

The Crude State



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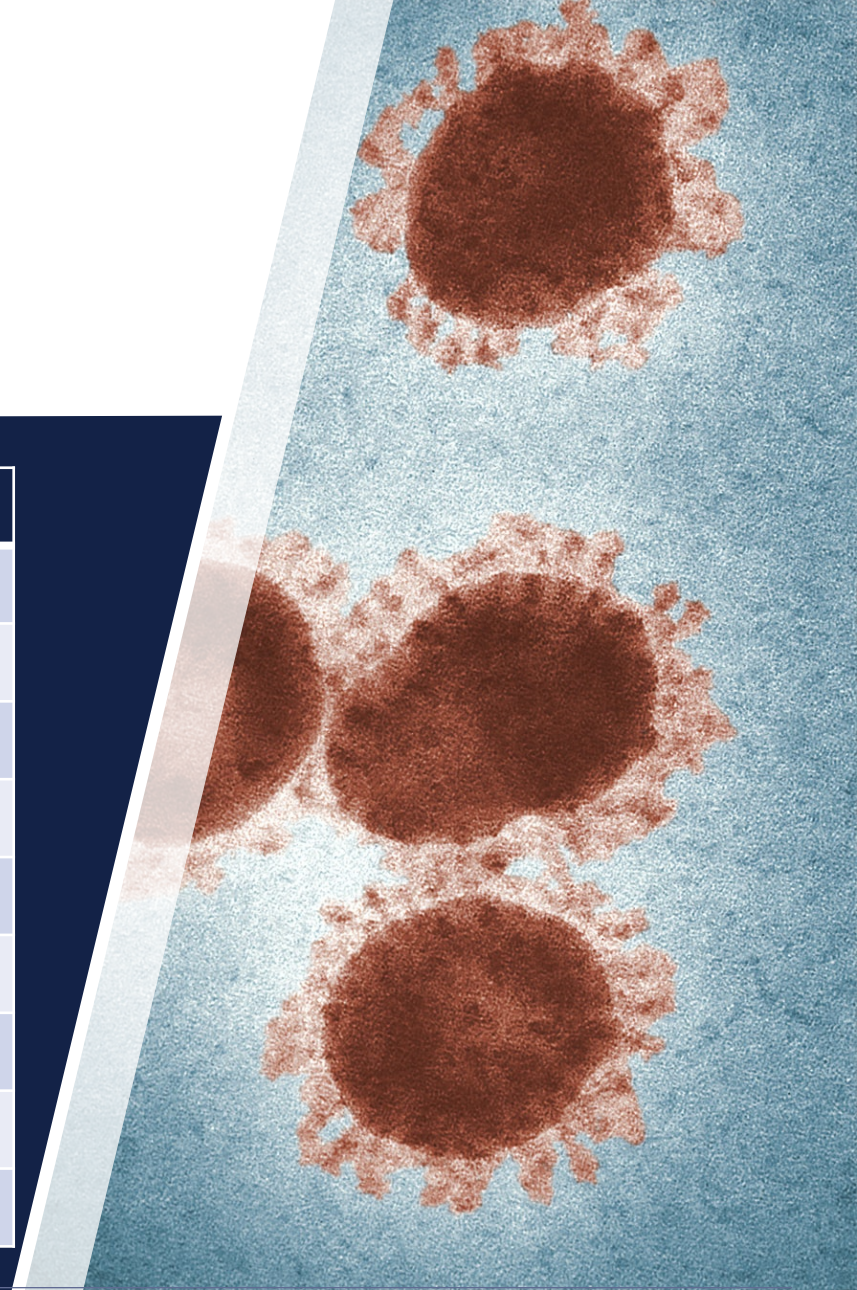
2019 – A Positive End

- Trade war fears ebbed
 - USMCA (Revised) ratified by all 3 countries
 - Phase 1 Trade Deal with China announced
- Brexit uncertainty fades with 31 Jan approaching
- OPEC+ deal
- IMF's optimism on global growth



COVID-19 – Timeline 1

Date	Event
1 Dec 2019	First case of Covid-19 identified in Wuhan
31 Dec 2019	WHO notified of outbreak in Wuhan
23 Jan 2020	Wuhan quarantined
31 Jan 2020	Covid-19 spread is confirmed in Italy
21 Feb 2020	The spread is confirmed in multiple countries beyond China
3 Mar 2020	OECD warning over global growth; Fed's emergency rate cut
8 Mar 2020	Italy goes under quarantine; Oil price war starts
24 Mar 2020	China announces Wuhan lockdown will be partially lifted on 8 Apr
7 Apr 2020	Liberation of Wuhan; Singapore lockdown begins

