

Global oil market outlook for 2020/21

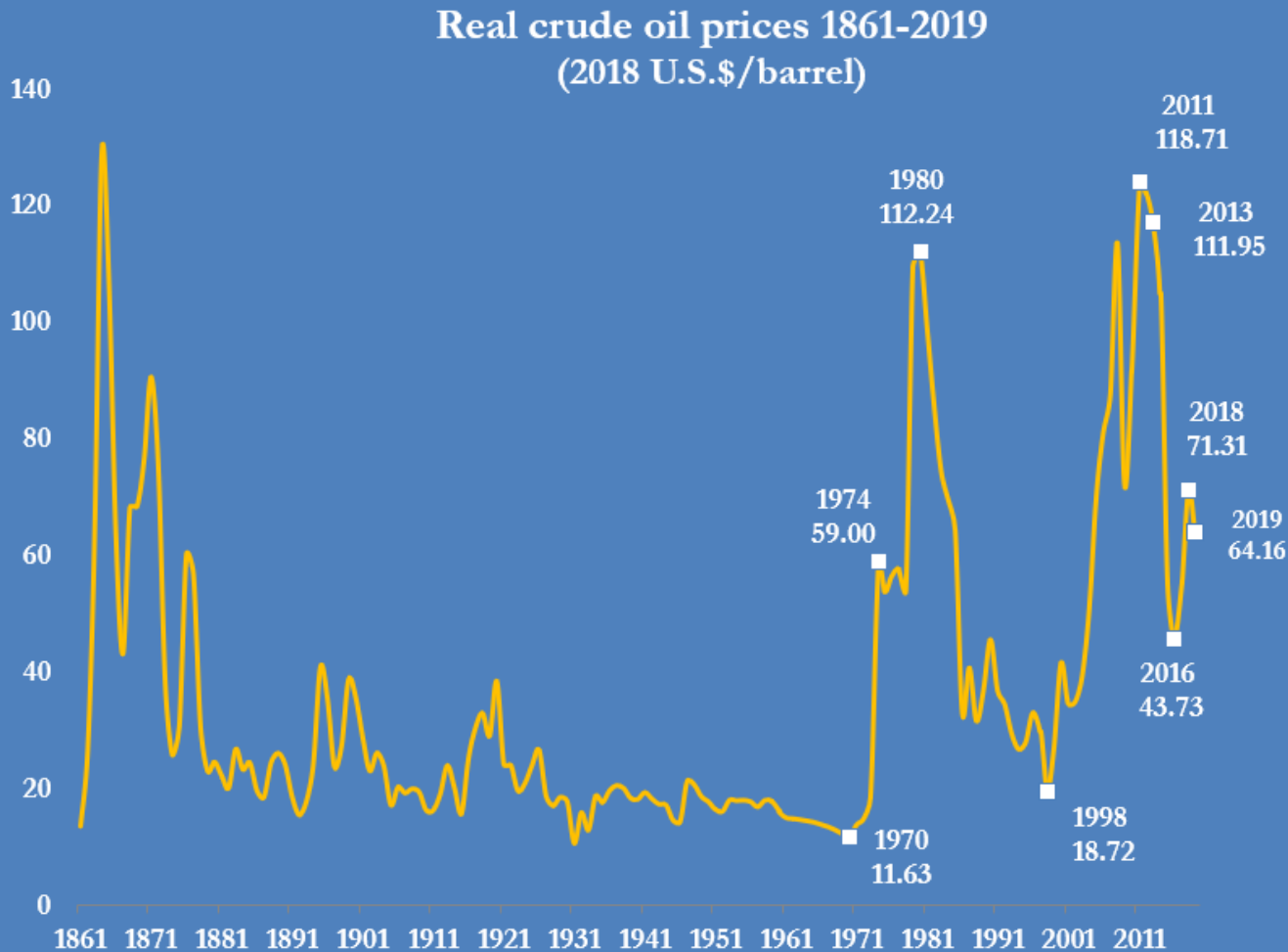
Production, consumption and prices

JOHN KEMP
REUTERS

28 Jan 2020

Oil prices eased last year in response to the global economic slowdown

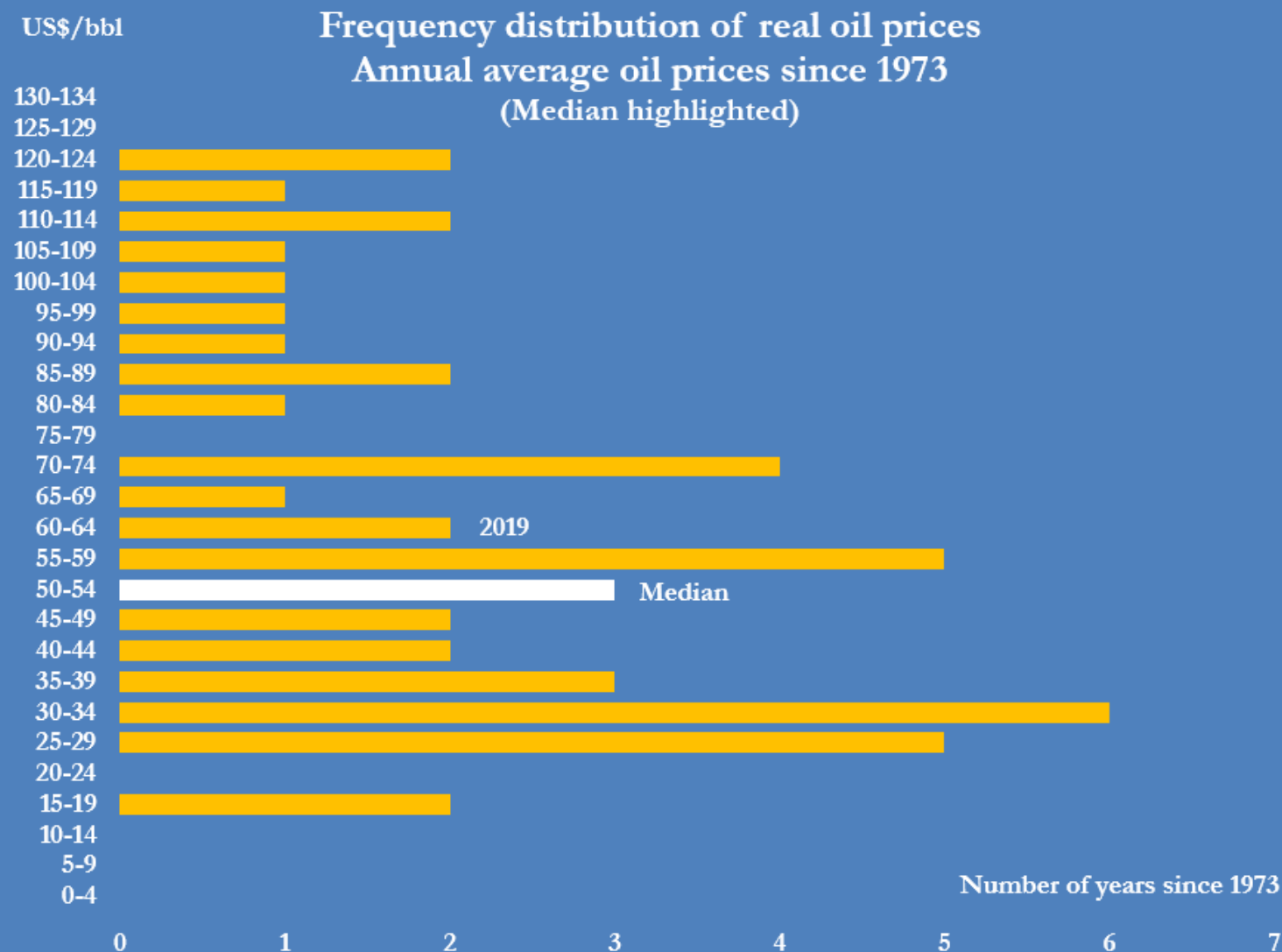
Brent averaged \$64 in 2019 compared with \$71 in 2018



Source: *BP Statistical Review of World Energy 2019*, Reuters calculations for 2019
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Prices remained moderate – neither high nor low

Real prices were slightly above the post-1973 average

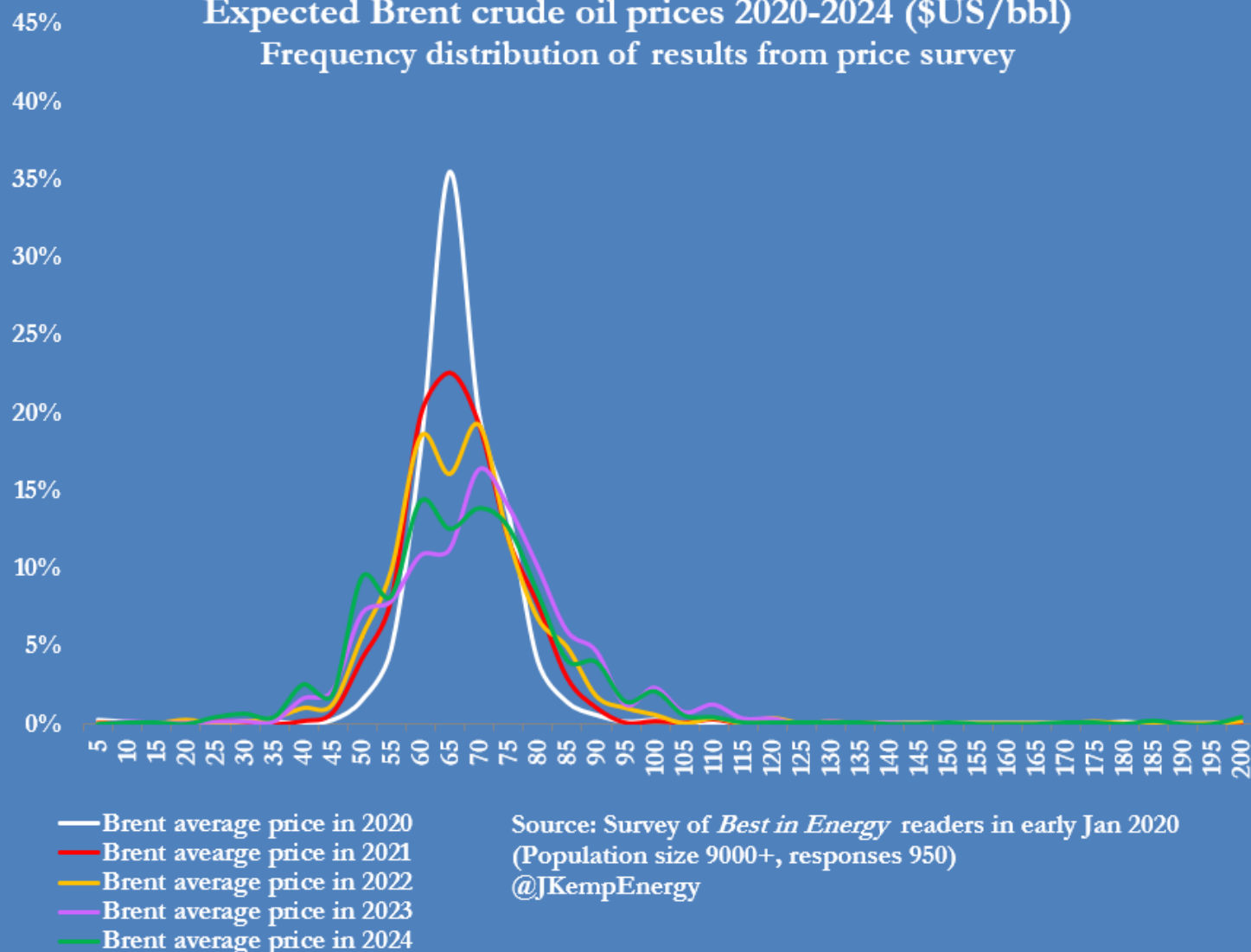


Energy market professionals see little change in prices over next five years

Prices expected to stay anchored around \$65-70 through middle of decade

Expected Brent crude oil prices 2020-2024 (\$US/bbl)

Frequency distribution of results from price survey



Forecasters expect sufficient oil production to satisfy consumption at \$65

Projections are tightly clustered with few below \$50-60 or above \$80-90

Summary: Oil price outlook survey 2020-2024

Survey sent to 9000+ recipients on daily best in energy circulation list

Full or partial responses from 950

Survey conducted between Jan 7 and Jan 10, 2020

	Expected annual average Brent price in:				
	2020	2021	2022	2023	2024
Mean	67	67	67	68	69
Mode	65	65	70	70	60
5th percentile	55	50	50	45	45
10th percentile	60	55	55	50	50
25th percentile	65	60	60	60	60
Median	65	65	65	65	65
75th percentile	70	70	75	75	75
90th percentile	75	80	80	85	90
95th percentile	80	80	85	90	95
Standard deviation	9.07	10.40	13.19	15.30	19.23
Skew	1.32	0.09	2.06	1.55	2.38

Forecasters no longer expect prices to rise in the medium term

Peak oil production fears are being replaced by peak consumption concerns

Oil price outlook surveys 2016 through 2020

Summary of forecasts and realised values

Participants asked to forecast average price in current year and four subsequent years

Expected average Brent crude price in calendar year Mean (\$U.S./bbl)

Survey	2016	2017	2018	2019	2020	2021	2022	2023	2024
2016 (Mar)	40	50	58	63	67				
2017 (Jan)		57	62	66	68	68			
2018 (Jan)			65	68	70	71	71		
2019 (Jan)				63	66	68	69	70	
2020 (Jan)					67	67	67	68	69
Realised value	45	55	72	64					

Two critical questions for oil prices in 2020/21

On the consumption side:

Will the global economy fall into recession or will growth accelerate again?

- Trade tensions
- Business investment
- Auto industry
- United States
- China
- India
- Other emerging markets

On the production side:

How much will U.S. oil output growth slow in response to lower prices?

