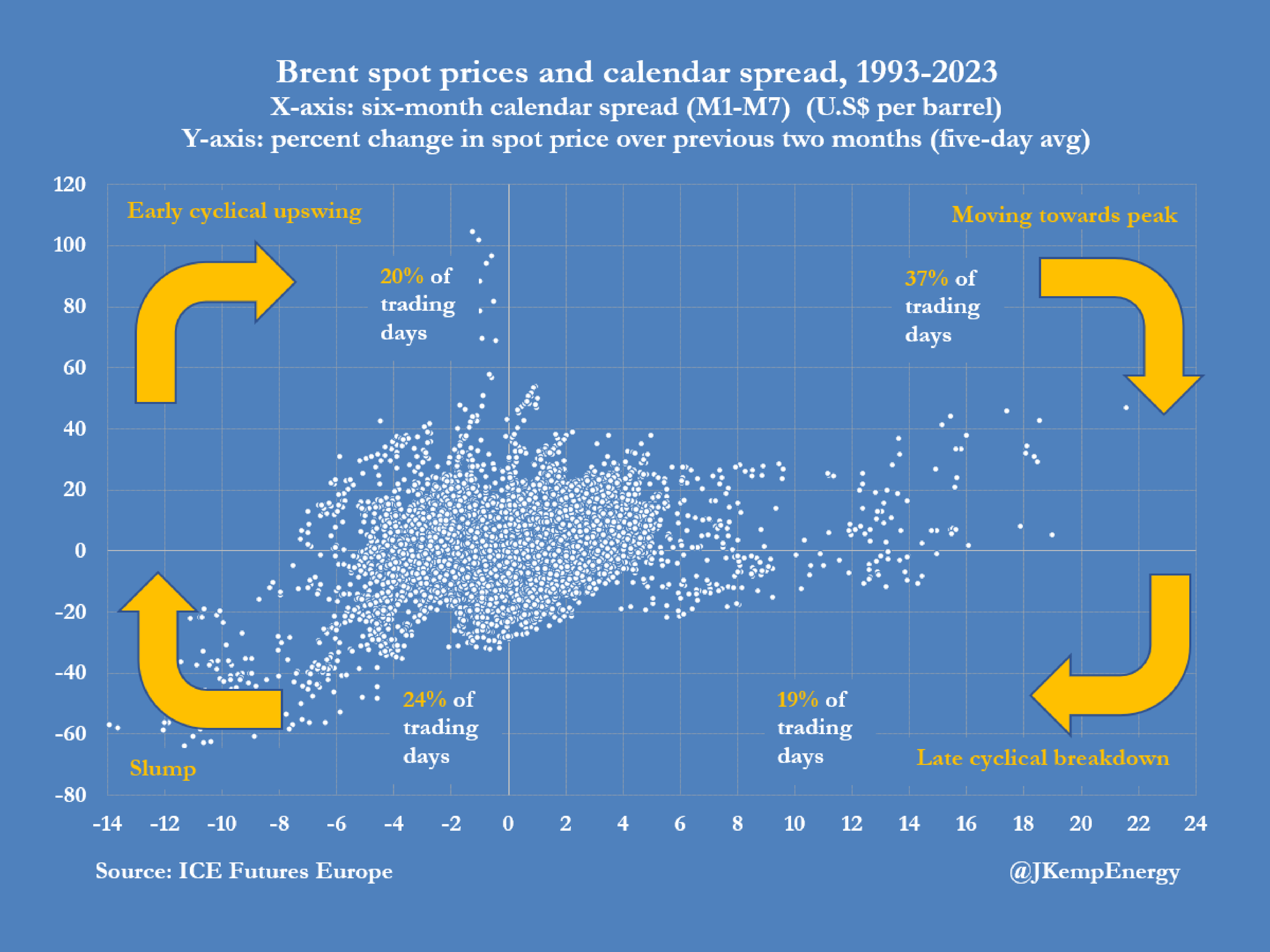
Brent prices, calendar spreads and volatility

