THE OXFORD INSTITUTE FOR ENERGY STUDIES

Short-Term Oil Market Outlook

Q1 2023

Oil Research Programme

Oxford Institute for Energy Studies

Oxford UK, 23 February 2023

Key insights (1/2)

- **Global oil demand** is seen moving past the COVID shock in 2023 and is forecast to grow by 1.6 mb/d.

  The 2023 demand growth is mainly driven by a cautious rather than excessive optimism in Chinese demand that is expected to register a strong recovery in H2.

- **Global oil supply** growth is expected to slow in 2023 closer to its 2010-2019 average and grow y/y by 1.6 mb/d.

  Russian crude production is forecast to fall y/y by 530,000 b/d to 10.1 mb/d by year-end, from 10.9 mb/d in Dec-22, with disruptions peaking at 1 mb/d in Q2 from 200,000 b/d currently (vs Jan/Feb-22).

  We expect the disruptions in Russia's total crude and products exports to rise to 850,000 b/d compared to pre-war levels, of which 62% of the total will originate from the products-side and 38% from the crude-side. Refinery runs are expected to fall to 4.9 mb/d in 2023 from 5.4 mb/d in 2022.

Global balance

Source: OIES
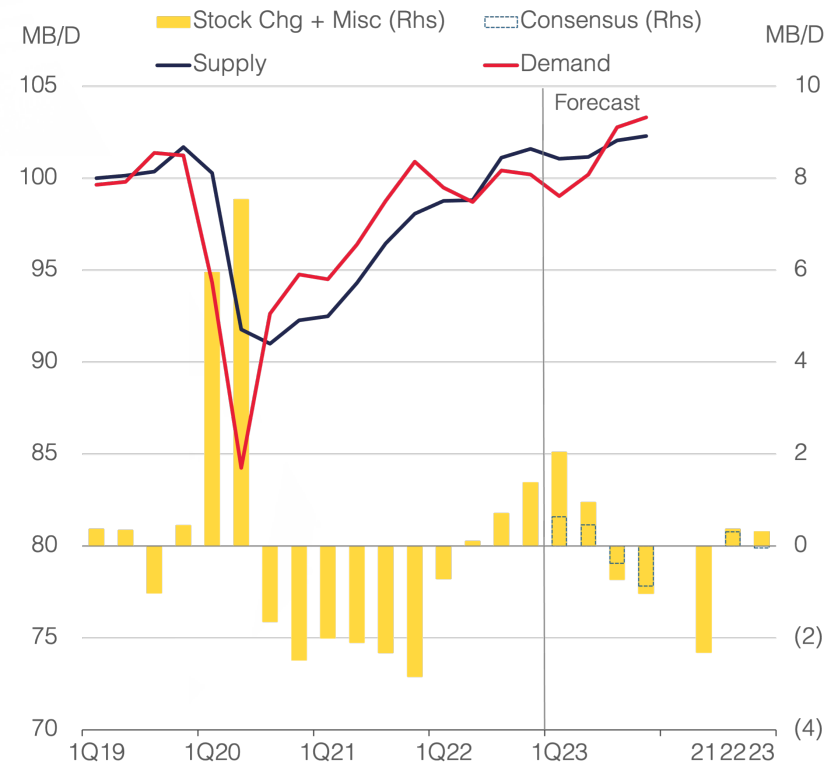
- **The oil market is projected to remain relatively balanced in 2023,** building a small 300,000 b/d surplus. 2023 is shaping up to be a year of two halves but market uncertainty remains elevated.

  Global oil demand outcomes and the eventual realization of Russian supply disruptions remain the key sources of uncertainty.

- The **Reference forecast for Brent** stands at $95.7/b in 2023 from $99.8/b in 2022, but the balance of risks remains tilted to the downside.

  The Brent price band ranges between $79.9/b and $107.6/b annually, with downside demand-risks remaining dominant throughout the outlook but easing as we move towards H2.

  Q2 appears the most at risk as the weakest quarter to the balance in 2023 with prices dragged to the mid-$70s, but $100/b could still return by May if balances tighten faster.

Brent price outlook

USD/B — Reference ------ Quarterly avg.

