

Global Energy: 2019 Oil Macro Outlook

Negative risk/reward on oil led by Shale, Big Oil and OPEC+; LT oil price unchanged \$60/bbl (WTI: \$53/bbl)

Mid-term fundamentals subdued as global oil cost curve continues to weigh; future market tightening to prove transient not structural

We publish the oil market excerpt from our recent [EU Oils Outlook 2019](#) report. We continue to believe that any short-term tightness in the oil market will prove transient, with the 'call on offshore' moving further into surplus to 0.5mb/d in 2019, rising to 1.4mb/d in 2020. **Against a muted backdrop for demand, we expect oil prices to be capped around \$60/bbl owing to supply risks stemming from: 1) US Shale, 2) Non-OPEC, non-US productivity gains, and 3) OPEC (+).** Taken together with our analysis of project breakevens we retain our relatively cautious *Global Oil Equities* view on LT Brent at \$60/bbl from 2021 (WTI \$53/bbl) with risks evenly balanced in 2019 (risk premium for fiscal slippage, geopolitics and demand led tightening => \$70/bbl; lower breakevens, weak demand and over supply => \$50/bbl). **Key risks to our view: 1)** deeper than expected OPEC cuts in 2019 and non-renewal of waivers on Iranian production; **2)** stronger than expected demand growth; **3)** higher decline rates and non-OPEC supply contraction at an accelerating rate over the balance of the decade, as the lack of investment in recent years is converted into a meaningful fall in new field additions.

Supply Risk 1: OPEC+ fiscal breakevens have fallen to \$50-70/bbl; better placed to move into 'offense' on oil policy and market share. While we expect OPEC to renew its production framework in 2019, we expect a 'weak deal'. A return to 100% compliance would imply a net cut of 830kb/d back to 32.5mb/d (from peak production of 33.3mb/d in October). This would not only fall short of expectations (we believe consensus is looking for 1-1.2mb/d cut) but it would ultimately prove to be short-lived. Moreover, we do not expect Russia to reduce output meaningfully. A higher pain threshold to withstand lower oil prices drives a greater propensity for OPEC to justify increased volumes. We forecast OPEC to grow production by a net 700kb/d from an average 32.9mb/d in 2018 to 33.6mb/d in 2019. Within that we forecast KSA to grow production to 11mb/d in 2019 and 11.5mb/d in 2020.

We reiterate our [long-held belief](#) that Saudi's long-term oil policy will be to target increased market share of global oil demand growth and remain focused on rising eastward consumption mainly from China and India. Sanctions on Iranian production and pressure from the US to ensure markets are not under-supplied for an extended period of time will mean that Saudi will seek to fill any supply/demand deficit arising from a shortfall in Iranian output. Taking into account the commencement of US

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European Oil & Gas

Christyan F Malek ^{AC}

(44-20) 7134-9188

christyan.f.malek@jpmorgan.com

Bloomberg JPMA MALEK <GO>

J.P. Morgan Securities plc

Matthew Lofting, CFA

(44-20) 7134-6301

matthew.lofting@jpmorgan.com

J.P. Morgan Securities plc

Dhanush Arun

(44-20) 7742-3280

dhanush.arun@jpmorgan.com

J.P. Morgan Securities plc

Jocelyn A Dsouza, CFA

(91-22) 6157-3336

jocelyn.dsouza@jpmchase.com

J.P. Morgan India Private Limited

For Oil & Gas Specialists Sales advice, please contact:

Ian Mitchell

(44-20) 7134-1356

ian.e.mitchell@jpmorgan.com

sanctions (4th November), we model Iranian production reducing by ~400kbd (from 3.8mb/d to 3.4mb/d from 2018e to 2020E) which is in line with our [Manaar call feedback report](#) in June. Total Iran oil exports are trending at c.2.5mb/d, with China and India its key customers.

Supply Risk 2: US Shale (JPMe +0.8mb/d in 2019/18; +1.1mb/d in 2020/19) will continue to be a relentless source of supply growth as production continues to increase. The long-term outlook remains strong, supported by production from new sites. Meanwhile, the European and US super majors have ‘moved in’ to the Permian and will seek to scale up production meaningfully. They are utilizing their balance sheets, technology and infrastructure to accelerate drilling and clear the pipeline bottlenecks that have led to fears — as yet unrealized — of restrained production growth in the short term.

Supply Risk 3: Non-OPEC, non-US productivity gains (JPMe: 0.9mb/d in 2018-20). We note the latest correction in oil prices will act as a timely reminder to international oil companies that they need to stay disciplined on capital expenditure and strive for greater bang for each barrel they possess which includes mitigating acceleration in decline dates. Big Data, artificial intelligence and other new technologies are allowing the international oil companies to produce more, for less. In our [Breakeven Championship](#) report we show that 50% of global reserves now deliver a 15% IRR at \$50/bbl or below. Regions where the upper end of the project breakeven range exceeds \$70/bbl make up just 10% of global reserves

Table of Contents

Key Charts	4
Mid-term fundamentals subdued as global oil cost curve continues to weigh; future market tightening transient not structural	5
Demand: forecasts reflecting weakness in EM currencies, rising trade uncertainties, and revisions to Chinese data.....	6
Supply Risk 1 - US Shale: Permian production continues to rise, LT outlook remains strong, with Big Oil ‘moving in’	6
Supply Risk 2 - Non-OPEC, non-US productivity gains: efficiency enhancing technologies such as Big Data and A.I. are allowing Big Oil to produce more, for less	7
Supply Risk 3 - OPEC (+) Fiscal breakevens of \$50-70/bbl mean they are better placed to move into ‘offense’ on oil policy and market share.....	8
...we forecast growth in OPEC production in 2019 as it defends market share on robust demand.....	9
Summary: ‘Duel’ between OPEC and Global IOCs drives a vicious cycle for oil prices lower over the medium term	11
Oils Valuation sheets	12

Key Charts

Figure 1: Global Oil Equities oil and gas price forecasts

Brent, \$/bbl	4Q18e	2018e	2019e	2020e	2021+ LT
JPM Commodities forecast *	72.9	72.9	72.6	63.7	-
Forward curve **	71.0	71.0	66.5	65.9	-
JPM Global Oil Equities forecast (a)	71.0	71.0	65.0	65.0	60.0
JPM Global Oil Equities vs. Commodities	-3%	-3%	-10%	2%	-

WTI, \$/bbl	4Q18e	2018e	2019e	2020e	2021+ LT
JPM Commodities forecast *	63.4	63.4	66.4	58.3	-
Forward curve **	62.0	62.0	57.0	57.8	-
Forward based Brent-WTI spread (b)	9.0	9.0	9.6	8.1	-
JPM Global Oil Equities forecast (a-b)	62.0	62.0	55.5	56.9	53.0
JPM Global Oil Equities vs. Commodities	-2%	-2%	-17%	-2%	-

Henry Hub, \$/mmbtu	4Q18e	2018e	2019e	2020e	2021+ LT
JPM Commodities forecast *	3.0	3.0	3.0	-	-
Forward curve **	3.7	3.7	3.0	2.7	-
JPM Global Oil Equities forecast	3.7	3.7	3.0	2.8	3.0
JPM Global Oil Equities vs. Commodities	23%	23%	0%	-	-

Figure 2: US Shale oil and gas production forecast through 2020E

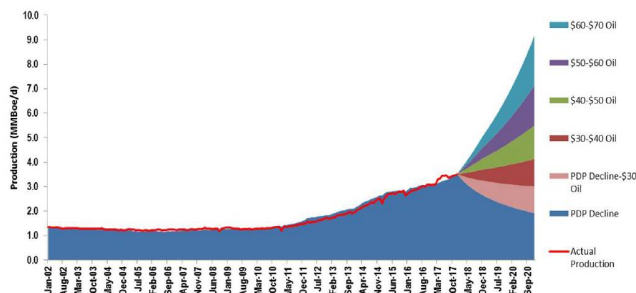


Figure 4: IOCs' dividend cash neutrality settles towards \$50/bbl in 2020E from mid-\$50s in 2018