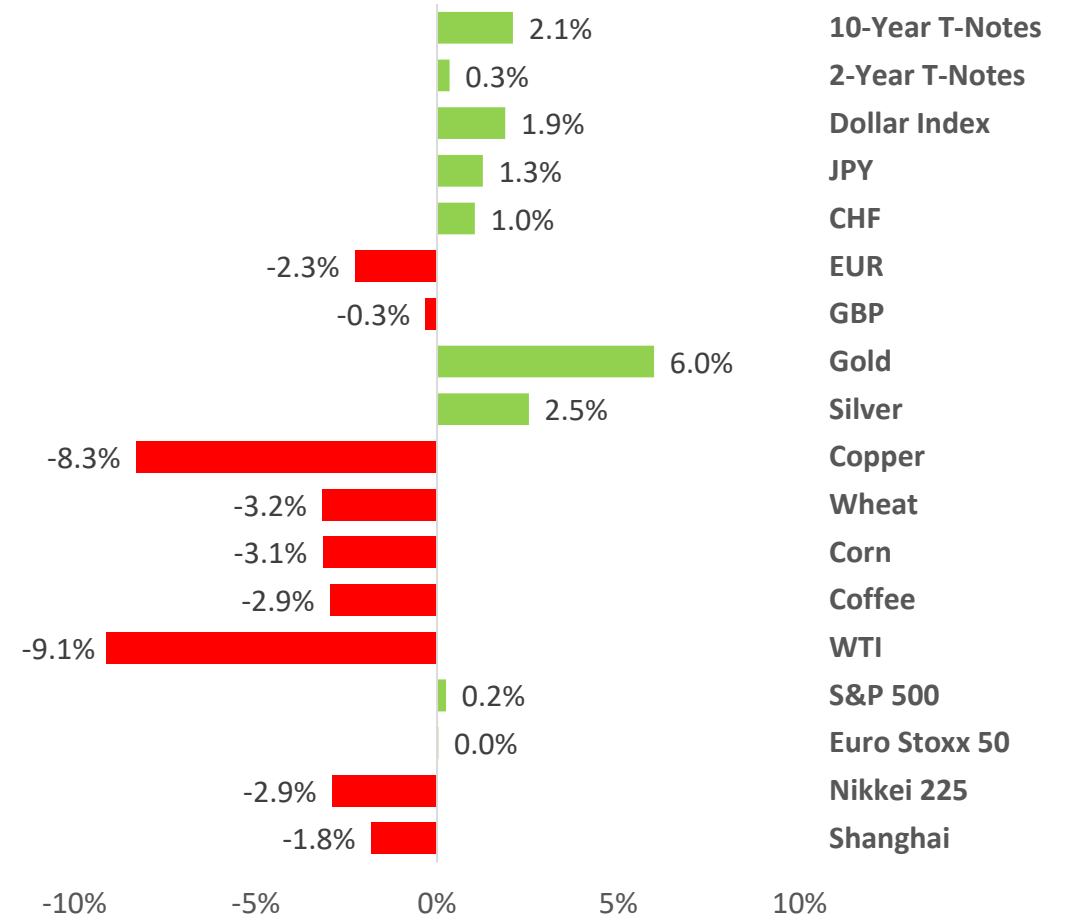
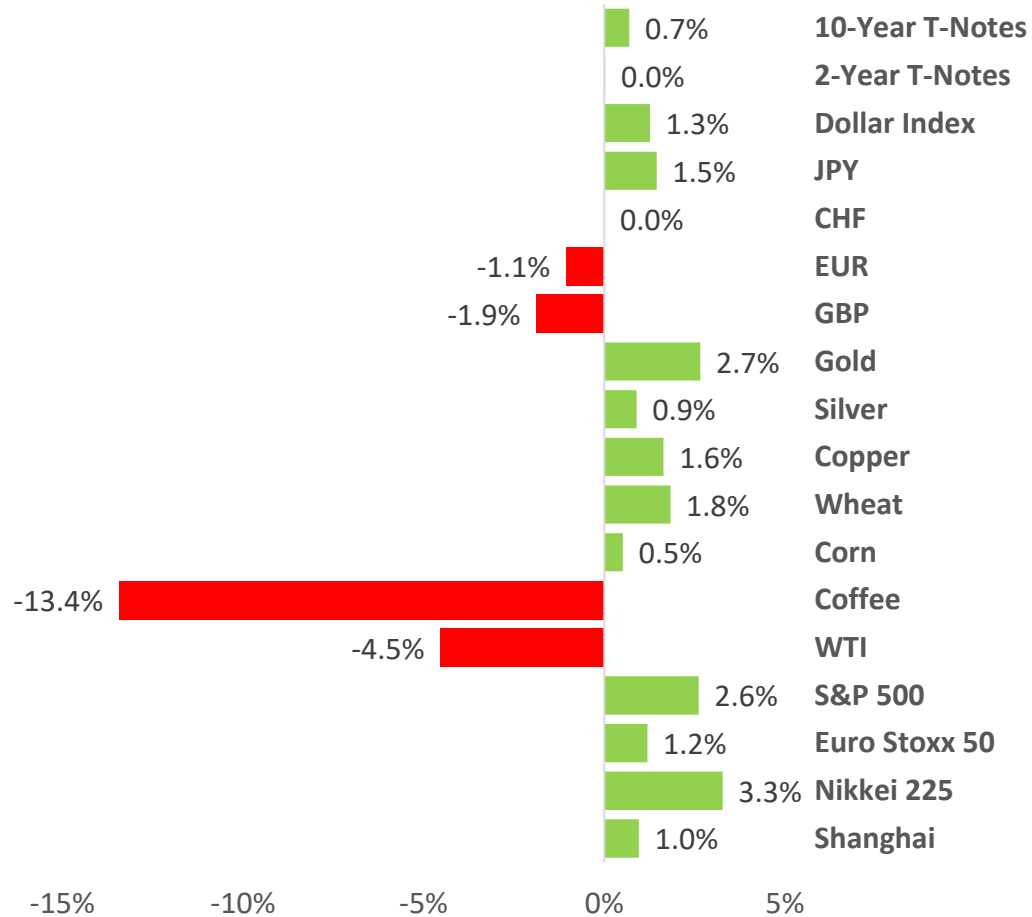