- Shale producers' reaction function
- Price discipline versus capital discipline
- Saudi/OPEC⁺ production policy
- Trump re-election campaign
- Oil price politics

Oil consumption hit by a perfect storm in 2018/19

Synchronised global economic slowdown worst since recession of 2008/09

U.S./China trade war (tariffs and uncertainty)

Recession fears (yield curve inversion)

Industrial orders decline (especially durables)

Global manufacturing growth slows

Global freight growth slows

Global business investment slows

Automotive output falls in 2018/19

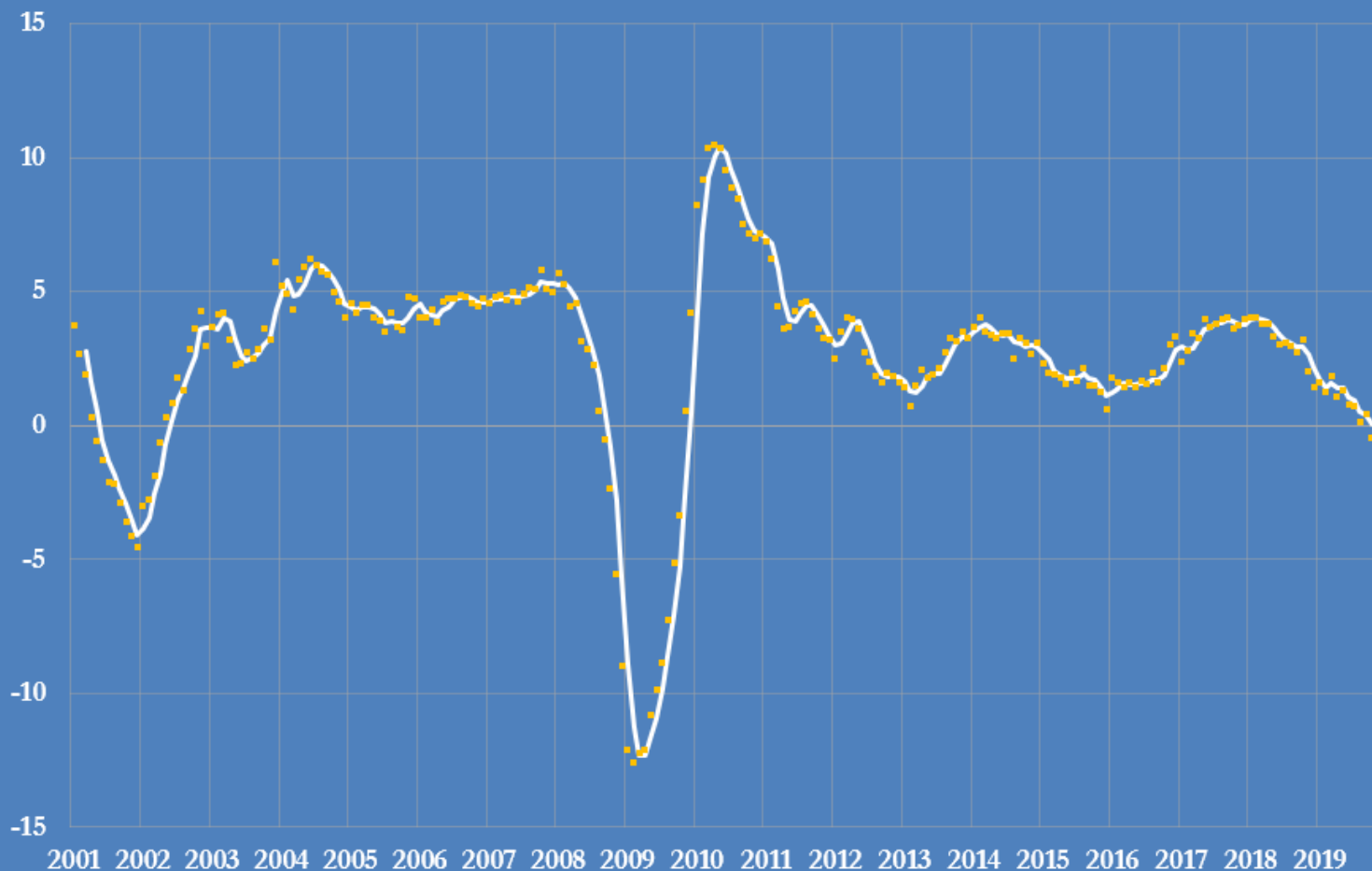
OECD economies slow

China and India economies slow

Oil prices declined as global economic growth slowed in 2018/19

Global industrial output growth decelerated to slowest rate since the recession of 2008/09

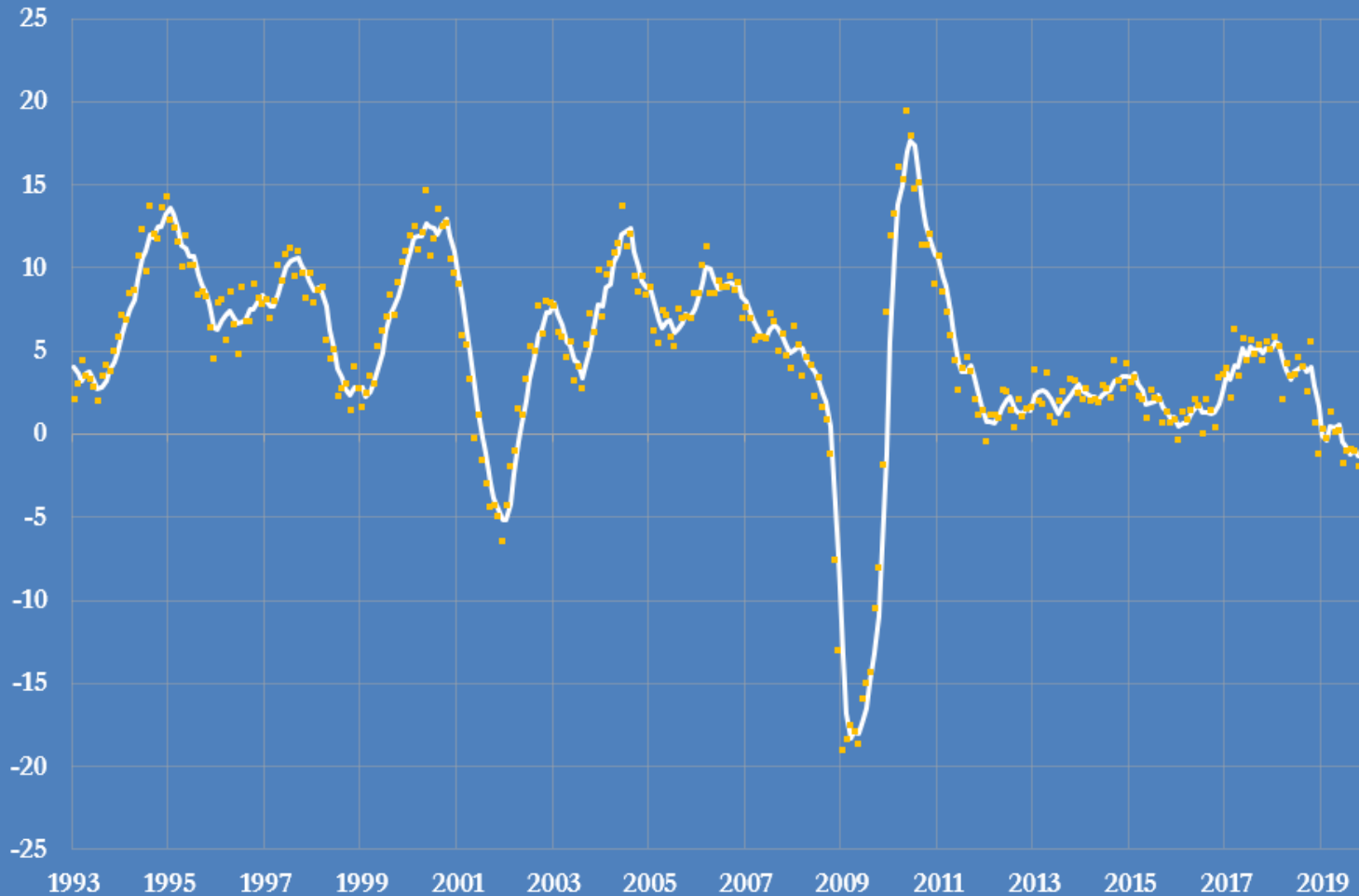
Global industrial production, 2001-2019
production-weighted
percent change from prior year, monthly and three-month average



Oil prices also hit by downturn in freight movements in 2018/19

World trade volumes fell at fastest rate since recession of 2008/09

Volume of World Trade, 1993-2019
Percent change from prior year, monthly and three-month average



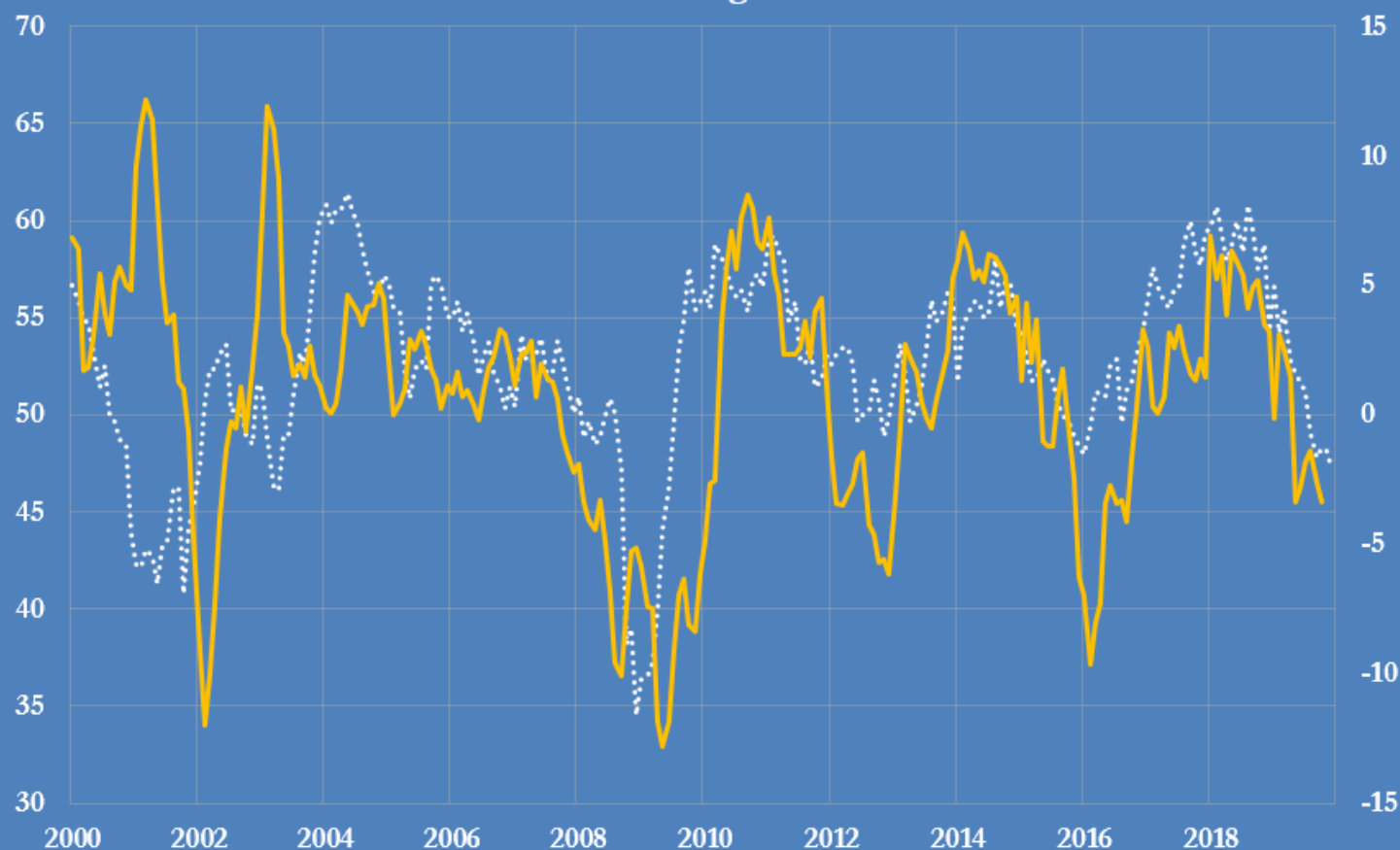
Economic slowdown hit consumption of middle distillates especially hard

Mid-distillates most exposed to business cycle (manufacturing, freight, oil + gas drilling)

Distillate fuel oil supplied to U.S. customers, 2000-2019

Percent change from prior year, three-month average

ISM manufacturing index shown



..... L-axis: ISM manufacturing index

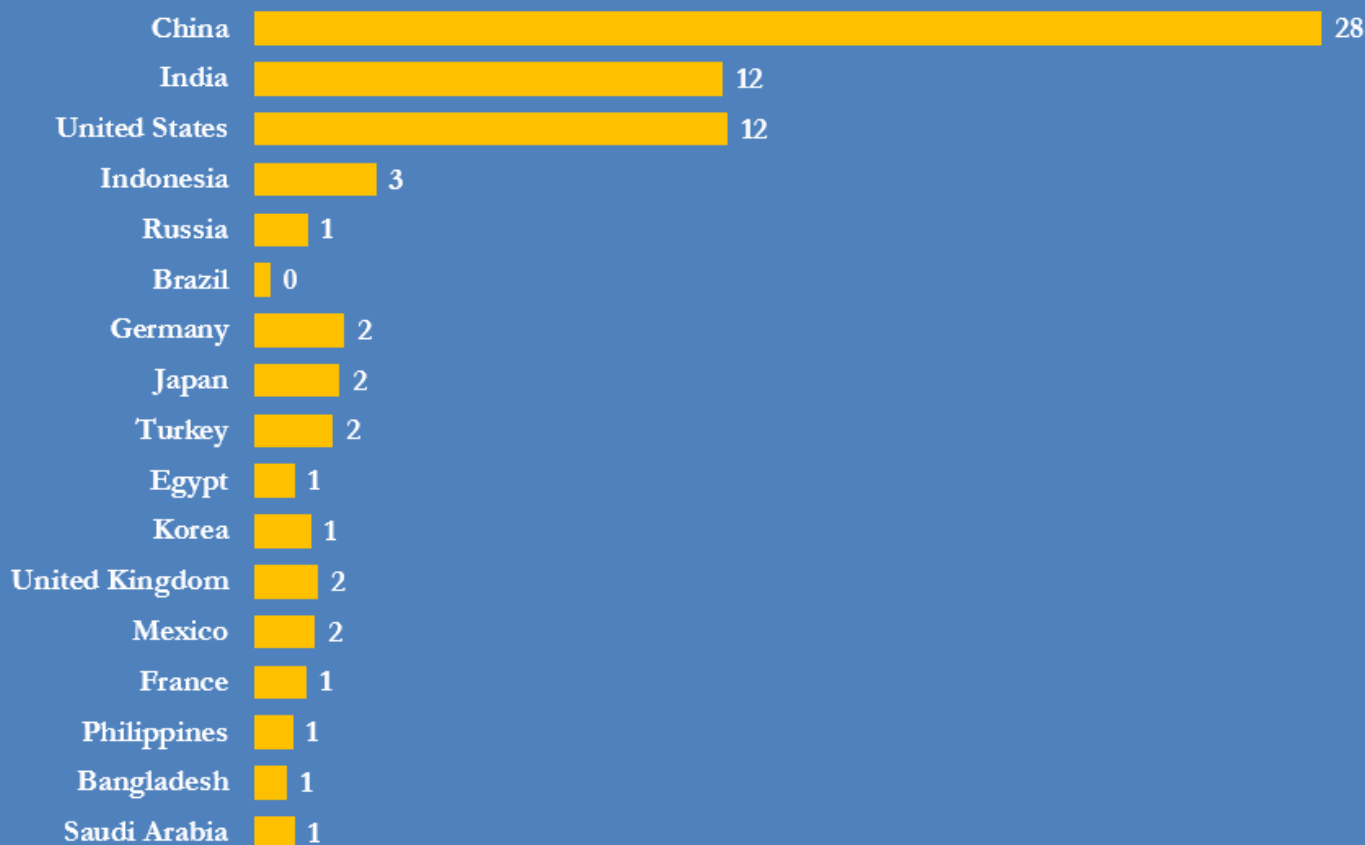
— R-axis: Distillate supplied (YoY % chg)