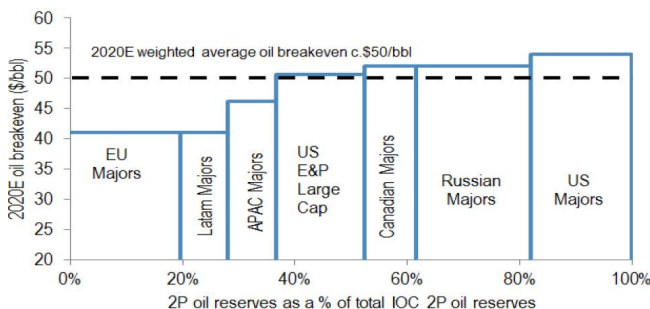


Table 1: JPM Global Oil Equities view: oil market not as tight as consensus would suggest –further into surplus by 2019

	2018E	2019E	2020E
Global Oil Demand	99.3	100.4	101.3
Total product demand	98.8	99.9	100.8
sub-total OPEC supply	42.4	43.1	43.6
US Crude and other	15.3	16.1	17.2
Non-OPEC Non-US Crude and other	42.1	42.6	42.8
Total Oil Supply	99.8	101.8	103.6
Oil Supply Growth	3.0	2.0	1.8
US Shale annual growth	1.6	0.8	1.1
Non-OPEC field decline (5%)	-1.9	-2.5	-2.5
Call on International	-0.6	-0.3	-1.5
Russian Growth	0.1	0.2	-0.1
Call on Offshore**	-0.7	-0.5	-1.4

Figure 3: Industrial project breakeven ranges by region; Projects from regions that account for some 50% of global liquids 2P reserves now deliver a 15% IRR around \$50/bbl or below

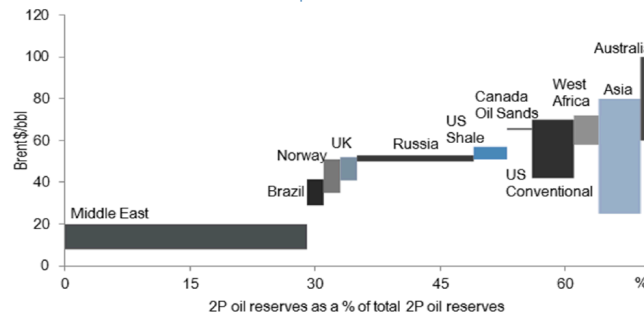


Figure 5: OPEC(+Russia) members' budget breakevens converge to low \$50s in 2020E = higher propensity to grow volumes; + additional barrels from Shale and Big Oil drives negative risk/reward for oil

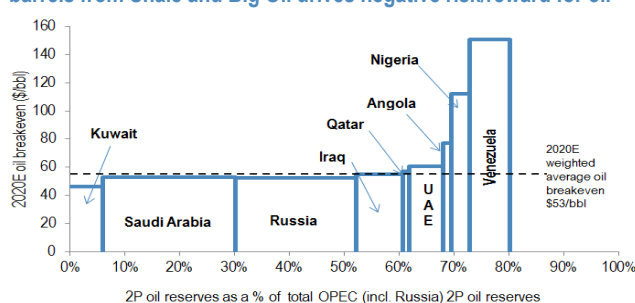


Table 2: Production outlook for select OPEC countries and Russia, Brazil (mb/d) / OPEC + Russia, Brazil production in 2018: 43.7mb/d rising to 45.4mb/d in 2020 (+1.7mb/d net of declines from Iran, Venezuela and Angola)

Country	Kboe/d	2018E	2019E	2020E
Angola	Total capacity	1,650	1,600	1,560
	Production	1,647	1,600	1,560
	Spare capacity	3	-	-
Brazil	Production	2,700	3,000	3,400
	Spare capacity	-	-	-
	Total capacity	3,951	4,054	4,158
Iran	Production	3,841	3,641	3,441
	Spare capacity	110	413	717
	Total capacity	4,860	4,960	5,007
Iraq	Production	4,660	4,750	4,870
	Spare capacity	200	210	137
	Total capacity	3,179	3,116	3,063
Kuwait	Production	2,760	2,850	2,900
	Spare capacity	419	266	163

Country	Kboe/d	2018E	2019E	2020E
Nigeria	Total capacity	1,790	1,820	1,830
	Production	1,749	1,790	1,810
	Spare capacity	41	30	20
Russia	Production	11,500	11,700	11,600
	Spare capacity	150	-	-
	Total capacity	12,305	12,123	12,471
Saudi Arabia	Production	10,500	11,000	11,500
	Spare capacity	1,805	1,123	971
	Total capacity	3,230	3,290	3,350
UAE	Production	2,960	3,000	3,100
	Spare capacity	270	290	250
	Total capacity	1,426	1,380	1,216
Venezuela	Production	1,426	1,380	1,216
	Spare capacity	-	-	-

Source: Company data, J.P. Morgan estimates, Wood Mackenzie, Upside to target prices calculated at COB 26th November

Mid-term fundamentals subdued as global oil cost curve continues to weigh; future market tightening transient not structural

We reiterate our long held view that oil prices will continue to remain "lower, for longer." Disruptive US shale, Big Oil efficiency drives, and higher OPEC production have fundamentally altered the industry, shifting the price outlook structurally lower; hence, we believe any short-term tightness will prove transient, not structural...

...the analysis in our break-even 'championship' report suggests that the marginal price of oil will be determined by basins/regions possessing the most competitive oil extraction and social/fiscal cost, with sufficient spare capacity to produce over multiple years.

Combining the most recent J.P. Morgan Commodities view on demand with our global supply outlook we demonstrate that the oil market is not as tight as consensus would suggest, with the 'call on offshore' moving further into surplus in 2019.

If we assume a decline rate for non-OPEC of 4% instead of 5% then our 'call on offshore' rises to 1.9mb/d from 1.4mb/d of surplus in 2020.

We reiterate our long held view that oil prices will remain "lower, for longer." Disruptive US shale, Big Oil efficiency drives, and higher OPEC production have fundamentally altered the industry, shifting the price outlook structurally lower. We believe any short-term tightness will prove transient, not structural. Figure 6 below shows our global oil equities oil & gas price forecasts and comparatives to J.P. Morgan Commodities' team's price deck.

Figure 6: Global Oil Equities oil and gas price forecasts

Brent, \$/bbl	2017a	1Q18a	2Q18a	3Q18a	4Q18e	2018e	2019e	2020e	2021+ LT
JPM Commodities forecast *	54.8	67.2	74.9	75.2	72.9	72.6	72.6	63.7	-
Forward curve **	54.8	67.2	74.9	75.2	71.0	72.1	66.5	65.9	-
JPM Global Oil Equities forecast (a)	54.8	67.2	74.9	75.2	71.0	72.1	65.0	65.0	60.0
JPM Global Oil Equities vs. Commodities	-	-	-	-	-3%	-1%	-10%	2%	-

WTI, \$/bbl	2017a	1Q18a	2Q18a	3Q18a	4Q18e	2018e	2019e	2020e	2021+ LT
JPM Commodities forecast *	50.9	62.8	67.9	69.2	63.4	65.8	66.4	58.3	-
Forward curve **	50.9	62.8	67.9	69.2	62.0	65.5	57.0	57.8	-
Forward based Brent-WTI spread (b)	3.8	4.4	7.0	6.0	9.0	6.6	9.6	8.1	-
JPM Global Oil Equities forecast (a-b)	50.9	62.8	67.9	69.2	62.0	65.5	55.5	56.9	53.0
JPM Global Oil Equities vs. Commodities	-	-	-	-	-2%	-1%	-17%	-2%	-