Market Performances

Source – Investing.com

1 Jan – 20 Jan

21 Jan – 21 Feb

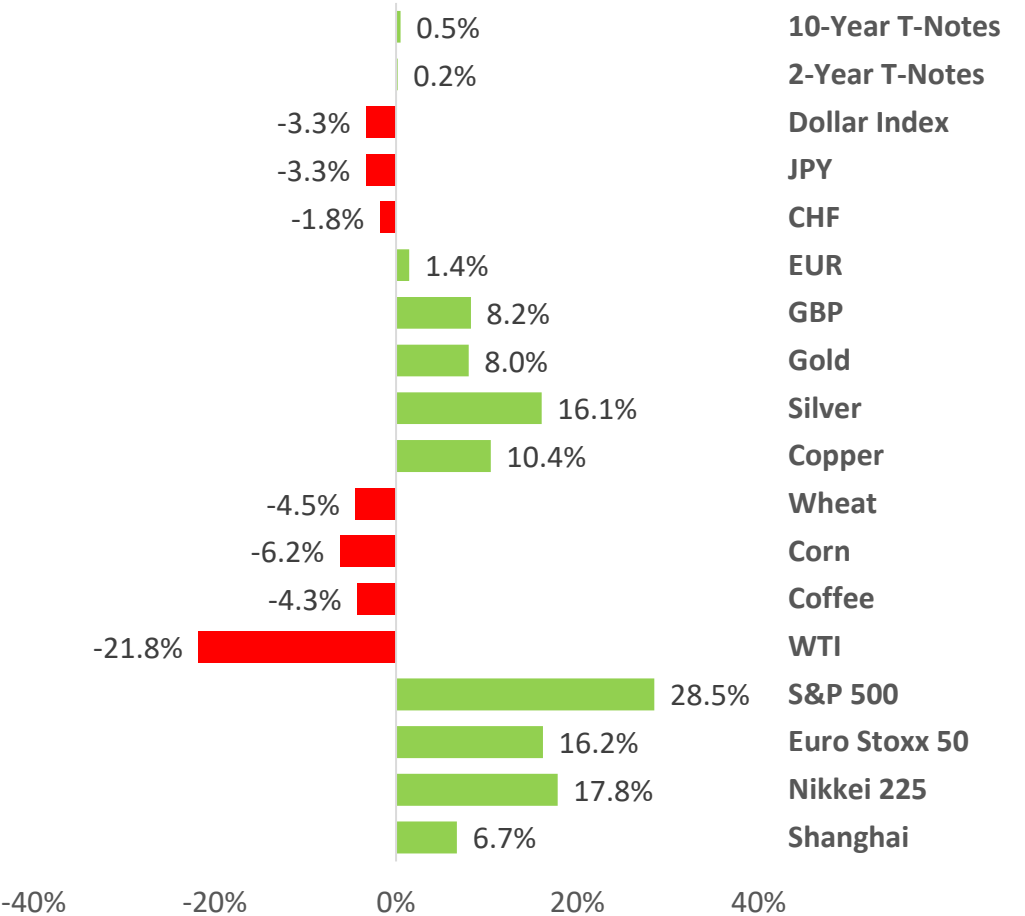
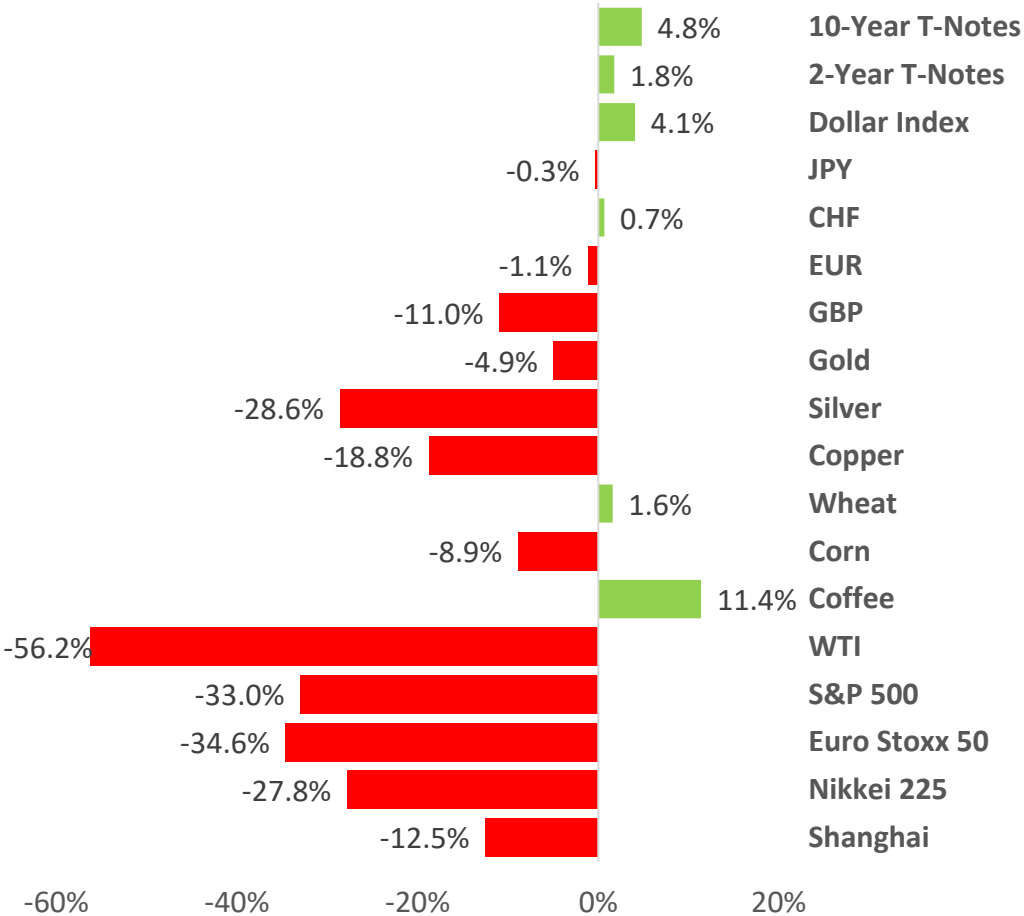


Market Performances

Source – Investing.com

22 Feb – 23 Mar

24 Mar – 17 Apr



Covid-19 – Economic Angle

- All past recessions have been due to demand collapse
- This one has an additional and deliberate supply shock
- For how long? No one knows



Nov'19 OMRs – Before OPEC+ Deal in Dec

Year 2020 (mbpd)	IEA					OPEC					EIA					Average				
	Q1	Q2	Q3	Q4	Y	Q1	Q2	Q3	Q4	Y	Q1	Q2	Q3	Q4	Y	Q1	Q2	Q3	Q4	Y
Global Demand	100.1	100.7	102.5	102.8	101.5	99.8	99.8	101.8	102.1	100.9	101.3	101.7	102.9	103.3	102.3	100.4	100.7	102.4	102.7	101.6
Non-Opec Supply	66.3	67.1	67.5	67.6	67.1	65.8	66.1	66.5	67.5	66.5	67.0	68.2	68.5	68.5	68.0	66.4	67.1	67.5	67.8	67.2
Opec NGLs	5.5	5.5	5.5	5.5	5.5	4.8	4.8	4.8	4.8	4.8	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Call on Opec	28.3	28.1	29.5	29.7	28.9	29.1	28.9	30.5	29.8	29.6	29.3	28.4	29.3	29.8	29.2	28.9	28.5	29.8	29.8	29.2
Latest Opec Supply		30.0	29.4	29.9		30.5	30.0	29.4	29.7	29.9	29.5	29.5	29.7	29.4	29.5	30.0	29.8	29.5	29.7	29.7

Source – IEA, EIA, Opec

- There was expectation of a meaningful increase in production from US, Norway and Brazil
- US production growth – 1.6 mbpd in 2018, 1.2 mbpd in 2019 and ~0.6 mbpd in 2020

Dec'19 OMRs – After OPEC+ Deal in Dec

Year 2020 (mbpd)	IEA					OPEC					EIA					Average				
	Q1	Q2	Q3	Q4	Y	Q1	Q2	Q3	Q4	Y	Q1	Q2	Q3	Q4	Y	Q1	Q2	Q3	Q4	Y
Global Demand	100.1	100.8	102.2	102.8	101.5	99.8	99.8	101.8	102.1	100.9	101.1	101.6	102.7	103.2	102.1	100.3	100.7	102.2	102.7	101.5
Non-Opec Supply	66.0	66.9	67.5	67.5	67.0	65.8	66.1	66.5	67.5	66.5	66.9	68.1	68.3	68.4	67.9	66.2	67.0	67.4	67.8	67.1
Opec NGLs	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.8	4.8	4.8	5.1	5.0	5.0	5.1	5.0	5.2	5.2	5.2	5.2	5.2
Call on Opec	28.5	28.3	29.1	29.7	28.9	29.1	28.9	30.5	29.8	29.6	29.2	28.4	29.3	29.7	29.2	28.9	28.5	29.6	29.7	29.2
Latest Opec Supply		30.0	29.4	29.8		30.5	30.0	29.4	29.6	29.9	29.2	29.3	29.4	29.3	29.3	29.9	29.7	29.4	29.6	29.6