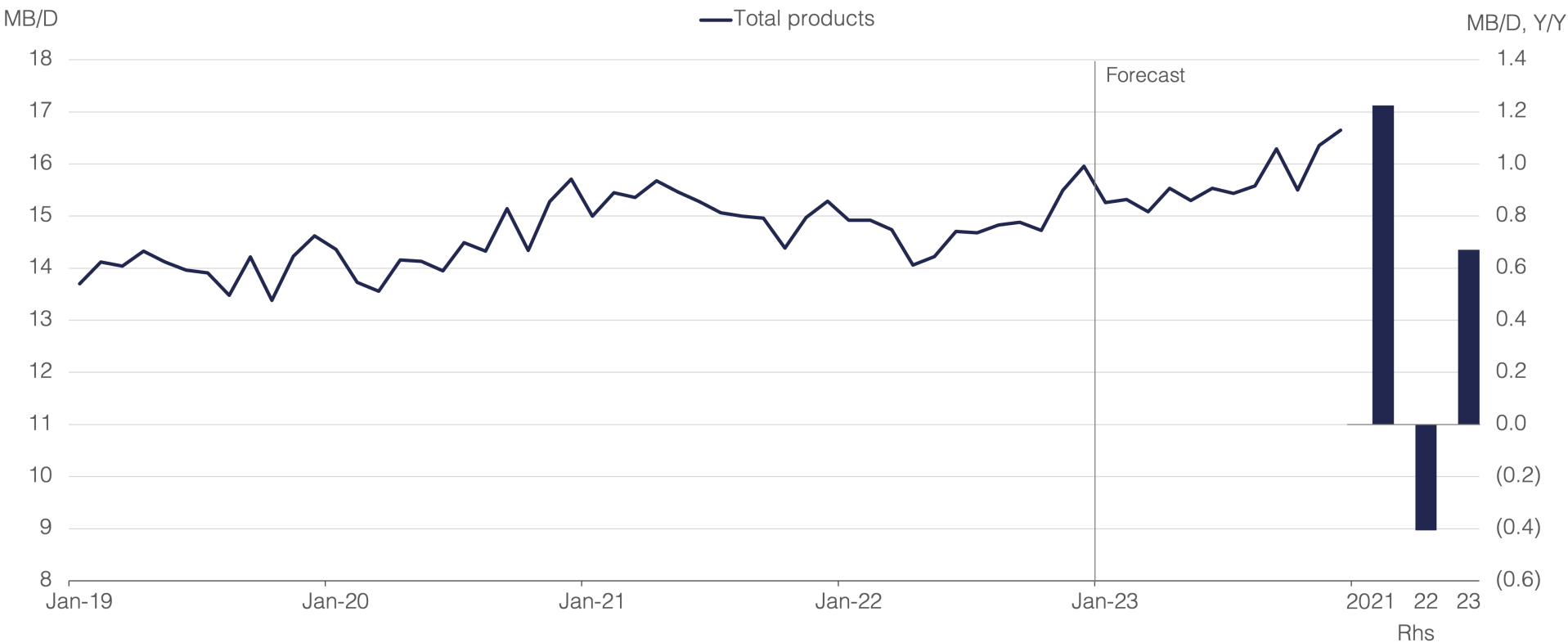Forecast
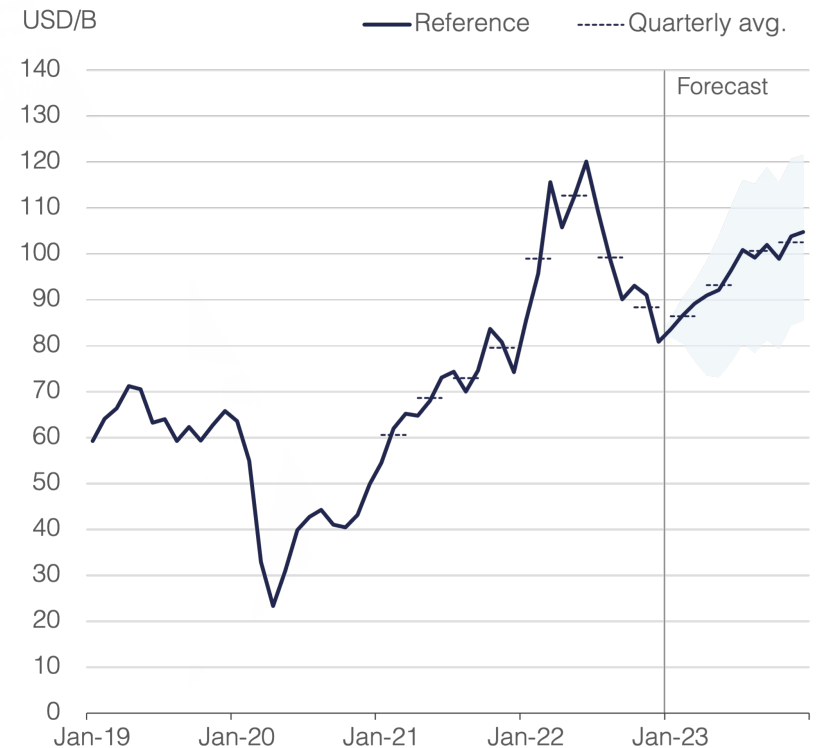
Source: OIES

China oil outlook

A strong recovery in H2

China's oil demand is projected to grow by 670,000 b/d in 2023, following a contraction by 400,000 b/d in 2022, as growth is expected to accelerate in H2.
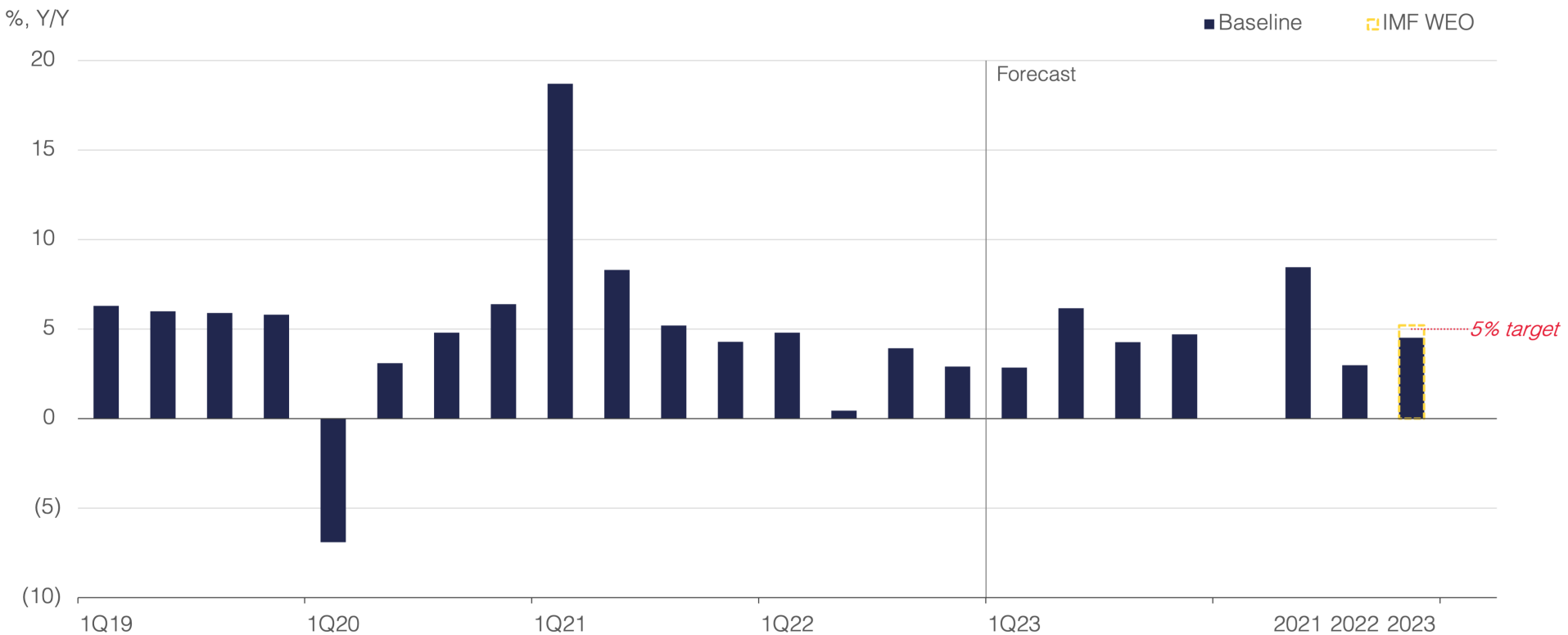
China oil demand

