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Assessing ESG Risks in National Oil Companies: Transcending ESG Ratings with a Better Understanding of Governance

By Dr. Luisa Palacios, with Catarina Vidotto Caricati
May 2023

REPORT

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In March 2021, she completed a two-year period in the Board of Directors of Houston-based Citgo Petroleum Corporation, the 5th-largest independent U.S. refiner during most of which she served as Chairwoman. She and her board colleagues led the company during a critical period in its history, as it faced significant geopolitical, financial, operational, and legal challenges. As Citgo's first-ever chairwoman, Palacios also shaped efforts to strengthen corporate governance, ethics, and social responsibility, including the publication of the company's first-ever ESG report.

Before her time at Citgo, Palacios was a Senior Managing Director and member of the management committee of Medley Global Advisors, a macro policy research firm. She headed Medley's Latin America's economic and energy practice and later the firm's emerging market research efforts. She previously worked at Barclays Capital as a Director in the emerging markets research department in New York, and as an economist in the risk department at Société Générale in Paris. She also worked as a senior economist at the Japan Bank for International Cooperation and was a consultant in the Office of the Chief Economist for Latin America at the World Bank in Washington, D.C.

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Executive Summary

National oil companies (NOCs) produce about half of the world's oil, hold more than half of its refining capacity, and own the bulk of oil and gas reserves. Most of these companies come from emerging markets and depend heavily on international capital to finance their operations. As financial institutions consider more carefully environmental, social, and governance (ESG) risks in their investment decisions, an accurate assessment of the ESG performance of NOCs will be vital. Assessment of ESG risks in NOCs is currently hobbled by both the considerable divergence in ESG ratings for any given company and the complex nature of NOCs' state ownership structure, which isn't always readily encapsulated in ESG scores. A clearer picture of these companies' ESG performance could be useful to investors.

This paper, part of the Financing the Energy Transition initiative at the Center on Global Energy Policy at Columbia University SIPA, aims to provide a better understanding of what impacts the ESG performance of NOCs in emerging markets. The authors survey ESG ratings of the largest national oil and gas companies in emerging markets for which such ratings are available, alongside the scores of some of the largest integrated oil and gas companies from advanced countries. The authors find a significant divergence in ESG scores for each single company, which raises questions about their individual stand-alone value in assessing the relative ESG performance of companies in the integrated oil and gas space.

An analysis of average NOC ESG ratings—imperfect as they are—against those of international oil companies (IOCs), however, indicates much lower performance of NOCs on governance specifically (i.e., the G in ESG). Ownership by a state creates unique governance challenges—which, in turn, affect environmental and even social efforts—and deserves further exploration to determine which factors within state-owned companies can improve or impair ESG performance, to facilitate a more reliable understanding of NOCs' ESG risks.

Additional takeaways from the report include the following:

- NOCs require continued access to global financial markets to refinance, repay, or contract new debt and finance their operations. NOCs' management of ESG factors and performance on ESG metrics, which the authors categorize as ESG risks, could become increasingly relevant to the creditworthiness of NOCs and their shareholder governments as financial institutions pay closer attention to their own ESG commitments, including their net-zero pledges.
- This matters to emerging markets bond investors, given that bonds of governments from oil-



exporting countries and their NOCs represent a large share of the bonds outstanding from emerging markets.

- Using only standard ESG metrics of rating agencies to measure ESG risks in NOCs appears insufficient, particularly on governance. Understanding the systems and processes that lead to governance improvements in NOCs through the particular lens of state ownership can strengthen overall assessment of ESG risks. Institution building within NOCs, as well as external and internal controls, for example, can reinforce ESG progress and discourage reversals, and are reflected in numerous factors, including: transparency, often linked to a company being listed on a stock market; the selection process of boards and a company's independence from its shareholder government; and the presence of competition in domestic markets and of independent energy regulators.
- Even for investors focused on environmental concerns, or the E in ESG, the governance function of NOCs matters greatly. One of the most problematic governance risks in NOCs is corruption. Among violations processed under the US Foreign Corrupt Practices Act, the oil and gas sector ranks first in the number of cases brought since its inception, with the average penalty for such violations reaching \$450 million in 2020. This risk relates to the E in that, for corruption to flourish, it needs to weaken the very system of internal controls that leads to effective management of operational and environmental risks.
- ESG progress in NOCs is not linear and can be subject to reversals. Economic and political crises, changes in governments, and geopolitical events (e.g., Russia's invasion of Ukraine and subsequent sanctions) are some factors that can lead to ESG regression in NOCs. Both sound internal governance and external systems of checks and balances are key to buffering negative pressures to backslide on ESG performance.

Introduction: Why Study ESG in NOCs?

Pressures toward sound environmental, social, and governance (ESG) standards from the international financial system are having an impact on national oil companies (NOCs), which are starting to disclose their ESG credentials and submit ESG and sustainability reports as a result. Investors need to be able to evaluate NOCs' ESG performance and progress, but are the metrics used in ESG ratings that evaluate listed companies from the developed world also applicable to companies owned by governments from emerging markets? And how does the particular governance structure of these national oil companies impact their ESG performance?

NOCs provide a large portion of the oil, gas, and refined products that fuel today's global economy.¹ While this growing dominance will play a critical role in the world's ability to meet climate goals, investors also need to consider how NOCs' ESG performance could become a credit risk. The authors will examine this tie before evaluating ESG ratings themselves, and will then offer a more nuanced way in which governance—under the unique structure of state ownership—may be factored into ESG investment decisions.

ESG Risks Could Start to Limit NOCs' Access to Finance

NOCs require continued access to global financial markets to refinance, repay, or contract new debt and finance their operations. Therefore, access to finance is a key consideration not only for the long-term creditworthiness of NOCs but potentially also for the financial stability of their shareholder governments. In other words, NOCs' management of ESG factors and their performance on ESG metrics, which the authors will categorize as ESG risks, could become increasingly relevant for the future creditworthiness of these NOCs and their shareholder governments.

With oil prices averaging almost \$70 and \$100 per barrel in 2021 and 2022,² respectively, access to finance does not seem problematic for NOCs. The surge in oil prices since 2021 has allowed the cash position of most NOCs to significantly improve. But better liquidity positions or higher profits today do not mean that NOCs will not face difficulties accessing the global financial system in the future. There are at least three ways in which NOCs' access to finance could potentially become more challenging because of inadequate responses to ESG risks, particularly on the environmental front.

First, access to commercial banking activities could become more restricted.³ Net-zero commitments by banks entail efforts to decarbonize their lending and investment activities⁴—so-



called financed emissions⁵—which implies consideration of their clients’ scope 1, scope 2, and even (whenever possible) scope 3 emissions.⁶ As part of these commitments, banks have developed investment and lending guidelines and climate-related sectoral policies specifically for their financing of fossil fuel companies and those in other high-emitting sectors (see Appendix, Table A-1 for major banks’ net-zero pledges of financed emissions in the oil and gas sector).⁷ While there has been some backlash, particularly in the US, regarding banks’ net-zero pledges,⁸ such pledges suggest that access to financial services by fossil fuel companies could be increasingly scrutinized going forward if banks are to meet reduction targets related to financed emissions by 2030.

The second way in which NOCs could be impacted is through reduced opportunities for equity issuance. Listing minority shares on stock markets has been an effective way for governments in emerging markets to monetize oil and gas reserves and/or to capitalize their NOCs given the very high capital expenditures required in the oil and gas industry.⁹ In addition, listing NOCs has had clear financial and governance benefits, a point that will be addressed later.¹⁰ But given climate considerations by asset owners and asset managers, this option could be less available in the future (see Appendix, Table A-2 for a description of selected asset managers’ targets for their oil and gas sector holdings).

The third and probably most problematic channel for NOCs is access to bond markets. NOCs issue debt to finance oil and gas operations or to refinance existing debt. According to Bloomberg data, the face value of foreign bonds from NOCs was almost \$550 billion as of March 2023.¹¹ About 40 percent of NOCs’ outstanding bond debt, as tracked by Bloomberg, matures in 2030 or beyond. Failure of NOCs to address ESG risks could lead ESG-conscious investors to hold less bond debt from fossil fuel companies in general, which could impact NOCs’ ability to refinance or contract new debt in the future, or could increase their cost of financing.¹²

NOCs’ Access to Finance Could Impact Their Shareholder Governments

NOCs seldom go bankrupt. Instead, their losses and debt have generally been absorbed by the state. Not unique to NOCs, this practice extends to many state-owned enterprises (SOEs). As a consequence of the oil shocks of the 1970s and the liquidity crunch of the early 1980s, SOEs from around the world ran average losses of approximately 2 percent of GDP, reaching approximately 4 percent of GDP in developing countries—and eventually, these losses were absorbed by the state.¹³

This history of bailouts acts as a strong precedent in financial markets, with investors assuming that NOCs’ debt will ultimately end up on government balance sheets, even if there is not an explicit formal guarantee. The NOC of Mexico, Pemex, exemplifies this dynamic: transfers from the

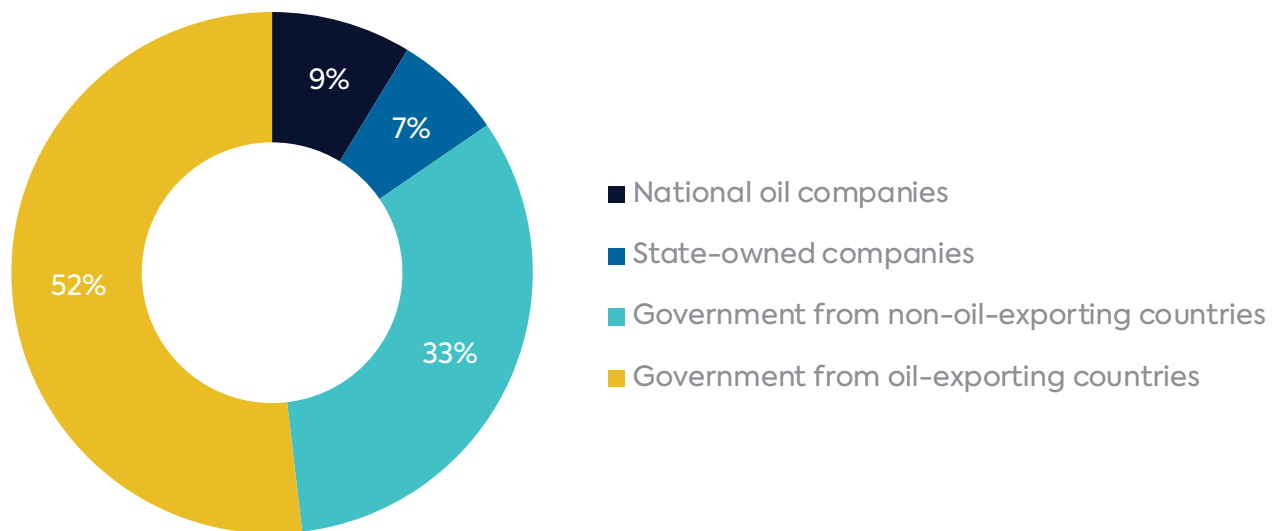


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Mexican government since 2020 have been instrumental in the company’s ability to meet its debt obligations.¹⁴ NOCs’ ESG risks, therefore, are not only relevant for the creditworthiness of NOCs themselves but also for emerging market governments and their creditors.

Foreign bonds from oil-exporting countries and NOCs in emerging markets can represent more than 50 percent of emerging market bond indices that investors track for investment portfolio allocations. For example, Figure 1 shows the composition of an exchange-traded fund benchmarked to one of JPMorgan’s widely used emerging market bond indices, the EMBI Global Diversified Index.¹⁵ An emerging market bond investor that benchmarked its portfolio to this index would have had almost 52 percent of its holdings composed of outstanding bonds of governments from oil-exporting countries and 9 percent from wholly owned NOCs.¹⁶

Figure 1: Composition of iShares JPMorgan USD Emerging Markets Bond Fund, as of December 2022



Note: “Oil-exporting country” is defined as a country where oil receipts represented more than 5 percent of total export receipts on average in the 2016–2020 period according to data from the UN Comtrade database. The iShares JPMorgan USD Emerging Markets Bond Fund is an exchange-traded fund (ETF) that tracks a customized variant of JPMorgan’s flagship EMBI Global Diversified.¹⁷ The composition of this index shows little change in investors’ exposure to oil-exporting countries and their NOCs after Russia’s invasion of Ukraine, when Russia was dropped from the index. Percentages may not total 100 due to rounding.

Source: Authors’ estimation based on Refinitiv data, accessed on February 8, 2023.



NOCs' ESG Ratings: Divergence of Scores Complicates Assessment

ESG funds reached almost \$2.5 trillion in assets under management in Q4 2022.¹⁸ Such interest by the financial sector in ESG investing, along with growing pressures from regulators,¹⁹ has resulted in the development of a whole industry around evaluating ESG performance. A proper framework to analyze companies' ESG performance, improvements in ESG over time, and benchmark to peers is key. However, ESG ratings are not yet fulfilling this potential.²⁰

Problems of divergence and inconsistency in ESG ratings have already been the subject of academic research.²¹ Some of this work has identified causes of divergence, including how data is measured and obtained, the type of metrics selected for each category, the sheer number of metrics per category, and the weight given to each component.²² Building upon this academic research, this paper will analyze ESG scores in the oil and gas industry to understand whether they have the same inconsistencies and divergence issues identified for the universe of companies for which ESG ratings exist, and assess whether ESG risks for NOCs in particular are being properly captured.

Methodology

This section looks at ESG ratings for integrated oil and gas companies, including companies that are present both in the extraction and production of oil and gas (upstream) and in refining (downstream), both from emerging markets and developed countries.²³ The authors examine both NOCs and international oil companies (IOCs) to understand whether state ownership matters for ESG performance.

The companies analyzed in this study include the following publicly listed companies from developed markets, which are among the largest integrated oil and gas companies from advanced economies with international operations: BP, Chevron, ConocoPhillips, Eni,²⁴ ExxonMobil, Repsol, Shell, and TotalEnergies; and Equinor, a publicly listed NOC from Norway. The authors also include integrated NOCs from emerging markets for which more than two ESG ratings are available—a very limited subset of the universe of NOCs (see Appendix, Table A-3 for a survey of the availability of ESG ratings for NOCs).²⁵ This list includes national oil companies from emerging markets, most of which have listed minority shares in stock markets: CNOOC Limited (China), Ecopetrol (Colombia), Gazprom (Russia), KazMunayGas (Kazakhstan), ONGC (India), Petrobras (Brazil), PetroChina



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(China), PTTEP (Thailand), Rosneft (Russia), Saudi Aramco (Saudi Arabia), Sinopec Corp. (China), and YPF (Argentina). It also includes Pemex (Mexico) and Pertamina (Indonesia), NOCs that remain 100 percent government-owned.

This analysis uses ESG scores from a variety of ESG rating agencies, including Arabesque, ISS, Moody's, MSCI, RobecoSAM Total Sustainability Ratings, S&P, and Sustainalytics. Not all of the ESG ratings presented in this analysis are publicly available.²⁶ ESG scores presented in this analysis are not a historical evaluation of these companies' ESG ratings; they were obtained between December 2021 and February 2022. Thus, the ESG scores were retrieved or obtained prior to Russia's war in Ukraine, which means this report considered the ESG scores of Russian NOCs prior to their ESG rating downgrade.²⁷ Given that these ratings use different scales, all of the scores were normalized to make them comparable.

