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Oil Analyst

Strong US Supply Moderates Oil Price Upside

Daan Struyven
+1(212)357-4172 |
daan.struyven@gs.com
Goldman Sachs & Co. LLC

Callum Bruce, CFA
+1(212)902-3053 | callum.bruce@gs.com
Goldman Sachs & Co. LLC

Yulia Zhestkova Grigsby
+1(646)446-3905 | yulia.grigsby@gs.com
Goldman Sachs & Co. LLC

Blake Woods
+1(972)368-9739 | blake.woods@gs.com
Goldman Sachs & Co. LLC

- Brent has fallen by 20% since late September to $77/bbl as non-OPEC supply, led by the US, has continued to surprise to the upside.
- We moderate our range for 2024 Brent prices by $10/bbl to $70-$90 as we now expect only a modest deficit and slightly less elevated long-dated prices. The key reason is that we are raising our 2024 US liquids supply growth forecast to 0.9mb/d (vs. 0.5mb/d) on ongoing gains in drilling speed and well completion intensity, and a falling hurdle rate. Given a lower hurdle rate, higher spare capacity, and cost disinflation, we nudge down our 36M Brent forecast, which OPEC does not control, by $2 to $72/bbl. We now forecast Brent to rise to $85 by June 2024, and average $81/80 in 2024/2025, $5/6 above current forwards.
- We see some upside to forwards because spot prices look low relative to inventories and rates, positioning is depressed, and easing financial conditions support our long-held view that demand will grow solidly in 2024 (1.5mb/d).
- While we have adjusted the range, we still look for range-bound prices and only moderate price volatility in 2024. Elevated spare capacity to handle tightening shocks should limit upside price moves. The OPEC put, strategic China and US restocking, and modest recession risk should limit downside risk to prices.
- Saudi Arabia is unlikely to "flush" the market in 2024, in our view. First, we estimate that cuts support Saudi profits as the price boost outweighs the volume hit if 1) compliance does not drop, and 2) the US supply response to prices is moderate. Non-price factors have driven US supply beats, including one-off easing in supply constraints, drawing of well inventories, and private oil firms' pre-acquisition output jumps. Second, Saudi price war incentives are weaker than in 1985 when its market share had plunged, and than in 2014 when it had less ambitious investments and when excessive borrowing left US shale vulnerable.
- We thus expect full extensions of the OPEC+ cuts announced in April 2023 (1.7mb/d) through 2025, and of the additional 2.2mb/d package through 2024Q2, with only a gradual and partial phase-out of the latter starting in July 2024.
- We adjust our OPEC range trade to a short $70 put, long $80/90 call spread option on Brent Jun24, and still recommend long summer24 gasoline margins.

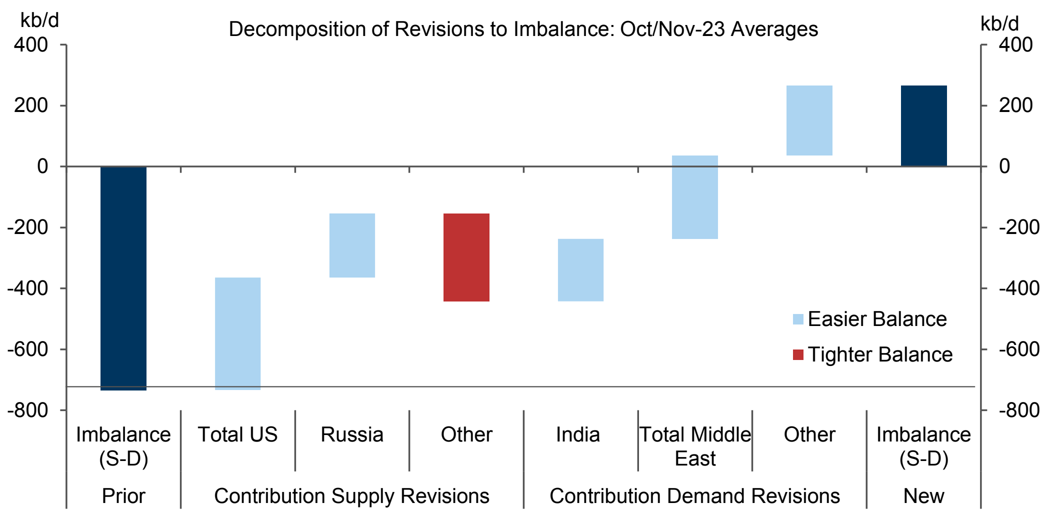
Strong US Supply Moderates Oil Price Upside

Brent spot oil prices have fallen by $20 since late September to $77/bbl as long-dated prices are down $5 and 1m-36m timespreads are down $15. The main driver of the selloff is that visible inventories in October and November have moved sideways, against market and our deficit expectations.

We now estimate a modest surplus in October and November given supply beats in the US and Russia and a Middle Eastern demand miss (Exhibit 1). We identified last month these large upside surprises to US supply and inventories as the main downside risk to oil prices, worth around -$10/bbl, should they largely persist.

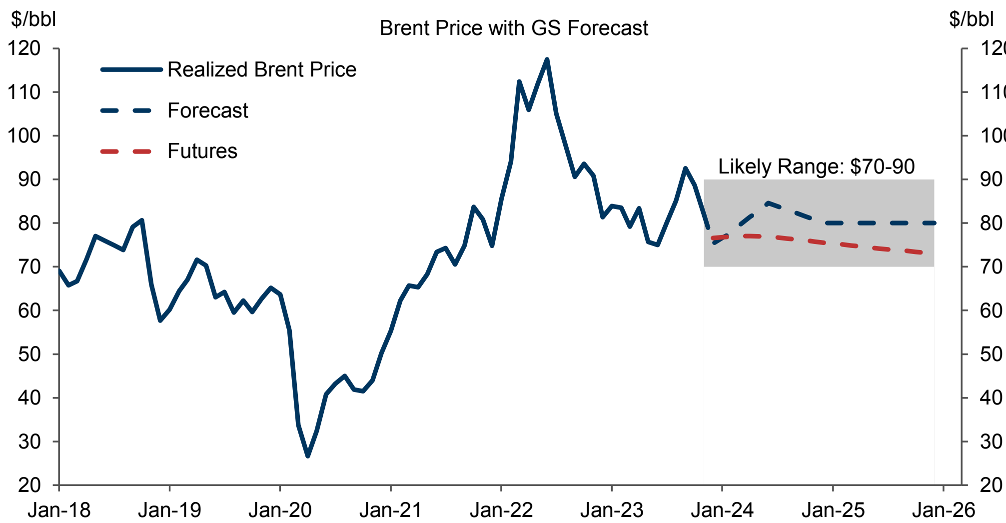
Incorporating persistently stronger US supply, we are now moderating our range for 2024 Brent prices by $10/bbl to $70-$90 (Exhibit 2).