Selected indicators

JOHN KEMP
REUTERS
26 April 2023



Brent spot prices and calendar spread, 1993-2023
X-axis: six-month calendar spread (M1-M7) (U.S$ per barrel)
Y-axis: percent change in spot price over previous two months (five-day avg)
Early cyclical upswing
Moving towards peak
20% of trading days
37% of trading days
24% of trading days
19% of trading days
Slump
Late cyclical breakdown
120
100
80
60
40
20
0
-20
-40
-60
-80
-14
-12
-10
-8
-6
-4
-2
0
2
4
6
8
10
12
14
16
18
20
22
24
Source: ICE Futures Europe
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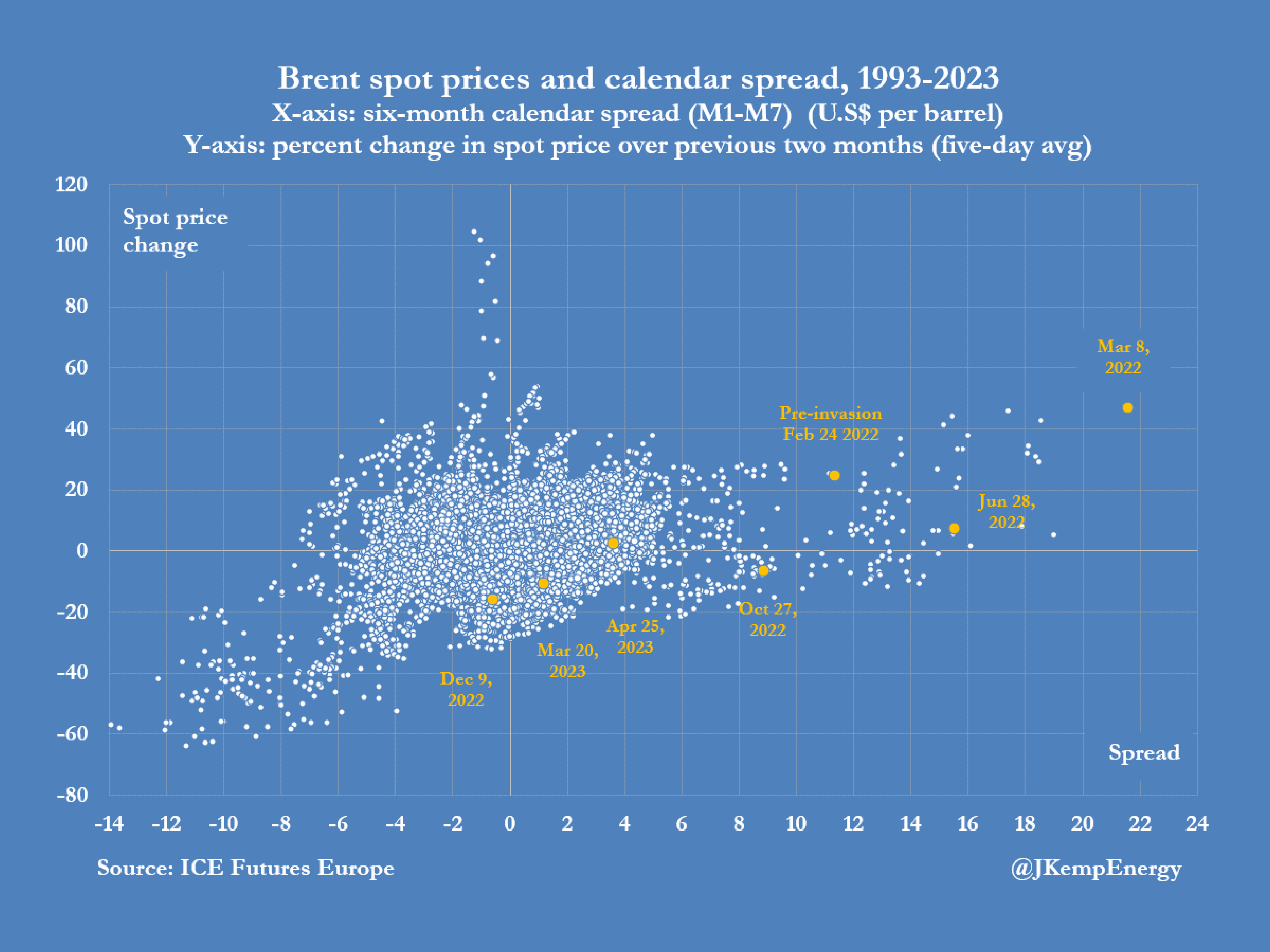
Brent spot prices and calendar spread, 1993-2023
X-axis: six-month calendar spread (M1-M7) (U.S$ per barrel)
Y-axis: percent change in spot price over previous two months (five-day avg)
Spot price change
120
100
80
60
40
20
0
-20
-40
-60
-80
-14
-12
-10
-8
-6
-4
-2
0
2
4
6
8
10
12
14
16
18
20
22
24
Spread
Mar 8, 2022
Pre-invasion Feb 24 2022
Jun 28, 2022
Oct 27, 2022
Apr 25, 2023
Mar 20, 2023
Dec 9, 2022
Source: ICE Futures Europe
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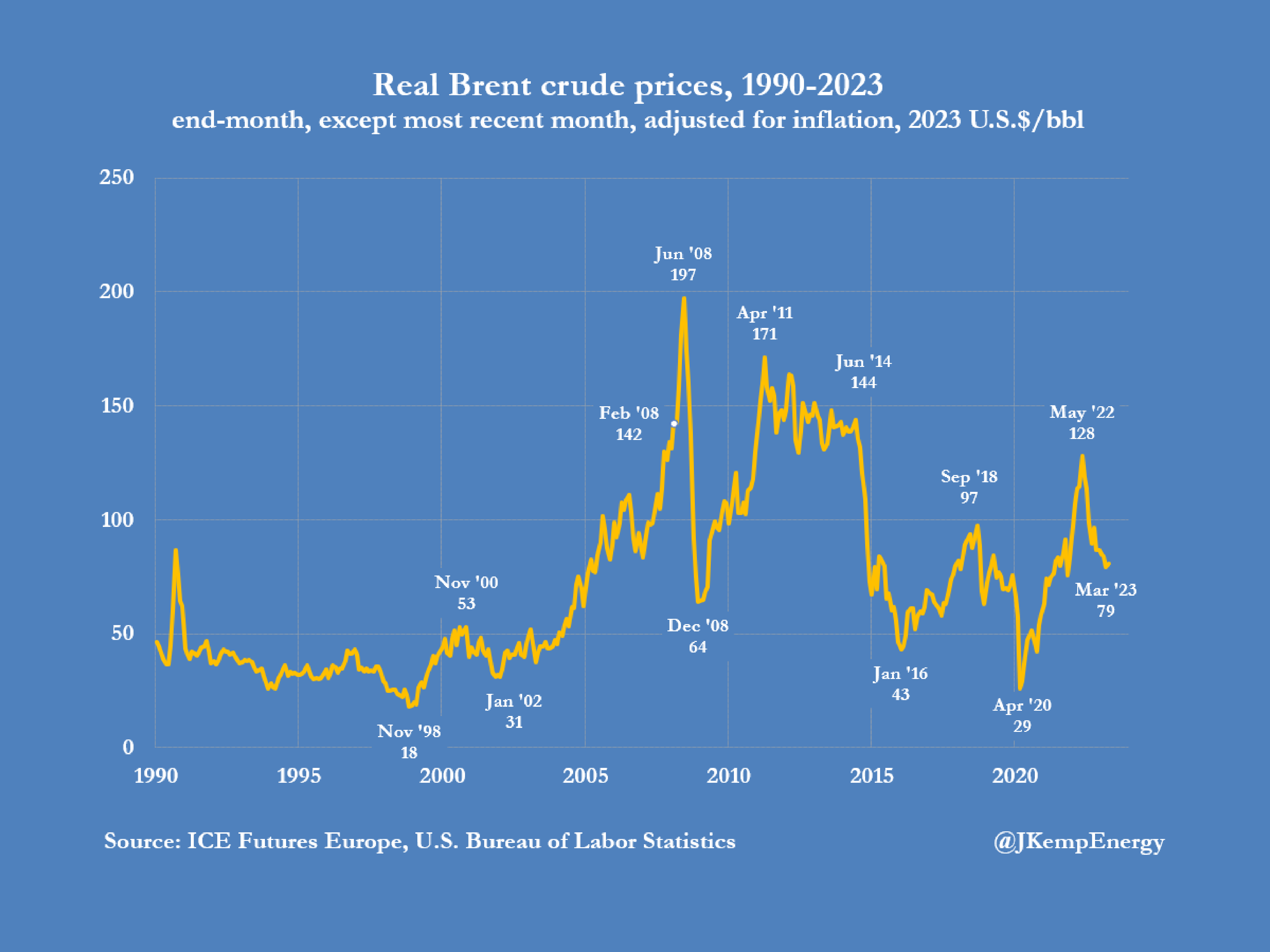
Real Brent crude prices, 1990-2023