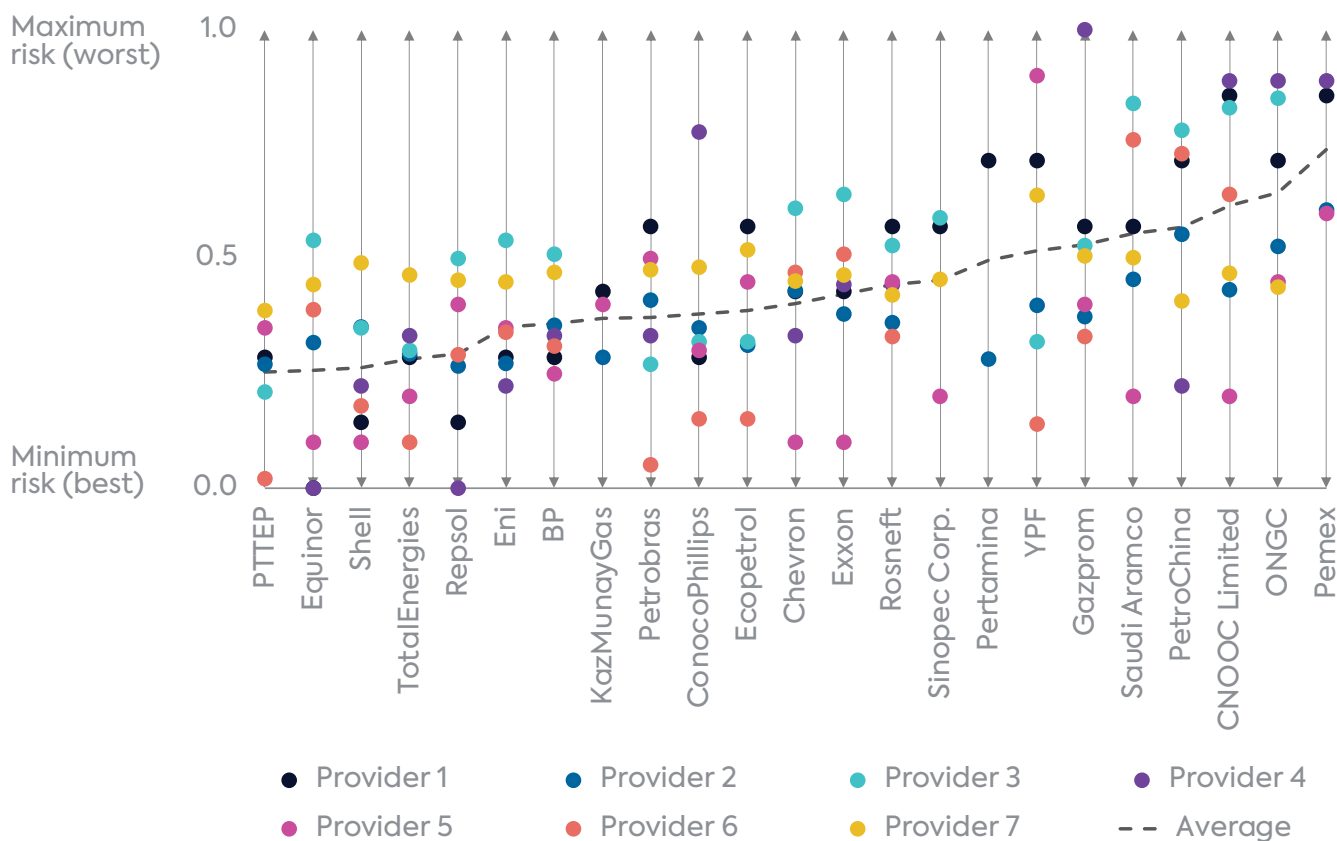
The companies analyzed in this paper represented about \$4 trillion in market capitalization and about 60 percent of the world's oil production in 2021, according to Bloomberg data.

Disparity of ESG Scores Within and Among Companies in the Integrated Oil and Gas Space

Figure 2 ranks the selected companies in the integrated oil and gas space from best to worst according to their average ESG rating to provide an organized picture of the relative ESG performance of these companies. But the figure also captures the significant divergence of ESG scores among the seven ESG rating providers for each individual company.



Figure 2: Ranking of ESG scores for selected NOCs and IOCs



Source: Authors’ estimates based on ESG ratings by Arabesque (ESG Book), Moody’s, MSCI, S&P, and Sustainalytics; ISS QualityScore and Robeco SAM Total Sustainability Ratings from Bloomberg LP ESG Go. Ratings effective as of February 2022.

The very low correlation between rating agencies’ assessment of these companies’ ESG performance, shown in Table 1, quantifies the extent of this divergence. Some ESG rating agencies even show a negative correlation in their ratings. This underscores the problem of relying on only one ESG scoring service to screen companies for ESG performance²⁸ and the difficulty in pinpointing the relative ESG rankings of these companies to each other or against a benchmark. Being able to consistently identify best-in-class in specific industries is key to understanding ESG progress—and reversals. Such inconsistencies in ESG ratings have caught the attention of regulators.²⁹

Table 1: ESG ratings correlations

	Arabesque	ISS	Moody's	MSCI	Robeco	S&P	Sustainalytics
Arabesque		0.36	0.55	0.24	-0.18	-0.23	0.01
ISS			0.40	0.71	0.08	0.30	0.51
Moody's				0.50	-0.46	-0.32	0.22
MSCI					0.37	0.45	0.65
Robeco						0.99	0.67
S&P							0.68
Sustainalytics							

Source: Authors' estimates based on ESG ratings by Arabesque (ESG Book), Moody's, MSCI, S&P, and Sustainalytics; ISS QualityScore and RobecoSAM Total Sustainability Ratings from Bloomberg LP ESG Go. Ratings effective as of February 2022.

Some reasons for this ESG rating divergence include:

- ESG rating agencies differ on the breadth of factors considered material for their ratings. For example, MSCI focuses on a limited number of factors to determine the E, S, and G scores of integrated oil and gas companies, whereas most other rating agencies consider a broader list of factors (see Table 2).³⁰
- ESG ratings provide different weight to the E, S, and G components within the oil and gas space. For example, Arabesque assigns a 26 percent weight to E, 27 percent to S, and 48 percent to G in its ESG score,³¹ whereas MSCI gives the highest weight to environmental factors (41 percent) and governance issues (33 percent).³² S&P is somewhat in the middle.³³ (See Table 2.)
- Differences in ratings can also be affected by how information is collected, whether it relies on companies' ESG reports and other publicly available information, whether a qualitative assessment is provided by the rating agency, or whether the agency uses additional sources of information, such as questionnaire responses from companies.³⁴



Table 2: Examples of E, S, and G variables used by selected agencies to compose ESG ratings for integrated oil and gas companies

	Arabesque	Moody's	MSCI	S&P	Sustainalytics
Environmental factors					
GHG emissions	X	X	X	X	X
Toxic emissions and waste	X	X	X	X	X
Energy efficiency	X			X	X
Biodiversity and land use (impact and management)	X	X	X	X	X
Climate strategy/risk	X	X		X	X
Water stress and management	X	X		X	X
Environmental management, governance	X			X	X
Energy mix				X	X
Environmental reporting				X	
Weights of environmental dimension on ESG scores	25-26%		41%	34%	
	Arabesque	Moody's	MSCI	S&P	Sustainalytics
Social metrics					
Community relations	X	X	X	X	X
Human capital development/ talent attraction and retention	X	X		X	X
Occupation health and safety	X	X	X	X	X
Responsible production/ supply chain	X	X			X
Labor practices/ diversity	X			X	X
Human rights	X			X	X
Compensation	X				

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	Arabesque	Moody's	MSCI	S&P	Sustainalytics
Social metrics (continued)					
Corporate citizenship and philanthropy				X	
Social reporting				X	
Weight of social dimension on ESG scores	26-27%		26%	32%	
	Arabesque	Moody's	MSCI	S&P	Sustainalytics
Governance factors					
Ownership structure/control/shareholder rights	X	X	X	X	X
Corporate governance (board structure, independence, quality, diversity, structure of committees)	X	X	X	X	X
Executive pay		X	X	X	X
Quality/integrity of management				X	X
Accounting, transparency, tax transparency, and reliability of financials	X	X	X	X	X
Business ethics/bribery and corruption	X	X	X	X	X
Supply chain management				X	
Risk and crisis management/materiality analysis				X	
Information security/cybersecurity				X	
Capital structure (leverage levels)	X				
Policy influence/political contributions	X			X	
Weight of governance on ESG scores	47-48%		33%	34%	

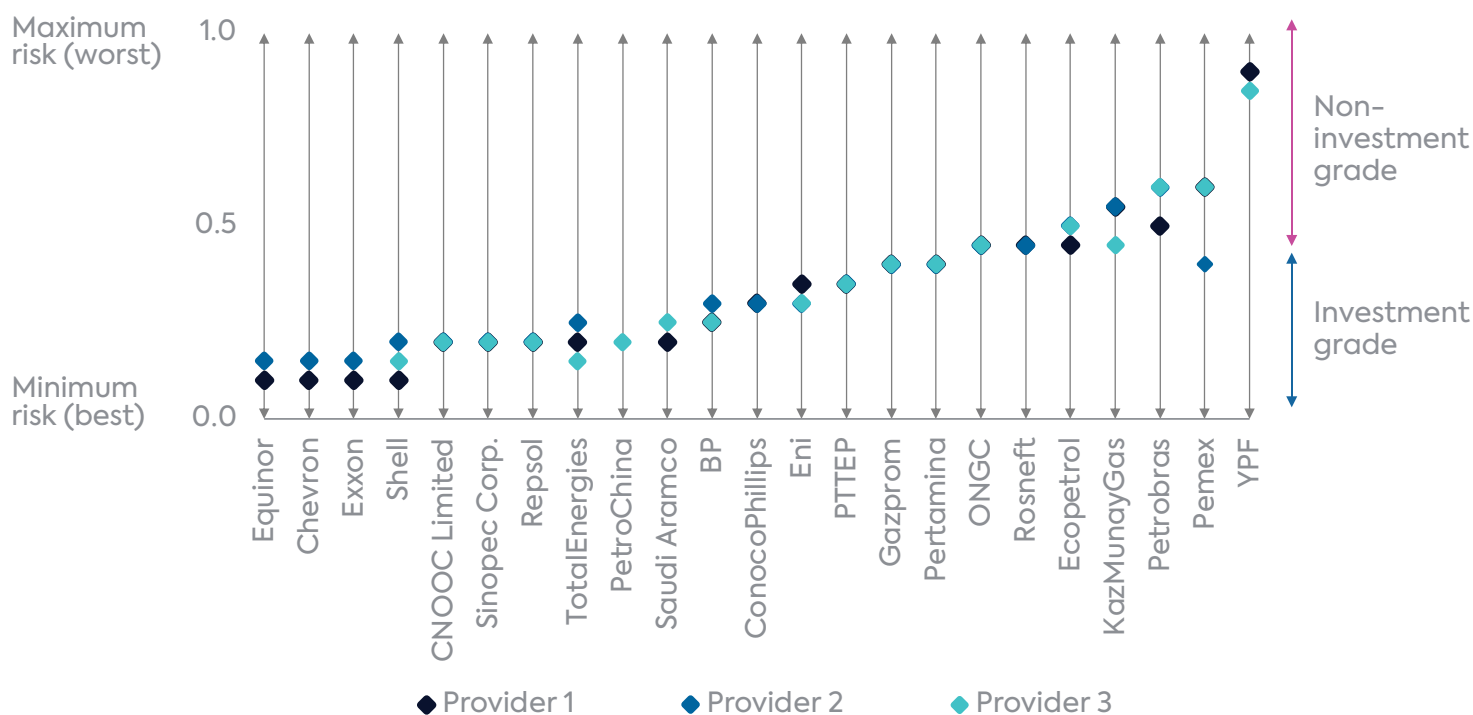
Source: Authors' analysis based on ESG rating methodologies for Arabesque, Moody's, MSCI, S&P, and Sustainalytics.³⁵



Comparison with Credit Ratings

Credit ratings in the integrated oil and gas space do not exhibit the same level of disparity as ESG ratings. Figure 3 presents credit ratings of companies in the integrated oil and gas sector by the three major credit rating agencies, ranked by each rating agency from best to worst credit score. The average correlation between the three rating agencies in their credit scores for this group of companies is around 90 percent. The analysis is in line with findings in other work that stress the high correlation of credit ratings among the different agencies.³⁶

Figure 3: Ranking of credit ratings scores for selected NOCs and IOCs



Source: Authors' calculations based on Fitch, Moody's, and S&P credit ratings as of February 2022.

For their assessment of credit risk, rating agencies' methodologies are based on metrics that measure ability to pay debt obligations based on financial reporting that follows internationally accepted standards. This underscores the value of standardization of financial disclosures, which contributes to a higher consistency in credit ratings. But the high correlation could also be due in part to the narrower definition of what they are measuring, which is a company's or government's willingness and ability to meet its debt obligations when they come due.³⁷ In contrast, ESG ratings represent an overall assessment of companies' commitments to sustainability, which is a very

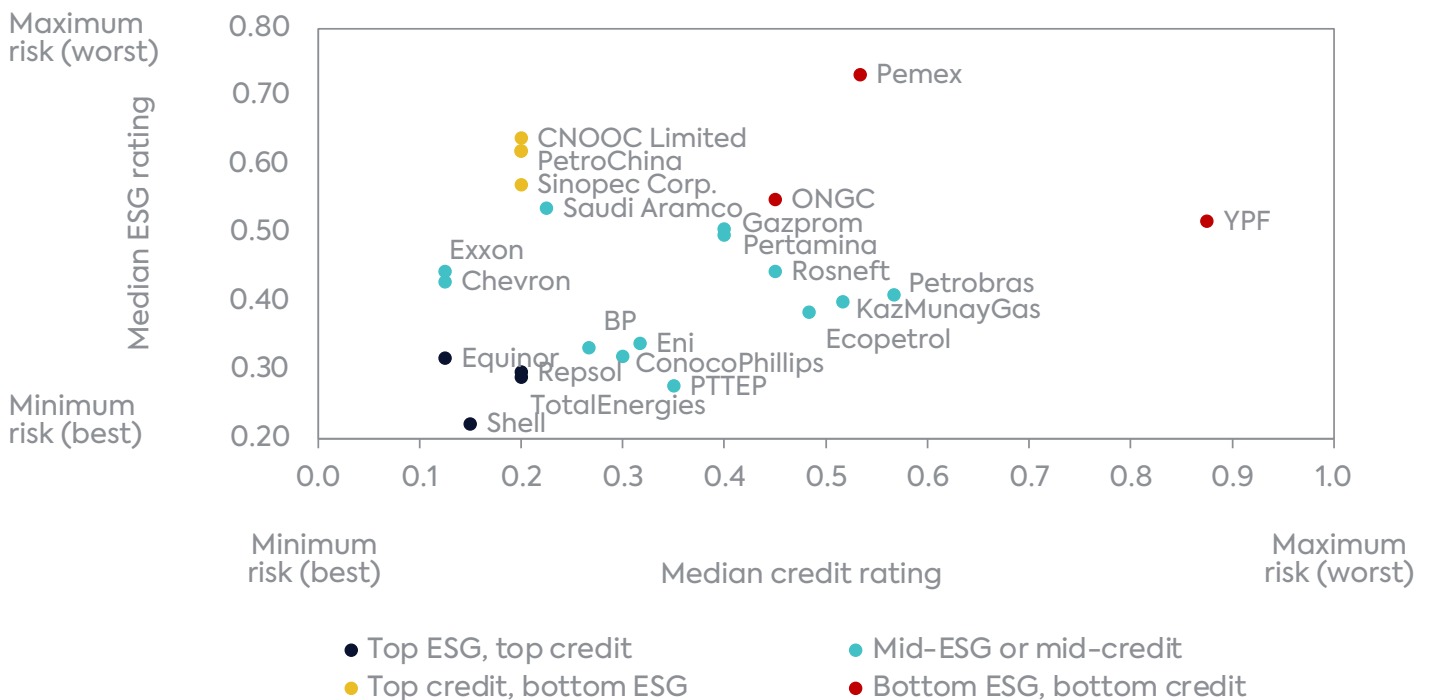
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broad concept.³⁸ In fact, in a fact-finding mission about the ESG rating industry, the International Organization of Securities Commissions concluded that there was “little clarity and alignment on definitions, including on what ratings or data products intend to measure.”³⁹ Some level of standardization could occur as regulatory agencies start to step in.⁴⁰

If ESG ratings assess ESG issues that are material to a company, then there should be some correlation between ESG and credit ratings among the integrated oil and gas companies. Figure 4 maps credit and ESG ratings in terms of percentiles. It shows that not all the companies with the highest credit ratings are also in the highest ESG percentile, suggesting low linkages between ESG and credit ratings, at least in the oil and gas space. However, this could be a function of the previous discussion that ESG ratings have not yet reached their potential of accurately measuring ESG risks and their materiality.

