

CORNERSTONE MACRO

Economics, Policy, Strategy & Technicals

NEW YORK ENERGY FORUM

Global Energy: Oil, Geopolitics and the Great Energy Transition

Oil skews bullish with more upside risk underscoring its relevance

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KEY POINTS

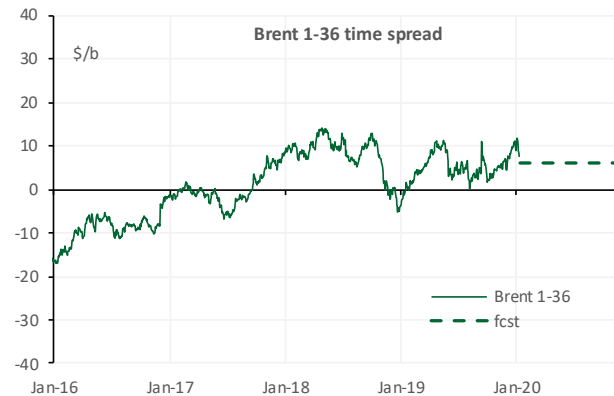
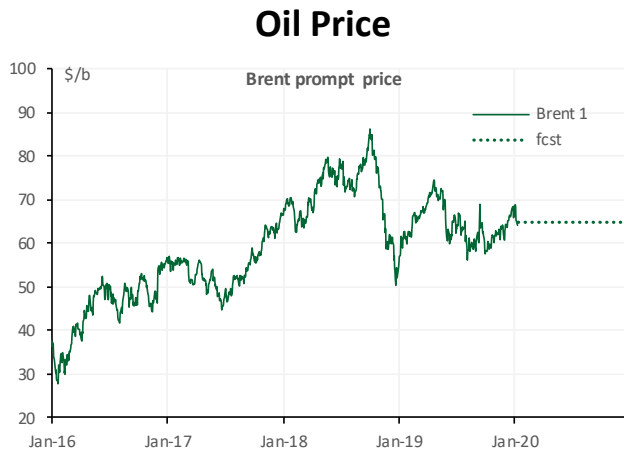
Fundamentals support oil prices around \$65/b Brent (and \$61/WTI)

- Demand is OK – especially given our macro view. For now we worry most about instability
 - This year features upside risk, last year's bearishness has receded
- As an industry, the US Shale could be maturing – its growth is slowing, though far from over
- Nopexus growth is priced in – and lumped into H1-2020 – morphs into modest decline in 2021
- Opec+ management was inefficient and has now become more cumbersome

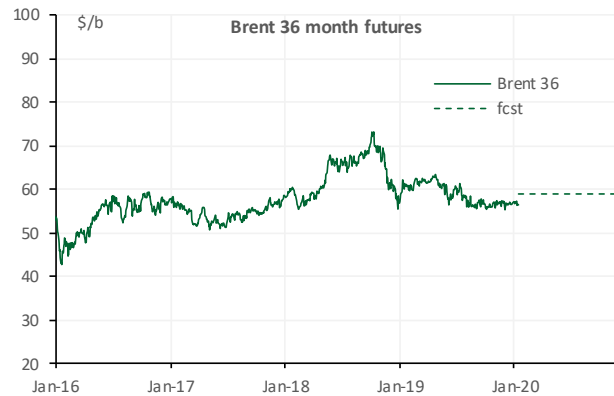
Geopolitics = price-spike risk, lasting upside requires a lasting issue

- Iran is unlikely to confront US militarily ... more likely to up the ante economically to gain leverage through America's oil-importing allies (China, Japan & EU) – negotiated end-game
 - South Iraq, Kuwait, SA, UAE, Qatar all have critical oil installations – some also have LNG
- Libya and Venezuela simmer in the background (as do large parts of west Africa)
- On the Demand side US v China (and possibly EU), US elections, Russia's meddling