Henry Hub, \$/mmbtu	2017a	1Q18a	2Q18a	3Q18a	4Q18e	2018e	2019e	2020e	2021+ LT
JPM Commodities forecast *	3.1	2.9	2.8	2.9	3.0	2.9	3.0	-	-
Forward curve **	3.1	2.9	2.8	2.9	3.7	3.1	3.0	2.7	-
JPM Global Oil Equities forecast	3.1	2.9	2.8	2.9	3.7	3.1	3.0	2.8	3.0
JPM Global Oil Equities vs. Commodities	-	-	-	-	23%	6%	0%	-	-

Source: J.P. Morgan estimates. 4Q18 JPM oil equity forecasts based on QTD actuals + spot to y/e. * JPM Commodities oil price forecasts extend to end 2019. ** Forward curve prices as at 14 November. Basis - T+3 fwd. curve to end 2020; fundamental JPM oil equities price assumption from 2021

Table 3: JPM Global Oil Equities view: oil market not as tight as consensus would suggest – further into surplus by 2019

	2018E	2019E	2020E
Global Oil Demand	99.3	100.4	101.3
Total product demand	98.8	99.9	100.8
sub-total OPEC supply	42.4	43.1	43.6
US Crude and other*	15.3	16.1	17.2
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Total Oil Supply	99.8	101.8	103.6
Oil Supply Growth	3.0	2.0	1.8
US Shale annual growth	1.6	0.8	1.1
Non-OPEC field decline (5%)	-2.4	-2.5	-2.5
Call on International	-0.1	-0.3	-1.5
Russian Growth	0.1	0.2	-0.1
Call on Offshore**	-0.2	-0.5	-1.4

Source: J.P. Morgan Commodities estimates. * US Non-shale is estimated to remain flat 2018-2020. **Note, the call on offshore is the balance required by non OPEC, non-US Shale to fill the supply-demand deficit. A negative number indicates a surplus, whilst a positive number indicates a deficit. Note: Non-OPEC, Non-US Production Cumulative Growth 18-20 of 0.9mb/d.

Demand: forecasts reflecting weakness in EM currencies, rising trade uncertainties, and revisions to Chinese data

As published in our [key conference takeaways note](#), a significant theme discussed at our recent Global Oils conference in London by our expert panellists was that the oil demand outlook looks more pessimistic (e.g. the IEA recently reduced growth forecasts for 2018 and 2019 by 110 kb/d to 1.3 mb/d and 1.4 mb/d, respectively). This is reportedly due to a weaker economic outlook, trade concerns, higher oil prices and a revision to Chinese data.

Table 4: Global Oil Demand (mb/d) - JPMc: +1.0mb/d in 2018, +1.1mb/d in 2019

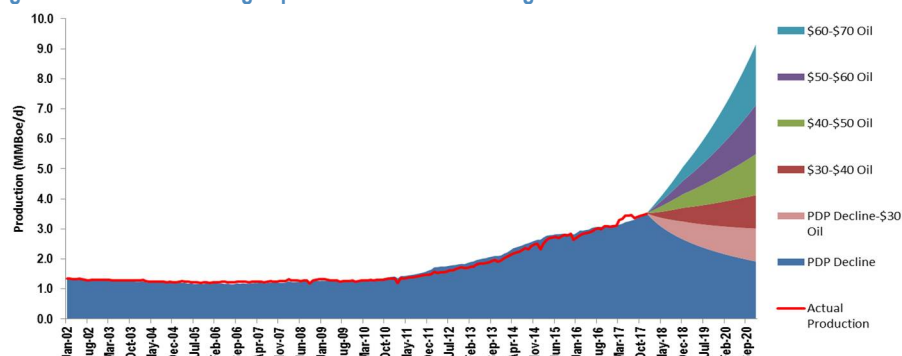
	2018E	2019E	2020E
North America	25.3	25.6	25.6
Latin America	6.8	6.8	6.8
Europe	14.9	15	15
FSU	4.8	4.9	4.9
Middle East	8.2	8.3	8.4
Africa	4.1	4.1	4.2
Asia Pacific	34.7	35.2	35.8
Total Products Demand	98.8	99.9	100.8
o/w OECD	47.9	48.1	48.3
o/w Non-OECD	50.9	51.8	52.5
Other demand	0.5	0.5	0.5
World oil demand	99.3	100.4	101.3

Source: J.P. Morgan commodities estimates.

Supply Risk 1 - US Shale: Permian production continues to rise, LT outlook remains strong, with Big Oil 'moving in'

US crude production growth has reaccelerated coming out of the 2015/16 oil price-driven downturn, with 2018 shale production growth of ~1.6mmbpd. Shale growth has been driven predominantly by the Permian, which we show growing by >800kbd y/y in 2018E. Given the recent step-up in production and limited rail and truck takeaway potential, we estimate growth slowing to <550kbd y/y in 2019 until new pipeline capacity takes effect. However, while the Permian faces near-term constraints; significant pipeline capacity is set to come online in 2020, which should allow total US production growth to reaccelerate. **On aggregate, we model total US shale growth in 2018 (including Permian) at 1.6mb/d, declining in 2019 to 0.8mb/d, before regaining momentum to grow at 1.1mb/d in 2020.**

Figure 7: US Shale oil and gas production forecast through 2020E



Source: J.P. Morgan US E&P Research.

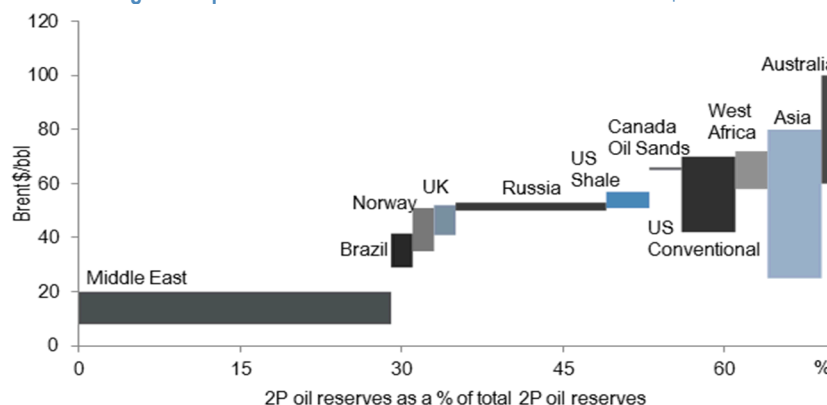
A significant 20-25% of global reserves appear to have clustered around a \$50/bbl breakeven. This includes US Shale (full-cycle) and Russia. The upper end of the curve is dominated by Canadian Oil Sands, deep-water West Africa and parts of Asia

Supply Risk 2 - Non-OPEC, non-US productivity gains: efficiency enhancing technologies such as Big Data and A.I. are allowing Big Oil to produce more, for less

Upstream project breakevens: 50% of global reserves now deliver a 15% IRR at \$50/bbl or below. Regions where the upper end of the project breakeven range exceeds \$70/bbl make up just 10% of global reserves. In Figure 8, we have displayed breakevens by region.

1. **Middle East** - nearly 30% of reserves come at a 15% IRR breakeven of \$20/bbl or below (from an NOC perspective)
2. **Non-OPEC offshore** - pre-salt Brazil and Norway's premier deep-water developments stand out as best-in-class. Breakevens of \$29-51/bbl are superior to other offshore hubs like West Africa (\$58-72/bbl) and exhibit a positive risk/reward ('standardization in Norway; 'learning effect' synergies in Brazil).