Nonetheless, it is noteworthy that companies in the highest ESG percentile also tended to be in the highest percentile for credit scores. As ESG becomes more mainstream, the intersection of credit and ESG risks is likely to become more relevant.⁴¹ Credit rating agencies are already mapping ESG risks that are pertinent from a creditworthiness perspective.⁴²

Figure 4: Linkages between ESG and credit performance for selected NOCs and IOCs



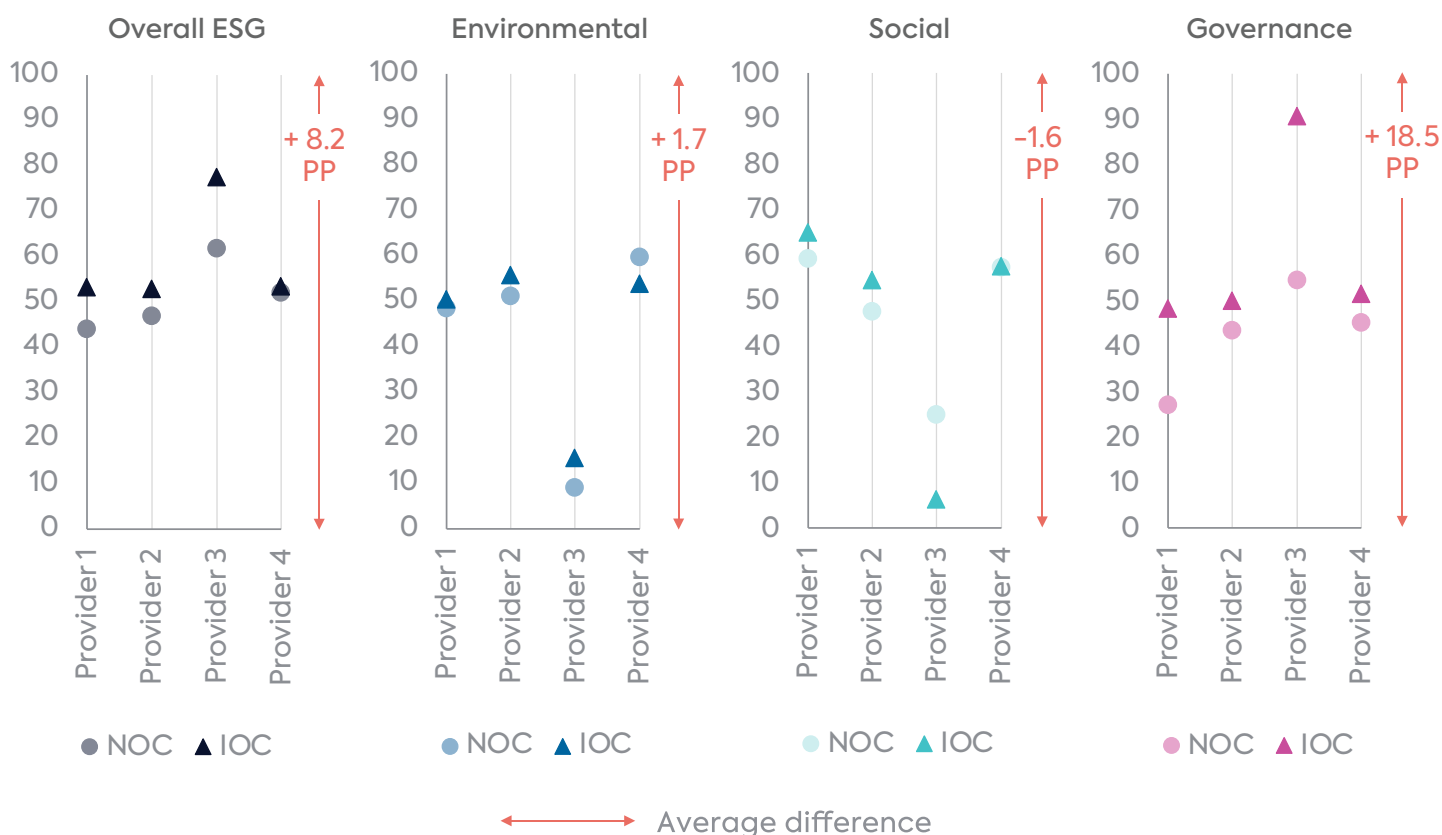
Source: Authors’ estimates based on ESG ratings by Arabesque (ESG Book), Moody’s, MSCI, S&P, and Sustainalytics; ISS QualityScore and Robeco SAM Total Sustainability Ratings from Bloomberg LP ESG Go. Ratings effective as of February 2022.



Does Ownership Structure Matter in ESG Scores?

While this report has looked at individual companies and the divergence of ESG ratings overall, comparing averages for a subset of IOCs' versus NOCs' ESG performance could inform whether and how ESG ratings are affected by ownership structure (see Figure 5).⁴³

Figure 5: Average scores of NOCs and IOCs on environmental, social, and governance factors per ESG category (higher average, better performance)



Note: NOCs include CNOOC, Ecopetrol, Equinor, Gazprom, ONGC, Petrobras, PTTEP, Rosneft, Saudi Aramco, Sinopec Corp., and YPF. IOCs include BP, Chevron, ConocoPhillips, Eni, Exxon, Repsol, Shell, and TotalEnergies.⁴⁴

Source: Authors' estimates based on ESG ratings from Arabesque, Moody's, MSCI, and S&P.

The analysis finds that environmental factors are challenges for both IOCs and NOCs, regardless of their ownership structure. In terms of the S category, the selected rating agencies do not appear to provide any conclusive result on whether NOCs or IOCs do better, at least not prior to the Russian invasion of Ukraine. But ESG ratings do capture higher governance risks in NOCs relative to their IOC peers. Despite ESG ratings' shortcomings, this comparison of average ESG scores broken down



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by category for a group of IOCs and NOCs seems to indicate that governance is where NOCs significantly underperform compared to IOCs. Given its relevance, the next section will take a closer look at governance issues of consequence to investors trying to better assess ESG risks in NOCs.



Corporate Governance in NOCs: Factors Influencing Performance

ESG rating agencies define the governance category as the framework through which decisions are made, how companies are controlled, and the checks and balances that exist in order to manage risks.⁴⁵ Some ESG rating agencies consider governance a foundational category for all industries, with the same metrics used across the board.⁴⁶

ESG rating agencies seem to apply their scoring methodology to both private and state-owned companies alike, without specific consideration for the complexities surrounding state ownership of a company. But to accurately assess ESG performance in emerging markets, a particular focus on state ownership seems relevant, since state-owned enterprises (SOEs) are present in all economic sectors.⁴⁷ SOEs are both political instruments and economic actors, which implies that they pursue multiple objectives rather than only return on capital, adding complexity to their ESG performance.

Among SOEs, national oil companies are in a league of their own on many fronts.⁴⁸ First, NOCs operate in a very capital-intensive industry, with high risks and high returns.⁴⁹ Second, as stated earlier, NOCs have a dominant position in the supply of oil and gas products globally, and therefore are key to global climate goals. Third, while NOCs have multiple roles,⁵⁰ a main one is capturing oil rents. For the purpose of this discussion, oil rents refer to all NOC payments to governments, which occur in the form of royalties, taxes, dividends, and other payments.⁵¹

The Extractive Industries Transparency Initiative (EITI) and nongovernmental organizations like the Natural Resource Governance Institute (NRGI) have engaged with SOEs and their shareholder governments in the improvement of governance issues for years.⁵² The Organisation for Economic Co-operation and Development (OECD) has also been at the forefront of efforts to provide best practices in relation to state ownership.⁵³ Its expertise responds to the historical presence of state-owned companies, and particularly NOCs, among its member countries. But more recently, such expertise has been put to use in emerging markets given the expansion of OECD membership to countries like Chile, Colombia, Hungary, Mexico, and Poland, among others.

This section sheds light on several aspects of governance specific to SOEs, and NOCs in particular, in emerging markets. Rather than limiting the focus of governance metrics to those used in ESG ratings, the authors will address the systems and processes that lead to good governance in NOCs.⁵⁴ The section begins with a look at five factors integral to institution building and/or that



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involve external and internal controls, and follows with a discussion of how governance ties into the other aspects of ESG—environmental and social performance—and a warning about potential causes of reversals in ESG progress.

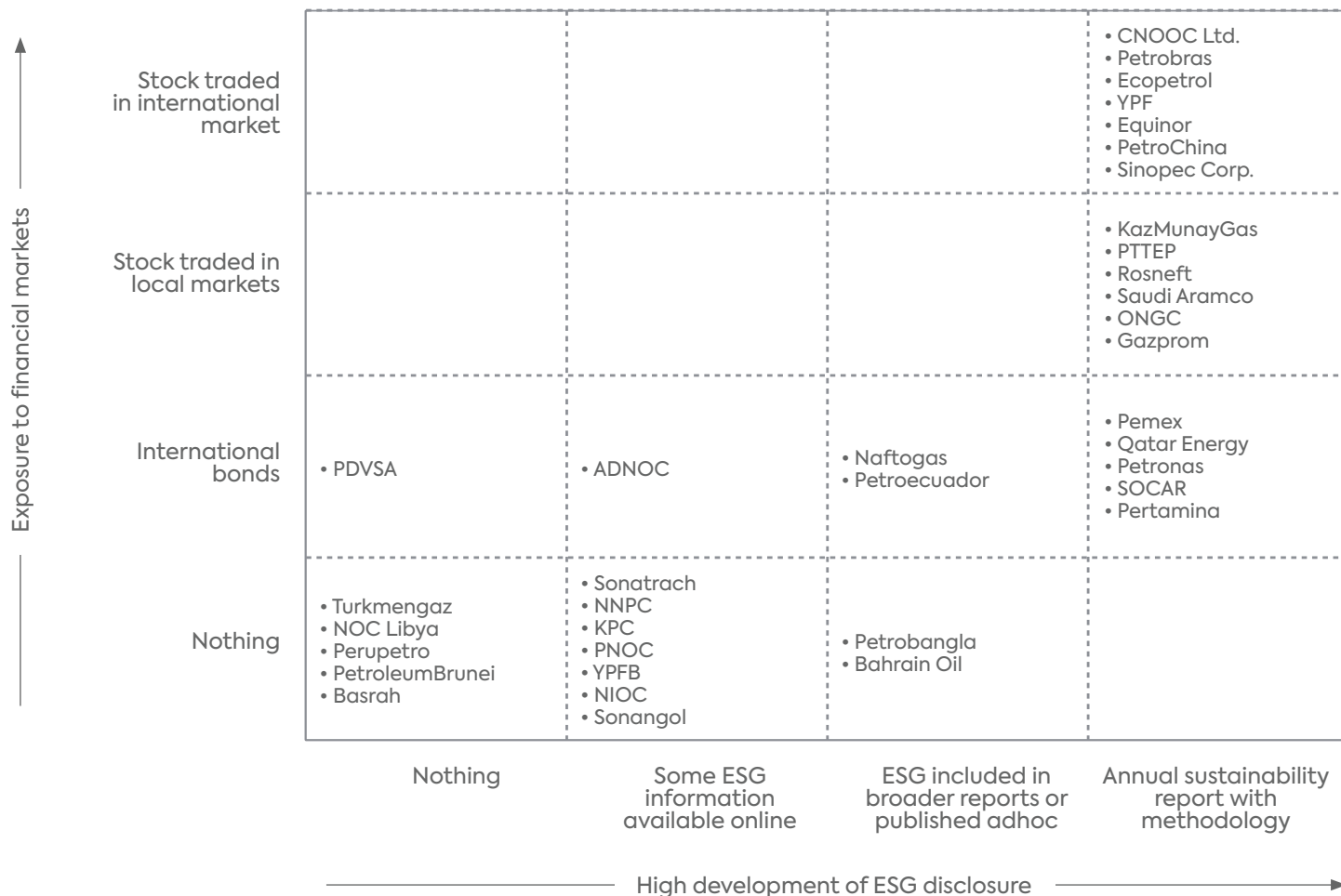
Institution Building and External and Internal Controls

Transparency: Global Financial System Requirements

According to the NREGI, there are more than 70 NOCs in the world today.⁵⁵ NOCs cannot be grouped into a single category; some occupy monopoly positions in their domestic markets, while others compete or partner with private companies. NOCs also diverge in terms of their roles, ranging from prime instruments of government policy and influence to those that are more commercially driven. NOCs also exhibit an array of ownership models, from full state ownership to being listed on stock markets with the state remaining majority owner.⁵⁶ In terms of ownership model, a look at the ESG reporting of a range of NOCs in Figure 6 finds that the higher its exposure to the international financial system, the more likely a national oil company will prepare ESG reports, publish data related to ESG metrics, and follow international ESG disclosure standards. (See Appendix, Table A-4 for a review of NOCs' ESG disclosures.)



Figure 6: Selected NOCs’ level of exposure to global financial markets and disclosure of ESG data, as of December 2022



Source: Authors’ assessment based on companies’ websites and sustainability or ESG reports from 2020 and 2021 (published the succeeding year) and their level of exposure to financial markets as of 2022. (See Table A-4 in the Appendix for a review of the ESG disclosures of these NOCs.)

Publicly listed NOCs included in this study show a higher level of transparency in ESG disclosures than non-listed NOCs studied.⁵⁷ Listed NOCs face regulatory pressures to provide ESG or climate-related disclosures.⁵⁸ The level of transparency and disclosure tends to be highest when NOCs list shares in international financial markets, such as on the New York Stock Exchange via American depositary receipts (ADRs)⁵⁹ or on the London Stock Exchange,⁵⁹ as the disclosure rules of global financial centers do not exempt foreign issuers from regulations of listed companies in their stock markets. But local stock markets around the world also provide different degrees of ESG



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disclosure requirements for listed companies as part of their commitments under the UN-sponsored Sustainable Stock Exchanges (SSE) initiative.⁶⁰

Financial transparency is one of the metrics used as an ESG governance indicator. Listing an NOC on the stock market is a very complex process and an exercise in institution building that includes adopting internal processes for financial reporting similar to the private sector. This effort elevates the institutional framework for reporting and disclosing financial information for a listed NOC versus an unlisted NOC, which could also benefit listed companies' disclosures of ESG data.⁶¹

Saudi Aramco, for example, was officially listed on Saudi Arabia's stock exchange at the end of 2019, and public financial or ESG data prior to this date is not available on the company's website. Since 2019, Saudi Aramco has published quarterly and annual financial data, and the company began disclosing ESG data for the first time as part of its 2020 annual report, followed by the publication of the company's first standalone sustainability report in 2021.⁶²

Figure 6 also shows quite a large number of NOCs with very little ESG disclosure. Among this group are NOCs with no integration into global financial markets, or those that have lost access because of default events, like Venezuela's PDVSA (discussed later in this paper). Some of the unlisted NOCs that publish ESG reports are large issuers of foreign debt, like Pemex (Mexico), Pertamina (Indonesia), and Petronas (Malaysia). While other stakeholders may push for ESG disclosures, access to the financial sector seems to be a motivation for NOCs to publish ESG reports, notwithstanding their quality.⁶³

One area where bond investors could elevate ESG transparency among unlisted NOCs is by requiring NOCs to make public both financial and ESG reporting in accordance with the same standards for listed NOCs. Covenants in some international bonds for NOCs in emerging markets, for example, make financial disclosures a condition.⁶⁴ A requirement to issue sustainability reports could be considered as well. ESG rating agencies that do not currently do so could consider including ESG disclosures as a metric.

Increasing transparency in NOCs⁶⁵ is a value in and of itself, but reporting should be seen as the beginning, not the end goal. While not insignificant, reporting is not by itself synonymous with strong integration of ESG principles into NOCs' internal operations.⁶⁶

Board of Directors: Level of State Involvement

The board of directors is one critical area of governance included in ESG ratings, specifically its structure, independence, and competency (see previous Table 2). In the context of SOEs, political interference represents a major risk. In a report about corporate governance of SOEs, the World Bank



notes that, contrary to good practices, “boards of SOEs are often composed of government, political, and stakeholder representatives with limited commercial or financial knowledge or experience unsuited to exercising the kind of responsibility increasingly required of SOE boards.”⁶⁷ This increases the risk of leaving a board “beholden to individual politicians and government officials.”⁶⁸ To minimize this risk, OECD guidelines for SOEs call attention to the board nomination process, suggesting companies administer well-structured, merit-based, and transparent board appointments.⁶⁹

Investors should pay particular attention to SOEs’ nomination processes for board members as well as those for their C-suites. The presence of minority shareholders on the boards of listed NOCs can potentially serve as a counterbalance to political interference, and can even improve company performance.⁷⁰ However, protection of minority shareholders’ rights in SOEs remains a challenge, including the risk that the board nomination of minority shareholders is co-opted by government officials.⁷¹

While listing NOCs can significantly help with overall governance improvements, it is not a magic bullet on its own. The 2014 corruption scandal by the Brazilian-listed NOC Petrobras, known as Operation Car Wash (*Lava Jato*),⁷² led to institutional and legal changes to significantly strengthen corporate governance in Brazilian SOEs, and could serve as an instructive case for unlisted NOCs as well. Brazil enacted the Law on the Responsibility of Federal State Companies in 2016,⁷³ which among other things established professional qualifications for SOE board members and key members of executive teams, as well as clear restrictions on political appointees.⁷⁴ In 2017, the Brazilian stock market itself issued a corporate governance guideline for listed SOEs after the scandal.⁷⁵

The Shareholder: The State’s Inextricable Connection to NOCs’ ESG Performance

ESG ratings do not necessarily integrate the ESG credentials of the shareholder into their analysis. Some ESG ratings look at ownership or control from the point of view of minority shareholder rights, but it is not clear that an assessment of the ESG credentials of the shareholder itself enters into the ESG risk analysis of NOCs. This could be an area for further evaluation of ESG risks in emerging markets when state ownership is present.

