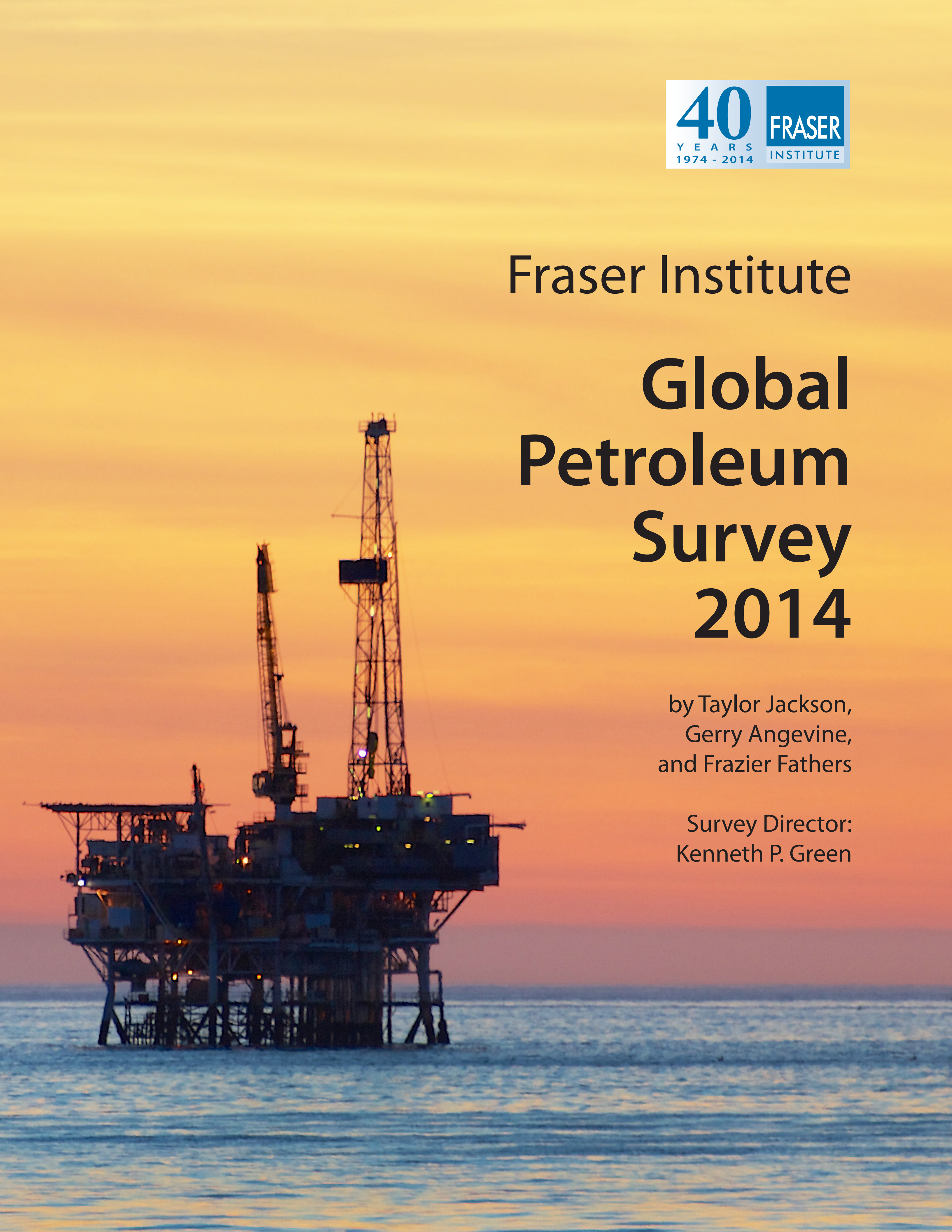

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Fraser Institute

Global Petroleum Survey 2014

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Executive Summary

This report presents the results of the Fraser Institute's 8th annual survey of petroleum industry executives and managers regarding barriers to investment in oil and gas exploration and production facilities in various jurisdictions around the globe. The survey responses have been tallied to rank provinces, states, other geographical regions (e.g. offshore areas) and countries according to the extent of such barriers. Those barriers, as identified by the survey respondents, include high tax rates, costly regulatory obligations, uncertainty over environmental regulations and the interpretation and administration of regulations governing the "upstream" petroleum industry, and concerns with regard to political stability and security of personnel and equipment.

A total of 710 respondents participated in the survey this year, providing sufficient data to evaluate 156 jurisdictions. By way of comparison, 157 jurisdictions were evaluated in the 2013 survey, 147 in 2012, 135 in 2011, and 133 in 2010.

The jurisdictions were assigned scores for each of 16 questions pertaining to factors known to affect investment decisions. The scores are based on the proportion of negative responses a jurisdiction received with regard to each question. The greater the proportion of negative responses for a jurisdiction, the greater were its perceived investment barriers, and, therefore, the lower its ranking. This ranking is used to generate a Policy Perception Index. Jurisdictions are then sorted into clusters based on the size of their proved reserves allowing for an apples-to-apples comparison of policy perception in the context of available reserves.

Of the 27 jurisdictions with large petroleum reserves, the five that rank as most attractive and with the least deterrent to investment are Texas, Alberta, Norway—North Sea, United Arab Emirates, and Qatar. The least attractive of the large-reserve jurisdictions for investment on the basis of their Policy Perception Index scores (all of which received fifth quintile scores: Venezuela, Iran, the four Russian regions, Iraq, Egypt, Libya, Indonesia, and Turkmenistan) account for almost half of the world's proved oil and reserves. Alberta is the only Canadian jurisdiction with large reserve holdings.

In the group of 44 jurisdictions with medium-sized reserves, the 10 most attractive jurisdictions are Oklahoma, Arkansas, North Dakota, Wyoming, Utah, Louisiana, Netherlands—Onshore, Norway—Other Offshore (i.e., except for the North Sea), New Mexico, and United Kingdom—North Sea. Bolivia, Ecuador, Uzbekistan, South Sudan, Uganda, Syria, and Argentina—Chubut, appear to pose the greatest barriers to upstream investment among medium reserve-size holders.

The only two Canadian jurisdictions in this group, Newfoundland & Labrador and British Columbia, rank 15th and 19th (of 44), respectively.

Of 69 jurisdictions with relatively small proved oil and gas reserves, the top performers are Mississippi, Saskatchewan, Manitoba, Alabama, Kansas, and the Netherlands—Offshore. Those in this group deemed the least attractive for investment on the basis of poor Policy Perception Index scores are: Democratic Republic of the Congo (Kinshasa), Kyrgyzstan, Tanzania, Argentina—Santa Cruz and Guatemala. Nova Scotia, New Brunswick, Yukon, and the Northwest Territories each rank near the middle of the small reserve holder group.

When considering policy independently from the size of jurisdictions' reserves, historically the primary focus of this survey, we find that the jurisdictions with Policy Perception Index scores in the first quintile (suggesting that obstacles to investment are lower than in all other jurisdictions assessed by the survey), are all located in Canada, the United States, and Europe. According to this year's survey, the 10 most attractive jurisdictions for investment worldwide are Oklahoma, Mississippi, Saskatchewan, Arkansas, Manitoba, Alabama, Kansas, Texas, North Dakota, and Wyoming. All of these jurisdictions were among last year's top 10 most attractive jurisdictions with the exception of Wyoming. The only jurisdiction displaced from the top 10 was Netherlands—North Sea.

The 10 least attractive jurisdictions for investment (starting with the worst) are Venezuela, Bolivia, Ecuador, Iran, Russia—Eastern Siberia, Russia—Offshore Arctic, Iraq, Uzbekistan, Democratic Republic of the Congo (Kinshasa), and Turkmenistan. Each of these jurisdictions except Turkmenistan and Democratic Republic of the Congo (Kinshasa) were also among the 10 least desirable jurisdictions for investment in oil and gas exploration and development identified in the 2013 survey.

Jurisdictions that saw the most change

This year only five jurisdictions improved their relative attractiveness for investment by at least 10 points on the Policy Perception Index measure: French Guiana, Uruguay, Suriname, Guyana, and Romania. Of those, only French Guiana improved by at least 20 points, although all five achieved significant gains in their global and regional rankings.

While just five jurisdictions saw considerable improvements, a substantial number saw their barriers to investment increase significantly over the past year, according to the 2014 Policy Perception Index scores. Forty-one jurisdictions (of 156) had their scores deteriorate by 10 points or more. This represents more than 25 percent of the sample. In particular, 20-point drops from 2013 Policy Perception Index scores were recorded for Nova Scotia, Yukon, Georgia (the country), Spain—Offshore, Kuwait, South Africa, Turkey, Spain—Onshore, Lebanon, Egypt, Tanzania, and Mali.

Analysis of the 2014 results indicates that the extent of negative sentiment regarding factors driving petroleum investment decisions (ignoring the extent of proved oil and gas reserve holdings) increased in most world regions. In fact, the median Policy Perception Index score deteriorated this year in all regions. Increased percentages of negative responses to survey questions were especially severe in sub-Saharan Africa, the Middle East and North Africa, and Europe.

Comparing the survey results for the years since 2010, negative sentiment over upstream investment appears to be rising around the world. By way of example, with few exceptions Policy Perception Index scores have been deteriorating consistently in the Australian jurisdictions.

Respondents' comments highlight reasons for the investment attractiveness (or non-attractiveness) of some jurisdictions. As in previous surveys, investors indicate that they continue to turn away from jurisdictions with onerous fiscal regimes, political instability, and land claim disputes. Similarly, investors prefer to avoid jurisdictions with costly, time-consuming uncertain regulations. Other factors being equal, competitive tax and regulatory regimes can attract investment and thus generate substantial economic benefits.

Additional sub-indices focus specifically on a jurisdiction's regulatory climate and perceptions of geopolitical risk.

Survey Methodology

Sample design

This survey is designed to identify provinces, states, offshore regions, other geographic areas, and countries with the greatest barriers to investment in oil and gas exploration and production. Jurisdictions that investors assess as relatively unattractive may thus be prompted to consider policy reforms that could improve their rankings. Petroleum companies can also use the information to corroborate their own assessments and to identify jurisdictions where business conditions and the regulatory environment are most attractive for investment. The survey results are also a useful source of information for the media, providing independent evidence as to how particular jurisdictions compare.

The survey was distributed to managers and executives in the "upstream" petroleum industry. This industry includes those exploring for oil and gas, those producing crude oil from conventional and non-conventional sources (such as bitumen from oil sands and shale formations), and those producing both conventional sources of natural gas and non-conventional sources, such as coalbed methane and gas embedded in shale formations. It does not include companies that are refining, upgrading, or processing crude oil, bitumen, and raw natural gas, or the transportation and marketing of petroleum products.

The names of potential respondents were taken from publicly available membership lists of trade associations and other sources. In addition, some industry associations and non-profit think tanks provided contact information (e.g., the Canadian Association of Petroleum Land Administration;

Figure 1: The position survey respondents hold in their company, 2014

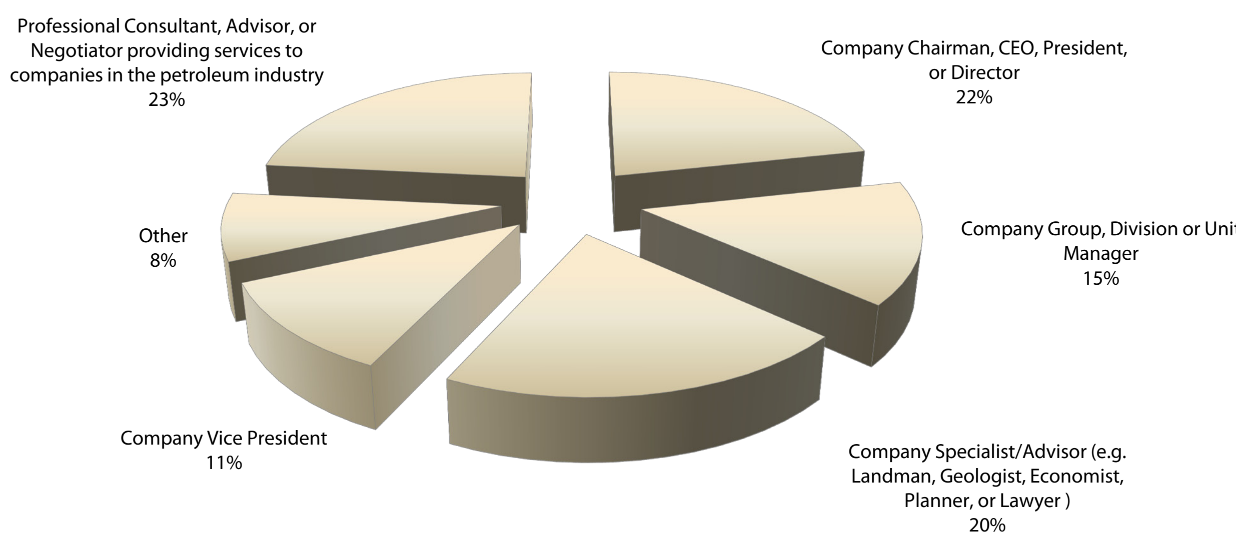
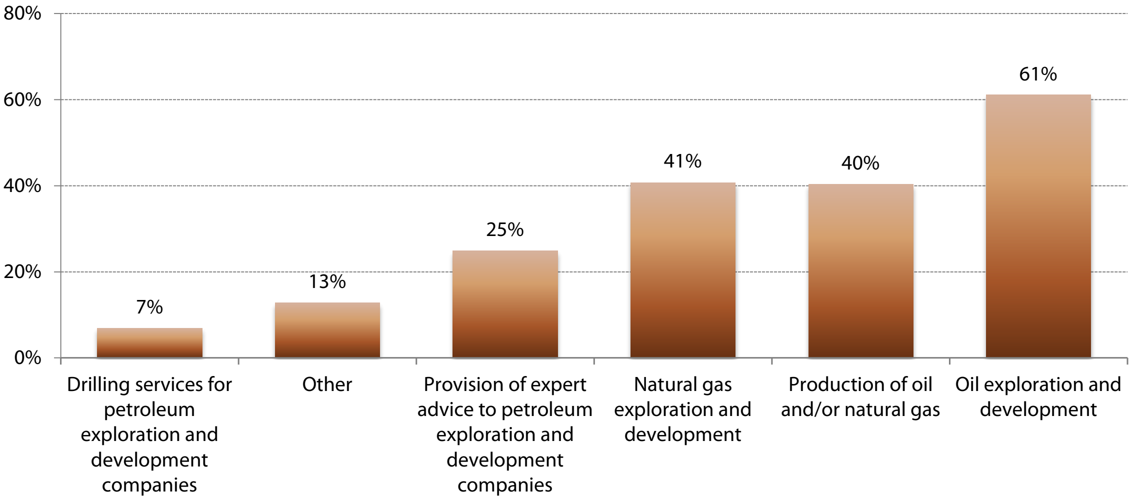


Figure 2: Activities performed by firms of survey respondents, 2014



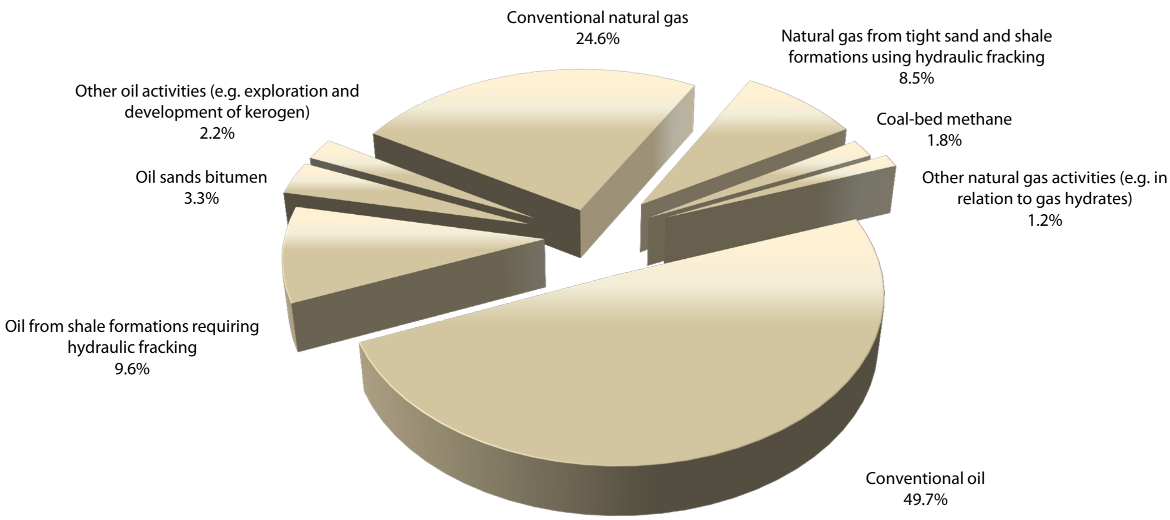
the Irish Offshore Operators' Association (IOOA); the South Africa Oil and Gas Association; and the Instituto Argentino del Petroleo y del Gas).

The survey was conducted from June 3, 2014, until August 23, 2014. A total of 710 individuals working with 563 companies responded. As figure 1 illustrates, just under half of the respondents (48 percent) identified themselves as either a manager or holding a higher-level position. Figure 2 shows that 61 percent of the firms participating in the survey are engaged in the exploration and development of oil, 41 percent are engaged in the exploration and development of natural gas, 40 percent are engaged in production of oil and/or natural gas, and 32 percent provide expert advice and/or drilling services.[1]

Figure 3 shows the principal focus of the petroleum exploration and development activities of companies whose managers or other representatives participated in the survey. The focus of most of these companies (74 percent) is on finding and developing conventional oil and gas reserves. The percentage of companies focusing on finding and developing conventional oil and gas reserves has declined overall in recent years from 82 percent in 2011 and 80 percent in 2012. Relative to 2013, however, the percentage of companies focusing on conventional oil and gas is up from 71 percent. Unconventional oil and natural gas exploration and development represented 26 percent of the focus of companies in 2014 compared with 29 percent in 2013.

1 Respondents were asked to select all activities performed by their respective companies. Because respondents come from companies with different focuses (e.g. exploration, production, drilling, and advisory services), the shares of the reported activities exceed 100 percent. Thirteen percent of respondents also selected "Other." Examples of such practices were scientific development, seismic surveys, studies of oil markets, storage of products, etc.

Figure 3: Company focus in petroleum exploration and development business, as indicated by respondents



Participants employed by petroleum firms reported that 15 percent of their upstream activity involves unconventional oil resources. The majority of this activity (64 percent) includes the recovery of oil from shale formations using hydraulic fracturing, 22 percent is focused on oil sands bitumen, and 14 percent on other oil activities, such as the exploration or development of oil from kerogen found in shale rock.

Participants in the survey also reported that 11 percent of their upstream activity involves unconventional natural gas resources. The majority of this activity (74 percent) involves the recovery of natural gas from tight sand and shale formations using hydraulic fracturing. Sixteen percent is focused on coal-bed methane. Eleven percent of the petroleum firms responding to the survey reported other unconventional natural gas activities (related to gas hydrates).

Survey questionnaire

The survey was designed to capture the opinions of managers and executives about the level of investment barriers in jurisdictions with which they are familiar. Respondents were asked to indicate how each of the 16 factors listed below influence company decisions to invest in various jurisdictions.

1. Fiscal terms—including licenses, lease payments, royalties, other production taxes, and gross revenue charges, but not corporate and personal income taxes, capital gains taxes, or sales taxes.
2. Taxation in general—the tax burden including personal, corporate, payroll, and capital taxes, and the complexity of tax compliance, but excluding petroleum exploration and production licenses and fees, land lease fees, and royalties and other charges directly targeting petroleum production.
3. Environmental regulations—stability of regulations, consistency and timeliness of regulatory process, etc.
4. Regulatory enforcement—uncertainty regarding the administration, interpretation, stability, or enforcement of existing regulations.
5. Cost of regulatory compliance—related to filing permit applications, participating in hearings, etc.
6. Protected areas—uncertainty concerning what areas can be protected as wilderness or parks, marine life preserves, or archaeological sites.
7. Trade barriers—tariff and non-tariff barriers to trade and restrictions on profit repatriation, currency restrictions, etc.
8. Labor regulations and employment agreements—the impact of labor regulations, employment agreements, labor militancy or work disruptions, and local hiring requirements.
9. Quality of infrastructure—includes access to roads, power availability, etc.
10. Quality of geological database—includes quality, detail, and ease of access to geological information.
11. Labor availability and skills—the supply and quality of labor, and the mobility that workers have to relocate.
12. Disputed land claims—the uncertainty of unresolved claims made by aboriginals, other groups, or individuals.
13. Political stability.
14. Security—the physical safety of personnel and assets.
15. Regulatory duplication and inconsistencies (includes federal/provincial, federal/state, inter-departmental overlap, etc.)
16. Legal system—legal processes that are fair, transparent, non-corrupt, efficiently administered, etc.

The above 16 factors were unchanged from the 2013 survey. However, two questions that had been included earlier—on socioeconomic agreements/community development conditions and on the corruption of government officials—were dropped in 2013 because respondents from previous years had complained that the survey had become onerously lengthy. In addition, those questions were seen to be redundant, or to overlap heavily with other questions.

For each of the 16 factors, respondents were asked to select one of the following five responses that best described each jurisdiction with which they were familiar:

1. Encourages investment
2. Is not a deterrent to investment
3. Is a mild deterrent to investment
4. Is a strong deterrent to investment
5. Would not invest due to this criterion

The 2014 survey included a list of 158 jurisdictions that respondents could evaluate, including all of the Canadian provinces and territories except Ontario, Prince Edward Island, and Nunavut; many US oil and gas producing states (as well as the US Alaska, Pacific, and Gulf Coast offshore regions); all six Australian states, the Australian offshore and the Timor Gap Joint Petroleum Development Area (JPDA); and countries with current or potential petroleum production capacity. Russia was split into four categories: Offshore Arctic, Offshore Sakhalin, Eastern Siberia, and the rest of the country. Six provinces in Argentina were also included in the survey: Chubut, Mendoza, Neuquen, Salta, Santa Cruz, and Tierra del Fuego. Brazil was again represented by three separate categories: onshore concessions, offshore concessions, and offshore "pre-salt" regions. Saudi Arabia, where investment in upstream petroleum exploration and development is mostly confined to government-owned facilities, was again excluded from the list of jurisdictions that respondents could rank.

With the opening up of oil and gas exploration and development for foreign investment under the leadership of the new President, Mr. Peña Nieto, Mexico was included for the first time.

Scoring the survey responses

For each jurisdiction, we calculated the percentage of negative scores for each of the 16 factors.[2] We then developed an index for each factor by assigning the jurisdiction with the highest percentage of negative responses a value of 100, and correspondingly lower values to the other jurisdictions according to their scores. Upstream investors consider jurisdictions with the lowest index values

2 The negative scores were determined by the number of times respondents graded a factor as "a mild deterrent to investment," "a strong deterrent to investment," or indicated that they "would not invest" in the jurisdiction because of issues related to that factor.

the most attractive, and thus rank them above jurisdictions that scored higher as a consequence of having greater proportions of negative scores.

In past years, only jurisdictions that at least 5 respondents evaluated on all 16 factors were included in the rankings. This year, as with 2013, we were able to increase this minimum threshold to 10 for almost all jurisdictions, allowing us to present more robust results. Jurisdictions that received between 5 and 9 responses (French Guiana, Georgia, Greece, Greenland, Kyrgyzstan, Uzbekistan, and the Yukon) were still included, but have been denoted throughout. We excluded East Timor and Botswana from our analysis because they received an insufficient number of responses. We were able to rank all but two of the 158 jurisdictions listed in the questionnaire. The median number of responses to all questions across all jurisdictions was 18, which compares favorably with 15 in the 2012 survey, although less than the median of 24.5 in 2013.

In addition to being ranked on the 16 factors, jurisdictions were also ranked on the basis of five composite indices, as follows.

Policy Perception Index

The Policy Perception Index value (referred to in surveys prior to 2013 as the All-Inclusive Composite Index) for each jurisdiction is derived from the equally-weighted[3] scores achieved on all 16 factors. This index is the most comprehensive measure of the extent of investment barriers within each jurisdiction. Most of the discussion that follows is based on the jurisdictional scores and rankings obtained using it. A high score on this measure reflects considerable negative sentiment on the part of respondents and indicates that they regard the jurisdiction in question as relatively unattractive for investment

Commercial Environment Index

The Commercial Environment Index ranks jurisdictions on five factors that affect after-tax cash flow and the cost of undertaking petroleum exploration and development activities:

- fiscal terms
- taxation in general
- trade barriers
- quality of infrastructure
- labor availability and skills

The scores for the Commercial Environment Index for each jurisdiction were calculated by averaging the negative scores for each of these five factors. A high index value indicates that industry

3 The scores for each of the 16 factors are published online to permit interested parties to tailor weighting and composite indices to suit their needs.

managers and executives consider that the business conditions reflected in this measure constitute significant barriers to investment.

Regulatory Climate Index

The Regulatory Climate Index reflects the scores assigned to jurisdictions for the following six factors:

- the cost of regulatory compliance
- regulatory enforcement
- environmental regulations
- labor regulations and employment agreements
- regulatory duplication and inconsistencies
- legal system

A relatively high value on the Regulatory Climate Index indicates that regulations, requirements, and agreements in a jurisdiction constitute a substantial barrier to investment, resulting in a relatively poor ranking.

Geopolitical Risk Index

The Geopolitical Risk Index represents scores for political stability and security. These factors are considered to be more difficult to overcome than either regulatory or commercial barriers because for significant progress to be made on them, a change in the political landscape is usually required. A high score on the Geopolitical Risk Index indicates that investment in that jurisdiction is relatively unattractive because of political instability and/or security issues that threaten the physical safety of personnel or present risks to an investor's facilities.

Best practices

The survey includes a question on the extent to which exploration and development might increase if a full and complete transition to "best practices" (in relation to the main drivers of investment decisions) were to occur. This question enables us to measure the potential impact of the adoption of best practices on the attractiveness for investment in each jurisdiction.

Global Results

Policy Perception Index rankings segmented according to jurisdictions' proved reserves

As we noted in the 2013 *Global Petroleum Survey*, it is useful to measure the attractiveness of jurisdictions for investment according to regulatory climate, political risk, production taxes, quality of infrastructure, and the other factors which respondents are asked to address. However, ranking jurisdictions according to their Policy Perception Index scores alone does not recognize the fact that decisions to invest in petroleum exploration and development are always conditioned by the size of the oil and gas resources that are considered to be available.

Jurisdictions with relatively small proven petroleum reserves and relatively small production may be recognized as very attractive for investment as reflected by favorable Policy Perception Index scores and high rankings—as Manitoba is. However, jurisdictions with small resource endowments cannot be expected to attract nearly as much investment as those with relatively large undeveloped oil and gas reserves, such as Alberta, the United Arab Emirates, and Kuwait. In this section we compare jurisdictions with similar proved reserve sizes (relatively large, modest, or small) on their Policy Perception Index rankings.

Proved petroleum reserves are discovered oil and gas resources that are deemed feasible for commercialization, assuming current prices and infrastructure. By excluding already discovered but as yet "unproven" resources, and resources thought to exist but not yet discovered, this approach most likely does not accurately reflect how jurisdictions which have large unproven oil and gas resources (such as Alaska—US Offshore, Russia—Offshore Arctic, and Brazil's offshore pre-salt region) are regarded by potential investors and, therefore, how much investment they are likely to attract in the foreseeable future. However, our group comparisons were limited by the fact that comparable data for so-called "P2" reserves (i.e., proved reserves plus probable reserves from already discovered yet unproven resources) are not available for most jurisdictions.[4] Comparable information for "P3" reserves (i.e., proved, probable, and possible resources—the latter based on estimates of potential production from as yet undiscovered resources) is very limited.

Table 1 provides Policy Perception Index values for 27 jurisdictions that each hold at least 1 percent (when rounded to the nearest decimal) of the sum of the proved petroleum reserves of the 140 (of 156) jurisdictions ranked by the survey that have at least some proved oil and/or gas reserves.[5]

4 Appendix 1 lists the sources from which the reserves data were gleaned.

5 The 16 jurisdictions excluded because they have no proven oil and/or gas reserves are: Brazil—Offshore Profit Sharing Contracts, Cambodia, Cyprus, Faroe Islands, French Guiana, Greenland, Guyana, Kenya, Lebanon, Mali, Malta, New South Wales, Quebec, Seychelles, Tasmania, and Uruguay.

Table 1: Large Reserve Holder Comparisons

	Tier One	Policy Perception Index Score	Proved Reserves (bboe)
1	Texas	13.19	28.571
2	Alberta	26.57	174.835
3	Norway—North Sea	29.70	13.576
4	United Arab Emirates	31.83	137.990
5	Qatar	34.90	190.700
6	Malaysia	53.10	19.513
7	Brazil—Offshore CC	55.18	14.589
8	Mozambique	66.13	18.690
9	Kuwait	66.58	115.868
10	Azerbaijan	68.29	13.542
11	India	70.63	14.432
12	Nigeria	72.04	70.920
13	China	72.37	53.413
14	Algeria	75.74	41.936
15	Mexico	75.79	13.264
16	Kazakhstan	75.93	45.887
17	Russia—Other	82.11	189.848
18	Egypt	83.08	18.829
19	Russia—Offshore Sakhalin	84.33	22.442
20	Libya	85.43	58.694
21	Indonesia	85.89	23.098
22	Turkmenistan	87.01	50.129
23	Iraq	88.59	161.143
24	Russia—Offshore Arctic	90.90	160.238
25	Russia—Eastern Siberia	92.66	22.959
26	Iran	93.78	380.272
27	Venezuela	100.00	334.449

Proved reserves holdings in this group range from Mexico's 13.27 billion barrels of oil equivalent (Bboe) to Iran's 380.27 Bboe. As a whole, the proved reserves of these 27 large reserve holders constitute 91.0 percent of the reserves held by the 140 jurisdictions.[6]

In this year's report there are again 27 large reserve holders, as there were in 2013, but the composition of the group has changed slightly. Due to a large increase in that country's proved gas reserves, Mozambique, which ranks 8th (of 27) this year, is now part of this group. However, Australia—Offshore is now classified among the group of modest reserve holders instead of a jurisdiction with relatively large reserves (see table 2).[7]

Of the large reserve holders, the five with the highest level of attractiveness on the Policy Perception Index (in that they received the lowest score) are Texas, Alberta, Norway—North Sea, United Arab Emirates, and Qatar. Of these, only Texas ranks in the highly attractive first quintile. The four other jurisdictions in this group, led by Alberta and Norway—North Sea, have somewhat less attractive second quintile investment attractiveness ratings.

Top Five Large Reserve Holder Jurisdictions

1. Texas
2. Alberta
3. Norway—North Sea
4. United Arab Emirates
5. Qatar

Eleven of the 27 large reserve holders have highly undesirable (i.e., fifth quintile) scores on the Policy Perception Index. These consist of the four Russian regions, Egypt, Libya, Indonesia, Turkmenistan, Iraq, Iran, and Venezuela. Together, these countries' proved reserves comprise almost 60 percent of the holdings of the group of 27 and 54 percent of the reserves of the 140 jurisdictions with proved reserves.

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6 In the 2013 survey, 27 large reserve holders were indicated to have 92.1 percent of total reserves.

7 The allocation this year of Australia—Offshore to the group of modest reserve holders resulted from our decision to rely almost exclusively on the US Energy Information Administration's *International Energy Statistics* for proved reserves data, as explained in Appendix 1. The EIA places proved natural gas reserves in Australia as a whole at 43.0 Tcf. By way of comparison, British Petroleum's *Statistical Review of World Energy* places them much higher, at 129.9 Tcf. Because more than 98 percent of Australia's gas reserves are located in the federal offshore jurisdiction, if the BP estimate were used, Australia—Offshore would fall in the large reserve holder group, positioned in 6th place as in the 2013 survey.

Table 2: Medium Reserve Holder Comparisons

	Tier Two	Policy Perception Index Score	Proved Reserves (bboe)
1	Oklahoma	7.02	6.647
2	Arkansas	11.06	2.118
3	North Dakota	13.55	4.516
4	Wyoming	19.11	6.845
5	Utah	21.40	2.153
6	Louisiana	23.12	4.721
7	Netherlands—Onshore	28.60	6.935
8	Norway—Other Offshore	30.07	6.043
9	New Mexico	30.70	3.789
10	United Kingdom—North Sea	33.18	3.462
11	Oman	36.03	11.107
12	West Virginia	37.60	2.838
13	Australia—Offshore	38.41	9.252
14	Trinidad & Tobago	38.44	3.179
15	Newfoundland & Labrador	39.06	2.146
16	US—Gulf of Mexico	40.61	6.676
17	Pennsylvania	46.14	6.897
18	Brunei	46.42	3.679
19	British Columbia	49.60	6.215
20	Colombia	51.82	3.687
21	Colorado	51.92	4.811
22	Alaska	52.52	5.142
23	Thailand	53.69	2.138
24	Vietnam	54.59	9.016
25	Peru	56.78	3.507
26	Pakistan	61.65	5.323
27	Israel	63.16	1.893
28	Rep. of Congo (Brazzaville)	65.18	2.198
29	Gabon	66.84	2.187
30	California	67.35	3.372
31	Chad	67.63	1.500
32	Equatorial Guinea	69.51	1.343
33	Angola	69.92	10.875
34	Yemen	70.82	6.159
35	Myanmar	76.26	1.919
36	Bangladesh	76.89	1.774
37	Ukraine	76.96	7.684
38	Argentina—Chubut	83.39	1.532
39	Syria	83.53	4.089
40	Uganda	83.90	2.593
41	South Sudan	84.33	4.171
42	Uzbekistan	87.72	12.742
43	Ecuador	96.79	8.280
44	Bolivia	97.75	2.068

Bottom Five Large Reserve Holder Jurisdictions

1. Iraq
2. Russia—Offshore Arctic
3. Russia—Eastern Siberia
4. Iran
5. Venezuela

Table 2 gives the Policy Perception Index scores for 44 jurisdictions with at least 0.1 percent (when rounded to the nearest decimal) but less than 1 percent of the proved reserves of the group of 140 reserve holders. As a whole, the jurisdictions with modest reserves have 8.0 percent of total proved reserves. Their reserve holdings range in size from Equatorial Guinea's 1.34 Bboe to Uzbekistan's 12.74 Bboe.