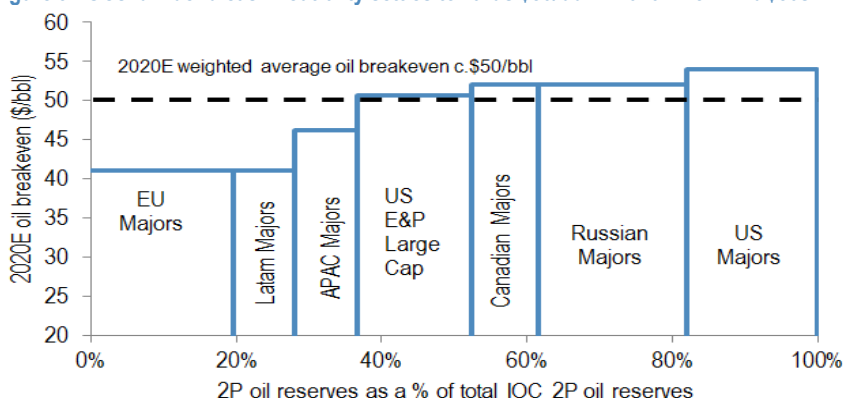
Figure 8: Industrial project breakeven ranges by region; Projects from regions that account for some 50% of global liquids 2P reserves now deliver a 15% IRR around \$50/bbl or below



Source: J.P. Morgan estimates, Company data, Wood Mackenzie

Corporate cash breakevens in Europe, North America, Asia Pac, LatAm and Russia converge to circa \$50/bbl by 2020 (global range: \$41-54/bbl). European and LatAm Big Oils lead the group at ~\$40/bbl while US Majors are generally > \$50/bbl.

Figure 9: IOCs' dividend cash neutrality settles towards \$50/bbl in 2020E from mid-\$50s in 2018



Source: J.P. Morgan estimates, Wood Mackenzie. US E&P Large Cap breakevens restated to Brent

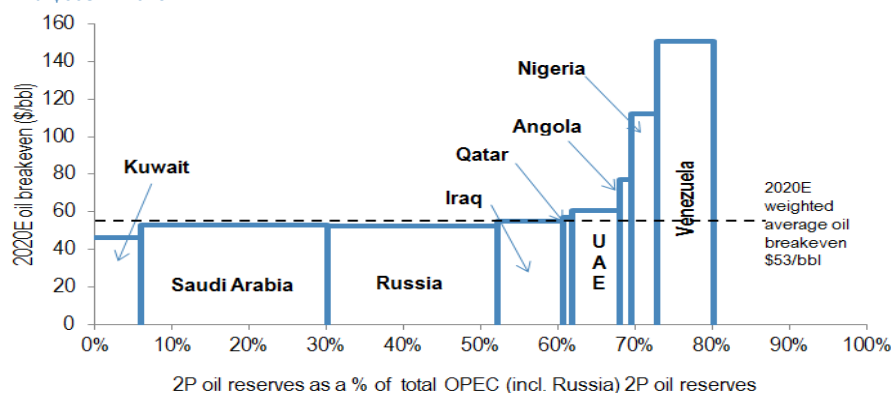
Supply Risk 3 - OPEC (+) Fiscal breakevens of \$50-70/bbl mean they are better placed to move into 'offense' on oil policy and market share...

The latest oil rout will serve as a stark reminder to GCC countries to stay the course on fiscal consolidation or risk economic failure in a volatile oil market. If they succeed, a positive corollary is that OPEC countries will invest the excess cash windfall into incremental oil capacity and long-term economic diversification away from oil.

The fiscal oil breakevens of the largest oil producing countries sit below the forward curve over the medium term leaving a 'windfall' of cash to diversify quicker and invest in higher oil capacity. The average fiscal oil breakeven of OPEC (incl. GCC) and Russia declining to \$53/bbl in 2020 underpinned by significant non-oil revenue mobilization through new taxes such as VAT and subsidies removal. Key highlights from our research on the topic include:

- Fiscal breakevens of the largest oil producing countries including Saudi, Iraq and Kuwait are currently in the mid-\$60s, trending to ~\$60 by 2019 and <\$55/bbl by 2020, as OPEC balances fiscal austerity and revenue diversification (led by heightened urgency to mitigate 'peak oil demand') against expansionary budget risks. A 'relapse' to previous cycle behaviours (fiscal inefficiency/excessive spend) is the key upside risk.
- A corollary of fiscal and economic reform is that GCC countries including Saudi, UAE will be in a stronger MT position to manage their geo-political agenda and oil market share with greater independence from oil price.

Figure 10: OPEC (+Russia) members' budget breakevens converge to low \$50s in 2020E from mid-\$60s in 2018



Source: J.P. Morgan estimates, Wood Mackenzie.

...we forecast growth in OPEC production in 2019 as it defends market share on robust demand...

In our research note [Breakeven Championship](#), our global research and commodities team studied the outlook for declining rates, production and spare capacity for a select group of OPEC and non-OPEC members, including Russia and Brazil (included as it represents one of the largest production increases outside OPEC). The analysis forecasts a decline in spare capacity from 3.0mb/d in 2018 to 2.3 mb/d in 2020, all else being equal as illustrated in our [E&P Capex Survey](#).

Table 5: Production outlook for select OPEC countries and Russia, Brazil (mb/d) / OPEC + Russia, Brazil production in 2018: 43.7mb/d rising to 45.4mb/d in 2020 (+1.7mb/d net of declines from Iran, Venezuela and Angola)

Country	Kboe/d	2018E	2019E	2020E	Country	Kboe/d	2018E	2019E	2020E
Angola	Total capacity	1,650	1,600	1,560	Nigeria	Total capacity	1,790	1,820	1,830
	Production	1,647	1,600	1,560		Production	1,749	1,790	1,810
	Spare capacity	3	-	-		Spare capacity	41	30	20
Brazil	Production	2,700	3,000	3,400	Russia	Production	11,500	11,700	11,600
	Spare capacity	-	-	-		Spare capacity	150	-	-
Iran	Total capacity	3,951	4,054	4,158	Saudi Arabia	Total capacity	12,305	12,123	12,471
	Production	3,841	3,641	3,441		Production	10,500	11,000	11,500
	Spare capacity	110	413	717	UAE	Spare capacity	1,805	1,123	971
Iraq	Total capacity	4,860	4,960	5,007		Total capacity	3,230	3,290	3,350
	Production	4,660	4,750	4,870	Venezuela	Production	2,960	3,000	3,100
	Spare capacity	200	210	137		Spare capacity	270	290	250
Kuwait	Total capacity	3,179	3,116	3,063	Venezuela	Total capacity	1,426	1,380	1,216
	Production	2,760	2,850	2,900		Production	1,426	1,380	1,216
	Spare capacity	419	266	163	Venezuela	Spare capacity	-	-	-

Source: J.P. Morgan estimates, Wood Mackenzie

JPM calculates spare capacity based on currently sanctioned projects net of underlying decline...

...OPEC and Russia's vast 1P reserves, continued growth in customer demand and in country optimization suggest a more optimistic scenario for capacity is possible by 2020

Saudi Arabia (2019-20E Global Oil Equities: 11/11.5mbd)

In our [NY conference feedback](#) report published in October, we reiterated our [long-held belief](#) that Saudi's long-term oil policy will be to target increased market share of global oil demand growth. We believe it will seek to be at the front of the queue to fill a potential global supply deficit as a result of rising eastward demand predominantly from China and India. As we highlighted in our feedback from the [OPEC meeting in Vienna](#), Saudi's rhetoric was increasingly focused on the customer, and officials indicated that the market needs additional supply to mitigate further price increases, which in turn could lead to demand deterioration long term. We model Saudi production rising from 10.5mb/d in 2018E to 11.5mb/d in 2020E.