The evaluation of governments as shareholders in their exercise of that ownership and oversight could take into account some of the best practices of governments as shareholders identified by international organizations. These include the legal separation of SOEs from governments through incorporation under company law, disclosure and clarity of ownership objectives,⁷⁶ limits on government intervention so that SOEs function at an arm’s length, and the professionalization of



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board appointments as discussed earlier, among other criteria.⁷⁷

In principle, SOEs could exhibit better ESG credentials than their shareholder governments. However, this is a risk that needs to be carefully monitored, as violations of corporate form by a shareholder government can have a significant impact on NOCs' ESG performance. While an extreme example, Venezuela represents a case study in which violations of corporate governance by the shareholder had a significant material impact on the national oil company PDVSA, compromising its assets in foreign markets.⁷⁸

Another example of the relevance of the shareholder in the ESG performance of its NOC concerns geopolitical risks. Russia's invasion of Ukraine has revealed the severe impact that sanctioning the shareholder has had on the creditworthiness and ESG standing of all Russian SOEs.

Competition and Independent Regulators

Another factor that could impact ESG performance in NOCs is whether they operate in countries where the oil and gas sector faces international and domestic competition. When NOCs cease to be both the sole operator and regulator of the sector, energy regulatory agencies step in or are created to set rules that apply to both NOCs and private operators.⁷⁹ Leveling the playing field between SOEs and private operators is one of the guidelines provided by organizations that look at best practices in regards to the institutional setting in which SOEs operate.⁸⁰

Among the responsibilities of such regulatory agencies is conducting auctions for oil and gas and setting standards, which then improve transparency on how oil and gas fields are awarded and operated, increasing accountability on payments to governments generated by these operations. In addition to the taxes that all corporations pay, the oil industry pays a specific tax called royalties, which are payments for the right to exploit the oil resources owned by the state.⁸¹ In some countries with competitive domestic oil markets, it is the regulatory agency, not the NOC, that collects such payments from both the NOC and other participants in the domestic market, leading to more transparency and reducing the risk of discretionary fiscal transfers.⁸²

But domestic competition and independent regulators have benefits beyond fiscal transparency. Having independent regulators setting standards also allows environmental policy to be set independently from an NOC, underscoring how governance and environmental performance intersect.⁸³

Another potential avenue for ESG improvements in NOCs could be through joint venture partnerships with ESG-minded international oil companies. The ESG pressures that publicly listed IOCs face impact not only their assets in their home countries but also those in the emerging markets where



they operate, as increasing attention is placed on their non-operated assets.⁸⁴ This should not be seen as a panacea. Such ESG improvements are not automatic if IOCs are not required to report their ESG performance on fields where they do not have direct operational control.⁸⁵

Compliance and Anticorruption Practices

Transparency in how oil revenues are used is a critical component for evaluating ESG in NOCs.⁸⁶ While fiscal regimes governing NOCs can be highly complex and are beyond the scope of this paper, their relevance for this analysis is that, as explained earlier, transparency in payments to governments is one of the key governance metrics evaluated by all ESG ratings.⁸⁷

One benefit of listing NOCs on the stock market is that payments to governments are subject to a higher level of scrutiny. In addition to royalties and income taxes, NOCs also pay dividends to their shareholder governments. When listed NOCs pay dividends to governments, as well as to their minority shareholders, all of their revenues are disclosed. An example of higher transparency is Saudi Aramco's publication of dividend payments after its public listing in 2019.⁸⁸

Achieving transparency in NOCs' payment systems is key to reducing corruption risks. Corruption has been an area of extensive study in relation to NOCs.⁸⁹ Governance organizations have identified corruption in the extractive industries as a key obstacle for countries and companies to sustainably manage natural resources,⁹⁰ and the OECD has noted higher corruption risks in extractive industries relative to other SOEs.⁹¹ In its proposed ESG disclosures for oil and gas companies, the Global Reporting Initiative (GRI) states that the sector faces higher corruption risks compared to other sectors and notes the high prevalence of state-owned companies with more deficient internal controls.⁹²

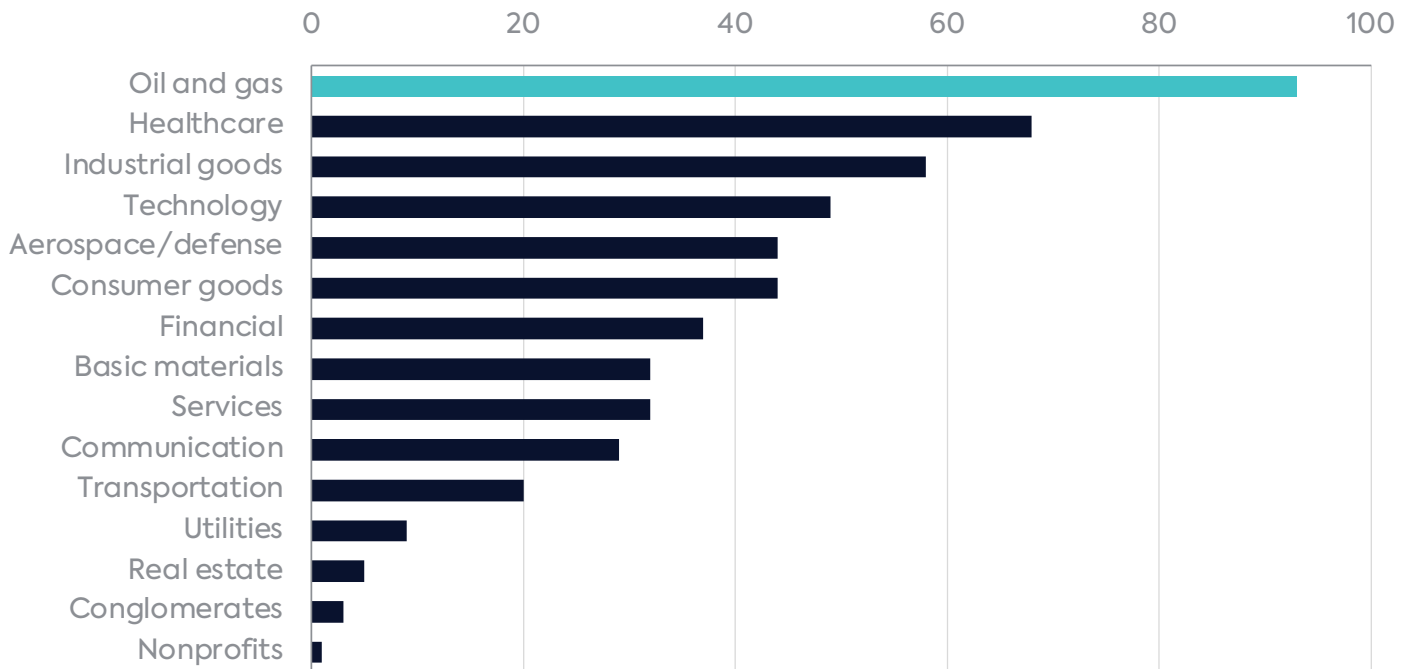
Corruption risks entail significant global legal risks for NOCs, their shareholder governments, and private companies operating in these markets. International agreements such as the OECD's antibribery convention, created in 1999, criminalized the bribery of foreign public officials in international business transactions. Signatories to this convention include the 38 OECD countries and 6 non-OECD countries (Argentina, Brazil, Bulgaria, Peru, Russia, and South Africa).⁹³ The US Foreign Corrupt Practices Act (FCPA), which also criminalizes the bribery of US corporations and nationals to foreign officials, has also had important global legal repercussions for the oil and gas sector.⁹⁴ Not only is the oil and gas sector first in terms of the most FCPA cases tried in the US since 1977 (see Figure 7), but instead of targeting only US companies that operate overseas, FCPA jurisdiction covers foreign entities that issue securities in the US and even foreign entities or nationals conducting business in US territory. As a result, from 1977 to the present⁹⁵ foreign entities represented almost 40 percent of the penalties for US FCPA violations.⁹⁶ According to Stanford University's Foreign Corrupt Practices Act Clearinghouse database, the average penalty for such

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violations was \$450 million in 2020, underscoring the financial implications of such corruption risks and thus their materiality.⁹⁷

Figure 7: Number of sanctioned cases resulting from US Foreign Corrupt Practices Act violations by industry (1977–2022)



Source: Stanford University's Foreign Corrupt Practices Act Clearinghouse (a collaboration with Sullivan & Cromwell LLP).

Corruption risks in extractive industries have made it imperative that companies operating in emerging markets and in joint ventures with NOCs pay particular attention to managing such collaborations. This has resulted in guidelines and best practices like those published by NNGI for how private companies should operate in the oil and gas sector in emerging markets.⁹⁸ However, given the sheer size of revenues that NOCs generate, close attention is being paid not only to government payments but also to NOCs' procurement practices, supply chains, and oil trading activities.⁹⁹

For example, in their specific ESG disclosure standards for the oil and gas sector, the GRI and the Sustainability Accounting Standards Board (SASB) consider whether companies disclose how they manage corruption risks throughout their value chain and business relationships.¹⁰⁰ This includes customers, suppliers, contractors, and subcontractors. The Petrobras scandal discussed earlier was one of the most onerous examples of corruption linked to procurement practices in NOCs, leaving



the company to settle \$2.95 billion in claims and a hefty penalty with the SEC.¹⁰¹ To this list, EITI has recently added transparency in commodity trading,¹⁰² potentially a growing area of interest to governments in the advanced world and multilaterals given the increasing use of sanctions and the illicit mechanisms that take place to evade them.¹⁰³

Instrumental in assessing corruption risks is understanding the system of checks and balances within NOCs. This goes beyond whether a company has published a code of conduct or anticorruption practices on its website. Managing corruption risks is about the strength of the compliance function and the systems of internal controls within companies.¹⁰⁴ Evaluation in this regard should answer whether NOCs have a compliance program, whether it is designed to function effectively or exists only on paper, and whether it is well resourced and empowered to function independently.¹⁰⁵ While corruption and bribery are measured in ESG ratings, it is less clear whether these ratings directly measure the strength of NOCs' compliance systems as a stand-alone metric.

Links Between the G and the E and S

One criticism of the ESG framework, explained earlier, is its lack of definition in terms of what exactly it is supposed to be measuring. Some propose addressing this problem by narrowing ESG's scope to account mostly for the E—environmental factors. Even within the E, some studies have suggested focusing “environment” on emissions¹⁰⁶ to make ESG investments more impactful.¹⁰⁷ But even for investors interested only in the E, in the case of NOCs and state-owned companies in general, governance might be essential to getting the environmental aspects of ESG right.¹⁰⁸

Managing environmental risks starts with climate disclosures, and good governance is central to the credibility of these disclosures. One widely used standard for climate disclosures is the Task Force on Climate-Related Disclosures (TCFD), which considers governance a central part of its proposed framework.¹⁰⁹ This underscores the importance of the G not only for the credibility of climate disclosures but also for the accurate assessment of climate-related risks.

One example of integrated ESG principles on the environmental side are decarbonization targets. Table A-5 in the Appendix looks at the decarbonization targets for a selected group of NOCs that are listed and/or have issued bonds in international markets. Table A-5 tracks, for example, whether NOCs have zero-gas-flaring targets, GHG emission reduction targets, methane reduction commitments, and whether they have pledged to be net zero by 2050. There is a significant lack of information and ambition with some of these goals, and even where targets exist there may be doubts about their credibility.¹¹⁰ Nonetheless, this is a very useful framework for NOCs to build the governance around their E commitments and for investors to assess their progress.¹¹¹

Beyond disclosures and targets, understanding the processes that lead to good integration of ESG



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outcomes or progress over time in NOCs is essential. One key indicator of good management of ESG risks is a metric known as health, safety, and environmental (HSE) performance. HSE is considered part of the S in ESG (see Table 2), and assesses how companies manage current operational risks, such as spills, accidents, fatalities, etc. While HSE is a material metric for oil and gas companies in terms of social responsibility because it entails workers' safety, it can also be understood as the product of good governance, compliance, and risk management, suggesting ways in which ESG metrics are interlinked with one another.

Another way in which governance factors matter for the E is through the collateral impact that corruption can have on the ability to manage environmental risks.¹¹² One possible explanation of how corruption and environmental performance are related is that, for corruption to flourish, it needs to weaken exactly the system of internal controls that leads to better operational outcomes and effective management of environmental risks.

Potential ESG Performance Reversals

NOCs experience political pressures and external events of all kinds that can severely damage their ESG performance at any point in time. Therefore, it is important for investors to understand that ESG progress in NOCs is not linear and can be subject to reversals. This is why understanding the institutional settings that surround NOCs, as well as the internal systems of governance within them, is essential, as they create layers of controls, reinforce ESG progress, and most importantly create barriers to reversals. There are four types of events that significantly increase the risks of ESG reversals in NOCs.

First, economic and political crises, electoral cycles, and changes in government could increase governance risks for NOCs.¹¹³ This is why both internal and external systems of checks and balances for NOCs are important to buffer some of these pressures and discourage reversals.

Second, geopolitical events matter for NOCs' ESG performance and, as explained earlier, are likely to be associated with NOCs' shareholder governments. Russia's invasion of Ukraine has highlighted the need to consider geopolitical and energy security risks in the ESG framework for emerging markets, and this includes understanding how geopolitical tensions—and sanctions—could impact NOCs' ESG performance.¹¹⁴

Third, loss of access to global financial markets could thwart ESG progress. If access to finance is a driver of ESG disclosures, loss of access has the potential to lead to the opposite outcome. Less disclosure and measurement of ESG factors could reduce incentives to maintain ESG performance.¹¹⁵

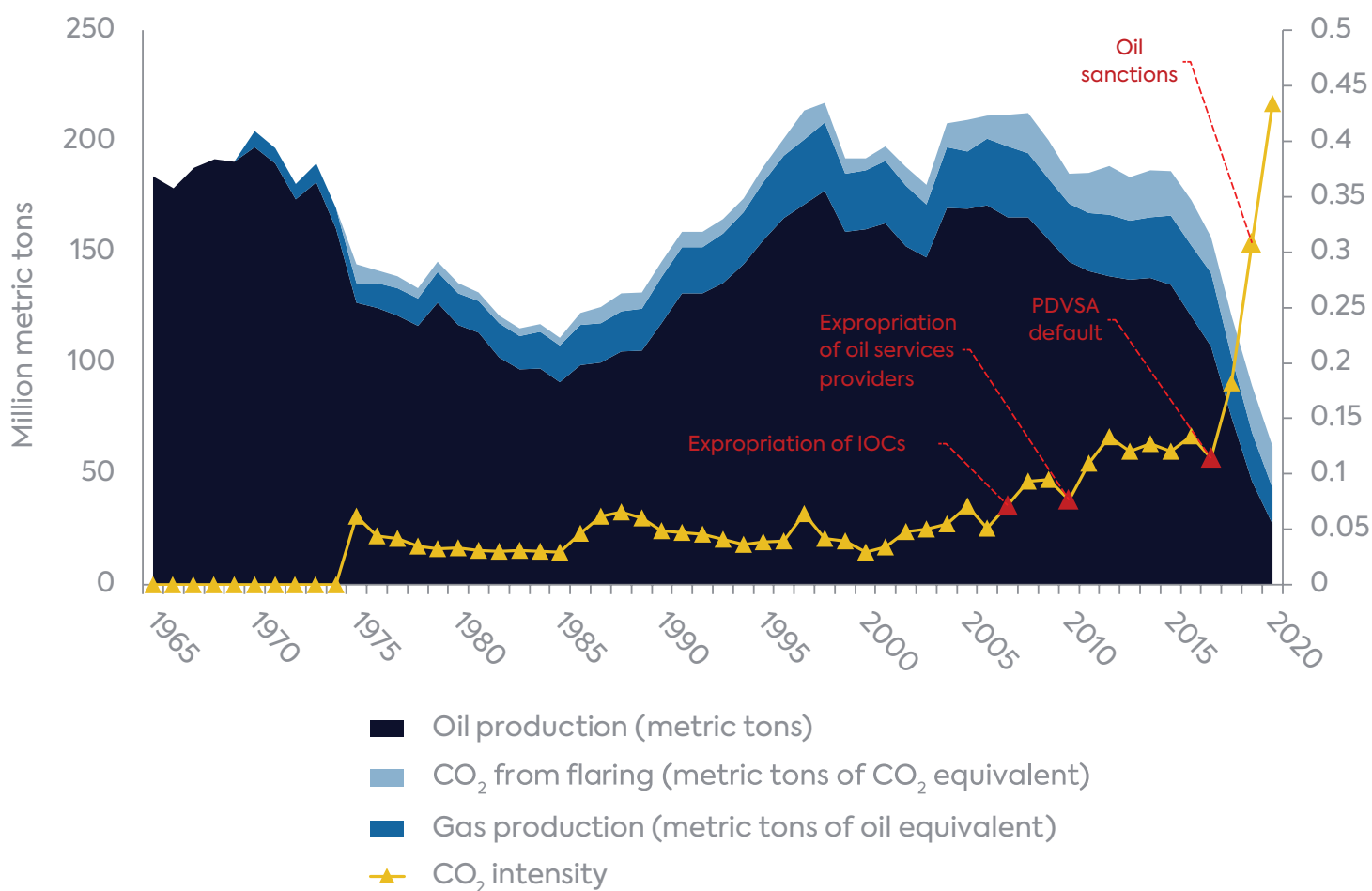
Fourth, IOCs' exit from joint ventures with NOCs in emerging markets could lead to a deterioration



in ESG performance. This exit could occur because of IOCs' divesting strategies; expropriation of assets by host countries, as in the case of Venezuela (discussed next); or sanctions levied on shareholder governments and/or their NOCs, as seen most recently in the case of Russia, but also applicable to Iran and Venezuela. (The deterioration of ESG performance particularly on emissions for oil and gas assets resulting from IOCs divesting to less climate-friendly actors is known as the transferred emissions problem.¹¹⁶)

Venezuela is just one data point, but it could serve as a cautionary example. Figure 8 illustrates the increase in CO₂ intensity (i.e., CO₂ per barrel) after Venezuela's expropriating drive of assets of IOCs and oil service providers from 2005 to 2010, defaulting on its debt in 2017, and finally incurring sanctions in 2019.