end-month, except most recent month, adjusted for inflation, 2023 U.S.$/bbl
250
200
150
100
50
0
1990
1995
2000
2005
2010
2015
2020
Jun '08
197
Apr '11
171
Jun '14
144
Feb '08
142
May '22
128
Sep '18
97
Nov '00
53
Mar '23
79
Dec '08
64
Jan '16
43
Jan '02
31
Apr '20
29
Nov '98
18
Source: ICE Futures Europe, U.S. Bureau of Labor Statistics
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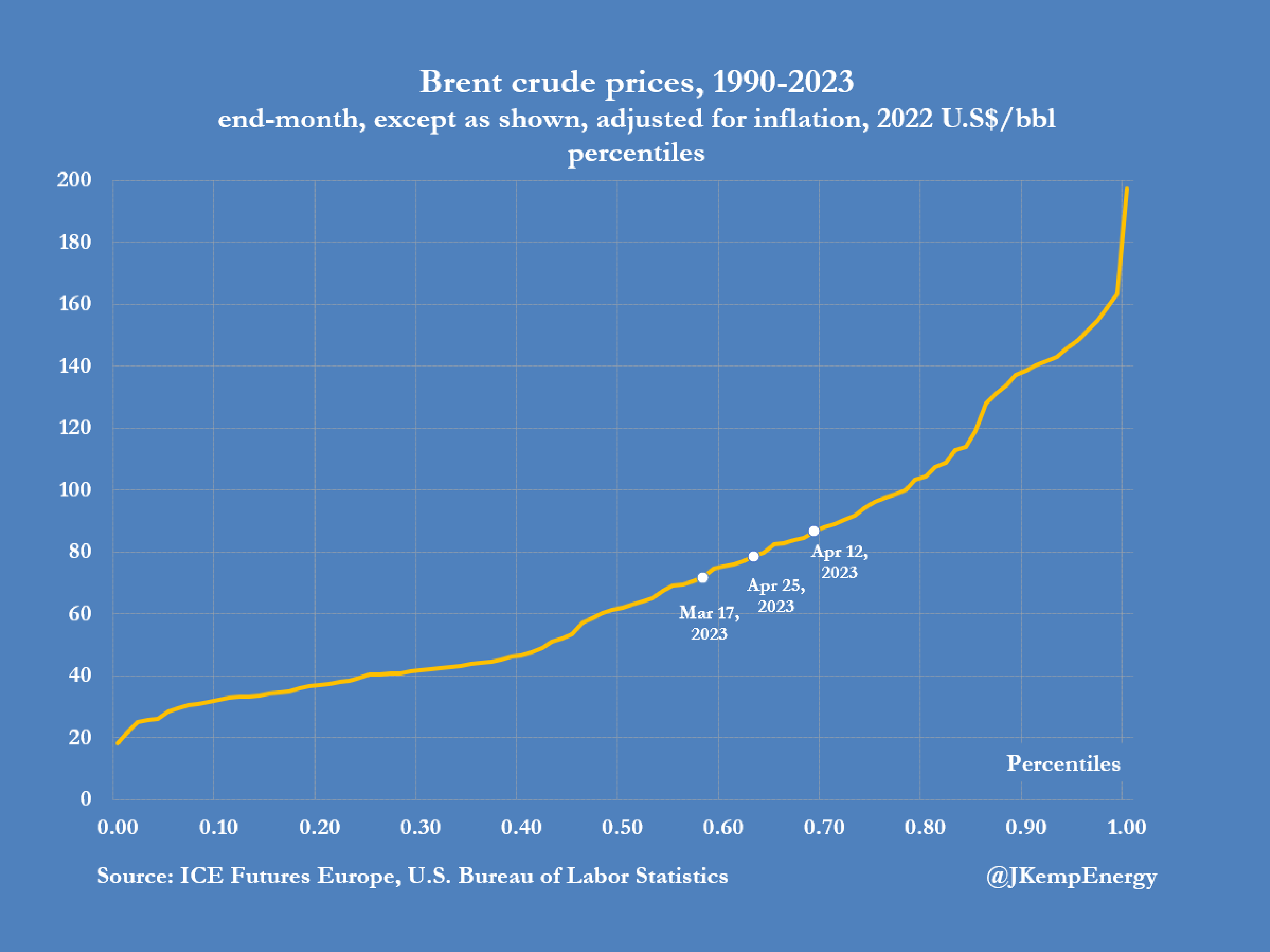
Brent crude prices, 1990-2023
end-month, except as shown, adjusted for inflation, 2022 U.S$/bbl
percentiles
200
180
160
140
120
100
80
60
40
20
0
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
1.00
Percentiles
Mar 17, 2023
Apr 25, 2023
Apr 12, 2023
Source: ICE Futures Europe, U.S. Bureau of Labor Statistics
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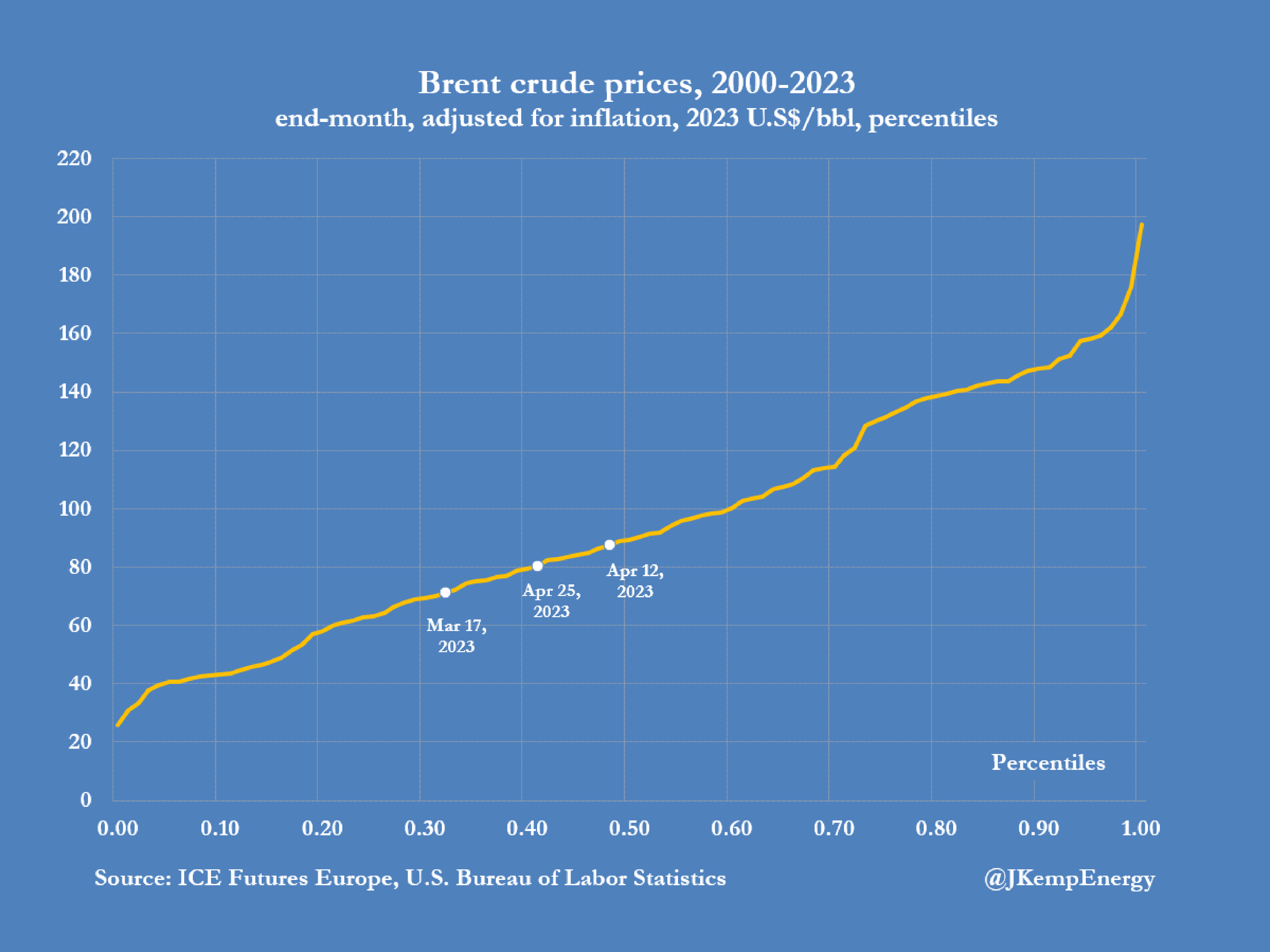
Brent crude prices, 2000-2023
end-month, adjusted for inflation, 2023 U.S$/bbl, percentiles
220
200
180
160
140
120
100
80
60
40
20
0
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
1.00
Mar 17, 2023
Apr 25, 2023
Apr 12, 2023
Percentiles
Source: ICE Futures Europe, U.S. Bureau of Labor Statistics
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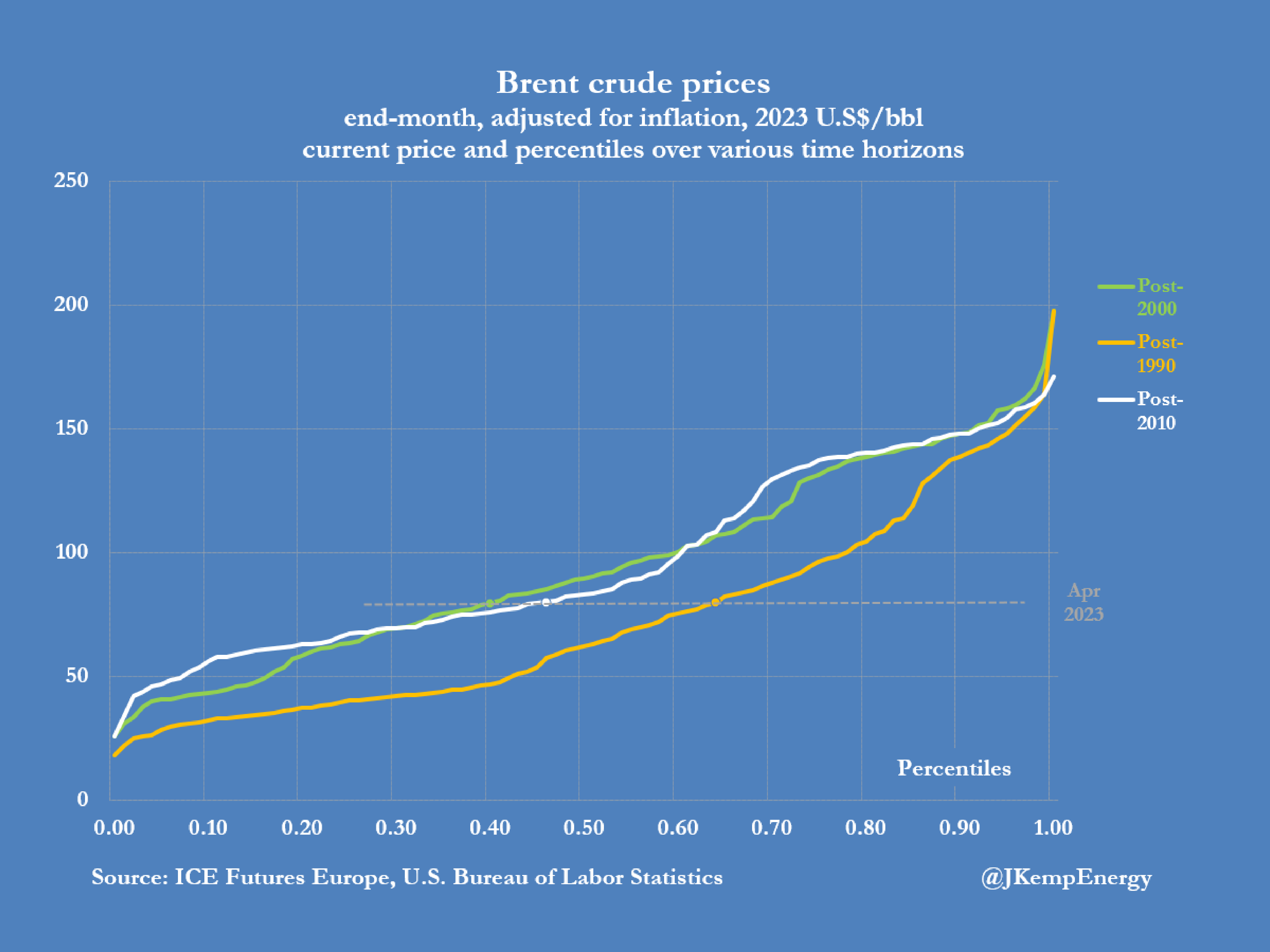