Exhibit 1: Supply Beats in the US and Russia and a Miss in Middle Eastern Demand Led to a Modest Surplus (Against Deficit Expectations)



Source: IEA, Kpler, JODI, EIA, National Sources, Goldman Sachs Global Investment Research

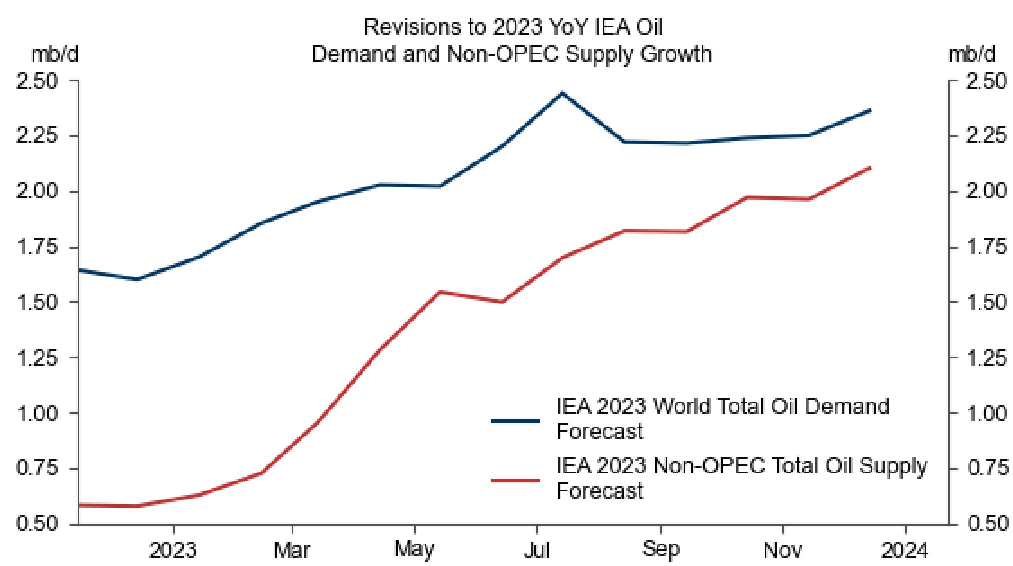
Exhibit 2: We Now Expect Oil Prices in a $70-90 Range



Source: ICE, Goldman Sachs Global Investment Research

The recent US supply beats strengthen the key trend of 2023, namely much stronger than expected production outside of OPEC. Exhibit 3 shows that the IEA has upgraded its 2023 non-OPEC supply growth estimate by 1.5mb/d since December 2022, double the 0.8mb/d demand upgrade. The oil market is now quite representative for the global economy as rising supply in commodity, labor, durable goods, and rental markets has sparked global disinflation, despite solid demand and GDP growth.

Exhibit 3: Non-OPEC Oil Supply Is Growing Faster than Expected



Source: IEA, Goldman Sachs Global Investment Research

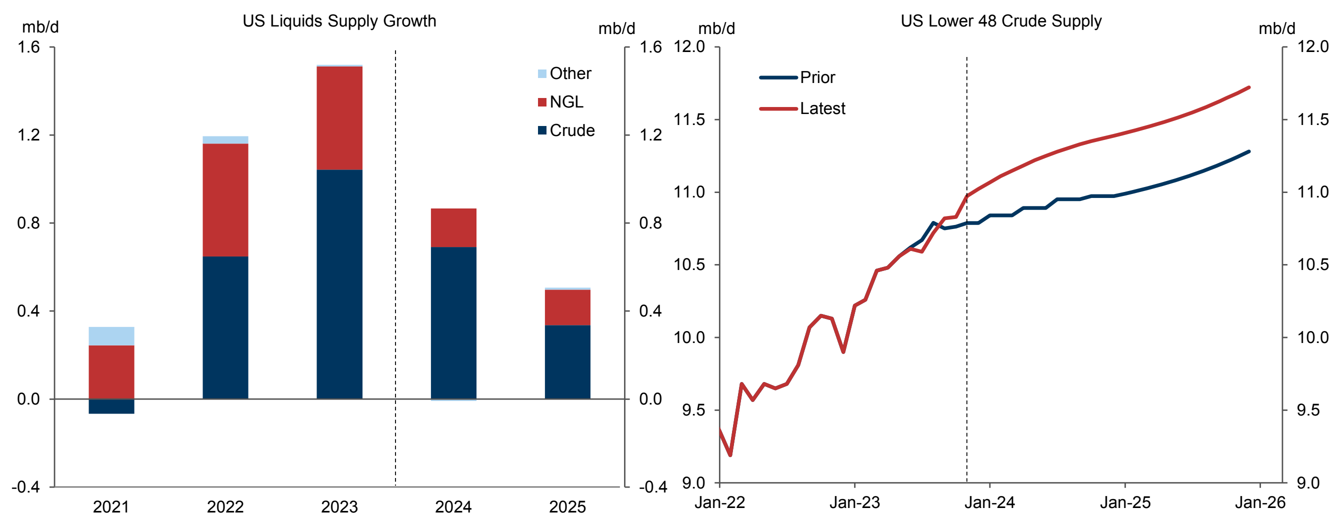
Strong US Supply Moderates Oil Price Upside

Stronger US supply is the main driver of our downward revisions to timespreads (via a smaller deficit) and long-dated prices.

Strong US Supply Moderates Deficits and Upside to Timespreads

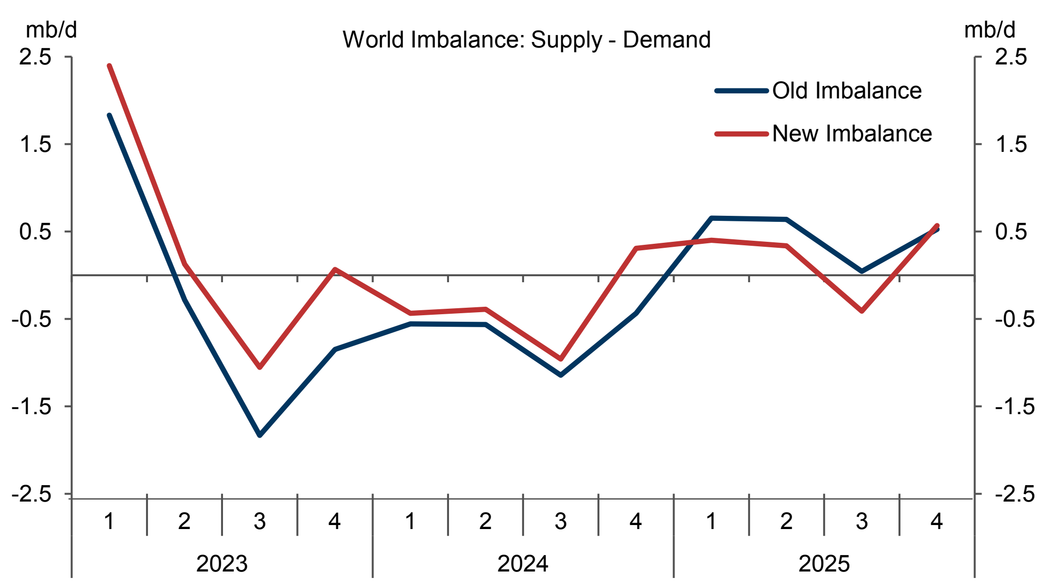
We are raising our US total liquids supply 2024 growth forecast to 0.9mb/d (vs. 0.5mb/d). We now expect US Lower 48 crude output to reach 11.4mb/d in 2024Q4, 430kb/d above the 2023Q4 level. Largely as a result, we now expect only a modest 370kb/d deficit (vs.670kb/d, Exhibit 5), and modestly below average OECD commercial stocks (Exhibit 6).