Figure 8: Venezuela oil and gas production, CO₂ emissions from flaring, and CO₂ intensity



Source: Authors' calculation based on BP Statistical Review of World Energy.



Conclusion

Many oil-exporting countries in emerging markets and their NOCs depend on access to global capital markets to finance their operations. ESG compliance requirements for such NOCs can help ease a growing concern about the implications of asset transfers from climate-sensible actors that are publicly listed to less ESG-minded companies or national oil companies, and at the same time strengthen these companies' overall ESG performance and creditworthiness.

Increasing ESG transparency in NOCs matters greatly. Reporting does not necessarily mean strong integration of ESG principles into NOCs' internal operations, but investors should not underestimate its importance for highlighting and managing ESG risks, and bondholders are particularly well placed to push for ESG transparency in NOCs.

While ESG ratings are the tools that investors currently have to assess ESG risks, they remain a work in progress. Their divergence in assessing ESG risks in companies is a problem for every industry, even in advanced markets. This is even more problematic in emerging markets, where ESG data can be insufficient and disclosures imperfect or nonexistent. Breaking down ESG risks into their component parts, such as factors influencing governance, is essential for investors to better understand a company's ESG risks and for NOCs to address them and retain access to future financing.

The governance metrics contained in some standard ESG ratings appear insufficient to gauge risks in emerging markets with a sizable presence of state-owned companies in all aspects of the economy. Compliance with the G in ESG in emerging markets is not only about measurements but also about the process of institution building and the existence of external and internal controls for SOEs. NOCs that are listed on stock markets, for example, must abide by various disclosure requirements that add transparency to their operations. And it is instructive, for example, to look closely at the specific approach to making appointments to the board of directors for both listed and especially unlisted NOCs to gauge potentially damaging political interference where it starts: at the top.

Russia's invasion of Ukraine has also brought to the table the need for investors to understand the ESG credentials of NOCs' shareholder governments in emerging markets, given the risks of ESG reversals, some of which can be initiated by geopolitical events such as the use of sanctions as foreign policy tools. Other factors investors can use to weigh the governance setting in which NOCs operate include the level of local competition and the existence of independent regulators.

ESG metrics take into account business ethics and corruption, but in NOCs these are fundamental risks. Illicit activities flourish in the dark—they attack the systems of checks and balances and risk



management in companies, significantly impacting NOCs' capacity to manage operational and environmental risks. The system of internal controls and the quality of the compliance function are central for the management of all risks and the avoidance of reversals on ESG progress.

In sum, governance is intertwined with environmental and social risks in NOCs. It is difficult to achieve sustainable progress on environmental performance, for example, without achieving progress on governance. The unique ramifications of state ownership to overall ESG performance therefore deserve close attention.

Appendix

Table A-1: Selected banks' targets for emission reductions in the oil and gas sector

Institution	Total assets at end of 2021* (USD billions)	Oil and gas reduction targets	Year of adoption	Baseline year for targets	Baseline emissions	Target year
JPMorgan	\$3,743.57	35% (Scopes 1 and 2) and 15% (Scope 3) in portfolio-weighted average carbon intensity of the bank's in-scope clients	2021	2019	Scopes 1 and 2: 6.10 gCO ₂ e/MJ; Scope 3: 66.50 gCO ₂ e/MJ	2030
MUFG	\$3,176.84	15–28% in absolute GHG emissions	2022	2019	83 mtCO ₂ e	2030
Bank of America	\$3,169.50	42% in emissions intensity in gCO ₂ e/MJ (Scopes 1 and 2) and 29% in emissions intensity in gCO ₂ e/MJ (Scope 3)	2021	2019	Baseline to be published	2030
HSBC	\$2,953.64	34% in absolute emissions (Scopes 1, 2, and 3)	2022	2019	35.8 mtCO ₂ e	2030
BNP Paribas	\$2,905.83	At least 10% in financed emissions intensity in gCO ₂ e/MJ; 12% reduction in credit exposure for upstream oil and gas and 25% for upstream oil only	2022	2020	68 gCO ₂ e/MJ	2025
Citi	\$2,291.41	29% absolute emissions (Scopes 1, 2, and 3)	2021	2020	143.8 mtCO ₂ e	2030
Mizuho	\$1,957.87	In process of setting midterm targets	N/A	N/A	N/A	2030
Wells Fargo	\$1,948.07	26% in financed emissions (Scopes 1, 2, and 3)	2022	2019	97.7 mtCO ₂ e	2030
Barclays	\$1,874.40	40% in absolute emissions (Scopes 1, 2, and 3)	2022	2020	78.5 mtCO ₂ e	2030
TD	\$1,486.40	29% in financed emissions lending intensity for the energy sector overall (Scopes 1, 2, and 3)	2022	2019	2,078 g CO ₂ e/CAD\$	2030
Goldman Sachs	\$1,463.99	17–22% reduction in emissions intensity in gCO ₂ e/MJ (Scopes 1, 2, and 3)	2021	2019	72 gCO ₂ e/MJ	2030
RBC	\$1,376.79	35% (Scopes 1 and 2) and 11–27% (Scope 3) in financed physical emissions intensity	2022	2019	Scopes 1 and 2: 7.6 gCO ₂ e/MJ; Scope 3: 68.60 gCO ₂ e/MJ	2030
Morgan Stanley	\$1,188.14	29% in financed emissions lending intensity (Scopes 1, 2, and 3)	2021	2019	N/A	2030
UBS	\$1,117.18	71% absolute emissions (Scopes 1, 2, and 3)	2022	2020	N/A	2030
Scotia Bank	\$978.48	30% (Scopes 1 and 2) and 15–25% (Scope 3) emissions intensity in tCO ₂ e/TJ	2022	2019	Scopes 1 and 2: 5.8 tCO ₂ e/TJ; Scope 3: 66 tCO ₂ e/TJ	2030

Note: g = grams; CO₂e = carbon dioxide equivalent; MJ = megajoules; mt = million metric tons; t = metric tons; TJ = terajoules.
Source: Companies' websites and sustainability reports; Bloomberg.



Table A-2: Selected asset managers' targets for the oil and gas sector

Institution	Total assets under management (AUM) as of Q1 2022* (billion USD)	Investment targets/objectives			Year of target disclosure			Baseline year	Baseline figures
		Year of target disclosure	Target year	Baseline year					
BlackRock	\$9,570	Anticipate that at least 75% of BlackRock corporate and sovereign assets managed on behalf of clients to be invested in issuers with science-based targets or equivalent (from 25% currently)	2022	2030	2021	N/A	N/A		
Vanguard	\$8,100	Quit the Net Zero Asset Managers initiative on December 7, 2022	N/A	N/A	N/A	N/A	N/A		
State Street	\$4,020	Reduce financed Scope 1 and 2 carbon emissions intensity by 50% relative to 2019 baseline by 2030	2022	2030	2019	To be completed			
Amundi	\$2,251	18% of total AUM net zero aligned by 2025; 30% carbon intensity reduction target in 2025 vs. 2019, and 60% vs. 2030 (minimum targets that need to be exceeded) on Scopes 1, 2, and part of 3 for committed portfolios under Net Zero Investment Framework Implementation (NZIF)	2022	2025/ 2030	2019	254.2 tCO ₂ e/€1 million turnover			
JPMorgan Asset Mgmt.	\$2,960	Approximately 55% of in-scope AUM to be in investments where the issuer has set science-based net zero targets or equivalent	N/A	2030	2021	N/A			
Invesco	\$1,556	Reference target for decarbonization of portfolio: 50% lower carbon footprint as measured by t CO ₂ /\$ invested by 2030 vs. 2019 baseline	2022	2030	2019	73 tCO ₂ e/\$1 million invested			
Deutsche Bank - DWS	\$2,124	50% reduction in weighted average inflation-adjusted financial carbon intensity (WACI adj.) related to Scope 1 and 2 emissions, consistent with a fair share of the 50% global reduction in CO ₂ identified as a requirement in the IPCC special report on global warming of 1.5°C.	2021	2030	2019	170 tCO ₂ e/\$1 million (referring to Scope 1 & 2 emissions of \$286 billion AUM only, excluding \$58 billion in companies without financial emission intensity data)			
UBS Asset Management	\$1,615	Weighted average carbon intensity of funds to be 50% below the carbon intensity of the respective 2019 benchmark by 2030	2021	2030	2019	Each strategy will have a different baseline metric performance relative to their benchmark			
LGIM (Legal and General Investment Mgmt.)	\$1,866	Funds are considered net zero aligned if they meet either: At least 50% reduction in GHG intensity from 2019 baseline or temperature alignment of 1.5°C by 2030	2021	2030	2019	Baseline performance may vary according to portfolio; for funds launched at later dates, the 50% reduction can be pro-rated over the remaining time to 2030			

Note: t = metric tons; CO₂e = carbon dioxide equivalent. Asset managers listed according to their ranking in oil and gas new financing by Reclaim Finance's Asset Manager Climate Score Card, https://reclaimfinance.org/site/wp-content/uploads/2022/04/Asset_Manager_Climate_Scorecard_2022.pdf.

Source: Cited companies' ESG reports and websites; Net Zero Asset Management Initiative, <https://www.netzeroassetmanagers.org>; ADV Ratings, <https://www.advratings.com/top-asset-management-firms>.



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Table A-3: ESG ratings available for NOCs as of February 2022

	Arabesque	ISS	Moody's	MSCI	Robeco	S&P	Sustainalytics
ADNOC							
Basra							
CNOOC Limited	X	X	X	X	X	X	X
Ecopetrol	X		X	X	X	X	X
ENAP		X		X			
Equinor	X	X	X	X	X	X	X
Gazprom	X	X	X	X	X	X	X
KazMunayGas	X		X	X			X
KPC							
NIOC							
NNPC							
NOC Libya							
Oil India			X	X	X		
ONGC	X	X	X	X		X	X
PDVSA							X
Pemex		X	X	X			X
Pertamina				X			X
Perupetro							
Petrobangla							
Petrobras	X	X	X	X	X	X	X
PetroChina	X	X		X	X	X	X
Petroecuador							
Petroleum Brunei							
Petronas							
PNOC							
PTTEP	X		X	X	X	X	X
Qatar Petroleum			X				
Rosneft	X	X	X	X	X	X	X
Saudi Aramco	X		X	X	X	X	X
Sinopec Corp.	X	X	X	X	X	X	X
SOCAR							
Sonangol			X				
Sonatrach							
YPF	X		X	X	X	X	X
YPF Bolivia							

Source: ESG rating companies' websites and reports.



Table A-4: Selected NOCs' ESG reports and methodologies

Company	Country	ESG disclosure					Reporting method		Exposure to financial markets		
		Corporate social responsibility report	Annual report published 2020	Annual report with ESG metrics	Sustainability report with methodology published 2020	Sustainability report with methodology published 2021	Framework	Stock traded in int'l markets	Stock in local markets	Int'l bonds	
ADNOC	UAE	No (some information available on website)	No	No	No (some ESG information available on website)	No (some ESG information available on website)	N/A	No	No	Yes (2022)	
BAPCO	Bahrain	Yes	No	No	Yes	Yes	<ul style="list-style-type: none"> Global Reporting Initiative (GRI) 	No	No	No	
Basra	Iraq	No	No	No	No	No	N/A	No	No	No	
CNOOC Limited	China	Yes	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> The Environmental, Social and Governance Reporting Guide issued by the Stock Exchange of Hong Kong Limited (HKEX) UN Global Compact Global Reporting Initiative (GRI) Task Force on Climate-Related Financial Disclosures (TCFD) Sustainability Reporting Guidance for the Oil and Gas Industry by IPIECA 	Stock delisted from NYSE, but still listed in Hong Kong Stock Exchange	Yes	Yes	
Ecopetrol	Colombia	Yes	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> Global Reporting Initiative (GRI) Sustainability Accounting Standards Board (SASB) Stakeholder Capitalism Metrics (SCM) World Economic Forum (WEF) Task Force on Climate-Related Financial Disclosures (TCFD) 	Yes	Yes	Yes	
Equinor	Norway	Yes	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> Global Reporting Initiative (GRI) UN Global Compact IPIECA Task Force on Climate-Related Financial Disclosures (TCFD) 	Yes	Yes	Yes	

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Company	Country	ESG disclosure						Reporting method		Exposure to financial markets		
		Corporate social responsibility report	Annual report published 2020	Annual report with ESG metrics	Sustainability report with methodology published 2020	Sustainability report with methodology published 2021	Framework	Stock traded in int'l markets	Stock in local markets	Int'l bonds		
Gazprom	Russia	Yes	Yes	Yes	Yes	Yes	Global Reporting Initiative (GRI)	Stock delisted from int'l markets in 2022	Yes	Yes		
KazMunayGas	Kazakhstan	Yes	Yes	Yes	No	Yes	Global Reporting Initiative (GRI)	No	Stock listed for the first time in 2022	Yes		
KPC	Kuwait	Yes	Yes	No	No	No	N/A	No	No	No		
Naftogaz	Ukraine	Yes	Yes	Yes	No (some ESG information available in general report)	No (some ESG information available in general report)	Global Reporting Initiative (GRI)	No	No	Yes		
NIOC	Iran	Yes	No	No	No	No	N/A	No	No	No		
NNPC	Nigeria	Yes	No (some information available on website)	No (some information available on website)	No	No	N/A	Yes	Yes	Yes		
NOC Libya	Libya	No	No	No	No	No	N/A	No	No	No		
ONGC	India	Yes	Yes	Yes	Yes	Yes	Global Reporting Initiative (GRI)	No	Yes	Yes		
PDVSA	Venezuela	No	No	No	No	No	N/A	No	No	Yes		
Pemex	Mexico	Yes	Yes	No	Yes	Yes	• IPIECA • API • IOGP	No	No	Yes		
Pertamina	Indonesia	Yes	Yes	Yes	Yes	Yes	• Global Reporting Initiative (GRI) • Sustainability Accounting Standards Board (SASB) • IPIECA	No	No	Yes		
Perupetro	Peru	No	No	No	No	No	N/A	No	No	No		