Sources: U.S. Energy Information Administration and
Institute for Supply Management; @JKempEnergy

Global GDP growth is driven by a small number of very large economies

United States, China, India and major emerging markets slowed significantly in 2018/19

Contribution to global output growth, 2013-2018
percent of world total growth during the period
GDP at purchasing power parity



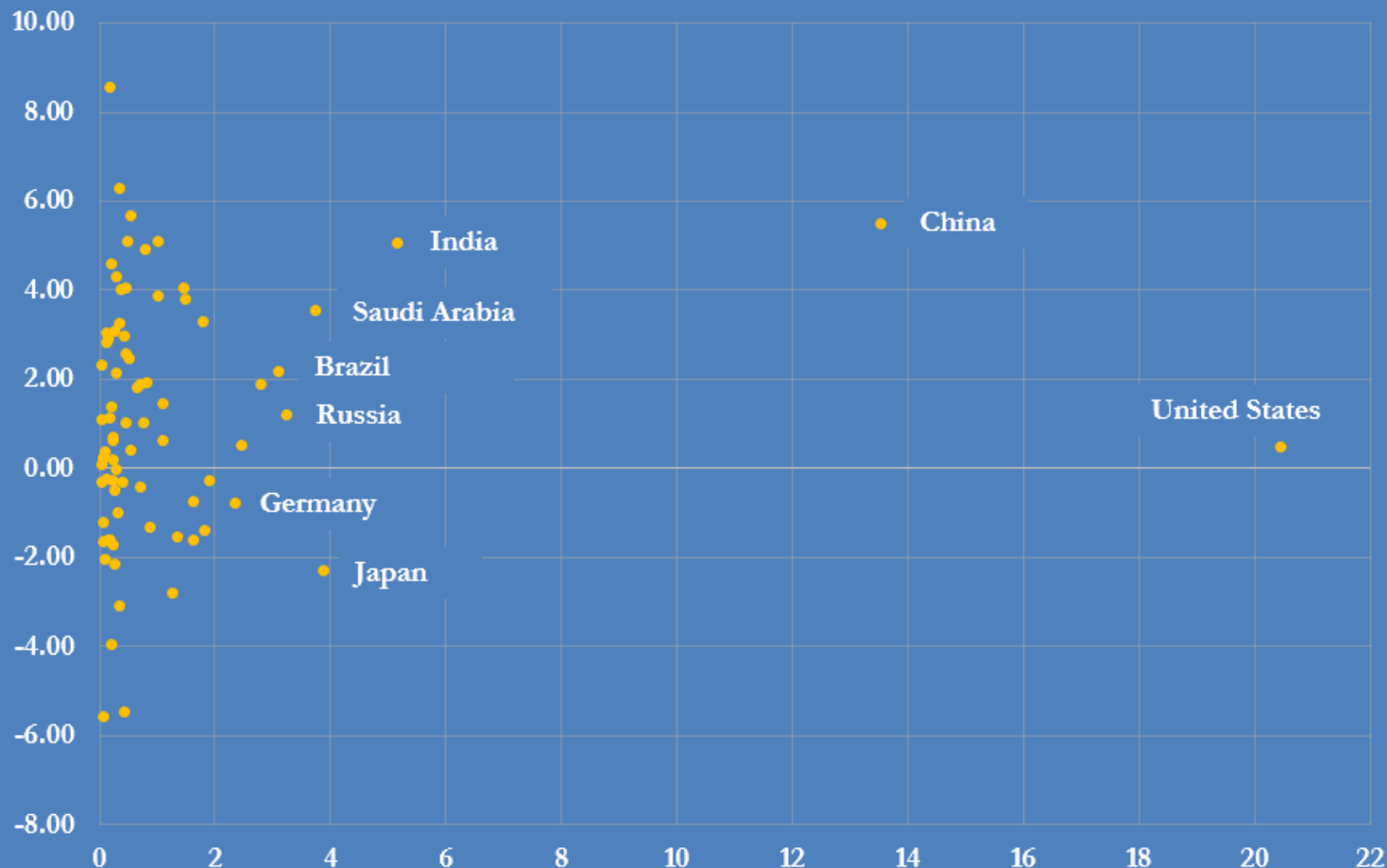
Handful of large economies account for most oil consumption growth

Incremental oil consumption driven by China, India, Saudi Arabia, Brazil and Russia

Global oil consumption

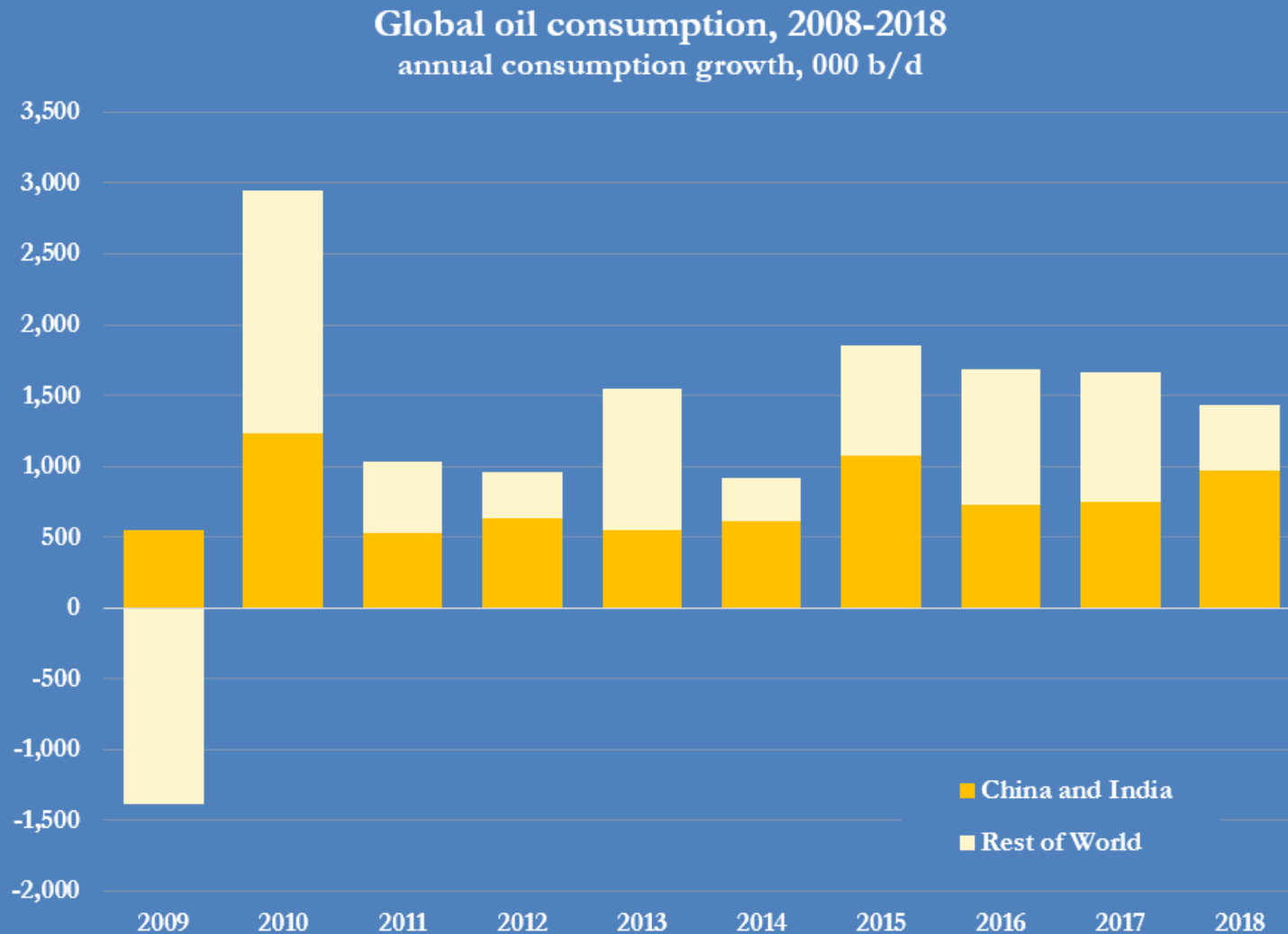
X-axis: consumption in 2018 (million b/d)

Y-axis: consumption growth 2008-2018 (average percent per year)



China and India provided almost 60% of oil demand growth 2008-2018

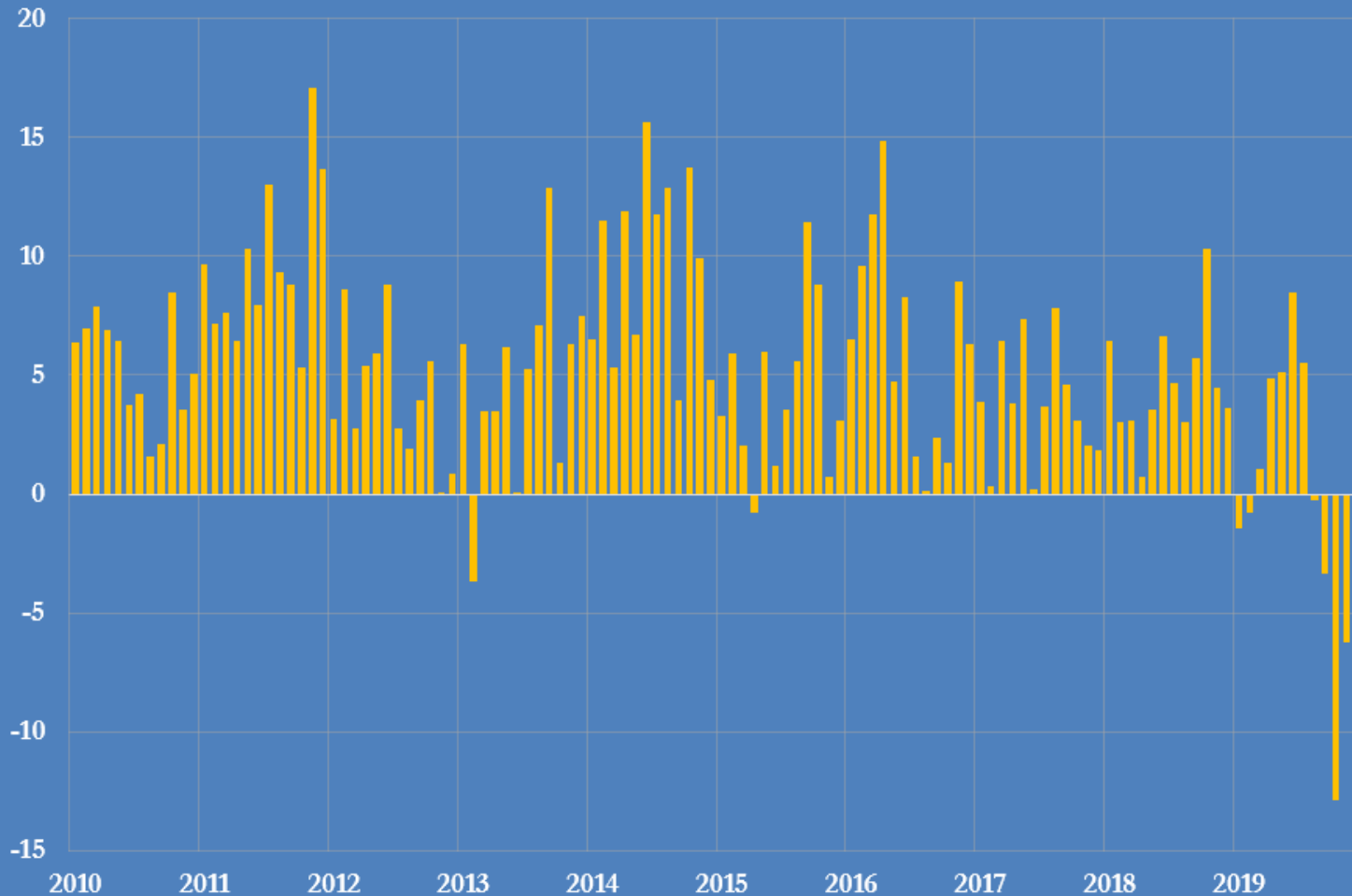
Asia's two giant economies slowed sharply, hitting oil consumption in 2018/19