Source: OIES

A pro-growth policy environment

China GDP growth

%, Y/Y

■ Baseline   ⬚ IMF WEO

Forecast

5% target

X-axis labels: 1Q19, 1Q20, 1Q21, 1Q22, 1Q23, 2021 2022 2023

Source: Oxford Economics, IMF

But confidence will be key

Growth rate of investment in real estate development

%, vs JAN-22

Jan to Dec 2021
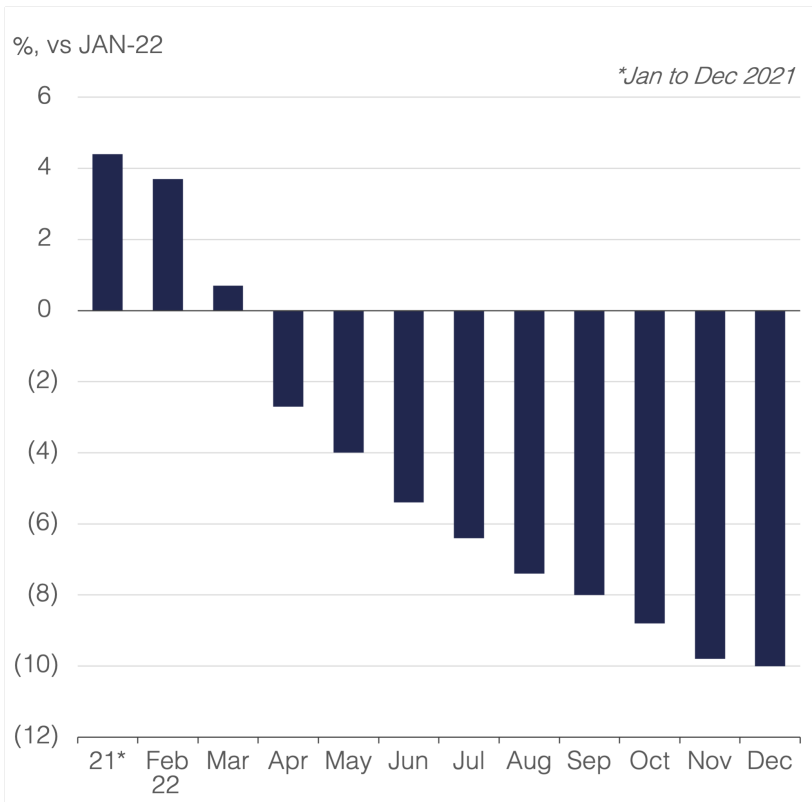
Source: NBS

Per capita disposable income

YUAN

%, Y/Y

- Per Capita disposable income
- Nominal growth in 2022
- Actual growth in 2022
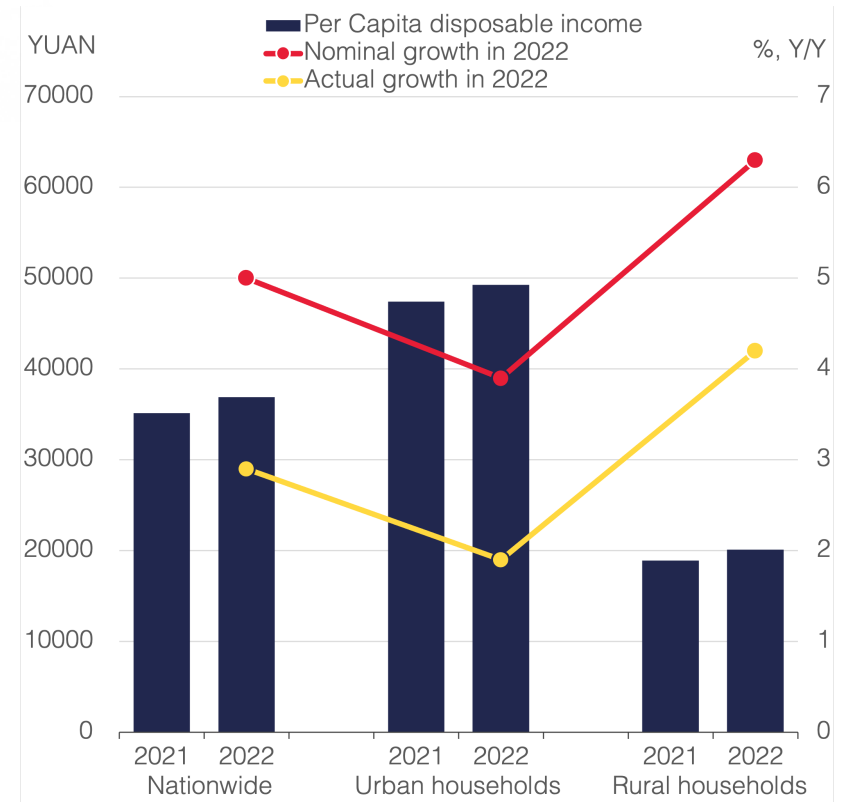
Source: NBS