Brent crude prices
end-month, adjusted for inflation, 2023 U.S$/bbl
current price and percentiles over various time horizons
250
200
150
100
50
0
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
1.00
Percentiles
Post-2000
Post-1990
Post-2010
Apr 2023
Source: ICE Futures Europe, U.S. Bureau of Labor Statistics
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Front-month Brent futures prices

Nominal and real U.S.$ per barrel

Month-end prices except for most recent month

	Nominal Brent price U.S.$ per barrel	Real Brent price U.S.$ per barrel Nov 2022 dollars	Real Brent price percentile all months since 1990	Real Brent price percentile all months since 2000	Real Brent price percentile all months since 2010
Apr 2023	80.63	80.63	0.64	0.41	0.47
Apr 2022	109.34	114.48	0.84	0.70	0.66
Apr 2021	67.25	74.74	0.59	0.34	0.37
Apr 2020	25.27	28.91	0.05	0.00	0.00
Apr 2019	72.80	84.50	0.67	0.45	0.52
Apr 2018	75.17	89.07	0.70	0.49	0.55
Jun 2008	139.83	197.37	1.00	1.00	…

Sources: ICE Futures Europe and U.S. Bureau of Labor Statistics

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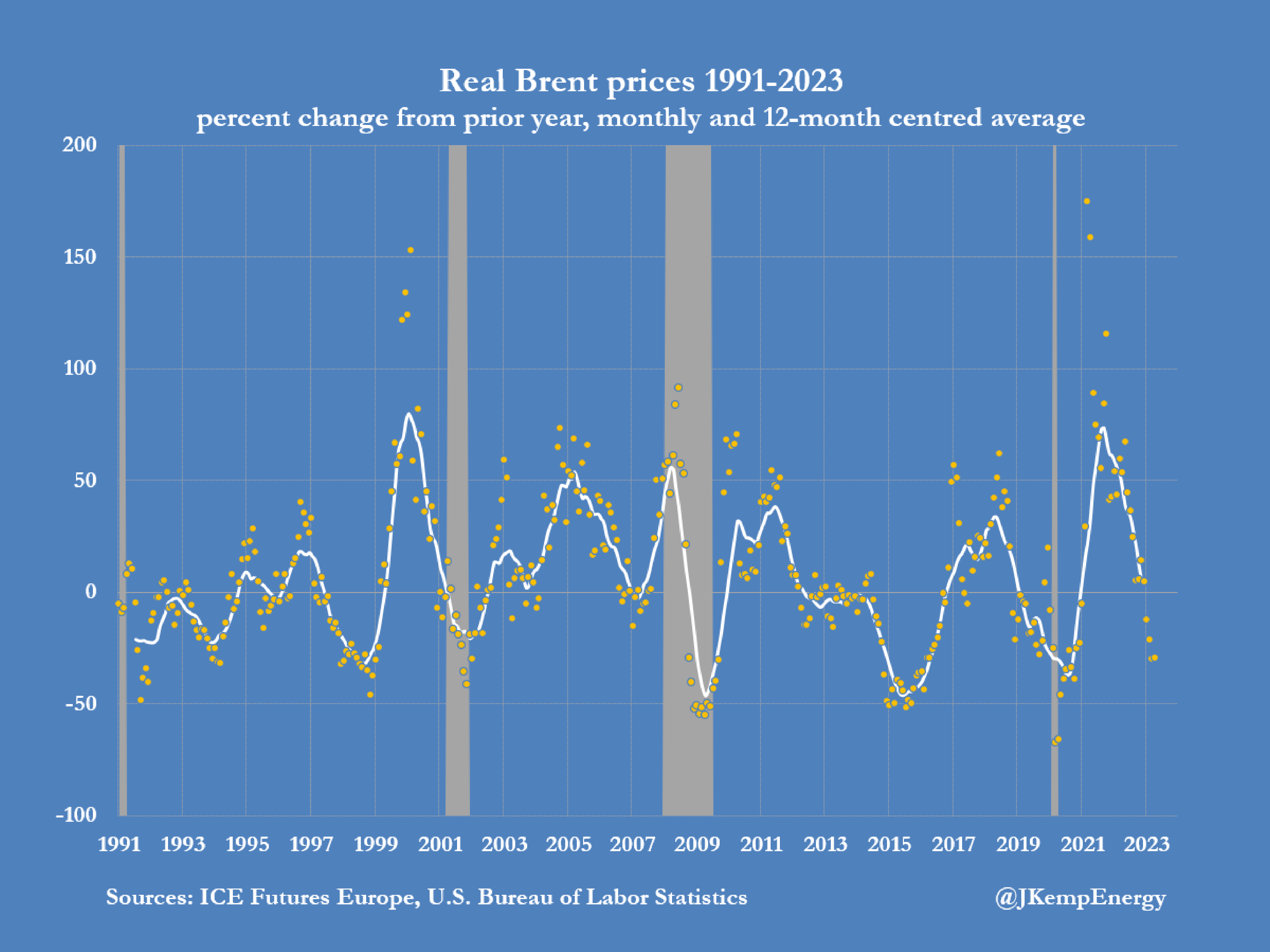
Real Brent prices 1991-2023
percent change from prior year, monthly and 12-month centred average
200
150
100
50
0
-50
-100
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
Sources: ICE Futures Europe, U.S. Bureau of Labor Statistics
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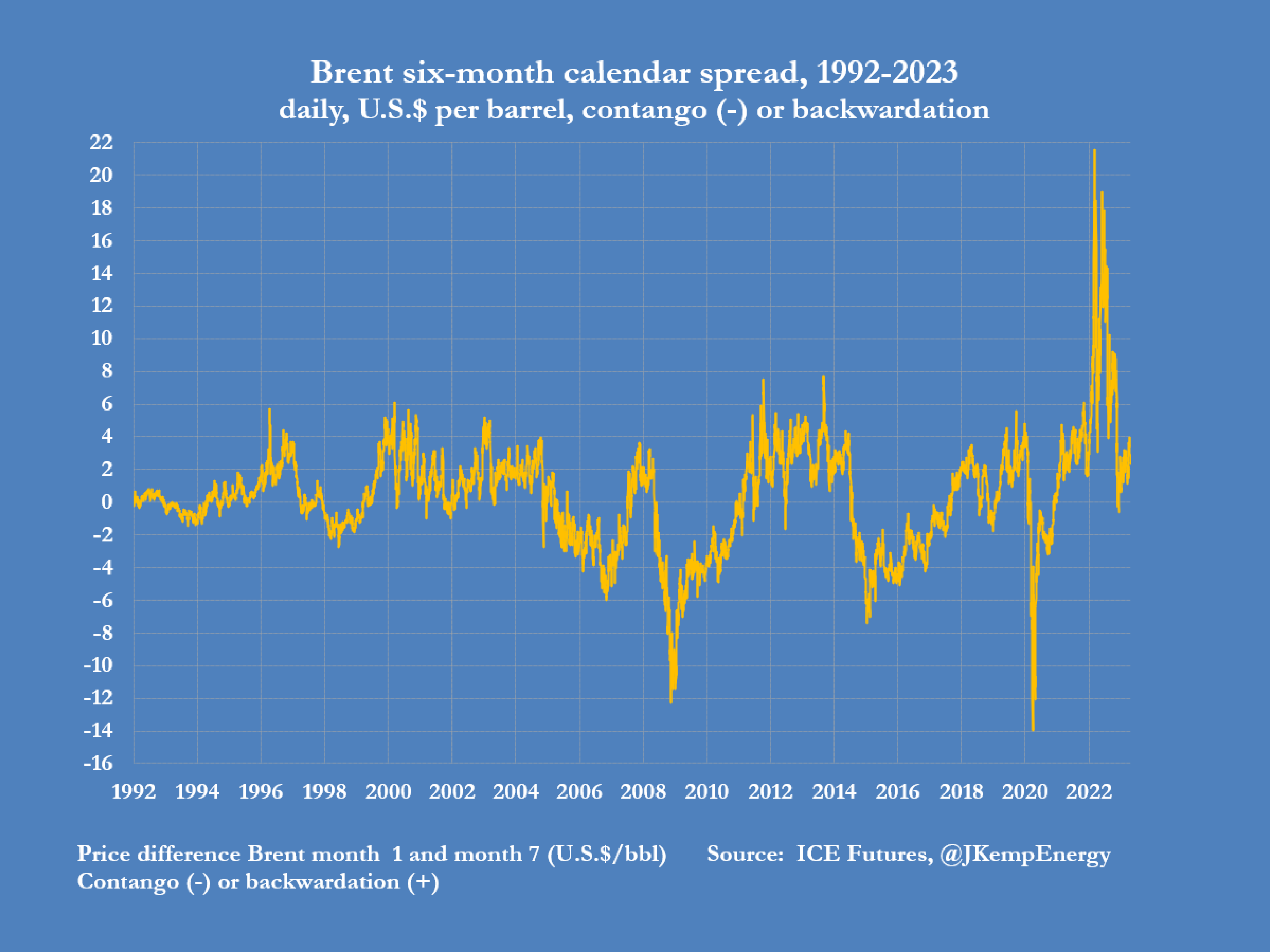
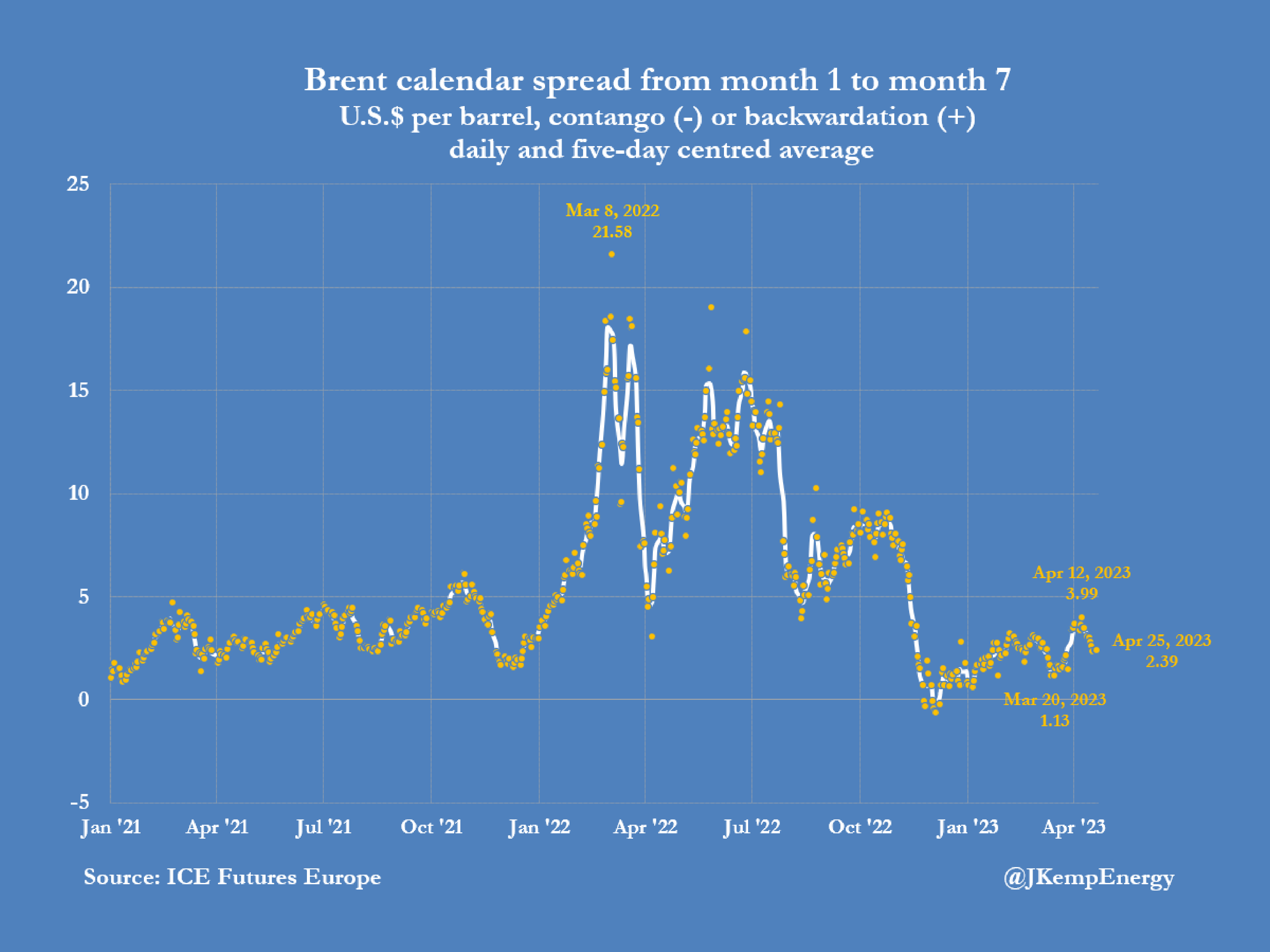