OIL PRICE FORECAST: SHORT TERM S&D AND LONGER TERM BEP



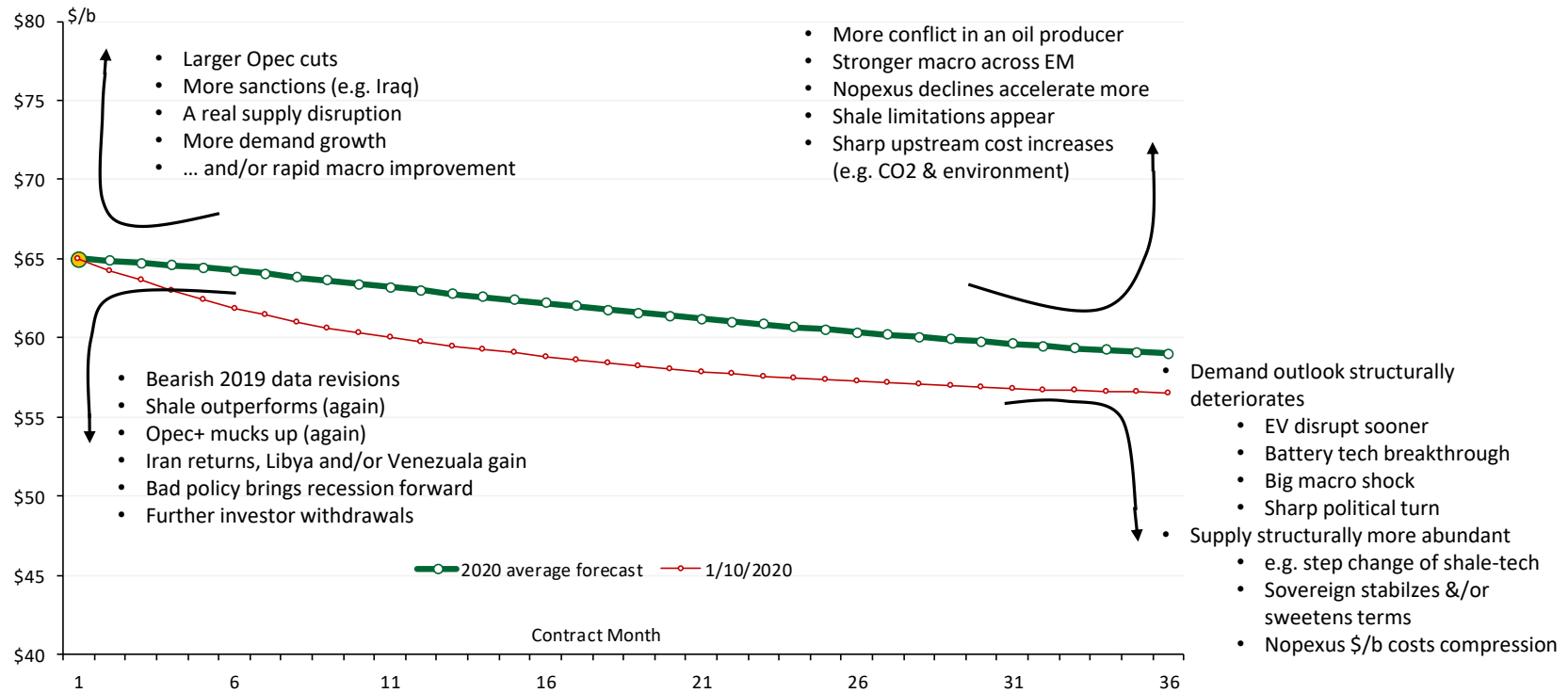
Curve Structure
(Short Term
Fundamentals)



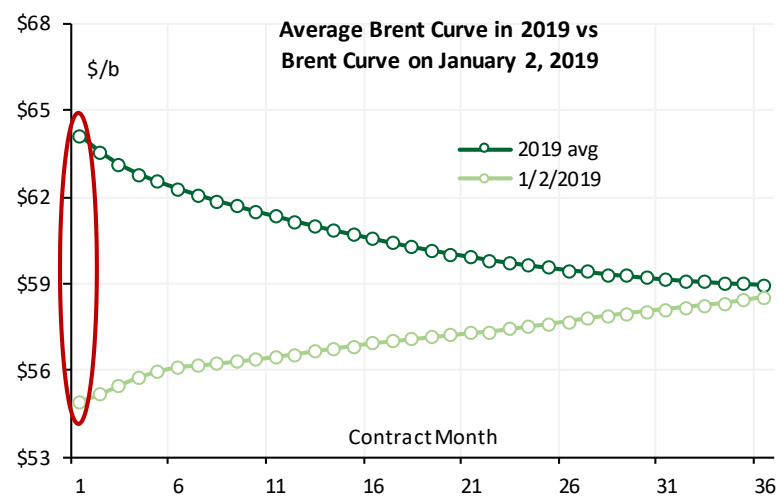
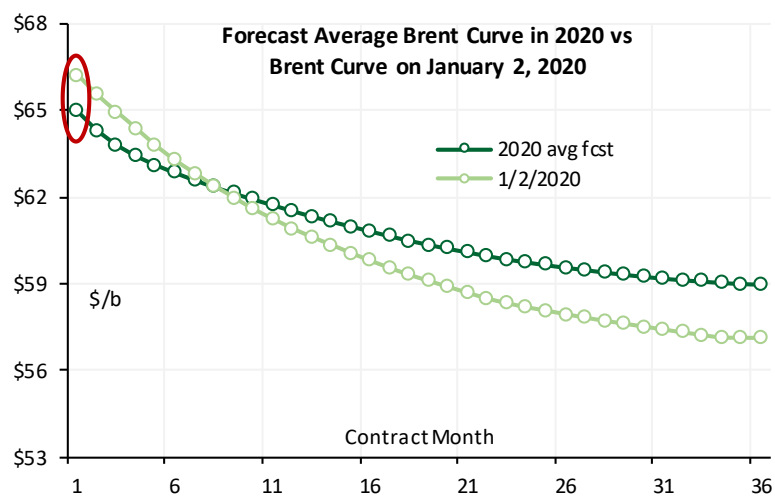
Long Dated Futures
(Long Term
Fundamentals)