Four jurisdictions in this group, all US states, achieved first quintile (most attractive) Policy Perception Index scores: Oklahoma, Arkansas, North Dakota, and Wyoming. Twelve jurisdictions have reasonably attractive second quintile scores: Utah, Louisiana, Netherlands—Offshore, Norway—Other Offshore, New Mexico, United Kingdom—North Sea, Oman, West Virginia, Australia—Offshore, Trinidad & Tobago, and Newfoundland & Labrador. Collectively the jurisdictions with modest reserves that achieved first or second quintile scores have proved petroleum reserves of 75.75 Bboe, or approximately 36 percent of the combined reserves of the 44 jurisdictions in this group.

Top Five Medium Reserve Holder Jurisdictions

1. Oklahoma
2. Arkansas
3. North Dakota
4. Wyoming
5. Utah

Seven jurisdictions in the group of 44 have index values in the least attractive fifth quintile. From best to worst in terms of their performance according to the survey results are Argentina—Chubut, Syria, Uganda, South Sudan, Uzbekistan, Ecuador, and Bolivia. Combined, these jurisdictions and the 12 jurisdictions with Policy Perception Index scores in the fourth quintile range have proved reserves of 81.70 Bboe, or 39 percent of holdings of all 44 jurisdictions. By way of comparison, the combined reserves of the 10 jurisdictions in the group of modest reserve holders that achieved 3rd quintile Index scores, including the US—Gulf of Mexico, British Columbia, Vietnam, and Peru constitute only 25 percent of the group's reserves.

Bottom Five Medium Reserve Holder Jurisdictions

1. Uganda
2. South Sudan
3. Uzbekistan
4. Ecuador
5. Bolivia

Table 3 provides the Policy Perception Index scores and rankings for the 69 jurisdictions with the smallest proved petroleum reserves. Each of these jurisdictions has less than 0.1 percent of the proved reserves of the 140 jurisdictions addressed in this section, ranging from 9 million Bboe in Spain—Offshore to Romania's 1.30 Bboe. As in the 2013 survey, the six small reserve holder jurisdictions with first quintile scores are Mississippi, Saskatchewan, Manitoba, Alabama, Kansas and Netherlands—Offshore, although third place Manitoba and fifth place Kansas have exchanged positions between last year and this. The six top-ranked jurisdictions are followed by 15 with second quintile scores, headed by Ohio, Denmark, New Zealand, and South Australia.

Top Five Small Reserve Holder Jurisdictions

1. Mississippi
2. Saskatchewan
3. Manitoba
4. Alabama
5. Kansas

The four jurisdictions in this group with the least attractive scores on the Policy Perception Index, all falling in the fifth quintile, are Argentina—Santa Cruz, Tanzania, Kyrgyzstan, and the Democratic Republic of the Congo (Kinshasa). Another twenty-seven jurisdictions in the group of small reserve holders also received poor marks from survey respondents as evidenced by their fourth quintile scores.

Bottom Five Small Reserve Holder Jurisdictions

1. Guatemala
2. Argentina—Santa Cruz
3. Tanzania
4. Kyrgyzstan
5. Democratic Republic of the Congo (Kinshasa)

Table 3: Small Reserve Holder Comparisons

	Tier Three	Policy Perception Index Score	Proved Reserves (bboe)
1	Mississippi	7.25	0.390
2	Saskatchewan	10.29	1.212
3	Manitoba	11.51	0.031
4	Alabama	11.90	0.500
5	Kansas	12.82	1.047
6	Netherlands—Offshore	19.38	0.827
7	Ohio	23.29	0.295
8	Denmark	25.25	1.090
9	New Zealand	26.83	0.275
10	South Australia	27.17	0.075
11	Montana	28.62	0.503
12	Chile	30.57	0.797
13	Ireland	32.82	0.065
14	Michigan	33.14	0.404
15	UK—Other Offshore	34.75	1.127
16	Namibia	35.90	0.411
17	Illinois	36.51	0.060
18	Australia—Northern Territory	36.85	0.023
19	Suriname	36.96	0.077
20	Japan	38.03	0.182
21	Jordan	38.70	0.041
22	Victoria	40.96	0.012
23	Western Australia	41.40	0.039
24	Germany	42.43	0.999
25	Morocco	44.34	0.011
26	Romania	45.12	1.296
27	Queensland	45.15	0.075
28	Ivory Coast	46.75	0.287
29	Poland	46.84	0.764
30	Ghana	48.75	0.810
31	Nova Scotia	48.96	0.037
32	New Brunswick	51.04	0.019
33	Bahrain	51.37	0.732
34	Yukon	52.59	0.021
35	Northwest Territories	53.11	0.119

	Tier Three	Policy Perception Index Score	Proved Reserves (bboe)
36	Philippines	53.44	0.789
37	US Offshore—Alaska	55.24	0.017
38	Georgia	56.85	0.091
39	Brazil—Onshore CC	59.53	1.196
40	Tunisia	60.09	0.855
41	Hungary	60.47	0.079
42	Timor Gap JPDA	61.32	0.271
43	Mauritania	62.19	0.207
44	Albania	62.50	0.174
45	Spain—Offshore	63.84	0.009
46	France	64.32	0.154
47	New York	64.68	0.044
48	South Africa	67.35	0.249
49	Turkey	68.79	0.340
50	Ethiopia	69.05	0.164
51	Cameroon	69.51	1.092
52	Madagascar	69.58	0.013
53	Argentina—Neuquen	69.87	1.235
54	Bulgaria	70.03	0.052
55	Papua New Guinea	70.90	1.211
56	Argentina—Salta	71.68	0.279
57	Niger	72.19	0.150
58	Italy	72.34	0.953
59	Argentina—Tierra del Fuego	73.09	0.281
60	Spain—Onshore	73.30	0.017
61	Argentina—Mendoza	73.48	0.350
62	Somaliland	73.76	0.037
63	US—Offshore Pacific	73.90	0.448
64	Greece	78.79	0.017
65	Guatemala	79.16	0.083
66	Argentina—Santa Cruz	82.05	0.924
67	Tanzania	83.76	0.043
68	Kyrgyzstan	84.39	0.077
69	Democratic Republic of the Congo (Kinshasa)	87.43	0.187

Policy Perception Index

Table 4 compares the scores and rankings on the Policy Perception Index (PPI) from 2014 back through 2010. The first set of columns show the rankings.[8] The second set of columns shows the absolute scores for the jurisdictions in each of the 5 years, based on the percentage of negative responses to each survey question. Those at the top of the list are regarded as having relatively low investment barriers and, therefore, as being more attractive for investment. Readers are reminded again that these rankings are driven purely by responses to the survey questions and do not account for the extent of any jurisdiction's proved oil and gas reserves. Hence, some jurisdictions with relatively small or even no reserves rank more highly on the basis of the respondents' perceptions of business conditions, regulatory regimes, and other factors than some jurisdictions with much larger reserves.

The 10 jurisdictions with the highest percentage of negative responses, indicating the greatest barriers to investment, with the least attractive last, are:

1. Turkmenistan
2. Democratic Republic of the Congo (Kinshasa)
3. Uzbekistan
4. Iraq
5. Russia—Offshore Arctic
6. Russia—Eastern Siberia
7. Iran
8. Ecuador
9. Bolivia
10. Venezuela

With the exception of Turkmenistan and Democratic Republic of the Congo (Kinshasa), these jurisdictions were also among the 10 least attractive jurisdictions for investment in the 2013 survey. Of the four Russian jurisdictions in the survey, two scored in the bottom 10 and the other two scored close to the bottom 10.

The two jurisdictions that were in the bottom 10 in 2013 but not this year were Russia—Other and South Sudan. Russia—Other, although realizing a slightly worse overall PPI score than in 2013, moved from a rank of 148th (of 157) last year to 135th (of 156) in 2014. Similarly, South Sudan also improved in the standings, moving from 150th (of 157) in 2013 to 141st (of 156), but with a less favorable overall score.

8 Note that the comparison of 2014 and 2013 values with values from 2012 or earlier on this index is affected by the fact that scores on the question regarding socioeconomic agreements/community development conditions were included in the calculation prior to 2013 and scores on the corruption question were included in the calculation for 2012 (only).

Table 4: Jurisdictional rankings according to the extent of investment barriers (based on Policy Perception Index values)

	2014 Rank in Group of 156	2013 Rank in Group of 157	2012 Rank in Group of 147	2011 Rank in Group of 135	2010 Rank in Group of 133	2014 Score	2013 Score	2012 Score	2011 Score	2010 Score
Oklahoma	1	1	1	4	9	7.02	9.84	4.71	11.81	13
Mississippi	2	2	2	1	6	7.25	11.19	6.3	4.89	11.65
Saskatchewan	3	3	13	11	17	10.29	11.43	14.6	17.48	17.63
Arkansas	4	5	N/A	15	13	11.06	12.34	N/A	19.16	15.62
Manitoba	5	9	5	12	8	11.51	16.87	11.05	17.52	12.48
Alabama	6	7	N/A	8	10	11.90	15.34	N/A	17.00	13.41
Kansas	7	6	8	3	19	12.82	12.64	12.32	11.70	18.80
Texas	8	4	3	5	2	13.19	11.71	8.03	12.17	9.53
North Dakota	9	8	4	10	24	13.55	15.92	9.88	17.44	19.65
Wyoming	10	15	11	27	4	19.11	22.63	13.87	23.38	10.25
Netherlands—Offshore	11	10	12	7	26	19.38	18.66	14.30	15.88	20.26
Utah	12	32	24	18	7	21.40	28.09	22.65	21.28	12.04
Louisiana	13	14	15	14	15	23.12	22.57	15.26	18.87	16.62
Ohio	14	29	14	2	12	23.29	27.35	14.97	10.16	13.76
Denmark	15	13	9	17	33	25.25	22.46	13.09	20.47	23.99
Alberta	16	19	21	51	60	26.57	24.47	21.08	32.73	36.70
New Zealand	17	34	20	16	18	26.83	29.60	20.59	20.33	18.32
South Australia	18	27	29	21	14	27.17	26.91	24.83	21.50	15.74
Netherlands—Onshore	19	11	6	24	25	28.60	21.68	11.42	22.11	20.02
Montana	20	21	23	43	35	28.62	25.89	22.17	29.74	24.26
Uruguay	21	63	81	52	27	28.80	41.38	51.31	32.76	21.10
Faroe Islands	22	12	18	26	N/A	29.30	22.11	19.59	23.33	N/A
Norway—North Sea	23	28	19	31	47	29.70	27.06	19.95	24.89	31.47
Norway—Other Offshore (except North Sea)	24	20	31	54	51	30.07	25.18	25.31	33.52	32.69
Chile	25	26	76	20	22	30.57	26.63	49.51	21.45	19.55
New Mexico	26	36	7	41	54	30.70	30.36	11.92	28.79	34.27
French Guiana***	27	109	N/A	N/A	N/A	31.54	60.18	N/A	N/A	N/A
United Arab Emirates	28	25	42	39	41	31.83	26.49	30.65	28.59	28.89
Ireland	29	35	17	N/A	N/A	32.82	29.60	18.26	N/A	N/A
Michigan	30	62	30	29	38	33.14	41.03	24.87	23.87	27.27
United Kingdom—North Sea	31	16	22	22	29	33.18	23.47	21.44	21.77	21.23

Table 4: Jurisdictional rankings *continued ...*

	2014 Rank in Group of 156	2013 Rank in Group of 157	2012 Rank in Group of 147	2011 Rank in Group of 135	2010 Rank in Group of 133	2014 Score	2013 Score	2012 Score	2011 Score	2010 Score
Malta	32	43	25	N/A	N/A	34.59	33.76	22.86	N/A	N/A
United Kingdom—Other Offshore (except North Sea)	33	23	38	32	32	34.75	26.40	27.63	25.35	23.55
Qatar	34	18	32	33	30	34.90	24.16	25.42	25.73	21.47
Namibia	35	38	67	49	48	35.90	31.31	43.72	32.09	31.88
Oman	36	31	46	57	44	36.03	27.84	32.77	34.18	30.03
Illinois	37	40	N/A	13	3	36.51	32.51	N/A	17.75	9.65
Seychelles	38	37	N/A	N/A	N/A	36.78	30.98	N/A	N/A	N/A
Northern Territory	39	33	44	30	16	36.85	29.25	32.12	24.87	17.14
Suriname	40	87	N/A	87	70	36.96	51.94	N/A	54.19	42.26
West Virginia	41	22	10	6	49	37.60	25.91	13.64	13.35	31.93
Japan	42	57	37	56	69	38.03	39.05	27.37	33.96	42.06
Australia—Offshore	43	54	33	40	31	38.41	37.65	25.86	28.61	21.93
Trinidad & Tobago	44	53	69	58	59	38.44	37.45	44.79	34.18	36.54
Jordan	45	45	99	N/A	75	38.70	34.60	58.86	N/A	44.40
Newfoundland & Labrador	46	24	47	50	50	39.06	26.43	33.78	32.34	32.39
Tasmania	47	52	51	28	23	39.88	36.69	35.74	23.66	19.61
US Offshore—Gulf of Mexico	48	41	26	60	11	40.61	33.07	22.89	36.38	13.44
Victoria	49	56	43	19	20	40.96	38.74	31.78	21.40	18.96
Western Australia	50	49	40	37	21	41.40	35.70	28.78	28.18	19.13
Guyana	51	90	48	97	N/A	41.48	52.39	34.12	58.48	N/A
Germany	52	55	36	35	39	42.43	38.07	26.27	27.04	27.48
Morocco	53	51	57	61	67	44.34	36.18	37.72	36.58	40.97
Romania	54	97	53	63	95	45.12	55.34	36.57	38.56	53.96
Queensland	55	69	50	42	34	45.15	45.07	35.40	29.12	24.06
Pennsylvania	56	58	34	65	66	46.14	39.13	26.04	40.37	40.44
Brunei	57	50	85	71	45	46.42	35.81	52.56	41.51	30.46
Ivory Coast	58	85	108	80	99	46.75	50.99	64.04	47.74	55.79
Poland	59	46	41	36	37	46.84	35.03	29.12	27.24	26.84
Ghana	60	74	80	72	89	48.75	47.88	51.27	41.89	50.33
Nova Scotia	61	30	35	34	53	48.96	27.52	26.17	26.64	33.28
British Columbia	62	47	39	69	52	49.60	35.55	27.73	41.44	33.16

Table 4: Jurisdictional rankings *continued ...*

	2014 Rank in Group of 156	2013 Rank in Group of 157	2012 Rank in Group of 147	2011 Rank in Group of 135	2010 Rank in Group of 133	2014 Score	2013 Score	2012 Score	2011 Score	2010 Score
New Brunswick	63	81	102	59	N/A	51.04	49.94	62.08	35.80	N/A
Bahrain	64	44	78	38	46	51.37	34.51	49.71	28.37	30.81
Colombia	65	73	65	48	42	51.82	47.65	43.36	31.81	29.60
Colorado	66	66	16	53	61	51.92	42.02	16.85	33.47	37.35
Alaska	67	79	61	83	68	52.52	49.70	40.16	50.84	41.80
Yukon***	68	39	58	N/A	36	52.59	31.99	38.04	N/A	25.50
Cyprus	69	76	27	N/A	N/A	52.91	48.22	24.43	N/A	N/A
Malaysia	70	68	83	79	63	53.10	43.55	51.77	47.47	39.71
Greenland***	71	82	59	44	56	53.10	50.65	38.60	30.08	36.04
Northwest Territories	72	61	60	103	74	53.12	40.84	39.62	64.84	44.08
Philippines	73	72	91	86	55	53.44	47.15	55.56	53.31	35.68
Thailand	74	59	84	64	73	53.70	39.14	51.82	39.90	43.42
Vietnam	75	99	92	84	64	54.59	56.13	55.73	51.23	40.29
Brazil—Offshore CC	76	107	74	68	*	55.19	59.71	48.08	41.22	*
US Offshore—Alaska	77	79	61	83	68	55.24	49.70	40.16	50.84	41.80
Peru	78	106	94	76	85	56.78	59.22	57.01	46.37	48.36
Georgia***	79	42	49	N/A	N/A	56.85	33.40	35.04	N/A	N/A
Brazil—Onshore CC	80	105	88	67	*	59.53	59.02	52.72	40.83	*
Kenya	81	95	86	N/A	N/A	59.86	54.56	52.58	N/A	N/A
Tunisia	82	78	56	62	62	60.09	49.35	37.66	36.93	38.95
New South Wales	83	84	63	45	40	60.38	50.92	41.50	30.14	28.05
Hungary	84	80	28	9	43	60.48	49.83	24.79	17.06	29.82
Timor Gap (JPDA)	85	111	73	47	72	61.32	61.09	47.34	30.75	42.52
Pakistan	86	92	129	107	105	61.65	53.26	74.43	67.70	62.17
Mauritania	87	77	97	111	N/A	62.19	48.55	57.69	70.56	N/A
Albania	88	67	95	73	81	62.50	43.41	57.19	42.34	45.64
Israel	89	70	54	81	N/A	63.16	45.33	37.06	48.73	N/A
Spain—Offshore	90	64	N/A	N/A	N/A	63.84	41.52	N/A	N/A	N/A
France	91	96	55	46	58	64.32	55.26	37.23	30.65	36.43
New York	92	119	68	N/A	102	64.68	64.20	44.08	N/A	59.34
Republic of the Congo (Brazzaville)	93	121	113	113	104	65.18	66.41	67.29	70.71	60.90
Mozambique	94	91	90	75	97	66.13	52.71	55.54	45.22	55.19
Kuwait	95	60	64	74	83	66.58	39.56	42.23	43.76	46.10

Table 4: Jurisdictional rankings *continued ...*

	2014 Rank in Group of 156	2013 Rank in Group of 157	2012 Rank in Group of 147	2011 Rank in Group of 135	2010 Rank in Group of 133	2014 Score	2013 Score	2012 Score	2011 Score	2010 Score
Gabon	96	102	100	99	91	66.84	57.85	59.15	60.23	52.10
California	97	98	45	91	87	67.35	55.70	32.47	55.99	49.35
South Africa	98	71	106	85	88	67.35	45.62	63.75	51.55	49.95
Chad	99	133	132	115	114	67.64	74.96	74.92	71.94	66.98
Azerbaijan	100	93	70	104	108	68.29	53.93	45.58	65.45	64.33
Brazil—Offshore presalt area PSC	101	115	75	66	*	68.39	61.73	48.36	40.79	*
Turkey	102	48	66	70	84	68.79	35.63	43.56	41.51	48.15
Ethiopia	103	103	72	N/A	119	69.05	58.74	47.07	N/A	76.15
Cameroon	104	86	82	98	76	69.51	51.66	51.49	59.82	44.70
Equatorial Guinea	105	104	107	121	101	69.51	58.74	63.85	76.85	59.16
Madagascar	106	112	105	100	98	69.58	61.14	63.54	62.66	55.54
Argentina—Neuquen	107	129	111	102	*	69.87	73.76	65.49	63.88	*
Angola	108	108	118	117	93	69.92	60.14	69.84	72.70	52.65
Bulgaria	109	114	62	55	86	70.03	61.68	40.93	33.94	49.21
India	110	124	124	109	107	70.63	70.41	72.98	69.56	63.34
Yemen	111	120	130	120	116	70.82	64.42	74.50	75.25	69.66
Papua New Guinea	112	125	123	96	110	70.90	70.62	72.96	57.68	65.11
Argentina—Salta	113	147	126	82	*	71.68	81.08	73.50	49.56	*
Nigeria	114	135	137	123	126	72.05	75.75	81.31	79.36	83.38
Niger	115	110	79	N/A	112	72.19	60.75	50.88	N/A	65.46
Italy	116	94	96	77	78	72.35	54.17	57.42	46.91	45.01
China	117	101	103	90	90	72.37	57.23	62.53	55.43	51.66
Argentina—Tierra del Fuego	118	137	122	*	*	73.09	76.29	72.58	*	*
Spain—Onshore	119	65	N/A	N/A	N/A	73.30	41.85	N/A	N/A	N/A
Argentina—Mendoza	120	136	119	88	N/A	73.48	75.88	69.99	54.66	N/A
Lebanon	121	88	71	N/A	N/A	73.66	52.22	45.61	N/A	N/A
Somaliland	122	138	110	N/A	N/A	73.76	76.56	65.22	N/A	N/A
US Offshore—Pacific	123	100	N/A	101	103	73.90	56.20	N/A	63.17	60.66
Algeria	124	126	125	125	109	75.74	71.04	73.23	80.93	64.37
Mexico	125	N/A	N/A	N/A	N/A	75.79	N/A	N/A	N/A	N/A
Kazakhstan	126	139	134	131	124	75.93	76.73	78.64	89.27	80.45
Myanmar	127	127	115	108	113	76.26	71.18	68.82	68.42	66.59
Bangladesh	128	142	114	118	115	76.89	78.23	67.75	72.99	68.75

Table 4: Jurisdictional rankings *continued* ...

	2014 Rank in Group of 156	2013 Rank in Group of 157	2012 Rank in Group of 147	2011 Rank in Group of 135	2010 Rank in Group of 133	2014 Score	2013 Score	2012 Score	2011 Score	2010 Score
Ukraine	129	144	116	119	130	76.96	79.27	69.12	74.16	88.73
Cambodia	130	130	135	110	92	77.04	73.89	79.97	70.38	52.35
Greece***	131	116	93	N/A	N/A	78.79	61.99	55.80	N/A	N/A
Guatemala	132	128	77	N/A	N/A	79.16	73.48	49.57	N/A	N/A
Quebec	133	141	101	92	77	79.47	77.11	60.53	56.24	44.89
Argentina—Santa Cruz	134	131	140	94	*	82.05	74.02	84.00	57.13	*
Russia—Other	135	148	138	*	*	82.11	81.62	82.33	*	*
Egypt	136	117	104	93	79	83.08	62.62	62.70	56.47	45.32
Argentina—Chubut	137	134	112	95	*	83.39	75.62	65.55	57.48	*
Syria	138	143	131	106	96	83.53	78.53	74.66	67.69	55.17
Tanzania	139	89	89	89	82	83.76	52.32	54.67	54.95	45.66
Uganda	140	118	87	122	94	83.90	64.06	52.66	77.72	53.41
South Sudan	141	150	117	**	**	84.33	83.80	69.15	**	**
Russia—Offshore Sakhalin	142	140	133	*	*	84.33	76.75	77.31	*	*
Kyrgyzstan***	143	146	109	105	123	84.39	80.60	64.21	66.34	79.74
Libya	144	145	143	127	121	85.43	79.98	85.55	83.69	76.60
Indonesia	145	132	127	114	111	85.89	74.36	74.14	71.57	65.12
Mali	146	83	128	N/A	N/A	86.01	50.90	74.23	N/A	N/A
Turkmenistan	147	123	98	124	128	87.01	70.23	58.79	80.31	87.41
Democratic Republic of the Congo (Kinshasa)	148	122	120	129	106	87.43	69.32	71.03	85.14	62.81
Uzbekistan***	149	152	141	130	122	87.72	89.22	84.97	88.37	78.37
Iraq	150	149	139	128	125	88.59	82.88	82.60	83.95	81.41
Russia—Offshore Arctic	151	153	136	*	*	90.90	90.74	80.94	*	*
Russia—Eastern Siberia	152	151	144	*	*	92.66	85.80	85.91	*	*
Iran	153	155	145	132	129	93.78	97.17	88.44	92.50	87.93
Ecuador	154	156	142	134	127	96.79	97.97	85.34	96.27	85.59
Bolivia	155	154	147	133	133	97.75	95.80	100.00	96.18	100.00
Venezuela	156	157	146	135	132	100.00	100.00	97.09	100.00	97.18

Notes:
Botswana was dropped this year after only receiving three responses. East Timor was dropped after receiving zero responses.
*Broken down into regions.
**Sudan became two countries. South Sudan was ranked but not Sudan.
***Between 5 and 9 responses.

Figure 4 presents the Policy Perception Index rankings for the 157 jurisdictions ranked this year. Among the three Brazilian jurisdictions, "CC" and "PSC" refer to "concession contracts" and "production sharing contracts."

Respondents ranked the following 10 jurisdictions as the most attractive for investment in petroleum exploration and development:

1. Oklahoma
2. Mississippi
3. Saskatchewan
4. Arkansas
5. Manitoba
6. Alabama
7. Kansas
8. Texas
9. North Dakota
10. Wyoming

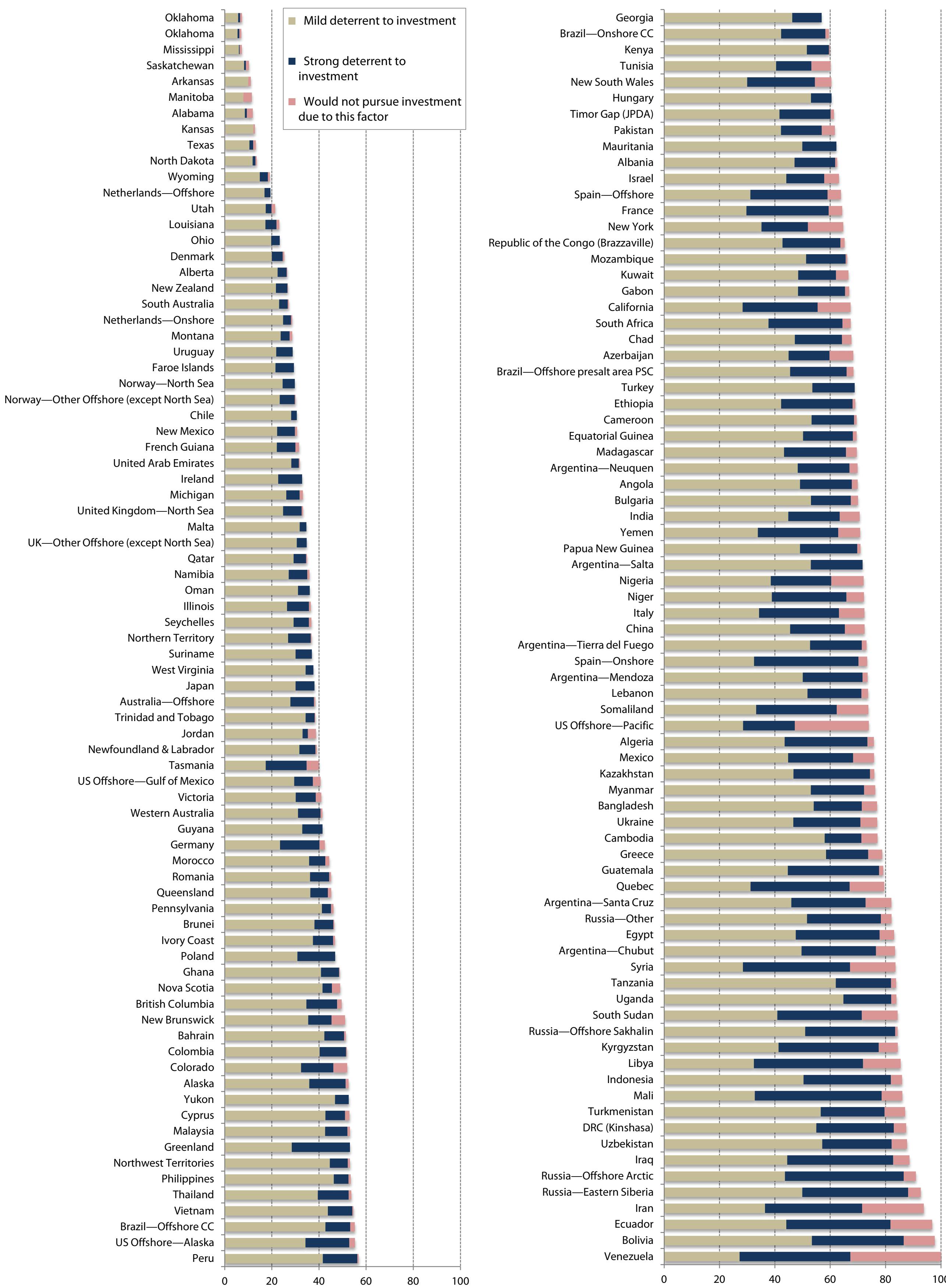
All but one of these jurisdictions—Wyoming—ranked in the top 10 jurisdictions worldwide in the 2013 survey. Three of the jurisdictions—Oklahoma, Mississippi, and Texas—consistently rank in the top 10, having been there in the last five iterations of the survey.

Oklahoma and Mississippi ranked first and second this year, respectively, unchanged from their 2012 and 2013 positions. Saskatchewan held onto third after moving into that position last year from 13^{th} (of 147) in 2012. Arkansas moved up one spot from 5^{th} (of 157) place in 2013. Manitoba rose to 5^{th} (of 156) this year, after placing 9^{th} (of 157) in 2013, and has only missed being in the top ten once (2011) in the last five years. Alabama moved up to 6^{th} (of 156) from 7^{th} (of 157) in the previous year. That state has ranked in the top ten for four of the last five years.[9] Kansas and Texas both dropped this year, moving to 7^{th} (of 156) from 6^{th} (of 157) and 8^{th} (of 156) from 4^{th} (of 157), respectively. North Dakota also dropped one spot this year. While, Wyoming moved up to 10^{th} (of 156) from 15^{th} (of 157) in 2013. The only jurisdiction displaced from the top 10 was the Netherlands—Offshore which ranked 11^{th} (of 156) this year.

Only five jurisdictions, Uruguay (-12.56), French Guiana (-28.64), Suriname (-14.98), Guyana (-10.90) and Romania (-10.22), scored much lower Policy Perception Index scores this year (by at least 10 points) than in 2013. Such improvements are remarkable given a significantly more uncertain world. The improved scores enabled those jurisdictions to move up considerably in the rankings, indicating that survey respondents now regard them as more favorable for upstream petroleum investment than in 2013. For example, Uruguay now ranks as the 21^{st} (of 156) most

9 Alabama was not ranked in 2012 due to insufficient data.

Figure 4: Policy Perception Index



attractive jurisdiction worldwide compared with 63rd of (of 157) in 2013, and Romania is now ranked 54th (of 156) in the world compared with 97th (of 157) a year ago. The reasons underlying these and other significant improvements are examined in the regional analysis that is presented later in this report.

But respondents also awarded higher (i.e., less favorable) overall scores to a large number of jurisdictions this year, indicating that barriers to investment there appear to have considerably increased since the 2013 survey was undertaken. Forty-one jurisdictions (of 156) had their scores deteriorate by 10 points or more. This represents more than 25 percent of the sample. Deterioration (i.e., higher values) of 15 points or more in the scores this year compared with 2013 occurred in Nova Scotia, Bahrain, Yukon, Georgia, Albania, Israel, Spain—Offshore, Kuwait, South Africa, Turkey, Cameroon, Italy, China, Spain—Onshore, Lebanon, US—Offshore Pacific, Greece, Egypt, Tanzania, Uganda, Mali, Turkmenistan, and the Democratic Republic of the Congo (Kinshasa). Obstacles to investment are indicated to have increased the most (more than 20 points) in Nova Scotia (+21.44), Yukon (+20.60), Georgia (+23.45), Spain—Offshore (+22.32), Kuwait (+27.02), South Africa (+21.73), Turkey (+33.16), Spain—Onshore (+31.45), Lebanon (+21.44), Egypt (+20.46), Tanzania (+31.44), and Mali (+35.11). Uganda realized a deterioration of almost 20 points (+19.84).

Readers are reminded again that these rankings are driven purely by responses to the survey questions and do not account for the extent of the jurisdictions' proved oil and gas reserves, which are discussed above. The scores, from 0 to 100, have been divided into five equal ranges (quintiles). Those in the 0 to 19.99 range (first quintile) are rated as most attractive for investment because they reflect the lowest percentages of negative responses while jurisdictions with scores ranging from 80.0 to 100 (fifth quintile) are the least attractive. Arrows next to jurisdictions indicate whether they moved up or down in quintiles from their 2013 position.

First Quintile

Only 11 jurisdictions have scores in the top range (first quintile) in 2014. They are:

Oklahoma
Mississippi
Saskatchewan
Arkansas
Manitoba
Alabama
Kansas
Texas
North Dakota
Wyoming (➚)
Netherlands—Offshore

This compares with 10 jurisdictions with first quintile scores in 2013, 19 in 2012, and 15 in 2011. Except for Wyoming, all jurisdictions in the first quintile this year were in the first quintile in 2013. The Netherlands—Onshore, Faroe Islands, Denmark, Louisiana, Wyoming, West Virginia, Norway—North Sea, Ohio, Ireland, and New Mexico slipped from the first quintile in 2012 to the second quintile in 2013, but only Wyoming has realized a low enough (first quintile) score to recover its first quintile ranking.

US jurisdictions account for 8 of the 11 jurisdictions with first quintile scores this year. Two jurisdictions (Saskatchewan and Manitoba) are in Canada. The only other jurisdiction in the first quintile grouping is the Netherlands—Offshore.

Second Quintile

There are 36 jurisdictions with scores from 20 to 39.99 (second quintile) according to the Policy Perception Index. This compares with 50 second-quintile jurisdictions in 2013 and 48 in 2012. Geographically, this year this group is concentrated in North America (with 8 US states and 2 provinces: Alberta and Newfoundland & Labrador), Europe (9 jurisdictions), Oceania (New Zealand and 4 Australian jurisdictions), and the Latin America and the Caribbean region (5 jurisdictions). In addition, four jurisdictions in this second quintile are in the Middle East and North Africa region, and two are in the rest of Africa. Asia is represented by one jurisdiction.

All of the jurisdictions with scores in the second quintile are listed below in the order of their rank (i.e., best to worst score). No jurisdictions fell from the first quintile in 2013 to the second quintile in 2014 (see previous section) and 32 jurisdictions in the second quintile group were also in this group in 2013. Four jurisdictions moved up into the group this year as the result of improved survey results.