India's economy slid into recession in 2019

Electricity consumption fell at fastest rate for over a decade

India electricity generation, 2010-2019
percent change from prior year, monthly



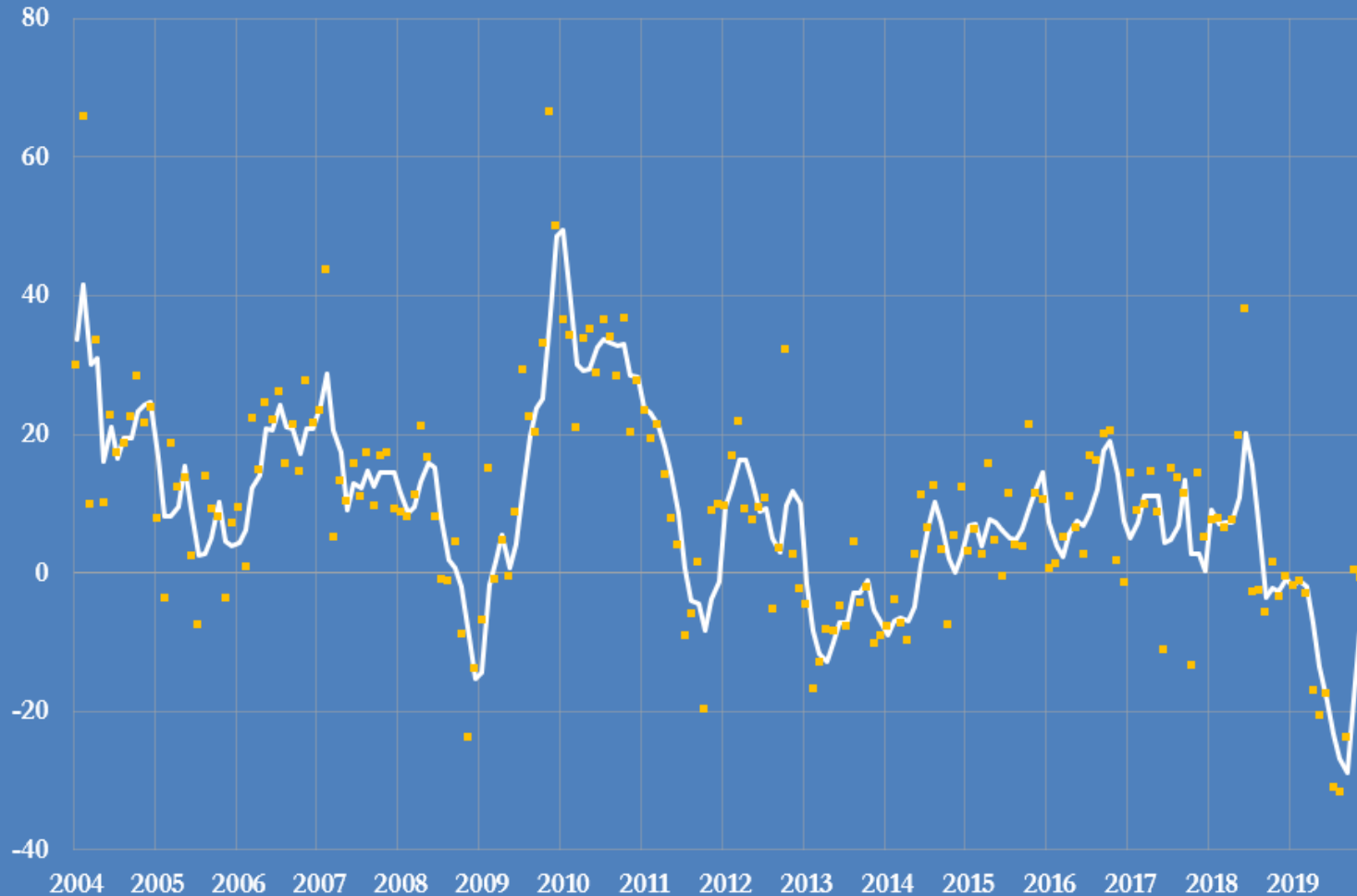
Source: India Central Electricity Authority

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India's auto sales and motor manufacturing output fell

Direct impact on fuel consumption and indirect impact via jobs and economy

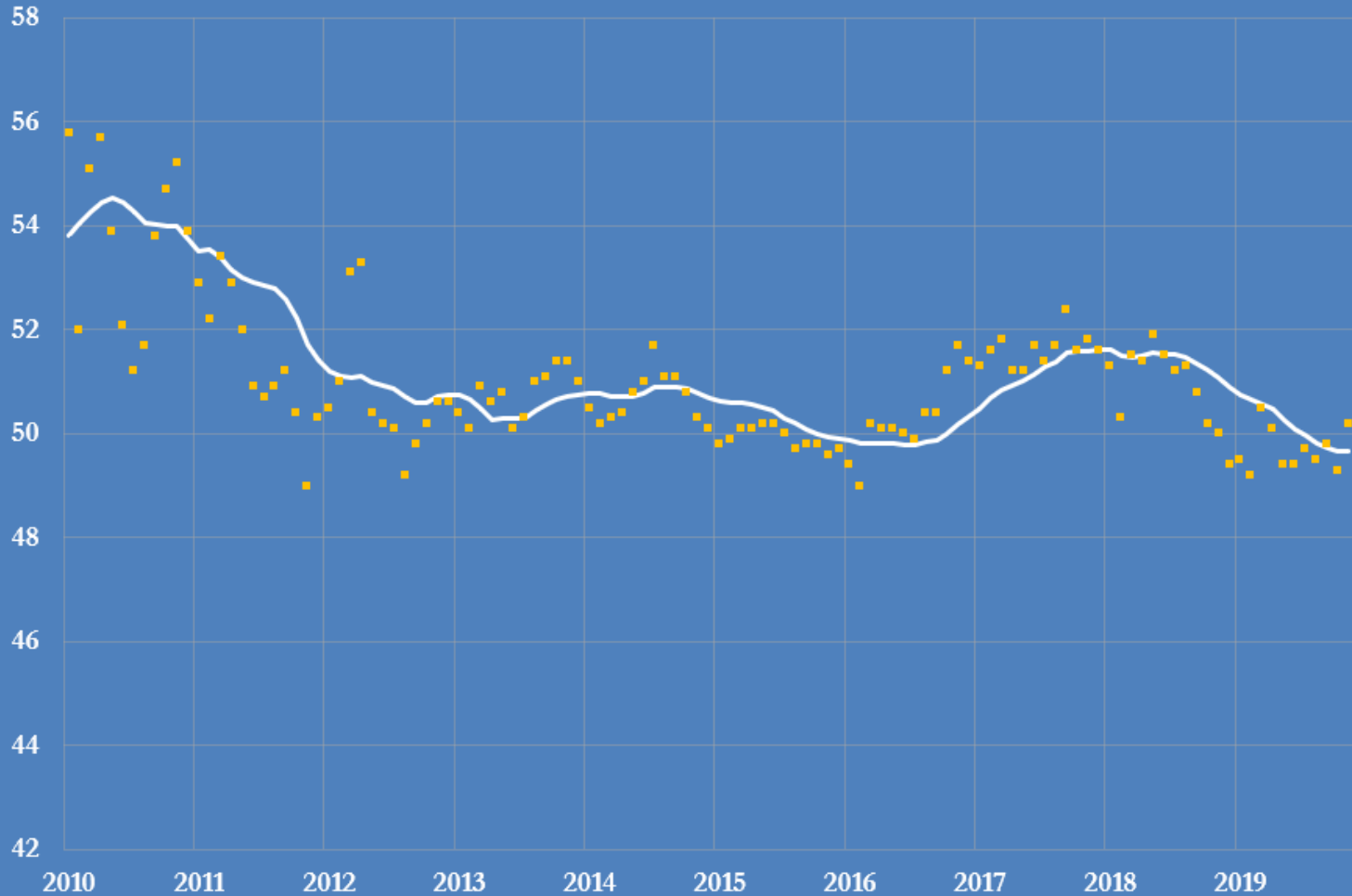
India domestic passenger vehicle sales, 2004-2019
percent change from prior year, monthly and three-month average



China's economy slowed under pressure from trade war and credit squeeze

Purchasing managers' index showed marginal contraction through most of 2019

China purchasing managers' index, 2010-2019
Manufacturing sector, monthly and 12-month average



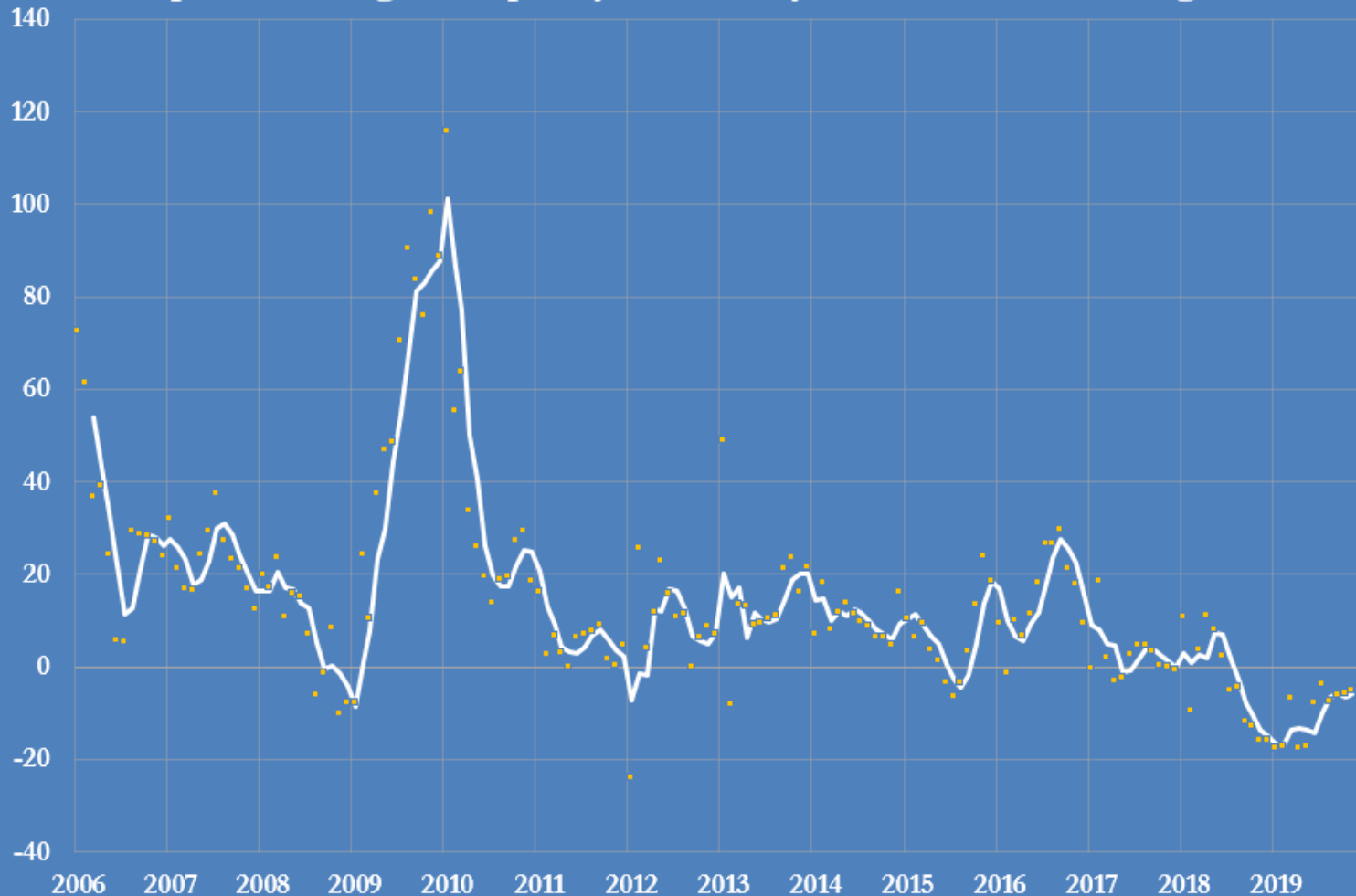
Source: China National Bureau of Statistics

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China's auto sales and motor manufacturing output slumped

Direct impact on fuel consumption and indirect impact through jobs and economy

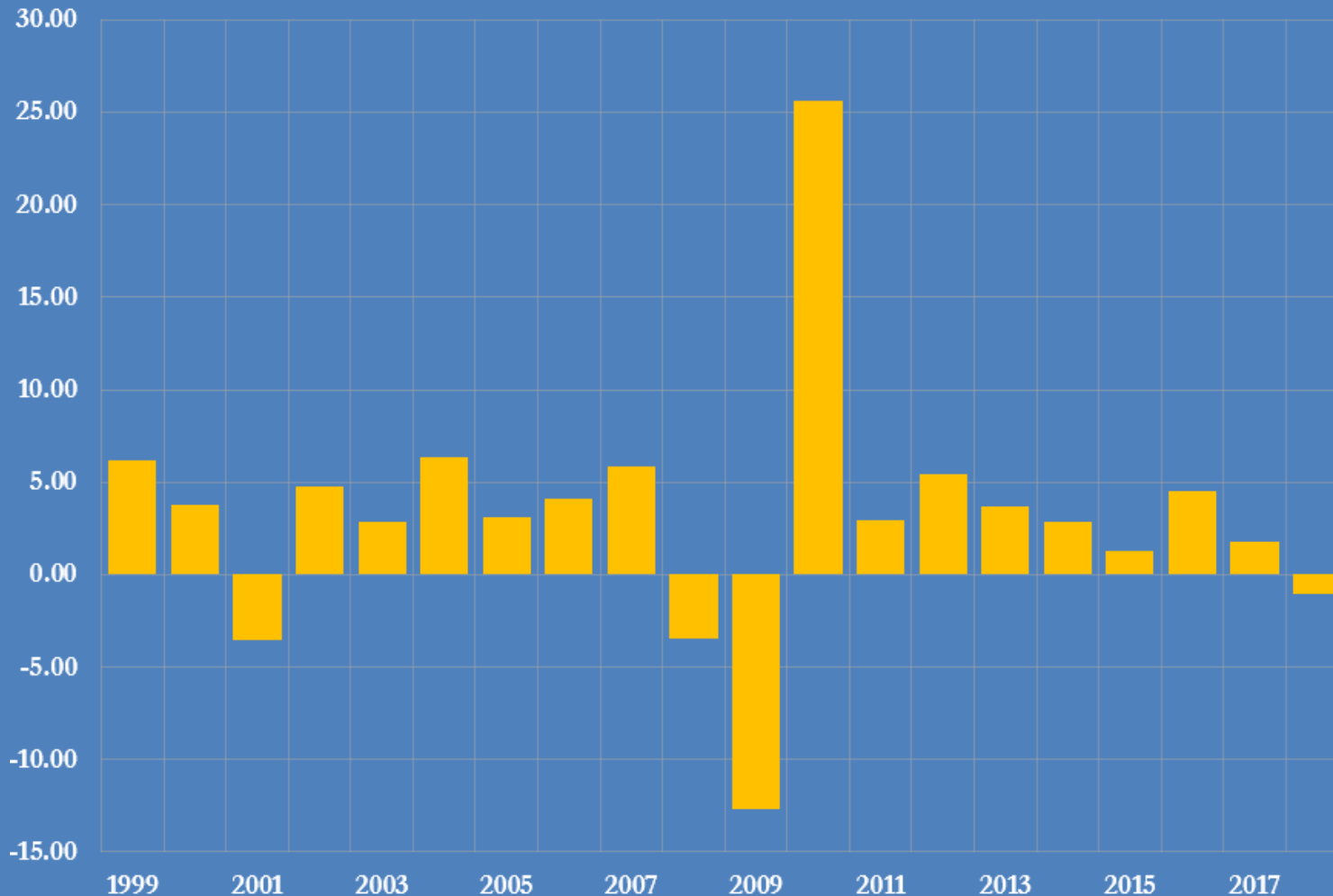
China passenger car sales, 2006-2019
percent change from prior year, monthly and three-month average