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Company	Country	ESG disclosure						Reporting method		Exposure to financial markets		
		Corporate social responsibility report	Annual report published 2020	Annual report with ESG metrics	Sustainability report with methodology published 2020	Sustainability report with methodology published 2021	Framework	Stock traded in int'l markets	Stock in local markets	Int'l bonds		
Petro-bangla	Bangladesh	No	Yes	Yes	No	No	N/A	No	No	No		
Petrobras	Brazil	<u>Yes</u>	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> Global Reporting Initiative (GRI) IPIECA 	Yes	Yes	Yes		
PetroChina	China	<u>Yes</u>	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> Global Reporting Initiative (GRI) The Environmental, Social and Governance (ESG) Reporting Guide issued by the Hong Kong Stock Exchange IPIECA 	Announced delisting from NYSE, but still listed in Hong Kong Stock Exchange	Yes	Yes		
Petroecuador	Ecuador	<u>Yes</u>	Yes	No	Yes	No	<ul style="list-style-type: none"> Global Reporting Initiative (GRI) 	No	No	Yes		
Petroleum Brunei	Brunei	No	No	No	No	No	N/A	No	No	No		
Petronas	Malaysia	<u>Yes</u>	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> IPIECA International Integrated Reporting Framework (IR) 	No	No	Yes		
PNOC	Philippines	<u>Yes</u>	Yes	No	No	No	N/A	No	No	No		
PTTEP	Thailand	<u>Yes</u>	Yes	Yes	Yes	Yes	N/A	No	Yes	Yes		
Qatar Energy	Qatar	<u>Yes</u>	No	No	Yes	Yes	<ul style="list-style-type: none"> Global Reporting Initiative (GRI) IPIECA 	No	No	Yes		
Rosneft	Russia	<u>Yes</u>	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> Global Reporting Initiative (GRI) UN Global Compact International Financial Reporting Standards (IFRS) Task Force on Climate-Related Financial Disclosures (TCFD) IPIECA International Integrated Reporting Framework 	Stock delisted from international markets in 2022	Yes	Yes		

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Company	Country	ESG disclosure						Reporting method		Exposure to financial markets		
		Corporate social responsibility report	Annual report published 2020	Annual report with ESG metrics	Sustainability report with methodology published 2020	Sustainability report with methodology published 2021	Framework	Stock traded in int'l markets	Stock in local markets	Int'l bonds		
Saudi Aramco	Saudi Arabia	Yes	Yes	Yes	No	Yes	Greenhouse Gas Protocol guidelines	No	Yes	Yes		
Sinopec Corp.	China	Yes	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> Environmental Information Disclosure issued by Listed Companies of Shanghai Stock Exchange (SSE) Environmental, Social and Governance Reporting Guide issued by Hong Kong Stock Exchange (HKEX) United Nations Global Compact (UNGC) Global Reporting Initiative (GRI) Task Force on Climate-Related Financial Disclosures (TCFD) 	Announced stock delisting from NYSE, but still listed in Hong Kong Stock Exchange	Yes	Yes		
SOCAR	Azerbaijan	Yes	Yes	No	Yes	Yes	Global Reporting Initiative (GRI)	No	No	Yes		
Sonangol	Angola	Yes	Yes	No	No	No	N/A	No	No	No		
Sonatrach	Algeria	Yes	No	No	No	No	N/A	No	No	No		
Turkmen-gaz	Turkmenistan	No	No	No	No	No	N/A	No	No	No		
YPF	Argentina	Yes	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> Global Reporting Initiative (GRI) PIECA UN Global Compact 	Yes	Yes	Yes		
YPFB	Bolivia	Yes	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> Global Reporting Initiative (GRI) UN Global Compact 	No	No	No		

Source: Companies' websites and sustainability reports and Bloomberg



Table A-5: Selected NOCs' decarbonization targets

Company		Decarbonization commitments			
	Signatory of World Bank's Zero Routine Flaring by 2030 initiative	Zero routine flaring target	GHG emission reduction target	Methane reduction target	Net zero ambition
ADNOC	No	Claims implementation of a zero routine gas flaring policy since 2000s and 90% reduction in gas flaring*	Reduce GHG emission intensity by 25% by 2030	Methane intensity target of 0.15% by 2025 (upstream)	Net zero by 2050 (Scopes 1 and 2)
CNOOC Limited	No	Plans to control, but no target	Reduce cumulative emission of 1.5 mtCO ₂ e by 2025	Plans to control, but no target	<ul style="list-style-type: none"> • CO₂ emissions peak before 2030 • Carbon neutrality before 2060
Ecopetrol	Yes	Zero routine flaring by 2030	<ul style="list-style-type: none"> • Reduction of 25% of Scopes 1 and 2 CO₂e emissions by 2030 (2019 baseline) • Reduce 50% of total emissions by 2050 (Scopes 1, 2, and 3) 	Plans to control, but no target. Plans to set target 2022–23.	Net zero emissions by 2050 (Scopes 1 and 2)
Equinor	Yes	Eliminate routine flaring by 2030	<ul style="list-style-type: none"> • Reduction of 50% of net operated GHG emissions by 2030 (2015 baseline), aiming for 90% absolute reductions • Reduce net carbon intensity, including emissions from the use of products, by 20% by 2030 and 40% by 2035 	Methane intensity target of near zero by 2030	Net zero operations by 2050
Gazprom	Yes	Reduction of gas flaring	Reduce Scopes 1 and 2 CO ₂ emissions by 30% to about 20.2 mtCO ₂ e **	No target set	No target set
KazMunay-Gaz	Yes	Eliminate routine flaring by 2030	Reduce by 2031 to 15% relative to 2019	Signed Global Methane Initiative, but no target	No target set
ONGC	Yes	Plans, but no target	No target set	Signed Global Methane Initiative, but no target	No target set

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Company		Decarbonization commitments			
	Signatory of World Bank's Zero Routine Flaring by 2030 initiative	Zero routine flaring target	GHG emission reduction target	Methane reduction target	Net zero ambition
Petrobras	Yes	Zero routine flaring by 2030	Reduction of total operational absolute emissions by 25% by 2030	40% reduction in the intensity of methane emissions in the E&P segment by 2025	GHG emissions neutrality in operations under company's control (Scopes 1 and 2) within a timeline compatible with the Paris Agreement
Petrobras	Yes	Zero routine flaring by 2030	Reduction of total operational absolute emissions by 25% by 2030	40% reduction in the intensity of methane emissions in the E&P segment by 2025	GHG emissions neutrality in operations under company's control (Scopes 1 and 2) within a timeline compatible with the Paris Agreement
PetroChina	No	Plans to reduce flaring, but no target	No target set	Average methane emission intensity controlled below 0.2% by 2025	<ul style="list-style-type: none"> • Peak carbon emissions by around 2025 • Near zero emissions around 2050
Pemex	No	Reduction of gas flaring; commitment to 98% gas use by 2024	Reduce GHG emissions by 14% by 2030 in relation to 2020 (target for the oil and gas sector contained in country's NDC)	Intention to mitigate methane emissions by 30% by 2030 relative to 2020 levels as part of the Mexican government's commitments under the Global Methane Pledge	No target set
Pertamina	No	Zero routine flaring by 2030	Reduction of emissions by 30% by 2030 relative to 2010 baseline	No target	Net zero by 2060
Petronas	Yes	Avoid flaring in new fields and end routine flaring in existing oil fields by 2030 for upstream	<ul style="list-style-type: none"> • Cap of 49.5 mtCO₂e by 2024 in Malaysia operations • Net zero by 2025 	No target	Net zero by 2050

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Company		Decarbonization commitments			
	Signatory of World Bank's Zero Routine Flaring by 2030 initiative	Zero routine flaring target	GHG emission reduction target	Methane reduction target	Net zero ambition
PTTEP	No	Plans to reduce, but no target	30% GHG emissions reduction by 2030 and 50% by 2040 (2020 baseline)	No target set	Net zero carbon by 2050 and net zero GHG by 2065
Rosneft	No	Zero routine flaring to 2030	Reduce absolute emissions by 5% by 2025 and by 25% by 2030	Reduce methane intensity across the upstream to below 0.2% by 2035	Net zero by 2050
Saudi Aramco	Yes	Zero routine flaring by 2030	<ul style="list-style-type: none"> Reduce net scope 1 and Scope 2 GHG emissions from both the upstream and downstream businesses by 52 mtCO₂e by 2035 Reduce absolute emissions to 67 mtCO₂e by 2035 	Near zero methane emissions from operated assets by 2030	Achieve a net zero footprint by 2050 (Scopes 1 and 2)
Sinopec Corp.	No	Plans to reduce, but no target	5-year CO ₂ emission reduction target of 12.6 mtCO ₂ e between 2018– 2023; no new 5-year target	Reduce methane emission intensity by 50% by 2025	<ul style="list-style-type: none"> Peak carbon emissions before 2030 Achieve carbon neutrality by 2050
YPF	No	Zero routine flaring by 2030	Reduce operational GHG emissions intensity by 30% by 2026 (baseline 2017)	Reduce methane emissions by 30% by 2030	No target set

Note: mtCO₂e = million metric tons of carbon dioxide equivalent. *ADNOC does not publish ESG reports or provide any data on emissions. These are statements made by the company on its website: <https://www.adnoc.ae/en/ourstrategy/emissions-reduction>. **Vladimir Afanasiev, "Gazprom Neft Rolls out Its Energy Transition Targets," Upstream Online, September 22, 2021, <https://www.upstreamonline.com/energy-transition/gazprom-neft-rolls-out-its-energy-transition-targets/2-1-1071462>.

Source: Companies' websites and sustainability reports; World Bank's Zero Routine Flaring by 2030 (ZRF) initiative, <https://www.worldbank.org/en/programs/zero-routine-flaring-by-2030/endorsers>.



Notes

1. Based on the authors' estimations of oil production reported by the Natural Resource Governance Institute (NRGI) National Resource Database, NOCs were responsible for about 50 percent of the world's oil production in 2019. With members of the Organization of the Petroleum Exporting Countries (OPEC) accounting for about 70 percent of the world's oil reserves, the International Energy Agency (IEA) expects that OPEC's share of oil production—which represents a subset of NOCs—is likely to rise from 35 percent in 2021 to 40–50 percent by 2050 under different energy scenarios. See IEA, *Net Zero by 2050*, May 2021, 51, <https://www.iea.org/reports/net-zero-by-2050>. In addition, emerging markets now represent almost 60 percent of global refining capacity, up from 46 percent in 2001. See BP, *BP Statistical Review of World Energy*, 2022, <https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/downloads.html>. Most of this refining capacity is controlled by state-owned companies. This share is expected to increase further, with emerging markets representing 90 percent of the 4.4 million barrels per day in new gross refining capacity expected in coming years, with 60 percent of that refining capacity coming from NOCs. See “New Refineries Will Increase Global Refining Capacity in 2022 and 2023,” *This Week in Petroleum*, US Energy Information Administration, July 20, 2022, https://www.eia.gov/petroleum/weekly/archive/2022/220720/includes/analysis_print.php. Moreover, NOCs' share of total investments in oil and gas have been rising steadily in recent years, representing 50 percent or more of total investments in the sector since 2020. See Gautam Jain and Luisa Palacios, “Investing in Oil and Gas Transition Assets En Route to Net Zero,” Center on Global Energy Policy, March 2023, <https://www.energypolicy.columbia.edu/publications/investing-in-oil-and-gas-transition-assets-en-route-to-net-zero-2>.
2. According to data from the US Energy Information Administration (EIA), WTI averaged \$68 per barrel in 2021 and \$95 per barrel in 2022. EIA, “Petroleum & Other Liquids,” accessed January 20, 2023, https://www.eia.gov/dnav/pet/pet_pri_spt_s1_d.htm.
3. Jain and Palacios, “Investing in Oil and Gas Transition Assets En Route to Net Zero.”
4. Some pledges by banks and asset managers have been made in the context of their membership in initiatives like the Net Zero Banking Alliance (<https://www.unepfi.org/net-zero-banking>) or the Net Zero Asset Managers Initiative (<https://www.netzeroassetmanagers.org>). According to these initiatives' websites, as of March 2023 the Net Zero Banking Alliance's signatories represented about 40 percent of global banking assets and the asset managers initiative had 301 signatories, with \$59 trillion in assets under management.



5. For examples of guidelines for the reporting of financed emissions, see Partnership for Carbon Accounting Financials, *The Global GHG Accounting and Reporting Standard Part A: Financed Emissions*, 2nd ed., December 2022, <https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf>; and Task Force on Climate Related Disclosures, *Implementing the Recommendations of the Task Force on Climate-Related Financial Disclosures*, June 2017, <https://assets.bbhub.io/company/sites/60/2020/10/FINAL-TCFD-Annex-Amended-121517.pdf>.
6. The Greenhouse Gas Protocol defines scope 1 emissions as direct greenhouse gas (GHG) emissions that occur from sources that are owned or controlled by the company, scope 2 as GHG emissions from the generation of purchased electricity, and scope 3 as all other indirect emissions. Some examples of scope 3 activities are extraction and production of purchased materials, transportation of purchased fuels, and use of sold products and services. See World Resources Institute and World Business Council for Sustainable Development, *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard*, revised ed., March 2004, <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>.
7. United Nations Environment Programme Finance Initiative, *Guidelines for Climate Change Target Setting for Banks*, April 2021, <https://www.unepfi.org/wordpress/wp-content/uploads/2021/04/UNEP-FI-Guidelines-for-Climate-Change-Target-Setting.pdf>.
8. Alastair Marsh, “Banks Try Quiet Quitting Net Zero,” Bloomberg, October 14, 2022, <https://www.bloomberg.com/news/articles/2022-10-14/banks-try-quiet-quitting-net-zero-as-fortune-favors-fossil-fuels>.
9. The most recent IPO of an NOC was KazMunayGas’ at the end of 2022. See “Kazakhstan’s Largest IPO of KazMunayGas National Company Shares Kicks Off,” *Astana Times*, December 8, 2022, <https://astanatimes.com/2022/12/kazakhstans-largest-ipo-of-kazmunaygas-national-company-shares-kicks-off>.
10. The IPO drive in the Middle East in the past two years might contradict this potential headwind. However, such IPOs can also be seen as a way for some NOCs to raise financing indirectly through divestment of non-core activities, taking advantage of the window of opportunity that high oil prices are delivering. The best example so far is ADNOC, the NOC of the United Arab Emirates. ADNOC has listed three subsidiaries or joint ventures since 2021: ADNOC Drilling, JV Fertilizing partnership Fertiglobe, and petrochemical company Borealis. See Dania Saadi, “ADNOC, Borealis Raise Over \$2 Billion From JV’s IPO as UAE Monetizes Energy Assets,” S&P Global Commodity Insights, May 31, 2022, <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/oil/053122-adnoc-borealis-raise-over-2-bil-from-jv-ipo-as->

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[uae-monetizes-energy-assets.](#)

11. While this report focuses on the bond debt issued by NOCs in international markets, it underestimates the amount of debt outstanding by NOCs in the form of bank loans.
12. There is no indication that ESG has increased the cost of financing for investment-grade oil and gas companies at the moment. See Gautam Jain, “Is ESG Driving Debt Costs Higher For Oil and Gas Companies?,” Energy Explained, Center on Global Energy Policy, March 14, 2023, <https://www.energypolicy.columbia.edu/is-esg-driving-debt-costs-higher-for-oil-and-gas-companies>. But net-zero commitments by banks and asset owners with targets to fulfill by 2030 could start affecting the cost of borrowing for oil and gas companies that have no credible energy transition pathways and are failing at decarbonizing their operations. An argument could be made that, for companies with particularly negative environmental performance, problems accessing finance could be happening already. See Stefanie Eschenbacher, “Mexico’s Pemex Sees Poor Environmental Record as Threat to Financing,” Reuters, December 23, 2022, <https://www.reuters.com/business/sustainable-business/mexicos-pemex-sees-poor-environmental-record-threat-financing-2022-12-23>.
13. See Aldo Musacchio, *Reinventing State Capitalism: Leviathan in Business, Brazil and Beyond* (Cambridge, Massachusetts: Harvard University Press, 2014).
14. Nymia C. Almeida, “Moody’s Downgrades PEMEX’s Ratings to B1; Outlook Changed to Stable,” Moody’s Investor Services, July 11, 2022, https://www.moody.com/research/Moodys-downgrades-PEMEXs-ratings-to-B1-outlook-changed-to-stable--PR_467706.
15. See Gloria Kim, “Global Index & Portfolio Research,” JPMorgan, accessed March 31, 2023, <https://www.jpmorgan.com/content/dam/jpm/cib/complex/content/markets/composition-docs/pdf-27.pdf>.
16. This index includes only NOCs that are 100 percent owned. All bonds from publicly listed NOCs are included in emerging market corporate indices like the Corporate Emerging Market Bond Index (CEMBI) along with other private sector emerging market corporates. The CEMBI series tracks US dollar denominated debt issued by emerging market corporations. For a list of different indices for both advanced and emerging markets, see for example JPMorgan, “JPMorgan Global Index Research,” <https://www.jpmorgan.com/insights/research/index-research/>.
17. The ETF can be found under the Bloomberg ticker EMB or under Refinitiv ticker EMB.O. See JP Morgan Global Index Portfolio Research, <https://www.jpmorgan.com/content/dam/jpm/cib/complex/content/markets/composition-docs/pdf-27.pdf>.