Utah
Louisiana
Ohio
Denmark
Alberta
New Zealand
South Australia
Netherlands—Onshore
Montana
Uruguay (➚)
Faroe Islands
Norway—North Sea
Norway—Other Offshore (except North Sea)
Chile
New Mexico

French Guiana (↗)
United Arab Emirates
Ireland
Michigan (↗)
United Kingdom—North Sea
Malta
United Kingdom—Other Offshore (except North Sea)
Qatar
Namibia
Oman
Illinois
Seychelles
Northern Territory
Suriname (↗)
West Virginia
Japan
Australia—Offshore
Trinidad and Tobago
Jordan
Newfoundland & Labrador
Tasmania

Third Quintile

Investors generally perceive jurisdictions with Policy Perception Index scores from 40 to 59.99 (i.e., in the third quintile) as somewhat less attractive than those with scores in the first and second quintiles. The 34 jurisdictions that achieved third quintile scores this year are listed below in order of their rank (best to worst).

This year there are many fewer jurisdictions in the third quintile than in 2013 when there were 47. Of the 34 jurisdictions with scores in the third quintile this year, 14 dropped from the second quintile in 2013. The remaining 20 jurisdictions were all present in the third quintile in 2013. No jurisdiction moved up to the third quintile from the fourth quintile this year. It is noteworthy, though, that more than half of the jurisdictions that had third quintile scores in 2013 dropped to less attractive fourth and fifth quintile placements in 2014.

US Offshore—Gulf of Mexico (↘)
Victoria (↘)
Western Australia (↘)
Guyana
Germany (↘)

Morocco (↘)
Romania
Queensland
Pennsylvania (↘)
Brunei (↘)
Ivory Coast
Poland (↘)
Ghana
Nova Scotia (↘)
British Columbia (↘)
New Brunswick
Bahrain (↘)
Colombia
Colorado
Alaska
Yukon (↘)
Cyprus
Malaysia
Greenland
Northwest Territories
Philippines
Thailand (↘)
Vietnam
Brazil—Offshore CC
US Offshore—Alaska
Peru
Georgia (↘)
Brazil—Onshore CC
Kenya

Fourth Quintile

Jurisdictions with Policy Perception Index scores from 60 to 79.99 (i.e., in the fourth quintile) all have relatively high percentages of negative responses to the survey questions. This indicates that investors regard them as less attractive than jurisdictions with lower scores, i.e., those in the first, second, or third quintiles. The fourth quintile is the largest group among the five quintiles this year; 52 jurisdictions scored in this range compared with only 38 in 2013 and 35 in 2012.

This year's fourth quintile jurisdictions are listed below in order of rank. Mexico was not evaluated in 2013. Twenty-two jurisdictions slipped from the third quintile last year to the fourth quintile this year. Kuwait (27.02 points) and Turkey (33.16 points) deteriorated from second quintile to fourth quintile values. Spain—Onshore also received a much worse score this year than last (31.45 points). One jurisdiction, Argentina—Salta, improved to the fourth quintile this year from the fifth in 2013. Twenty-six of the 52 jurisdictions in the fourth quintile this year also had scores in this range in 2013.

Tunisia (↘)
New South Wales (↘)
Hungary (↘)
Timor Gap (JPDA)
Pakistan (↘)
Mauritania (↘)
Albania (↘)
Israel (↘)
Spain—Offshore (↘)
France (↘)
New York
Republic of the Congo (Brazzaville)
Mozambique (↘)
Kuwait (↘)
Gabon (↘)
California (↘)
South Africa (↘)
Chad
Azerbaijan (↘)
Brazil—Offshore presalt area PSC
Turkey (↘)
Ethiopia (↘)
Cameroon (↘)
Equatorial Guinea (↘)
Madagascar
Argentina—Neuquen
Angola
Bulgaria
India
Yemen
Papua New Guinea
Argentina—Salta (↗)
Nigeria
Niger

Italy (➘)
China (➘)
Argentina—Tierra del Fuego
Spain—Onshore (➘)
Argentina—Mendoza
Lebanon (➘)
Somaliland
US Offshore—Pacific (➘)
Algeria
Mexico
Kazakhstan
Myanmar
Bangladesh
Ukraine
Cambodia
Greece
Guatemala
Quebec

Fifth Quintile

The survey participants rated the group of jurisdictions in the fifth quintile as least attractive for upstream investment. This year there are 23 countries with fifth quintile scores, a considerable increase from 12 in both 2012 and 2013. In order of their ranking, with the worst last, they are:

Argentina—Santa Cruz (➘)
Russia—Other
Egypt (➘)
Argentina—Chubut (➘)
Syria (➘)
Tanzania (➘)
Uganda (➘)
South Sudan
Russia—Offshore Sakhalin (➘)
Kyrgyzstan
Libya (➘)
Indonesia (➘)
Mali (➘)
Turkmenistan (➘)
Democratic Republic of the Congo (Kinshasa) (➘)

Uzbekistan

Iraq

Russia—Offshore Arctic

Russia—Eastern Siberia

Iran

Ecuador

Bolivia

Venezuela

All of the countries in 2013 that were in the fifth quintile, accept for Argentina—Salta, are also in the fifth quintile in 2014. Twelve more countries dropped into fifth quintile this year, with two—Tanzania and Mali—dropping from the third quintile. Tanzania and Mali's scores increased (i.e. worsened) the worst—by 31.44 and 35.11 points, respectively. All four Russian jurisdictions scored in the fifth quintile this year.

Overall, the fact that almost half of the jurisdictions included in the survey this year have unattractive fourth and fifth quintile ratings, compared with less than one third ranked thus in 2013, indicates that investors are seeing fewer safe, low-risk havens for petroleum exploration and development than previously. Certainly, the fact that the lions' share of proved oil and gas reserves are located in jurisdictions with fourth and fifth quintile ratings must be cause for some concern.

Commercial Environment Index Findings

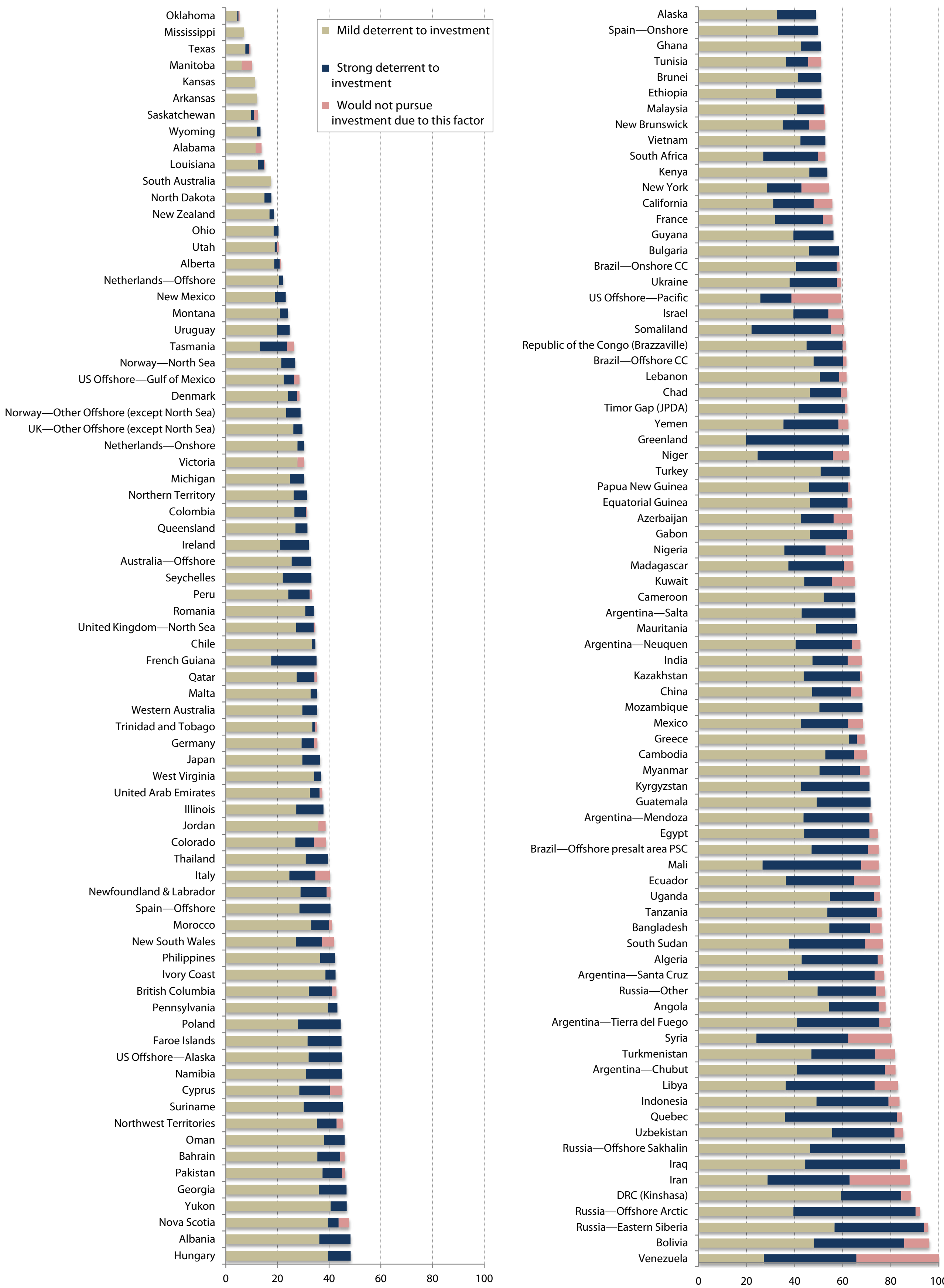
Figure 5 ranks jurisdictions based on the five commercial environment index factors: fiscal terms, taxation in general, trade barriers, quality of infrastructure, and labor availability and skills.

Based solely on the responses to these 5 factors, the 10 least attractive jurisdictions are Venezuela, Bolivia, Russia—Eastern Siberia, Russia—Offshore Arctic, Democratic Republic of the Congo (Kinshasa), Iran, Iraq, Russia—Offshore Sakhalin, Uzbekistan, and Quebec. But five other jurisdictions (Indonesia, Libya, Argentina—Chubut, Turkmenistan and Syria) also earned unattractive fifth quintile ratings according to this measure.

This year, Democratic Republic of the Congo (Kinshasa), Iraq, Russia—Offshore Sakhalin, and Quebec displaced Ecuador, Kazakhstan, Russia—Other, and Argentina—Salta in this group. The four jurisdictions that were displaced from the group of 10 worst jurisdictions on the Commercial Environment Index rose to fourth quintile ratings.

Oklahoma ranks as the most commercially attractive jurisdiction again this year, followed closely by Mississippi and Texas. The 10 other jurisdictions in the first quintile according to the Commercial Environment Index are Manitoba, Kansas, Arkansas, Saskatchewan, Wyoming, Alabama, Louisiana, South Australia, North Dakota, and New Zealand. Canadian and US jurisdictions dominate the first quintile with 9 US states and 2 Canadian provinces in this quintile. South Australia and New Zealand are the only jurisdictions in this group from outside of North America.

Figure 5: Commercial Environment Index



Regulatory Climate Index Results

The Regulatory Climate Index (figure 6) ranks jurisdictions according to investors' perceptions of the regulatory hurdles that are in place, including regulatory enforcement, regulatory inconsistency and duplication, environmental regulations, labor regulations, fairness and transparency of the legal system, and the cost of regulatory compliance. Poor performance on regulatory issues is a major reason why many jurisdictions are regarded as relatively unattractive for investment.

Based on the responses to these factors, the 10 least attractive jurisdictions on the Regulatory Climate Index are Italy, Spain—Onshore, Ecuador, Greece, US Offshore—Pacific, Russia—Eastern Siberia, Spain—Offshore, Russia—Offshore Sakhalin, Argentina—Santa Cruz, and Argentina—Chubut. This is quite a different group from 2013. Only Russia—Eastern Siberia, Russia—Offshore Sakhalin, and Ecuador were in the bottom 10 in 2013. While Venezuela, Iran, Russia—Offshore Arctic, Uzbekistan, Bolivia, Quebec, and Argentina—Salta are no longer among the bottom 10, they remain in the fifth quintile, except for Uzbekistan and Quebec which now have fourth quintile scores. Italy, Greece, US Offshore—Pacific, and Spain—Offshore all dropped from the fourth quintile in 2013 to the bottom 10 this year. Spain—Onshore suffered the largest drop—from the third quintile in 2013 to the second worst performing jurisdiction in 2014.

Argentina—Santa Cruz dropped into the fifth quintile and among the group of 10 worst performers according to the Regulatory Climate Index from a fourth quintile placement in 2013. Argentina—Chubut was in the fifth quintile last year but lost further ground and is now among the 10 least attractive jurisdictions on this measure.

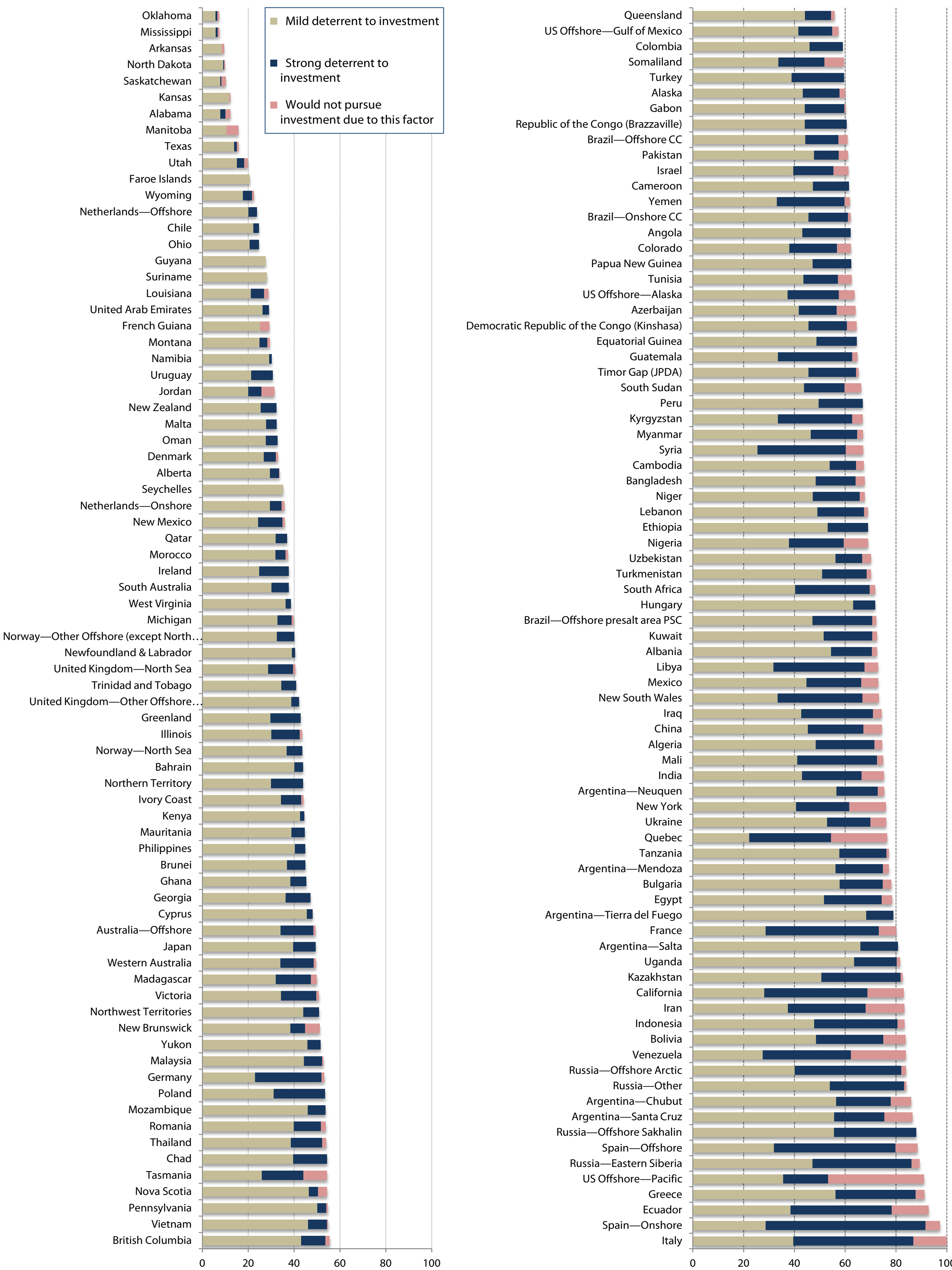
In addition to the Regulatory Climate Index's 10 worst jurisdictions and those mentioned above, undesirable fifth quintile ratings for their regulatory climates were also awarded to Russia—Other, Indonesia, California, Kazakhstan, Uganda, and France.

At the other end of the scale, the 10 most attractive jurisdictions on the Regulatory Climate Index this year are Oklahoma, Mississippi, Arkansas, North Dakota, Saskatchewan, Kansas, Alabama, Manitoba, Texas, and Utah. The list is similar to last year's with the exception of Botswana, which was not included based on its response rate, and the Faroe Islands, which dropped just into the second quintile this year. The two newcomers to the top 10 grouping this year are Alabama and Utah. All 10 most attractive jurisdictions achieved first quintile ratings on the Regulatory Climate Index. No other jurisdictions have first quintile regulatory climate scores.

Geopolitical Risk Index

The Geopolitical Risk Index focuses on political risk and on the security of personnel and physical assets. As figure 7 indicates, 16 jurisdictions (Syria, Venezuela, Iraq, South Sudan, Egypt, Libya, Democratic Republic of the Congo (Kinshasa), Lebanon, Kyrgyzstan, Mali, Somaliland, Iran, Papua New Guinea, Pakistan, Ukraine, and Turkmenistan) scored in the fifth quintile this year on

Figure 6: Regulatory Climate Index



this measure. This compares with 18 jurisdictions with fifth quintile Geopolitical Risk Index scores in 2013.

Four jurisdictions saw their scores on this index drop into the fifth quintile this year. The greatest drop by far was Turkmenistan whose score deteriorated drastically from a very low (and therefore commendable) third quintile value in 2013. The Democratic Republic of the Congo (Kinshasa), Ukraine, and Lebanon all dropped into the fifth quintile range this year from the fourth last year. On the other hand, Ecuador, Nigeria, Bolivia, Yemen, Algeria, and Chad improved their geopolitical risk ratings sufficiently to lift their scores from the fifth quintile to the fourth.

A relatively high percentage of the negative responses for some jurisdictions on the political stability and security issue questions indicate that respondents simply "would not pursue investment" in those jurisdictions due to this factor. Those jurisdictions for which the survey responses used in the evaluations contained large percentages (greater than 25 percent of the total) of this most negative type of response this year are Syria (47 percent), Libya (41 percent), Venezuela (38 percent), South Sudan (29 percent), and Yemen (26 percent). Iran and Iraq also attracted relatively high percentages of this type.

Potential for Improvement

In this year's survey, respondents were again asked, "How much do you think oil and gas exploration and development in each of the jurisdictions with which you are familiar might increase if a full and complete transition to 'Best Practices' in relation to the main drivers of investment decisions—such as royalties, environmental regulations, cost of regulatory compliance, profit repatriation, a fair and transparent legal system, and security of personnel and assets—were to occur?" Respondents were asked to answer the question for each jurisdiction with which they are familiar by selecting from one of five possible responses: 1) Not at all; 2) Only slightly; 3) 20 to 50 percent; 4) 50 to 100 percent; and 5) More than 100 percent.

The results (figure 8) indicate that a relatively large percentage (30 percent or more) of respondents believe that exploration and development could increase by more than 100 percent in Lebanon, Russia—Offshore Arctic, Iran, Argentina—Mendoza, Venezuela, Uzbekistan, Argentina—Neuquén, Turkmenistan, Niger, and Kyrgyzstan if best practices were adopted. Combining all the responses that indicate that best practices could increase exploration and development by at least 20 percent (i.e., the type 3, 4, and 5 responses) shows that survey respondents believe that activity could potentially be boosted by the greatest percentage in Russia—Offshore Sakhalin, Ukraine, Mexico, Argentina—Chubut, Madagascar, Kazakhstan, Russia—Eastern Siberia, Lebanon, Russia—Offshore Arctic, and Iran. Moreover, as figure 8 indicates, the adoption of best practices would likely lead to greater upstream investment in many other jurisdictions as well.

Figure 7: Geopolitical Risk Index

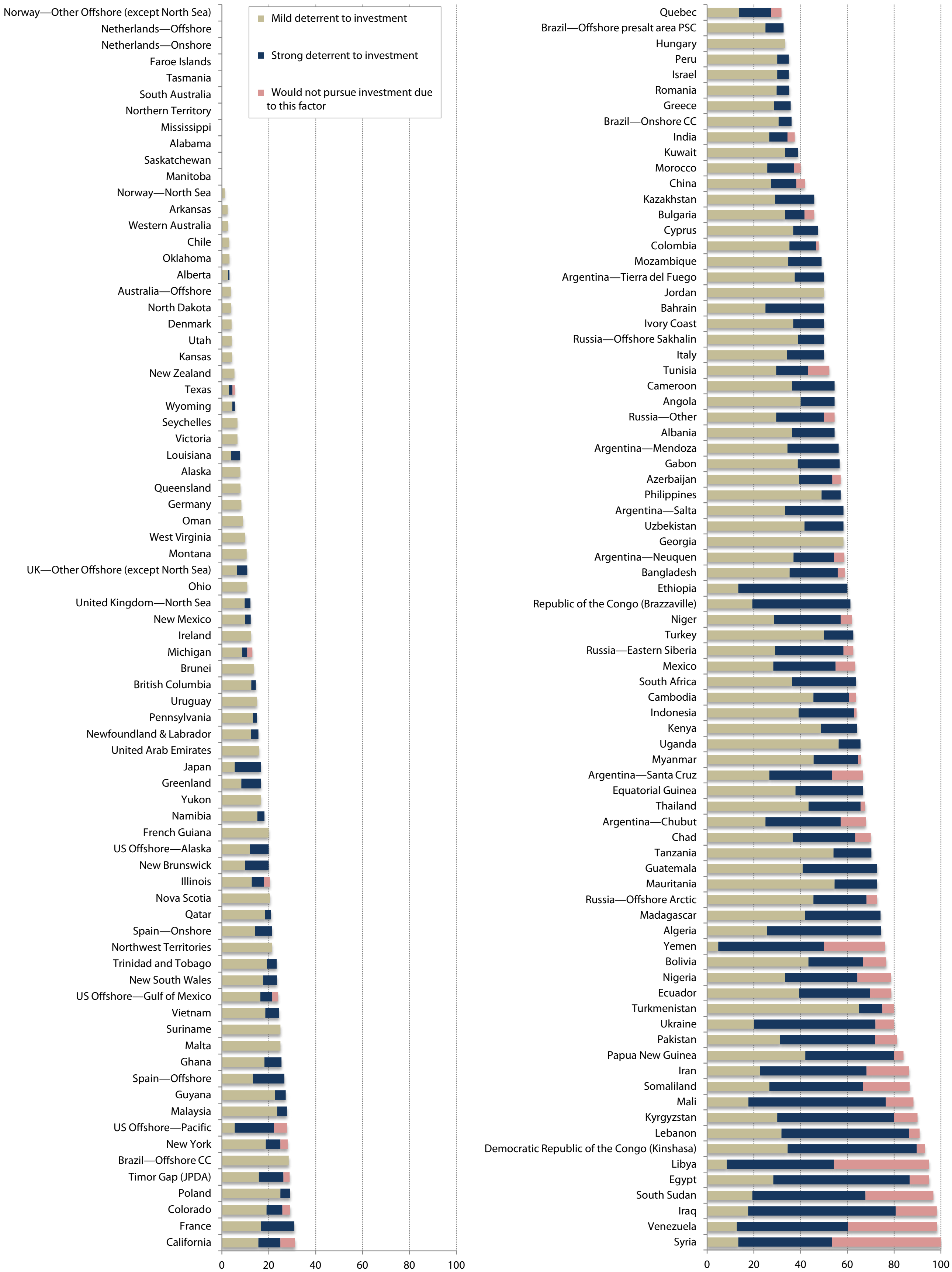
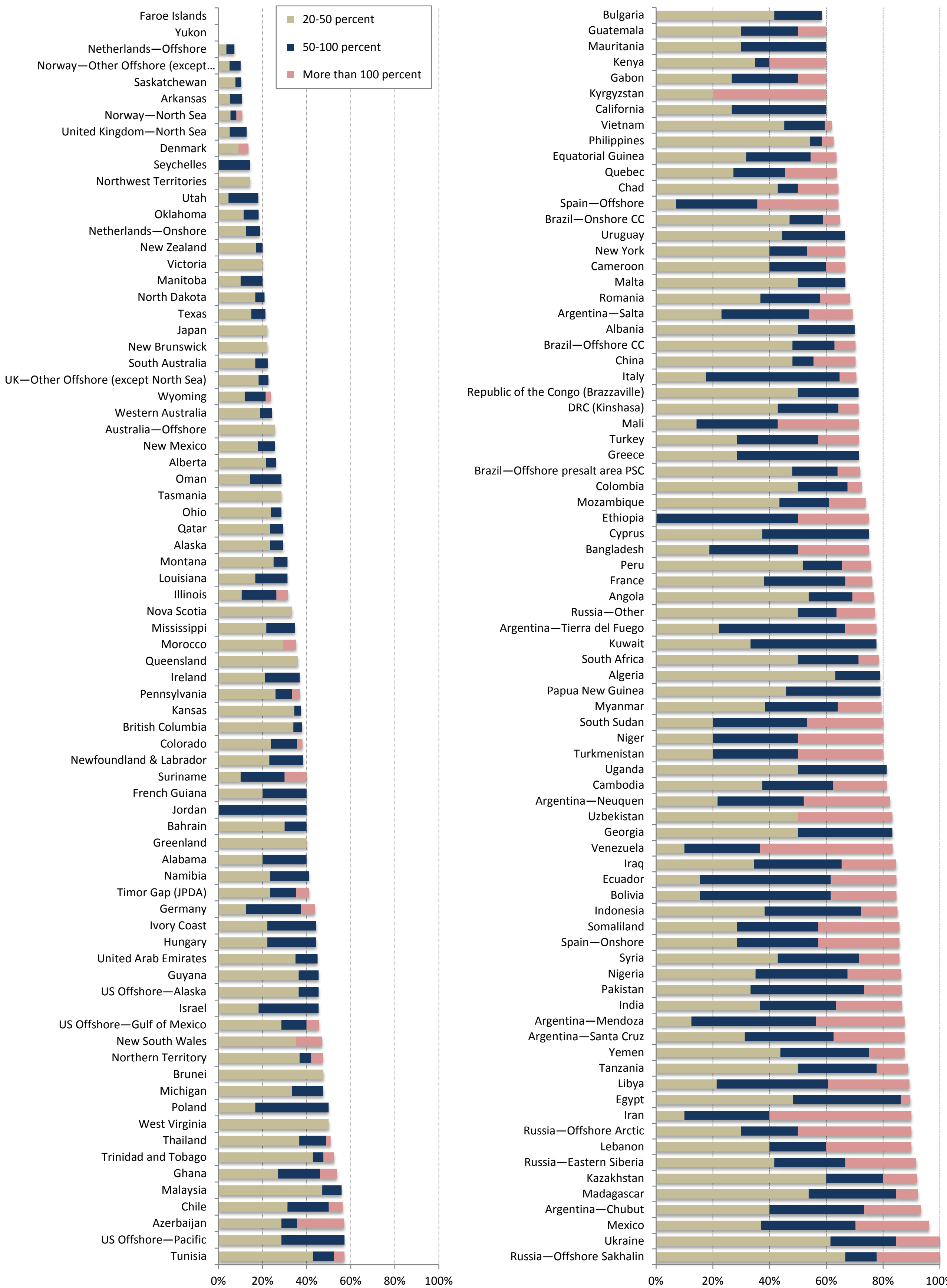


Figure 8: Transition to Best Practices



Results by Continental Region

North America

Compared to other regions of the world, many jurisdictions in Canada and the United States are rated as relatively attractive for upstream investment.

Canada

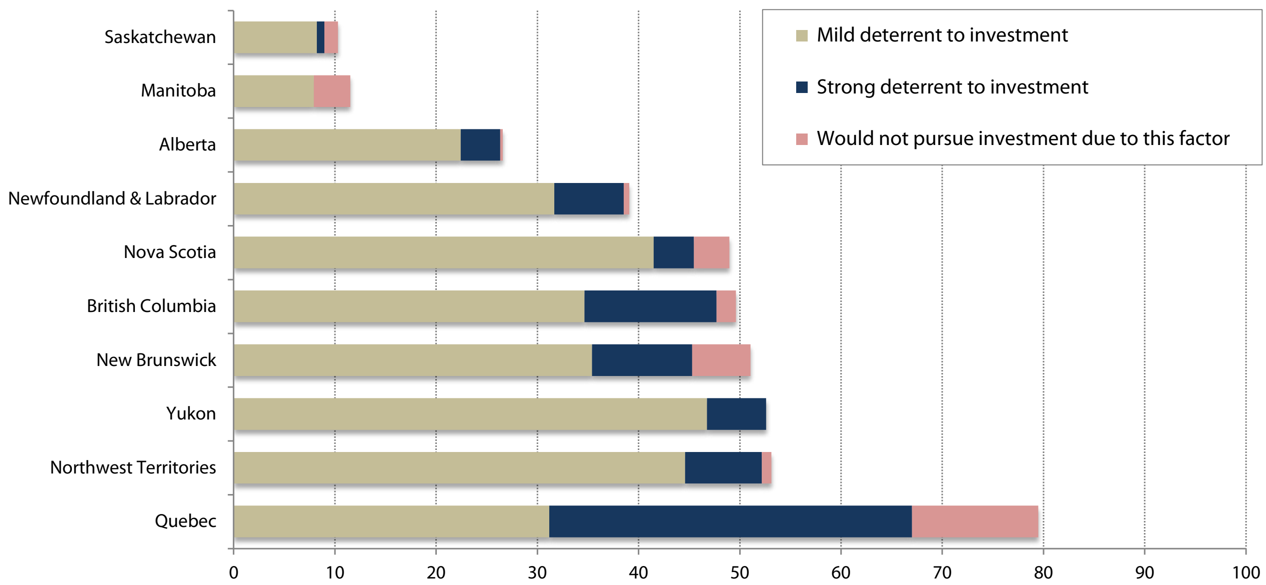
Table 5 summarizes this year's shifts in the relative attractiveness of Canadian jurisdictions compared with 2013. Readers are reminded that these rankings are based on the factors in the Policy Perception Index only, and do not factor in the respective jurisdictions' proved oil and gas reserves or their petroleum resource potential. As in 2010, 2011, 2012, and 2013, Manitoba and Saskatchewan are again the top 2 Canadian jurisdictions. Saskatchewan maintained its position atop the Canadian Policy Perception Index rankings, and achieved a slightly lower score this year than last. However, Manitoba also received lower percentages of negative scores overall and a greater improvement in its score than Saskatchewan. This resulted in Manitoba moving up a bit on the Policy Perception Index scale to rank 5th overall (of 156) compared with 9th (of 157) in 2013. Saskatchewan is again 3rd overall (of 156). Saskatchewan and Manitoba were the only jurisdictions in Canada to achieve improved PPI scores in 2014 compared with 2013.

Figure 9 illustrates the relative performance of the Canadian jurisdictions in the 2014 survey. According to the Policy Perception Index measure, Saskatchewan is the most attractive Canadian

Table 5: Rankings of Canadian Jurisdictions for 2014 and their Policy Perception Index Scores

Jurisdiction	2014		2013	
	Rank	Score	Rank	Score
Saskatchewan	1	10.29	1	11.43
Manitoba	2	11.51	2	16.87
Alberta	3	26.57	3	24.47
Newfoundland & Labrador	4	39.06	4	26.43
Nova Scotia	5	48.96	5	27.52
British Columbia	6	49.60	7	35.55
New Brunswick	7	51.04	9	49.94
Yukon	8	52.59	6	31.99
Northwest Territories	9	53.12	8	40.84
Quebec	10	79.47	10	77.11

Figure 9: Policy Perception Index—Canada



jurisdiction for upstream petroleum investment. At the other end of the scale, Quebec stands out as the Canadian jurisdiction posing the greatest barriers to investment.

Canada had 10 jurisdictions in the 2014 survey but only two, Saskatchewan and Manitoba, achieved commendable first quintile rankings. As in 2013, Alberta and Newfoundland & Labrador have second quintile ratings. However, Nova Scotia, British Columbia, and Yukon slipped into the third quintile this year, joining New Brunswick and the Northwest Territories among the jurisdictions with PPI scores in the 40.0 to 59.9 range. Once again, the outlier is Quebec with a fourth quintile rating.

Quebec fell from 101st (of 147) in 2012 to 141st (of 157) in 2013. Although that province's overall rank improved slightly in 2014 to 133rd (of 156), it is still clearly regarded as unattractive for upstream petroleum exploration investment compared to other Canadian jurisdictions. Quebec's Policy Perception Index score deteriorated from 77.1 to 79.5, putting Quebec just marginally above the fifth quintile. Its decline is due to poorer results with regard to trade barriers (38 percent)[10]; regulatory duplication and inconsistencies (15 percent); and taxation in general (14 percent).

10 The numbers in brackets show the difference between the total percentage of responses which indicate that a particular factor is a deterrent to investment (i.e., the combined responses of types "3. Is a mild deterrent to investment," "4. Is a strong deterrent to investment," and "5. Would not pursue exploration investment in this region due to this factor") from 2013 to 2014.

British Columbia dropped in the Policy Perception Index ranking from 47^{th} (of 157) in 2013 to 62^{nd} (of 156) this year as a consequence of poorer (i.e. higher) scores on the survey questions pertaining to regulatory enforcement uncertainty (22 percent), taxation in general (20 percent), and environmental regulations (20 percent).

The Northwest Territories slipped from a high third quintile placement in 2013 (score 40.8) to the mid to low third quintile (score 53.1) and dropped 11 spots in the overall ranking to 72^{nd} (of 156) in 2014. Driving this shift were significant increases in factors related to regulatory enforcement uncertainty (30 percent), trade barriers (22 percent), and environmental regulations (17 percent).