Brent six-month calendar spread, 1992-2023
daily, U.S.$ per barrel, contango (-) or backwardation
22
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
Price difference Brent month 1 and month 7 (U.S.$/bbl)
Contango (-) or backwardation (+)
Source: ICE Futures, @JKempEnergy



Brent calendar spread from month 1 to month 7
U.S.$ per barrel, contango (-) or backwardation (+)
daily and five-day centred average
25
20
15
10
5
0
-5
Mar 8, 2022
21.58
Apr 12, 2023
3.99
Apr 25, 2023
2.39
Mar 20, 2023
1.13
Jan '21
Apr '21
Jul '21
Oct '21
Jan '22
Apr '22
Jul '22
Oct '22
Jan '23
Apr '23
Source: ICE Futures Europe
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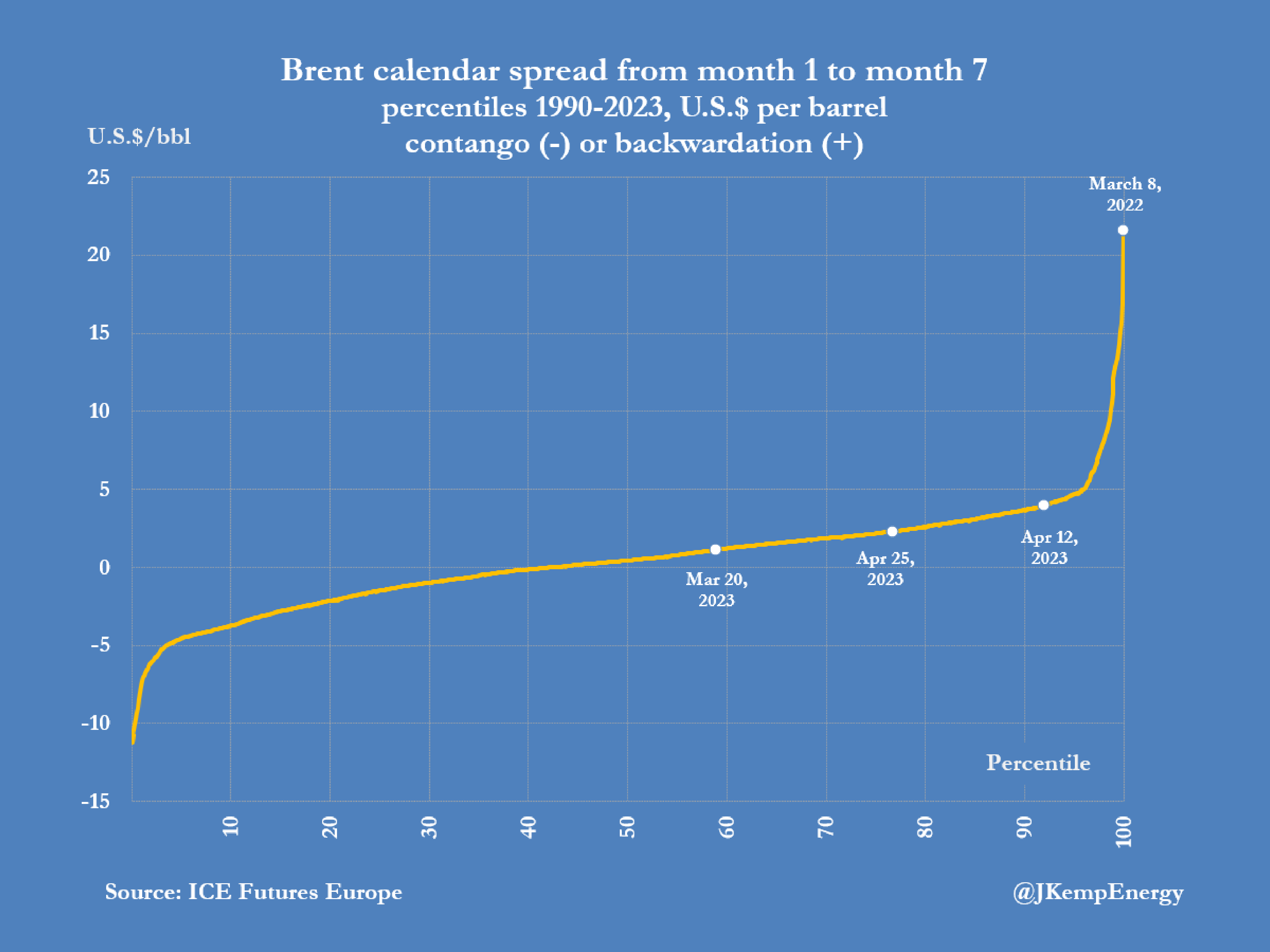
Brent calendar spread from month 1 to month 7
percentiles 1990-2023, U.S.$ per barrel
contango (-) or backwardation (+)
U.S.$/bbl
25
20
15
10
5
0
-5
-10
-15
10
20
30
40
50
60
70
80
90
100
Percentile
March 8, 2022
Mar 20, 2023
Apr 25, 2023
Apr 12, 2023
Source: ICE Futures Europe
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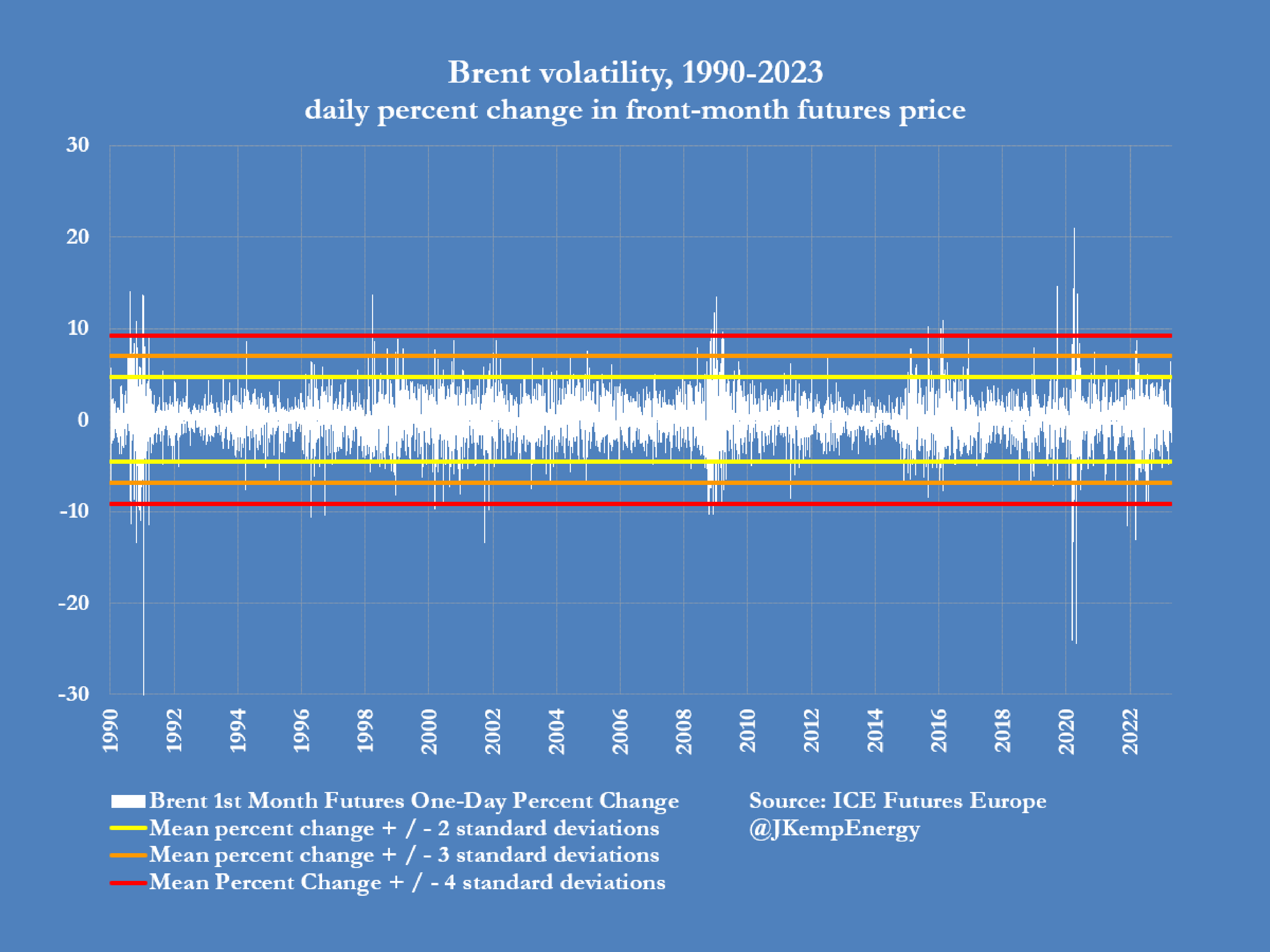