Source – IEA, EIA, Opec

Feb'20 OMRs – Just before spread outside China

Year 2020 (mbpd)	IEA					OPEC					EIA					Average				
	Q1	Q2	Q3	Q4	Y	Q1	Q2	Q3	Q4	Y	Q1	Q2	Q3	Q4	Y	Q1	Q2	Q3	Q4	Y
Global Demand	98.8	100.6	102.3	102.2	101.0	99.5	99.4	101.6	102.4	100.7	100.3	101.1	102.6	102.9	101.7	99.5	100.4	102.2	102.5	101.1
Non-Opec Supply	66.1	66.8	67.5	67.7	67.0	65.8	66.2	66.8	67.7	66.6	66.9	68.2	68.4	68.4	68.0	66.3	67.1	67.6	67.9	67.2
Opec NGLs	5.5	5.5	5.5	5.5	5.5	4.8	4.8	4.8	4.8	4.8	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Call on Opec	27.2	28.3	29.3	29.0	28.5	28.9	28.3	30.0	29.9	29.3	28.3	27.9	29.1	29.5	28.7	28.1	28.2	29.5	29.5	28.8
Latest Opec Supply		30.0	29.5	29.8	30.0	30.5	30.0	29.4	29.6	29.9	28.6	28.8	29.2	29.2	28.9	29.5	29.6	29.4	29.5	29.6

Source – IEA, EIA, Opec

Mar'20 OMRs – After the spread outside China

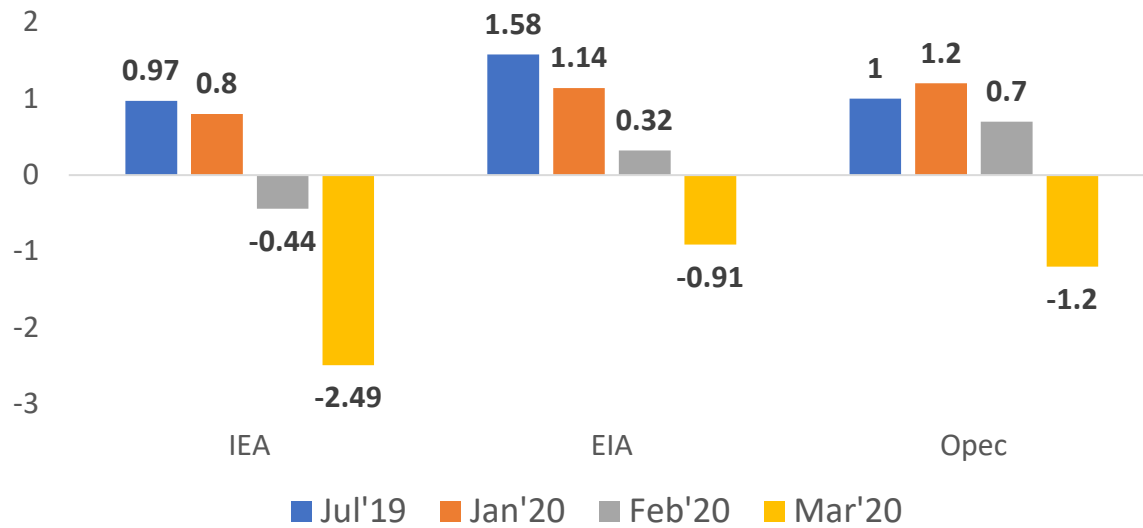
Year 2020 (mbpd)	IEA					OPEC					EIA					Average				
	Q1	Q2	Q3	Q4	Y	Q1	Q2	Q3	Q4	Y	Q1	Q2	Q3	Q4	Y	Q1	Q2	Q3	Q4	Y
Global Demand	96.3	100.6			99.9	97.6	98.2	101.3	101.9	99.7	99.1	100.3	102.3	102.7	101.1	97.6	99.7	101.8	102.3	100.2
Non-Opec Supply					66.9	66.4	66.5	66.7	67.3	66.7	66.8	68.3	68.5	68.2	67.9	66.6	67.4	67.6	67.8	67.2
Opec NGLs	5.7	5.7	5.7	5.7	5.7	4.8	4.8	4.8	4.8	4.8	5.1	5.1	5.1	5.1	5.1	5.2	5.2	5.2	5.2	5.2
Call on Opec	25.0				27.3	26.3	26.9	29.7	29.7	28.2	27.2	27.0	28.8	29.4	28.1	26.2	27.0	29.2	29.6	27.9
Latest Opec Supply		30.0	29.5	29.8	30.0	30.5	29.5	28.9	29.1	29.5	28.7	28.9	29.4	29.4	29.1	29.6	29.4	29.3	29.4	29.5

Source – IEA, EIA, Opec

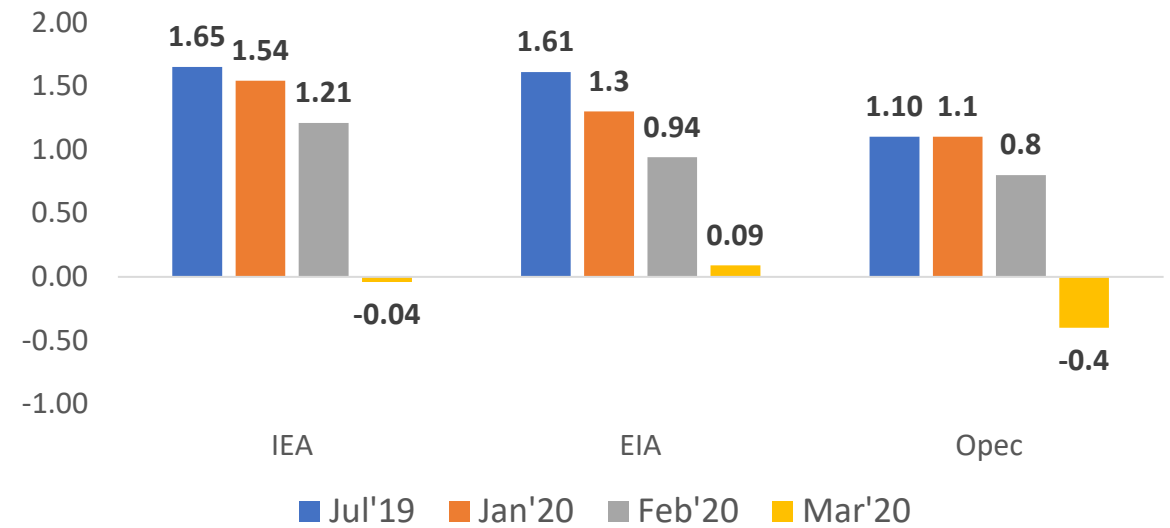
Demand – Progression of Growth

Source – IEA, EIA, Opec

1Q-2020 (YoY changes in mbpd)



2Q-2020 (YoY changes in mbpd)