Alberta's ranking rose slightly this year, moving from 19^{th} (of 157) to 16^{th} (of 156), in spite of realizing a slightly poorer Policy Perception Index score. Nova Scotia saw the largest decline in Canada this year; it moved down 31 spots from 30^{th} place (of 157) in 2013 to 61^{st} (of 156) in 2014. This reflects a 21-point increase in Nova Scotia's PPI score, from 27.5 in 2013 to 49. The factors driving this shift appear to be increases in regulatory enforcement uncertainty (32 percent), disputed land claims (28 percent), and regulatory duplication and inconsistencies (23 percent). Newfoundland & Labrador remained in the second quintile despite seeing its PPI score decrease by roughly 13 points, from 26.4 to 39.1 in 2014. The greatest driver of this shift was uncertainty regarding labor regulations and employment agreements (35 percent).

New Brunswick has the greatest increase in ranking amongst the Canadian jurisdictions, moving from 81st (of 157) in 2013 to 63rd (of 156) in 2014. This improvement occurred despite a reduction of 1.1 points in the PPI score. However, with the deterioration that occurred in other provinces, New Brunswick now ranks 7^{th} (of 10) in Canada for attractiveness for exploration and development investment compared with 9^{th} in 2013. In the past, New Brunswick's and Quebec's rankings both likely suffered as a result of policies and proposed regulations regarding the potential implementation of hydraulic fracking to recover natural gas from shale formations.

Respondents' comments about various provinces ranged from complimentary to critical. The comments in the following section have been edited for length, grammar and spelling, to retain confidentiality, and to clarify meanings.

Alberta

> "Took over 1 year to get regulatory approval for a minor tie-in for natural gas gathering system."
>
> "Introduction of the 'moratorium' on shallow Steam-Assisted Gravity Drainage (SAGD) projects in Dec 2013 completely derailed our equity offering and has put our company on a shaky footing."

British Columbia

> "Wanting to charge royalties for oil and gas being transported by pipeline from another province—unprecedented, can never be done. This is making investment in Western Canada difficult since there is no way to move hydrocarbons offshore. This is slowing down industry by many billions of dollars per year."

Saskatchewan

> "Tax and royalty holiday on incentive volumes for horizontal development wells."

> "Simplicity, transparency, and support for prudent industrial development."

> "Horizontal well royalty holiday—spurred additional investment."

Quebec

> "Arbitrary decisions and unreasonable delays pertaining to the provision of required authorizations, permits, etc., by the Ministry of Natural Resources which regulates oil & gas activities—has been the situation since 2011."

The United States

Twenty-four US jurisdictions were included in the 2014 survey and sufficient responses were received to allow us to rank all of them.

Oklahoma is again the most attractive US and global jurisdiction, followed by Mississippi. Five other US jurisdictions also remain in the first quintile this year: Arkansas, Alabama, Kansas, Texas, and North Dakota. In addition, Wyoming achieved a first quintile score, bringing the total number in this group to eight compared with seven in 2013 (figure 10).

Only eight US jurisdictions are in the second quintile group this year compared with 10 in 2013. The seven states which were also in this group in 2013—Utah, Louisiana, Ohio, Montana, New Mexico, Illinois, and West Virginia—have been joined by Michigan, which moved up from the 3rd quintile. Michigan's much improved overall ranking, from 62nd position (of 157) last year to 30th (of 156) in 2014 is the result of improvements in several factors addressed in the survey: labor regulations and employment agreements (-21 percent), uncertainty regarding protected areas (-19 percent), and quality of the geological database (-18 percent). Utah also significantly improved its Policy Perception Index rank this year, moving from 32nd (of 157) in 2013 to 12th (of 156) in 2014 to lead the group of US jurisdictions with second quintile status. This is due to significantly improved scores with regard to uncertainty regarding environmental regulations (-24 percent), labor availability and skills (-17 percent), and the cost of regulatory compliance (-16 percent).

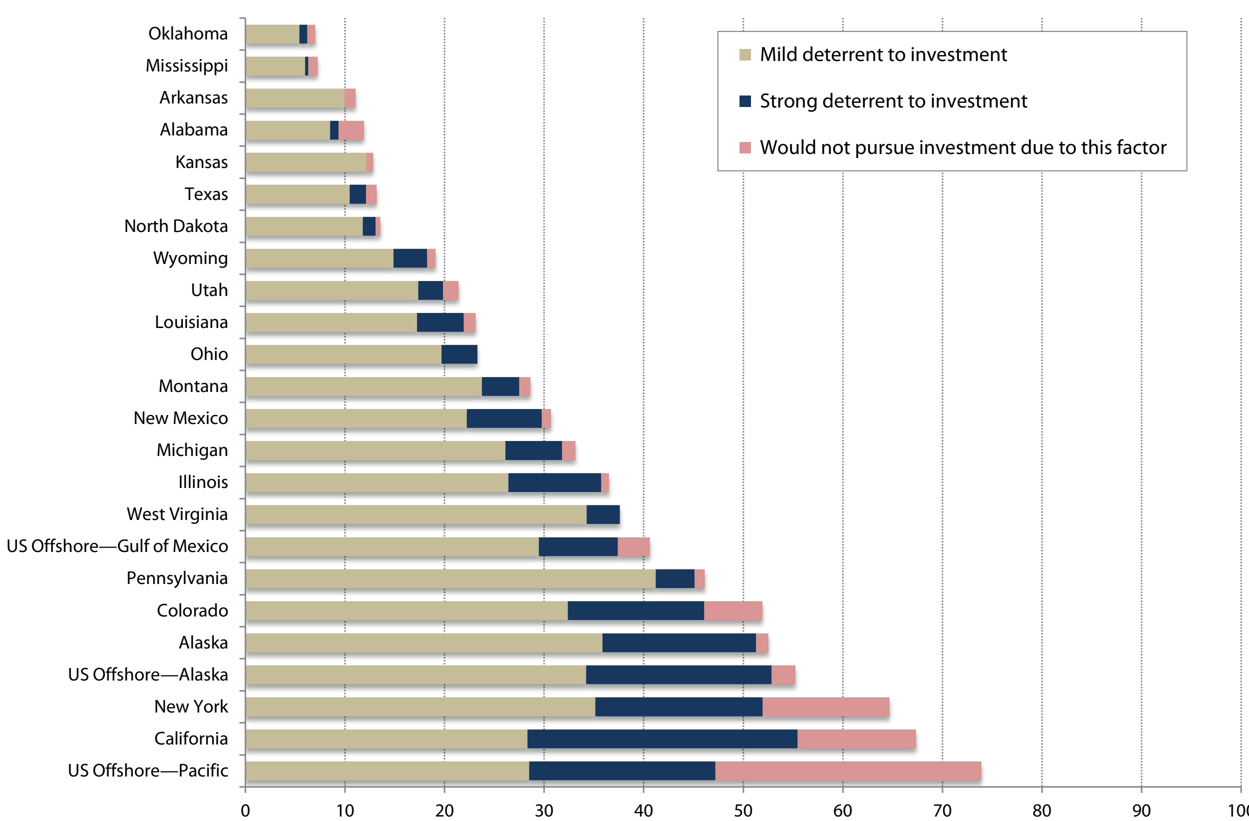
Pennsylvania and the US Gulf of Mexico both slipped into the 3rd quintile grouping from the second while, as noted above, Wyoming moved up to the first quintile. West Virginia's Policy Perception Index score deteriorated from 25.9 in 2013 to 37.6 this year. Increases in taxation in general (27 percent) and quality of infrastructure (22 percent) greatly contributed to the state's weaker performance, which caused it to drop from 4th place (of 10) in the 2nd quintile group to last (of 8).

There are five US jurisdictions in the third quintile this year compared with six in 2013. Colorado, Alaska, and US Offshore—Alaska repeated the 3rd quintile performances that they attained in 2013 and were joined by the US Offshore—Gulf of Mexico and Pennsylvania. The latter two both dropped from the second quintile. Michigan moved up to the second quintile, while both California and New York slipped into the fourth quintile.

The deterioration in the US Offshore—Gulf of Mexico's score and overall rank (from 41st of 157) to 48th (of 156) resulted, in part, from poorer marks in relation to the uncertainty regarding political stability and legal system fairness.

Colorado's PPI score deteriorated for the second consecutive year, by almost 10 points in 2014 alone, largely as a result of increased negative sentiment with regard to uncertainty concerning environmental regulation (15 percent), trade barriers (15 percent), and taxation in general (15

Figure 10: Policy Perception Index—United States



percent). The state now sits in the middle of the third quintile instead of near the top. However, its overall rank (in 66th spot) is unchanged from a year ago.

Last year's only US jurisdiction with a relatively poor fourth quintile score, New York State, has been joined this year by California and the US Offshore—Pacific. Although New York's score deteriorated slightly, it move up in the global standings to 92nd place (of 156) from 119th position (of 157) in 2013 because many jurisdictions, especially in the Middle East and Africa, were the object of much greater downgrading.

California's score worsened by 11.7 points this year, pulling the state down to the fourth quintile from the third. The deterioration in the state's attractiveness for investment is largely the consequence of poorer scores for several factors: the quality of infrastructure (25 percent), legal system fairness (15 percent), and disputed land claims (14 percent). The US Offshore—Pacific was also subject to a significant drop in the PPI score. This pulled the jurisdiction down to an overall rank of 123rd (of 156) compared with 100th place in 2013. Contributing to this lower score were diminished performances for taxation in general (42 percent), regulatory enforcement uncertainty (36 percent), and disputed land claims (21 percent).

Three US jurisdictions (West Virginia, California, and US—Offshore Pacific) saw their Policy Perception Index scores deteriorate (i.e., increase) by more than 10 points this year from 2013. Colorado also fared relatively poorly, registering an increase in its score of 9.9. The jurisdiction with the greatest improvement was Michigan, which benefitted from a favourable 7.9 point change in its score.

Survey participants' comments on a number of American jurisdictions are presented below. Comments in have been edited for length, grammar and spelling, to retain confidentiality, and to clarify meanings.

Alaska

> "Alaska provides financial support for exploration and production expenditures to encourage exploration for new reserves."

California

> "Local government cherry-picking regulations between local and state levels to fit their need."

> "The Bay Area Air Quality Management Agency had the authority to shut in production from fields because of compressor exhaust emissions."

> "California protected lizards holding up establishing well sites."

Colorado

"Continued layering of new regulations and negative uncertainty in the ability to reliably conduct oil and gas operations."

"Ballot initiatives against fracking and increased setbacks. Increased regulatory requirements on air monitoring. Initiatives to take additional lands prospective for oil and gas [and turn them] into roadless, non-surface occupancy, and wildlife preserves."

"Short, transparent, and established procedure to get drilling permits."

Kansas

"Fish and Wildlife Service (FWS) listed the lesser prairie chicken as a threatened species causing great uncertainty in future operations."

"Encourages mineral development without onerous regulations."

Louisiana

"Numerous unfounded lawsuits by a number of agencies that have oversight of oil and gas permits that are contradictory to policies of the past. These reinterpretations have caused a number of operators to leave this market."

Montana

"New tax burden greater than profit."

New Mexico

"EPA—the state is unable to convey what is required to comply with the clean air regulations."

"Onerous revision of open pit rules."

New York

"Will not allow unconventional well completions."

"Bans on fracking and misinformation affecting economic development and state energy self-sufficiency."

Pennsylvania

"Indecision on severance taxes and impact fees and the amount of each causes uncertainties in economic evaluations."

Texas

"Put a 10 year hiatus on production taxes on unconventional production."

"Right to Work State."

"For a regulatory body, the Texas Railroad Commission is fairly efficient in getting permits and does not have an anti-development bias."

Utah

"Uintah County: Providing upgraded infrastructure to assist in new oil sand and shale development."

Wyoming

"Large areas cannot be developed due to 'cultural' considerations."

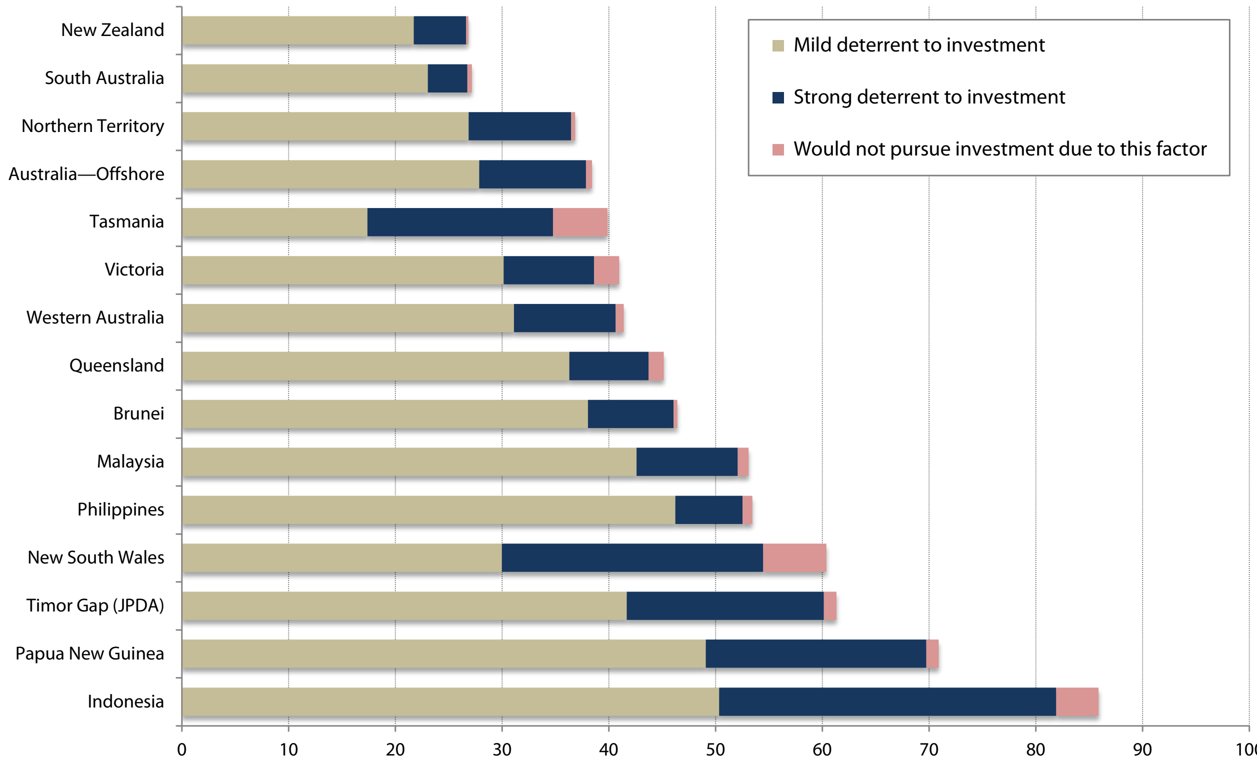
Oceania

In the survey Oceania is composed of 15 jurisdictions.[11] These are the six Australian states, the Northern Territory, and the Australian Offshore (both of which fall under Australian federal jurisdiction), the Timor Gap Joint Petroleum Development Area (JPDA), New Zealand, Brunei, Malaysia, the Philippines, Papua New Guinea, and Indonesia.

As figure 11 illustrates, the results for this region fall into four distinct categories. Again this year, none of the Oceania jurisdictions achieved first quintile scores. There now are only five jurisdictions in the region with second quintile scores compared with eight a year ago. These are New Zealand and the Australian jurisdictions of South Australia, the Northern Territory, Australia—Offshore, and Tasmania, all of which were also in the second quintile group in 2013. New Zealand, now the most attractive jurisdiction for investment in this region, is the only one of the five with an improved score. New Zealand's performance was boosted by diminished concern with regard to disputed land claims (-14 percent), regulatory duplication and inconsistencies (-12 percent), and regulatory enforcement (-12 percent).

11 East Timor was dropped this year because of an insufficient number of responses.

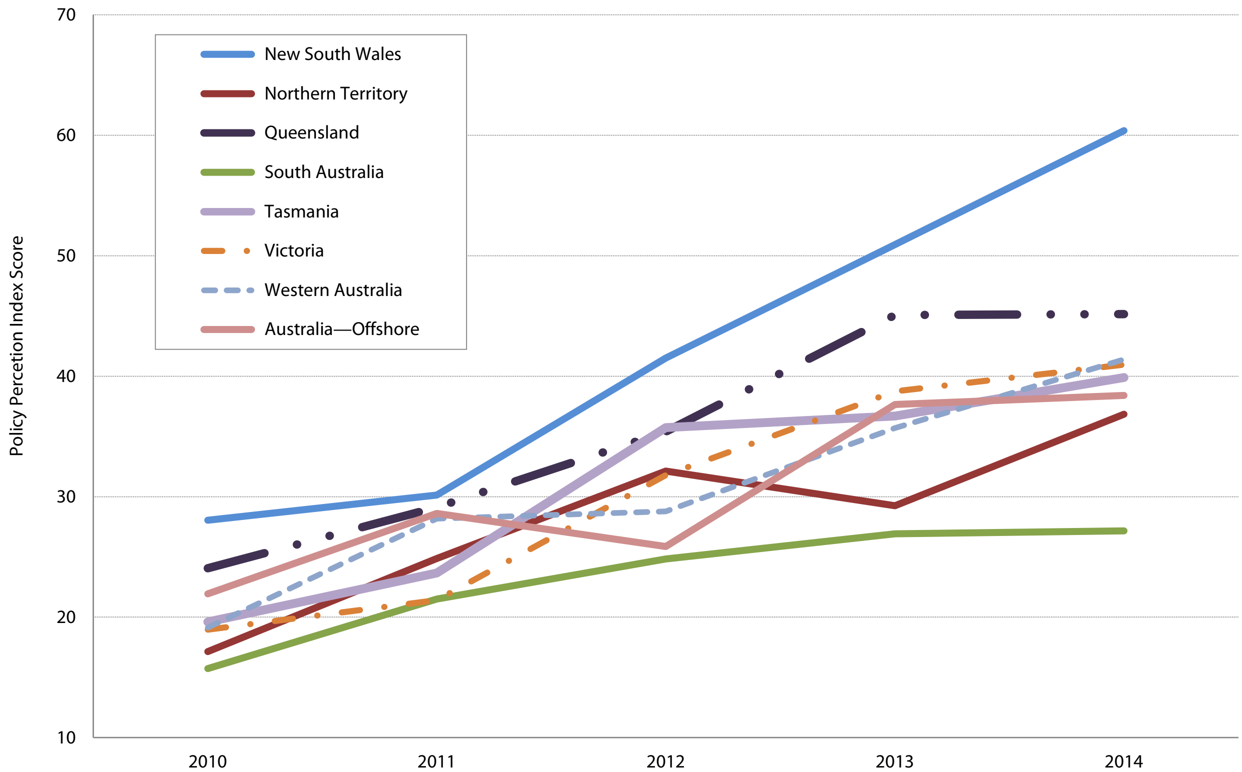
Figure 11: Policy Perception Index—Oceania



This year there are six Oceania jurisdictions with third quintile scores compared with four in 2013: Victoria, Western Australia, Brunei, Queensland, Malaysia, and Philippines. The first three of these dropped into the third quintile range after achieving second quintile scores in 2013. Brunei experienced the largest deterioration among the Oceania jurisdictions this year as the country's Policy Perception Index score rose from 35.8 in 2013 to 46.4. Contributing to this drop was the poor performance in the cost of regulatory compliance (19.3 percent), uncertainty regarding disputed land claims (16 percent), and political stability (15 percent), relative to last year.

This year's three-jurisdiction, fourth-quintile contingent (New South Wales, Papua New Guinea, and Timor Gap (JPDA)) numbers one fewer jurisdiction than a year ago. New South Wales dropped into the fourth quintile from the third because of poorer marks for trade barriers (24 percent), the cost of regulatory compliance (17 percent), and labor regulations (17 percent). Indonesia, which ranked in the fourth quintile in 2013, is now in fifth quintile as the result of increased negative sentiment with respect to political stability (23 percent), uncertainty about regulatory enforcement (15 percent), and fiscal terms pertaining to the petroleum industry (14 percent). East Timor, also in the fourth quintile in 2013, could not be included in this year's assessment because the number of responses for that jurisdiction was too low.

Figure 12: Policy Perception Index Scores for Australian Jurisdictions 2010-2014



The fact that an Australian jurisdiction (New South Wales) is now positioned with an undesirable fourth quintile grade comes as somewhat of a surprise, even though New South Wales' marks have been worsening since 2010. As figure 12 illustrates, PPI scores have been rising not only in that state, but in all eight of the Australian jurisdictions in recent years. Whereas four Australian states and the Northern Territory all ranked in the prestigious first quintile in 2010, no Australian jurisdiction has scored that well since. Now, in 2014, four of the eight Australian jurisdictions have scores in the third or fourth quintile ranges. This suggests that Australia is being regarded as a much less attractive region for investment than it was as recently as three or four years ago.

Respondents offered both positive and negative comments about conditions in the jurisdictions that we surveyed in the Oceanic region. The comments in the following section have been edited for length, grammar and spelling, to retain confidentiality, and to clarify meanings.

New South Wales

> "The Coal Seam Gas explorer Metgasco recently had a license suspended for 'failure to undertake appropriate community consultation.' The well was a conventional gas well

which was not going to undertake fracking operations. Despite this fact, the Office of Coal Seam Gas Regulation, recently established as a sub-group of the E&P administration offices of government, suspended the license one day before [drilling began at] the well in response to 1000+ people protesting outside the drill site preventing equipment from reaching the site. This despite the fact that the landowner was very supportive of the drilling and [the project had undergone] an 18-month community consultation process. The matter is now before the courts and the press is publishing both sides of an increasingly polarized argument. This in a state that imports (domestically) 95 percent of its gas from other states. This single action wiped 50 percent of the value from the company on the share market. NSW and Victoria are currently rife with examples of reactive, inconsistent political policy setting in relation to E&P activity in their states."

Northern Territory

"The Northern Territory Prime Minister and 'Minerals Minister' have both gone on record in the press (domestically and overseas) saying that the Territory is 'Open for Business' and is actively fast-tracking E&P permit applications, license conversion, prioritizing water usage clarity, and engaging native peoples regarding the potential benefits of E&P on the Territory. This is probably a matter of mindset rather than specific policy, but that can often make even a mediocre policy an attractive quality when clearly enforced and committed to. When both are in question, that is when alarms go off."

South Australia

"One stop shop; granting of grouping of licences and obligations."

"Government established a 'full service' support office to assist with hydrocarbon exploration."

Western Australia

"Unfortunately a State agreement in the Canning Basin overrode the relinquishment provisions of the Petroleum and Geothermal Energy Resources Act 1967 (WA) (PGERA67) and allowed warehousing of huge areas of acreage—permit terms were extended significantly. Thus relinquishment acreage was delayed in being made available for industry to subsequently bid on."

Indonesia

"New tax regulations applied to land and buildings (both onshore and offshore)."

"Restricting the age of foreign specialist technical workers to 30-55 years of age, with a maximum of 4 years in the country."

"Newly tightened restrictive work permit regulations by SKK Migas mean that investors cannot control their investments internally."

"Application of a Land & Building Tax on offshore contract areas signed post-2011. This tax is levied on both surface area of contract area and subsurface area."

"Allows the oil companies the priority to recover value-added tax at production."

Malaysia

"Unilateral implementation of tax incentives and improved profit splits by government."

New Zealand

"A re-write of the petroleum regulations introduced a much more rigid and prescriptive regime which is preventing companies from being able to negotiate changes to permit work programs, particularly around being able to defer drilling decisions for pragmatic reasons. In several instances, this has led to companies surrendering permits after having spent large sums of money in the exploration phase."

"The modern New Zealand block offer is now about giving potential investors choice. Where once the government tried to define what blocks were put up for competitive bidding, the government is now defining large areas and asking potential permit holders to draw their block boundaries using a graticular [i.e., a predetermined line of latitude and longitude that is used to divide tracts of land into graticular sections] approach similar to the UK North Sea."

"Moving from 5-year to 15-year multi-client data confidentiality duration in 2013 has dramatically increased seismic data acquisition in New Zealand's waters."

Philippines

"A foreign company, as operator for a joint venture, was unable to proceed to drill an exploration well due to the non-issuance of a local (provincial level) permit. Eventually the company withdrew from the joint venture."

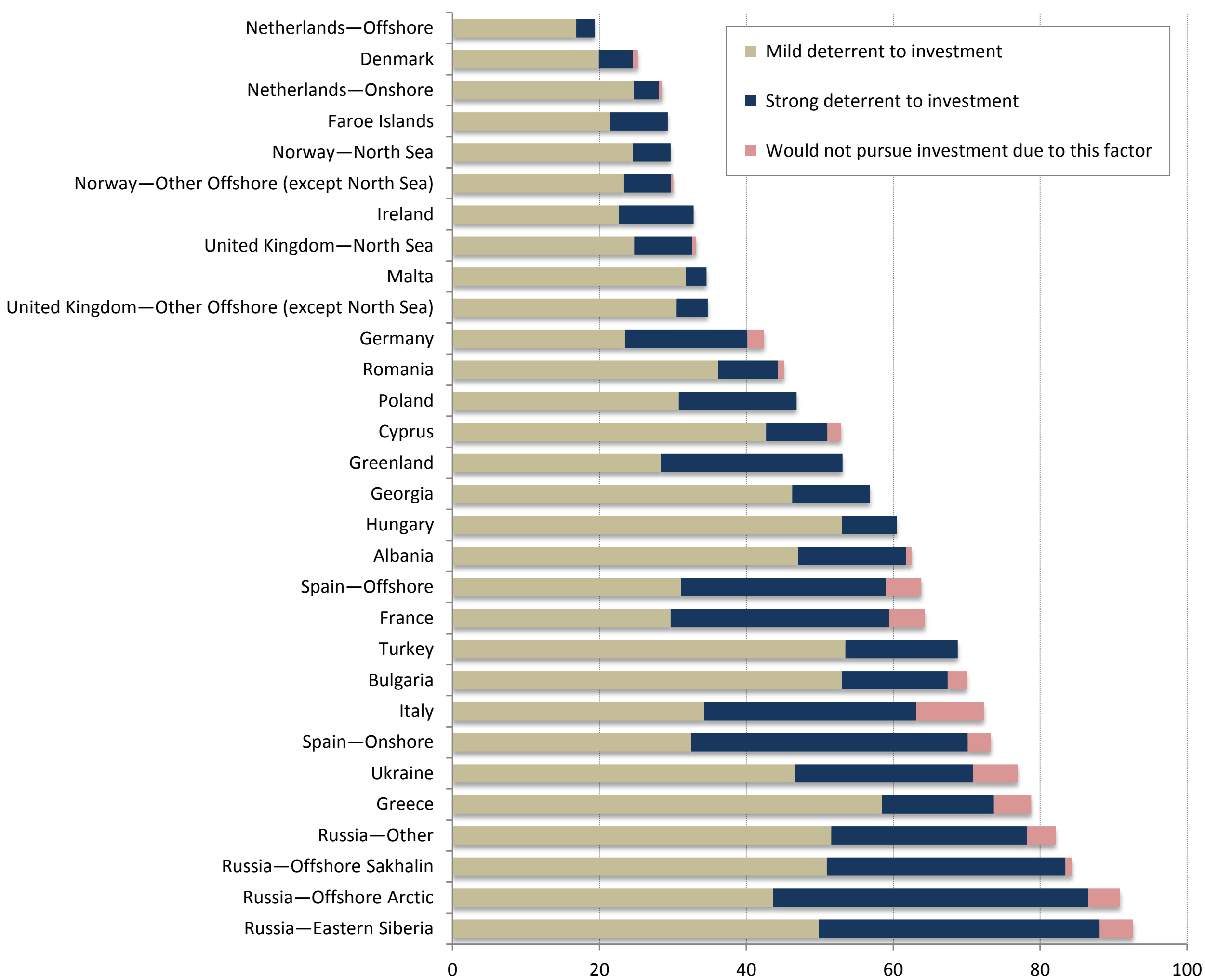
Europe

Figure 13 shows the rankings for European jurisdictions based on this year's Policy Perception Index scores. We were able to evaluate 30 jurisdictions in this region, the same number as in 2013.

This year only 10 European jurisdictions rated in the attractive first and second quintiles compared with 14 in 2013 and 18 (of 28) in 2012. As in 2013, the Netherlands—Offshore is the only European jurisdiction with a first quintile score.

The nine jurisdictions with second quintile scores were also in that range in 2013. Led by Denmark, the group also includes Netherlands—Onshore, the Faroe Islands, Ireland, Malta, the two jurisdictions from the United Kingdom (UK), and the two Norwegian jurisdictions. Although still in the second quintile, both UK jurisdictions realized poorer scores this year. UK—North Sea dropped from 16th place (of 157) in 2013 to 31st (of 156) in 2014, largely as a result of increased concern regarding the cost of regulatory compliance (26 percent), quality of infrastructure (14 percent),

Figure 13: Policy Perception Index—Europe



and uncertainty of regulatory enforcement (14 percent). UK—Offshore Other dropped 10 spots in the rankings to 33 (of 156) this year for some of the same reasons. However, concern with respect to labor regulations and employment agreements (14 percent) also had a large impact on that jurisdiction's poorer showing.

Six European jurisdictions (Germany, Romania, Poland, Cyprus, Greenland, and Georgia) are in the third quintile this year, down from nine in 2013. Romania is the success story of the group, lowering its PPI score ten points to 45.1, and consequently improving its rank from 97th (of 157) in 2013 to 54th (of 156) in 2014. Romania benefited from diminished negative sentiment with regards to trade barriers (-21 percent) and protected areas (-20 percent). Romania, Cyprus, and Greenland were also in the third quintile in 2013. However, Germany, Poland, and Georgia are new to this range this year, having slipped from their second quintile standing last year.

Ten European jurisdictions are in the fourth quintile this year, up substantially from only four last year. This marked change resulted from six jurisdictions (Hungary, Albania, Spain—Offshore, France, Italy and Spain—Onshore) slipping from third to fourth quintile standing, while Turkey dropped from the second to the fourth quintile. Bulgaria, Ukraine, and Greece, along with Russia—Offshore Sakhalin, which slipped from the fourth quintile to the fifth this year, also had lacklustre fourth quintile results in 2013.

Italy dropped from a 2013 PPI score of 54.2 to a 2014 score of 72.4, and was rated the worst jurisdiction in the world on the Regulatory Climate Index. This shift was driven by its poor performance on the cost of regulatory compliance (52 percent), regulatory duplication and inconsistencies (30 percent), and uncertainty regarding protected areas (27 percent). The percentage of the most negative "would not pursue investment due to this factor" type of response increased sharply in Italy this year and was greater than in any of the other European jurisdictions. This could be related to concerns over the reduction of the area where offshore production and exploration can take place, which came into effect in late 2013.

Both Spain—Onshore and Spain—Offshore dropped in rank by 54 and 26 positions, respectively. Both jurisdictions performed much worse on disputed land claims (Onshore by 51 percent and Offshore by 41 percent) and on the cost of regulatory compliance (Onshore by 46 percent and Offshore by 48 percent) than in 2013. Turkey is another jurisdiction that performed much more poorly this year. Labor regulations (43 percent), quality of infrastructure (37 percent) and security uncertainty (36 percent) contributed to Turkey's drop in the overall PPI ranking from 48th place (of 157) to 102nd spot (of 156). Turkey also suffered because numerous other investment drivers also increased by 20 or more percentage points.

All four Russian jurisdictions—Offshore Arctic, Eastern Siberia, Offshore Sakhalin, and Other—are in the fifth quintile this year and two of them, Offshore Arctic and Eastern Siberia, are amongst the 10 least attractive jurisdictions worldwide for upstream petroleum exploration investment.

The comments received for European jurisdictions range from positive to critical. Some are provided below; comments have been edited for length, grammar and spelling, to retain confidentiality, and to clarify meanings.

France

> "Applying officially for an onshore exploration permit in France, the application being accepted, and a few days later the application annulled."

Germany

> "In Germany, renewal of an onshore exploration license became entangled with local politics and was, practically, rejected."

> "'Moratorium on fracking' declared by federal state politicians not in line with current (federal) mining law and not based on any scientific proof, just populism."

> "Regulatory process not streamlined and industry data kept confidential."

> "[There was a] complete lack of due process in Germany's decision to place an unofficial moratorium on fracking. The eagerness of the politicians to resist new unconventional exploration activity resulted in shutting-in Germany's well-established production from tight gas development that has been stimulating wells for over 40 years."

Greece

> "Lack of clarity on commercial terms."

Ireland

> "Very inefficient process around planning permission for project construction. Multiple agency overlap adds an additional level of complexity to this process."

> "Inefficient/convoluted planning processes."

> "Open door access and knowledgeable regulatory authorities."

Italy

> "Banning offshore drilling in the wake of [the Deepwater Horizon blowout]."

> "Moribund licensing systems."

"Regional Emilio-Romagna authority banned drilling with no legal or scientific basis. Central government did nothing."

Norway (general comment)

"Reduction of important tax allowance (uplift) was a surprise decision by government, unilaterally without any form of normal hearing process and consultation with industry."

"This has been in place for some years: the Norwegian approach to incentivizing exploration through its fiscal system is exemplary."

"78 percent tax relief on exploration activities—even without production.

Romania

"Starting January 1, 2014, a tax on construction would be due by Romanian taxpayers. The tax is computed by applying a 1.5 percent rate to the value of construction owned by taxpayers on December 31 of the previous year."

"Uncertainty about taxation with proposed increases. Have license from the country but unable to obtain local permits to conduct exploratory work on the license.

Spain—Onshore

"All permits to drill are in place. All environmental requirements have been met. Government has sat on final approval for over two years without explanation."

Spain—Offshore

"The drilling of two offshore exploration wells, some 60 kilometers east of the Canary Islands, is suffering from a strong local resistance campaign. The state environmental authorities recently approved the project. However, the regional authorities and the local community remains strongly opposed, claiming that tourism would be dramatically affected by exploration activities and by any hydrocarbon production in the area. These Canary exploration permits have a long history. The permits were awarded in January 2002. In 2003 a legal process was initiated by local authorities of the Canary Islands against the national government. The permits were revoked by a judgment of the Spanish Supreme Court for not having expressly determined the environmental protection measures. The permits were suspended on February 2004. One month later, a change of the national government took place in Spain. Then, the process was kept on hold for 8 years. On November 2011, a reverse political change took place in the national government and on March 2012, a new Royal Decree was published amending the former text and reactivating the exploration permits, i.e., 10 years after the first awarding."