Global motor vehicle production declined in 2018 and again in 2019

Worst performance since recession of 2008/09

World motor vehicle production, 1999-2018
percent change from prior year, annual



Source: International Organization of Motor Vehicle Manufacturers

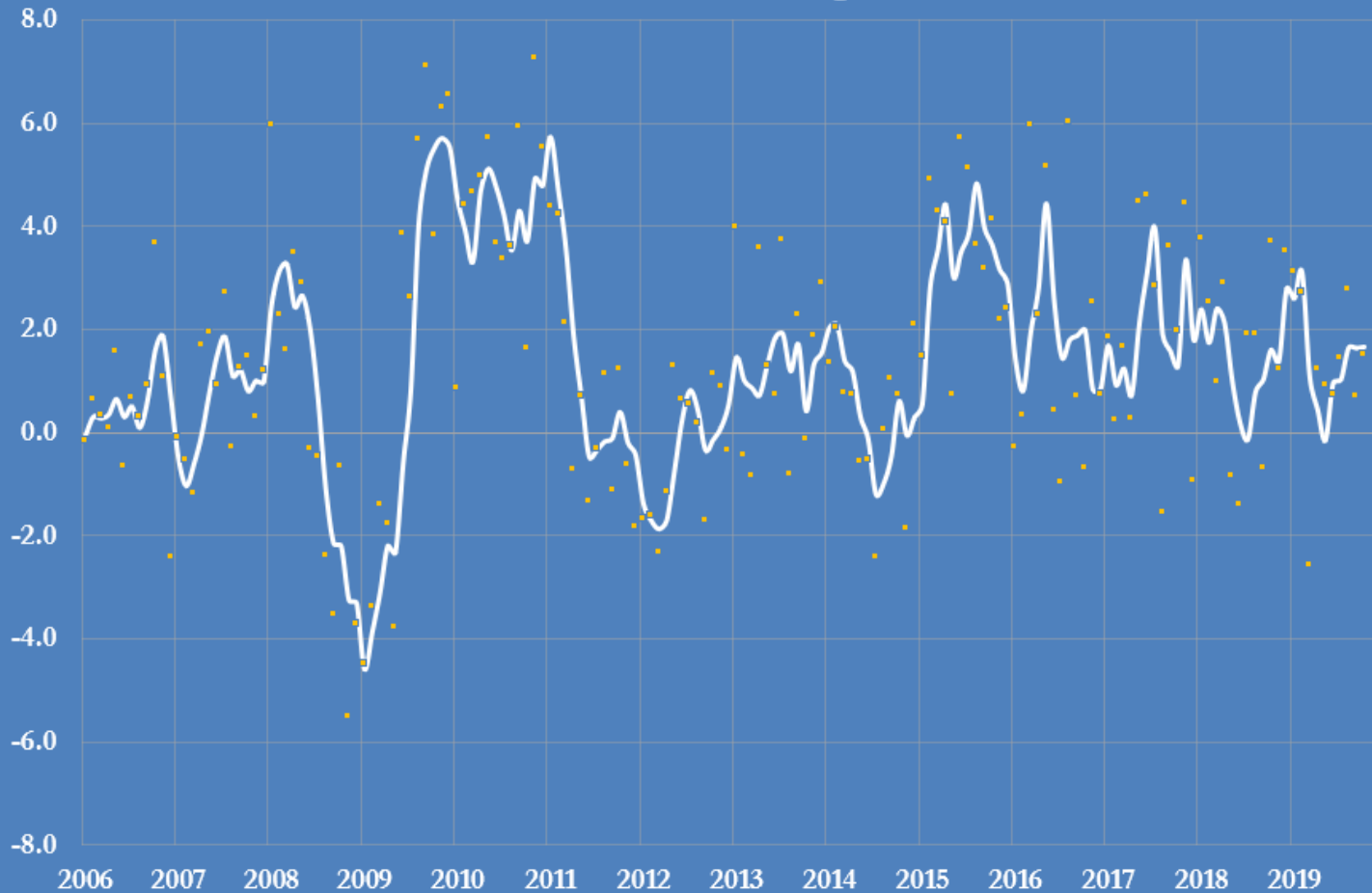
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Global oil consumption growth slowed sharply in 2018/19

Consumption growing at some of slowest rates since high-price era of 2011-2014

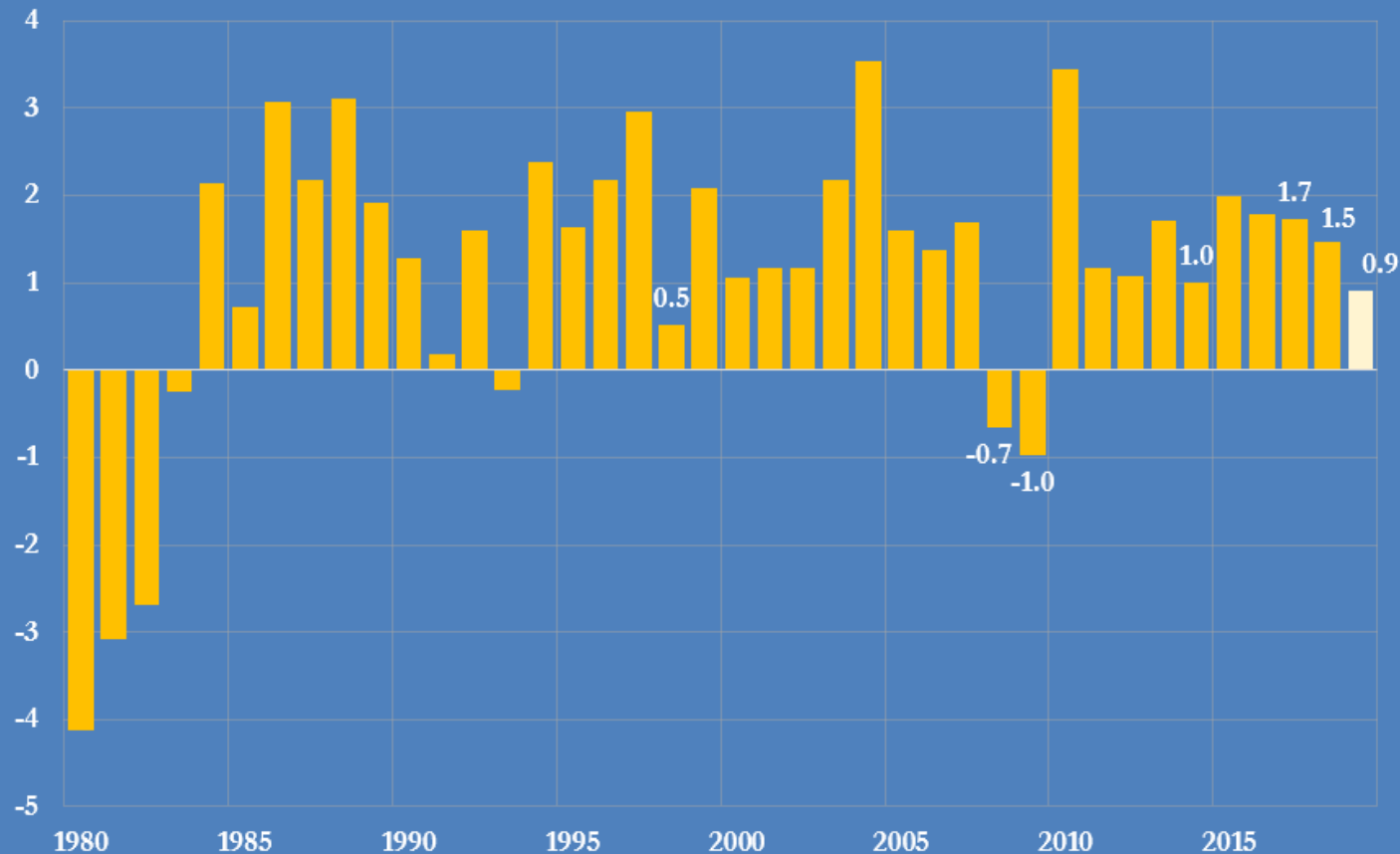
Oil consumption for selected countries, 2006-2019

Percent change from prior year, monthly and three-month average
Top 18 oil consumers each accounting for >1 million b/d



Global oil consumption growth decelerated to just 0.8-1.0% in 2019
Consumption growth well below 20-year average of 1.4%
Slowest since recession of 2008/09 and before that Asian financial crisis of 1997/98

World oil consumption growth, 1980-2018
annual percent change



Oil consumption outlook depends on global economy in 2020/21

Positive cyclical factors:

- U.S. Federal Reserve cuts interest rates
- Other central banks shift to stimulus
- Fiscal policy switches to expansionary
- Financial conditions are improving
- U.S./China phase one trade agreement
- U.S. presidential election
- Political business cycle?
- Expansion must continue until Nov. 4?

Negative cyclical factors:

- Trade tensions continue
- Lingering business uncertainty
- Expansion is already very mature
- Credit quality is deteriorating
- Emerging market indebtedness
- Equity valuations already very high
- Political risk
- Diplomatic risk

Three main scenarios:

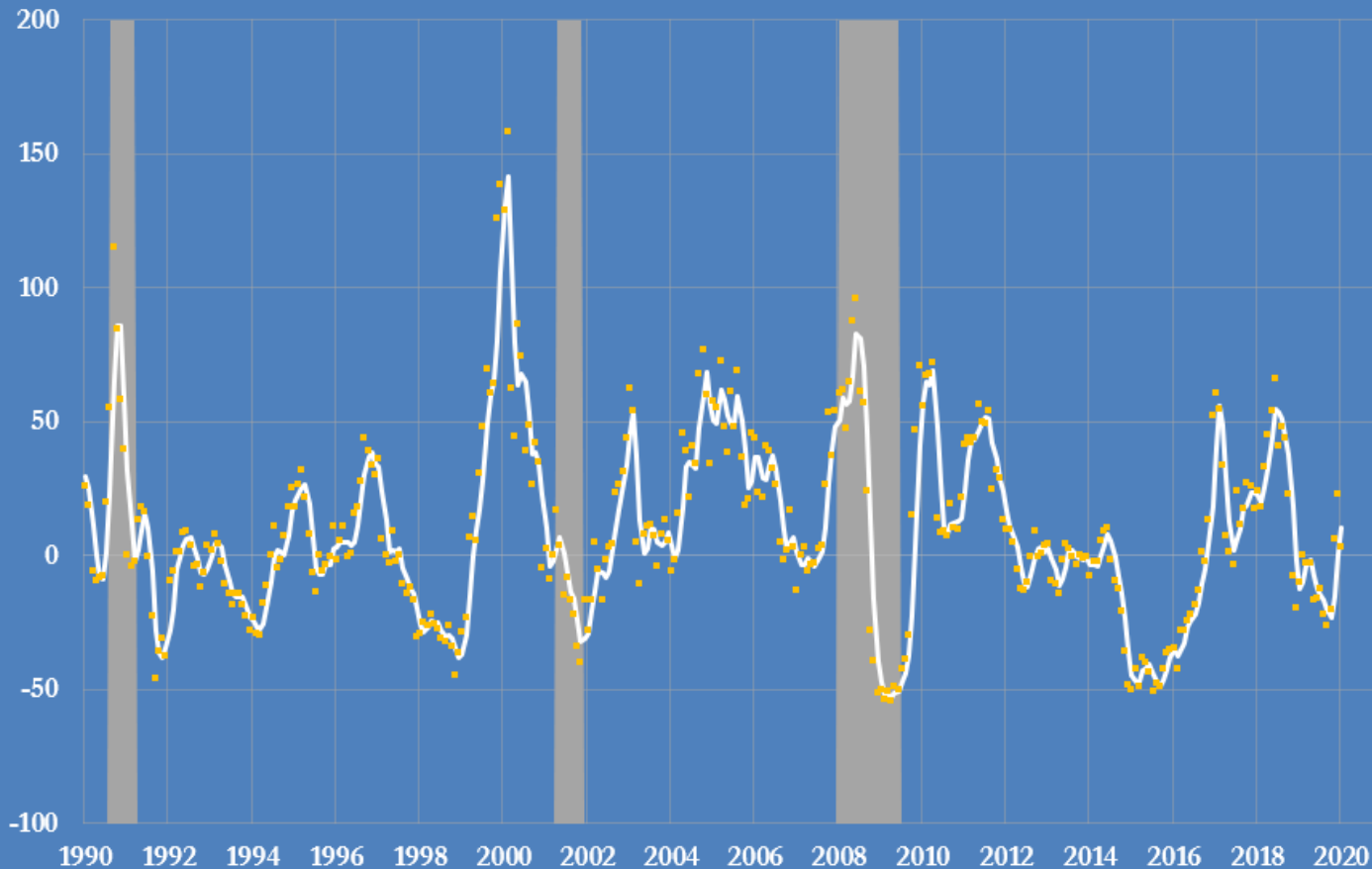
Late expansion upswing (1999/2000)

End-of-cycle downturn (2001/02)

Sluggish growth (2015/16 or 2012/13)

Oil prices anticipating continued global economic growth, no recession
Oil consumption growth accelerating to 1.4% or faster?
Oil and equity markets preparing to party like it's 1999?