Broad based demand recovery: is diesel really that strong?

China apparent demand by product
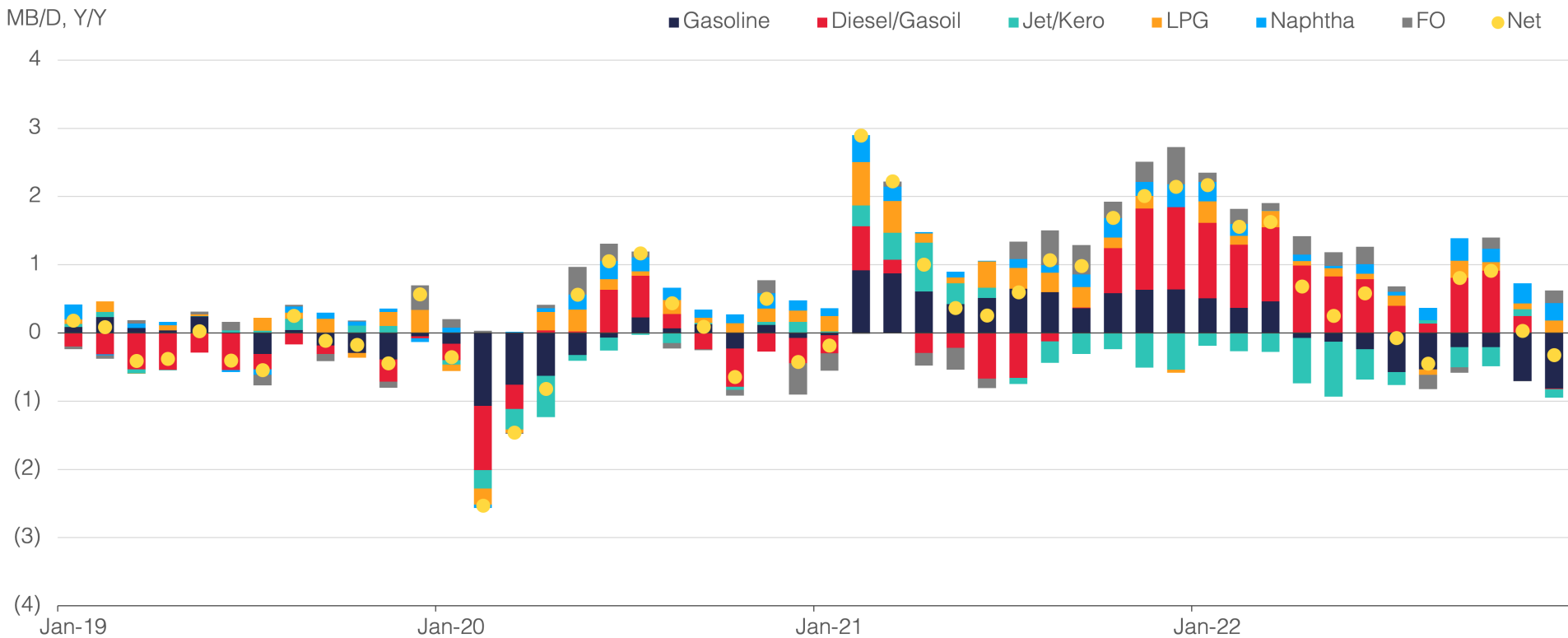
MB/D, Y/Y