Exhibit 4: We Now Look for Solid US 2024 US Total Liquids Supply Growth of 0.9mb/d



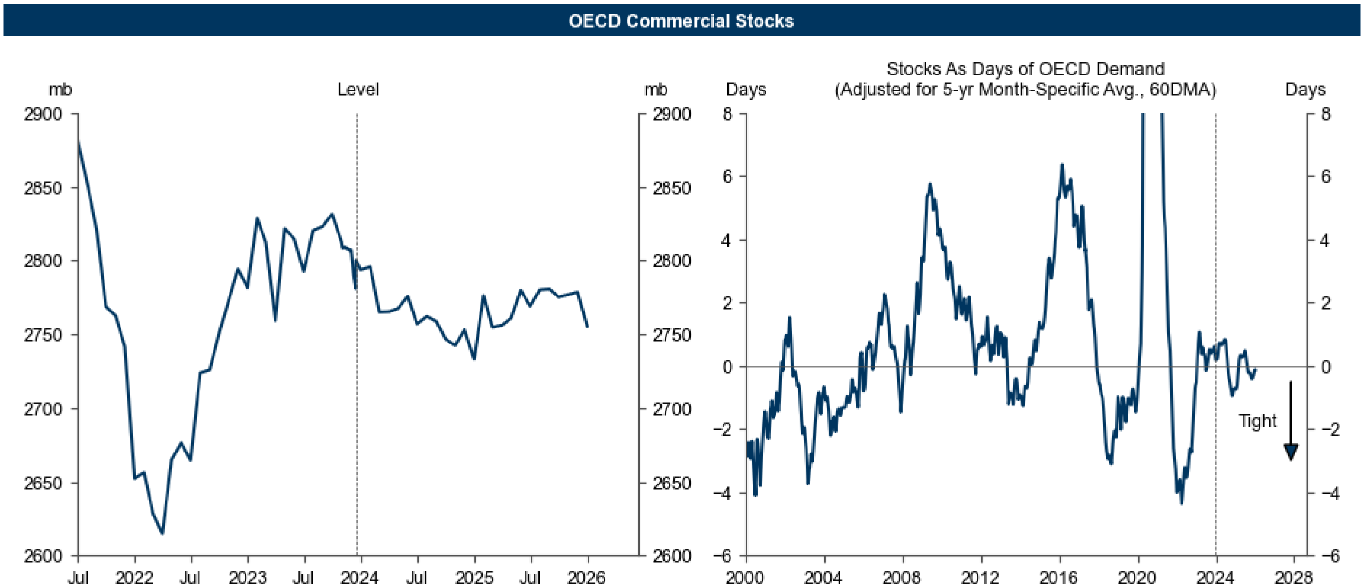
Source: EIA, Goldman Sachs Global Investment Research

Exhibit 5: We Now Look for a Modest 370kb/d Deficit in 2024



Source: IEA, Kpler, JODI, EIA, National Sources, Goldman Sachs Global Investment Research

Exhibit 6: We Expect Inventories to Decline Gently in 2024



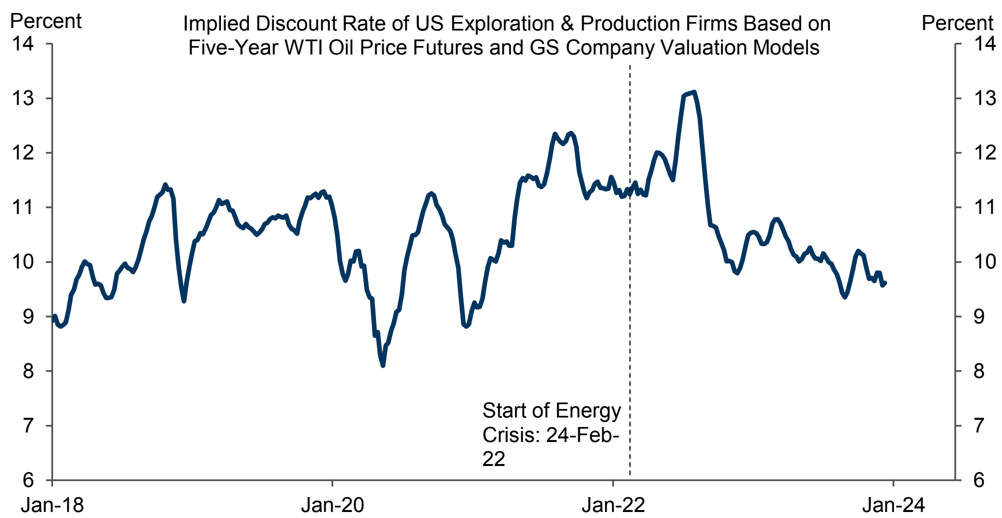
Source: IEA, Goldman Sachs Global Investment Research

This US supply upgrade reflects that several tailwinds to production are likely to persist in 2024.

First, above ground efficiencies can accelerate drilling of wells further. Second, the rise in the intensity of completing wells appears structural with the average lateral well length in the Permian now exceeding 10,000 feet, achieving 5% annual average growth over the past 5 years.[1] Third, the outperformance of producers' equity prices relative to oil prices since mid-2022 implies that the hurdle rate—the minimum required return on capital—estimated by our energy equity analysts is trending down. The hurdle rate can normalize further with the shift to energy security and Fed cuts.

[1] Over the past 5 years, fracking proppants (a solid, usually sand, to keep a hydraulic fracture open) in the Permian grew 9% annualized.

Exhibit 7: A Lower Hurdle Rate for US Oil Producers



Implied discount rate is a 4-week moving average.

Source: FactSet, Goldman Sachs Global Investment Research

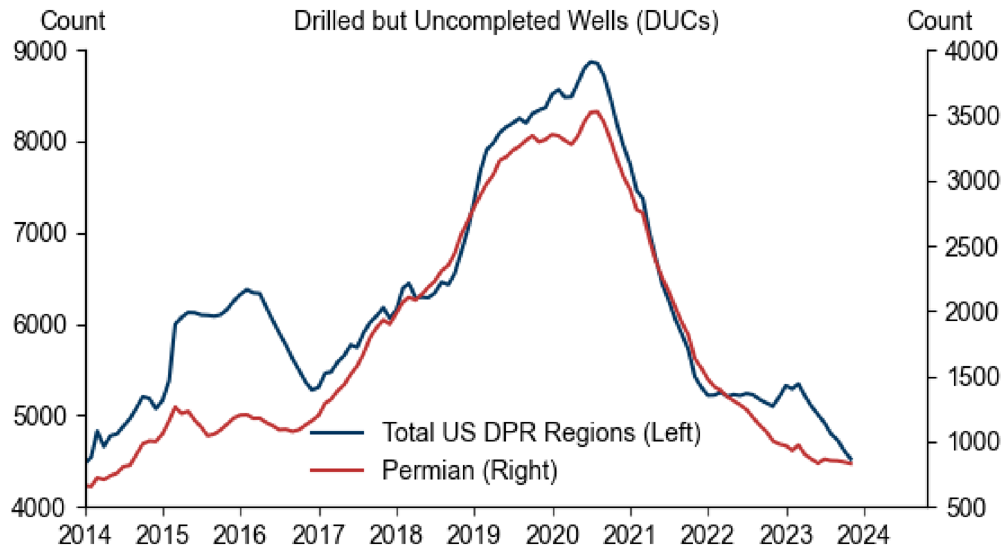
We still expect US supply growth to moderate as the rock quality (measured as production per foot of well length) has peaked, and as three other tailwinds to production are fading.

