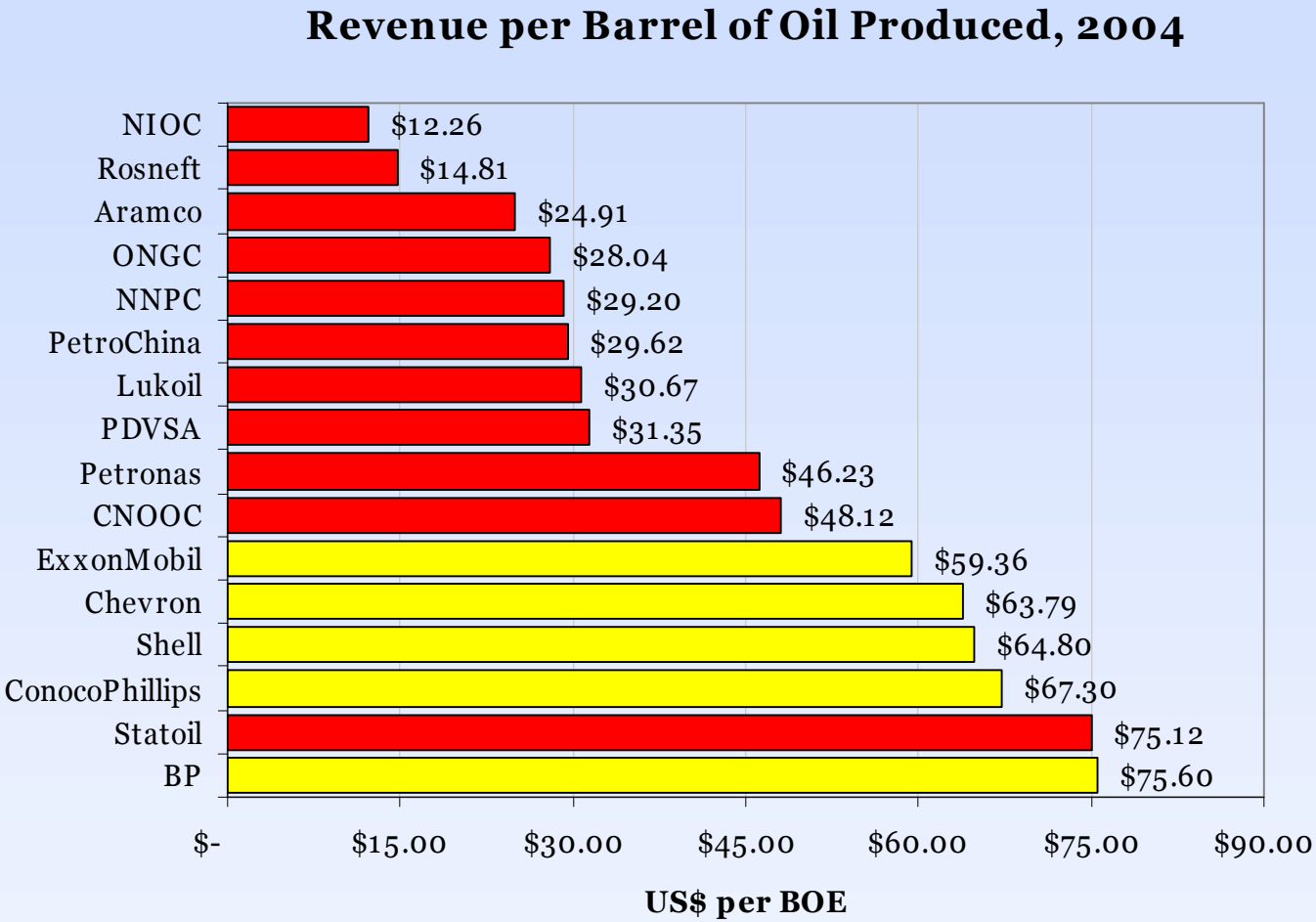


If a NOC must compete in the domestic market, it is encouraged in improve efficiency.

Competition in international markets encourages capital discipline, thus increasing efficiency.



Earnings per Barrel



The level of vertical integration and extent of fuel subsidies affects the ability to generate revenue.