Brent volatility, 1990-2023
daily percent change in front-month futures price
30
20
10
0
-10
-20
-30
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
Brent 1st Month Futures One-Day Percent Change
Mean percent change + / - 2 standard deviations
Mean percent change + / - 3 standard deviations
Mean Percent Change + / - 4 standard deviations
Source: ICE Futures Europe
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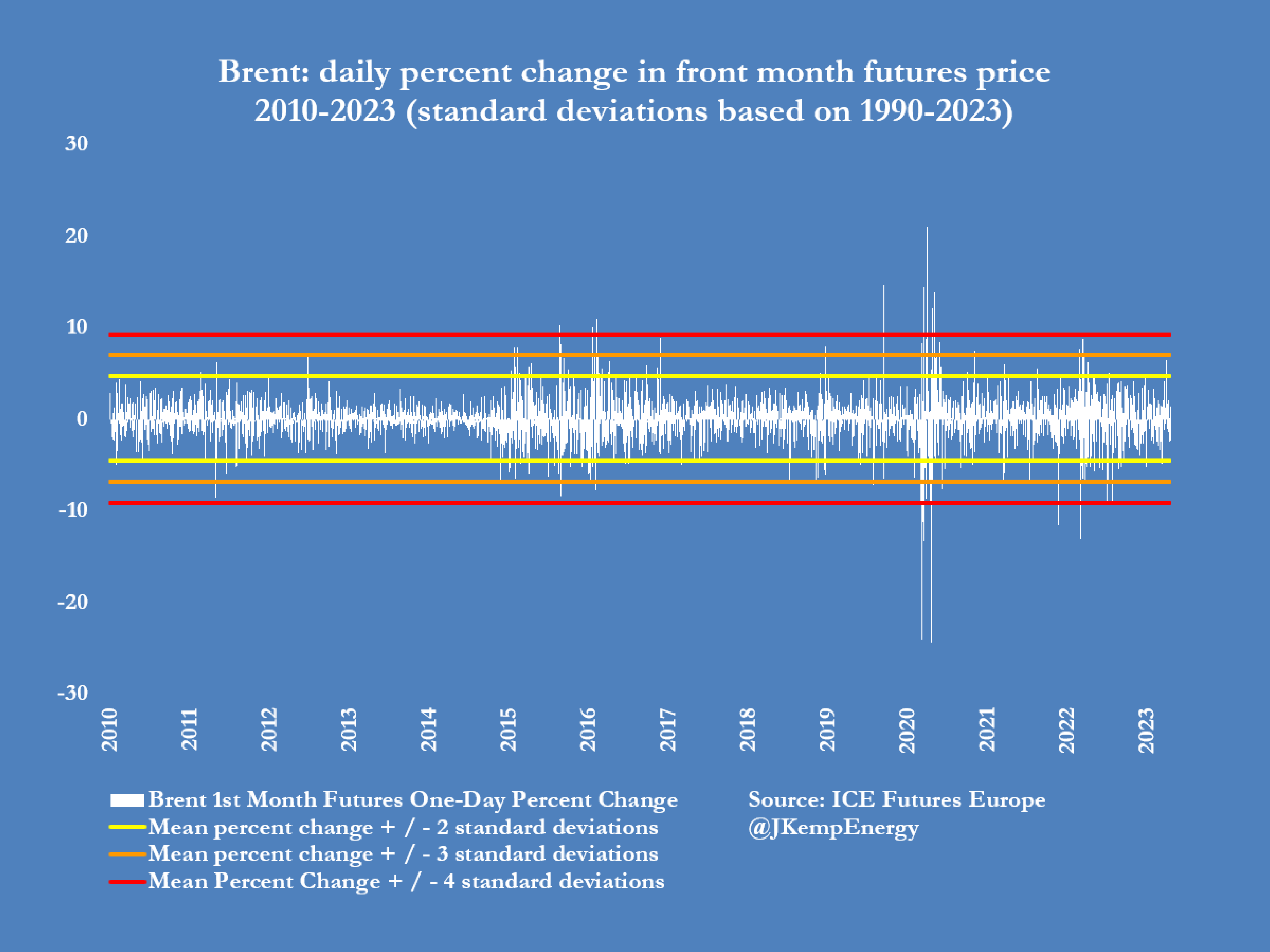
Brent: daily percent change in front month futures price
2010-2023 (standard deviations based on 1990-2023)
30
20
10
0
-10
-20
-30
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Brent 1st Month Futures One-Day Percent Change
Mean percent change + / - 2 standard deviations
Mean percent change + / - 3 standard deviations
Mean Percent Change + / - 4 standard deviations
Source: ICE Futures Europe
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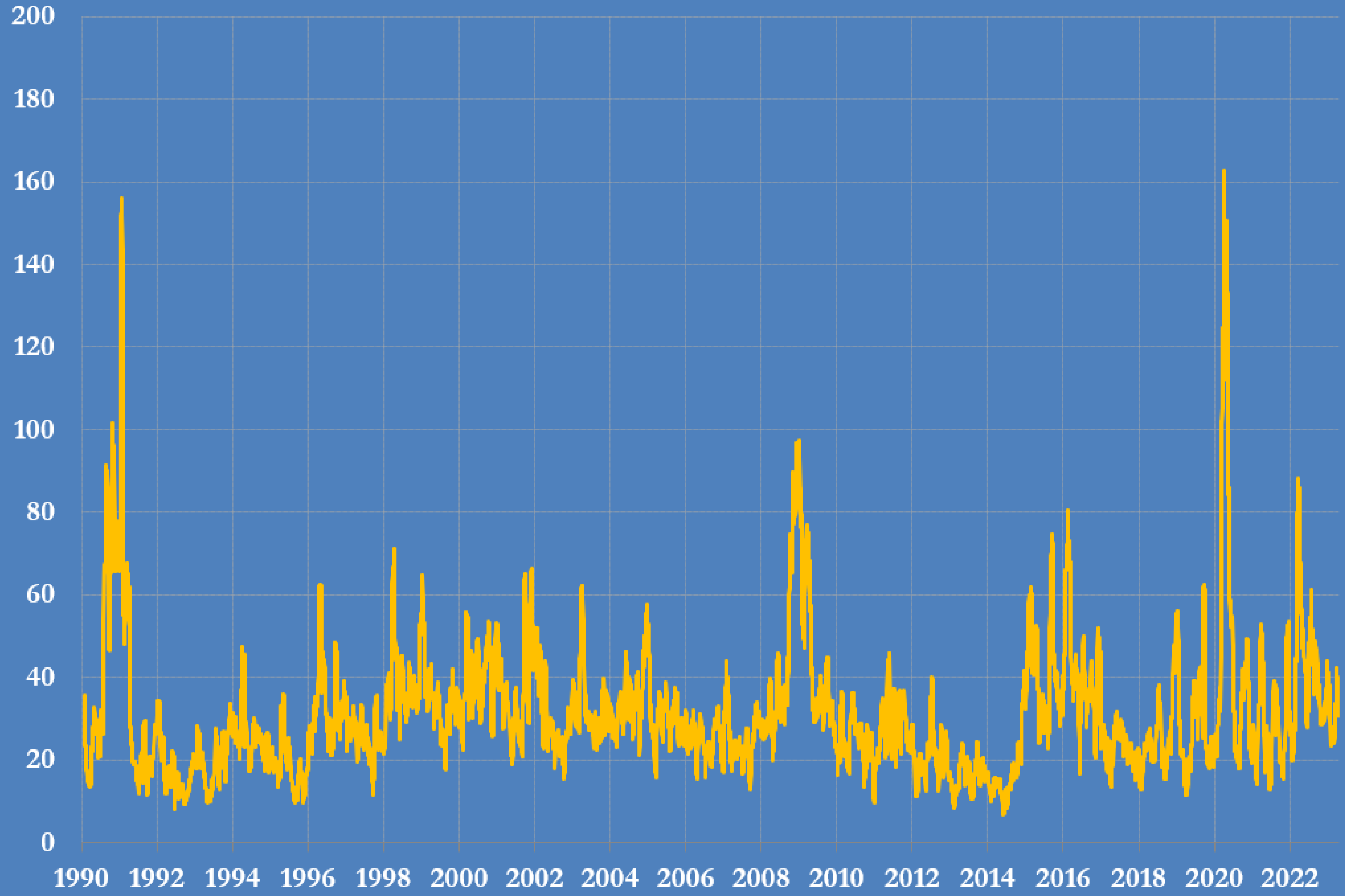
Brent front-month futures, 1990-2023