First, constraints on the availability of workers and equipment have now largely eased. Second, we estimate that the drawdown of the inventory of drilled but uncompleted wells (DUCs) has boosted Permian oil production by at least 0.25mb/d in 2023 (Exhibit 8).[2] Third, several private firms accelerated production to reach pre-acquisition goals amidst significant consolidation.[3]

2 Assuming a 1.25 kb/d initial production (IP) rate of new wells in the Permian (in line with the EIA's Drilling Productivity Report), the c.200 DUCs drawndown in the Permian over past 12 months amount to c.250 kb/d of annualized production growth. This increases to almost 400 kb/d for 2023 annual average growth.

3 S&P Global Commodity Insights estimates that nine (previously) private companies have accounted for more than all the growth in US lower 48 crude prodcution between December 2019 and April 2023: Mewbourne, Endeavor, Tap Rock Opg, Kaiser Francis Oil, Birch Opg, Hibernia, Franklin Mountain Energy, CrownQuest, and Grit Opg. Civitas has acquired Hibernia, and Top Rock, and Occidental has agreed to buy CrownQuest.

Exhibit 8: A Temporary Boost to Production from Drawing Inventories of Drilled but Uncompleted Wells (DUCs)



Total US Drilling Productivity Report regions include Anadarko, Appalachia, Bakken, Eagle Ford, Haynesville, Niobrara, and Permian.

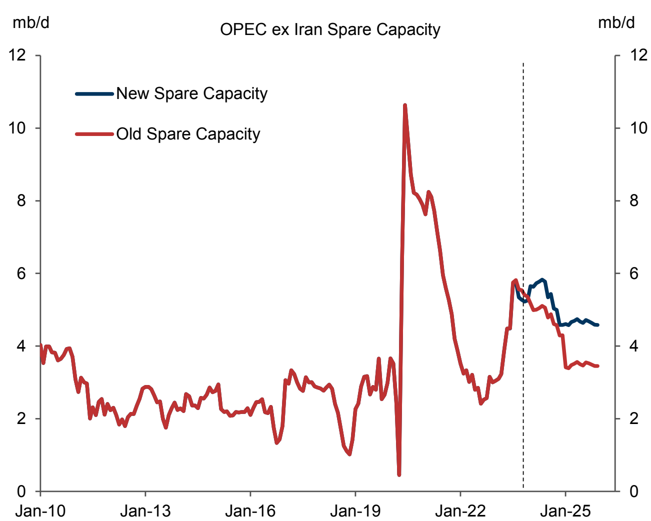
Source: EIA, Goldman Sachs Global Investment Research

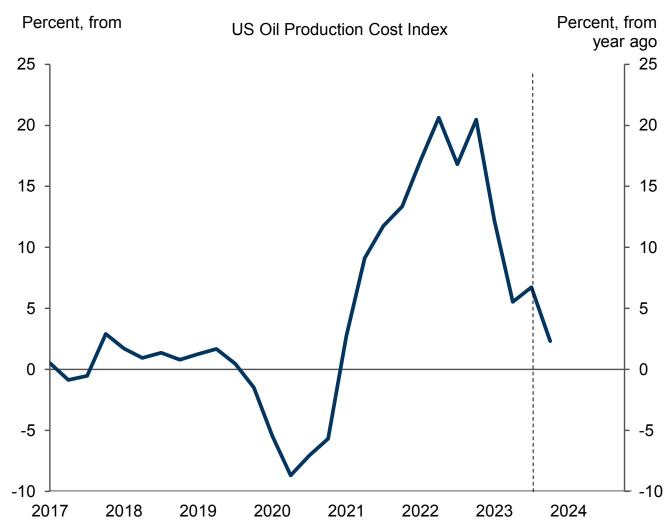
Strong US Supply Moderates Long-Dated Prices

Three positive US supply developments also explain why we nudge down our fair value of three-year forward Brent prices, which is determined by the marginal cost of production and not by OPEC, by $2 to $72/bbl.

First, the hurdle rate is edging down (Exhibit 7). Second, as seven OPEC+ producers aim to offset US supply strength with additional cuts, spare capacity is rising further (Exhibit 9). Third, US oil production costs are stabilizing (Exhibit 9).

Exhibit 9: Higher Spare Capacity and Lower Cost Inflation Reduce Long-Dated Oil Prices





Source: Platts, IEA, OPEC, EIA, Haver Analytics, Bloomberg, Goldman Sachs Global Investment Research

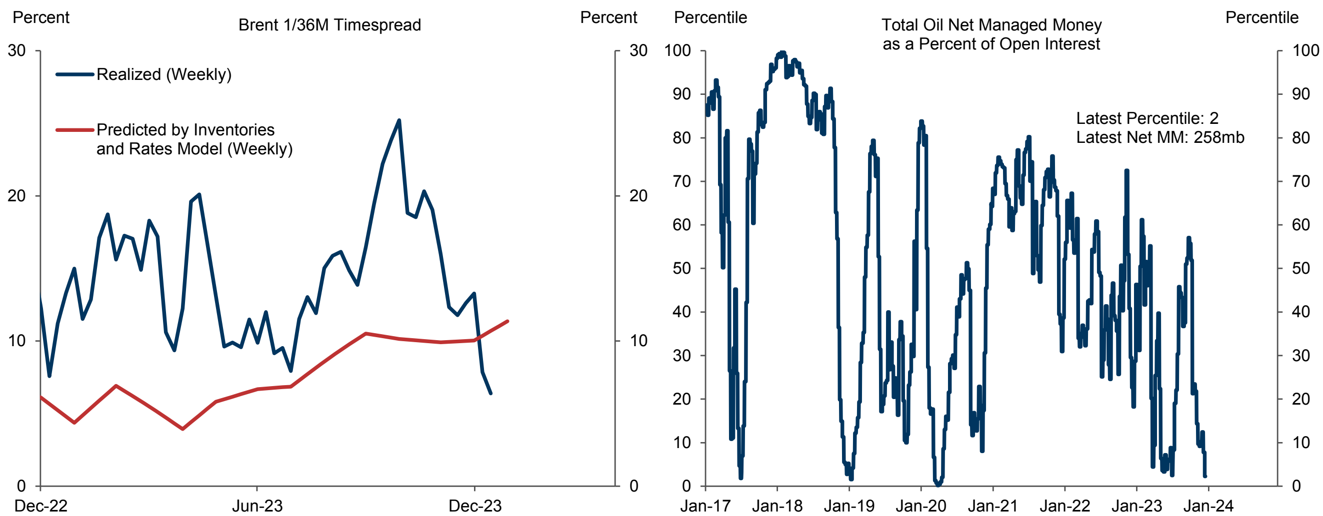
Still Above Forwards

Based on these paths for inventories and long-dated prices, we now forecast Brent to recover to a peak of $85/bbl in June 2024, and Brent to average $81/80 in 2024/2025 (vs. $92 previously). Our Brent 2024/2025 average forecasts remain $5/6 above current forwards, for two reasons.