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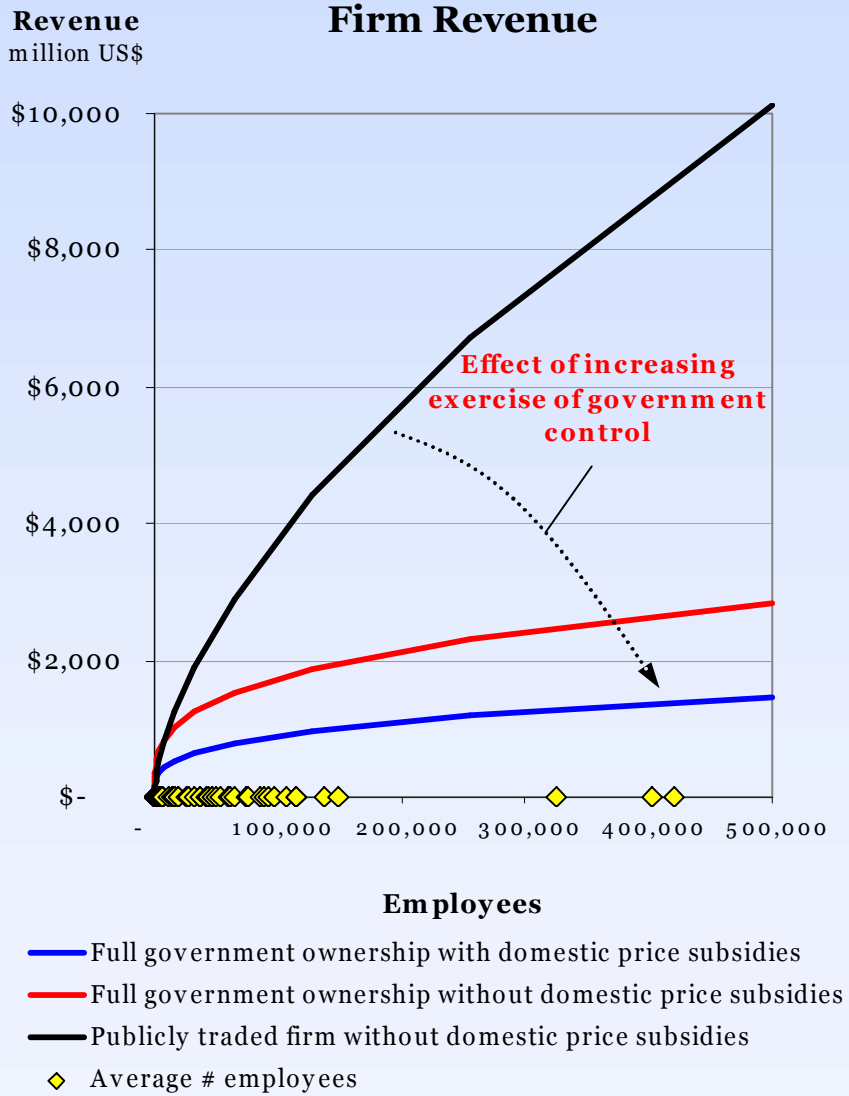
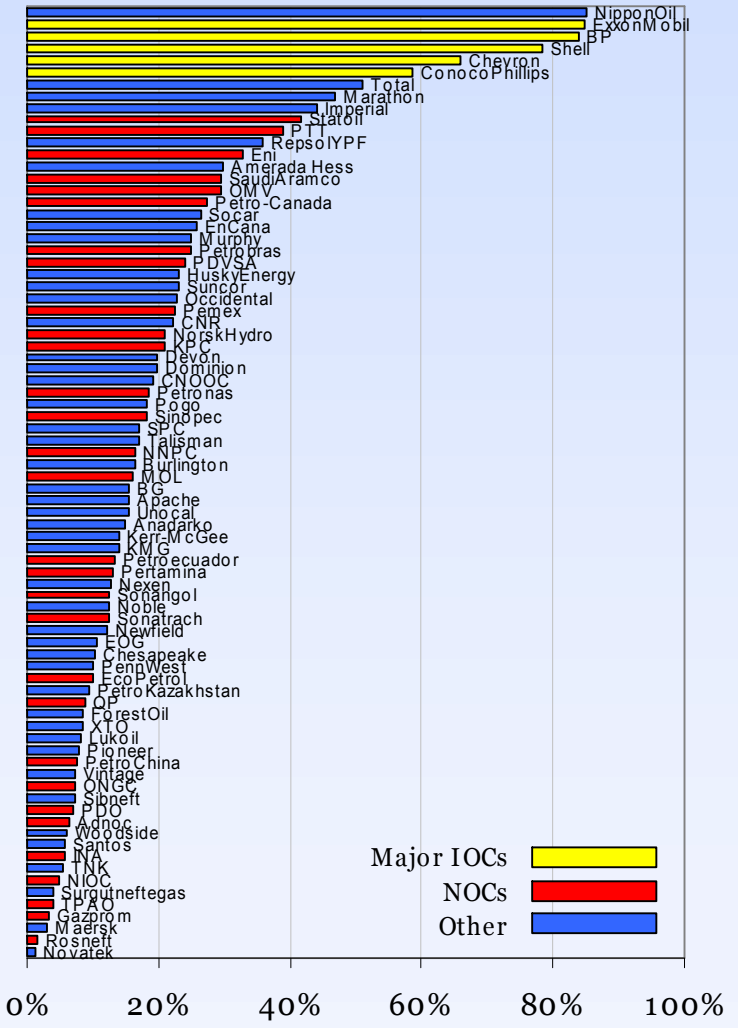
NOC Objectives and Relative Firm Efficiency