Brent spot price, 1990-2019
Percent change from year earlier, monthly and 3-month average
NBER U.S. recession dates shown



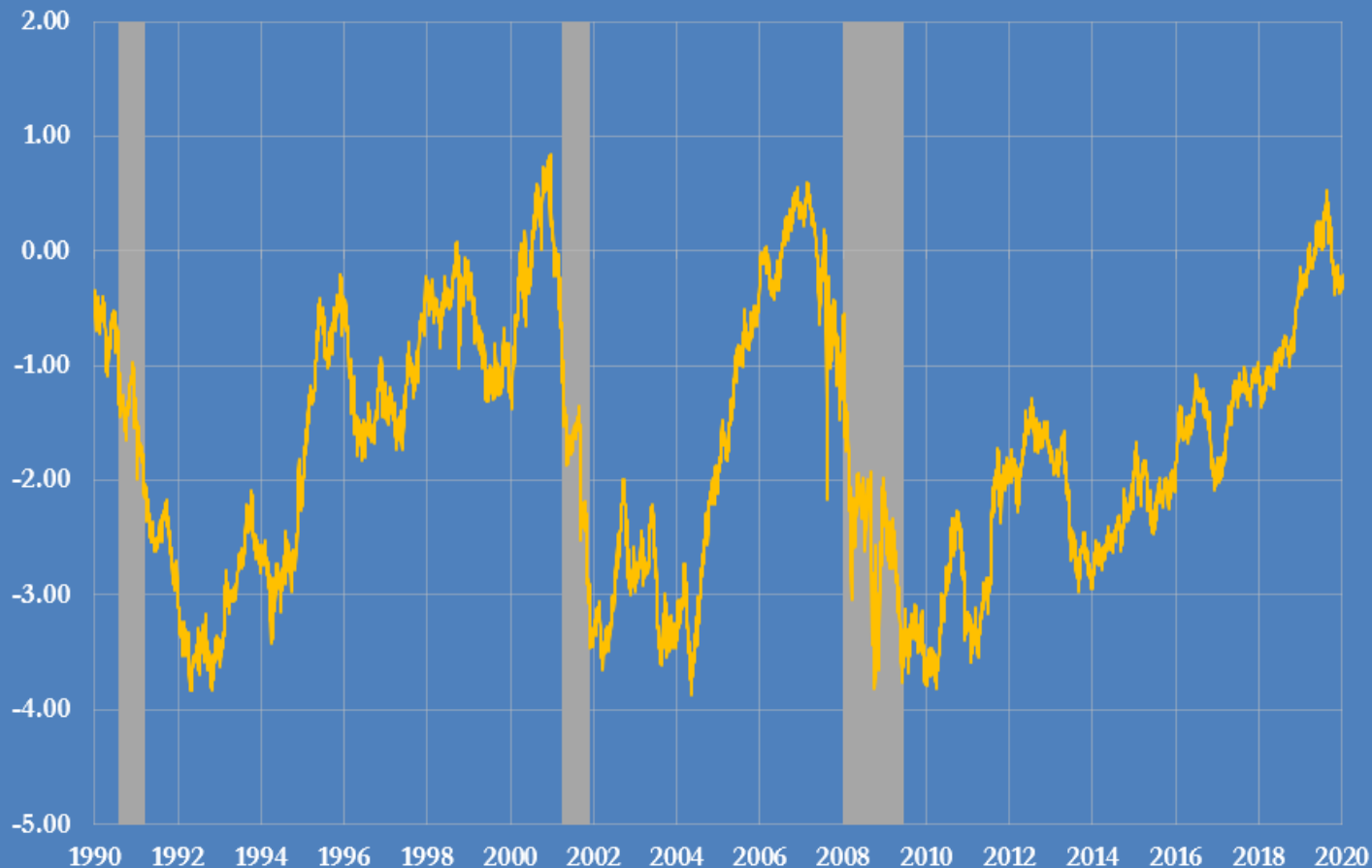
Recent rise in oil prices has coincided with yield-curve normalization

Rise in prices pre-dates extension of OPEC⁺ production cuts

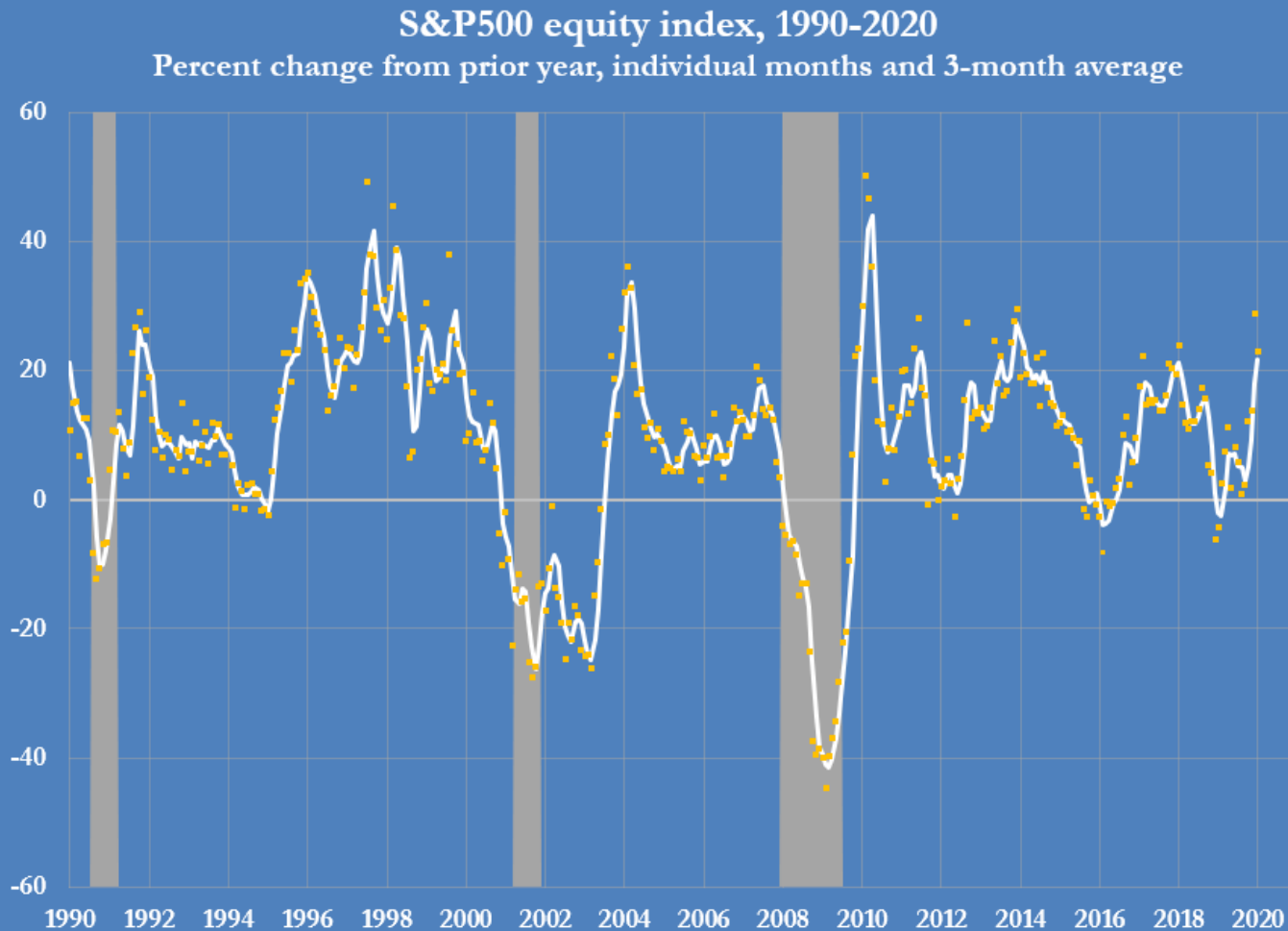
Rising prices primarily driven by increased optimism about economic outlook

U.S. Treasury yield curve, 1990-2019

Percent points, 3mth bills - 10yr notes



Recent rise in oil prices has coincided with rise in equity valuations
Oil traders and equity investors anticipate continued growth in 2020/21
Reprise of 1999/2000 oil and equity boom conditions? Or something different?



U.S. shale producers will dominate the global production story in 2020
Shale producers are most price sensitive in short term

Critical questions:

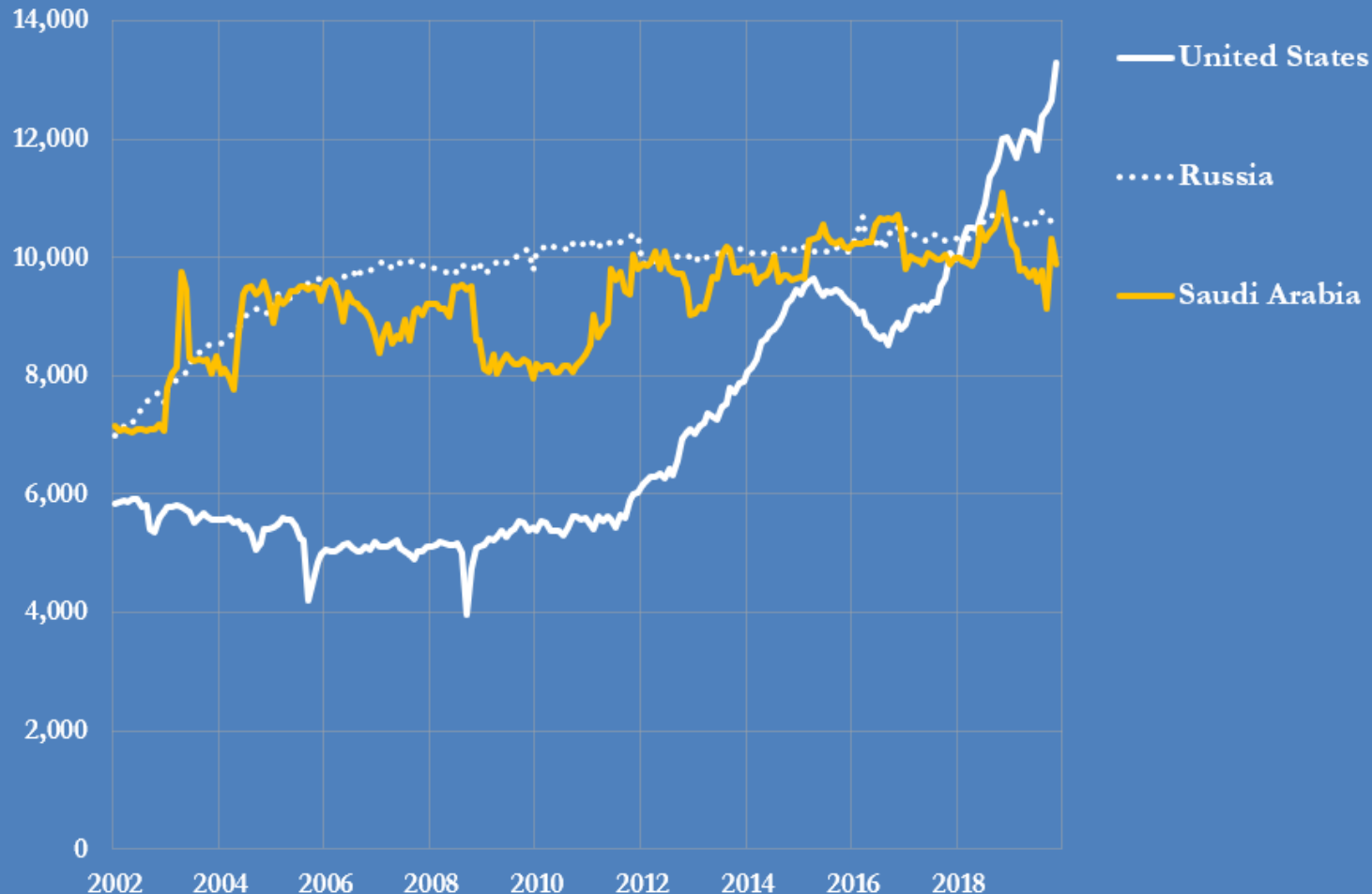
How far will U.S. production growth decelerate in response to lower prices and drilling rates?

How will U.S. shale firms respond to any new increase in prices as a result of temporary supply disruption or cyclical acceleration in consumption?