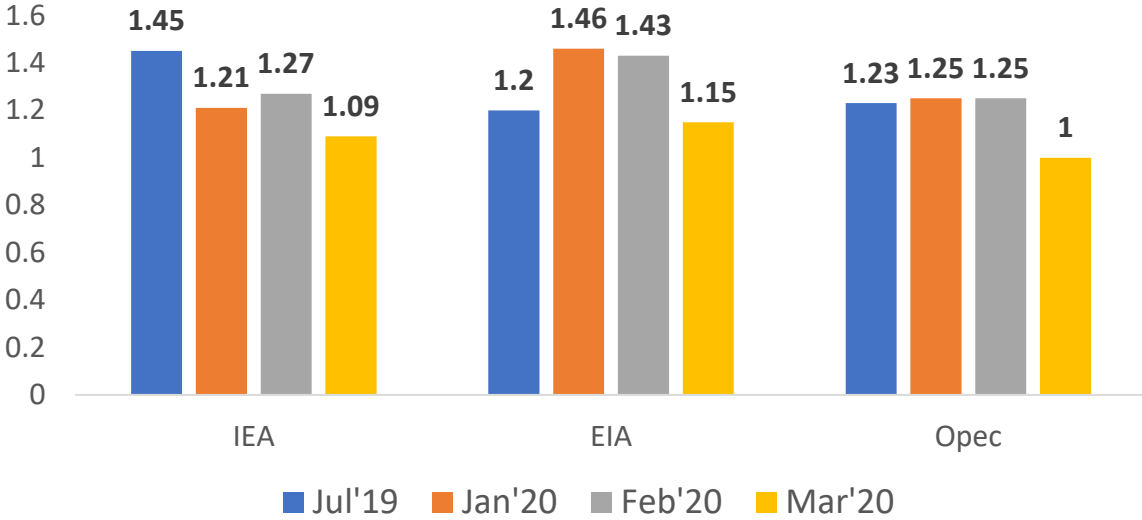


Mar 2020		26 Mar = -10.5 (GS)		
Q2 – 2020	15 Mar = -3 (Other experts)			
Apr 2020	20 Mar = -11 (Rystad), -12 (Platts)	26 Mar = -18.7 (GS)	8 Apr = -24 (FGE)	15 Apr = -29 (Apr OMR of IEA)

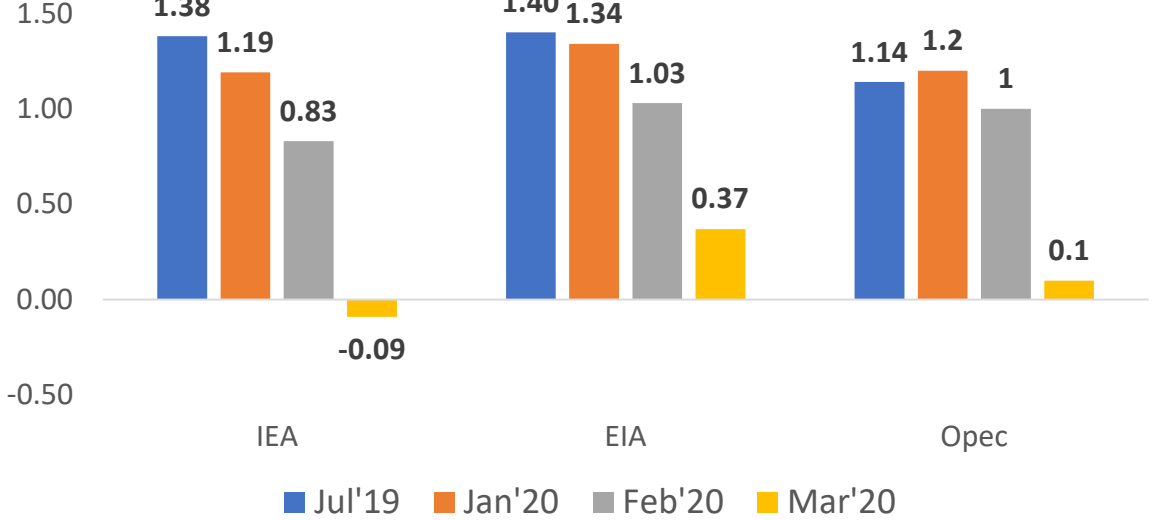
Demand – Progression of Growth

Source – IEA, EIA, Opec

2H-2020 (YoY changes in mbpd)



2020 (YoY changes in mbpd)

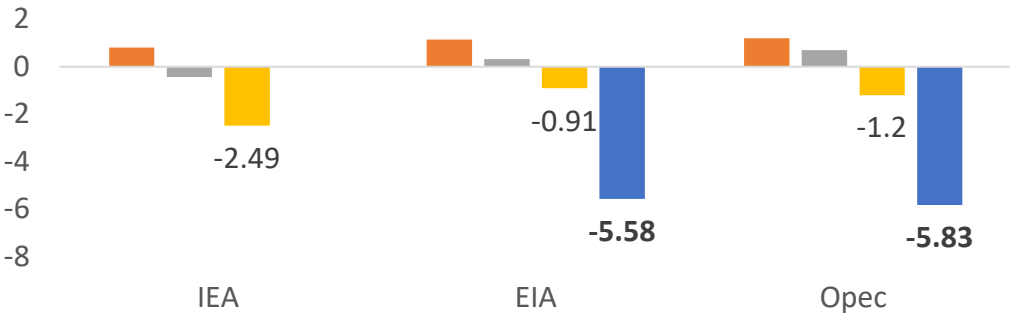


1H – 2020	15 Mar = -3 (Other experts)	18 Mar = -0.5 (BofA)	6 Apr = -11.2 (Other experts)	
2020	20 Mar = -3 (Platts)	26 Mar = -4.3 (GS), -2.8 (Rystad)	6 Apr = -7.2 (Other experts)	13 Apr = -9.2 (Bofa)