Government Ownership and Firm Revenue



Source: Figure 6 in Eller, Hartley and Medlock (2007)

Estimated Technical Efficiency, 2002-2004



Source: Figure 10 in Eller, Hartley and Medlock (2007)

Efficiency of NOCs Will Influence Future Availability of Oil and Future Pricing Trends

On average, NOCs that are fully government-owned and sell petroleum products at subsidized prices , will be only 35 percent as technically efficient as a comparable firm which is privately held and has no obligation to sell refined products at discounted prices. Most of the NOCs in OPEC countries offer subsidized fuel prices. While individual firms may vary in efficiency, on average government held firms in general exhibit only 60 to 65 percent of the efficiency as the privately-held international oil majors.

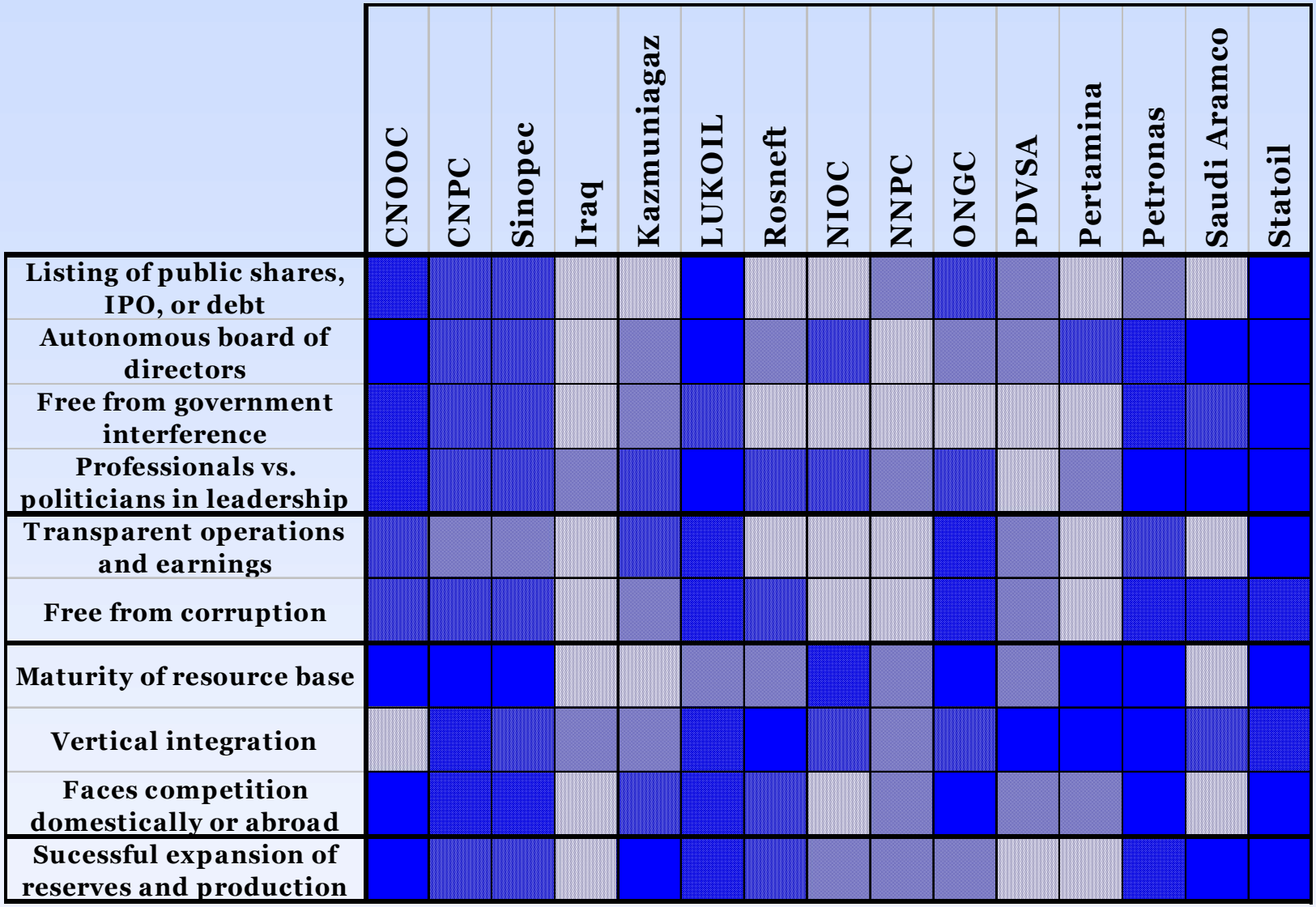
This means NOCs might have more difficulty replacing reserves and expanding oil production than the IOCs who were responsible for 40% of the increase in worldwide oil production capacity in the past thirty years.