■ Gasoline ■ Diesel/Gasoil ■ Jet/Kero ■ LPG ■ Naphtha ■ FO ● Net

Source: Argus, OIES

More refinery starts in a pro-growth environment

China refinery runs

MB/D

Legend: 2017-2021 range | 2022 | 2021 | 2020 | 2019
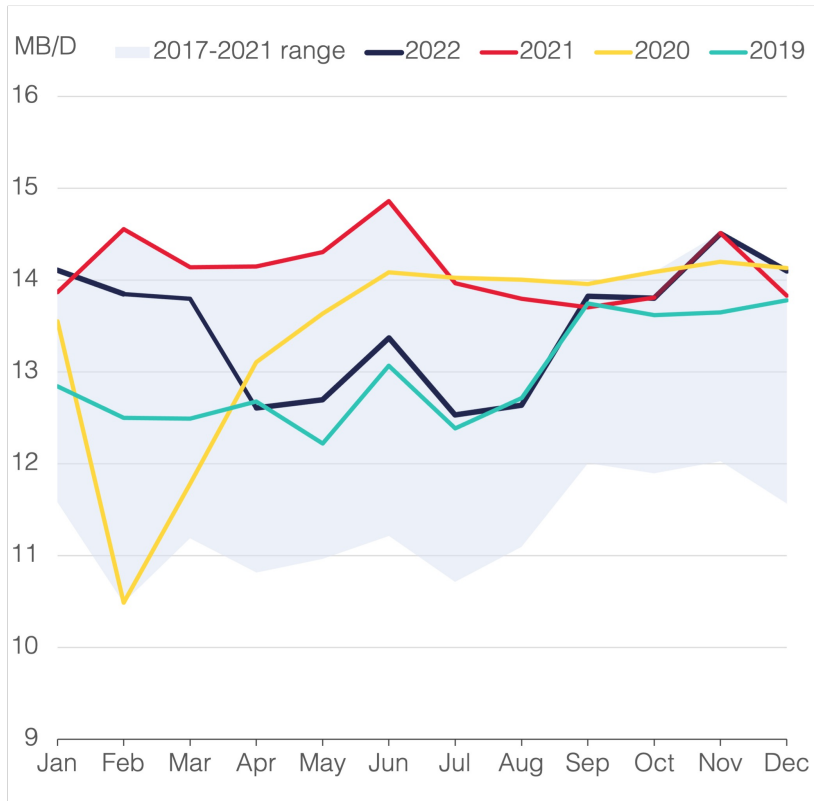
Source: Argus

China refinery expansions

KB/D, Y/Y — ■ Net refinery capacity expansions
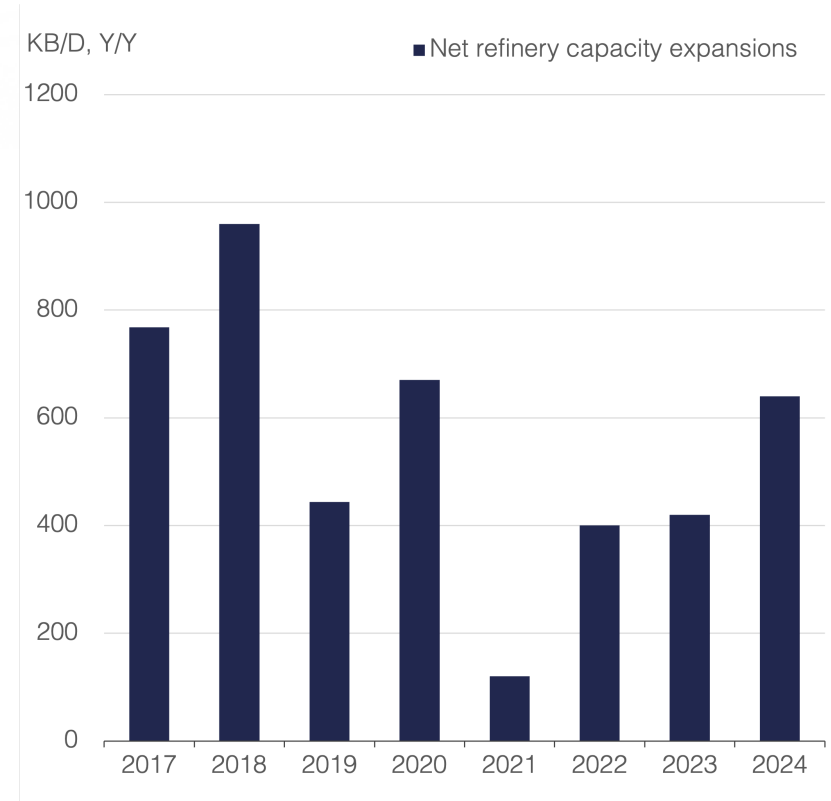
Source: Argus, OIES

A softer approach to Shandong?

Shandong refinery runs

MB/D

2017-2021 range — 2022 — 2021 — 2020 — 2019
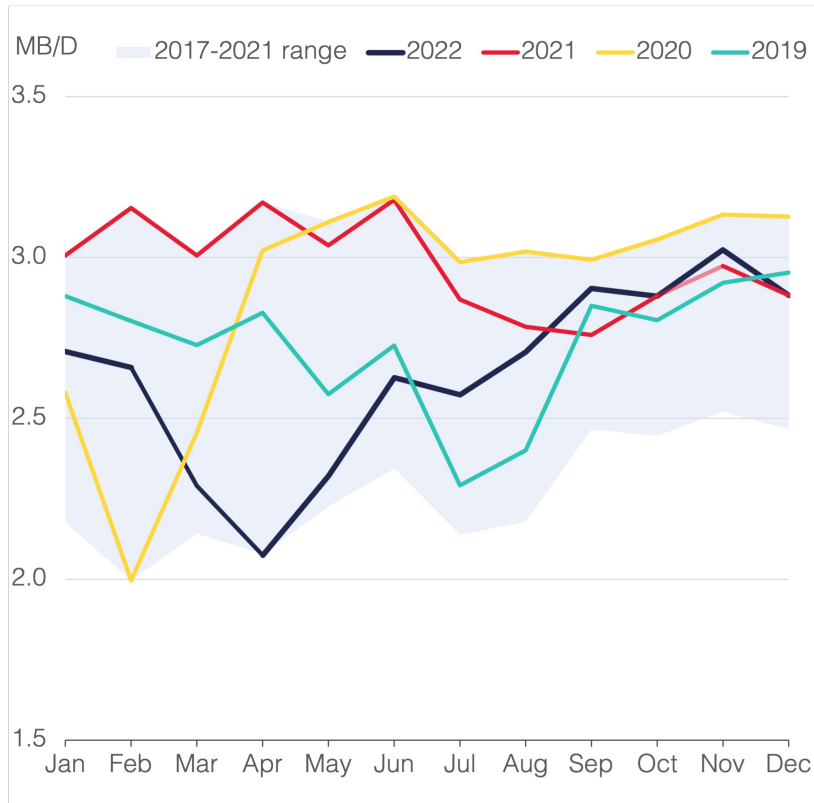
Source: Argus