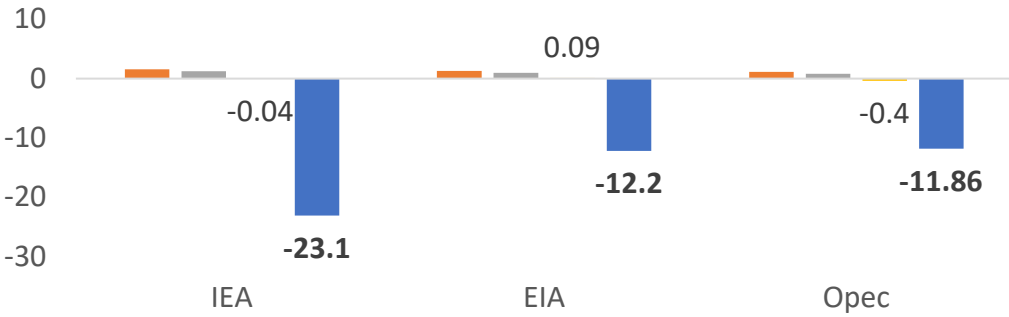
Demand – Progression of Growth

Source – IEA, EIA, Opec

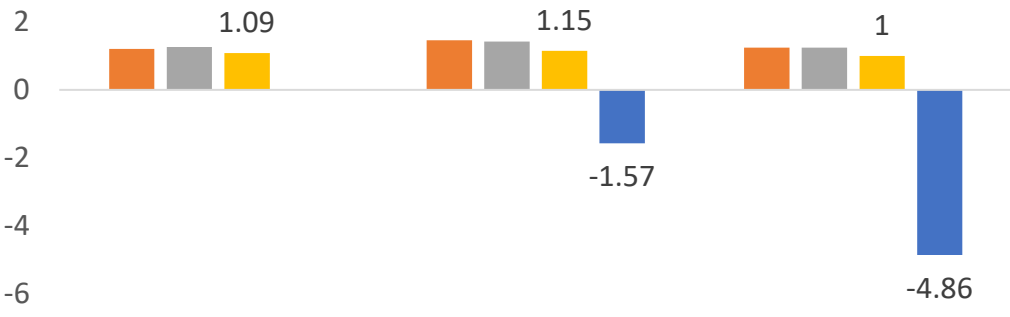
1Q-2020 (YoY changes in mbpd)



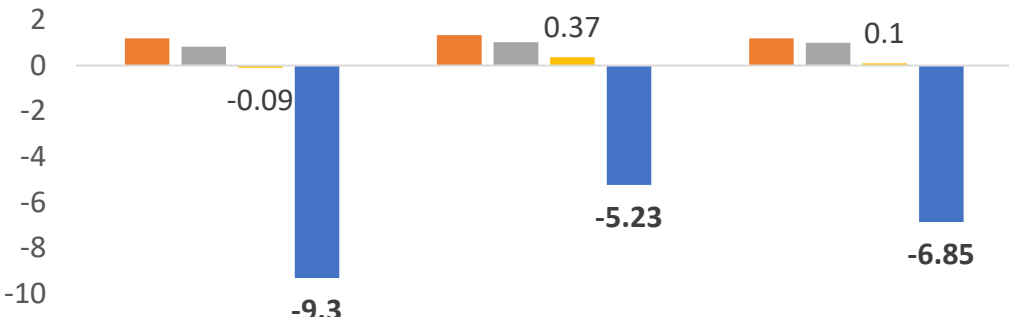
2Q-2020 (YoY changes in mbpd)



2H-2020 (YoY changes in mbpd)

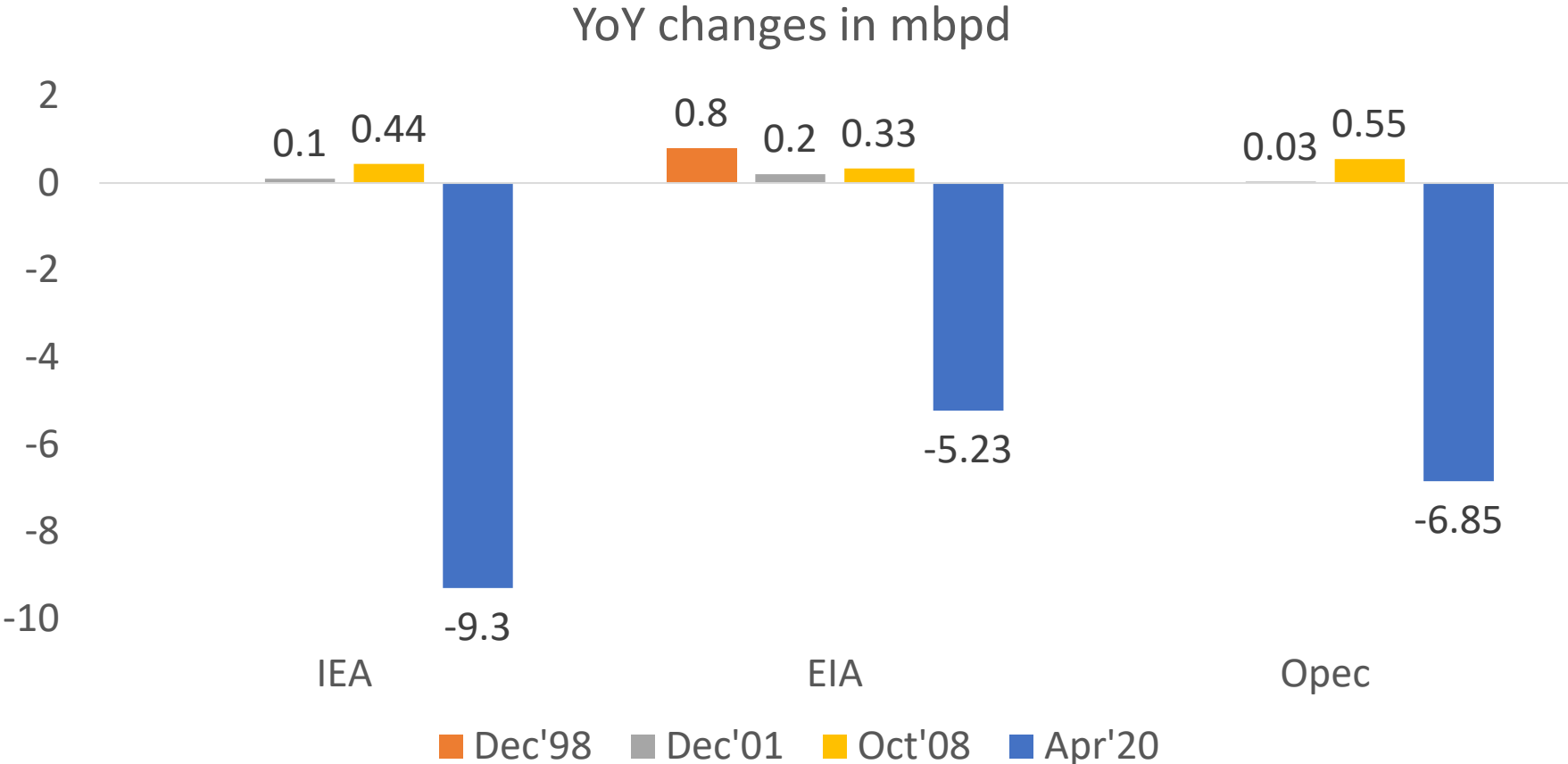


2020 (YoY changes in mbpd)