20-day annualised volatility, percent



Source: ICE Futures Europe

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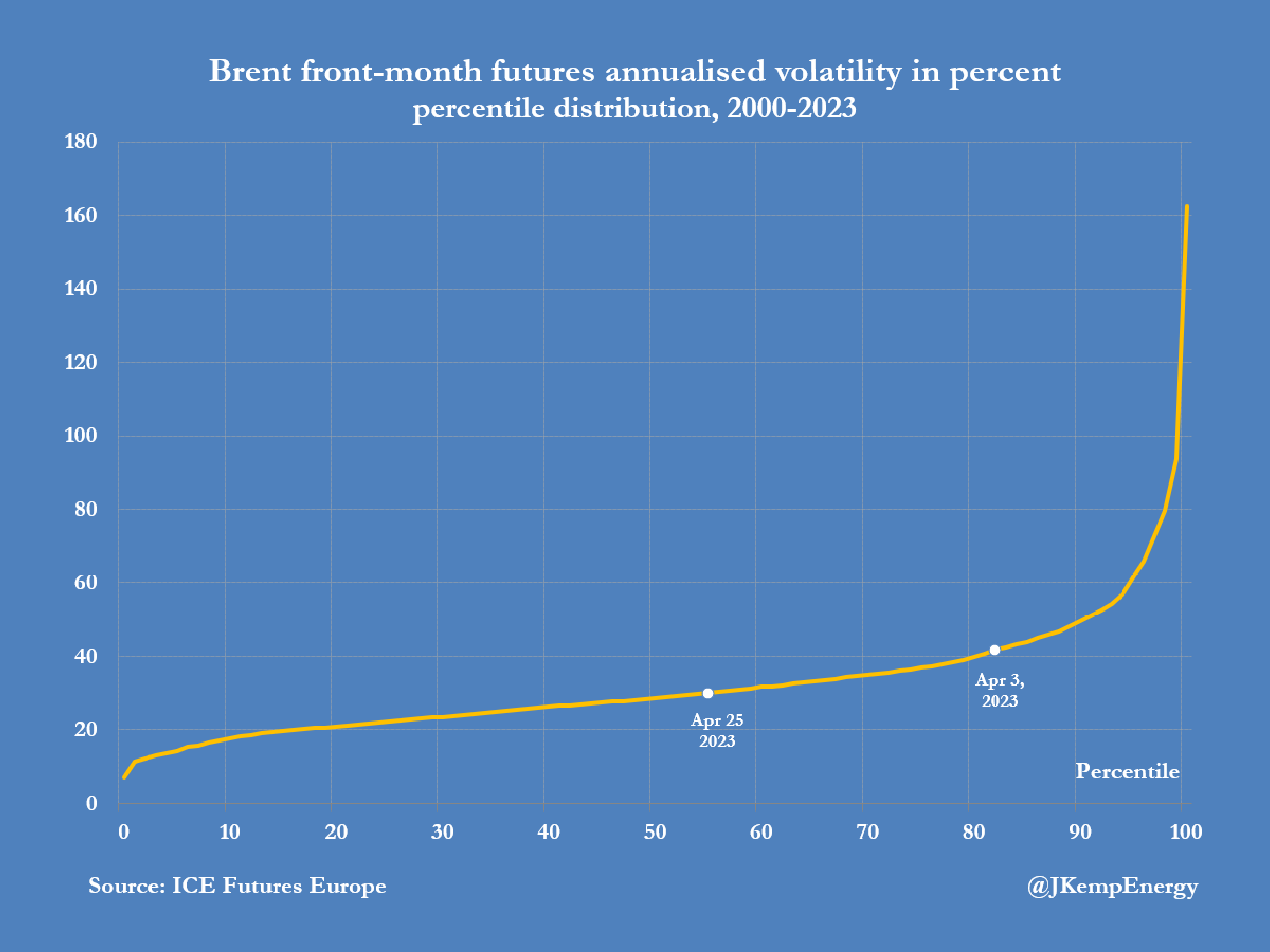
Brent front-month futures annualised volatility in percent
percentile distribution, 2000-2023
180
160
140
120
100
80
60
40
20
0
0
10
20
30
40
50
60
70
80
90
100
Apr 25
2023
Apr 3,
2023
Percentile
Source: ICE Futures Europe
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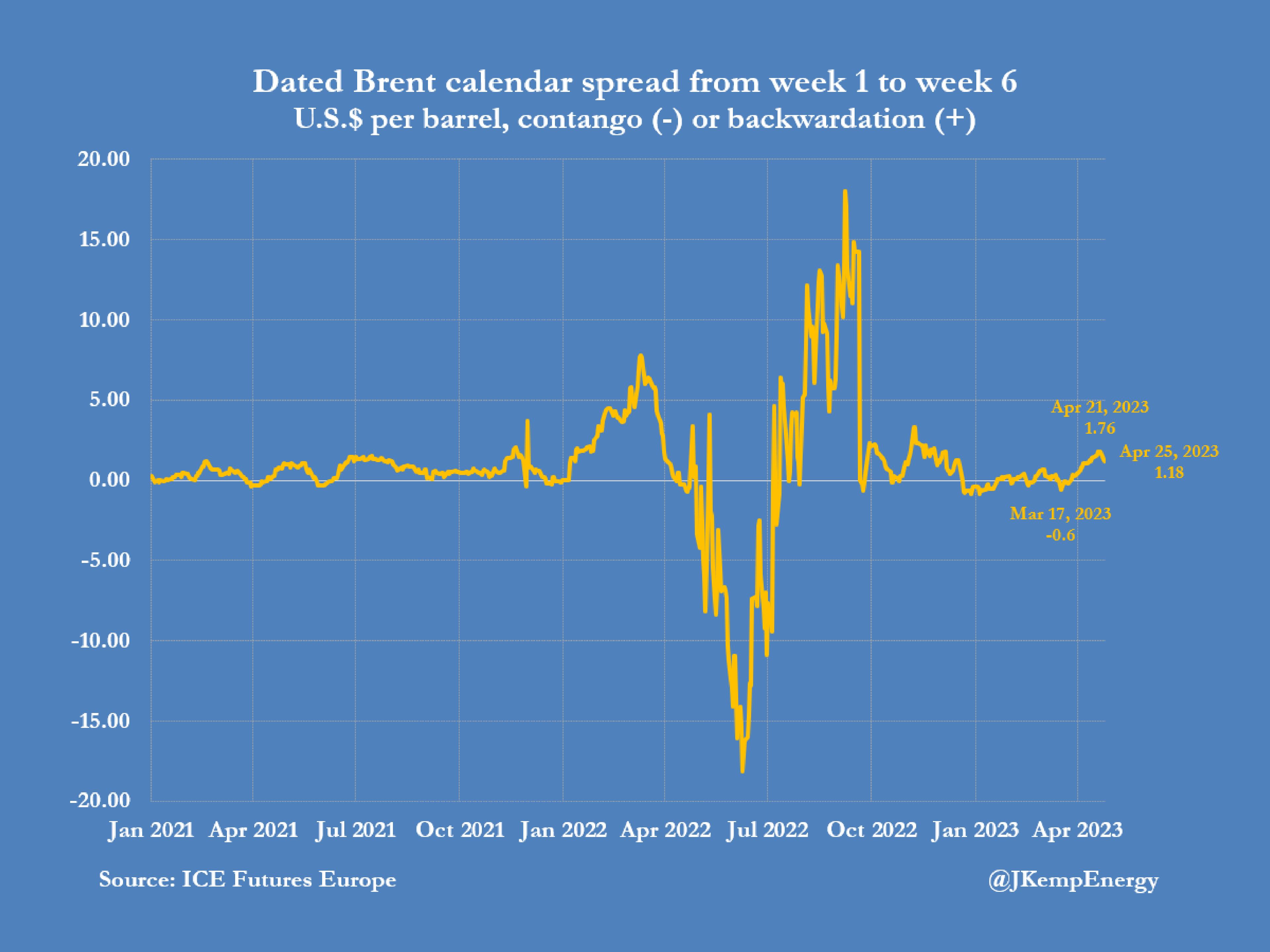
Dated Brent calendar spread from week 1 to week 6
U.S.$ per barrel, contango (-) or backwardation (+)
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
Jan 2021
Apr 2021
Jul 2021
Oct 2021
Jan 2022
Apr 2022
Jul 2022
Oct 2022
Jan 2023
Apr 2023
Apr 21, 2023
1.76
Apr 25, 2023
1.18
Mar 17, 2023
-0.6
Source: ICE Futures Europe
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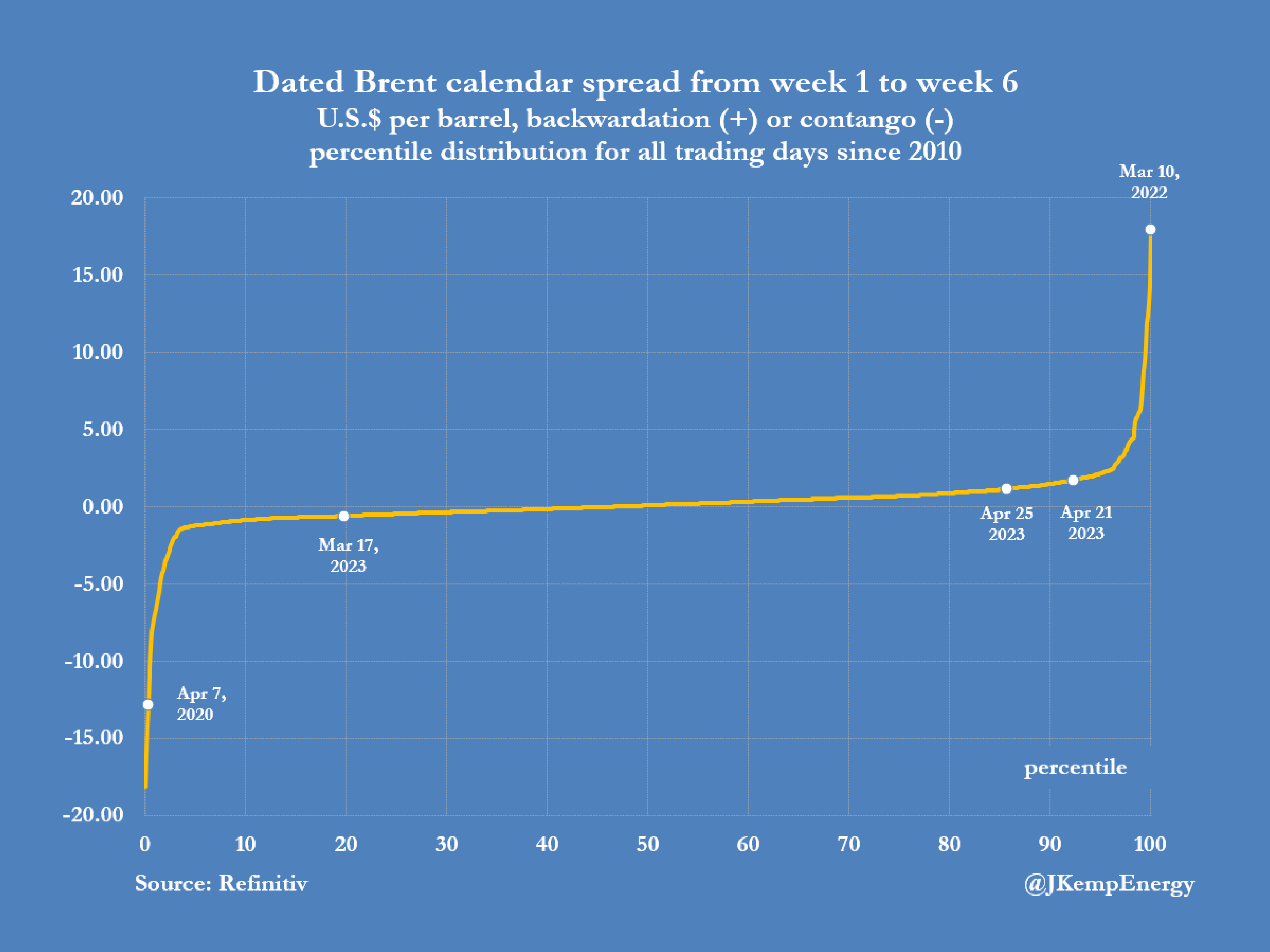
Dated Brent calendar spread from week 1 to week 6
U.S.$ per barrel, backwardation (+) or contango (-)
percentile distribution for all trading days since 2010
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
0
10
20
30
40
50
60
70
80
90
100
percentile
Mar 10, 2022
Apr 25 2023
Apr 21 2023
Mar 17, 2023
Apr 7, 2020
Source: Refinitiv
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CFTC and ICE commitments of traders