RISKS AROUND OUR FORECAST AND WHERE THEY FIT ON THE CURVE

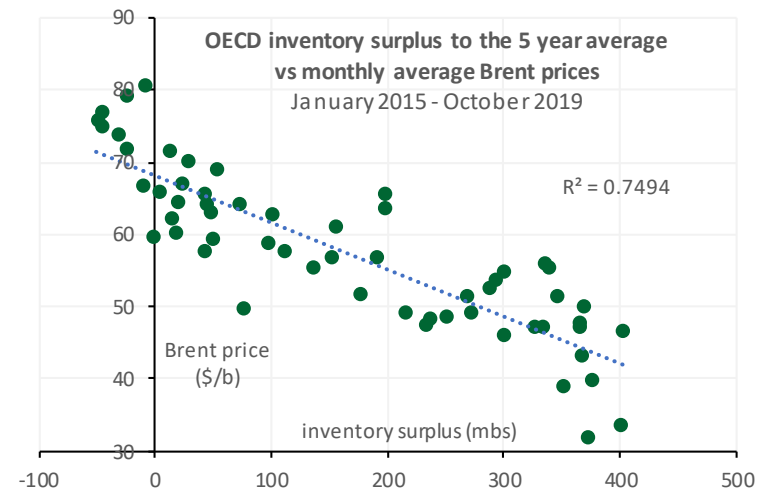
Scenario Elements and Where on the Brent Curve They Exert Pressure



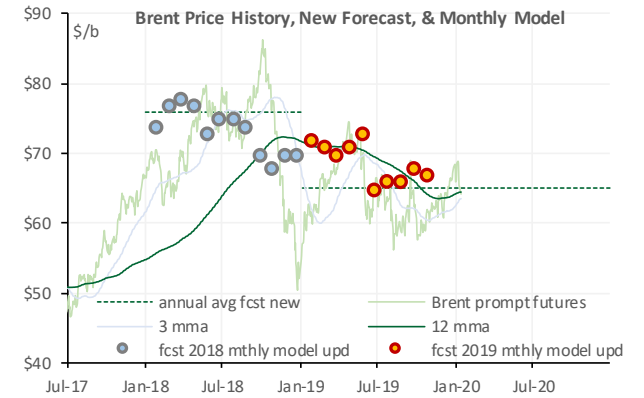
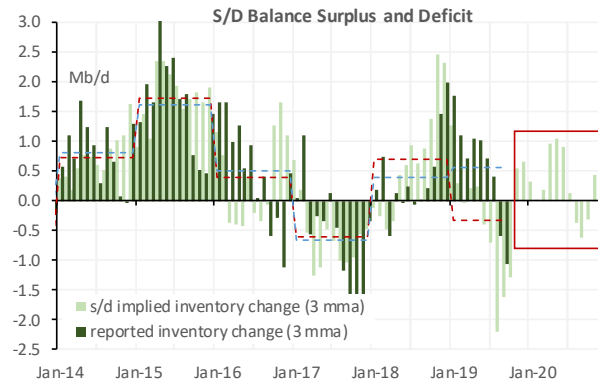
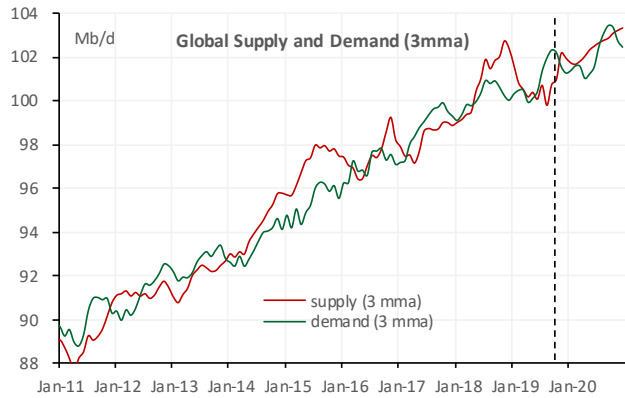
OIL PRICES: 2020 OFF TO A BETTER START