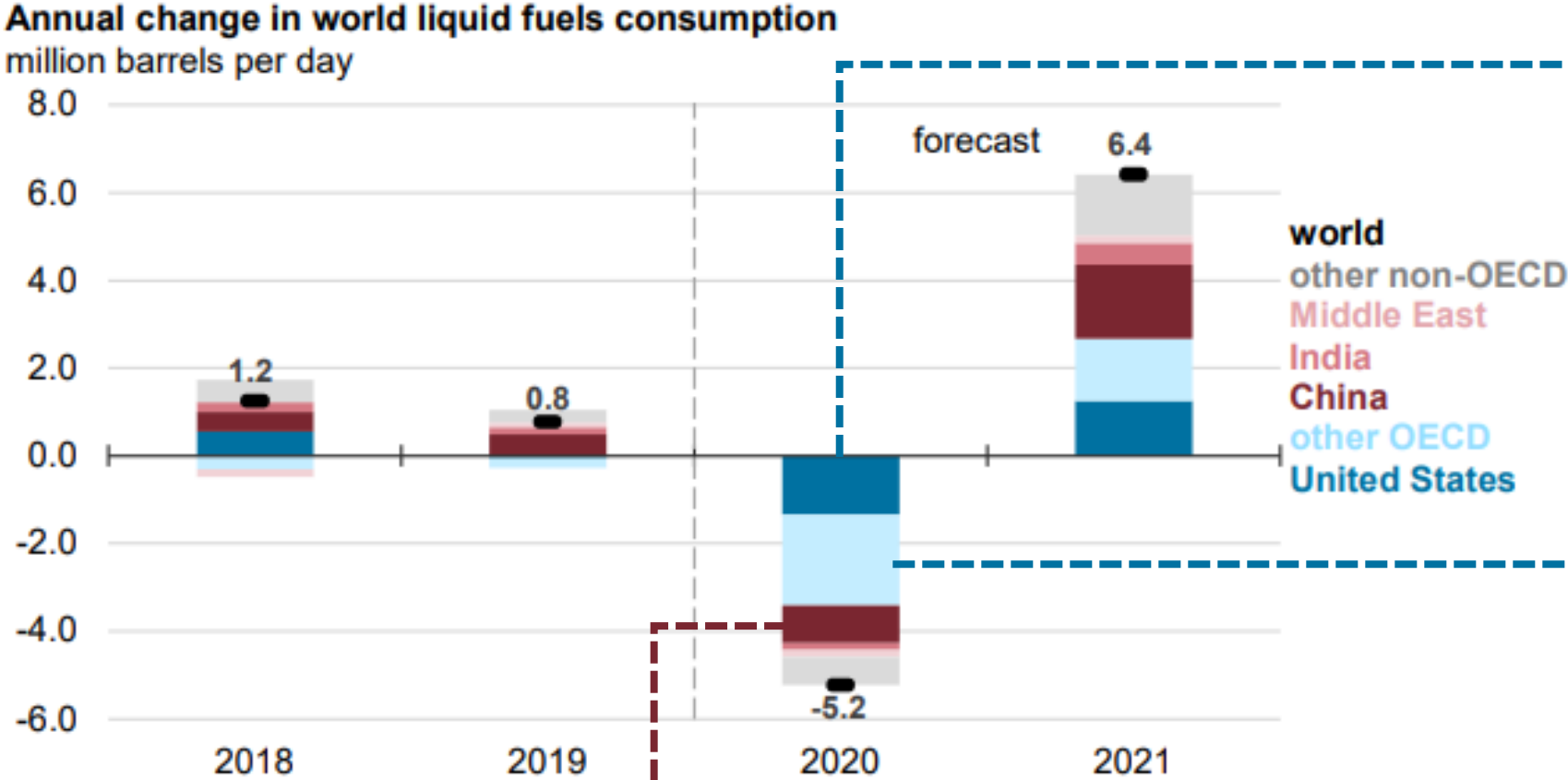
Demand – Lessons from Past

Source – IEA, EIA, Opec



Demand – Countries

Source – EIA



Q1 = -2.1
2020 = -0.8

Q1 = -0.6
2020 = -1.3

Q1 = -1.9
2020 = -2.1

Demand – Recovery

- Chinese production and consumption ~90% normalized
 - Auto sales, property sales and travel still soft despite improvement
 - Everything else including imports very near to normal
 - Exports normalizing too but pace is quite slow
- Chinese throughput in Apr will be 10% up
- Chinese crude import in Mar = +0.4 mbpd YoY
- Chinese crude import in Q1 = +0.4 mbpd YoY



Supply – Risk of Closures

- Total production at risk for not covering production cost ~ 10 mbpd
- Total immediate production loss due to very low prices ~ 5 mbpd
 - Marginal wells in US and Canada ~ -1.0
 - Canadian oil sands ~ -3.1
 - Venezuela's Orinoco belt ~ -0.3
- Nigerian 2020 production – -0.4 mbpd YoY (at 1.7 mbpd)
- Actual loss depends on duration of low prices, producers' reaction
- Oil oversupply has a natural limit due to storage



Supply – Opec

- Saudi PAW
 - Aramco was ready to increase output to 12 mbpd from 1 Apr and in future
 - Aramco ordered companies to avail resources to raise production to 13 mbpd
- Opec Mar production = 28.54 mbpd
- Saudi Mar production = 9.98 mbpd
- Libya's production = -1.0 mbpd since Jan providing balance
- Concerns about Venezuela, Iraq and Nigeria



Supply – Finances of Countries

- Large exporters less prepared financially to handle low oil prices
- Most can't increase output to make up for fall in prices
- Most of recent UST sells by oil producing countries to acquire USD
- Nigeria – Oil accounts for 50% of govt revenues and all of its forex



Supply – Saudi Arabia vs. Russia

- Fiscal Break Even SA = \$80/b, Russia = \$40/b
- Oil's contribution to govt revenue SA = 2/3
- Spare production capacity SA = 2.6 mbpd, Russia = 0.6 mbpd
- Russian forex reserves can withstand low oil prices for 6-10 years
- Russian SWF holds more than \$150 bn to ensure financial stability
- Saudi can use spare production capacity to offset decline in prices
- So Russia has stronger fiscal position but will be dented more



Supply – Actual and Planned Cuts

- US = 0.60 mbpd by end-Apr
- ConocoPhillips = 0.27 mbpd in May, 0.46 mbpd in Jun
- Canada = 1.00 mbpd by end-Apr
- Norway = 0.25 mbpd in Jun, 0.13 mbpd after that



Storage – Land

- Stock builds expected mostly in 1H'20; draws expected in 2H'20
- Current OECD stocks in industry ~ 2900 mb, in govt ~ 1500 mb
- Current global stocks ~ 7700 mb i.e. ~75% full in Mar'20
- This is just 200 mb short of the all time high of 3100 mb in Jul'16
- Pace of storage = 700 – 900 mbpm in Apr'20
- At this pace, all storage should be full by May-Jun
- Royal Vopak says its storage is almost full