"Long (18+ months), bureaucratic, politically motivated environmental approval process with zero flexibility."

Turkey

"From a business perspective, lack of required approvals for operations; regulatory body allows E&P companies the ability to operate efficiently. Examples: no approvals necessary for drilling (companies provide a spudding statement), well completions, fracking, or seismic acquisition."

Ukraine

"Decision to increase taxes and royalties to 45-55 percent on production for balance of 2014 during the political and security crisis."

United Kingdom

"Supplementary tax on oil companies."

"UK was slow to address concerns on shale gas. Scotland has been slower than England and needs to openly and strongly address the concerns and promote the benefits."

"The regulator is slow and reluctant to exercise its powers to determine the terms and conditions for use of third party infrastructure."

Asia

Figure 14 ranks the 14 Asian jurisdictions that were evaluated this year according to their Policy Perception Index values. This is the same group of countries as in 2013.

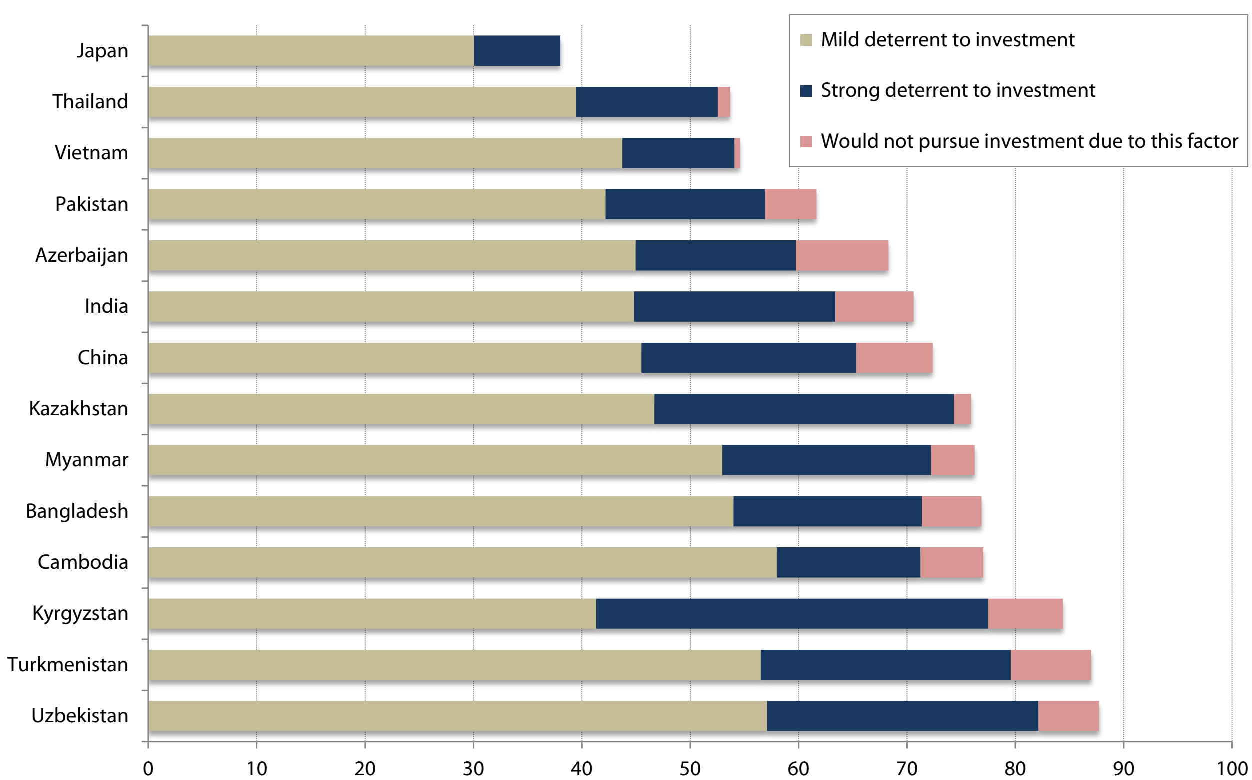
As has been the case since the survey began in 2007, none of the Asian jurisdictions achieved first quintile status in 2014. Japan, again with a second quintile rating, now sits alone in the 20.0 to 39.9 PPI score range because Thailand, which had a second quintile score in 2013, has slipped into the third quintile.

Japan is still rated by petroleum explorers and developers as the most attractive jurisdiction for investment in Asia, although its attractiveness for investment improved slightly in this year's survey as evidenced by a Policy Perception Index score near the upper bounds of the second quintile (38.0 this year from 39.1 in 2013). This small improvement is due in part to declines in negative sentiment with regard to taxation (-31 percent), regulatory enforcement (-29 percent), and protected areas (-23 percent). These changes were sufficient to boost Japan to 42nd place (of 156) in the overall ranking from 57th place (of 157) a year ago. Moreover, the gap between Japan and second place Thailand (among the Asian jurisdictions) has widened considerably; Thailand's score increased by more than 14 points mainly due to greater negative sentiment expressed by survey respondents over political stability (37 percent), security (27 percent), and disputed land claims (24 percent).

Thailand shares its third quintile status with Vietnam. Three Asian jurisdictions that enjoyed third-quintile status in 2013—Pakistan, Azerbaijan, and China—have all drifted downwards into the less desirable fourth quintile range this year. Five jurisdictions that only achieved fourth quintile status in 2013 received more or less similar fourth quintile ratings this year: India, Kazakhstan, Myanmar, Bangladesh, and Cambodia.

The percentage of the most negative "would not pursue investment due to this factor" type of response increased sharply in Azerbaijan this year and is greater than in any of the other Asian jurisdictions. This change is related to concerns over labor regulations and employment agreements (24 percent), uncertainty in regulatory enforcement (22 percent), and uncertainty concerning environmental regulations (22 percent). China's less attractive score compared with a year ago resulted largely from increased uneasiness over both regulatory and geopolitical factors, particu-

Figure 14: Policy Perception Index—Asia



larly disputed land claims (32 percent), the cost of regulatory compliance (29 percent), and political stability (26 percent).

Vietnam scored more favorably overall this year, which moved the country up to 75th place (of 156) in the overall ranking from 99th spot (of 157) last year. The improvement was a result of less negative sentiment with regard to infrastructure quality (-19 percent), labor availability and skills (-17 percent), and the cost of regulatory compliance (-13 percent).

Turkmenistan bore the brunt of the most significant deterioration in Policy Perception Index scores among the Asian jurisdictions and dropped into the fifth quintile from the fourth, and into the group of 10 least attractive jurisdictions in the world as a consequence. This unflattering result is mostly due to increased concern over the country's geopolitical risk. Uzbekistan remains the least attractive jurisdiction in the region, and one of the 10 least attractive jurisdictions overall, along with Kyrgyzstan. The scores for both of those jurisdictions were also in the unattractive fifth quintile range in 2013.

Below are some of the comments received about the petroleum industry investment environment in various Asian countries. The comments in the following section have been edited for length, grammar and spelling, to retain confidentiality, and to clarify meanings.

China

> "The foreign company has to cooperate with the state-owned company to enter the market. The whole bureaucratic procedure will take a long time and numerous negotiations with the central and local governments."

> "The Chinese government provides great tax benefits for foreign investors if they enter the market with the state-owned companies."

India

> "Gas pricing regime as per the PSCs signed by the government; gas should be sold by the operator to the highest bidder after an arms-length discovery process. Unfortunately, in practice, it has become a case of the government of India 'allocating' gas to buyers and determining the price."

> "Imposition of 'missile testing ranges' over many petroleum exploration licenses."

> India makes life tough for E&P companies—at least some. The gas pricing situation in India is a mess. And the plan to move to the new Open Acreage Licensing Policy (OALP) is also a bit of a mess—and some are pushing for an altogether new fiscal system where there is a gross production split."

Myanmar

"2013 offshore bidding round—lack of clarity on rules of engagement and application of fiscal system, in particular, the relationship between the fiscal system and concessions available within the Corporate Income Tax (CIT) system. No geoscience data worth talking about available to bidders. Final decision on winning bids not transparent."

"Myanmar modified the terms of their recent offshore bid round to include an initial 'study period.' This period, which was up to two years, resulted in a large number of applicants for the blocks, including most of the major oil companies, and set off a round of intense exploration activity that will undoubtedly result in significant oil and gas discoveries."

"Government delayed the bid round to make it more transparent."

"Fair terms for new PSCs."

Pakistan

"Policies should be market-based, competitive, and consistent."

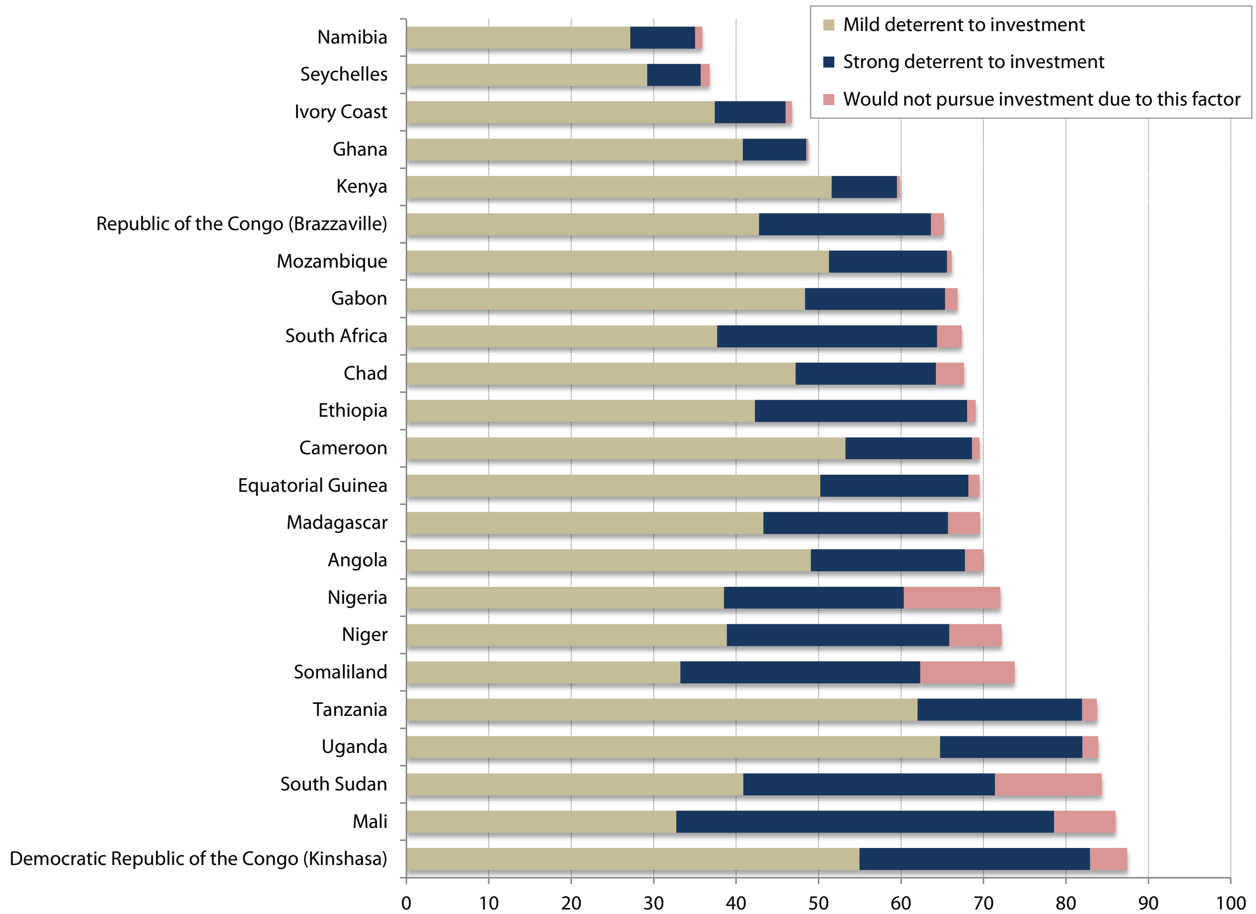
Thailand

"The political situation and conditions are not stable."

Vietnam

"Oil and gas policy is generally favorable to the investor."

Figure 15: Policy Perception Index—Africa



Africa

This year, as in 2013, we grouped the Middle East and African jurisdictions this way: 1) the Middle East and North Africa (MENA), and 2) the remainder of Africa (Africa). This change (from a simply Middle East /All of Africa split) was made to be more consistent with the regional reporting and statistics produced by international organizations. This section examines the survey results with respect to Africa (as redefined). The MENA region follows the Africa region.

Figure 15 compares the attractiveness of the 23 African jurisdictions that were assessed. Namibia and Seychelles, the two top ranked African jurisdictions this year, are in the second quintile. [12] Namibia has surpassed Seychelles to become the most attractive jurisdiction in Africa, largely as the result of investors' reduced concern with regard to regulatory uncertainty in Namibia and the perceived strengthening of the commercial environment there.

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12 Botswana, which headed the second quintile group in 2013, could not be assessed this year due to a lack of responses.

Only three African jurisdictions are in the third quintile this year compared with 11 in 2013: Ivory Coast, Ghana, and Kenya. An improved PPI score moved the Ivory Coast to the top of the group, up from a less attractive rating in the third quintile in 2013. The improvement is related to fewer negative responses with regard to security (-28 percent), the availability of labor (-27 percent), and labor regulations (-15 percent).

Thirteen African jurisdictions now rank in the fourth quintile compared with only nine in 2013. Mozambique, Gabon, South Africa, Ethiopia, Cameroon, and Equatorial Guinea all dropped into the fourth quintile from the third in 2013. South Africa, in particular, has a much worse PPI score this year. At 67.4, it is approximately 22 points greater than last year, largely driven by considerably poorer grades on regulatory duplication and inconsistencies (30 percent), protected areas (22 percent), and infrastructure quality (21 percent). Cameroon also saw a marked deterioration in a number of its scores this year, especially in relation to regulatory enforcement (27 percent), disputed land claims (24 percent), and the quality of its geological database (20 percent).

Africa's presence in the undesirable fifth quintile group of jurisdictions grew to five countries this year from only one a year ago. Tanzania, Uganda, Mali, and the Democratic Republic of the Congo (Kinshasa), have joined South Sudan in this group. Tanzania and Mali both absorbed staggering increases of more than 30 points in their scores and, as a consequence, tumbled all the way from the much more favourable third quintile group. Tanzania fell from 89th overall (of 157) in 2013 to 139th (of 156) in 2014 because of increased concern regarding protected areas (46 percent), regulatory enforcement (41 percent), trade barriers (29 percent), and political stability (28 percent). Mali's drastic 35-point score deterioration, resulting in a drop in its ranking to 146th (of 156) from 83rd (of 157) in 2013, was largely caused by much greater negative sentiment over the cost of regulatory compliance (61 percent), trade barriers (50 percent), and taxation in general (40 percent). However, Mali also lost considerable ground because of more than 20-point increases in the percentage of negative responses for other factors.

Uganda and the Democratic Republic of the Congo (Kinshasa), which now has the distinction of being the least desirable country for investment in the African grouping (supplanting South Sudan), both dropped into the fifth quintile from the fourth. Of the two, Uganda's PPI score deteriorated the most, rising from 64.1 to 83.9, mainly because of uncertainty over regulatory enforcement (36 percent), disputed land claims (33 percent), and the cost of regulatory compliance (31 percent).

Some of the respondents' comments concerning various African jurisdictions are presented below. These comments have been edited for length, grammar and spelling, to retain confidentiality, and to clarify meanings.

Angola

> "Lack of flexibility of fiscal regime to attract investment in marginal fields."

> "Increased competitiveness and diversity of investors."

Equatorial Guinea

"Dispute regarding interpretation and application of economic stability clauses in the profit sharing contract."

Gabon

"Denial that the law had been followed (which it was) and therefore demanded negotiation for the renewal of a license on new (unfavorable) terms."

"New petroleum law obliges participation by state oil company and obliges state participation."

Ivory Coast

"Pragmatic negotiation of profit sharing contract to bring more gas on stream.

Madagascar

"Madagascar changed the VAT regime applicable to oil and gas, leading to a 20 percent increase in costs."

Namibia

"Applying a 25 percent withholding tax (WHT) on specified services has the potential to inflate supplier costs substantially. The list of specified services could be expanded to include services to which the tax does not currently apply."

Nigeria

"Nigerians have the right to organize associations without any limitations and without any state regulation or intervention. This led to the formation of the Niger Delta Group, which became involved in serious kidnapping activities."

"The proposed Petroleum Industry Bill, which still has not been passed by the National Assembly in spite of many years of discussion, poses some serious concerns for investment. The bill has gone through several iterations and revisions because of political and interest group pressures. A number of versions have been introduced over the years in the search for the right balance, particularly in terms of the fiscal terms, certainty of tenure of licences and interests, etc."

"Nigeria is known for low investment taxation policy and this encourages investment."

South Africa

> "Changes in legislation related to the Mineral and Petroleum Resources Development Act (MPRDA) 'one size fits all' approach by the government, so that oil and gas are included with mining, require review to determine whether to invest (drill) after signature of a permit."

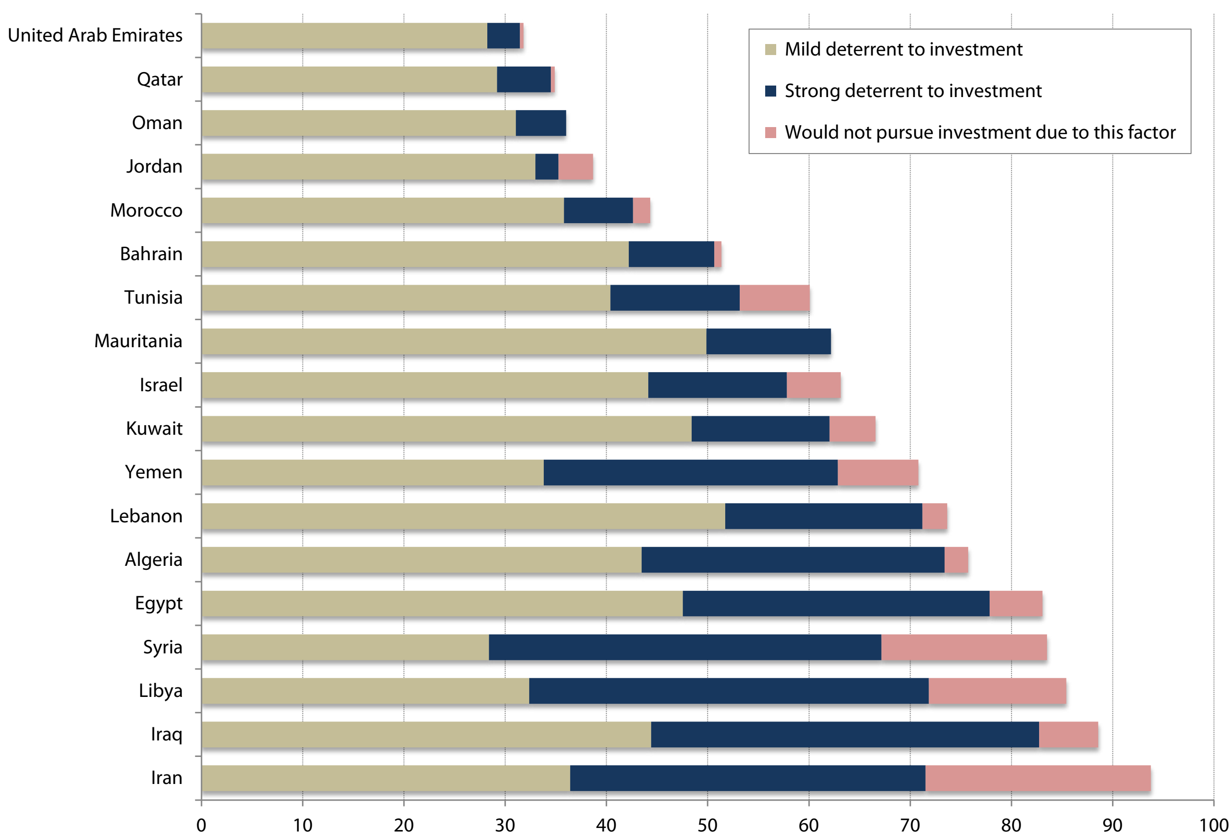
Tanzania

> "The new fiscal terms will prohibit future investment."

The Middle East and North Africa (MENA)

The 18 Middle East and North African countries evaluated in this year's survey are presented in figure 16, ranked according to their relative attractiveness for investment as measured by the Policy Perception Index. Again this year, none of the region's jurisdictions achieved first quintile Policy

Figure 16: Policy Perception Index—Middle East and North Africa



Perception Index scores. Only four MENA countries (United Arab Emirates, Qatar, Oman, and Jordan) achieved second quintile rankings in the 2014 survey compared with seven in 2013. Qatar has been displaced from first place in the region by the United Arab Emirates, mainly because Qatar was hit by a 10 point increase its the PPI score, raising it to 34.9. Qatar's grade for the legal system factor (up 34 percent) is largely to blame for this, but worse scores compared to a year ago on labor availability (19 percent) and trade barriers (18 percent) also took their toll. The United Arab Emirates benefitted from an improved score on environmental regulation (-9 percent). Jordan was able to retain its position in this quintile after moving up to the second quintile in 2013.

Compared with four jurisdictions a year ago, only two—Morocco and Bahrain—have third quintile scores this year. Both countries slipped into this range from the mid-second-quintile range as the result of less favorable PPI scores than in 2013.

Seven MENA jurisdictions scored in the fourth quintile this year compared with five in 2013. These include Kuwait (which fell all the way from the second quintile), Tunisia, Mauritania, Israel, and Lebanon (which slipped down from the third quintile), along with repeat fourth quintile performers Yemen and Algeria.

Kuwait's remarkable 27.0 point deterioration in its PPI score and drop in the standings to 95th position (of 156) from 60th (of 157) is mainly the result of labor regulations and employment agreements (63 percent), trade barriers (55 percent), and concerns regarding the legal system (52 percent). Lebanon's worse PPI score (up 21.4 points from a year ago) was due in part to greater percentages of negative responses for its legal system performance (38 percent), political stability (35 percent), and regulatory duplication (33 percent). Survey respondents also downgraded Tunisia and Israel considerably.

Iran and Iraq still rank amongst the 10 most unattractive jurisdictions in the survey with overall scores in the least attractive fifth quintile. This year they have been joined by Egypt, Syria, and Libya, all of which have slipped from fourth quartile ratings. The deterioration was greatest for Egypt, whose PPI score rose by 20.5 points, due to poorer marks for taxation in general (24 percent) and its legal system (22 percent). Egypt, Syria, and Libya all now rank among the worst six jurisdictions in the world according to the Geopolitical Risk Index measure. In fact, Syria is now the least attractive jurisdiction in the world on that measure.

Respondents provided the following comments regarding conditions in various countries in the Middle East and North Africa. The comments have been edited for length, grammar and spelling, to retain confidentiality, and to clarify meanings.

Egypt

> "After the oil price collapse in the late 90s, Egypt introduced a low price cap for domestic gas for upstream producers of \$2.65/mmbtu. This cap has not changed for most of the contracts (even though it might not increase enough to generate new develop-

ments), and as a result, even the discovered new gas resources are being left undeveloped since it is not economically feasible to investors to develop most of the fields (offshore, most of the resources in deep water) and Egypt, which once was a substantial LNG exporter, now needs to IMPORT gas at a substantial cost since it was not ready to offer and pay the appropriate gas price for its own energy, resulting in power blackouts and other macroeconomic consequences.

Iraq

"Failure by Kurdistan and the central government to reach agreement on oil and gas laws and regulations is creating uncertainty for investors."

Kuwait

"Having all decisions related to the petroleum industry approved by the Parliament, which has no understanding of the petroleum, political, economic intricacies."

Libya

"Forced renegotiation of valid contracts to much worse financial terms; arbitrarily invoked new taxes and regulations."

Tunisia

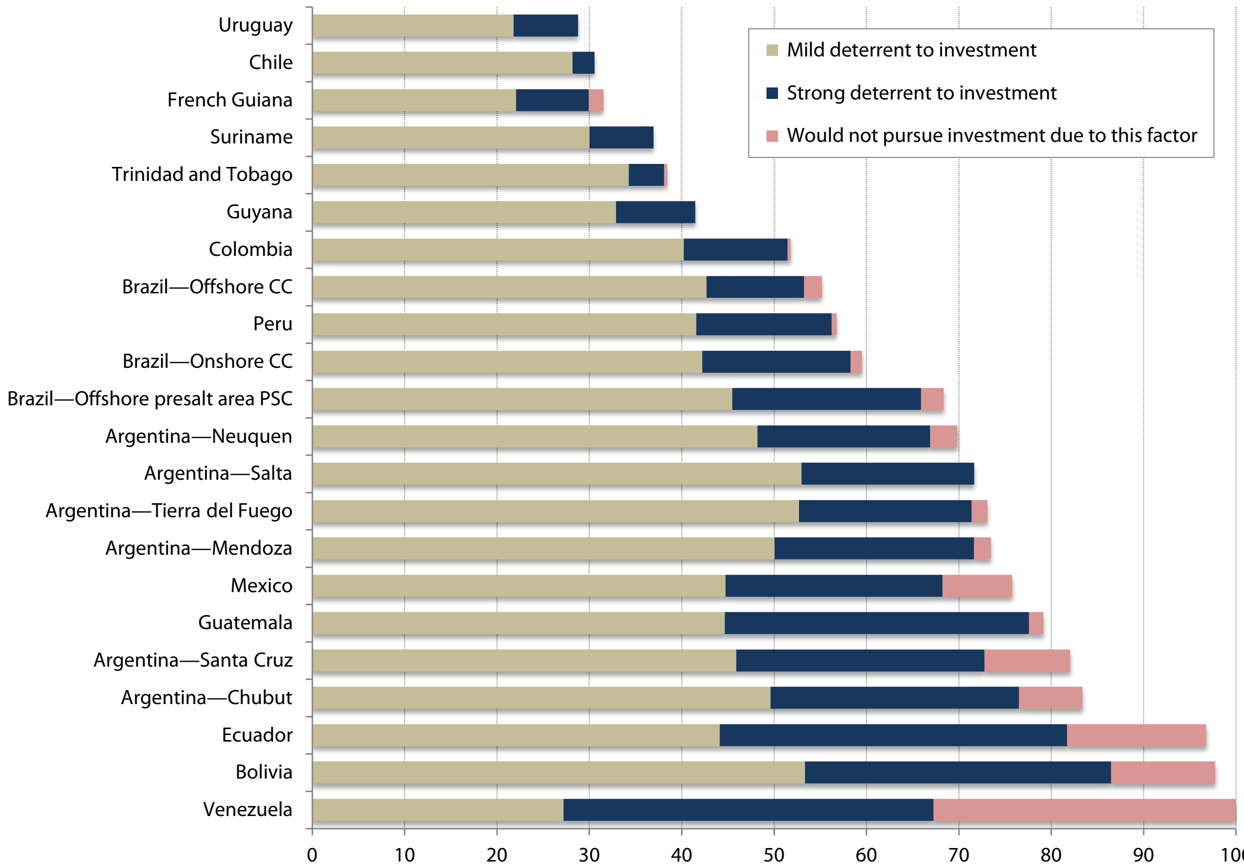
"Negotiation with local authorities/ labor/operating companies and strong support from the central authority to support such negotiation and to implement the result of such negotiation is needed."

Latin America and the Caribbean

Figure 17 presents the Latin American and Caribbean jurisdictions that were evaluated this year on the Policy Perception Index. Again this year, Brazil was broken into three distinct regions: Onshore Concession Contracts (CCs), Offshore Concession Contracts (CCs), and Offshore Pre-salt[13] Area Profit Sharing Contracts (PSCs). Argentina was broken down into six petroleum-producing provinces: Chubut, Mendoza, Neuquen, Salta, Santa Cruz, and Tierra del Fuego. Twenty-two jurisdictions were ranked compared with 21 in 2013; Mexico was included for the first time this year.

13 The "pre-salt" concession refers to the abundant petroleum reserves recently discovered in deep water locations beneath layers of salt in the Santos Basin approximately 200 kilometres off the coast of Brazil, south of Rio de Janeiro, and east of Sao Paulo.

Figure 17: Policy Perception Index—Latin America and the Caribbean



Five countries in Latin America and the Caribbean Basin rank in the second quintile this year compared with only two (Chile and Trinidad & Tobago) a year ago. The newcomers are Uruguay, French Guiana, and Suriname. Uruguay and Suriname both moved up from the third quintile while French Guiana rose all the way from a low fourth quintile rating.

Uruguay is now the most attractive jurisdiction in the region: a 12.6 point improvement in its PPI score lifted the country from 63rd place (of 157) to 21st place (of 156). Improved marks on the labor regulations (-33 percent), quality of infrastructure (-31 percent), and regulatory duplication (-29 percent) had the greatest effect on these results were largely responsible for the improvement. Suriname experienced a similar improvement but its gains were mainly driven by respondents' more positive perspectives regarding political stability (-30 percent) and regulatory consistency (-26 percent). French Guiana[14] exhibited the greatest improvement of all the jurisdictions in the survey this year. The country's PPI score fell by roughly 29 points. Improvements were observed with respect to 13 of 15 investment-driver categories, with the greatest improvements being in the case

14 These results may not be as robust as others because French Guiana only received between 5 and 9 responses.

of taxation in general (-40 percent), trade barriers (-39 percent), and quality of the geological database (-38 percent). This resulted in French Guiana rising from 109th place (of 157) in 2013 to 27th place (of 156) in 2014.

There are only five third quintile jurisdictions in this region this year instead of seven since, as noted, two jurisdictions that were in this grouping in 2013 moved up to the second quintile. The group leader, Guyana, rose from 90th place in the overall ranking to 51st as the result of an 11-point improvement in its PPI score. This is attributable to improvements in uncertainty concerning environmental regulations (-39 percent), improvements in labor regulations and employment agreements (-28 percent), and a reduction of regulatory duplications and inconsistencies (-24 percent). Colombia received slightly poorer grades yet moved up a bit in the standings. Both Brazil—Onshore Concession Contracts and Brazil—Offshore Concession Contracts have scores in the third quintile again this year and in both cases the scores are quite similar to where they were in 2013. However, with negative sentiment rising over many jurisdictions, these two Brazilian jurisdictions substantially improved their rankings. Brazil—Offshore Concession Contracts moved up 31 positions to 77th place and Brazil—Onshore Concession Contracts moved up 25 positions to a ranking of 80th. Peru made similar gains in spite of only a modest improvement in its PPI score.

This year, seven jurisdictions in Latin America and the Caribbean fall into the fourth quintile, compared with eight in 2013. Although three jurisdictions left the group, Mexico (new to the survey) and Argentina—Salta are in this category. The latter jurisdiction received a sufficiently improved score to move up from the 5th quintile last year. In part this is due to reduced negative sentiment over taxation in general (-30 percent), the legal system (-25 percent), and political stability (-19 percent). Three other Argentine provinces, Tierra del Fuego, Mendoza, and Neuquen, along with the Brazil—Offshore Pre-salt PSC region, which resides at the top of the fourth quintile, and Guatemala, at the bottom, are also in this group. Guatemala fell slightly, to 132th place overall from 128th position because of increased concerns affecting both the regulatory climate and commercial environment. Mexico, which has not previously been ranked, came in at 125th (of 156).

Again this year, Venezuela, Bolivia, and Ecuador rank as the least attractive jurisdictions for investment in the region and world, Venezuela remaining the lowest ranked. All three countries, together with Argentina—Santa Cruz and Chubut, which slipped from the fourth quintile, have fifth quintile scores.

Respondents' comments on jurisdictions in Latin American and the Caribbean Basin are provided below and have been edited for length, clarity of meaning, grammar and spelling, and to remove identifying information.

Argentina

"Control of gas prices, control and arbitrary decisions on who the buyers of gas production are, export taxes, all of that in Argentina since 2004."

"Law on export of oil is an issue."

"In my opinion, Argentina's decree 1277 (federal level) was worse than the expropriation of shares from Repsol or the debt default in 2001. This decree ordered the creation of a national hydrocarbon planning commission to oversee companies' investment plans, sanction them if they fall short and, in the most controversial aspect of the decree, periodically publish "reference prices for the sale of hydrocarbons and fuels, which will allow [oil companies] to cover the production costs attributable to the activity as well as obtain a reasonable profit margin."

"The Argentine government has changed several laws to expand the state's intervention in the upstream oil sector."

Argentina & Venezuela

"Changes in royalties and expropriation of international oil company assets (e.g. Repsol in Argentina and ExxonMobil in Venezuela)."

"Changes in foreign exchange policy in both countries have led to limitations or prohibitions of repatriation of profits. The import controls are a detriment to exploration and project development using more efficient, advanced technologies and adding to project costs."

Brazil

"During Lula's presidency, the terms of offshore contracts, especially those for the promising pre-salt areas, were radically changed. The increased interference of government as with national policy and fiscal terms has inhibited foreign investment. One example of this is what happened in bidding for acreage in the Libra field; many companies expressed interest but there was only one bid (by a consortium). Bad for all parties."

"The pre-salt regulations allow Petrobras to be sole operator of oil fields where licenses haven't been issued. This will increase government control over the energy industry and reduce competition against Petroleo Brasileiro SA, the state-controlled producer."

"Some equipment that is needed to develop ultra-deepwater fields is not available in Brazil without imports. Brazil doesn't have enough rigs to support local content requirement yet oil companies that fail to meet the requirements are subject to penalty."

"The Brazilian Development Bank (BNDES) provides some financial assistance to the oil and natural gas industry in order to promote the development of the entire industry productive chain—development, production, refining, transportation and distribution.

Chile

"Petroleum contracts are awarded by a competitive public bidding process which is very transparent."

Colombia

"Long delays in environmental permitting for exploration and development wells."

"The manner in which environmental policy has been administered for more than three years now has been delaying the issuing of environmental licences for non-conventional oil and gas. While the *Agencia Nacional de Hidrocarburos* invited the companies to bid for non-conventional resources, and awarded some concessions, the Ministry of Environment and the Environmental Agency has decided not to issue the required environmental licenses on the basis of environmental uncertainties."

"Positive changes to the high-price kick-in of additional compensation to the government for gas in deep and ultra-deepwater exploration and production, and the conversion rate of gas for the payment of royalties."