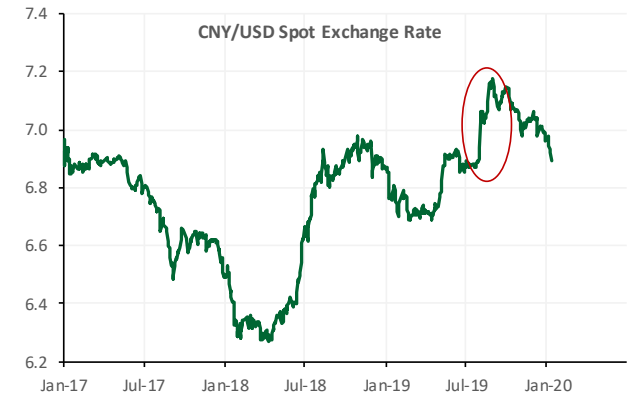
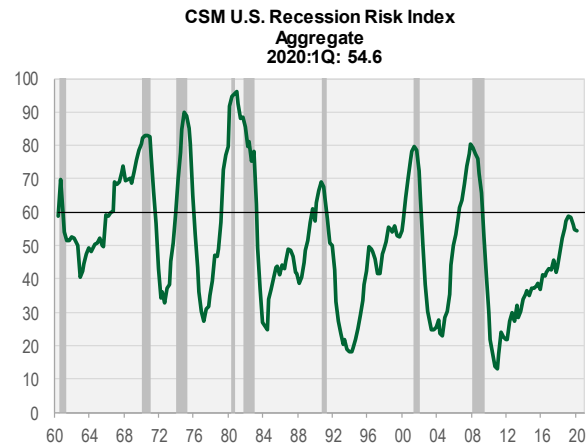
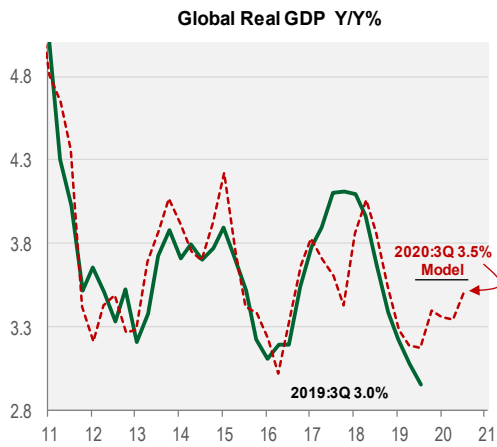
INVENTORY DEMAND COVER DRIVES CURVE SHAPE; OECD INVENTORIES ARE ALSO CORRELATED WITH OIL PRICES



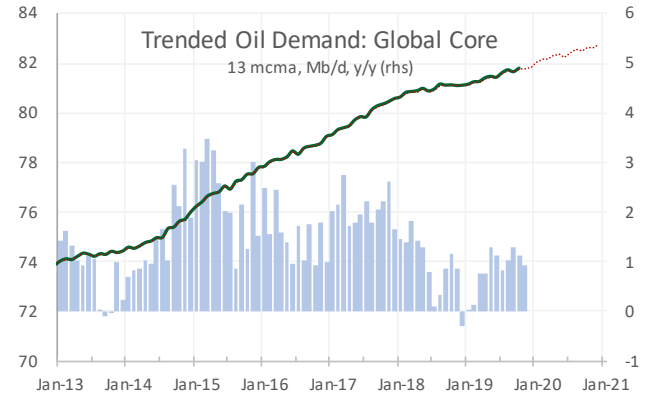
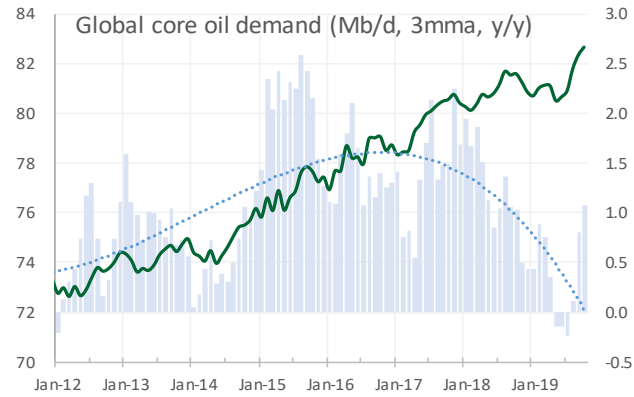
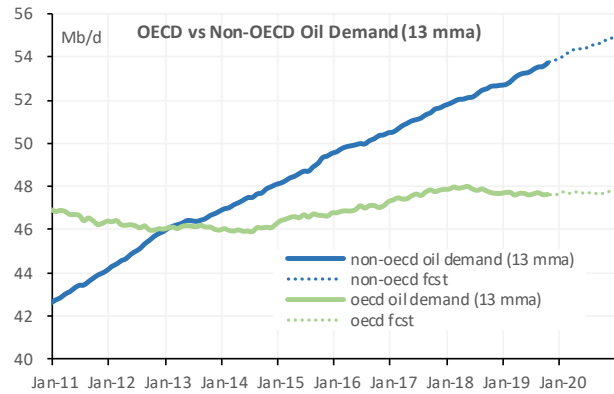
DETAILED DATA WORK TO GET TO BALANCES THAT BALANCE