Week ending: 18 April 2023

	Total Long Positions	Total Short Positions	Net Position (Long-Short)		Δ Long Positions	Δ Short Positions	Δ Net position	Long/Short Positions Ratio	
	million bbl	million bbl	million bbl	percentile	million bbl	million bbl	million bbl	ratio	percentile
Total petroleum positions	668	133	534	0.38	+28	+9	+20	5.00	0.64
Crude oil	520	79	442	0.41	+20	+0	+20	6.62	0.82
All products	147	55	93	0.40	+8	+8	-0	2.69	0.40
Middle distillates	67	39	28	0.29	+3	+6	-3	1.70	0.33
WTI (NYMEX + ICE)	244	44	200	0.32	+11	-0	+12	5.53	0.61
Brent	277	35	242	0.51	+9	+1	+8	8.00	0.82
U.S. gasoline	80	15	65	0.71	+5	+3	+2	5.21	0.59
U.S. diesel	29	15	14	0.52	-1	+3	-3	1.94	0.61
European gas oil	38	25	14	0.18	+4	+3	+1	1.55	0.21

Percentiles are for all weeks since 2013

Sources: CFTC and ICE Futures Europe
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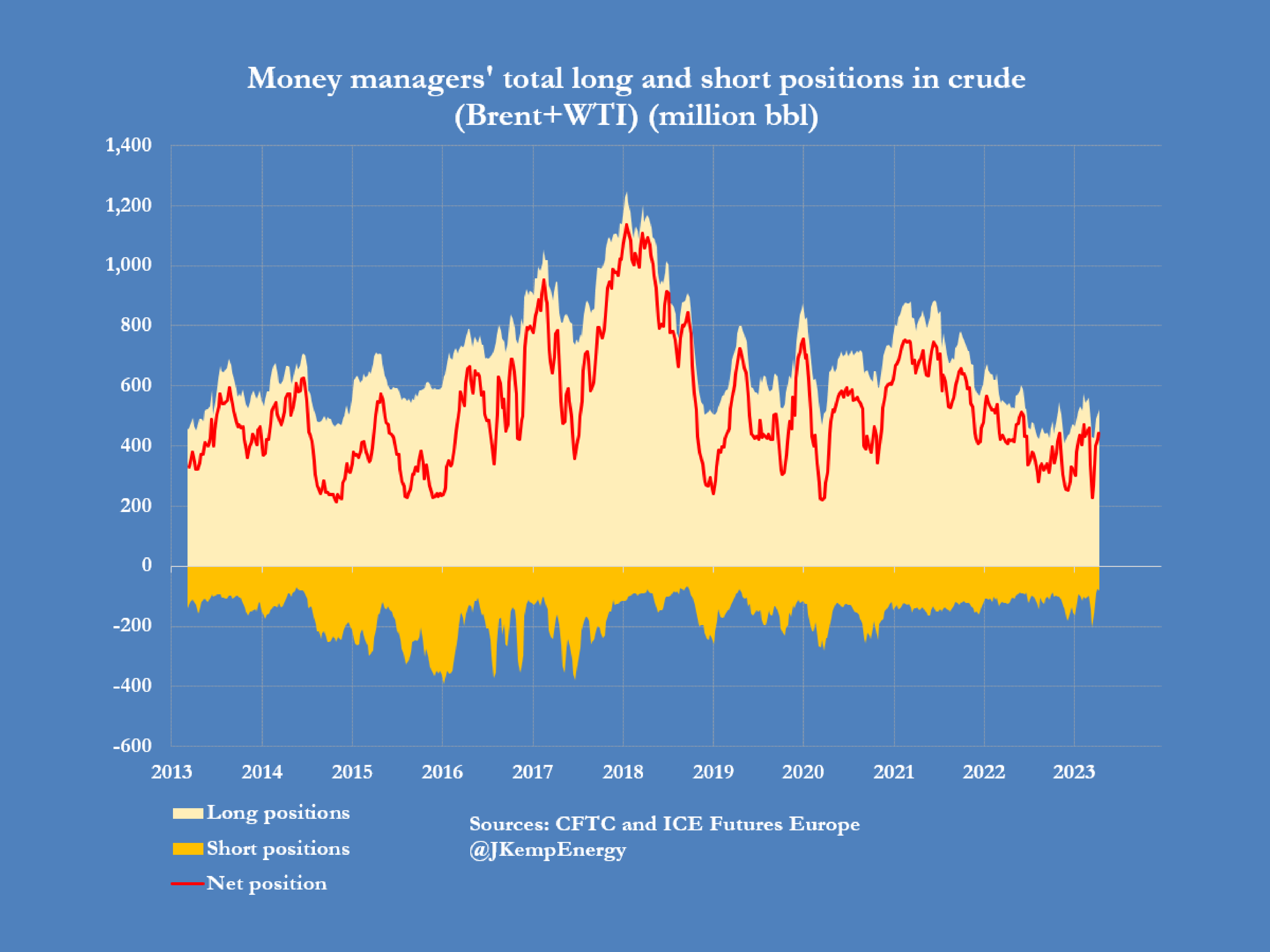
Money managers' total long and short positions in crude
(Brent+WTI) (million bbl)
1,400
1,200
1,000
800
600
400
200
0
-200
-400
-600
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Long positions
Short positions
Net position
Sources: CFTC and ICE Futures Europe
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