Iran (2019-20E Global Oil Equities: 3.6/3.4mbd)

Taking into account the commencement of US sanctions on the 4th November, we model production reducing by ~400kbd (from 3.8mb/d in 2018E to 3.4mb/d in 2020E). This is in line with our [Manaar call feedback](#) report in June, where we highlighted the actual production impact of an embargo is likely to be nearer to 500kb/d. Total Iran oil exports are trending at around 2.5mb/d, with China and India its key customers. Manaar categorizes three market tiers for Iran's oil exports, as follows: **(1) Asia** – led by three key countries in China (~650kb/d), India (>500kb/d) and Korea (~300kb/d), plus Turkey (~175kb/d); **(2) Europe** – around 600kb/d. Primarily southern Europe through Italy, Spain and Greece, plus France; and **(3) Regional GCC demand** – Most notably UAE at approaching 150kb/d. In Manaar's view, India in particular has scope to absorb additional supply in the event near-term production moves higher. While Manaar sees no evidence to date of any major

(global) consensus to boycott Iranian oil, active discussions are understood to be ongoing with Europe, GCC and India.

Venezuela (2019-20E Global Oil Equities: 1.4/1.2mbd)

Venezuela has been one of the biggest risks to crude supply in 2018 and this is expected to be the case in 2019 too. The country's protracted economic crisis has led to a production collapse that's seen 1 million bpd wiped off the market in the past two years, and supply there is expected to continue to deteriorate rapidly. With no expected resolution in sight, the country's oil infrastructure is facing operational issues ranging from availability of diluents to poor maintenance of infrastructure such as pipeline and upgraders to help move oil within the country. We assume Venezuela's production will fall to 1.2mbd by 2020 (vs 2.0mbd in 2017). The risk of a force majeure on Venezuelan crude exports or potentially US sanctions on oil to expedite the decline in Venezuelan crude supply will likely be a big risk to global oil supplies and, hence, an upside risk to prices according to our Commodities team.

Summary: 'Duel' between OPEC and Global IOCs drives a vicious cycle for oil prices lower over the medium term

The disruptive force of the US shale industry has forced the rest of the market to respond, with "Big Oil" going on an efficiency drive that has fundamentally altered the outlook...

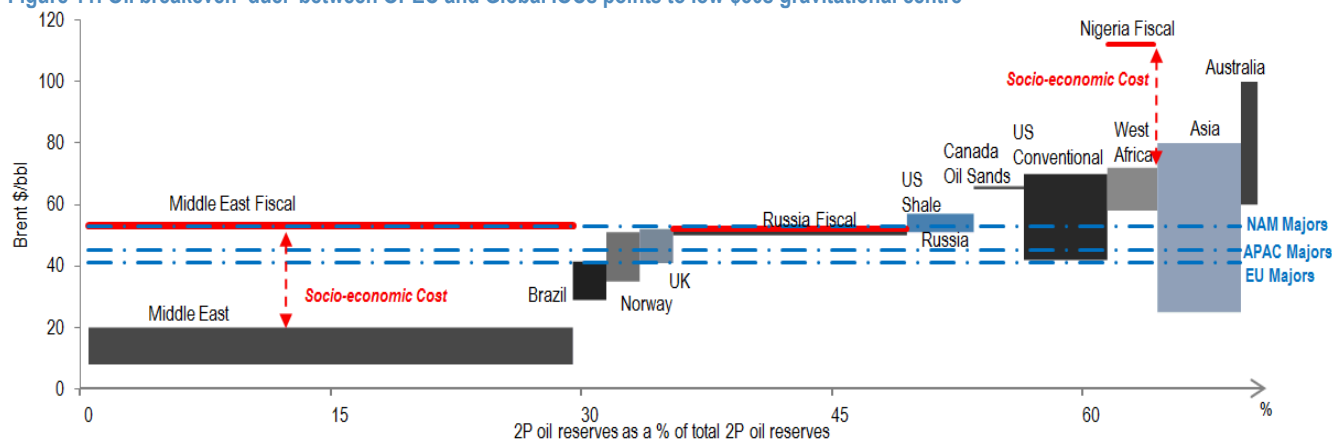
...meanwhile OPEC and other large producers like Russia are also incentivized to pump what they can, while they can, shifting the price outlook structurally lower. Any short-term tightness in this market will prove transient, not structural

In its simplest form (and all else being equal), we think the marginal price of oil will be determined by basins/regions possessing the most competitive oil extraction and social/fiscal cost, with sufficient spare capacity to produce over multiple years. This results in OPEC and Global IOCs continuing to drive a vicious cycle for oil prices:

- **Global project breakevens will act as a gravitational force in a vicious cycle for oil prices over the medium term.** This should lead to heightened urgency for OPEC governments to act as they risk becoming 'price takers'.
- **IOCs will remain under pressure to manage cash breakevens** lower without compromising long-term portfolio quality.
- **This will create fiscal regime change** in regions such as West Africa as improved contractual terms are needed in order to attract Global IOC FDI.
- **OPEC's oil policy 'trilemma':** geopolitics, fiscal consolidation and market share: governments remain focused on principal levers such as capital efficiency and non-oil revenues to drive renewed economic growth increasingly decoupled to oil.

In summary, our analysis strongly supports our LT \$60/bbl Brent with risks evenly balanced. Combining low \$50s breakevens (see Figure 11 below) and execution/geopolitical risk, we arrive at our long term Brent price of \$60/bbl.

Figure 11: Oil breakeven 'duel' between OPEC and Global IOCs points to low-\$50s gravitational centre



Source: J.P. Morgan estimates, Wood Mackenzie. Middle East Fiscal average includes OPEC GCC countries. 2020E Fiscal/Corporate averages used

Oils Valuation sheets

Table 6: European Integrateds Valuation Sheet (Brent: 2018E: \$72/bbl; 2019E \$65/bbl, 2020E \$65/bbl; 2021E+ \$60/bbl)