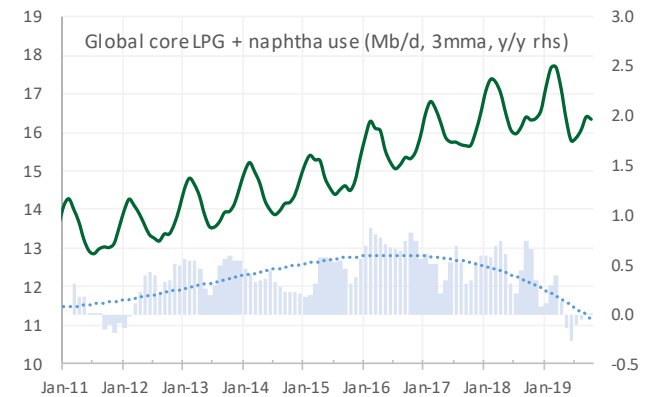
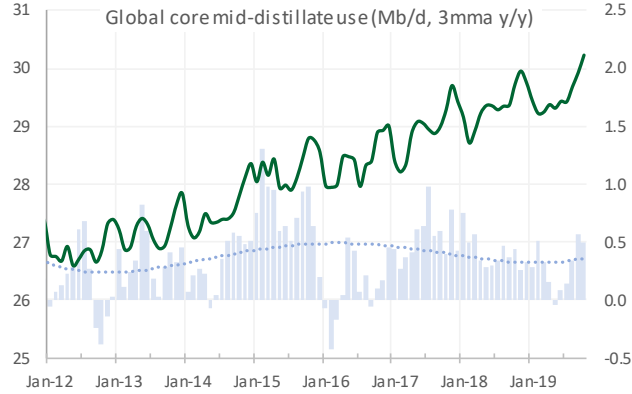
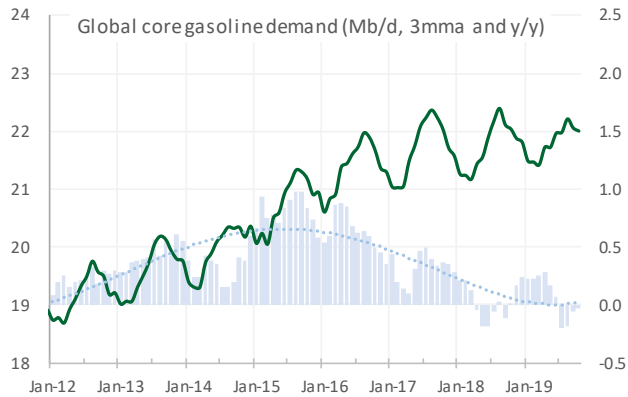
BETTER SETUP FOR 2020 DEMAND



DEMAND DATA: THE NUMBERS AT THE CORE BEGAN TO IMPROVE



DEMAND DATA: REAL QUESTIONS WITH FUZZY ANSWERS



NEW MARITIME-FUEL STANDARDS AND THEIR LIKELY IMPACT

OUR BASE-CASE (LEFT) SHOULD BE ENTIRELY MANAGEABLE; RECESSION CASE EVEN MORE SO (RIGHT)