Storage – Countries

- China – Marginal influence of SPR purchases will be smaller
- China encouraging building stocks and using options to lock prices
- China's total storage capacity is 1200 mb and is 85% full
- India plans to fill its SPR by end-May; 56% full already
- Fujairah Oil Terminal is full
- Saldanha Bay (South Africa) has no spare storage capacity to lease
- Capacity of oil vessels anchored near European ports ~18 mb



Storage – USA

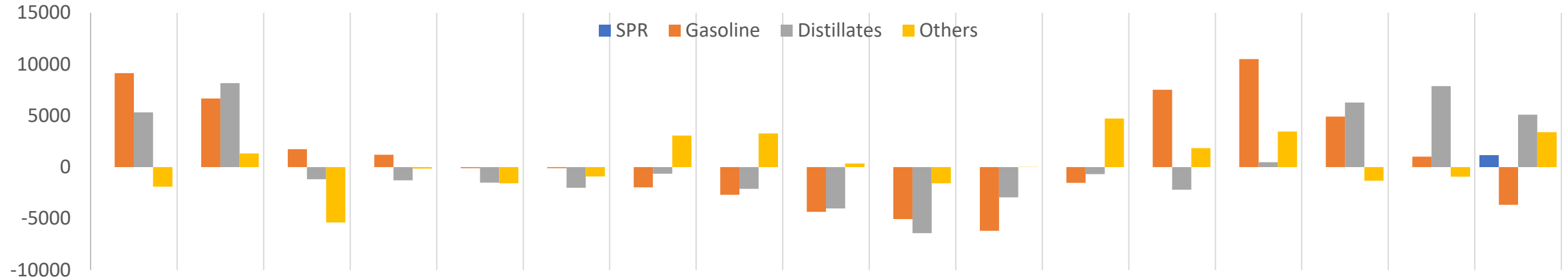
- Total commercial capacity = 2172 mb
- Total spare capacity = 800 mb (commercial) + 80 mb (SPR)
- Cushing should see rapid builds due to very low storage costs
- Pipes to Cushing to be fully utilized at the cost of pipes to USGC
- WTI should outperform other grades as it's easier to fill Cushing
- Cushing utilization = ~50%; 2011 saw 87% with WTI front at -\$4
- US commercial crude storage could fill up by mid-May



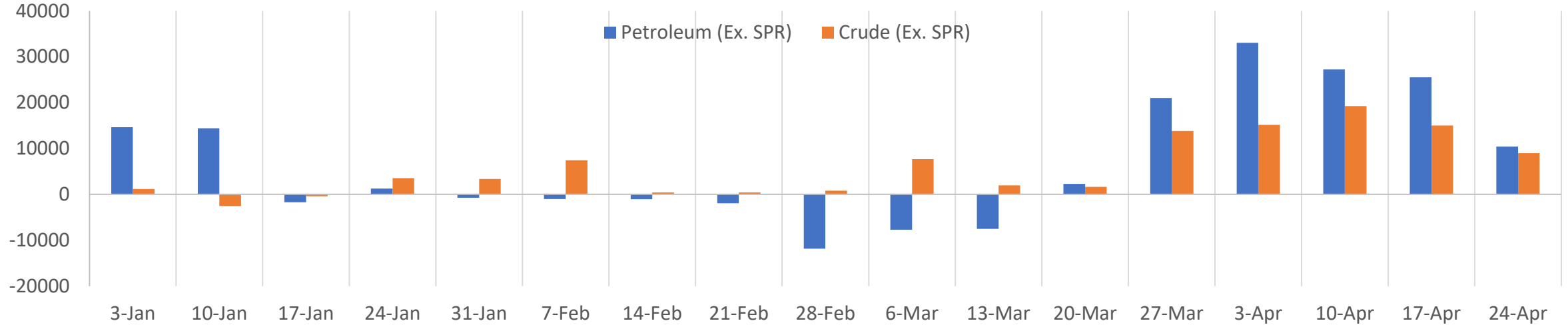
Storage – USA

Source – EIA

Weekly Change in Inventories of Products and SPR



Weekly Change in Crude and Petroleum (Ex. SPR)



Transportation – Costs and Storage

- Shipping costs have increased significantly
- It costs \$80,000-100,000 to hire a VLCC for a day
- Ports and refiners are turning away oil tankers
- Several US companies allowing their pipeline system for storage
- Massive amount of crude from Middle East to reach US by Jun
- Existing floating storage ~ 160 mb; up from 80 mb on 1 Apr



Storage – Negative WTI

- WTI May contract went to - \$40 in Apr due to Cushing being full
- Some physical crudes still trading near or below zero
- Can it happen again?
- Measures being considered by US
 - Asking for deeper cuts from OPEC
 - Tariffs on imports
 - Paying producers to keep oil in ground
 - Freeing up more storage space including in SPR

Hurdles

- US antitrust laws restrict cartels to reduce production
- Many US organizations oppose cuts for economic reasons



Opec+ Apr Agreement

- May-Jun - Production to be cut by 9.7 mbpd
- Jul-Dec - Production to be cut by 7.7 mbpd
- Jan'21-Apr'22 - Production to be cut by 5.8 mbpd
- Saudi Arabia and Russia to cut 2.5 mbpd each
 - From a base of 11 mbpd (i.e. a cap of 8.5 mbpd)
- Other OPEC+ members to cut 4.7 mbpd with base being Oct'18
- Original agreement was to cut by 10 mbpd in May-Jun

Opec+ Apr Agreement

- Since baseline is Oct 2018, it's not a big cut from Feb 2020 levels
- Market disappointed as cut was less than demand destruction
- Opec saw oil prices falling to single digit in case of no agreement
- Next meeting on 10 Jun
- Doubts about compliance from Russia and Iran



Our Expectations and Scenarios

DOWNSIDE SCENARIO

- Extension of lockdowns
- 2nd waves of Covid-19
- Increase in production from Iran, Venezuela and Libya
- Failure of OPEC+ deal

BASELINE SCENARIO

Lower for longer

UPSIDE SCENARIO

- Less than expected demand impact
- Swift shut-ins
- Lower than expected production from Iran, Venezuela, Libya and Shale

“Normalization in activity to cause inflationary shock”

Our Expectations

OPEC+ DEAL

- Will not close supply-demand gap
- Will avert further fall in prices and buy time
- Will help balance prices b/w \$30-40

LOW OR -VE PRICES

- Weak producers will fall
- Front month futures have no real meaning

PRODUCTS

- Gasoline demand to be affected due to service sector
- Jet demand to be affected due to impact of aviation
- Local travel to switch from gasoline to jet



Thank you!