First, as timespreads and interest rates have declined, timespreads (blue line in left panel of Exhibit 10) now look slightly below fair value estimated from near-term OECD commercial stocks and 3-year US bond yields (red line). As speculative positioning eventually normalizes, timespreads are likely to edge to or overshoot fair value.[4]

Second, timespreads are also likely to grind higher as inventories decline gently in 2024H1 (0.4mb/d deficit) and 2024Q3 (1.0mb/d deficit) on solid demand growth, and OPEC+ cuts. We estimate that the earlier and faster Fed cuts our economists and rates strategists expect (i.e the 1pp drop in 3-year rates from Oct 2023 peak by mid-2024) will boost 1m/36m timespreads by 3pp through a reduced cost of holding oil.

Exhibit 10: A Recovery in Currently Depressed Positioning Should Boost Timespreads Which Now Slightly Look Low Relative to Inventories and Interest Rates

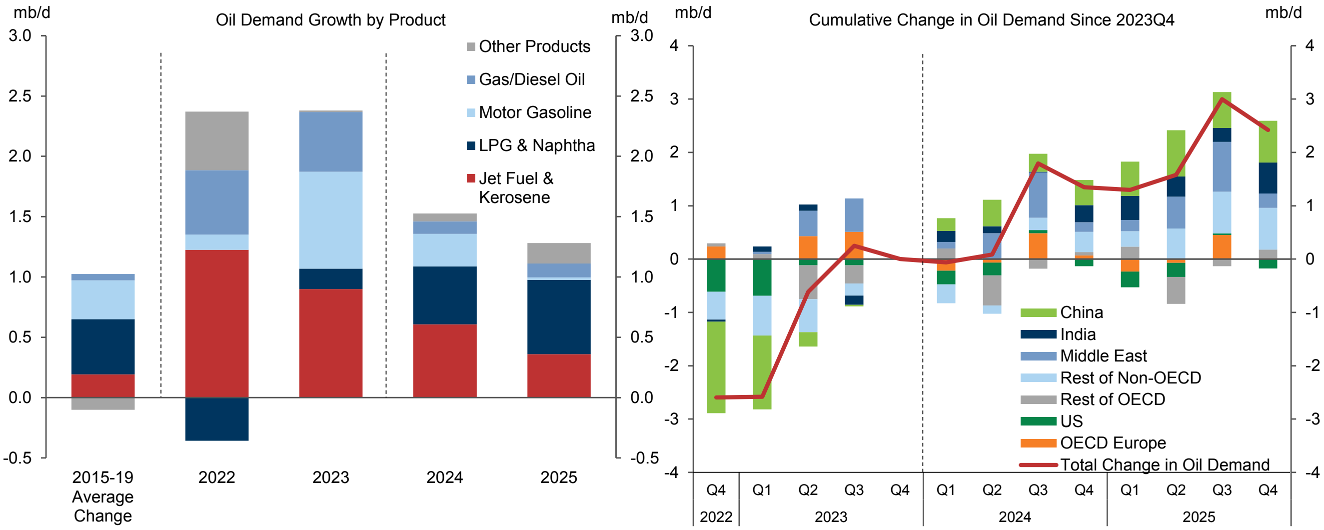


Source: IEA, CME, CFTC, Refinitiv Eikon, Goldman Sachs Global Investment Research

The sharp easing in financial conditions also supports our long-held constructive view on 2024 oil demand. We see solid 1.5mb/d global oil demand growth given solid GDP growth our economists expect, and structural EM oil demand increases. By product, we still expect a further jet fuel recovery, and a pickup in growth for the petchem oriented LPG and naphtha products (Exhibit 11).

[4] The positive residual over the past seven quarters may reflect a risk premium for Russia/Middle East disruptions and/or a tendency for the market to anticipate larger-than-realized inventory draws or to look more forward than usual.

Exhibit 11: We Expect Jet Fuel and EM Economies to Drive Solid 1.5mb/d Demand Growth in 2025



Source: IEA, Kpler, JODI, EIA, National Sources, ICIS, Haver Analytics, ICE, Goldman Sachs Global Investment Research

Still in an OPEC Range

While we have adjusted the OPEC range to $70-90, we still look for range-bound oil prices and moderate price volatility in 2024.

Limits to Upside Price Moves

High spare capacity of 6mb/d limits the upside to oil prices in most scenarios.

With ample spare capacity, long-dated prices do not need to increase to encourage faster growth in long-cycle projects, in our view. Elevated spare capacity typically allows OPEC to handle tightening shocks and prevent demand destruction from extremely high prices, unless physical or geopolitical factors prevent deploying spare capacity.

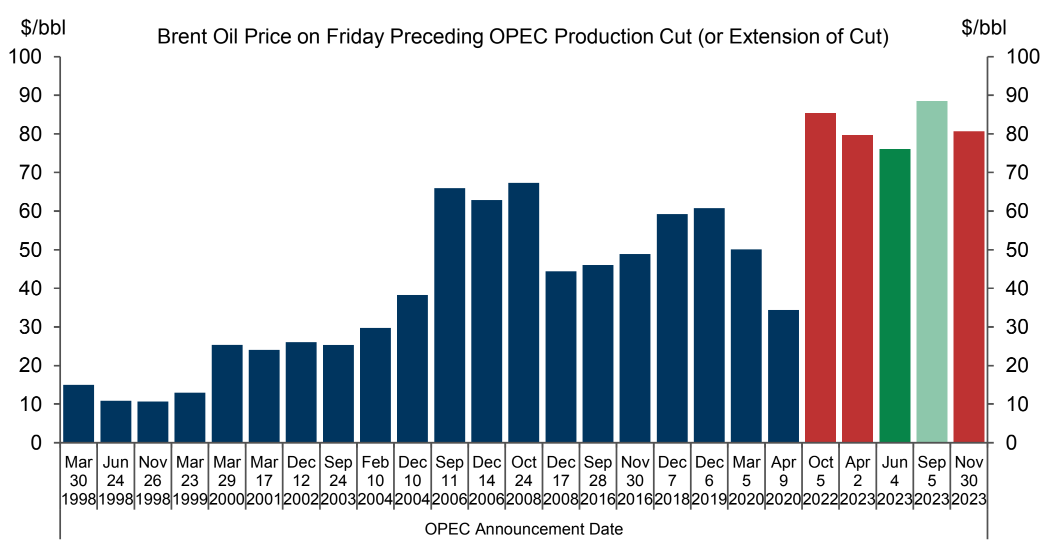
That said, shippers' avoiding the Bab al-Mandeb chokepoint highlights that we cannot rule out a tail scenario (e.g. interruption of trade through the Strait of Hormuz) in which OPEC does not offset supply disruptions, and where oil offers significant hedging value.

Limits to Downside Price Moves

We also believe that oil prices are unlikely to sustainably drop to low levels in 2024 for three reasons.

First, the OPEC put is likely to stay in place. The cuts in October 2022, April, June, and November 2023 suggest that OPEC+ would bring back barrels more slowly or cut production further in response to a sustained selloff. While higher spare capacity implies a less powerful put, we estimate that OPEC incentives to prevent inventory builds remain in place.