French Guiana

"Moribund licensing system."

Guatemala

"We were awarded a license in a public /competitive bid round but, one year later, are still waiting for the government to issue the PSA."

Mexico

"After 76 years, Mexico finally changed its Constitution to allow private investment in its O&G sector. This was not a single area of opening, such has happened before. This time, Mexico has opened up opportunities for foreign direct investment throughout the value chain, which will enable a constant flow of investment for future years to come."

Peru

"Permits take over a year to acquire sometimes. Social problems also, but depends on region. Peru has offshore, coast, and jungle regions, each with different problems."

"Extension of Environmental Impact Assessment approval (2-4 years) and the creation of Natural Protected Areas over oil and gas blocks granted to private investors present challenges."

Uruguay

"With little prospectivity, at least at the time of the initiation of the effort, clear rules, government support, and positive economic parameters have allowed offshore and onshore exploration to take place."

Venezuela

"Important barriers include:
(a) The foreign currency exchange controls which restrict repatriation and therefore limit the influx of capital;
(b) Limitations on commercialization options and freedom in the case of oil and gas extracted (monopoly in the purchase of production by Venezuela's instrumentalities) and material delinquency in payment for crude delivered;
(c) Abuse of control in the decision-making processes with regard to the Empresas mixtas."

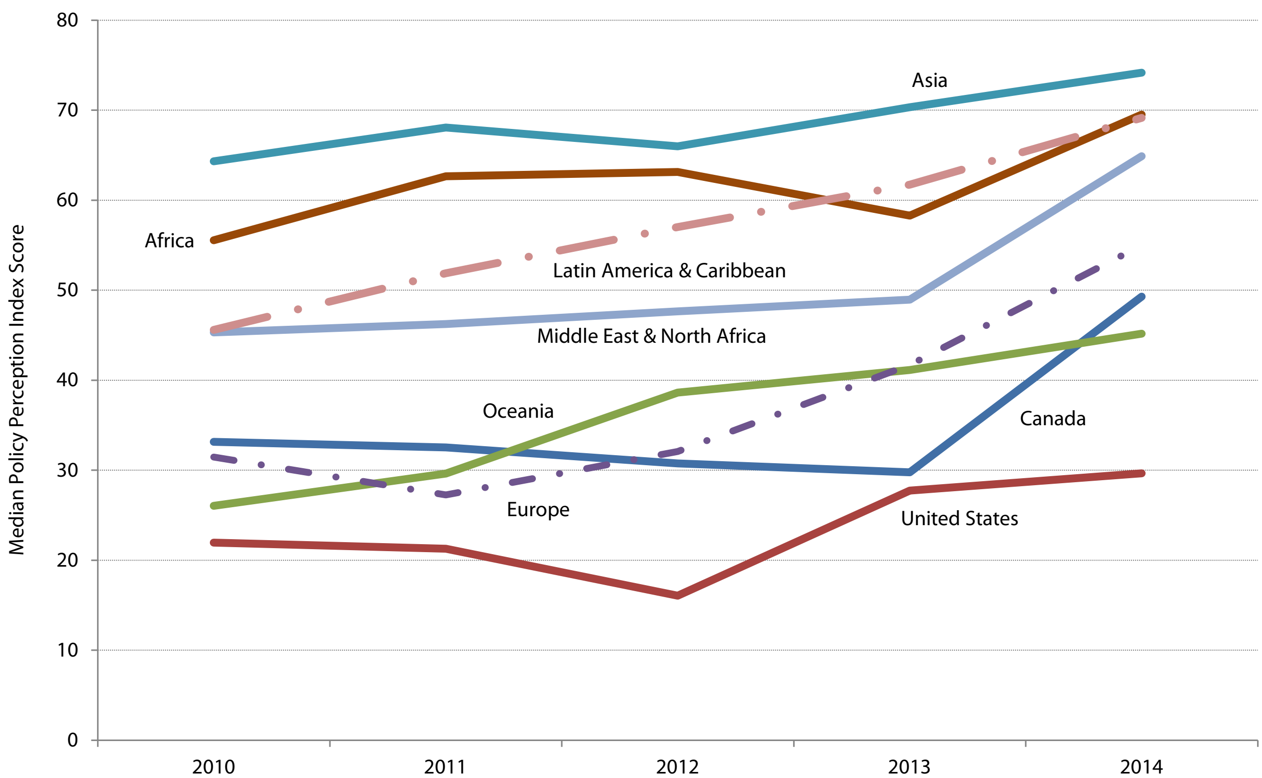
"Apertura Petrolera was a policy executed by the Venezuelan government in 1990 which reduced the amount of income tax, reduced royalties for 7 years from production start, and simplified foreign oil investment in the Orinoco Oil Belt (Extra Heavy Oil). The contracts that sustained the activities of the foreign investor were clear and fair (accounting policies, repatriation, foreign investor could choose the employees, fair participation in the shareholders decisions and Board decisions, no political pressure of expropriation). Departures from this policy have limited investment."

Overview

Our analysis of the 2014 petroleum survey results indicates that the extent of negative sentiment over the factors driving petroleum investment decisions (disregarding the extent of proved oil and gas reserve holdings) has increased in most world regions. In fact, as figure 18 illustrates, this year the median PPI score increased in all of the world's regions from what it was in 2013. The increases were especially severe in the case of Africa (19 percent), Europe (32 percent) and MENA (33 percent). In both Africa and MENA the median score has slipped into the fourth quintile from the third. Canada's median score in particular fared unfavorably (an increase of 66 percent) and is now in the third quintile instead of the second.

The drop in the attractiveness of the Middle East and North Africa reflects less attractive scores on the geopolitical risk factors in many jurisdictions. Negative sentiment in general appears to be rising in both Europe and Oceania. In the other regions where PPI scores deteriorated this year it is too soon to determine whether or not the increases recorded this year constitute a trend.

Figure 18: Regional Median PPI Scores 2010-2014



Optional Survey Questions

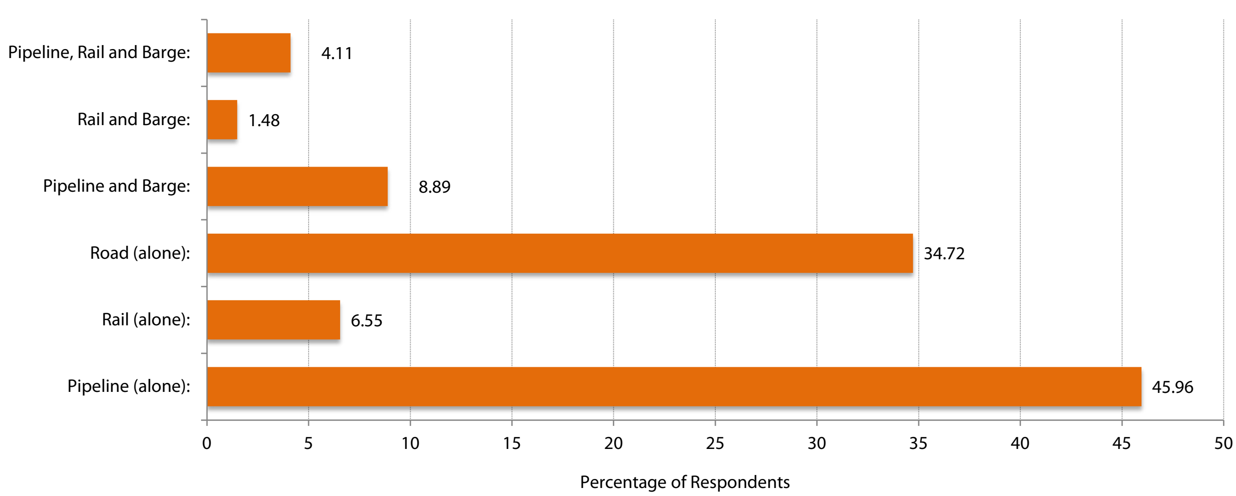
Optional Question One

Participants were asked, "For Canadian and US jurisdictions only, please indicate what percentage of your crude oil (conventional and unconventional) is transported via the following single or combined modes of transportation." Their responses follow (see figure 19).

The figure shows the proportions of crude oil that are shipped using various transportation methods and combinations thereof. Survey respondents indicated that the companies they work for or are directly involved with ship slightly less than half (46.0 percent) of the crude oil that they produce by pipeline alone, and 34.7 percent of crude oil by road alone. Transportation by rail alone was used in only 6.6 percent of the cases. The combined mode of transportation most often used was pipeline and barge, which was used to transport crude oil in 8.9 percent of the cases reported.

Given the attention surrounding the increasing use of rail to transport crude oil—with rail filling in the gap arising from inadequate pipeline capacity—a relatively low percentage of crude oil is being transported by rail alone, at least in the case of the companies with which the respondents are familiar. Even when factoring in combined methods of transport that use rail, only 12.1 percent of companies' crude oil shipments use railway transport in some capacity. The transportation method used most often, according to survey respondents, is pipeline. When factoring in combined methods, 59.0 percent of crude oil is transported through pipelines at some point. It is also

Figure 19: Transportation of Crude Oil in Canada and the US by Method



perhaps of interest that 87.2 percent of oil is shipped using just one transportation method (rail, pipeline, or road).

Collection of this data in future years will help to assess the extent to which railway transport and intermodal forms of crude oil transportation (with and without rail) are changing within the group of companies represented in the survey.

Optional Question Two

Participants were also asked "How do regulations and/or joint development/production requirements pertaining to state-owned petroleum companies (such as Ecopetrol, Gazprom, Petrobras) influence your company's investment decisions?" Possible responses were:

Facilitates and/or encourages investment,

Does not affect business operations nor deter investment,

Presents some challenges and/or mild deterrents to investment,

Cumbersome requirements present a strong deterrent to investment, and

Requirements make it almost impossible to work in this jurisdiction.

Figure 20 illustrates the percentages for the three types of negative responses.

Responses to this question were received for 70 jurisdictions.[15] For 42 of them, the percentage of negative responses of one or more of the three kinds was greater than 50 percent.

Ecuador, Bolivia, Iran, Russia—Offshore Sakhalin, and Venezuela rank as the five worst jurisdictions in which to invest based on the negative effects that state-owned petroleum companies are indicated to have on investment decisions. In particular, in the case of Ecuador, Bolivia, and Venezuela, more than 35 percent of the respondents reported that requirements with respect to state-owned companies in these jurisdictions make it almost impossible to work. In the two other Russian frontier regions and Mexico, the shares of that strongest negative response were also particularly high (20 percent or more).

In 12 jurisdictions, at least 35 percent of respondents indicated that working with state-owned companies poses a strong deterrent to investment because of cumbersome regulations and/or joint development/production requirements. These are Iran, Venezuela, the four Russian regions, Libya, Indonesia, Iraq, India, Angola, and Kazakhstan.

The following comments were received regarding state-owned oil companies. Comments have been edited for length, grammar and spelling, to retain confidentiality, and to clarify meanings.

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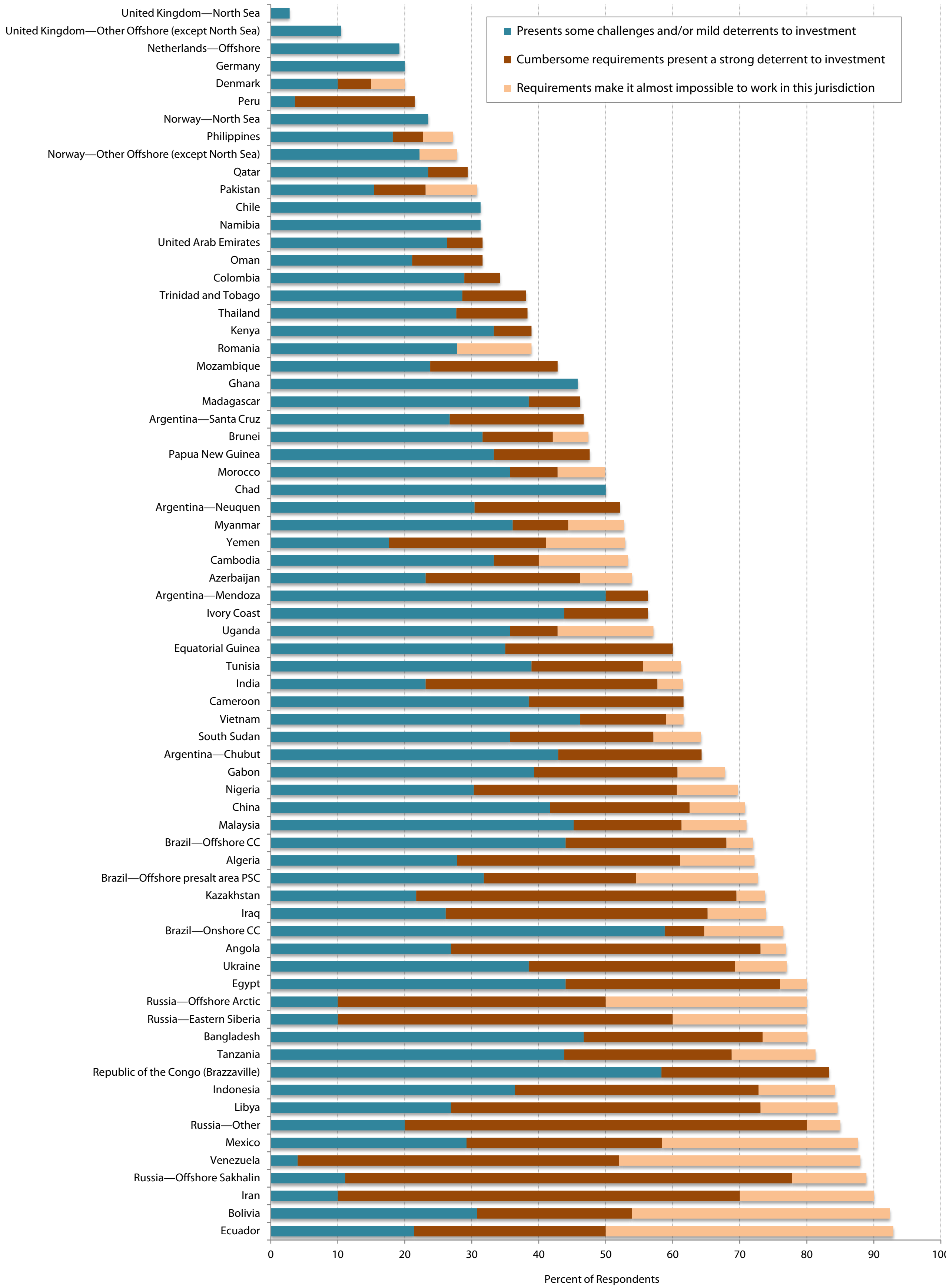
15 Only jurisdictions with more than 10 responses were included in the analysis.

Figure 20: How Regulations and Other Requirements Pertaining to State-owned Petroleum Companies Affect Investment Decisions



Petronas (Malaysia)

"Very supportive of investment and working through administrative issues—positive.

On the negative side, there are many levels of control exerted over operators, from operations to procurement. The latest initiative, the Contractor Compliance Index, appears to have good motives for encouraging best performance by monitoring activities; however, it is cumbersome and ill-thought out by quite inexperienced people."

PPL, OGDCL & GHPL (Pakistan)

"Unlike other state-owned companies, in Pakistan, all of the state-owned companies are managed by their boards and run by highly professional management and staff. They have a very good knowledge base and always provide constructive input in matters affecting the performance of multinational corporations (MNCs)."

Gabon Oil Company

"Took over a producing oil field that was producing 10,000 barrels per day (bpd) and in one year damaged the field, infrastructure, and facilities to reduce output to less than 2,000 bpd production."

Saudi Aramco

"Very tough contractual terms discourage world class companies to work there by excessive contractual unbalance in favour of the NOC [National Oil Company]. Once under contract, an Offshore Support Vessel Owner is penalized more than it should be as per the contract with very little ability to respond."

Petro Peru

"Cumbersome processes and oversight of all your business without any transparency on their part."

Petrovietnam Investment and Development Company (PIDC)

"Very difficult to work with. Highly politicized environment and little focus on the business. Management and business development decisions with regard to joint ventures (*empresas mixtas*) most times have little to do with an international operator's aims and objectives."

PGNiG (Poland)

"PGNiG is very bureaucratic and reasons for decisions are not transparent. They essentially force partners to use their affiliate service companies for most service work for which they offer services at international rates but provide mediocre service in an isolated tender process.

Petrobras

"Largely dysfunctional in parts, in particular, downstream."

TPAO (Turkey)

"A comment about TPAO in Turkey—although [I have] limited experience with TPAO, in general, I would avoid trying to do business with them because of the business logic (or lack thereof) deployed by TPAO personnel. Typical mentality of NOCs seems to be 'this is my country: my way or the highway,' lack of transparency, and unrealistic deal terms (pay 100 percent to earn 30 percent with some adjustment for cost recovery."

Additional Comments from the Petroleum Survey

Comments have been edited for length, grammar and spelling, to retain confidentiality, and to clarify meanings.

Regulatory "horror stories" …

Canada

"Ban on leasing in caribou habitat in Alberta."

"A combination of Canadian federal legislation (Investment Canada) and Alberta regulatory uncertainty has caused investment in the junior oil sands sector to dry up completely."

"Excessively long approval times by the newly redesigned Alberta Energy Regulator. What used to take 6 weeks takes 6 months or more—a definite deterrent to investment."

USA

"The hostility of the Obama administration is without a doubt the greatest obstacle to the upstream industry in the USA."

"In Colorado there is a big push for local control of oil and gas activity. So instead of a consistent set of regulations governed by the state Oil and Gas Commission, which is staffed by experienced professionals, potentially every jurisdiction/city/county/etc. will try to regulate activity without adequately trained regulators. Also, there is a major push to ban or put a moratorium on all fracking operations at the city/county level and statewide. As a principal partner in my company, I live and work in Colorado, but chose not do business here. Colorado is slowly moving from oil friendly to oil hostile."

"The Environmental Protection Agency (EPA) is requiring the oil and gas industry to protect the Lesser Prairie Chicken habitat in Kansas, attempting to restrict the months and hours of the day we can operate. At the same time, it is giving the landowner and farmer exemption from this when these farmers of grain and corn have a major impact on the habitat. [It is apparently] okay to levy a $75,000 fine for having a dead Prairie Chicken on your lease, but not okay to fine or restrict the farmers who have a major impact via plowing up the birds' habitat 2-4 times per year."

"New York's delaying decisions to allow completions of unconventional gas wells for over 10 years has cost the state billions in investments and jobs."

Oceania

"In Indonesia, two years required to obtain approval of a field development plan by interfering regulator. Should have been in production by 2012; still has not started development funding yet."

"We were awarded an exploration block by the Ministry of Petroleum and Natural Gas in the Philippines, then informed by the Ministry of a local court injunction counter-claim by a domestic third party. Matter has been dragging for two years. Unable to commence exploration activities."

Europe

"In Ireland's Corrib gas field development, the local planning process caused immense delays and included the operator having to build an underground 'channel tunnel,' but then, later, to back-fill it at enormous cost."

"Spanish protected areas have random buffer zones that seem to be invented at will, including one set of islands where seismic can no longer be undertaken within 20 km; islands that used to be one of the Spanish Air Force's major bombing ranges."

Asia

"Chinese authorities have falsified map coordinates and failed to divulge the complete listing of all exploratory wells in an area."

"In Vietnam, the inability to negotiate a fair gas sales price has held up the development of a large offshore gas field for 10 years. Currently the field is being sold due to price uncertainty and this will push development out even further. A slight increase in the gas price by central authorities would set off a drilling campaign and boost the Vietnamese economy."

"In India our company was denied cost recovery for production that came in less than forecast in its development plan."

Middle East North Africa (MENA)

"The Israeli government changed its take on leases after the discovery of a significant gas field. This was done by imposing a new tax on profits from gas fields."

"In Yemen, the government is failing to honor a contractual cost recovery mechanism."

Africa

"An oil field in Gabon was expropriated illegally for 12 months with use of force."

"In Uganda the state is applying the capital gains tax to a licence in which the PSC provided exemption."

Latin America and the Caribbean

"In Colombia we had a [well shut down] for extremely minor infractions, which caused zero environmental impact and had valuable acreage removed from a block by landowners setting up environmental reserves without a public hearing."

"The expropriation of Repsol-YPF in Argentina has negatively impacted the flow of investment to the country."

"In the case of Blocks III and IV in the Talara area of northwest Peru, Interoil had been asking for a 10-year extension and was continuously being put off. Peru Petro couldn't (wouldn't?) make a final decision as to what to do with the licenses once Interoil's licenses expired in March 2014. Finally, it became so late, because Peru Petro did not do its job, that an emergency one-year license had to be negotiated."

Exemplary policies…

"New Zealand, Norway, Australia, UK, and the US: all these countries have established an 'open' database where data past a certain point becomes available for virtually the cost of copying. This goes a long way towards encouraging new exploration."

"In Manitoba it takes less than 1 week to get approval for most drilling licenses."

"North Dakota: Quality of publicly available geologic, engineering, and production data."

"Texas has clearly defined rules regarding permitting, drilling, and completion. Excellent time in approving permits. The best of any area."

"Malaysia introduced fiscal terms for the development of marginal fields. These previously sub-commercial fields attracted several new operating companies for appraisal and development after more attractive terms were implemented. A government priority was to involve more local companies in these upstream ventures, whereby several new players emerged."

"Albania: straightforward PSC terms and strong support by all the authorities."

"Malta: a pragmatic, clear, and simple approach to evaluating the environmental impact of a seismic survey and how to actually assist the licensee in smoothly conducting the survey to minimize impact on the environment and other key stakeholders such as fishing, fish farming, and tourism."

"An exemplary policy initiative in Peru has been to grant oil companies tax stabilization contracts in order to provide certainty with regard to what oil companies have to pay to the Peruvian Internal Revenue Service during an oil concession period."

"Uruguay developed an energy policy with input from all political parties and the process for permit applications/awards is transparent. Oil companies are encouraged to assist in defining the scope of prospecting permits and contractual terms are reasonable."

"Kuwait: opening their upstream opportunities through creative mechanisms, as in the case of their offset program tool, Mubadala."

Opportunities & challenges …

"The biggest challenge that faces the upstream petroleum industry is lack of infrastructure in pipelines, refineries, storage facilities, and LNG plants for importing countries. How can these issues be resolved? Private sector investment either through mergers and acquisitions or through equity funding can play an important role. But resource nationalism in emerging resource endowed countries is hindering the inward flow of investment needed to develop those resources."

"The primary concern in many jurisdictions outside the US and Canada is political stability."

"Regulatory and taxation environments have not been stable in many jurisdictions in central and eastern Europe. Petroleum industry often demonized and blamed for all the evils of mankind."

"Costs are getting higher in Europe, service providers are of lower quality, permit time longer, and politics is deterring investment nearly everywhere."

"Peru is underexplored, with a lot of opportunities, but the government does not realize it. The Ministry of Energy and Mines generally does not understand the industry. Too many permits are being issued in jungle areas where social issues and difficult logistics pose challenges."

"With the energy revolution in North America—a consequence of the development of the unconventional resources (oil sands, CBM, shale)—the whole game has changed. This will bring a flow of opportunities, both in mature markets like Canada and the US, but also in nearby countries such as Mexico and Colombia. This, however, is not a done deal. Both countries need to do more to facilitate the investment in infrastructure that will be needed to take advantage of the opportunities to come. In the case of Mexico, to realize its full potential, substantial issues like security—especially in oil-rich areas—have to be addressed."

"The use of social media to exert influence far beyond the area of any potential impact of a single company makes business planning almost impossible in many jurisdictions. The cost of offshore E&P makes onshore areas with good infrastructure very attractive to small companies, but the lack of recognition of the role of innovative small companies in exploration impacts negatively on overall exploration activity and results."

"Affecting the investment climate in South America is the increasing promulgation of the expansion of several unreasonable environmental regulations. Some governments have been enacting laws that impose irrational environmental requirements onto oil companies. In my opinion, it is necessary to work on establishing proper environmental standards that balance the required degree of environmental protection while fostering investment."

"In terms of respecting foreign investors and obtaining the benefits of foreign expertise, Malaysia is doing everything right while Indonesia is doing everything wrong. By one estimate, over $5 billion per year in exploration investment has moved away from Indonesia to Malaysia. Indonesia could be producing over 1.5 MMbpd; instead production is 750,000 bpd and declining 10 percent per year."

"In Africa there are massive differences in the investment climates of countries like Cameroon, Nigeria, and Gabon that are adjacent to each other. The countries need to understand that mid-size oil companies (100,000 to 200,000 bpd) will not invest in jurisdictions that have unreasonable regulations, unstable regimes, and are not supportive of investment and honoring contracts."

"[There is a problem with] lack of global coordination over issues such as common acceptable environmental standards for hydrocarbons, managing the implications of nuclear blackout, and the petroleum industry's role in economic development."

"Many non-North American countries have state pipeline companies which by government rule, ruling, or law, are monopolies that lack expertise in infrastructure development, yet the countries have no other method for such development and politicians fear third party developers as enemies of the state. This becomes an overwhelming barrier to midstream service development, since companies cannot sell products in the local market because of the monopoly position of government owned entities."

Future expectations …

"Exploration is in decline. Rising costs result in larger companies with access to sustainable cash flow being considerably more advantaged in the exploration space than start-ups, juniors, and smaller producers."

"The current debate regarding the place of oil and gas in the world seems largely to be one of have/have not. The proper placement of the argument is degree. As an industry we are probably very near the collective diminishing returns point of below-ground energy sources (E&P, I mean). So long as there is sustained demand, we will continue to have to tackle increasingly marginal projects and the current stock of investment opportunities (especially in my current jurisdiction in Australia) reflects this. There are opportunities, but they are harder than ever to realize. Inconsistent views from voters and politicians do not help this and are in aggregate generally making the difficult job even harder. More tough times ahead."

"Mexico's upstream industry is about to be revolutionized due to a constitutional reform that was passed in December 2013, and implementing legislation that will be put in effect very soon. Big opportunities for foreign investors."

"Large-volume offshore developments will prosper: UK North Sea, Norway, Gulf of Mexico, offshore Brazil, and offshore West Africa. Existing large-volume onshore developments will prosper: Saudi Arabia, Qatar, UAE, Kuwait, and Russia (latter to the extent run by Russians themselves). The Straits of Hormuz will become more high risk as the Iranians become more fractious and hostile (more so if they do in fact become a nuclear armed state in 2013 or 2014 or 2015, and become even more fractious and hostile and unpredictable)."

"I think the upstream petroleum industry will continue to flourish as long as oil prices don't continue to drop, but the costs will grow as environmental policies get stricter and the aboriginal communities living in or around the license areas become aware of their negotiating power and keep increasing their demands to a breaking point."

Single-factor Results

The rankings for the specific factors addressed by the 16 survey questions provide detailed information about each jurisdiction's relative attractiveness for investment (see figures 21 through 36).

The results for each factor are illustrated by the rankings, and the complete dataset is available for downloading. The jurisdictions with a relatively low proportion of negative scores appear near the top of the rankings and are generally regarded as more attractive for upstream petroleum investment.

The single-factor rankings are self-explanatory. However, we highlight some findings of particular interest below.

Fiscal terms

According to the survey respondents (figure 21), fiscal terms pose the greatest obstacle to investment in Venezuela, Bolivia, the three Russian frontier regions, and Iran, all of which scored in the fifth quintile on this question. These jurisdictions were closely followed by four jurisdictions with particularly poor (i.e. high) fourth quintile scores: Syria, Russia—Other, Iraq, and Indonesia. Amongst the Canadian and US jurisdictions, fiscal terms appear to be of most concern in Quebec, New York, and California, as in 2013. In each of those three jurisdictions the scores for this factor fall in the undesirable fourth quintile again this year.

Jurisdictions with the lowest percentages of negative responses on the fiscal terms question (all with low (under 10) first quintile scores, which suggest that this issue is certainly not a cause for concern) include Ethiopia, Mississippi, Oklahoma, Texas, Kansas, North Dakota, Saskatchewan, Wyoming, Manitoba, Arkansas, Australia's Northern Territory, New Zealand, Somaliland, and Louisiana. Seventeen other jurisdictions also scored in the first quintile on this factor.

Uncertainty concerning environmental regulations

The 11 jurisdictions that have the worst scores this year with regard to uncertainty concerning environmental regulations are Spain—Offshore, California, Spain—Onshore, New York, Quebec, US Offshore—Pacific, New South Wales, Italy, Peru, and Colorado and France (tied) (figure 23). Quebec, California, France, New York, the US Offshore—Pacific, and Spain—Offshore were also in this group last year. Several of these jurisdictions including Quebec, France, and a number of municipalities and counties in New York and Colorado, have moratoria on hydraulic fracturing.

Concern about uncertainties surrounding environmental regulations is of least concern to survey respondents in Mississippi, Kansas, Oklahoma, North Dakota, Guyana, Mauritania, and Suriname, all with first quintile grades.

Interpretation and administration of regulations

The 10 jurisdictions with the worst scores on the question regarding the interpretation and consistency in the administration and enforcement of regulations this year are US Offshore—Pacific, Ethiopia, Russia—Other, Russia—Eastern Siberia, Venezuela, Iran, Turkmenistan, Uzbekistan, Uganda, and Russia—Offshore Arctic. Venezuela and the same three Russian jurisdictions were also in this group in 2013. Ecuador, Indonesia, and Russia—Offshore Sakhalin also scored in the fifth quintile on this factor.

US—Offshore Pacific moved from the third quintile in 2013 to become the least attractive jurisdiction in the world based on this measure. Surprisingly, Uganda and Ethiopia also dropped all the way from third quintile results a year ago. A staggering 55 jurisdictions (of 156) have unflattering fourth and fifth quintile scores on this question this year compared with only 39 (of 157) a year ago (figure 24).

The 10 most attractive jurisdictions on this issue this year are Faroe Islands, Oklahoma, Mississippi, Arkansas, Alabama, Texas, North Dakota, Suriname, Saskatchewan, and Japan, all of which achieved first quintile scores. Both Suriname and Japan exhibited considerable improvement on this question from their 2013 scores. Six of the top ten jurisdictions, as well as the least attractive jurisdiction in the world on this measure, are in the US, illustrating just how vast policy differences can be within a country or region.

Cost of regulatory compliance

Thirty-four jurisdictions have unflattering fourth and fifth quintile scores on the cost of regulatory compliance, up from 28 last year (figure 25). Spain—Onshore ranks as the worst (of 156) jurisdictions on this issue. Other jurisdictions in the worst fifth quintile are Italy, US Offshore—Pacific, Spain—Offshore, Russia—Eastern Siberia, Russia—Offshore Sakhalin, Quebec, and Hungary. US—Offshore Pacific dropped into the fifth quintile this year from the fourth, while US—Offshore Alaska improved somewhat, rising to the fourth quintile from the fifth. Italy's score deteriorated considerably compared with 2013—enough to move that country from a reasonably attractive third quintile position in 2013 to become the second least attractive jurisdiction in the world according to this measure in 2014. Hungary also tumbled from the third quintile to the fifth this year on the cost of regulatory compliance question.

The cost of regulatory compliance is indicated to be of least concern in Oklahoma, Arkansas, Alabama, Mississippi, and North Dakota. Uruguay, Kansas, Saskatchewan, Guyana, United Arab

Republic, Georgia (the country), Utah, Suriname, and Texas also have attractive first quintile scores on this factor this year.

High regulatory compliance costs often also mean that the time required for project applications to be approved is unduly long. As a result, potentially viable projects are often subject to extensive delays or not undertaken at all. In such cases, the foregone economic and social benefits may be large.

Protected areas

Three of the eight jurisdictions with fifth quintile scores on the protected areas issue are American (US—Offshore Pacific, US—Offshore Alaska, and Alaska) (see figure 26). The scores for Ecuador, Seychelles, New South Wales, Italy, and Greece (although just barely so) fall within the least attractive fifth quintile. Another 22 jurisdictions, including 2 in Canada and 3 in the US, have slightly better, yet still very unattractive fourth quintile scores on this question. By contrast, the top two jurisdictions in the world are Mississippi and Alabama, again indicating that stark differences in perspectives about upstream petroleum industry investment can exist within countries. Guyana, Suriname, United Arab Republic, Oklahoma, and Manitoba also scored particularly well on this issue.

Trade barriers

All six Argentinean provinces included in the survey along with Venezuela, Russia—Eastern Siberia, Turkmenistan, and Iran are the ten jurisdictions for which trade regulations and currency controls are indicated as posing the greatest barrier to upstream investment. Russia—Offshore Arctic and Uzbekistan also received fifth quintile grades on this issue. The poor performance of the Argentine provinces with respect to this factor was also highlighted in the 2013 survey. Trade barriers were indicated to be of no or minimal concern (less than 5 percent) in Arkansas, Mississippi, Oklahoma, Georgia, and French Guiana (see figure 27).

Labor availability and skills

The 10 jurisdictions with least attractive scores for labor availability and skills this year are Greenland, Madagascar, Cyprus, Democratic Republic of the Congo (Kinshasa), Somaliland, Papua New Guinea, Georgia, Russia—Offshore Arctic, Guyana, and Mauritania (see figure 31). In addition to those jurisdictions, Kyrgyzstan, Turkmenistan, and Guatemala have fifth quintile scores. Further, the survey results indicate that labor availability and skills are also an important issue in 37 jurisdictions with fourth quintile scores. The latter group includes Quebec and Newfoundland & Labrador, but no US jurisdictions. Labor availability and skills is of no or very minimal concern (less than 10 percent) in Netherlands—Offshore, United Kingdom—Other Offshore (except

North Sea), Netherlands—Onshore, Oklahoma, and Mississippi. Twenty other jurisdictions including Saskatchewan, Manitoba, and seven US states also have attractive first quintile ratings on this measure.

Jurisdictions with high unemployment rates *per se* are not necessarily attractive to oil and gas explorers and developers; they require skilled workers and specialists for many positions and while the unemployment rate may be high, there may nonetheless be a deficiency in the availability of skilled labor. Furthermore, international mobility of skilled workers is important to the upstream oil and gas industry so it can meet its requirement for skilled workers without being constrained by the size and quality of the local work force.