Summary of Key Findings and Conclusions: Factors that Influence NOC Performance

- An new trend among NOCs is to balance the needs of social welfare and revenue maximization by adopting some institutional elements of private sector firms to enhance the NOC's performance
  - Certain institutional structures promote the achievement of higher value and wealth creation from the existing resource base.
  - These institutional structures include:
    - Competition in the home industry
    - Competition in international exploration and refining
    - Strict monitoring of accounting and financial reporting practices
    - Offering publicly traded shares, IPO shares or commercial bonds in major international markets
    - Autonomous board of directors and professional management
  - These optimal institutional structures encourage NOC managers to
    - Minimize the commercial impact of pursuit of non-commercial social welfare/economic development objectives,
    - Focus on core business activities, and
    - Reduce corruption and wasteful spending.
- The case studies show an increasing number of NOCs are accessing international capital markets.
  - This improves NOC compliance with international standards of corporate responsibility.
  - It also encourages the NOC to abide by international institutional structures and accounting standards.
- The strategy of vertical integration has multiple benefits for a NOC.
  - By entering into the downstream market, a NOC is able to capture the value added from production and sale of finished products.
  - It enhances security of demand by providing market access, especially if it is able to invest in downstream assets in key consuming regions.
  - It helps NOC diversify and mitigate risk.

Upstream/downstream asset swaps are a promising avenue for IOC/NOC partnering and collaboration.

Structural Factors Improving NOC Performance



Summary of Key Findings and Conclusions: Policy Implications

- The growing role of the NOCs in global oil markets has important policy implications for oil importing nations.
  - If larger share of global oil investment in oil production capability could be impeded by NOCs' noncommercial socio-economic priorities, then importing nations need to adjust their national energy strategies to reduce vulnerability to changes or instability in NOC reinvestment.
  - Consuming nations also will have to debate the benefits and challenges of having NOCs seek security of demand and other benefits of vertical integration by positioning themselves in downstream markets through purchase of assets in major consuming markets.
- For consuming nations, a desirable policy will be to promote free trade and utilize multilateral frameworks to press NOCs to adopt institutional structures to:
  - Enhance their efficiency,
  - Promote market competition, and
  - Curb interference in commercial investment decisions by their national government.
  - Lesson of Statoil and the European Economic Area (EEA)

Does the United States Need a National Oil Company?

It does not make sense to create an American national oil company to compete globally with the rising NOCs of Russia, China and India.

- Private U.S. firms are more efficient and productive organizations in terms of investment in new oil resources.
- History is replete with examples where during a period of government-to government conflict, government owned firms lost their investment positions but privately-held firms didn't.
- There are many examples where NOC-to-NOC deals have resulted in disappointing outcomes (China-Iran, China-Saudi Arabia, etc).
- U.S. oil companies have in history collaborated well with U.S. government when foreign policy interests coincide with commercial opportunities (Baku-Ceyhan; Middle East peace pipe, etc…)
- NOC-to-NOC alliance threats to global market supply seem realistic only in the most extreme scenarios and are even more unlikely to be solved by the creation of an American NOC

The U.S. government can best provide support for oil investment activities in areas it has experience

*promotion of multilateral and bilateral treaties and trade agreements

*foreign aid

*promotion of transparency best practices