China crude import quotas

MBBLS

■ 1st batch ■ 2nd batch ■ 3rd batch ■ 4th batch ■ 5th batch
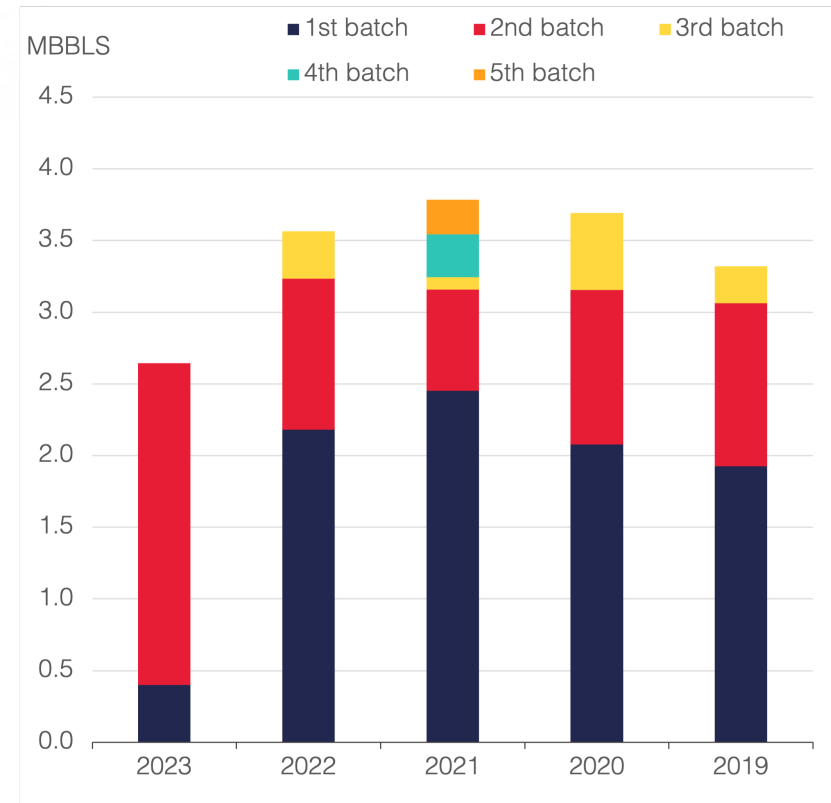
Source: Argus

Front loading growth or a policy reversal?

China crude imports by origin
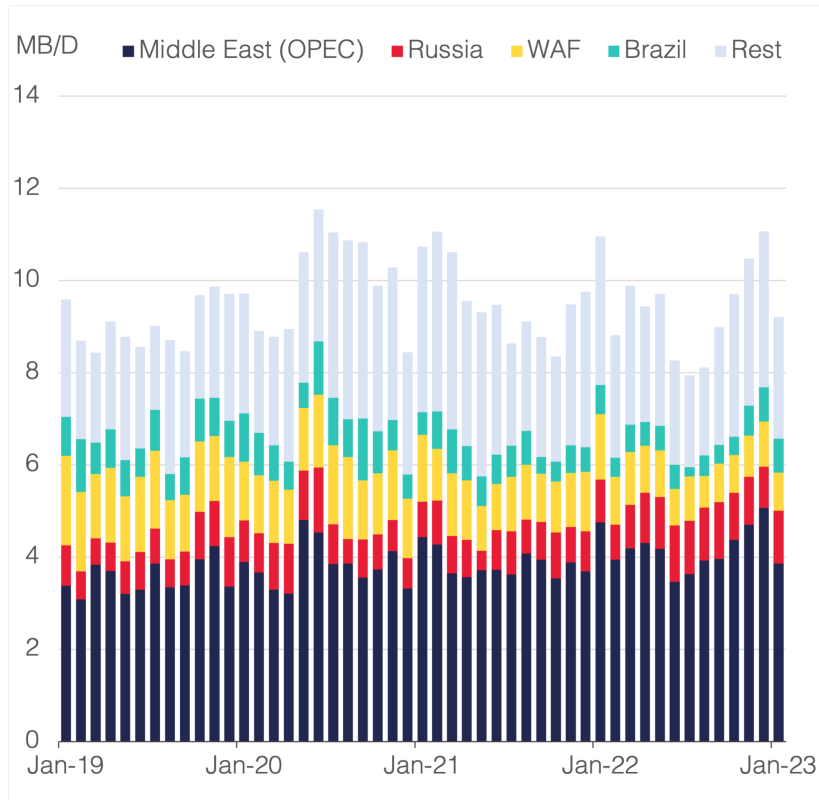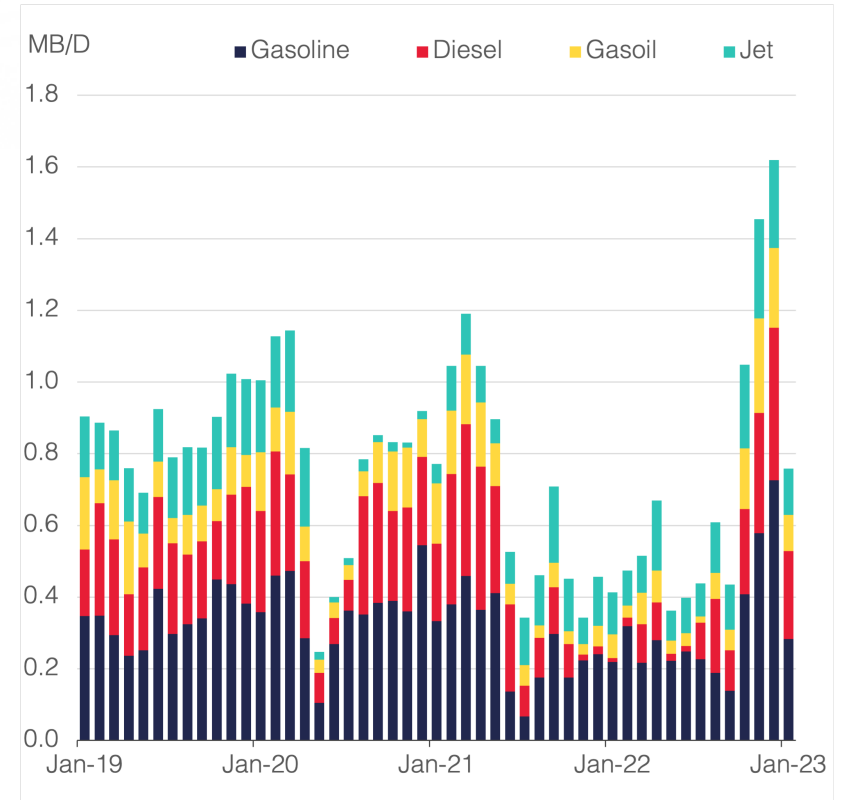
MB/D — Middle East (OPEC) ■ Russia ■ WAF ■ Brazil ■ Rest