18. “Global Sustainable Fund Flows: Q4 2022 in Review,” Morningstar, January 26, 2023, <https://www.morningstar.com/lp/global-esg-flows>.
19. For a list of all ESG regulations globally, see UN Principles for Responsible Investment, “Regulation Database,” <https://www.unpri.org/policy/regulation-database>. For US climate disclosure regulations, see US Security and Exchange Commission, “SEC Proposes Rules to Enhance and Standardize Climate-Related Disclosures for Investors,” March 21, 2022, <https://www.sec.gov/news/press-release/2022-46>; for a brief account of the EU’s ESG regulatory disclosures, see Emma Bichet, Jack Eastwood, and Michael Mencher, “EU’s New ESG Reporting Rules Will Apply to Many US Issuers,” Harvard Law School Forum on Corporate Governance, November 23, 2022, <https://corpgov.law.harvard.edu/2022/11/23/eus-new-esg-reporting-rules-will-apply-to-many-us-issuers>.
20. For a comprehensive look at the challenges of ESG ratings and how progress is needed, see Ricardo Boffo and Robert Patalano, “ESG Investing: Practices, Progress and Challenges,” Organisation for Economic Co-operation and Development, 2020, <https://www.oecd.org/finance/ESG-Investing-Practices-Progress-Challenges.pdf>.
21. Florian Berg, Julian F. Kölbel, and Roberto Rigobon, “Aggregate Confusion: The Divergence of ESG Ratings,” *Review of Finance* 26, no. 6 (2022), <https://doi.org/10.1093/rof/rfac033>; Monica Billio et al., “Inside the ESG Ratings: (Dis)agreement and Performance,” *Corporate Social Responsibility and Environmental Management* 28, no. 5 (2021), <https://onlinelibrary.wiley.com/doi/10.1002/csr.2177>; and Boffo and Patalano, *ESG Investing: Practices, Progress and Challenges*.
22. For example, Berg et al. conclude that differences in how ESG data is measured contribute to 56 percent of the ratings divergence, the scope is responsible for 38 percent, and the weights of each component on the overall score represent about 6 percent. Billio et al. observe similar results without specifying the weights. For example, their paper explains that it makes a difference in measurement whether ESG ratings agencies engage with a company or not when collecting data, versus relying solely on public information. On weights, the paper argues that discrepancies across ratings may simply owe to the consideration of different components weighted differently responding to the “proprietary definition of materiality” of each of the ESG rating agencies.
23. For comparative purposes, this research considered only a selection of international integrated oil companies. It excludes companies that are present only in the upstream or downstream part of the business, since the metrics that might be included, and the weights given to these metrics, might be different in companies that operate only in one segment vs. those that are integrated. This excluded exploration and production companies, known

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as E&P, many of which operate in the US shale space. However, for an analysis of climate disclosures comparing just US E&P companies, see Hon Xing Wong, Erin Blanton, Tim Boersma, and Naomi Zimmerman, “ESG Investing and the US Oil and Gas Industry: An Analysis of Climate Disclosures,” Center on Global Energy Policy, April 12, 2022, <https://www.energypolicy.columbia.edu/publications/esg-investing-and-us-oil-and-gas-industry-analysis-climate-disclosures>. The IOCs selected were also those with international operations, which excluded integrated Canadian oil companies.

24. The Italian government has 30 percent of the shares of Eni, with the remaining shares listed on the stock market; for more information about Eni’s shareholder structure, see Eni, “Who We Are: Shareholders,” <https://www.eni.com/en-IT/about-us/governance/shareholders.html>. This study considers only government majority-owned companies as NOCs, which excludes Eni.
25. Table A-3 in the Appendix surveys the available ESG ratings of NOCs by selected ESG rating agencies. Of the 35 NOCs researched, only 15 (including Equinor) had ESG ratings by more than 2 ESG rating agencies. Availability of ESG ratings significantly limited the universe of NOCs that were analyzed in this paper. Only NOCs with more than 200,000 barrels per day of oil production equivalent were included. This criteria excluded, for example, Oil India, which is significantly more present in the downstream part of the business than in upstream, with only 60,000 barrels per day of oil production as of March 2022 according to Refinitiv data.
26. For ESG ratings that were not publicly available, the authors had access to an ESG rating provider subscription. In addition, one ESG rating agency shared a subset of rating scores with the authors of this report for academic purposes.
27. For example, after the Russian invasion of Ukraine, Russian NOC Rosneft was downgraded by MSCI from an average ESG performer (BB) to a laggard ESG score (B), and by Sustainalytics from a high ESG risk (36) to severe ESG risk (44).
28. For example, prior to Russia’s invasion of Ukraine, one ESG rating provider had Norwegian state-owned oil company Equinor and Rosneft practically with the same ESG rating score. This is in stark contrast to other ESG rating providers that had Equinor among the best ESG companies in this subset of companies.
29. International Organization of Securities Commissions, “IOSCO Calls for Oversight of ESG Ratings and Data Product Providers,” November 23, 2021, <https://www.iosco.org/news/pdf/IOSCONEWS627.pdf>.
30. How rating agencies define materiality is key to understanding their differences. Boffo and Patalano argue that ESG ratings do not provide investors with a clear picture of the issues



that are likely to directly impact the financial condition of a company, which they argue is due to a lack of sufficient clarity on how ESG ratings define the ESG metrics that have financial materiality and those that have non-financial materiality (i.e., social impact). Whether an ESG rating takes a single (i.e., financial) materiality approach or a double materiality approach is likely to impact the ESG rating for a given company. For an example on the factors that are deemed material to each sector and their assigned weights in the ESG score, see MSCI, “ESG Industry Materiality Map,” <https://www.msci.com/our-solutions/esg-investing/esg-industry-materiality-map>.

31. These weights were estimated by analyzing the weights assigned to a sample of 73 oil and gas companies considered to be large and mega cap in the oil and gas sector by Arabesque (ESG Book).
32. See MSCI, “ESG Industry Materiality Map.”
33. S&P includes variables such as energy mix, environmental reporting, environmental policy, and climate strategy in the scoring for environment. See S&P Global ESG Research, *Weights Overview, Corporate Sustainability Assessment 2023*, https://portal.csa.spglobal.com/survey/documents/CSA_Weights.pdf.
34. S&P ESG scores are constructed using the S&P Global Corporate Sustainability Assessment (CSA), “an annual assessment of company sustainability performance, to which all companies in the research universe are invited to participate ... The CSA engages companies directly through 61 industry-specific questionnaires, to which participants submit in-depth data and supporting evidence—including internal documentation beyond public disclosures.” S&P explains that for companies that do not respond their questionnaire, a team of expert conducts the assessment questionnaires using publicly available information. See S&P Global, *ESG Scores Methodology*, <https://www.spglobal.com/esg/documents/sp-global-esg-scores-methodology-2022.pdf>.
35. Arabesque, *ESG Scores V2.6.2 User Guide 2022*, https://www.esgbook.com/docs/marketing/USERGUIDE_ESGBook_SCO_ESG_262.pdf; Moody’s Investors Service, *General Principles for Assessing Environmental, Social and Governance Risks Methodology*, October 19, 2021, https://www.moody.com/research/General-Principles-for-Assessing-Environmental-Social-and-Governance-Risks-Methodology--PBC_1288235; MSCI, “ESG Industry Materiality Map”; S&P, *Weights Overview*; and Sustainalytics, *ESG Risk Ratings: Methodology Abstract Version 2.1*, January 2021, <https://www.sustainalytics.com/material-esg-issues-resource-center>.

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36. Berg et al., “Aggregate Confusion: The Divergence of ESG Ratings.”
37. According to Moody’s, credit ratings are “forward-looking opinions of the relative credit risks of financial obligations,” where credit risk is defined as “the risk that an entity may not meet its contractual financial obligations as they come due.” See Moody’s Investor Service, *Rating Symbols and Definitions*, October 2021, https://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBC_79004.
38. For examples of ESG rating definitions, see Robeco, “ESG Definition,” <https://www.robeco.com/en/key-strengths/sustainable-investing/glossary/esg-definition.html>; and MSCI, “What Is an MSCI ESG Rating?,” <https://www.msci.com/our-solutions/esg-investing/esg-ratings>.
39. International Organization of Securities Commissions, *Environmental, Social and Governance (ESG) Ratings and Data Products Providers: Final Report*, November 2021, <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD690.pdf>. In addition to the problems with the definition of ESG ratings, IOSCO also acknowledges that a lack of reliable, standardized available ESG raw data also impacts the consistency of ESG ratings; *ibid.*, p. 17.
40. “Britain Takes First Step to Regulate Company ESG Raters,” Reuters, November 11, 2022, <https://www.reuters.com/business/sustainable-business/britain-takes-first-step-regulate-company-esg-raters-2022-11-22>.
41. Florian Kiesel and Felix Lücke, “ESG in Credit Ratings and the Impact on Financial Markets,” *Financial Markets, Institutions & Instruments* 28, no. 3 (2019), <https://doi.org/10.1111/fmii.12114>; and Aydin Aslan, Lars Poppe, and Peter Posch, “Are Sustainable Companies More Likely to Default? Evidence from the Dynamics Between Credit and ESG Ratings,” *Sustainability* 13, no. 15 (2021), <https://doi.org/10.3390/su13158568>.
42. See S&P Global Ratings Direct, “ESG Credit Indicator Report Card: Oil and Gas Upstream and Refining,” November 23, 2021, <https://www.spglobal.com/ratings/en/research/pdf-articles/211123-esg-credit-indicator-report-card-oil-and-gas-upstream-and-refining>; and Moody’s Investors Service, *General Principles for Assessing Environmental, Social and Governance Risks Methodology*.
43. Pemex and PetroChina were excluded from these averages given the lack of available ESG scores by all providers. Also, Equinor was included in the NOCs category. Given that Pemex is consistently the worst rated company among the integrated oil and gas companies in the study and Equinor among the best, the results underestimate the degree of ESG underperformance of NOCs from emerging markets.



44. NOCs included in these averages were selected according to the data available for all ESG providers with separate E, S, and G scores.
45. For a definition of the corporate governance category in ESG, see Moody's Investors Service, *General Principles*, 15.
46. For example, Sustainalytics states in its methodology that corporate governance "is a foundational element in the ESG Risk Ratings and reflects our conviction that poor Corporate Governance poses material risks for companies. It applies to all companies in our rating universe, irrespective of the subindustry they are in." Sustainalytics, *ESG Risk Ratings*, 5.
47. For a comprehensive study of the presence of SOEs in emerging markets, see "State-Owned Companies: The Other Government," *Fiscal Monitor*, International Monetary Fund, April 2020, <https://www.imf.org/-/media/Files/Publications/fiscal-monitor/2020/April/English/ch3.ashx>.
48. For studies of why NOCs are created, see David G. Victor, David R. Hults, and Mark C. Thurber, *Oil and Governance: State-Owned Enterprises and the World Energy Supply* (Cambridge: Cambridge University Press, 2011).
49. For a study of the different types of state ownership in the oil sector, see Øystein Noreng, *The Oil Business and the State: National Energy Companies and Government Ownership* (New York: Routledge, 2021); and Øystein Noreng, "National Oil Companies and their Government Owners: The Politics of Interaction and Control," *The Journal of Energy and Development* 19, no. 2 (1994), <http://www.jstor.org/stable/24808045>.
50. For example, some studies have identified overemployment and selling products at subsidized prices in the domestic market as among the objectives that NOCs perform that impact their efficiency. See Peter R. Hartley and Kenneth B. Medlock III, "A Model of the Operation and Development of a National Oil Company," James A. Baker III Institute for Public Policy, Rice University, March 2007, https://scholarship.rice.edu/bitstream/handle/1911/91457/NOC_Model_Hartley-Medlock.pdf.
51. See Global Reporting Initiative, *Oil and Gas Sector 2021*, GRI Sector Standards, October 5, 2021, 57, <https://www.globalreporting.org/standards/standards-development/sector-standard-for-oil-and-gas/>.
52. See Extractive Industries Transparency Initiative, *EITI Standard 2019*, June 2019, <https://eiti.org/collections/eiti-standard>; Natural Resource Governance Institute, *2021 Resource Governance Index*, December 9, 2021, https://resourcegovernance.org/sites/default/files/documents/2021_resource_governance_index.pdf; and David Manley and Rob Pitman, *Natural*

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Resource Charter Benchmarking Framework, Natural Resource Governance Institute, 2017, https://resourcegovernance.org/sites/default/files/documents/natural-resource-charter-benchmarking-framework-report-2017-web_0.pdf.

53. Organisation for Economic Co-operation and Development, *Guidelines on Corporate Governance of State-Owned Enterprises*, 2015 Edition, November 19, 2015, <https://doi.org/10.1787/9789264244160-en>.
54. For an analysis of the governance framework of selected NOCs, see Perrine Toledano, Martin Dietrich Brauch, Tehtena Mebratu-Tsegaye, and Francisco Javier Pardinas Favela, “Equipping the Nigerian National Petroleum Corporation for the Low-Carbon Transition: How Are Other National Oil Companies Adapting?,” Columbia Center on Sustainable Investment, October 2020, <https://ccsi.columbia.edu/sites/default/files/content/docs/publications/CCSI-NNPC-Nigerian-National-Petroleum-Corporation-Low-Carbon-Transition-rev.pdf>; and Musacchio, *Reinventing State Capitalism*.
55. For information on the production, revenues, and performance of the more than 70 national oil companies that exist currently, see Natural Resource Governance Institute, “National Oil Company Database,” <https://www.nationaloilcompanydata.org>.
56. Some studies have looked at how differences in NOCs’ ownership structures, competition in domestic markets, and overall governance factors impact their value creation. See Silvana Tordo, Brandon Tracy, and Noora Arfaa, “National Oil Companies and Value Creation,” World Bank Working Paper no. 218, 2011, <https://documents1.worldbank.org/curated/en/650771468331276655/pdf/National-oil-companies-and-value-creation.pdf>.
57. Gazprom and Rosneft delisted their stocks in financial centers in advanced economies in 2022, although they published their 2021 sustainability reports. It remains to be seen how this could impact their ESG disclosures in the future. See, for example, London Stock Exchange, “Gazprom Delisting of Depositary Receipts,” April 29, 2022, <https://www.londonstockexchange.com/news-article/OGZD/gazprom-delisting-of-depositary-receipts/15432545>.
58. While CNOOC Limited, PetroChina, and Sinopec Corp. announced their delisting from NYSE in 2022, they are still listed in the Hong Kong Stock Exchange (HKEX), which for the purposes of this study is considered an international stock exchange. See Stock Exchange of Hong Kong, *Environmental, Social and Governance Reporting Guide*, <https://en-rules.hkex.com.hk/rulebook/environmental-social-and-governance-reporting-guide-0>.
59. “An ADR is a negotiable certificate that evidences an ownership interest in American Depositary Shares (‘ADSs’) which, in turn, represent an interest in the shares of a non-U.S.



company that have been deposited with a U.S. bank.” See Office of Education and Investor Advocacy, “Investor Bulletin: American Depository Receipts,” US Securities and Exchange Commission, August 2012, <https://www.sec.gov/investor/alerts/adr-bulletin.pdf>.

60. As of 2022, the Sustainable Stock Exchanges Initiative had 113 member stock exchanges, with 60,941 listed companies. See Sustainable Stock Exchanges Initiative, *Results and Impact Report 2021*, <https://sseinitiative.org/wp-content/uploads/2022/06/2021-results-and-Impact.pdf>.
61. For a description of the benefits of listing SOEs, see Patrick Heller, Paasha Mahdavi, and Johannes Schreuder, “Reforming National Oil Companies: Nine Recommendations,” Natural Resource Governance Institute, July 2014, <https://resourcegovernance.org/analysis-tools/publications/reforming-national-oil-companies-nine-recommendations>; and Musacchio, *Reinventing State Capitalism*.
62. See Saudi Aramco, *Sustainability Report 2021*, <https://www.aramco.com/en/sustainability/sustainability-report>.
63. Luisa Palacios and Hon Xing Wong, “How the ESG Investing Framework Applies to National Oil Companies: Workshop Report,” Center on Global Energy Policy, December 2021, <https://www.energypolicy.columbia.edu/research/global-energy-dialogue/how-esg-investing-framework-applies-national-oil-companies-workshop-report>.
64. PDVSA bonds, for example, included financial disclosure provisions as part of the bond covenants in the bond prospectus: “The Issuer shall provide the Trustee, the Principal Paying Agent and the Holders of the Notes within 180 days following the end of each fiscal year of the Issuer after the Issue Date, the annual consolidated financial statements (including the notes thereto) of the Issuer, prepared in accordance with IFRS and presented in the English language, and a report thereon by the Issuer’s certified independent accountants” See PDVSA, “\$4.5 Billion Bonds 6% Senior Notes Due 2026,” 113, <https://www.luxse.com/pdf-viewer/1987033>.
65. See Natural Resource Governance Institute, *Guide to Extractive Sector State-Owned Enterprise Disclosures*, January 2018, https://resourcegovernance.org/sites/default/files/documents/guide-to-extractive-sector-state-owned-enterprise-disclosures_0.pdf.
66. Kenneth P. Pucker, “[Overselling Sustainability Reporting](https://hbr.org/2021/05/overselling-sustainability-reporting),” *Harvard Business Review*, May–June 2021, <https://hbr.org/2021/05/overselling-sustainability-reporting>.
67. See “Board of Directors” in *Corporate Governance of State-Owned Enterprises: A Toolkit*, World Bank, October 2014, 163, https://elibrary.worldbank.org/doi/10.1596/978-1-4648-0222-5_ch6.
68. To deal with political interference, the World Bank calls for the adoption of professional criteria

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for the selection and removal of board members, the development of a structured nomination process, and timely appointment and public disclosure.