United States has dominated incremental oil production in last decade

U.S. shale producers captured all incremental oil consumption in 2019

Global crude oil output by top three producers, 2002-2019
000 b/d, monthly



U.S. oil production growth must decelerate to rebalance global oil market

U.S. shale production has become the marginal price-determining producer

Global oil consumption and production, 2011-2019

Incremental million barrels per day

	Global oil consumption	U.S. oil production	L48 oil production ex Gulf of Mexico	U.S. supplies all global incremental consumption?
2011	1.0	0.2	0.5	NO
2012	1.0	0.9	0.9	NO
2013	1.6	1.0	1.0	NO
2014	0.9	1.3	1.2	YES
2015	1.9	0.7	0.5	NO
2016	1.7	-0.6	-0.7	NO
2017	1.7	0.5	0.4	NO
2018	1.4	1.6	1.6	YES
2019	0.9	1.3	1.1	YES

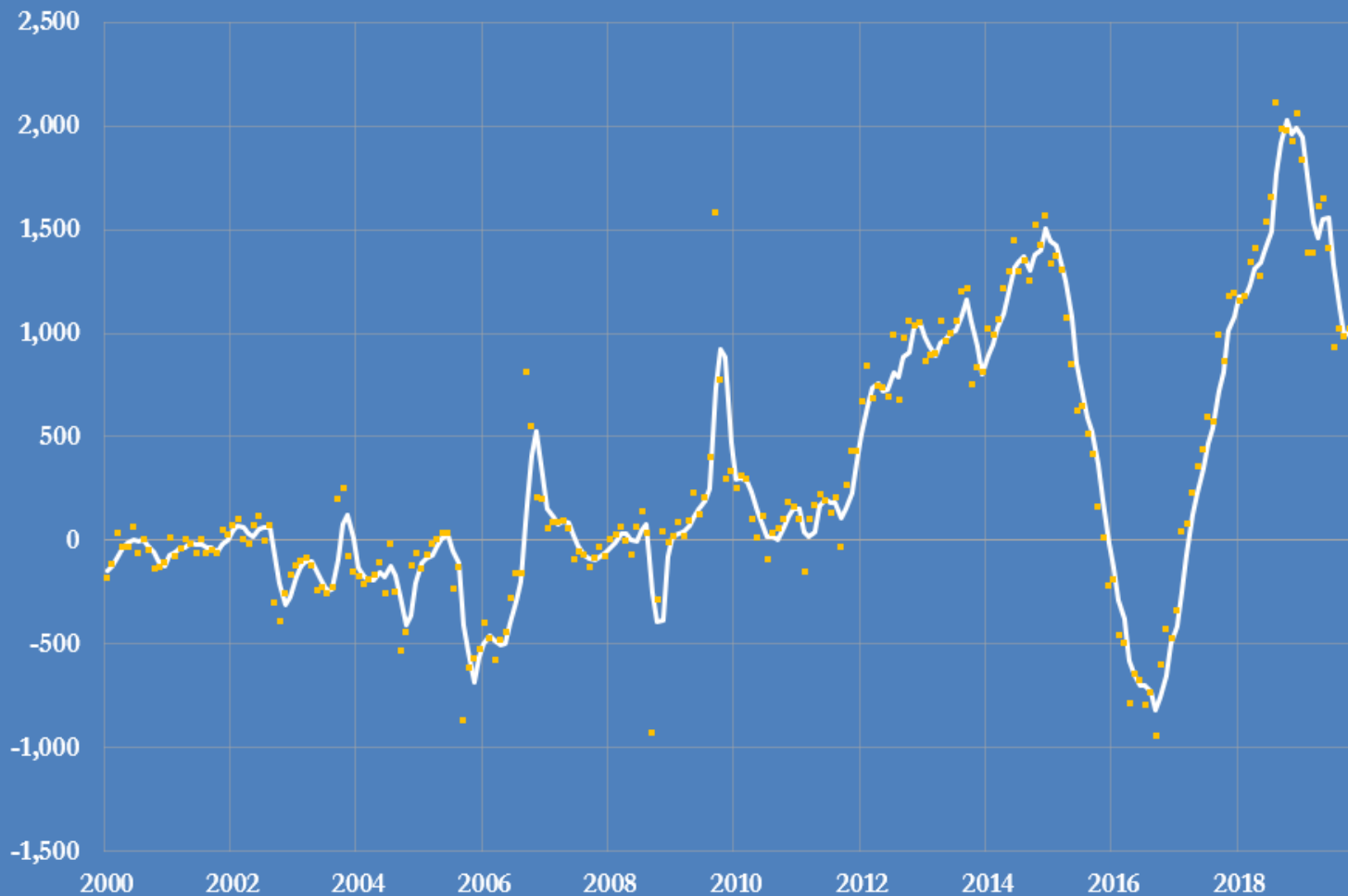
Sources: BP Statistical Review of World Energy, U.S. Energy Information Administration
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U.S. oil output growth hit a record 2 million b/d in year to Aug-Oct 2018

U.S. shale producers captured all of incremental global consumption in 2018/19

U.S. crude oil production, 2000-2019

Increase compared with prior year, monthly and 3-month average, 000 b/d



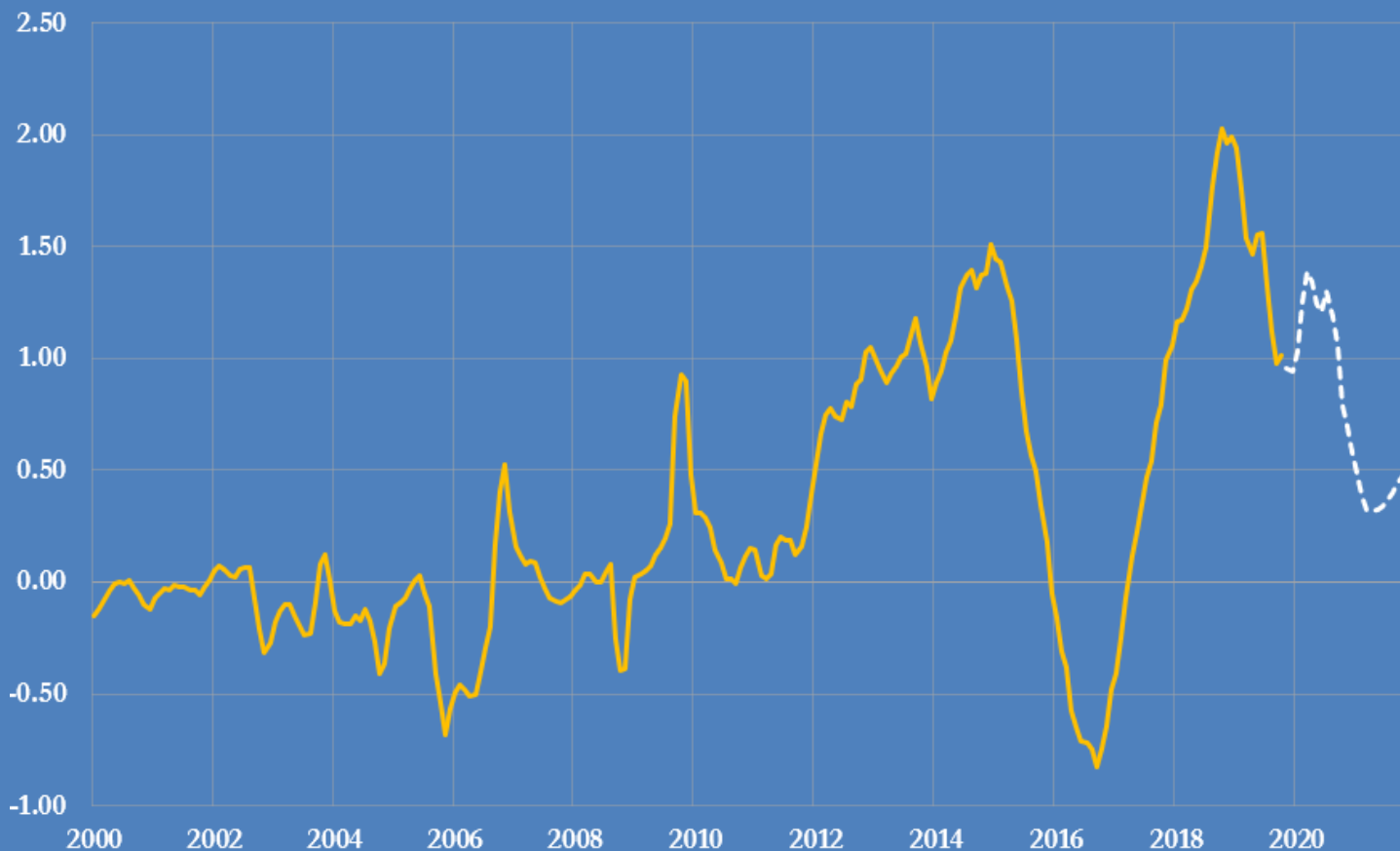
Source: U.S. Energy Information Administration

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U.S. output growth has slowed to 1 million b/d in year to Aug-Oct 2019

Forecast to slow to 0.58m b/d by end 2020 and 0.54m b/d by end 2021

U.S. crude oil production, 2000-2021
million b/d, change from prior year,
three-month average, actual and forecast

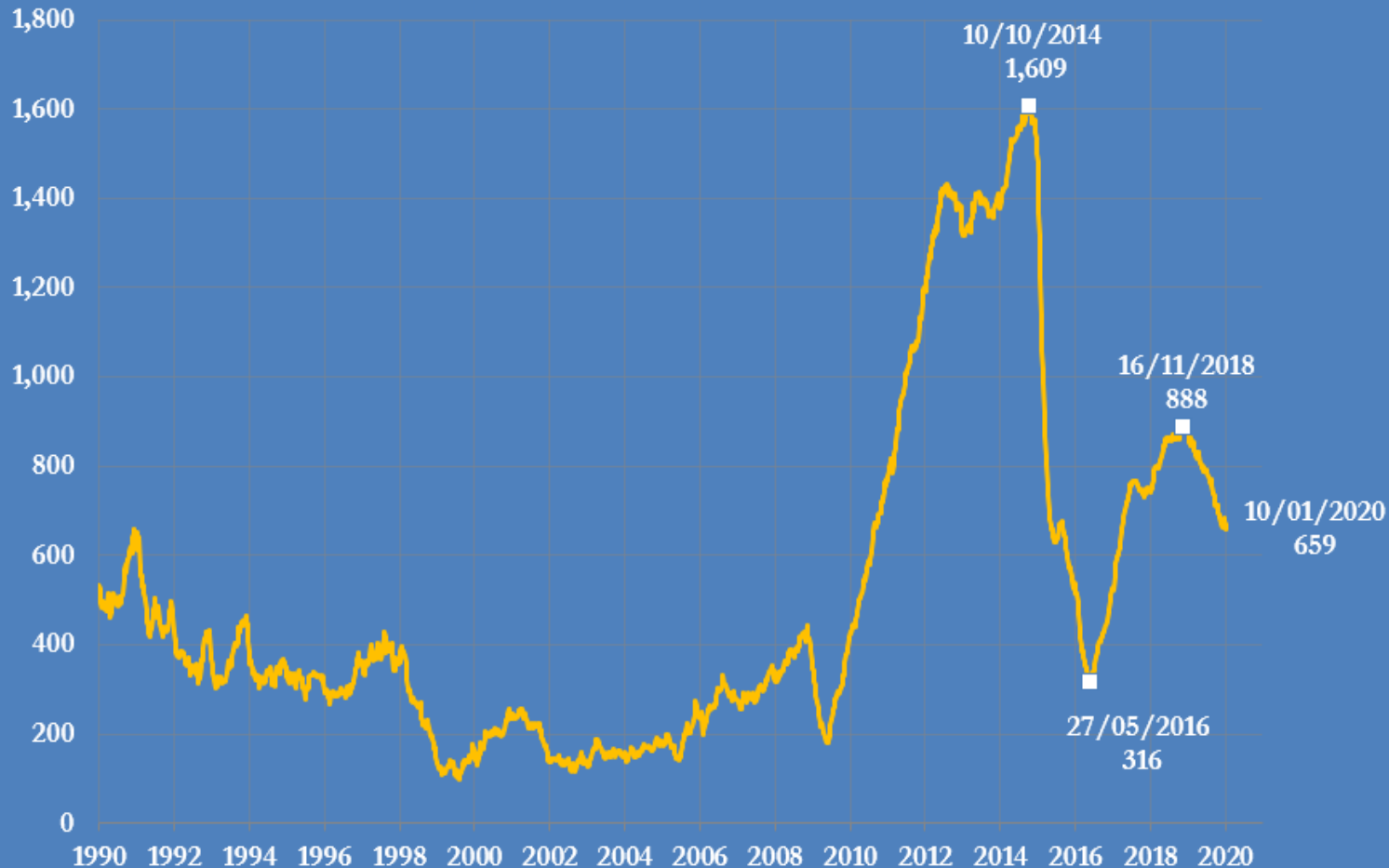


Source: U.S. Energy Information Administration ("Short-Term Energy Outlook", Jan 2020)
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Lower prices filtering through into fewer rigs drilling for oil

U.S. rig count down by -229 (-26%) from cyclical peak in 2018

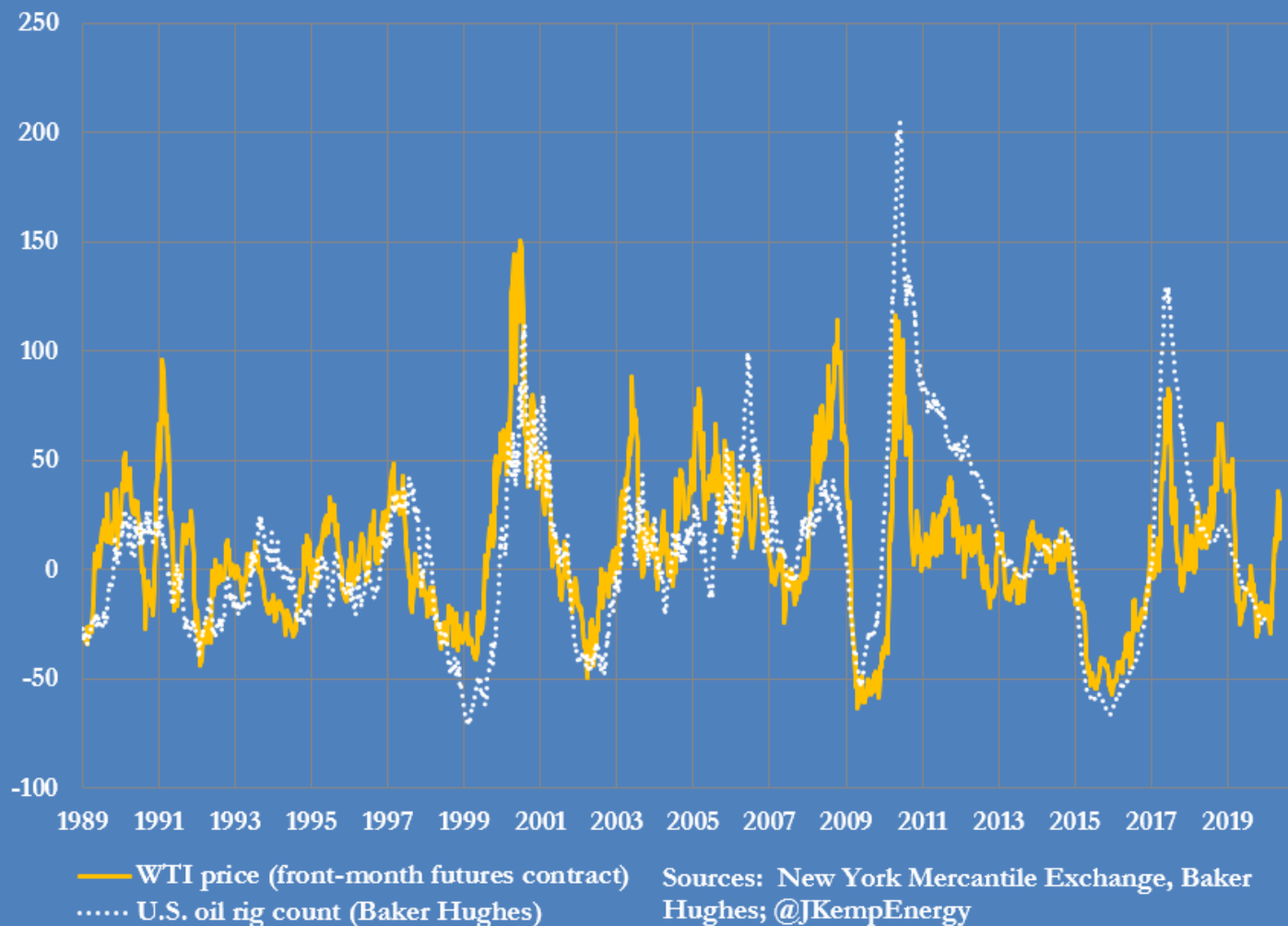
Number of rigs drilling for oil in the United States, 1990-2020