Source: Kpler

China product exports

MB/D — Gasoline ■ Diesel ■ Gasoil ■ Jet

Source: Kpler

Ongoing debate about product exports

China product exports to EU-27

KB/D

Legend: Diesel, Jet, Gasoil, Other

Y-axis: 0, 50, 100, 150, 200, 250
X-axis: Jan-19, Jan-20, Jan-21, Jan-22, Jan-23
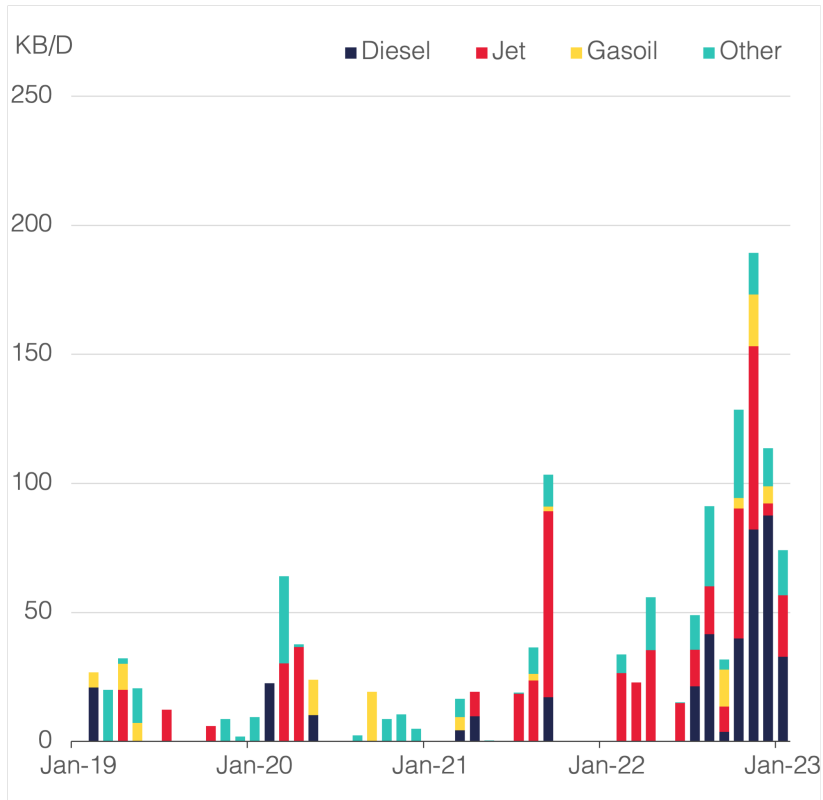
Source: Kpler