						P/E				EV/DACF			
	Rating	PT	PT upside	M.Cap (\$)	2017	2018E	2019E	2020E	2017	2018E	2019E	2020E	
Shell	OW	2,800	17%	252	16.4x	12.5x	10.2x	8.9x	8.4x	6.6x	6.2x	5.7x	
BP	OW	575	10%	135	20.3x	11.2x	11.4x	10.0x	7.0x	6.1x	5.6x	5.1x	
Total	N	49.0	1%	147	12.8x	10.6x	10.2x	9.7x	6.7x	6.1x	5.5x	5.2x	
ENI	UW	13.5	-6%	59	20.7x	11.4x	12.8x	11.2x	6.8x	4.2x	4.5x	3.9x	
Equinor	UW	190	-5%	77	15.1x	12.1x	13.6x	12.6x	5.4x	5.3x	5.7x	5.0x	
Repsol	OW	17.5	16%	27	9.6x	9.6x	8.4x	7.2x	5.4x	4.7x	4.0x	3.4x	
OMV	OW	50.0	14%	16	10.7x	8.7x	8.0x	7.3x	5.3x	4.2x	4.0x	3.5x	
Galp	N	15.5	6%	14	22.0x	16.1x	15.2x	12.8x	9.3x	8.4x	6.9x	5.9x	
Sector			8%	728	15.7x	11.5x	10.8x	9.7x	7.0x	5.9x	5.6x	5.1x	
		Adj. NI (Rep ccy)				Adj. EPS (Rep ccy)				Adj. EPS growth			
		2017	2018E	2019E	2020E	2017	2018E	2019E	2020E	2017	2018E	2019E	2020E
Shell		15,764	21,691	24,932	27,316	1.90	2.60	3.05	3.49	109%	37%	17%	14%
BP		6,166	12,645	11,987	13,685	0.31	0.63	0.60	0.68	127%	101%	-5%	15%
Total		10,578	14,107	14,151	14,722	4.24	5.39	5.44	5.72	19%	27%	1%	5%
ENI		2,411	4,525	4,024	4,602	0.67	1.25	1.12	1.28	nm	87%	-11%	14%
Equinor		4,287	6,636	5,869	6,339	1.32	2.00	1.77	1.91	nm	52%	-12%	8%
Repsol		2,469	2,472	2,764	3,227	1.63	1.58	1.81	2.11	24%	-3%	15%	17%
OMV		1,624	1,654	1,805	1,956	4.98	5.07	5.53	6.00	63%	2%	9%	8%
Galp		602	752	796	942	0.73	0.91	0.96	1.14	24%	25%	6%	18%
Sector (\$)		44,967	65,892	67,736	74,398					64%	50%	5%	12%
		CFFO ex-WC (Rep ccy)				DPS		Div. Yield		Organic FCF % of total div.			
		2017	2018E	2019E	2020E	2018E	2017	2018E	2019E	2017	2018E	2019E	2020E
Shell		35,258	46,543	48,059	50,672	1.88	6.1%	6.1%	6.1%	1.1x	1.6x	1.8x	1.8x
BP		17,092	25,677	29,070	31,967	0.41	6.1%	6.1%	6.1%	0.7x	1.6x	1.8x	1.9x
Total		21,272	26,363	28,339	29,423	2.56	5.2%	5.3%	5.5%	1.0x	1.7x	1.8x	1.7x
ENI		9,256	13,078	12,195	13,554	0.83	5.8%	5.8%	5.8%	0.2x	1.5x	1.6x	1.9x
Equinor		14,906	18,293	16,421	18,040	0.92	4.4%	3.8%	3.8%	1.9x	2.7x	1.8x	2.0x
Repsol		4,686	5,274	6,295	7,258	0.95	5.8%	6.3%	6.6%	2.0x	1.4x	1.1x	1.5x
OMV		3,872	4,240	4,424	4,595	1.60	2.8%	3.6%	3.9%	3.4x	3.4x	2.8x	2.7x
Galp		1,629	1,874	1,886	2,138	0.55	3.4%	3.8%	4.1%	1.3x	1.7x	2.1x	2.3x
Sector (\$)		110,887	145,013	150,409	161,779		5.5%	5.6%	5.7%	1.2x	1.8x	1.8x	1.9x
		FCF Yield				DACF/sh growth				ROACE			
		2017	2018E	2019E	2020E	2017	2018E	2019E	2020E	2017	2018E	2019E	2020E
Shell		4.1%	7.0%	10.4%	10.5%	37%	27%	1%	10%	6%	8%	10%	11%
BP		5.5%	6.3%	10.8%	11.7%	64%	27%	6%	6%	5%	9%	8%	9%
Total		5.3%	8.8%	9.9%	9.4%	18%	21%	7%	4%	8%	10%	10%	10%
ENI		2.9%	9.2%	9.1%	10.8%	44%	55%	-9%	11%	4%	8%	7%	8%
Equinor		5.6%	9.4%	6.8%	7.5%	37%	20%	-10%	10%	8%	12%	10%	11%
Repsol		6.5%	3.7%	6.9%	9.8%	11%	0%	18%	14%	6%	7%	8%	9%
OMV		10.7%	14.6%	14.5%	14.4%	12%	8%	5%	4%	10%	10%	10%	10%
Galp		4.2%	6.6%	7.8%	10.3%	30%	4%	18%	12%	7%	10%	10%	12%
Sector		5.0%	7.8%	9.8%	10.3%	36%	26%	2%	8%	7%	9%	9%	10%
		Production (kboe/d)				Prodn growth y/y				Capex (Rep ccy)			
		2017	2018E	2019E	2020E	2017	2018E	2019E	2020E	2017	2018E	2019E	2020E
Shell		3,665	3,679	3,708	3,820	-0.1%	0.4%	0.8%	3.0%	21,440	22,006	21,500	25,000
BP		3,595	3,695	4,040	4,221	9.9%	2.8%	9.3%	4.5%	16,983	15,847	16,300	17,000
Total		2,569	2,775	2,977	3,124	6.0%	8.0%	7.3%	5.0%	15,135	13,135	14,000	16,000
ENI		1,816	1,870	1,987	2,093	3.2%	3.0%	6.2%	5.4%	8,677	8,545	7,500	8,000
Equinor		1,918	1,945	2,018	2,149	4.9%	1.4%	3.7%	6.5%	10,755	11,005	11,000	12,000
Repsol		695	716	737	777	1.1%	3.1%	3.0%	5.4%	3,043	3,300	4,700	5,000
OMV		348	427	501	516	11.9%	22.6%	17.4%	2.9%	1,586	1,900	2,350	2,525
Galp		92	106	127	144	41.0%	15.5%	19.7%	13.7%	1,008	991	1,047	936
Sector (\$)		14,698	15,213	16,094	16,845	5.1%	3.7%	5.9%	4.7%	80,774	78,940	80,737	88,930
		Net debt (Rep ccy)				ND/E				ND/CE			
		2017	2018E	2019E	2020E	2017	2018E	2019E	2020E	2017	2018E	2019E	2020E
Shell		65,353	55,719	51,272	52,102	33%	28%	25%	25%	25%	22%	20%	20%
BP		37,819	46,038	46,185	39,559	38%	44%	43%	35%	27%	30%	30%	26%
Total		17,018	26,604	21,789	18,198	15%	22%	18%	14%	13%	18%	15%	12%
ENI		10,916	7,025	5,201	2,636	23%	13%	10%	5%	18%	12%	9%	5%
Equinor		16,453	15,406	13,586	10,313	41%	36%	30%	21%	29%	26%	23%	17%
Repsol		7,614	4,554	4,410	3,680	26%	15%	14%	11%	20%	13%	12%	10%
OMV		3,121	3,192	3,125	1,824	24%	22%	20%	10%	19%	18%	16%	9%
Galp		1,583	1,691	1,309	646	26%	26%	19%	9%	21%	21%	16%	8%
Sector (\$)		163,362	162,700	148,984	130,274	32%	31%	29%	25%	24%	23%	22%	20%

"Notes: 1) BP – Cash outflows related to future Macondo commitments are included in CFFO ex-WC, net debt, gearing estimates. They are excluded from all other metrics; 2) Shell – capex estimates stated on cash basis, excluding c. \$2-3bn financial leases; 3) Total, OMV – gearing estimates treat hybrid bonds as 50/50 debt/equity". Prices as of COB 28-Nov-18.

Table 7: Global Valuation Sheet (Brent: 2018E: \$72/bbl; 2019E \$65/bbl; 2020E \$65/bbl; 2021E+ \$60/bbl for the EU stocks)