U.S. rig count follows changes in oil prices with a delay of 4-5 months

Average lag of around 19 weeks from change in prices to change in rig count

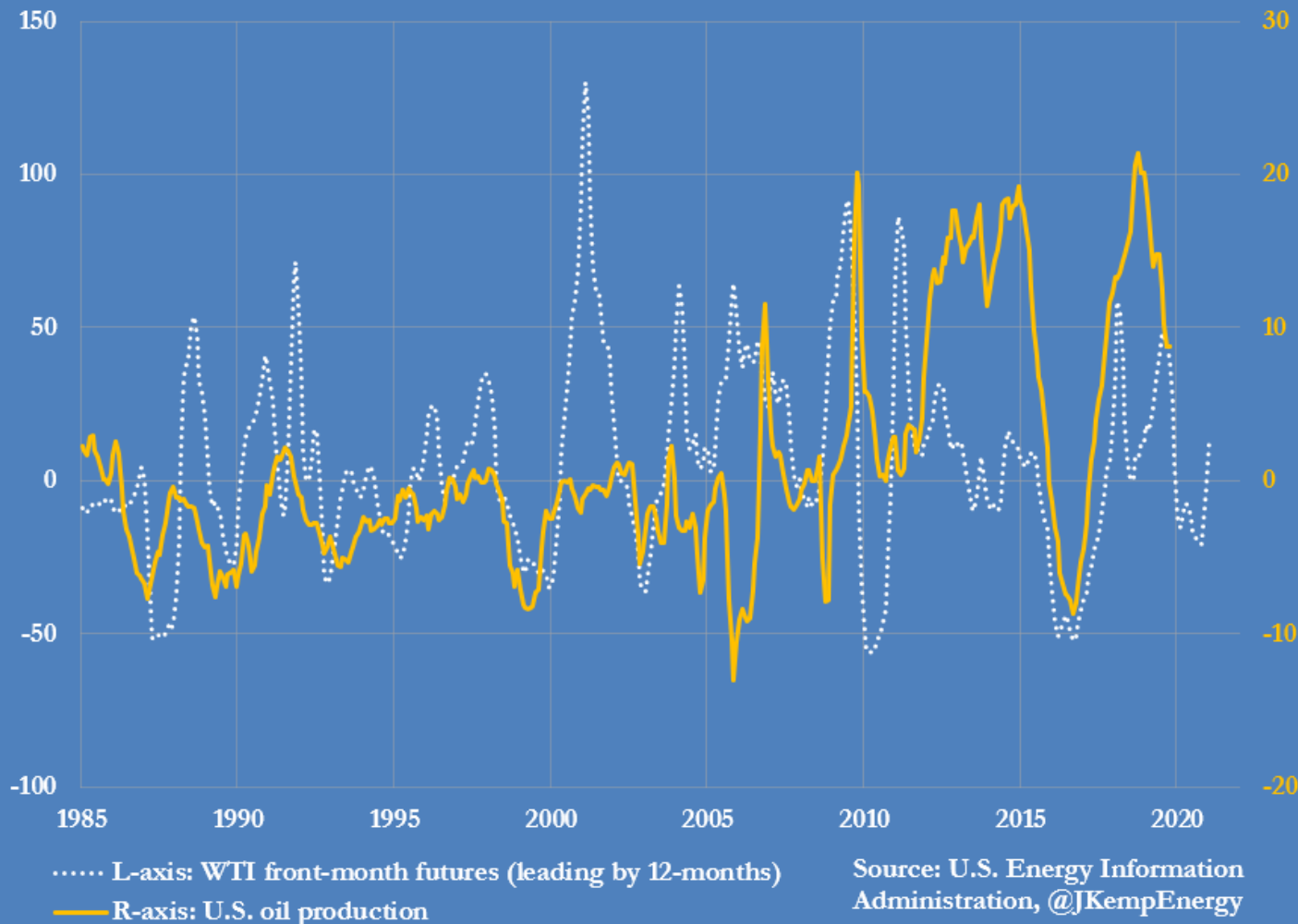
U.S. crude oil prices and drilling activity
12-month percent change (WTI prices leading by 19 weeks)



Lower prices filtering through to slower production growth

Average lag of 12 months between price change and output change

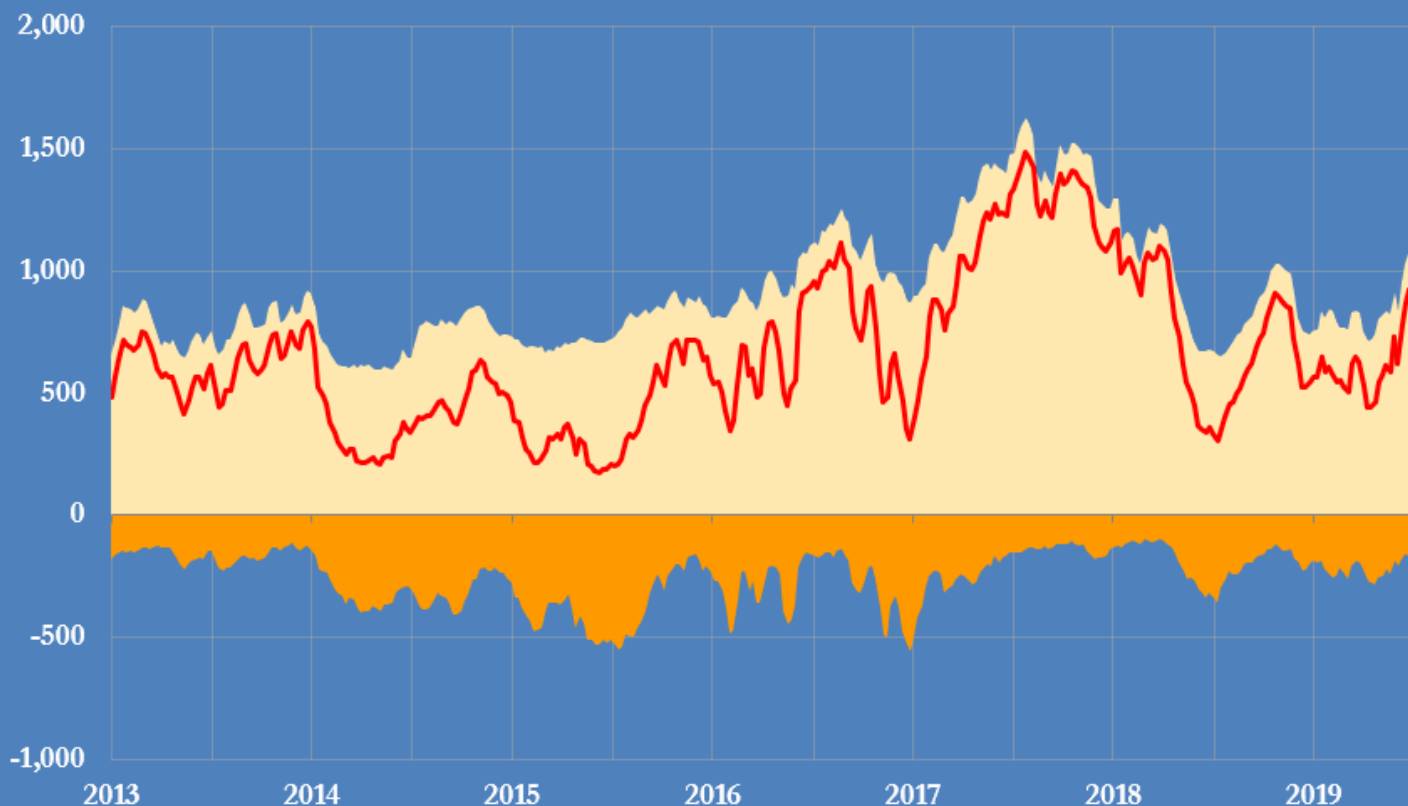
U.S. oil futures prices and crude oil production, 1985-2021
Percent change compared with prior year, 3-month average



Hedge funds positioned at end of 2019 for further rise in prices in 2020

Expecting acceleration in consumption, deceleration in production

Money managers' total long and short positions in Brent, WTI, U.S. gasoline, U.S. heating oil and European gasoil (million bbl)



Long positions Short positions Net position

Source: U.S. Commodity Futures Trading Commission, ICE Futures Europe

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Hedge funds ended 2019 with biggest bullish position for 15 months
Purchases of more than 500 million barrels in the last 12 weeks of the year

Hedge fund and other money managers' net positions in the course of 2019
million barrels, net long (+) or net short (-)

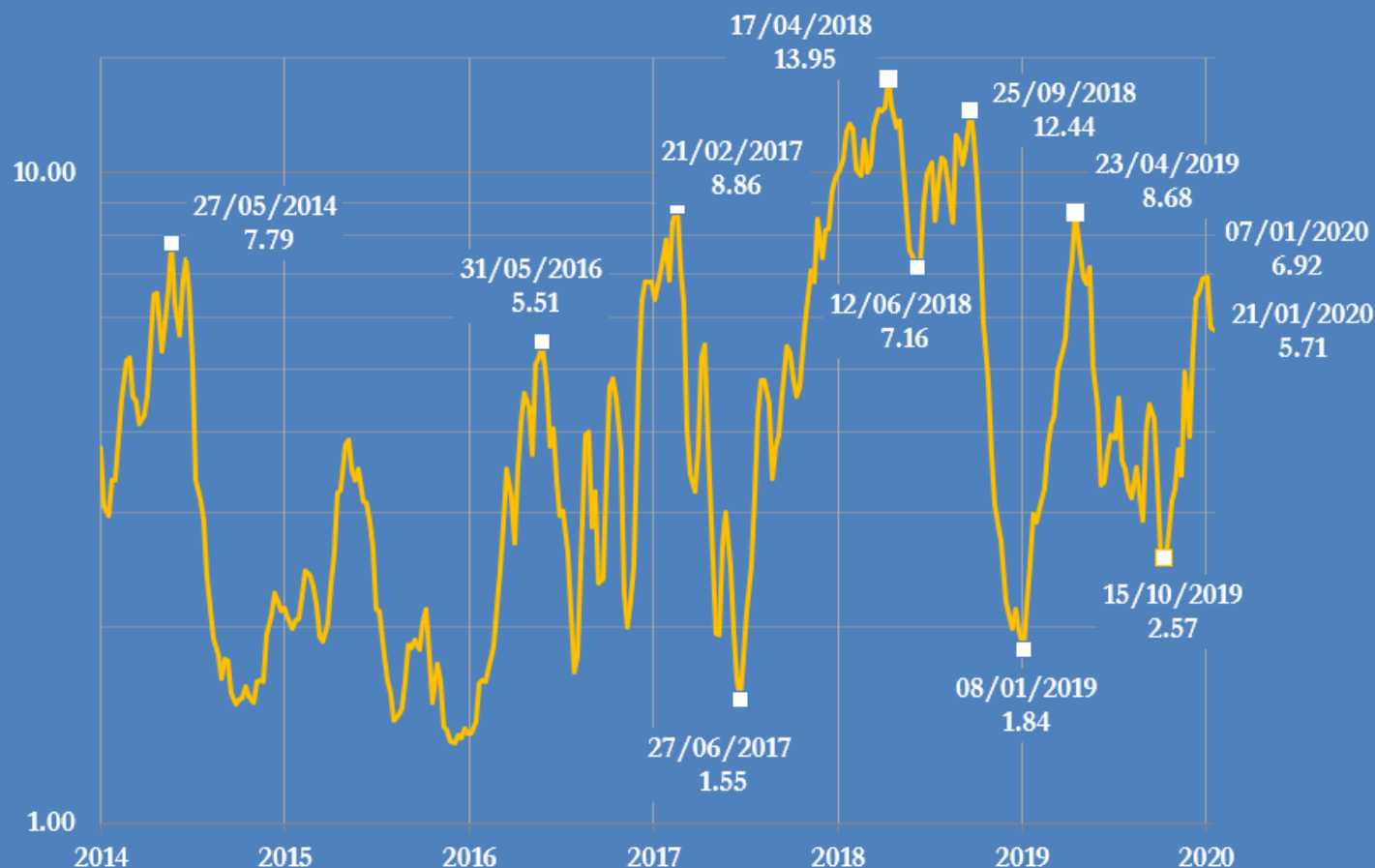
	31-Dec-18	Minimum (month)	Maximum (month)	31-Dec-19
Brent	152	152 (Jan)	411 (Dec)	411
U.S. crude (NYMEX+ICE)	121	85 (Jan)	327 (Apr)	326
U.S. gasoline	56	42 (Sep)	115 (Apr)	106
U.S. diesel	1	-19 (Jun)	21 (Oct)	21
European gasoil	2	2 (Jan)	96 (May)	87
Total petroleum	333	302 (Jan)	951 (Dec)	951

Sources: U.S. Commodity Futures Trading Commission and ICE Futures Europe
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Doubts have set in recently

Hedge fund profit-taking and downward pressure on prices

Ratio of money manager long to short positions in petroleum
(Brent+WTI+gasoline+heating oil+ gasoil) (*log-scale*)



Source: U.S. Commodity Futures Trading Commission, ICE Futures Europe

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Oil price outlook 2020/21

Concluding thoughts

Oil prices have remained broadly stable in “moderate” range since 2018

Prices expected to remain anchored around \$65-70 through mid-decade

Short-term price cycles stem from (a) global economy and (b) U.S. shale responses

Two principal sources of potential price volatility in 2020/21:

- Global economic slowdown/acceleration
- U.S. shale producers' reaction to any short-term rise in prices

THANK YOU

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