69. See OECD, *Guidelines on Corporate Governance of State-Owned Enterprises*, 18 and 39; and Heller et al., “Reforming National Oil Companies.”
70. World Bank, *Corporate Governance of State-Owned Enterprises*.
71. See Mussachio, *Reinventing State Capitalism*, 172.
72. Andres Schipani, “Petrobras in \$853m Settlement of Bribery Case That Rocked Brazil,” *Financial Times*, September 27, 2018, <https://www.ft.com/content/686db098-c252-11e8-95b1-d36dfef1b89a>.
73. Kjetil Hansen and Ruxandra Burdescu, “Case Study 8: SOE Reforms in Brazil Following ‘Lava Jato,’” in *Enhancing Government Effectiveness and Transparency: The Fight Against Corruption*, World Bank, October 3, 2020, <https://documents1.worldbank.org/curated/en/235541600116631094/pdf/Enhancing-Government-Effectiveness-and-Transparency-The-Fight-Against-Corruption.pdf>.
74. For a discussion of the governance improvements of the Brazilian State-Owned Companies Law (Law 13.303), see Clóvis Alberto Bertolini de Pinho and Marcia Carla Pereira Ribeiro, “Corruption and Compliance in State-Owned Companies: Rationality of the Brazilian State-Owned Companies Law,” *Administrative Law Review* 277, no. 1 (2018), <https://doi.org/10.12660/rda.v277.2018.74808>.
75. B3 SA—Brasil, Bolsa, Balcão, *State-Owned Enterprise Governance Program*, May 11, 2017, <https://www.b3.com.br/data/files/F3/B4/1E/4F/C1B2F510ACF0E0F5790D8AA8/State-owned-Enterprise-Governance-Program11.05.17.pdf>.
76. For a discussion of the definition of commercial and noncommercial goals of various NOCs, see Toledano et al., “Equipping the Nigerian National Petroleum Corporation for the Low-Carbon Transition.”
77. See Simon C. Y. Wong, “The State of Governance at State-Owned Companies,” *Private Sector Opinion* 40, International Finance Corporation, World Bank Group, 2018, <https://www.ifc.org/wps/wcm/connect/b1adde06-267d-4d79-bfaf-62f17de51f4a/PSO40.pdf?MOD=AJPERES&CVID=m7T0xLQ>.
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state-owned company were attached to satisfy the debts of the government. See Mark C. Weidemaier, “Piercing the (Sovereign) Veil: The Role of Limited Liability in State-Owned Enterprises,” *Brigham Young University Law Review* 46, no. 3 (2021), <https://digitalcommons.law.byu.edu/lawreview/vol46/iss3/7>; and Richard J. Cooper et al., “Implications of US Court of Appeals Decision Affirming that Petr leos de Venezuela, SA Is the Alter Ego of the Republic of Venezuela,” Cleary Gottlieb, September 9, 2019, <https://www.clearygottlieb.com/news-and-insights/publication-listing/implications-of-pdvsa-alter-ego-decision-for-other-sovereigns>.

79. Armando Zamora, “Strategic Implications of Emerging Market-Oriented Latin American Petroleum Policies,” *Energy Strategy Reviews* 3 (2014), <https://doi.org/10.1016/j.esr.2014.07.001>.
80. Heller et al., “Reforming National Oil Companies”; Manley and Pitman, *Natural Resource Charter Benchmarking Framework*; and OECD, *Guidelines on Corporate Governance of State-Owned Enterprises*.
81. For a study of the fiscal regimes in the resource extractive industries, see International Monetary Fund, *The Taxation of Petroleum and Minerals* (New York: Routledge, 2010), <https://www.elibrary.imf.org/view/book/9780415781381/9780415781381.xml>.
82. Colombia’s oil regulatory agency, for example, provides a monthly account of royalty payments, which are tied to monthly production in the country. See Agencia Nacional de Hidrocarburos, “Royalties and Production,” <https://www.anh.gov.co/en/operaciones-y-regalias/regalias-de-produccion/estadisticas-e-informes>.
83. For a recent example of how independent oil and gas regulators in emerging markets can help in decarbonizing oil and gas production, see Oliver Griffin, “Colombia to Prioritize Cutting Carbon Emissions in Oil and Gas Contracts,” Reuters, May 11, 2022, <https://www.reuters.com/business/sustainable-business/colombia-prioritize-cutting-carbon-emissions-oil-gas-contracts-2022-05-11>.
84. Isabel Mogstad, Meghan Demeter, and Kate Gaumont, “The Next Frontier: Managing Methane Risks From Non-Operated Assets,” Environmental Defense Fund, November 2018, https://storage.googleapis.com/edfbiz_website/Oil%20Gas%20Methane/The-Next-Frontier_FINAL_updated.pdf.
85. As an example, Equinor reports GHG data from all Equinor-operated fields, as well as partner-operated fields in Norway. But in the company’s 2021 sustainability report, it stated it was “working actively with license owners to make data publicly available for international partner-operated fields.” See Equinor, *2021 Sustainability Report*, 23, <https://cdn.equinor.com/>

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86. EITI, for example, establishes as one of its requirements for implementing its standards disclosure and transparency about how much extractive companies pay in taxes, royalties, and other payments and how much the government agencies have received. See Extractive Industries Transparency Initiative, “Guidance Note: Disclosing Materiality, Reporting Thresholds and Reporting Entities,” May 2016, <https://eiti.org/guidance-notes/defining-materiality-reporting-thresholds-and-reporting-entities>.
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88. See Saudi Aramco, “Dividend Schedule,” <https://www.aramco.com/en/investors/investor-tools/dividends>.
89. Alexandra Gillies, Matthieu Salomon, Sebastian Sahla, and Tom Shipley, “Diagnosing Corruption in the Extractive Sector: A Tool for Research and Action,” Natural Resource Governance Institute, September 2021, https://resourcegovernance.org/sites/default/files/documents/diagnosing_corruption_in_the_extractive_sector_a_tool_for_research_and_action.pdf.
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91. The OECD’s survey of corruption showed state-owned companies in extractive sectors to have by far the highest rates of corruption. Organisation for Economic Co-operation and Development, “2017 Survey of Anti-Corruption and Integrity in State-Owned Enterprises,” in *State-Owned Enterprises and Corruption: What Are the Risks and What Can Be Done?*, August 27, 2018, <https://doi.org/10.1787/9789264303058-9-en>.
92. See GRI, *Oil and Gas Sector 2021*; and Sustainability Accounting Standards Board, *Oil and Gas Exploration & Production, Sustainability Accounting Standard*, October 2018, <https://www.sasb.org/standards/download/?lang=en-us>.
93. Organisation for Economic Co-operation and Development, *Convention on Combating Bribery of Foreign Public Officials in International Business Transactions*, <https://www.oecd.org/>



[daf/anti-bribery/oecdantibriberyconvention.htm](https://www.oecd.org/anti-bribery/oecd-anti-bribery-convention.htm).

94. “The Foreign Corrupt Practices Act of 1977, as amended ... was enacted for the purpose of making it unlawful for certain classes of persons and entities to make payments to foreign government officials to assist in obtaining or retaining business.” See US Department of Justice, “Foreign Corrupt Practices Act: An Overview,” <https://www.justice.gov/criminal-fraud/foreign-corrupt-practices-act>.
95. See “Key Statistics,” Stanford University Foreign Corrupt Practices Act Clearinghouse (a collaboration with Sullivan & Cromwell LLP), <https://fcpa.stanford.edu/statistics-keys.html>.
96. The Justice Department explains that “the anti-bribery provisions prohibit U.S. persons and businesses (domestic concerns), U.S. and foreign public companies listed on stock exchanges in the United States or that are required to file periodic reports with the Securities and Exchange Commission (issuers), and certain foreign persons and businesses acting while in the territory of the United States (territorial jurisdiction) from making corrupt payments to foreign officials to obtain or retain business.” See US Department of Justice, *A Resource Guide to the U.S. Foreign Corrupt Practices Act*, 2nd ed., July 2020, 1, 9, <https://www.justice.gov/criminal-fraud/fcpa-resource-guide>.
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100. See GRI, *Oil and Gas Sector 2021*; and SASB, *Oil and Gas Exploration & Production, Sustainability Accounting Standard*.
101. According to SEC documents, Petrobras agreed to pay a total of \$933 million in disgorgement and prejudgment interest and an \$853 million penalty; see US Securities and Exchange

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Commission, “Petrobras Reaches Settlement With SEC for Misleading Investors,” September 27, 2018, <https://www.sec.gov/news/press-release/2018-215>. These payments were subject to offsets from a related class-action lawsuit that cost Petrobras \$2.95 billion to settle; see Brendan Pierson “Petrobras to Pay \$2.95 Billion to Settle U.S. Corruption Lawsuit,” Reuters, January 3, 2018, <https://www.reuters.com/article/us-petrobras-classaction/petrobras-to-pay-2-95-billion-to-settle-u-s-corruption-lawsuit-idUSKBN1ES0L2>.

102. In 2020, EITI published specific guidelines for reporting purchases of oil, gas, and minerals made by trading companies. See Extractive Industries Transparency Initiative, *Reporting Guidelines for Companies Buying Oil, Gas and Minerals from Governments*, September 2020, <https://eiti.org/guidance-notes/reporting-guidelines-companies-buying-oil-gas-and-minerals-governments>.
103. For a nonacademic account of the world of commodity trading, see Javier Blas and Jack Farchy, *The World for Sale: Money, Power, and the Traders Who Barter the Earth’s Resources* (New York: Random House, 2021).
104. For a case study of internal controls and corruption in a national oil company setting, see Natália Rezende de Almeida Santos, “Internal Controls and Corruption: The Case of Petrobras,” Working Paper no. 2, Sussex Centre for the Study of Corruption, December 2017, <https://www.sussex.ac.uk/webteam/gateway/file.php?name=scsc-working-paper-no-2.pdf&site=405>.
105. Some indications of whether a compliance program functions effectively are: (1) how the company evaluates risks and incorporates learning into its risks systems; (2) efforts to instill compliance behavior within the company, including compliance training and communication of code of conduct; (3) due diligence efforts of third-party risks; (4) integrity of internal investigations and protection of whistleblowers. See US Department of Justice, “Hallmarks of Effective Compliance Programs,” in *A Resource Guide to the U.S. Foreign Corrupt Practices Act*, 2nd ed., July 2020, 58, <https://www.justice.gov/criminal-fraud/fcpa-resource-guide>.
106. “ESG Should Be Boiled Down to One Simple Measure: Emissions,” *Economist*, July 21, 2022, <https://www.economist.com/leaders/2022/07/21/esg-should-be-boiled-down-to-one-simple-measure-emissions>.
107. See, for example, Ryan Thomas Trahan and Brad Jantz, “What Is ESG? Rethinking the ‘E’ Pillar,” *Business Strategy and the Environment* (2023), <https://doi.org/10.1002/bse.3371>.
108. Palacios and Wong, “How the ESG Investing Framework Applies to National Oil Companies.”
109. Financial Stability Board, *Recommendation of the Task Force on Climate-Related Financial Disclosures*, June 29, 2017, <https://www.fsb.org/2017/06/recommendations-of-the-task-force->



[on-climate-related-financial-disclosures-2.](#)

110. Recent studies of how NOCs are navigating the energy transition have looked, for example, at the share of their capital expenditures destined to clean energy technologies. See Amy Myers Jaffe et al., “Green Innovation of State-Owned Oil and Gas Enterprises in BRICS Countries: A Review of Performance,” *Climate Policy* (2022), <https://doi.org/10.1080/14693062.2022.2145261>. Others have looked at acquisitions as a diversification strategy of NOCs’ business model; see Mauricio Cardenas and Luisa Palacios, “National Oil Companies and the Energy Transition: Ecopetrol’s Acquisition of an Electric Transmission Company,” Center on Global Energy Policy, August 2021, <https://www.energypolicy.columbia.edu/publications/national-oil-companies-and-energy-transition-ecopetrols-acquisition-electric-transmission-company>. Another example looks at how NOCs’ energy transition strategies relate to their shareholders’ climate commitments; see Erica Downs, “Green Giants? China’s National Oil Companies Prepare for the Energy Transition,” Center on Global Energy Policy, <https://www.energypolicy.columbia.edu/publications/green-giants-china-s-national-oil-companies-prepare-energy-transition>.
111. An interesting case is ADNOC, which is the NOC of the United Arab Emirates. ADNOC does not publish financial or ESG reports publicly, and thus there are no ESG ratings on the company. However, it does provide information about decarbonization targets. The problem, however, will be the difficulty in supporting claims of progress on emission reduction without following up with disclosures of such ESG metrics. It would be interesting to see if the next step for ADNOC will be the publication of an ESG or financial report as a result of the issuance of its first international bond in 2022. See Anthony Di Paola, “UAE’s Top Oil Producer Prepares to Sell Bonds for First Time,” Bloomberg, January 25, 2023, <https://www.bloomberg.com/news/articles/2022-01-25/uae-s-top-oil-producer-forms-entity-to-sell-bonds-for-first-time>.
112. For examples of studies linking corruption to environmental degradation in emerging markets both at the country and corporate level, see Maurizio Lisciandra and Carlo Migliardo, “An Empirical Study of the Impact of Corruption on Environmental Performance: Evidence from Panel Data,” *Environmental Resource Economics* 68 (2017), <https://doi.org/10.1007/s10640-016-0019-1>; and Ye Wei and Wenjian He, “Can Anti-Corruption Improve the Quality of Environmental Information Disclosure?,” *Environmental Science and Pollution Research* 29 (2022), <https://doi.org/10.1007/s11356-021-15932-w>.
113. See Aldo Musacchio, *Reinventing State Capitalism: Leviathan in Business, Brazil and Beyond*.
114. [Sajjel Kishan](#), [Alastair Marsh](#), and [Frances Schwartzkopff](#), “ESG Finds Itself at Crossroads After Investing in Putin’s Russia,” Bloomberg, March 6, 2022, <https://www.bloomberg.com/news/>



[articles/2022-03-06/esg-finds-itself-at-crossroads-after-investing-in-putin-s-russia.](#)

115. The risk of a significant worsening of ESG indicators that might result in a loss of access to finance should also be part of considerations between those advocating for engagement versus divestments in fossil fuel companies. For a discussion of this debate, see, for example, Jonathan B. Berk and Jules H. van Binsbergen, “The Impact of Impact Investing,” Stanford University Graduate School of Business Research Paper, Law & Economics Center at George Mason University Scalia Law School Research Paper Series No. 22-008, August 21, 2021, <http://dx.doi.org/10.2139/ssrn.3909166>.
116. For a discussion of this problem, see Gabriel Malek, “Transferred Emissions: How Risks in Oil and Gas M&A Could Hamper the Energy Transition,” Environmental Defense Fund, 2022, <https://business.edf.org/files/Transferred-Emissions-How-Oil-Gas-MA-Hamper-Energy-Transition.pdf>. For guidelines for how ESG-minded companies can approach M&A transactions, see Andrew Baxter and Laetitia Pirson, “Tackling Transferred Emissions: Climate Principles for Oil and Gas Mergers and Acquisitions,” Environmental Defense Fund and CERES, January 19, 2023, <https://business.edf.org/insights/transferred-emissions-climate-principles/>. For policy proposals on how to approach the transferred emissions problem in emerging markets, see Jain and Palacios, “Investing in Oil and Gas Transition Assets En Route to Net Zero.”