J.P.Morgan Oils - Global Valuation Comps																											Close prices: 28/11/2018						
Integrateds and Refiners																																	
Lead Analyst	Local Price	Rep Ccy	JPM Rating	PT	Upside to PT	Mkt Cap US\$bn	Adj EPS (rep ccy)			P/E			EV/DACF			FCF Yield			Div Yield		P/BV		Gearing (ND/CE)		Net debt/CFFO		ROACE			Production Growth y/y			
							2017E	2018E	2019E	2017E	2018E	2019E	2017E	2018E	2019E	2017E	2018E	2019E	2017E	2018E	2017E	2018E	2017E	2018E	2017E	2018E	2017E	2018E	2019E	2017E	2018E	2019E	
Majors																																	
BP	Christyan F Malek	523.6	USD	OW	575	10%	133.8	0.31	0.63	0.60	21.5x	10.7x	11.3x	7.2x	5.9x	5.5x	5.4%	6.7%	10.9%	6.0%	6.1%	1.3x	1.3x	28%	32%	2.0x	2.1x	5.5%	9.8%	8.7%	9.9%	2.8%	9.3%
Chevron	Phil Gresh, CFA	118.1	USD	OW	148.0	25%	226.5	3.47	8.29	11.00	34.1x	14.2x	10.7x	12.5x	7.8x	6.4x	3.3%	8.0%	10.5%	3.7%	3.8%	1.5x	1.5x	18%	12%	1.6x	0.7x	3.8%	8.2%	11.2%	5.2%	6.7%	6.7%
ExxonMobil	Phil Gresh, CFA	78.5	USD	N	97.0	24%	335.4	3.54	4.83	5.85	22.2x	16.2x	13.4x	12.2x	9.6x	7.9x	5.5%	7.1%	7.1%	3.9%	4.1%	1.8x	1.7x	18%	14%	1.3x	0.8x	7.6%	8.4%	10.2%	-1.7%	-3.7%	0.9%
RD Shell	Christyan F Malek	2,383	USD	OW	2,800	17%	253.7	1.90	2.60	3.05	16.1x	11.8x	10.0x	8.2x	6.3x	6.2x	4.2%	7.4%	10.6%	6.3%	6.2%	1.3x	1.3x	25%	22%	2.0x	1.4x	5.6%	7.5%	8.9%	-0.1%	0.4%	0.8%
Total	Christyan F Malek	48.2	USD	N	49.0	2%	137.5	4.24	5.39	5.44	13.2x	12.8x	13.4x	7.7x	6.7x	7.5x	-1.4%	5.3%	2.6%	5.8%	5.2%	1.2x	1.2x	13%	18%	0.8x	1.2x	9.0%	11.5%	11.0%	6.0%	8.0%	7.3%
Majors Average						18%	1,086.6				22.0x	13.6x	11.8x	10.2x	7.6x	6.9x	3.8%	7.1%	8.5%	4.9%	4.9%	1.5x	1.4x	20%	18%	1.6x	1.1x	6.3%	8.7%	10.0%	3.3%	2.1%	4.8%
Midcap Integrateds																																	
Cenovus Energy	Phil Gresh, CFA	9.2	CAD	OW	17.0	85%	8.5	0.17	-1.10	1.00	53.9x	nm	9.2x	5.4x	7.6x	4.6x	19.7%	13.0%	20.9%	2.2%	2.2%	0.5x	0.6x	41%	29%	2.9x	3.9x	15.3%	-7.6%	6.2%	73.2%	4.7%	-2.6%
ENI	Christyan F Malek	14.2	EUR	UW	13.5	-5%	57.9	0.67	1.26	1.12	21.1x	11.3x	12.7x	6.9x	4.2x	4.4x	3.1%	9.9%	9.3%	5.7%	5.9%	1.1x	1.0x	17%	12%	1.1x	0.5x	4.0%	8.2%	6.9%	3.2%	3.0%	6.2%
Galp	Matthew Lofting, CFA	14.3	EUR	N	15.5	9%	13.5	0.73	0.91	0.96	19.7x	15.8x	14.9x	8.4x	8.3x	6.8x	5.2%	7.5%	7.1%	3.9%	3.9%	1.9x	1.8x	23%	21%	1.2x	1.1x	6.8%	9.5%	9.9%	41.0%	15.5%	19.7%
Husky Energy	Phil Gresh, CFA	15.6	CAD	N	25.0	60%	11.8	0.45	1.68	2.05	34.9x	9.3x	7.6x	na	na	na	12.3%	5.2%	9.5%	0.0%	2.6%	0.0x	0.0x	14%	13%	0.8x	0.6x	2.9%	8.8%	10.7%	na	na	na
Imperial Oil	Phil Gresh, CFA	41.1	CAD	UW	51.0	24%	24.7	1.07	3.05	5.00	38.4x	13.5x	8.2x	13.1x	7.8x	5.8x	5.8%	9.5%	11.9%	1.5%	1.8%	1.4x	1.4x	14%	12%	1.5x	0.8x	3.3%	9.0%	13.9%	-2.7%	1.8%	11.4%
OMV	Matthew Lofting, CFA	44.6	EUR	OW	50.0	12%	16.5	4.98	5.07	5.53	9.0x	8.8x	8.1x	4.6x	4.3x	4.0x	14.1%	15.7%	15.5%	3.4%	3.6%	1.3x	1.2x	19%	16%	0.6x	0.6x	16.3%	15.6%	14.8%	11.9%	22.6%	17.4%
Repsol	Matthew Lofting, CFA	14.8	EUR	OW	17.5	18%	25.5	1.63	1.58	1.81	9.1x	9.4x	8.2x	5.2x	4.5x	3.9x	7.9%	4.7%	7.8%	6.1%	6.4%	0.8x	0.7x	20%	12%	1.7x	1.1x	6.4%	7.5%	8.2%	1.1%	3.1%	3.0%
Equinor	Christyan F Malek	199	USD	UW	190	-5%	75.7	1.32	2.00	1.77	17.7x	11.6x	13.1x	6.2x	5.0x	5.4x	4.8%	10.0%	7.0%	3.8%	4.0%	1.9x	1.8x	30%	27%	1.1x	0.8x	8.0%	12.0%	10.4%	4.9%	1.4%	3.7%
Suncor Energy	Phil Gresh, CFA	43.2	CAD	N	59.0	36%	52.9	1.92	3.25	4.10	22.5x	13.3x	10.5x	8.7x	7.2x	6.3x	4.1%	7.7%	10.0%	3.0%	3.3%	1.6x	1.5x	22%	23%	1.4x	1.2x	5.4%	9.0%	10.8%	10.0%	8.6%	9.5%
Midcap Integrateds Average						14%	287.1				21.7x	11.4x	11.1x	7.3x	5.6x	5.2x	6.0%	9.1%	9.5%	3.8%	4.1%	1.4x	1.3x	22%	19%	1.3x	0.9x	6.6%	9.4%	10.0%	7.7%	3.4%	5.3%
Asia & Emerging Mkt Integrateds																																	
CNOOC	Scott L Darling	12.8	CNY	OW	14.5	13%	73.1	0.55	1.35	1.07	20.6x	8.4x	10.6x	5.5x	4.0x	4.0x	6.9%	10.5%	7.8%	4.4%	5.3%	1.3x	1.3x	6%	1%	0.3x	0.0x	4.8%	11.7%	9.3%	0.7%	0.0%	4.1%
Ecopetrol	Rodolfo Angele, CFA	19.0	USD	UW	15.0	-21%	39.0	1.13	2.32	2.13	16.8x	8.2x	8.9x	na	na	na	6.1%	12.4%	11.0%	1.3%	3.8%	2.4x	2.0x	38%	31%	3.0x	1.4x	8.9%	16.6%	14.1%	-0.4%	0.4%	0.0%
Gazprom	Alex Comer	5.0	USD	N	5.1	3%	58.8	1.03	1.69	1.34	4.8x	2.9x	3.7x	na	na	na	-7.0%	-3.5%	3.1%	5.4%	5.3%	0.3x	0.3x	18%	17%	2.0x	1.6x	4.9%	7.5%	5.6%	10.4%	2.0%	-1.6%