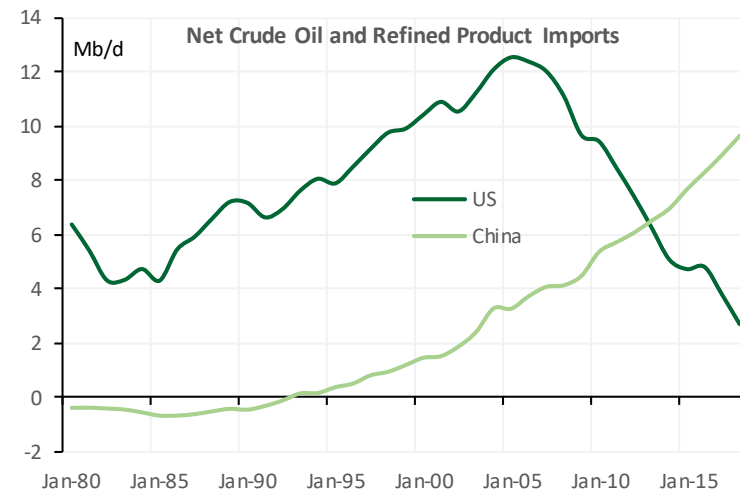
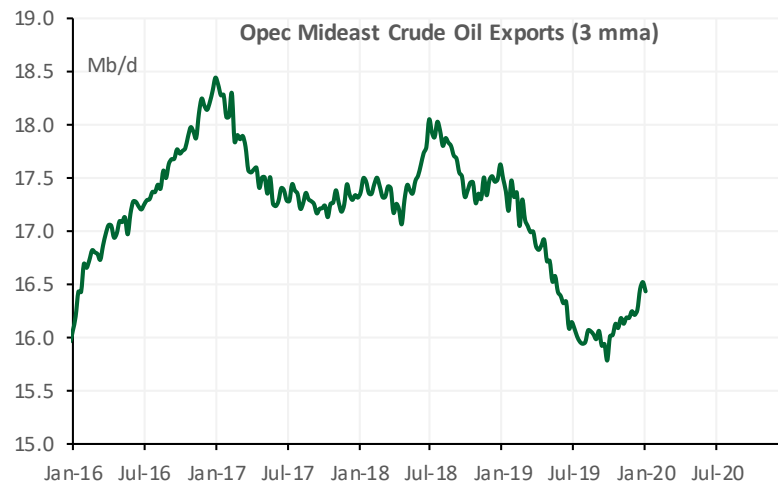
IMO impact on Mid-Dist margins in 2020 in a healthy macro world			
	base case (~50%)	high (~20%)	low (~30%)
IMO intro raises gasoil demand	900	1050	800
new refiner gasoil supply	807	807	807
fcst other demand growth	332	332	332
net-new gasoil supply*	684	684	684
IMO tightens mdist balance by:	216	366	116
CSM estimated mdist margin*	\$ 16	\$ 19	\$ 14

* including ~210 kb/d of est. 2019 net new supply carry fwd

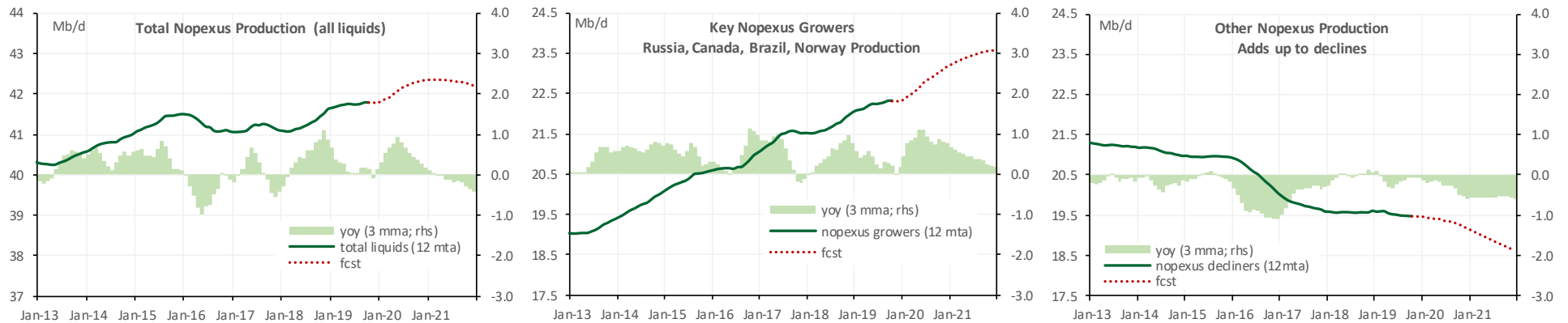
IMO impact on margins in 2020 with EM recession starting in 2019			
	base case (~50%)	high (~20%)	low (~30%)
IMO intro raises gasoil demand	900	1050	800
new refiner gasoil supply	807	807	807
fcst other demand growth	158	158	158
net-new gasoil supply*	985	985	985
IMO tightens mdist balance by:	-85	65	-185
CSM estimated mdist margin*	\$ 13	\$ 15	\$ 10