Exhibit 12: OPEC Has Cut Supply with Brent Below $80



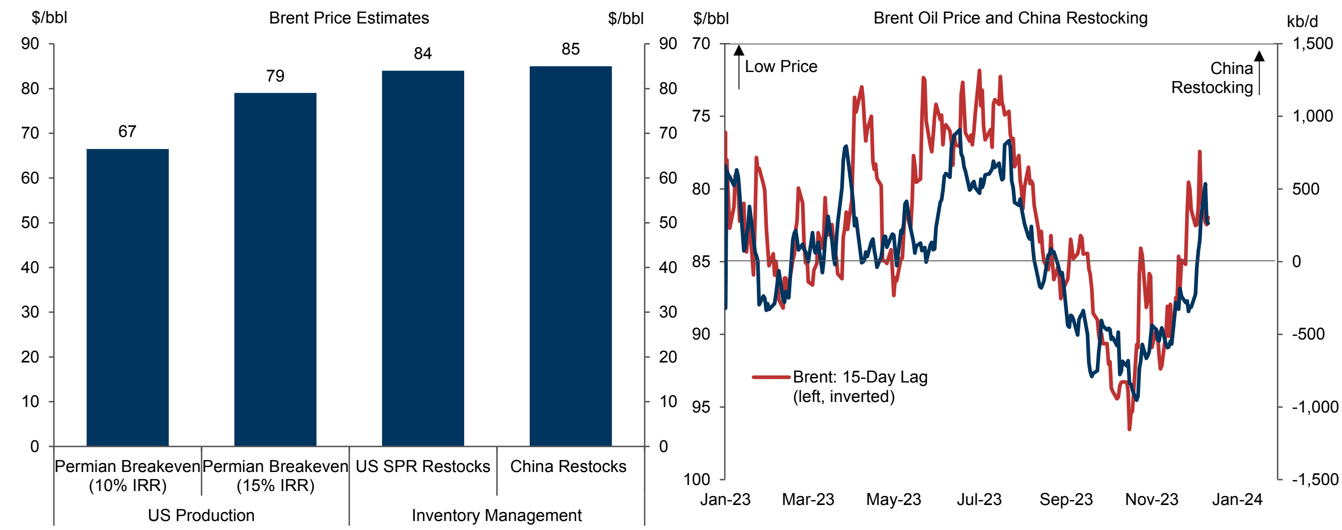
Green bars refer to the unilateral Saudi cut or its extension.

Source: OPEC, ICE, Goldman Sachs Global Investment Research

Second, as sequential core inflation has already returned to target, the soft landing and easing in financial conditions should put a floor under oil demand.

Third, strategic US and China restocking, price-sensitive US supply, and price-sensitive refiner demand also push up low prices. The US Department of Energy reiterated its commitment last week to replenish the SPR by up to 3mb per month in March at WTI of $79/bbl (~$84/bbl Brent) or below (Exhibit 13).[5] China also tends to refill inventories at Brent below around $85/bbl. Finally, we estimate a Brent oil breakeven price of $67-79 for US Permian producers with an internal rate of return of 10-15%.

Exhibit 13: Strategic US and China Restocking Push Up Low Prices



Assumes $3.50/MMBtu Henry Hub gas price and $28/bbl NGLs price.

Source: EIA, Kpler, ICE, Goldman Sachs Global Investment Research

[5] US SPR inventories have only risen by a 5mb since July to 352mb as purchases tend to stop if WTI exceeds $79.

A Price War Remains Unlikely in 2024

Skepticism about the OPEC put has grown with the declines in oil prices following the November cut and in Saudi's market share. Investors increasingly ask whether Saudi Arabia will "flush" the market.

We think it is unlikely that Saudi Arabia will launch a price war in 2024.

Reason #1: Announced Cuts Likely Support Profits

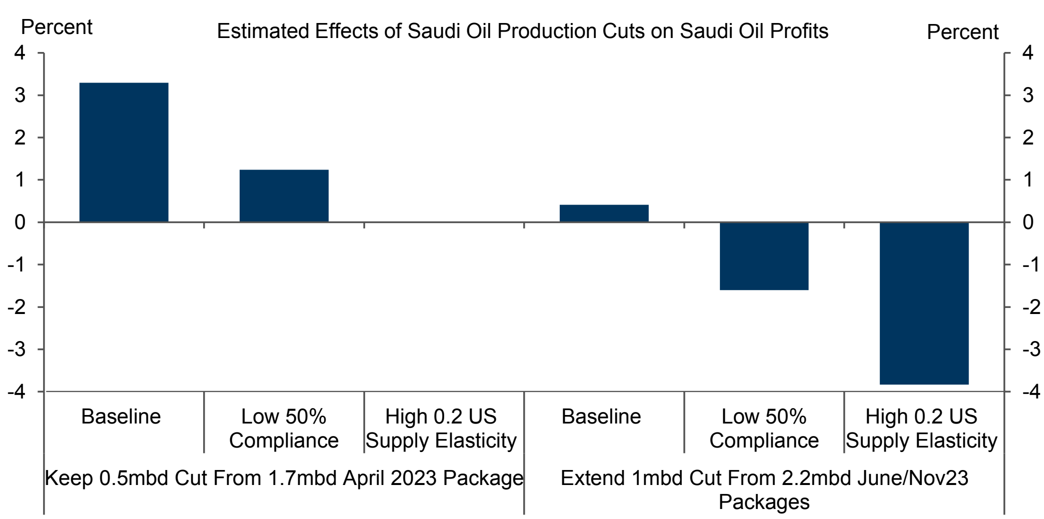
First, we estimate that announced cuts likely support Saudi profits as the price boost outweighs the volume hit if 1) compliance does not drop, and 2) the US supply response to prices is moderate.

We incorporate that lower OPEC+ production leads to higher oil prices than would otherwise be the case, and thus lower oil demand, and slightly higher supply (mostly in the US). We also incorporate our compliance estimates, which compare actual production to what production would have been in the absence of cuts.

Our revenue estimates in Exhibit 14 yield three results:

- Keeping the 500kb/d Saudi cut from the 1.7mb/d OPEC+ package announced in April 2023 supports Saudi oil revenues.
- Keeping the 1mb/d cut as part of the 2.2mb/d OPEC+ package announced in June and November 2023 has only a modestly positive effect on Saudi revenues under our baseline compliance and US supply estimates. The April cut is more clearly profitable because of a lower Saudi share in the group cut.
- The most recent Saudi cut lowers Saudi revenues if compliance drops significantly or if the US supply response rises substantially.

Exhibit 14: The Cut Announced in April 2023 Likely Supports Saudi Oil Revenues



Source: OPEC, ICE, Goldman Sachs Global Investment Research

Reason #2: Weak Incentives for a Price War

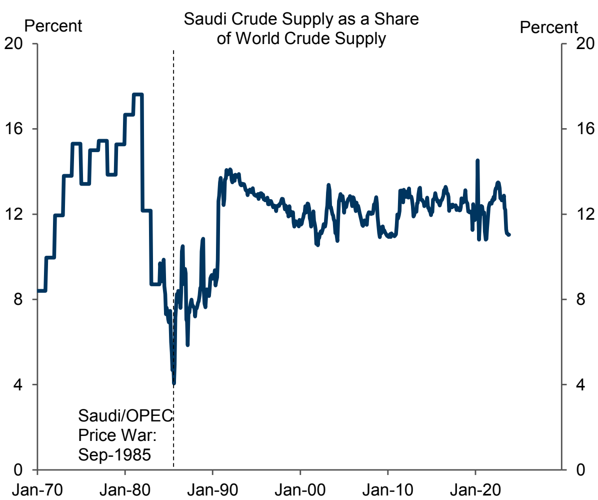
Second, we believe that Saudi economic incentives for a price war in 2024 are weaker than during the two extended price wars of 1985 and 2014-2016.