Inpex	Scott L Darling	1,170	JPY	OW	1,328	13%	15.0	31.6	27.6	56.0	37.0x	42.3x	20.9x	6.3x	7.7x	11.6x	-0.1%	0.4%	0.7%	1.5%	1.5%	0.7x	0.7x	1%	12%	0.1x	1.5x	-0.8%	-0.4%	3.1%	1.2%	0.5%	0.0%
Lukoil	Alex Comer	70.2	RUB	OW	92.0	31%	49.9	589.14	897.89	931.03	8.0x	5.2x	5.1x	na	na	na	6.4%	9.5%	15.0%	4.6%	5.2%	1.0x	0.8x	7%	3%	0.4x	0.1x	10.1%	15.1%	14.3%	-0.7%	2.7%	1.8%
ONGC	Pinakin Parekh, CFA	143	INR	OW	250	75%	25.9	22.73	20.31	26.41	6.3x	7.0x	5.4x	na	na	na	11.9%	-13.6%	18.2%	4.2%	4.6%	0.9x	0.9x	0%	12%	0.0x	1.5x	8.7%	7.8%	9.7%	na	na	na
Petrobras	Rodolfo Angele, CFA	14.4	USD	OW	18.5	29%	93.9	-0.05	1.61	2.00	nm	9.0x	7.2x	4.7x	3.9x	3.3x	-4.3%	15.2%	12.1%	0.0%	2.7%	1.2x	1.3x	44%	42%	4.4x	2.6x	-6.6%	7.1%	10.1%	-1.0%	-5.5%	14.0%
PetroChina	Scott L Darling	5.4	CNY	OW	6.6	22%	190.7	0.12	0.36	0.38	38.7x	13.2x	12.6x	6.1x	6.1x	6.0x	10.1%	8.9%	7.2%	2.7%	4.9%	0.7x	0.7x	20%	19%	1.3x	1.1x	2.8%	6.4%	5.5%	1.6%	1.1%	1.1%
PTT	Ajay Mirchandani	49	THB	N	55	12%	42.8	4.7	4.9	4.85	10.4x	10.1x	10.1x	5.0x	5.1x	4.6x	15.3%	7.8%	11.1%	4.1%	4.4%	1.7x	1.6x	10%	7%	0.4x	0.3x	14.4%	14.0%	12.7%	na	na	na
PTTEP	Ajay Mirchandani	129.0	THB	OW	180.0	40%	15.6	5.18	11.94	12.91	24.9x	10.8x	10.0x	5.1x	4.4x	3.9x	9.5%	4.6%	11.1%	3.3%	4.3%	1.4x	1.3x	-11%	-12%	-0.6x	-0.5x	9.2%	11.7%	11.8%	-6.4%	5.5%	0.4%
Reliance	Pinakin Parekh, CFA	1,153	INR	N	1,100	-5%	96.5	50.5	60.9	69.1	22.8x	18.9x	16.7x	na	na	na	-10.9%	-2.6%	-7.4%	0.5%	0.5%	2.6x	2.3x	42%	40%	4.9x	3.7x	4.8%	5.7%	7.0%	na	na	na
Rosneft	Nikita Blokhin	6.2	USD	N	6.3	2%	65.7	0.51	0.69	0.77	12.1x	9.0x	8.0x	na	na	na	4.5%	11.0%	10.2%	3.9%	5.4%	0.9x	0.8x	52%	44%	4.9x	3.6x	6.4%	6.6%	6.9%	7.5%	9.7%	3.4%
Sinopec	Scott L Darling	6.6	CNY	OW	7.8	18%	101.6	0.42	0.61	0.58	13.8x	9.5x	10.0x	4.3x	3.3x	4.2x	9.6%	12.5%	12.2%	8.5%	8.9%	1.0x	1.0x	7%	4%	0.3x	0.2x	6.4%	9.0%	8.2%	3.5%	1.3%	1.4%
YPF	Rodolfo Angele, CFA	14.9	USD	OW	20.0	34%	5.9	1.47	2.44	-0.08	10.1x	6.1x	nm	na	na	na	12.8%	8.3%	20.0%	0.7%	0.0%	0.7x	0.5x	46%	44%	2.8x	5.8x	1.0%	2.5%	1.5%	-3.8%	-2.5%	-2.5%
Asia & Emerging Mkt Integrateds Average						15%	927.7				20.8x	11.0x	10.1x	5.3x	4.7x	4.9x	3.8%	7.0%	7.4%	3.2%	4.3%	1.6x	1.4x	23%	20%	2.0x	1.5x	5.1%	9.0%	8.4%	4.6%	2.6%	2.2%
Global Refiners																																	
Bharat Petroleum	Pinakin Parekh, CFA	320	INR	OW	440	37%	9.8	37.1	36.5	28.8	8.6x	8.8x	11.1x	na	na	na	-2.4%	3.8%	3.6%	6.8%	6.8%	2.3x	2.0x	25%	19%	1.3x	0.8x	20.9%	18.3%	11.5%	na	na	na
Hindustan Pet.	Pinakin Parekh, CFA	239	INR	UW	220	-8%	5.1	41	42	26	5.9x	5.7x	9.1x	na	na	na	32.1%	10.6%	-2.9%	7.0%	7.1%	1.8x	1.5x	26%	20%	0.6x	0.8x	15.1%	13.2%	7.7%	na	na	na
Holly Frontier	Phil Gresh, CFA	61.8	USD	UW	79.0	28%	11.0	2.33	5.96	7.25	26.6x	10.4x	8.5x	12.5x	7.3x	6.8x	6.9%	11.5%	13.6%	2.1%	2.1%	2.0x	1.8x	29%	18%	2.0x	0.8x	8.2%	16.5%	18.3%	na	na	na
India Oil Corp	Pinakin Parekh, CFA	134	INR	OW	200	49%	18.4	19.7	22.0	15.5	6.8x	6.1x	8.7x	na	na	na	22.1%	3.8%	1.2%	8.1%	7.3%	1.3x	1.2x	8%	9%	0.3x	0.7x	13.0%	15.3%	10.3%	na	na	na
Marathon Pet.	Phil Gresh, CFA	65.3	USD	OW	101.0	55%	30.3	3.94	5.57	7.20	16.6x	11.7x	9.1x	6.5x	10.4x	6.1x	12.6%	8.6%	12.4%	2.3%	2.8%	2.4x	1.0x	42%	59%	1.5x	4.1x	11.9%	10.9%	11.6%	na	na	na
Neste	Matthew Lofting, CFA	70.3	EUR	N	68.0	-3%	20.4	3.33	4.17	4.27	21.1x	16.9x	16.5x	15.3x	14.3x	11.4x	3.8%	4.8%	6.2%	2.4%	3.0%	4.1x	4.0x	8%	4%	0.4x	0.2x	17.1%	20.2%	18.9%	na	na	na
Phillips 66	Phil Gresh, CFA	92.6	USD	OW	138.0	49%	43.5	4.39	9.30	10.70	21.1x	10.0x	8.7x	11.8x	8.6x	7.2x	4.4%	8.4%	9.8%	2.9%	3.3%	1.9x	1.8x	23%	30%	1.9x	1.7x	5.3%	14.3%	15.0%	na	na	na
Sinopac Shanghai	Scott L Darling	3	CNY	OW	6.0	71%	6.8	0.57	0.56	0.57	5.5x	5.6x	5.5x	na	na	na	17.6%	14.1%	15.5%	9.6%	10.2%	1.2x	1.2x	-25%	-27%	-1.0x	-1.3x	18.5%	17.9%	17.3%	na	na	na
SK Innovation	Parsley Rui Hua Ong	196,500	KRW	OW	222,000	13%	16.0	26,470	24,621	25,544	7.4x	5.8x	7.7x	na	na	na	7.0%	-2.1%	8.8%	4.1%	4.6%	1.0x	0.9x	0%	10%	0.0x	1.0x	10.8%	10.0%	9.7%	na	na	na
S-Oil	Parsley Rui Hua Ong	106,000	KRW	OW	140,000	32%	10.6	10,707	10,080	16,358	9.9x	10.5x	6.5x	na	na	na	-10.2%	-3.3%	14.2%	5.6%	5.2%	1.7x	1.6x	23%	31%	2.3x	2.5x	10.9%	9.8%	15.1%	na	na	na
Trial Oil	Ajay Mirchandani	75.0	THB	OW	100.0	33%	4.7	12.18	10.58	9.17	6.2x	7.1x	8.2x	4.4x	3.3x	5.0x	21.1%	24.8%	-2.9%	7.0%	6.1%												

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