* including ~340 kb/d of est. 2019 net new supply carry fwd

WHITE HOUSE AND OPEC+ POLICY SWING MIDEAST EXPORTS; CHINA AND US SHOW DIVERGING FOREIGN OIL DEPENDENCE

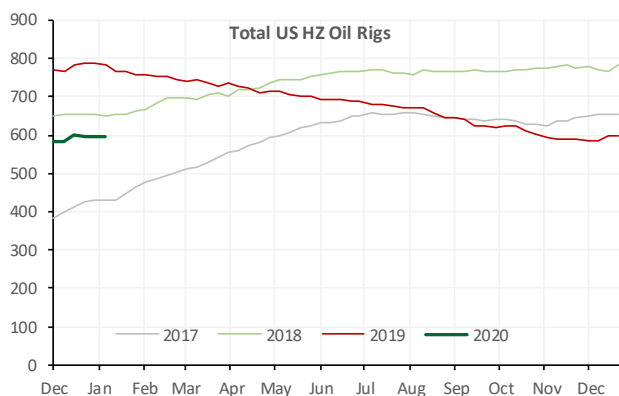


NON-OPEC EX US (NOPEXUS) TIPS INTO DECLINE AFTER 2020

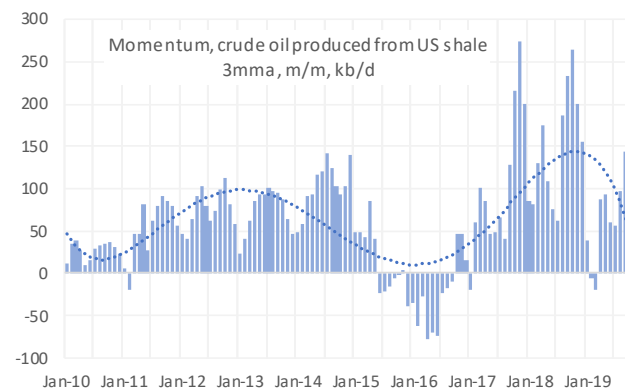


ABOUT TO CHANGE: HAS THE SHALE INDUSTRY LEARNED TO BEHAVE ...

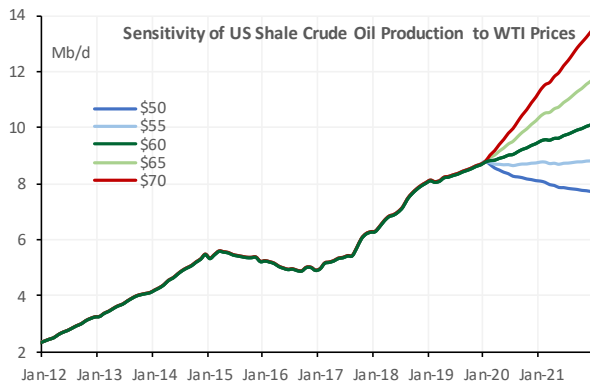
Back in late 2017, captains of the shale industry's vowed that they'd become disciples of the church of "Capital Discipline". While they keep repeating the mantras, we beg to remain skeptical. This year's earnings seasons shed some more light on things. *Turns out that ~\$57WTI is not enough to deliver growth AND returns.* Now What?



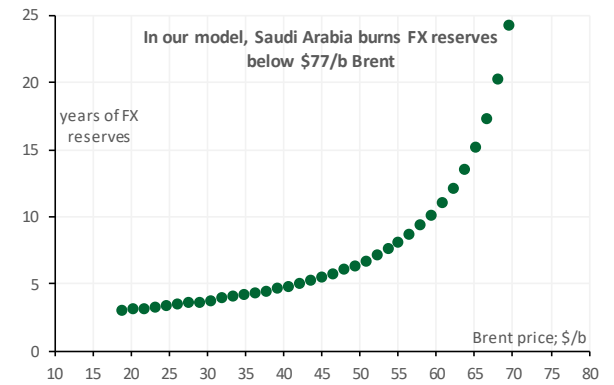
Growth Scenarios	Shale Crude Oil + NGLs				Shale Crude Oil			
	Y/Y Growth (kb/d)		Q4/Q4 Growth (kb/d)		Y/Y Growth (kb/d)		Q4/Q4 Growth (kb/d)	
	2020	2021	2020	2021	2020	2021	2020	2021
\$50	40	-700	-630	-560	10	-500	-490	-390
\$55	470	30	150	50	350	50	120	70
\$60	940	920	990	840	720	720	770	680
\$65	1,470	1,910	1,900	1,820	1,130	1,500	1,480	1,440
\$70	2,010	3,110	2,880	3,030	1,560	2,410	2,250	2,350



TENSION: SHALE GROWS TOO FAST AT PRICES SAUDI REQUIRES



sensitivity of 5 year global oil balance to shale production growth					
global stock change (Mb/d) running shale model at various WTI prices					
	2019	2020	2021	2022	2023
\$50	-0.3	0.0	-0.8	-0.7	-1.3
\$55	-0.3	0.2	-0.5	-0.1	-0.6
\$60	-0.3	0.3	-0.1	0.5	0.2
\$65	-0.3	0.4	0.4	1.2	1.2
\$70	-0.3	0.6	0.8	2.0	2.2
\$75	-0.3	0.7	1.3	2.6	2.8