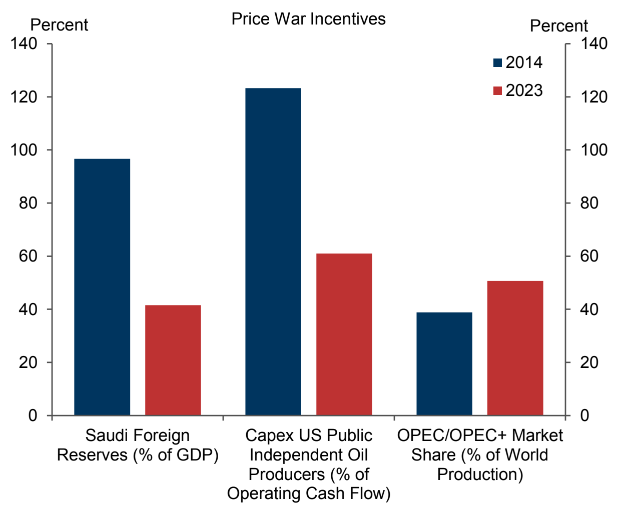
Starting with 1985, Exhibit 15 shows that Saudi's share of global crude supply had dropped by 14pp from the early 1980s. A low market share increases the incentives to boost production because the negative effect on prices is small.

Today's ambitious Saudi investment plans would likely also make extended very low prices more costly than in 2014-2016. Exhibit 16 shows that realizing Saudi Arabia's Vision 2030 is estimated to require a cumulative investment in 2021-2030 of 3.3 trillion US dollars, or 300% of its current annual GDP.

The potential medium-term benefit from regaining market share is now likely also limited. While excessive borrowing left US shale vulnerable in 2014, US producers now rely less on external funding, and large public oil firms have strong balance sheets and medium-run strategies of moderate but price insensitive growth. Finally, the creation of OPEC+ in 2016 to end the price slump has increased the group's market share and incentives to exercise pricing power.

Exhibit 15: The Saudi Incentives for a Price War Seem Weaker Now Than in 1985 and in 2014

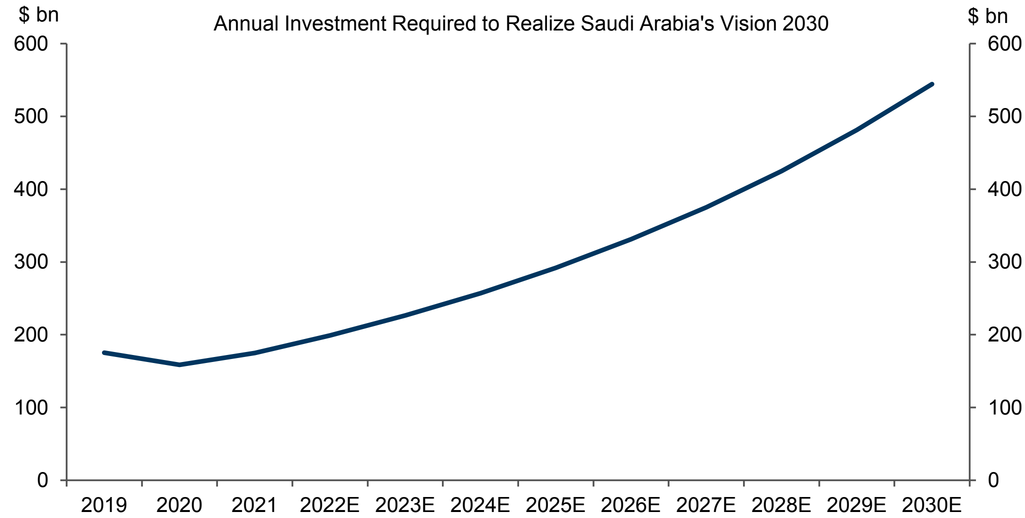




RHS: 2014 bar is OPEC market share and 2023 bar is OPEC+ market share.

Source: OPEC, Haver Analytics, S&P, IEA, EIA, Goldman Sachs Global Investment Research

Exhibit 16: Large Saudi Investment Plans

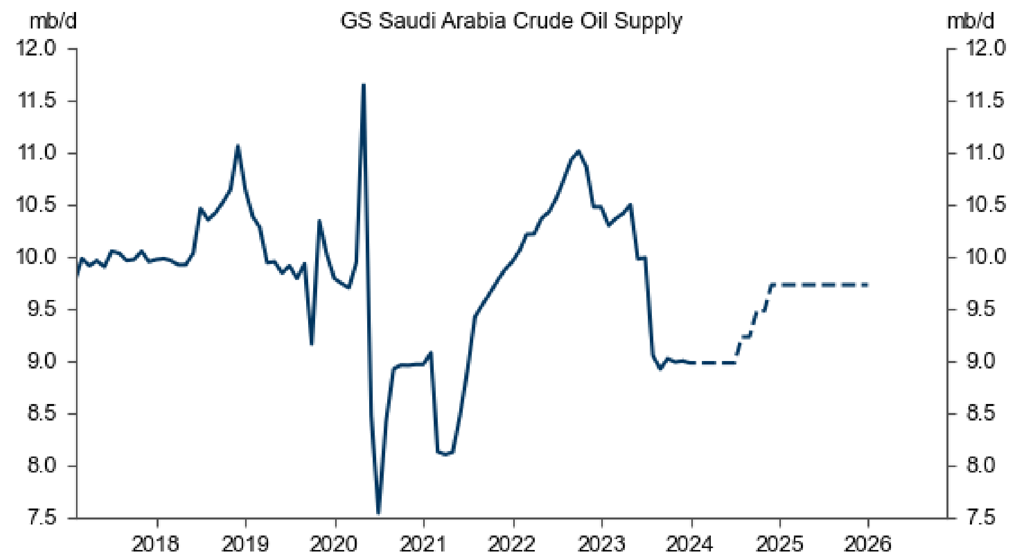


Source: Goldman Sachs Global Investment Research

Based on this analysis and our non-OPEC+ balance, we expect OPEC+ supply to stay lower for longer, and assume that:

- the 1.7mb/d of April 2023 cuts extend through at least December 2025 as they support Saudi revenues (Exhibit 14).
- the additional 2.2mb/d of cuts announced in June/November 2023 are phased out only partly (by 75%) and only gradually starting in July 2024. The November OPEC statement said that "these voluntary cuts will be returned gradually subject to market conditions" after 2024Q1.
- the cuts announced in June/November 2023 are implemented with a marginal compliance rate of 100% for Saudi Arabia, Kuwait, Algeria, and Oman, 65% for the UAE, and 50% for Russia and Iraq.
- Saudi crude production remains relatively low, but edges up to 9.7mb/d by November 2024 as demand growth outstrips slowing non-OPEC supply growth.