Disputed land claims

Ecuador has the worst score on the disputed land claims question this year (figure 32). The other jurisdictions with unattractive fifth quintile scores on this factor are South Sudan, Syria, Bolivia, Yukon, and Uzbekistan. The Northwest Territories—which had the second worst score last year—has improved a bit, but is nevertheless positioned in the middle of the fourth quintile group, which is composed of 20 jurisdictions this year. Clearly, the land claims issue continues to be of major concern for Canada's northern regions. British Columbia's score is similar to that for the Northwest Territories.

Duplication and inconsistency of regulations

Duplication and inconsistency of regulations can pose an obstacle to investment. Spain—Onshore, Italy, Syria, Yukon, Ethiopia, Tanzania, and Quebec all have poor fifth quintile scores this year on the question pertaining to regulatory duplication and inconsistency (figure 35). Forty-four jurisdictions, up from 17 last year, including California, US—Offshore Pacific, two Russian jurisdictions (Other and Offshore Arctic), and all six Argentine provinces have undesirable fourth quintile scores. The only other North American jurisdiction in this group is Mexico.

Jurisdictions with no or minimal (less than 10 percent) negative responses on this issue this year are Jordan, Uruguay, Saskatchewan, Netherlands—Offshore, Denmark, Oman, Norway—Other Offshore (i.e., other than North Sea), and Chile. Twenty-one jurisdictions have first quintile scores on the regulatory duplication question.

Only nine of the 42 jurisdictions included in the survey that belong to the Canadian, US, and Australian federations achieved first quintile ratings on this question. This is not surprising because it is highly likely that some duplication and inconsistency exists between federal and state or provincial laws and regulations in these countries.

Legal system fairness and transparency

A total of 33 jurisdictions have unattractive fifth quintile scores on this issue (see figure 36). Survey respondents indicated that legal system fairness and transparency is of very great concern (scores of 100 when rounded) in the Democratic Republic of the Congo (Kinshasa), Kyrgyzstan, Lebanon, Syria, Ecuador, Russia—Offshore Arctic, and Venezuela. Other jurisdictions in the group of 33 with fifth quintile scores on the legal system question are the four Argentine provinces (Mendoza, Santa Cruz, Neuquen, and Chubut), Libya, Egypt, Ukraine, Iraq, Iran, Indonesia, Bangladesh, Myanmar, Greece, Cambodia, Cameroon, Equatorial Guinea, Yemen, Mali, Papua New Guinea, Georgia, Uzbekistan, Albania, Turkmenistan, and the three other Russian jurisdictions (Eastern Siberia, Offshore Sakhalin, and Other).

In 34 jurisdictions legal system fairness is either of no or minimal concern (score of less than 10 percent). All of these jurisdictions are in Canada, the US, Australia, New Zealand, or Western Europe. Further, the group includes 8 (of 10) Canadian jurisdictions and 7 (of 8) of the Australian jurisdictions.

A fair and stable legal system is essential for the development of the upstream oil and gas industry. Oil and gas explorers and developers often spend years investing in exploration before realizing any return on their investment. They need to be certain that if they discover and develop resources in accordance with the existing laws and regulations, they will benefit more or less as planned, subject, of course, to market conditions.

Figure 21: Fiscal Terms

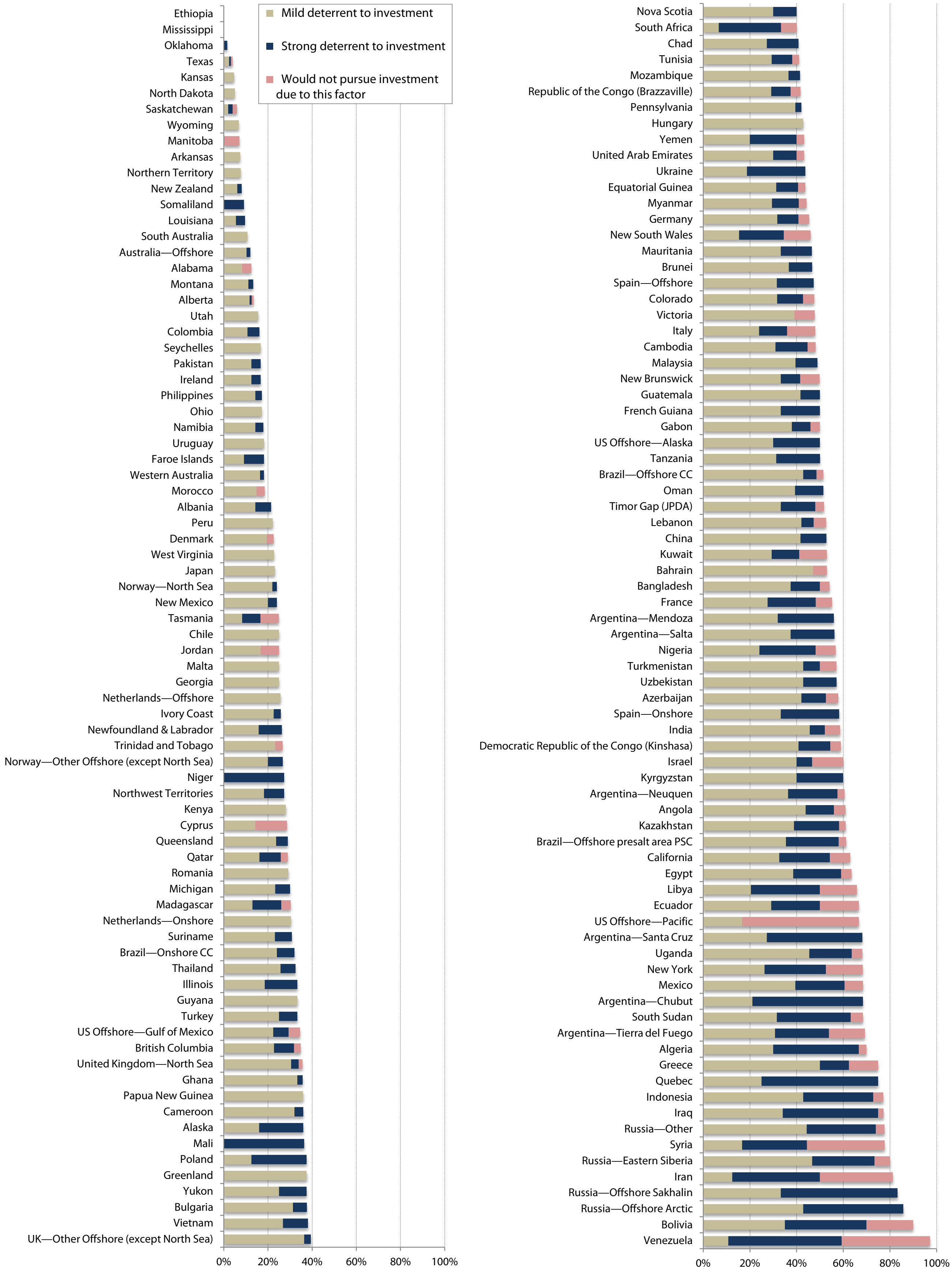


Figure 22: Taxation in General

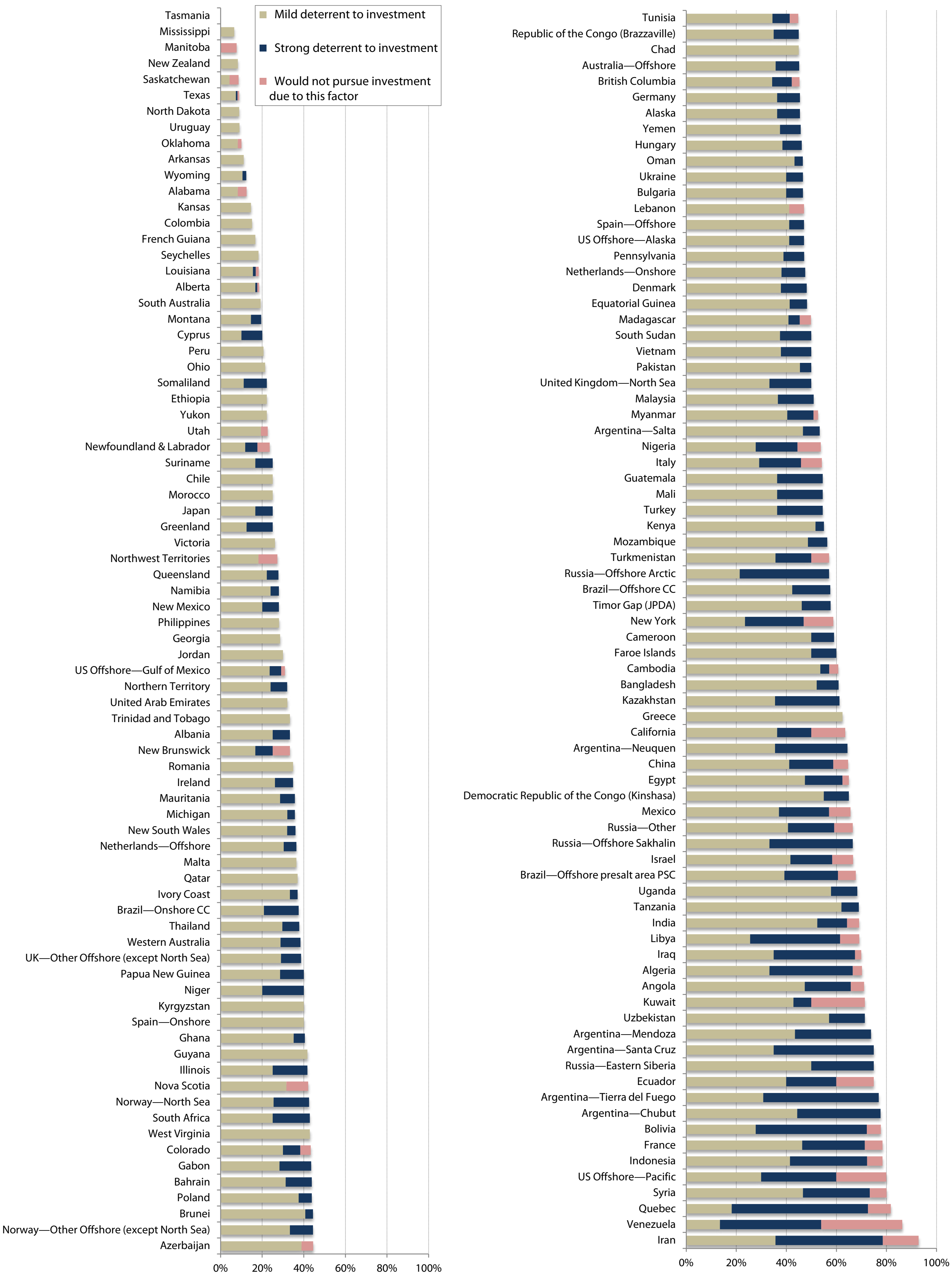


Figure 23: Environmental Regulations

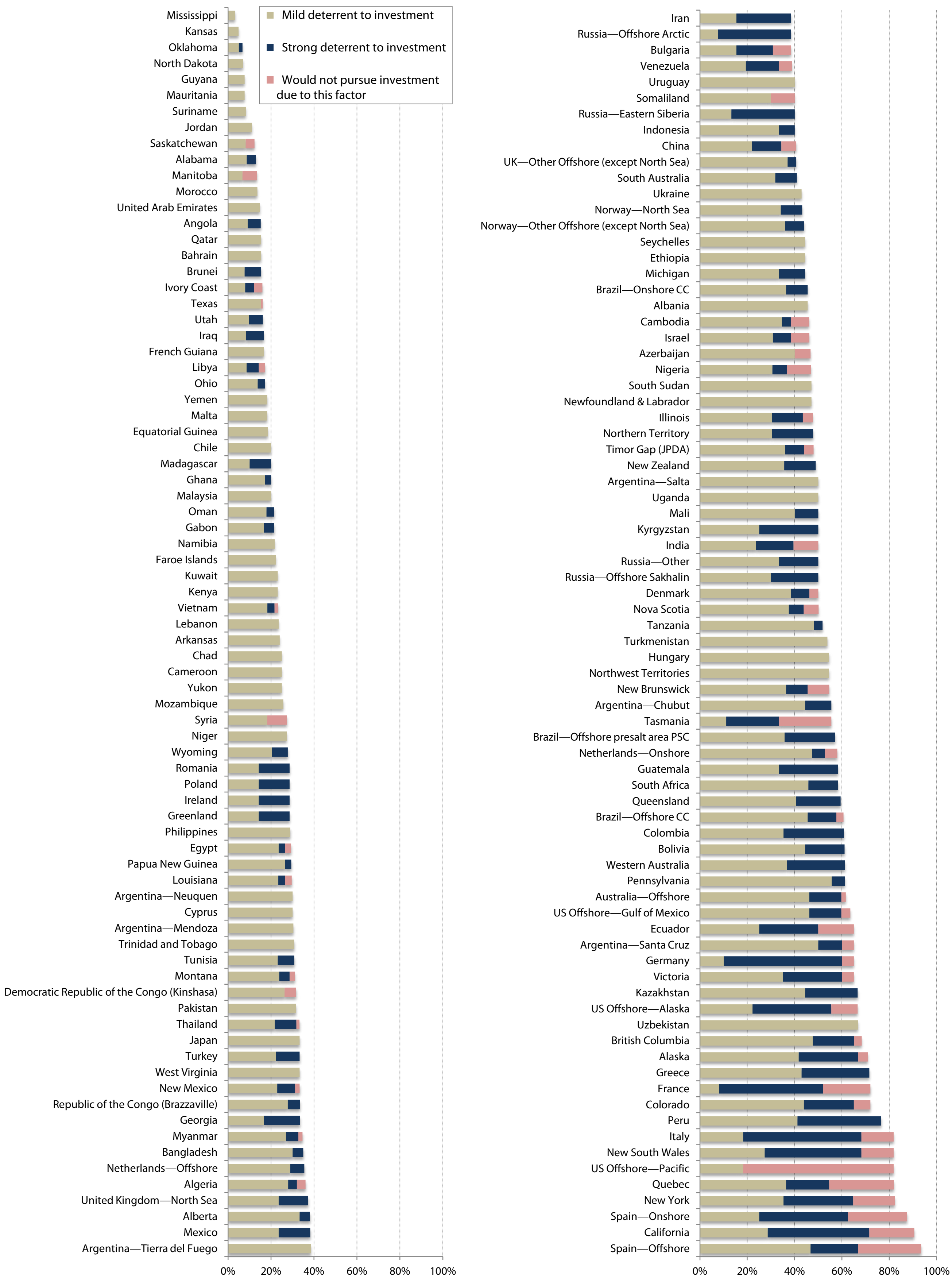


Figure 24: Uncertainty Concerning the Administration, Interpretation and Enforcement of Regulations