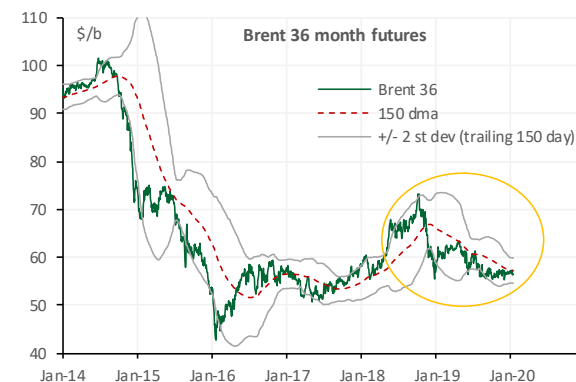
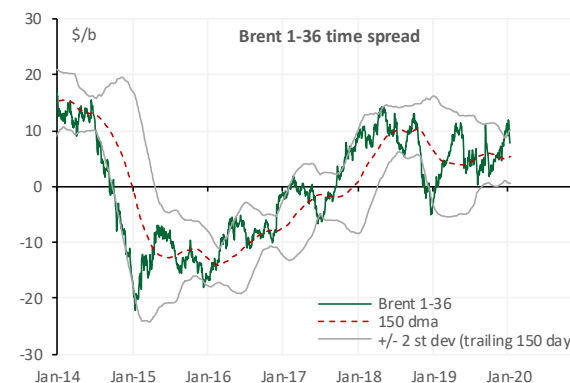


OUR OIL PRICE FORECASTS – RISKS TO WHICH SKEW HIGHER

components of our price forecast (\$/b)	Dec '18 fcst		Feb '19 fcst		Aug '19 fcst		actual 2019
	2019	2020	2019	2020	2019	2020	
Brent 1-36 backwardation	\$11	\$7	\$11	\$7	\$6	\$6	\$5
Brent 36 month futures	\$62	\$65	\$62	\$65	\$59	\$59	\$59
Brent prompt price	\$73	\$72	\$73	\$72	\$65	\$65	\$64
Houston - Brent	-\$3	-\$3	-\$3	-\$3	-\$3	-\$2	-\$2
WTI Cushing - Houston	-\$8	-\$5	-\$4	-\$2	-\$5	-\$2	-\$5
WTI Cushing - Brent	-\$11	-\$8	-\$7	-\$5	-\$7	-\$4	-\$7
WTI Cushing prompt price	\$63	\$65	\$66	\$67	\$58	\$61	\$57
WTI Midland - Houston	-\$12	-\$3	-\$6	-\$2	-\$7	-\$2	-\$6
WTI Midland - WTI Cushing	-\$5	\$2	-\$2	\$0	-\$2	\$0	-\$1

Supply	CSM			y/y	y/y	y/y
	2018	2019	2020			
Mb/d	2018	2019	2020	2018	2019	2020
Global	101.0	100.8	102.5	2.75	-0.15	1.69
Non-OPEC *	63.2	65.1	67.1	2.75	1.96	1.98
US	16.6	18.3	19.7	2.26	1.69	1.38
Crude oil	11.0	12.2	13.1	1.64	1.23	0.88
Nopexus	43.9	44.1	44.7	0.47	0.24	0.58
Opec	37.8	35.7	35.4	0.00	-2.11	-0.29
Opec Crude Oil	32.3	30.4	30.1	0.07	-1.96	-0.22
Implied Stock Change	0.8	-0.3	0.3			
Demand	2018	2019	2020	2018	2019	2020
Global	100.1	101.1	102.2	1.30	0.94	1.13
OECD	47.8	47.6	47.6	0.23	-0.20	0.05
of which US	20.5	20.5	20.6	0.54	0.02	0.07
Non-OECD	52.4	53.5	54.6	1.07	1.14	1.08
China	13.5	14.0	14.3	0.57	0.51	0.34

\$/b	annual crude prices			Diff
	Brent	WTI		
2005	55	57		1
2006	66	66		0
2007	73	72		0
2008	99	100		1
2009	63	62		-1
2010	80	80		-1
2011	111	95		-16
2012	112	94		-18
2013	109	98		-11
2014	99	93		-7
2015	54	49		-5
2016	45	43		-2
2017	55	51		-4
2018	72	65		-7
2019	64	57		-7
2020e	65	61		-4



WE WATCH: CURVE STRUCTURE, US DATA, MACRO-RISK (POSITIONING)