Exhibit 17: Lower Saudi Crude Supply for Longer



Source: OPEC, Goldman Sachs Global Investment Research

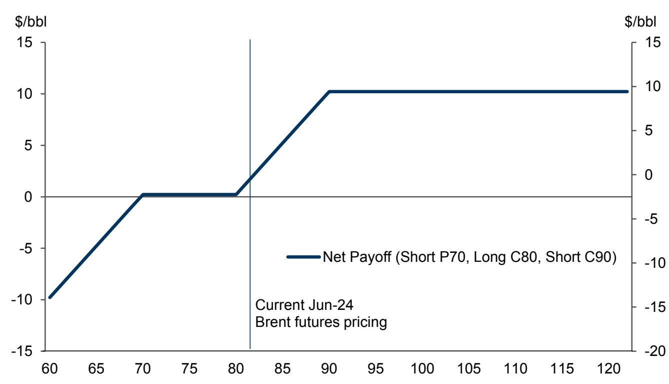
Updated Trades

While we adjust our price path, we still expect range-bound prices given OPEC incentives to curtail production and prevent large inventory builds. Our updated trade recommendations are:

- **OPEC Range Trade:** We restructure our existing trading recommendation to lower strikes, back to the original range identified earlier this year. We recommend clients short a $70/bbl Jun-24 Brent put and go long an $80-90/bbl Jun-24 Brent call spread. The trade generates an upfront premium of $0.25/bbl, with a max payout of $10.25/bbl, and breaks even above $70/bbl at expiry. This trade benefits from depressed forward curves, and elevated implied volatility and put-call skew.
- **Summer 2024 Deficit Trade:** We still recommend the long Aug-24/Sep-24 Brent timespread trade given support from peak summer inventory draws, a normalization in positioning, and lower interest rates.
- **Summer Gasoline Tightness:** We still recommend the long Sum24 Europe Gasoline-Brent refinery margin, largely insulated from crude market dynamics. The view reflects structural refining underinvestment, and closures in secondary upgrading capacity that transforms shale molecules in high quality gasoline blending components. This physical imbalance is likely to materialize again this summer as long as demand remains robust.
- **Long Dec-24 Brent:** We still recommend this trade because it is pricing towards the lower end of our range.

Exhibit 18: We recommend trades that reflects our rangebound but bullish view versus the forward curves

Payoff profile using current market prices from a three-way Jun-24 Brent option strategy: Short $70 strike put, Long $80/$90/bbl call spread.



Source: ICE, Goldman Sachs Global Investment Research

Appendix

Exhibit 19: We Forecast a Modest 0.4mb/d Deficit in 2024 on Solid 1.5mb/d Demand Growth and Lower OPEC Supply for Longer

GS Oil Supply and Demand Outlook (mb/d)	2023		2024			2025		Quarterly Levels 2023	Quarterly Levels 2024			
	Level	YoY	Level	YoY	Q4-Q4	Level	YoY	Q4	Q1	Q2	Q3	Q4
World Supply	**102.1**	**1.7**	**102.9**	**0.8**	**1.6**	**105.2**	**2.3**	**102.5**	**102.0**	**102.2**	**103.3**	**104.1**
Non-OPEC Supply	68.0	2.3	69.1	1.1	0.9	70.4	1.2	68.9	68.6	68.8	69.4	69.8
Total US	20.6	1.5	21.4	0.9	0.5	21.9	0.5	21.2	21.2	21.3	21.5	21.6
Russia	10.9	-0.2	10.7	-0.2	0.0	10.8	0.1	10.8	10.7	10.7	10.8	10.8
Non-OPEC Latam	6.2	0.5	6.6	0.4	0.2	6.8	0.2	6.4	6.5	6.5	6.6	6.7
OPEC Supply	34.1	-0.6	33.8	-0.3	0.7	34.8	1.0	33.6	33.4	33.4	33.9	34.4
Saudi crude	9.6	-0.9	9.2	-0.4	0.7	10.0	0.8	9.0	9.0	9.0	9.3	9.6
OPEC ex Saudi	24.5	0.3	24.5	0.0	0.1	24.8	0.3	24.7	24.4	24.4	24.6	24.7
World Demand	**101.7**	**2.4**	**103.3**	**1.5**	**1.3**	**104.6**	**1.3**	**102.5**	**102.4**	**102.6**	**104.3**	**103.8**
OECD Demand	45.8	0.1	45.8	0.0	0.0	45.8	0.0	46.0	45.7	45.1	46.4	46.0
US	20.4	0.2	20.5	0.1	-0.1	20.4	0.0	20.6	20.4	20.4	20.7	20.5
OECD Europe	13.4	-0.2	13.2	-0.2	0.1	13.2	0.0	13.1	12.9	13.0	13.6	13.2
Non-OECD Demand	56.0	2.3	57.5	1.5	1.4	58.8	1.3	56.5	56.7	57.4	57.9	57.8
China	16.0	1.6	16.8	0.8	0.5	17.2	0.4	16.5	16.7	17.0	16.8	16.9
India	5.5	0.2	5.6	0.2	0.3	5.9	0.3	5.5	5.7	5.6	5.5	5.8
Other non-OECD Asia	9.0	0.1	9.2	0.2	0.2	9.5	0.3	9.1	9.1	9.1	9.2	9.3
Imbalance (=Supply-Demand)	**0.4**	**-0.7**	**-0.4**	**-0.7**	**0.3**	**0.6**	**1.0**	**0.0**	**-0.4**	**-0.4**	**-1.0**	**0.3**

Source: IEA, Kpler, JODI, EIA, National Sources, Goldman Sachs Global Investment Research

Exhibit 20: We Forecast Brent to Rise to $85/bbl by June 2024

GS Forecasts	Brent	WTI
2024	81	77
2025	80	75
Dec-23	75	71
Jan-24	77	72
Feb-24	78	73
Mar-24	80	75
Apr-24	81	77
May-24	83	78
Jun-24	85	80
Jul-24	84	79
Aug-24	83	79
Sep-24	82	78
Oct-24	82	77
Nov-24	81	76
Dec-24	80	75
Jan-25	80	76
Feb-25	80	75
Mar-25	80	76
Apr-25	80	75
May-25	80	75
Jun-25	80	75
Jul-25	80	75
Aug-25	80	75
Sep-25	80	75
Oct-25	80	75
Nov-25	80	75
Dec-25	80	75

Source: Goldman Sachs Global Investment Research

Exhibit 21: We Expect a Recovery in Timespreads and Stable Long-Dated Prices

	1M/3Y Timespreads ($/bbl)	Brent 36M ($/bbl)	Front Brent
2024	10	71	81
2025	8	72	80
Dec-23	**5**	**71**	**75**
Jan-24	6	71	77
Feb-24	7	71	78
Mar-24	9	71	80
Apr-24	10	71	81
May-24	11	71	83
Jun-24	13	71	85
Jul-24	12	72	84
Aug-24	11	72	83
Sep-24	10	72	82
Oct-24	10	72	82
Nov-24	9	72	81
Dec-24	**8**	**72**	**80**
Jan-25	8	72	80
Feb-25	8	72	80
Mar-25	8	72	80
Apr-25	8	72	80
May-25	8	72	80
Jun-25	8	72	80
Jul-25	8	72	80
Aug-25	8	72	80
Sep-25	8	72	80
Oct-25	8	72	80
Nov-25	8	72	80
Dec-25	**8**	**72**	**80**

Source: ICE, Goldman Sachs Global Investment Research

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Reg AC

We, Daan Struyven, Callum Bruce, CFA, Yulia Zhestkova Grigsby and Blake Woods, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

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