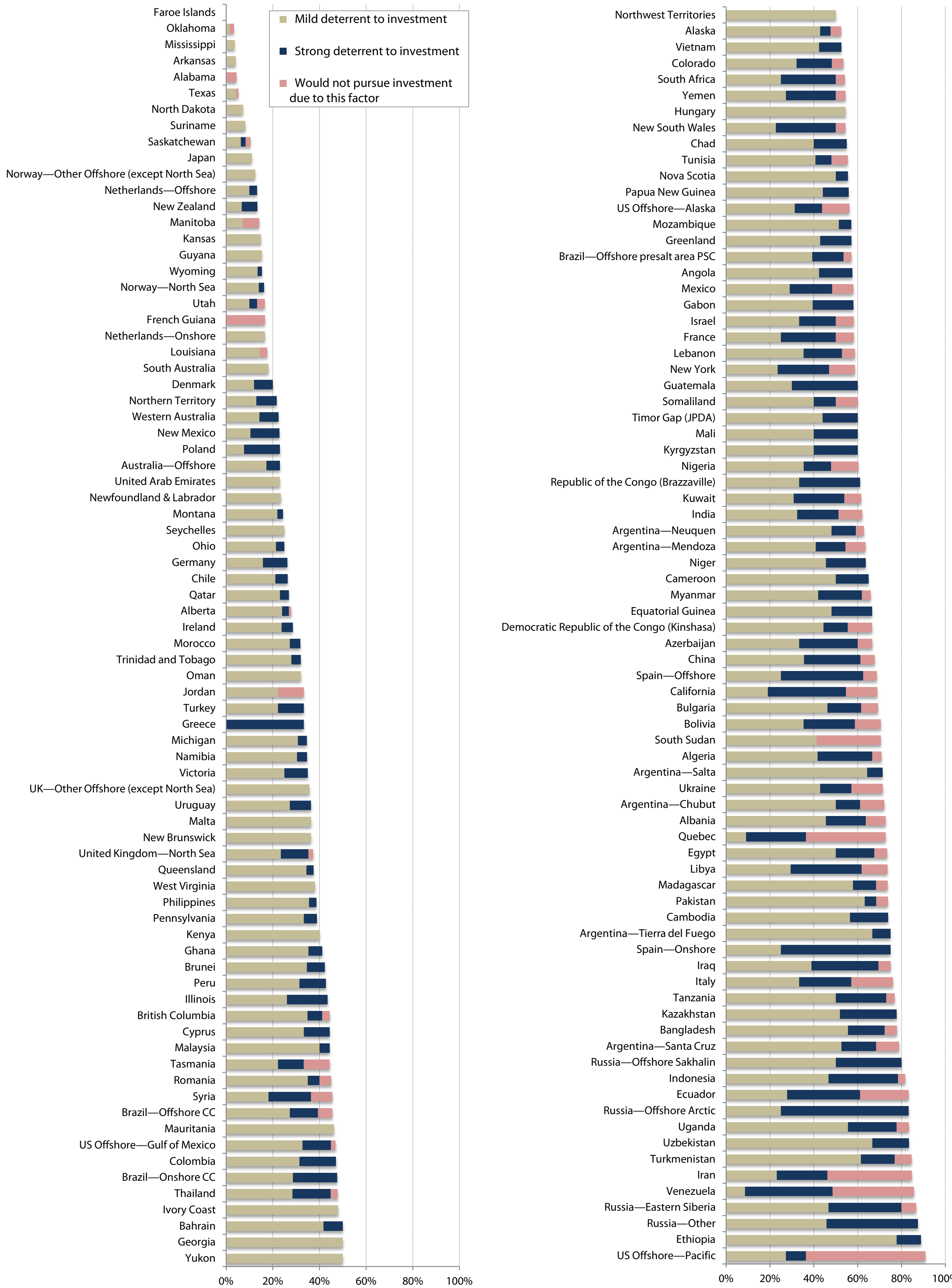


Figure 25: Cost of Regulatory Compliance

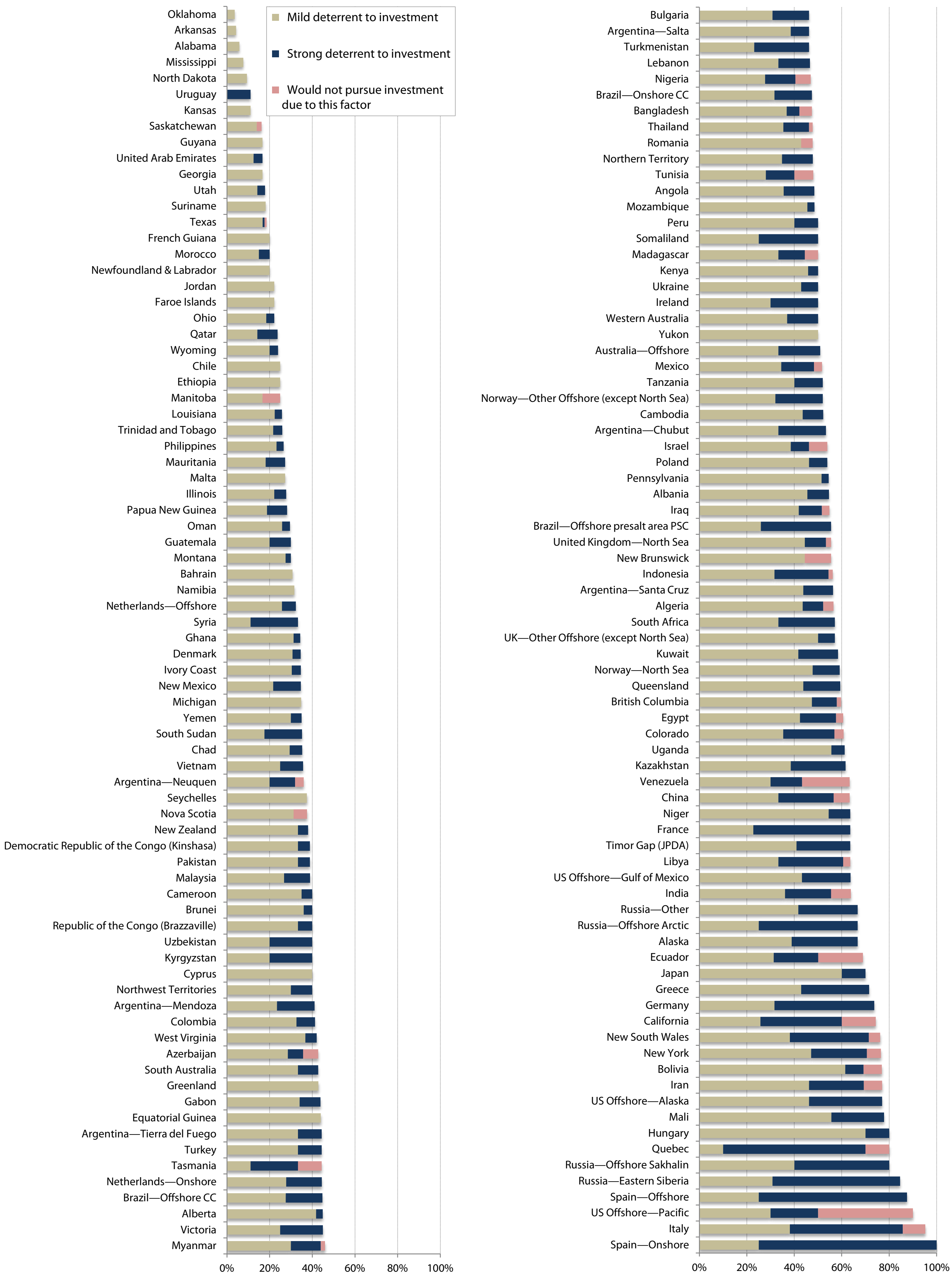


Figure 26: Uncertainty Regarding Protected Areas

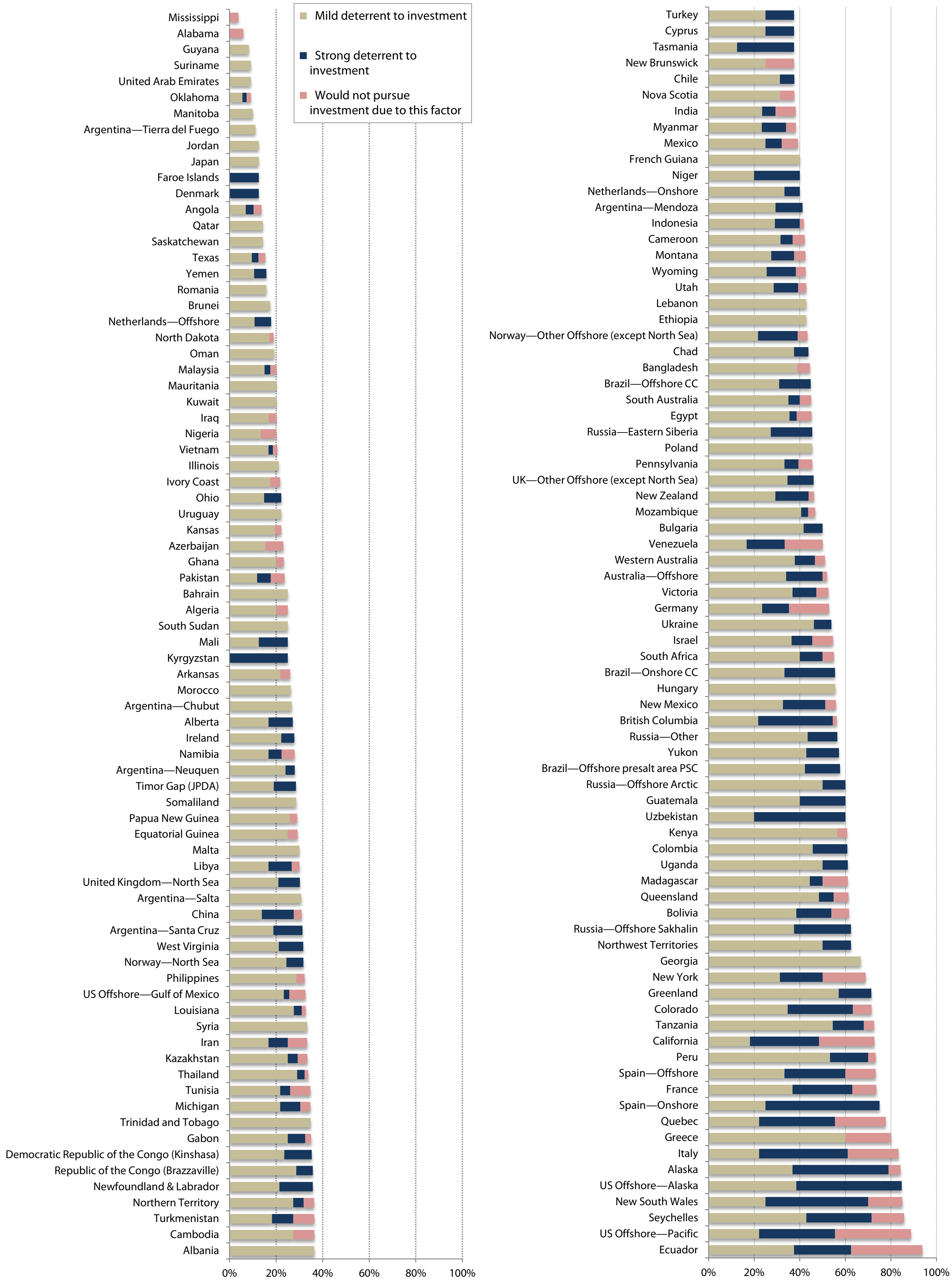


Figure 27: Trade Barriers

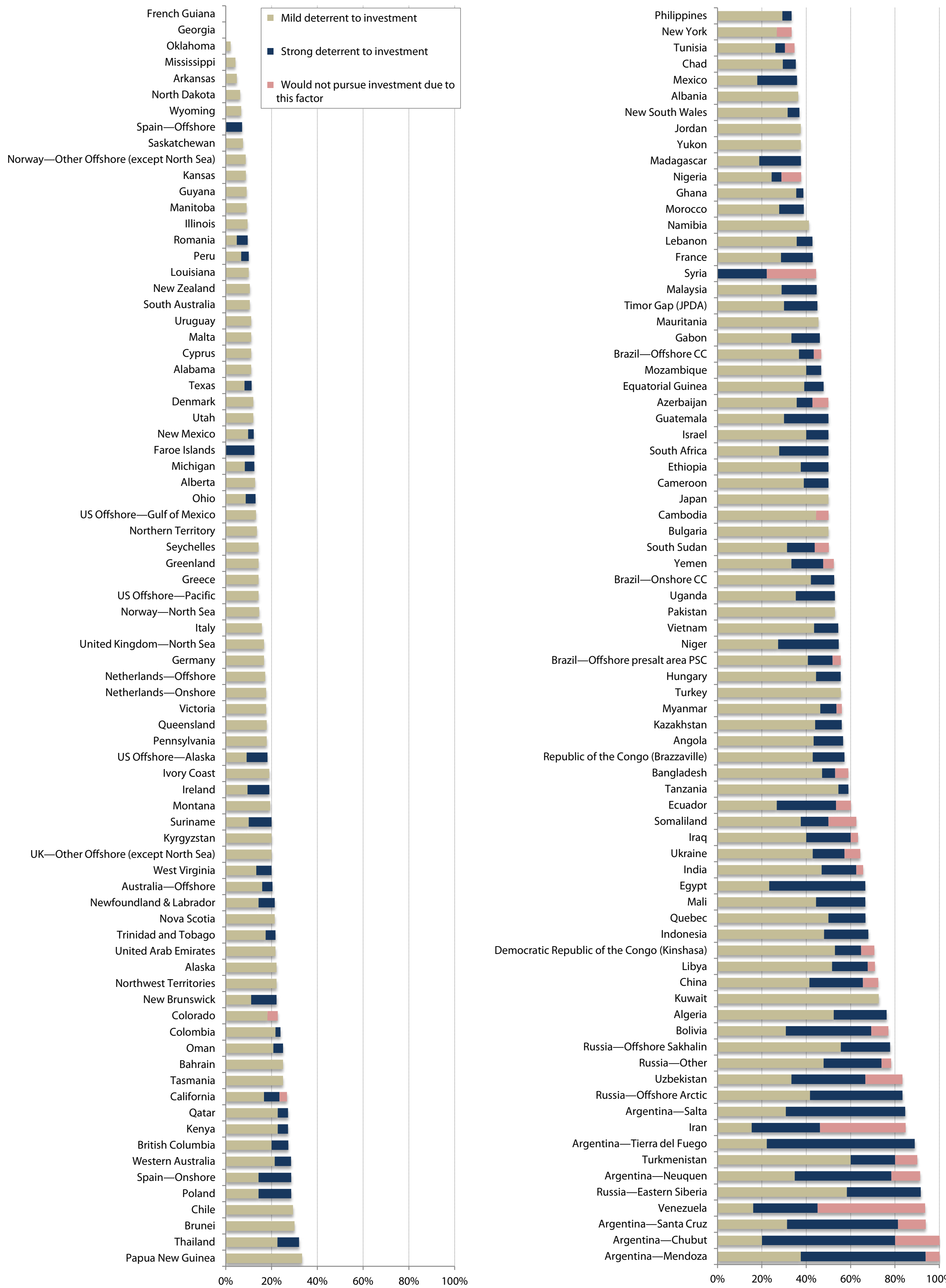


Figure 28: Labor Regulations and Employment Agreements

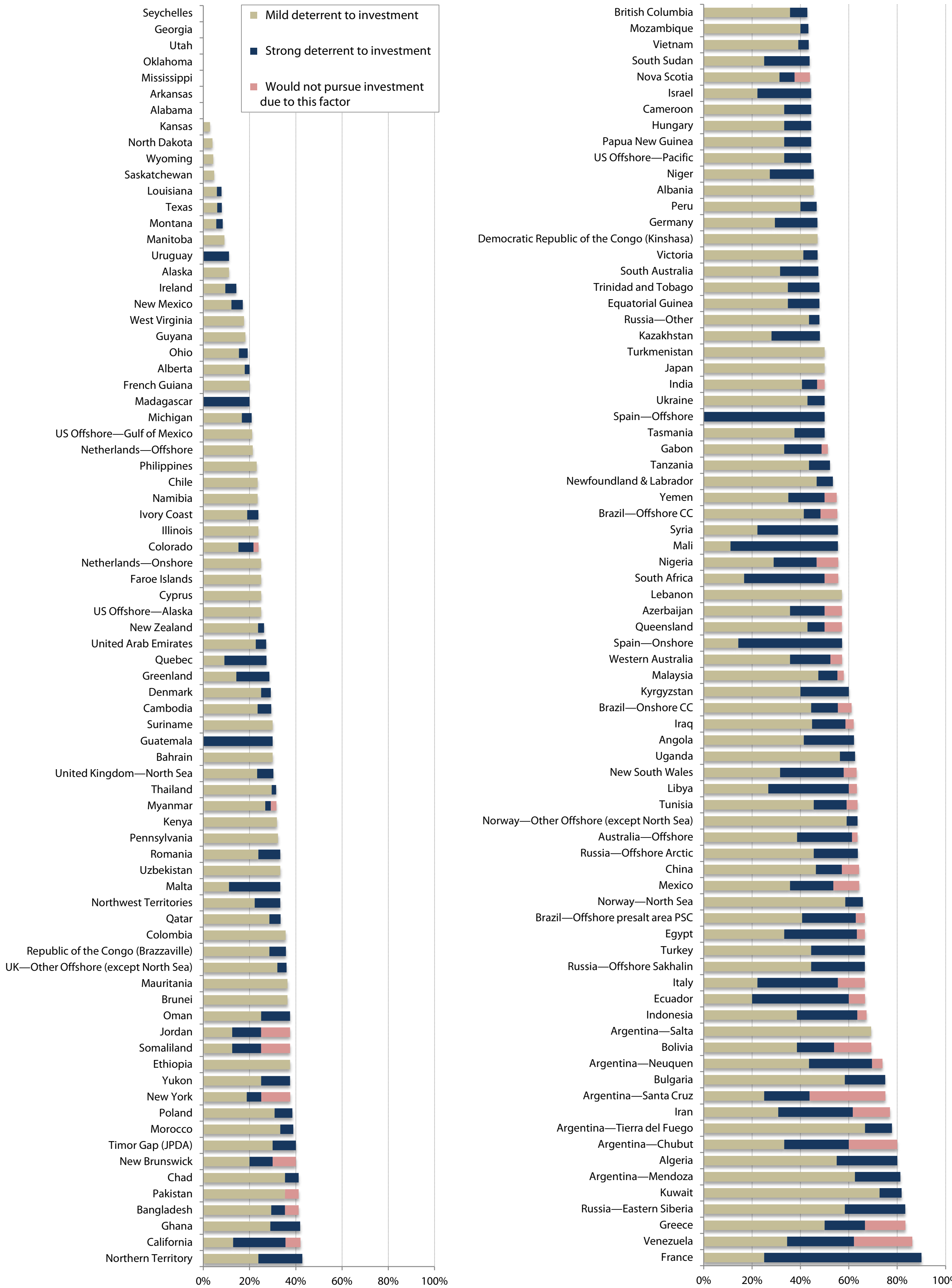


Figure 29: Quality of Infrastructure

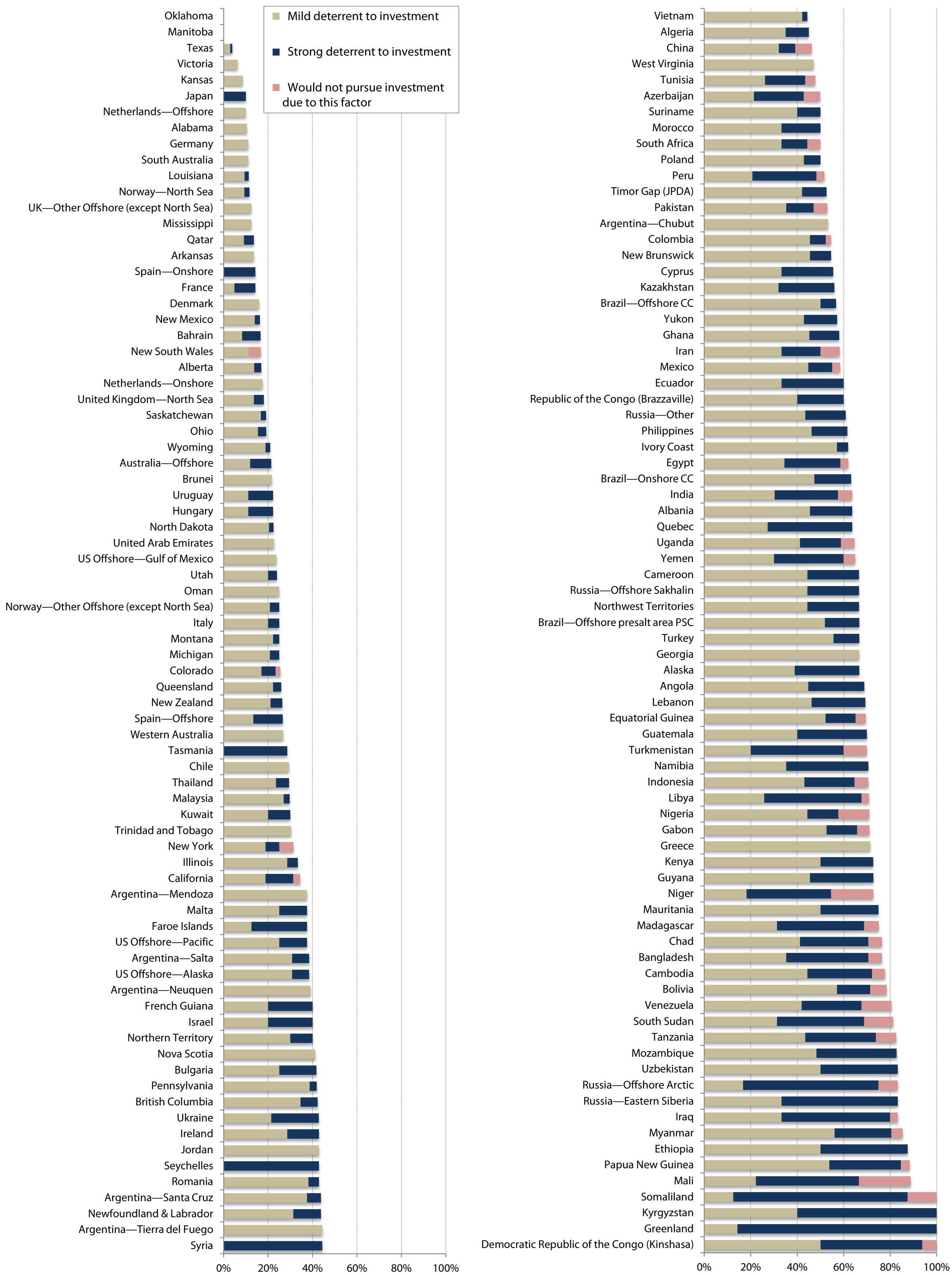


Figure 30: Geological Database

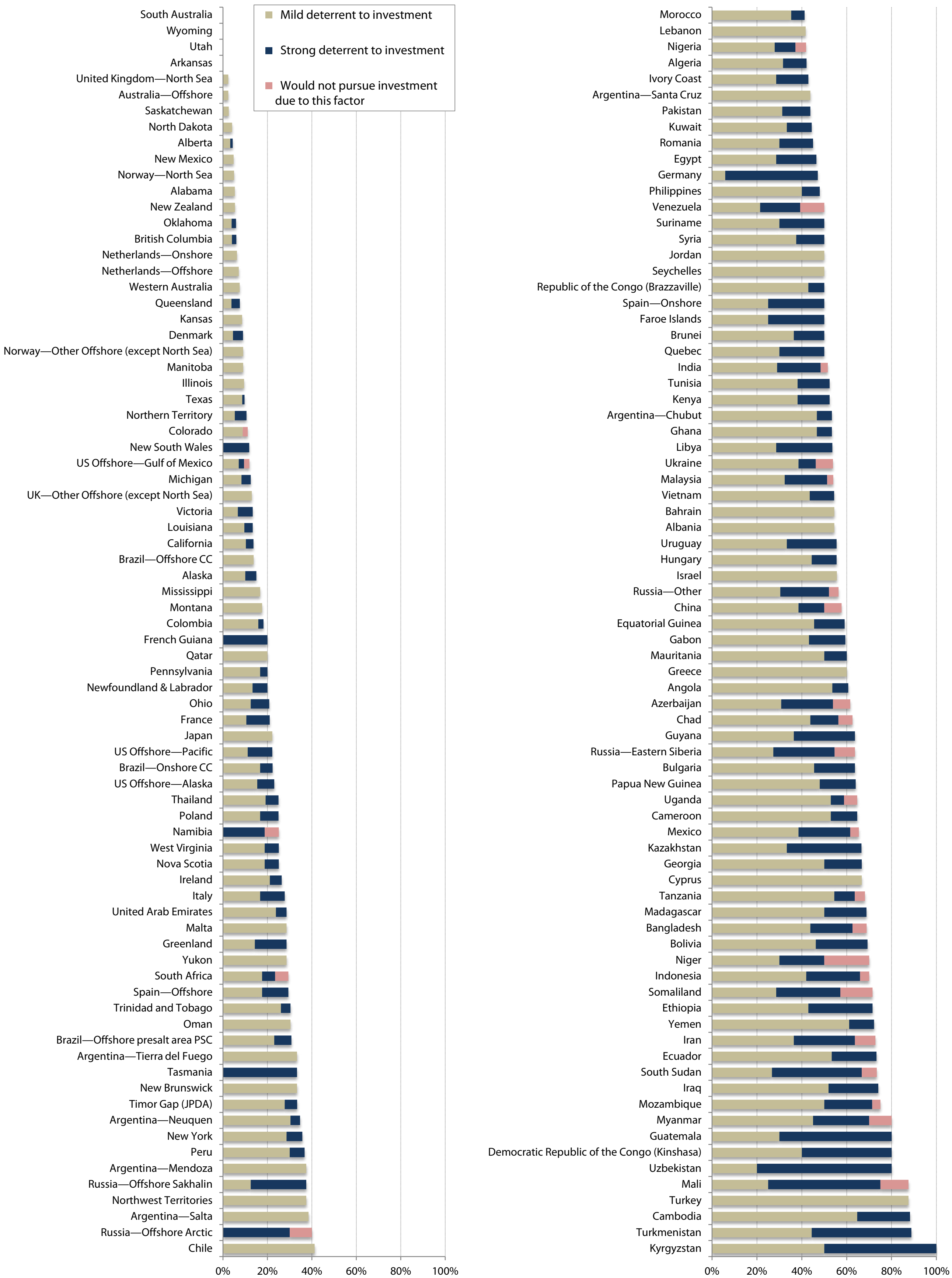


Figure 31: Labor Availability

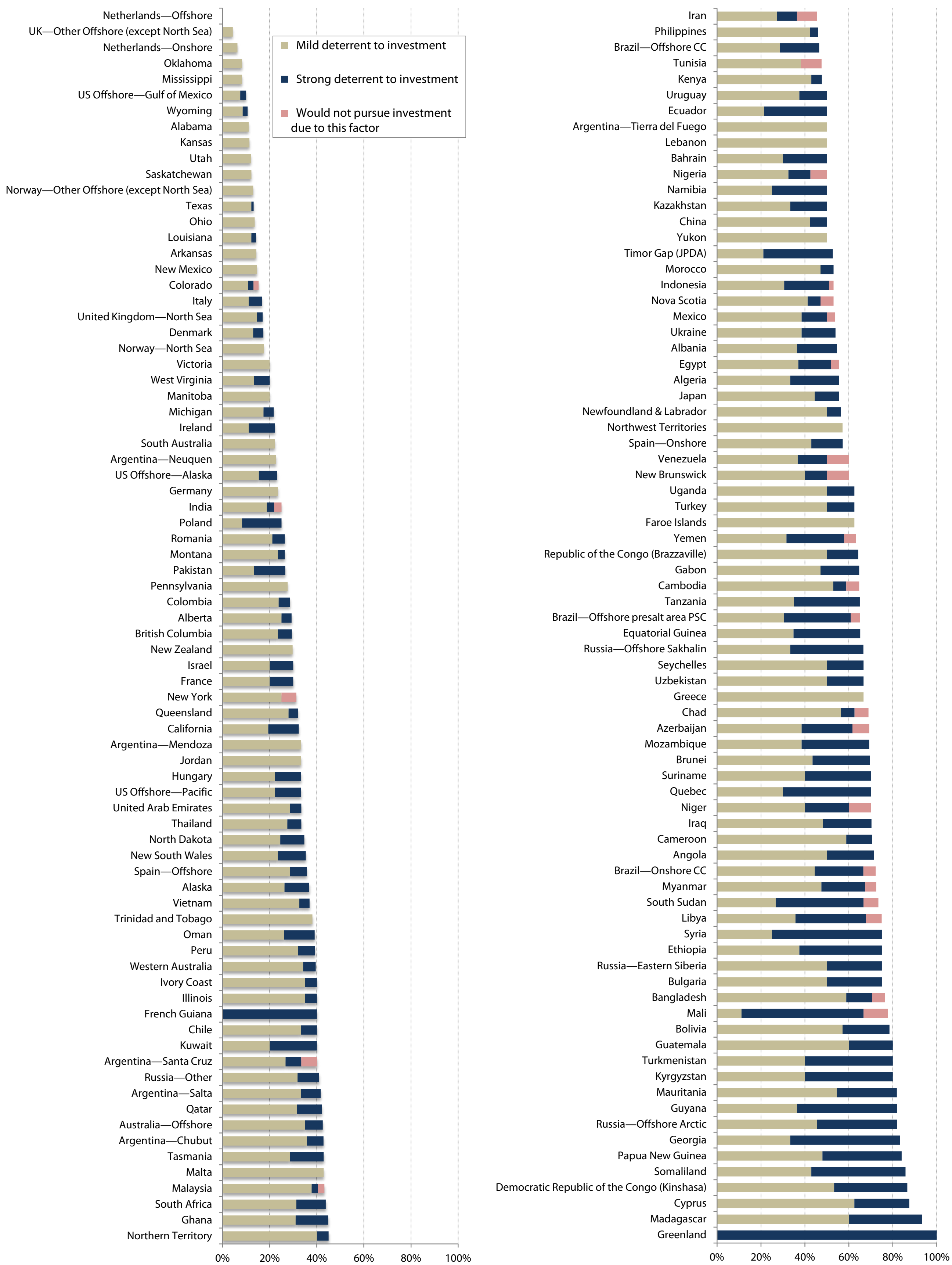


Figure 32: Disputed Land Claims

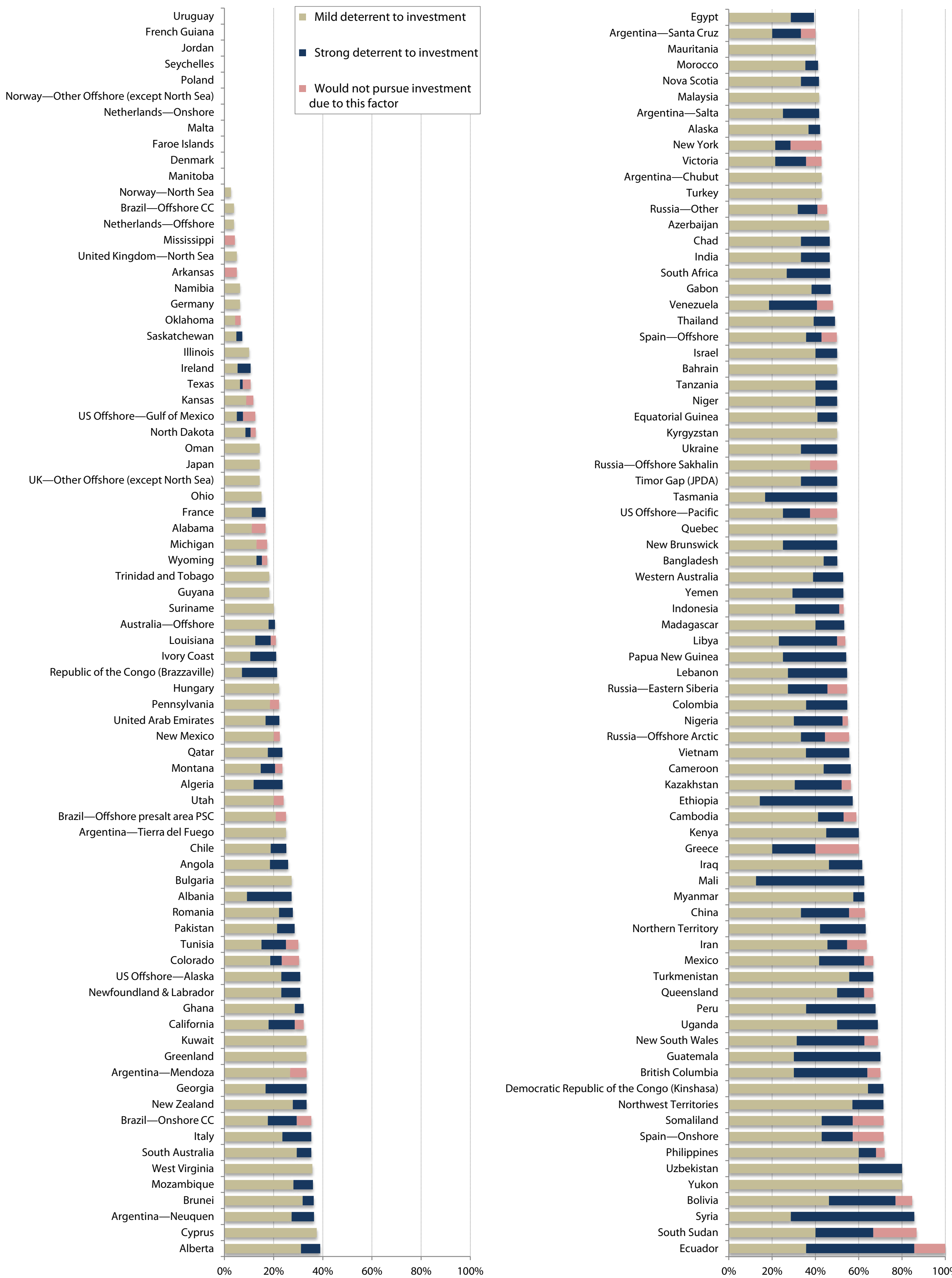


Figure 33: Political Stability

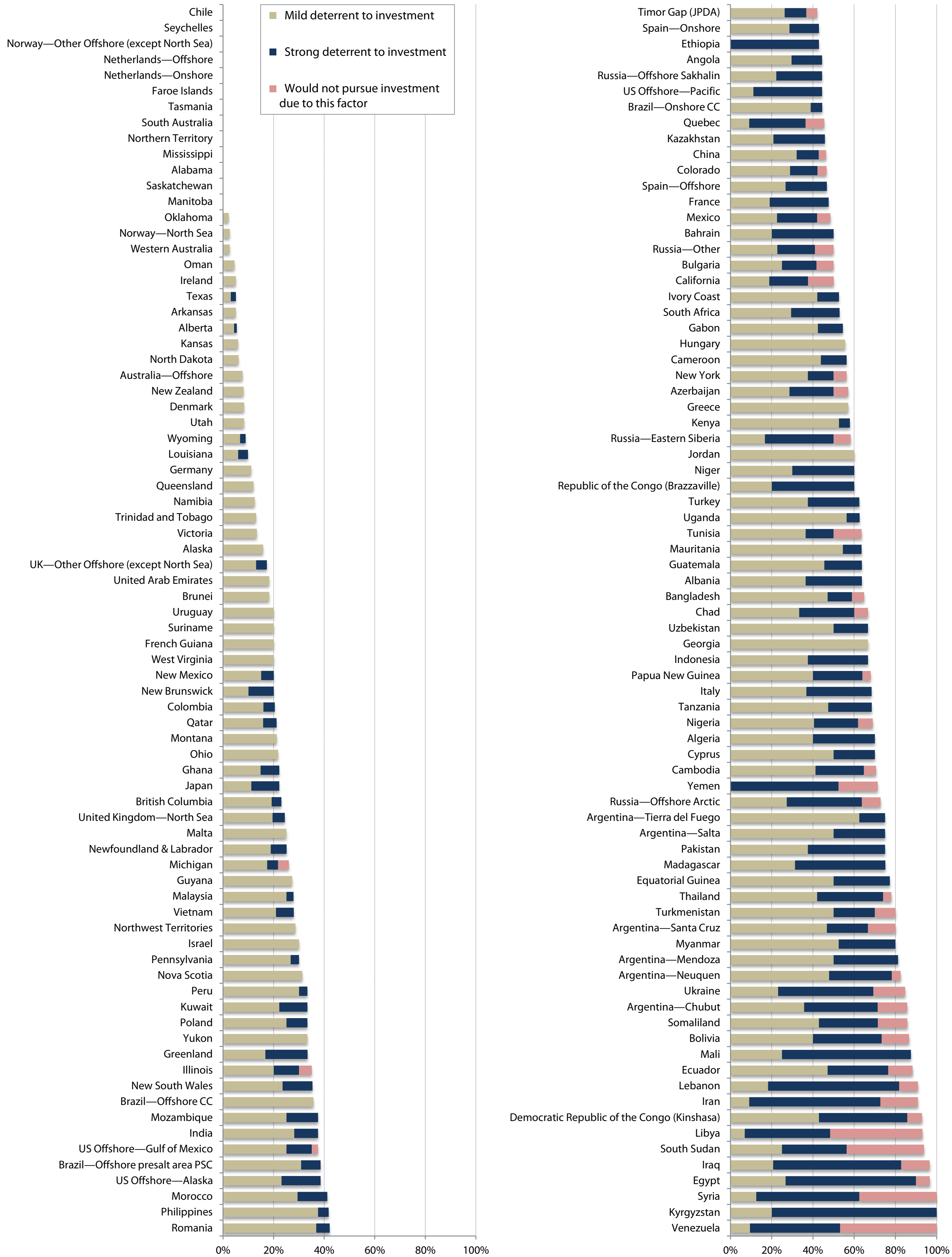


Figure 34: Security

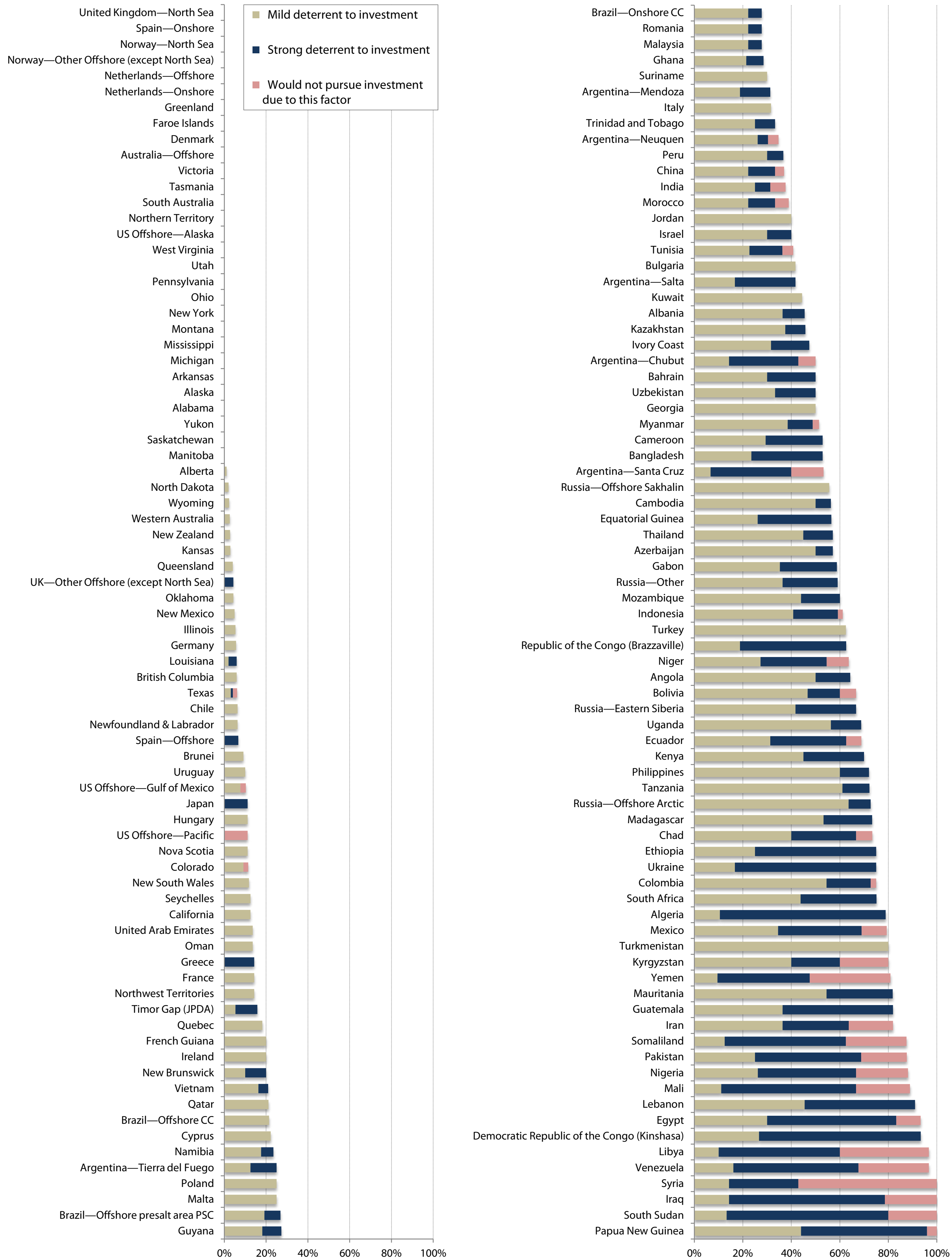


Figure 35: Regulatory Duplication

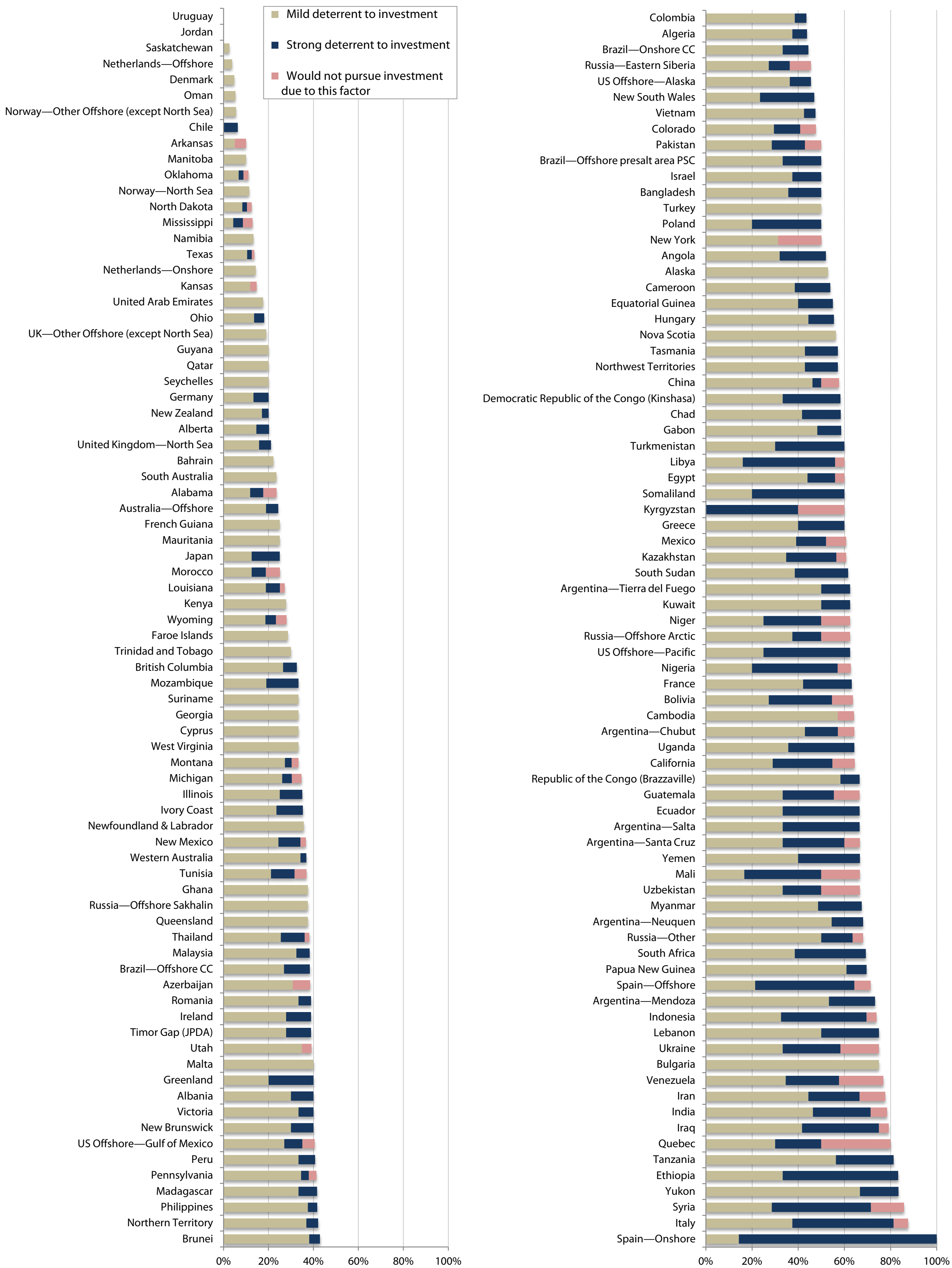
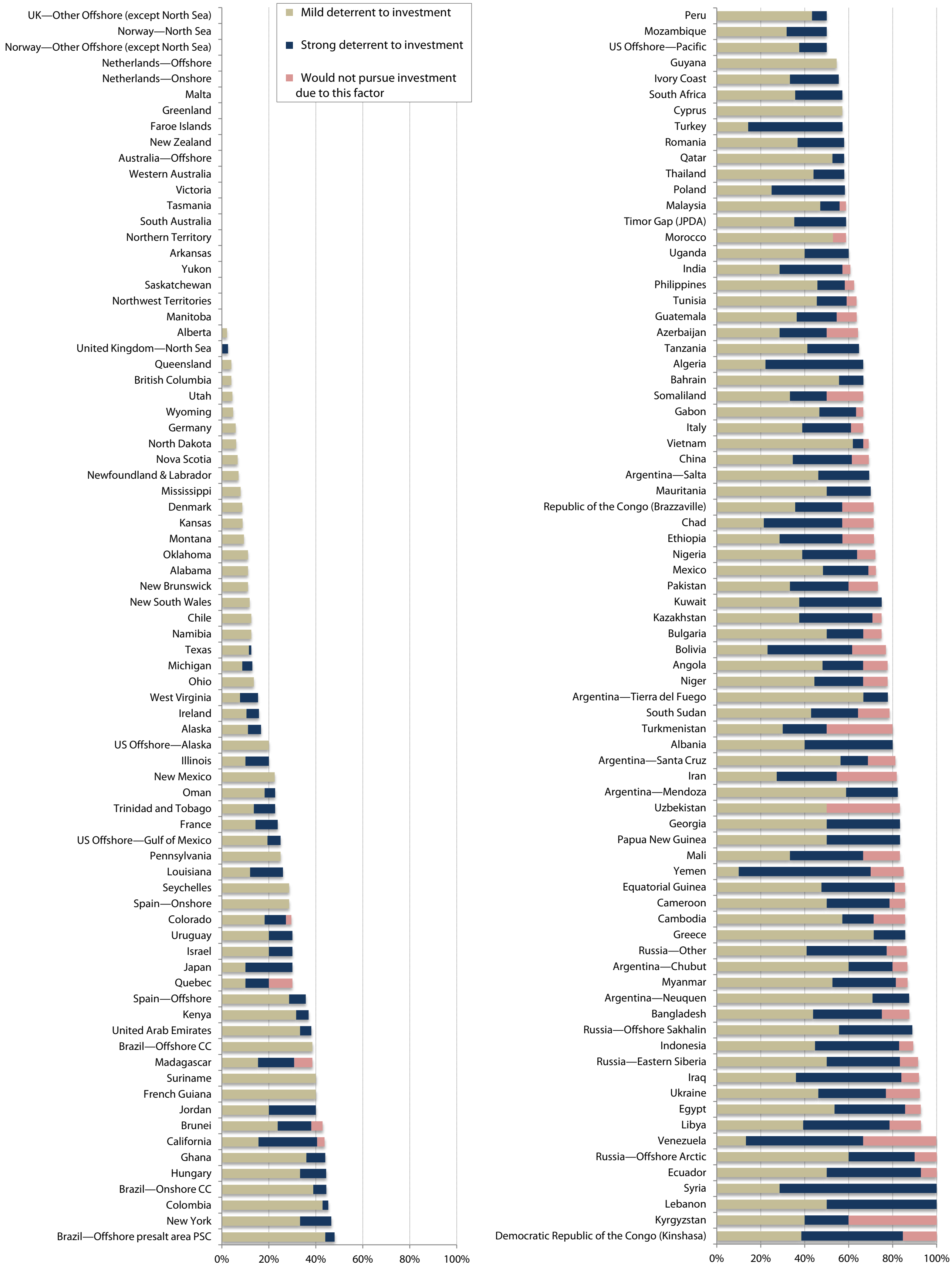


Figure 36: Legal System Processes



Appendix 1: Proved Oil and Natural Gas Reserves

Except for Canada and the United States, the proved oil and gas reserve data for countries were sourced from the US Energy Information Administration's (EIA) online *International Energy Statistics* site (US Energy Information Administration, 2014a). This approach is different from that used in 2013 when some of the data were obtained from British Petroleum's *Statistical Review of World Energy,* and the remaining data from the EIA. Sourcing most of the data from a single source helps to ensure consistency.

Data for the United States state and offshore regions included in the survey were obtained from the EIA's detailed report, *US Crude Oil and Natural Gas Reserves, 2012,* published in April 2014 (US Energy Information Administration, 2014b). The US crude oil reserves data include lease condensate. Natural gas reserves comprise unprocessed or "wet" gas as the EIA now considers dry or processed natural gas as a product rather than a component of reserves.

The EIA indicates in *International Energy Statistics* that the oil and gas reserve data for countries other than the US is sourced from the *Oil and Gas Journal,* where oil reserves generally comprise crude oil, condensate, and natural gas liquids; natural gas reserves consist of dry gas.[16] For Canada, we relied on the oil and gas reserve data provided in the National Energy Board's report, *Canadian Energy Overview 2013—Energy Briefing Note* (June 2014) (Canada, 2014). These figures were used rather than the EIA estimates because they are more recent and reflect the National Energy Board's significant upward adjustment in British Columbia's natural gas reserves.

The way the Norwegian petroleum reserves were apportioned between Norway—North Sea and Norway—Other Offshore was based on information from the Norwegian Petroleum Directorate about the oil and gas reserves in the North Sea, the Norwegian Sea, and the Barents Sea. Norway has no onshore reserves. In the case of the Netherlands, the allocation of reserves between the onshore and the continental shelf (North Sea) regions was made according to information in the *Natural Resources and Geothermal Energy Annual Review in the Netherlands 2013* (Netherlands, 2014).

Because the United Kingdom only publishes data for so-called "P2" (proved plus probable) reserves, we were advised to allocate the EIA's estimate of that country's total proved oil and gas reserves between the North Sea and "other" offshore regions (i.e., in the Irish Sea and West of the Shetland Islands) according to the information about those reserves as of December 31, 2013. The UK has no significant onshore oil and gas reserves. While there has been considerable discussion regarding possible production of natural gas from shale formations, the country's shale deposits remain to be commercialized.

16 For this reason, there is some inconsistency between the reserve data reported for the US and that for other countries.

Like the UK, the government of Australia only publishes data for P2 reserves. Data for combined proved and probable reserves in the respective states and territories, and in the offshore (like the Northern Territory, under federal jurisdiction), were provided by *Geoscience Australia*. This information was used to allocate the EIA's estimate of proved reserves among the eight Australian jurisdictions. Updated oil and gas estimates for the Australia—East Timor JPDA (also in terms of the P2 reserves definition) were again kindly provided by Mr. G. Bethune, CEO of the Australian consulting firm Energy Quest.

For Argentina, estimates of proved oil and gas reserves as at December 31, 2012, by region were obtained from the Argentina Department of Energy website. This information and the EIA's estimate for the country as a whole were used to break out proved reserves for each of the six Argentine provinces included in the survey.

With respect to Brazil, total reserves were allocated to the Brazil—Onshore and Brazil—Offshore Concession Contracts regions according to data as at December 31, 2013 that was available on the website of the Agencia Nacional do Petroleo (National Petroleum Agency). Because no profit sharing contracts are in place as yet for the Brazilian offshore, no reserves were allocated to the Brazil—Offshore PSC Contracts region.

In the case of Spain, the EIA's oil reserve estimate of 150 million barrels was reduced to 9 million barrels according to advice provided by Spanish geologist Jorge Navarro of Compania Espanola de Petroleos, S.A.U. (CEPSA). The allocation of total oil and gas reserves to the Spain—Onshore and Spain—Offshore jurisdictions was based on updated information that he provided.

The most challenging task was again the allocation of reserves to the four Russian regions included in the survey: Eastern Siberia, Offshore Sakhalin Island, Offshore Arctic, and Other. Unable to find any definitive information about to their respective shares of the country's reserves, we relied in large part on insight about the allocation of Russian oil resources from a 2012 article by Ms. Yulia Grama and on information found in the US Energy Information Administration's most recent country brief on Russia (Grama, 2012; US Energy Information Administration, 2013).

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