China products export quotas

MBBLS

Legend: 1st batch, 2nd batch, 3rd batch, 4th batch, 5th batch

Y-axis: 0, 50, 100, 150, 200, 250, 300, 350
X-axis: 2023, 2022, 2021
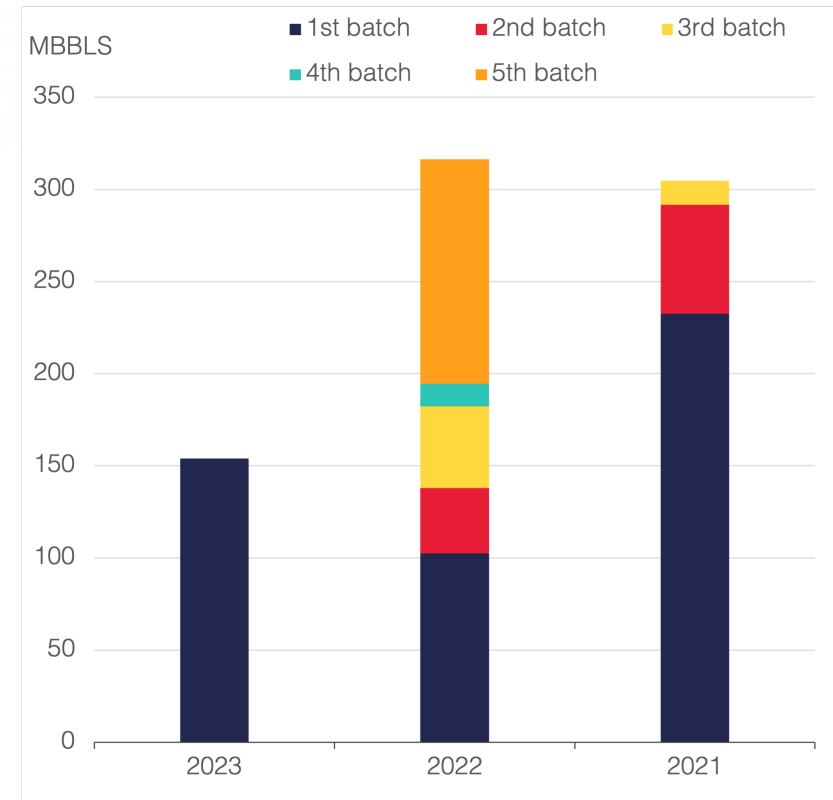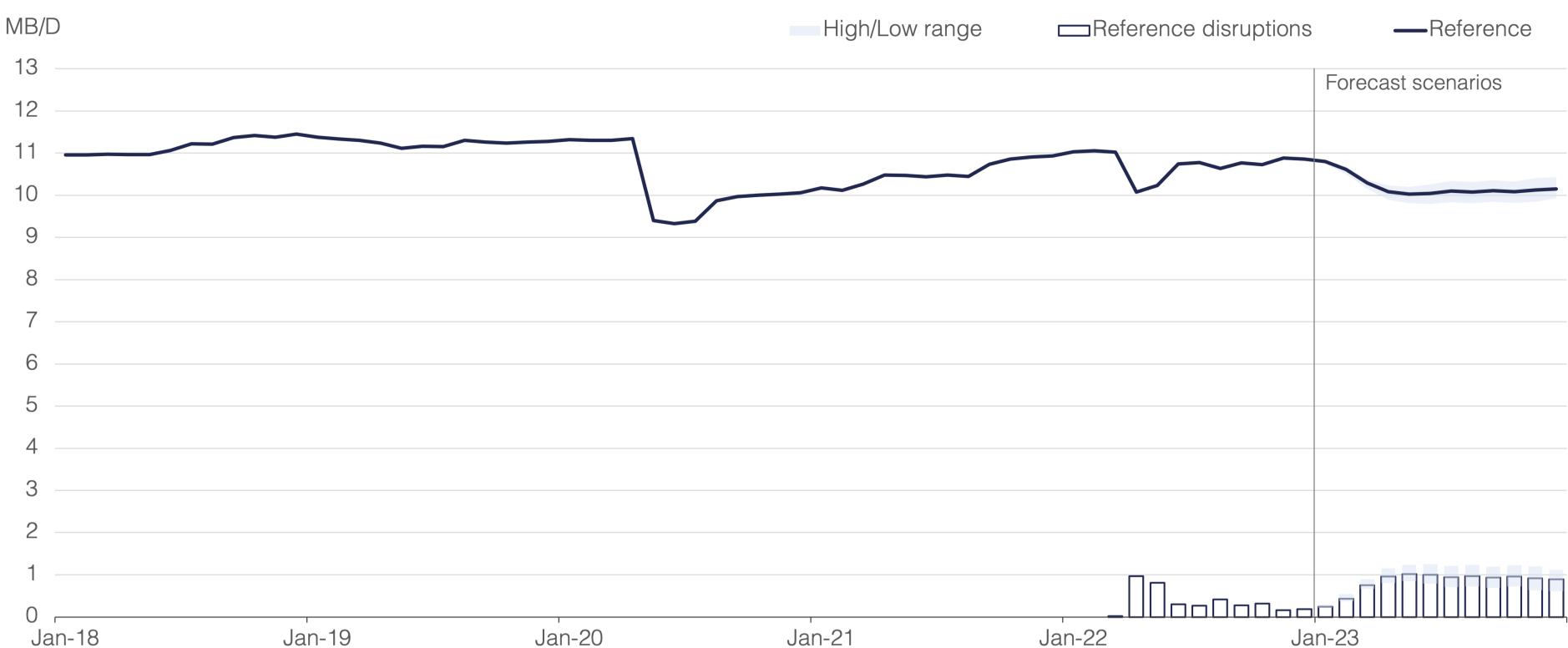
Source: Argus

Russia supply outlook

Russia's supply disruptions in 2023 could undershoot consensus

Russia's crude oil production is expected to decline by 530,000 b/d to 10.2 mb/d in 2023, from 10.7 mb/d in 2022, with disruptions averaging 850,000 b/d for the year compared to pre-war Jan/Feb-22 levels.

Russia oil production scenarios

MB/D

Legend: High/Low range — Reference disruptions — Reference

Forecast scenarios

Y-axis: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

X-axis: Jan-18, Jan-19, Jan-20, Jan-21, Jan-22, Jan-23

Disruptions in product flows and Druzhba crude will be the main source of the expected curbs

The disruption in product exports aggravated by a small contraction in domestic demand are expected to account for roughly 60% of total disrupted supplies in 2023, while crude exports for the remaining 40%.

Russian supply disruptions by source

MB/D

	Value
Seaborne crude	(0.07)
Pipeline crude	(0.27)
Seaborne products	(0.45)
Domestic products	(0.10)
Total	(0.89)
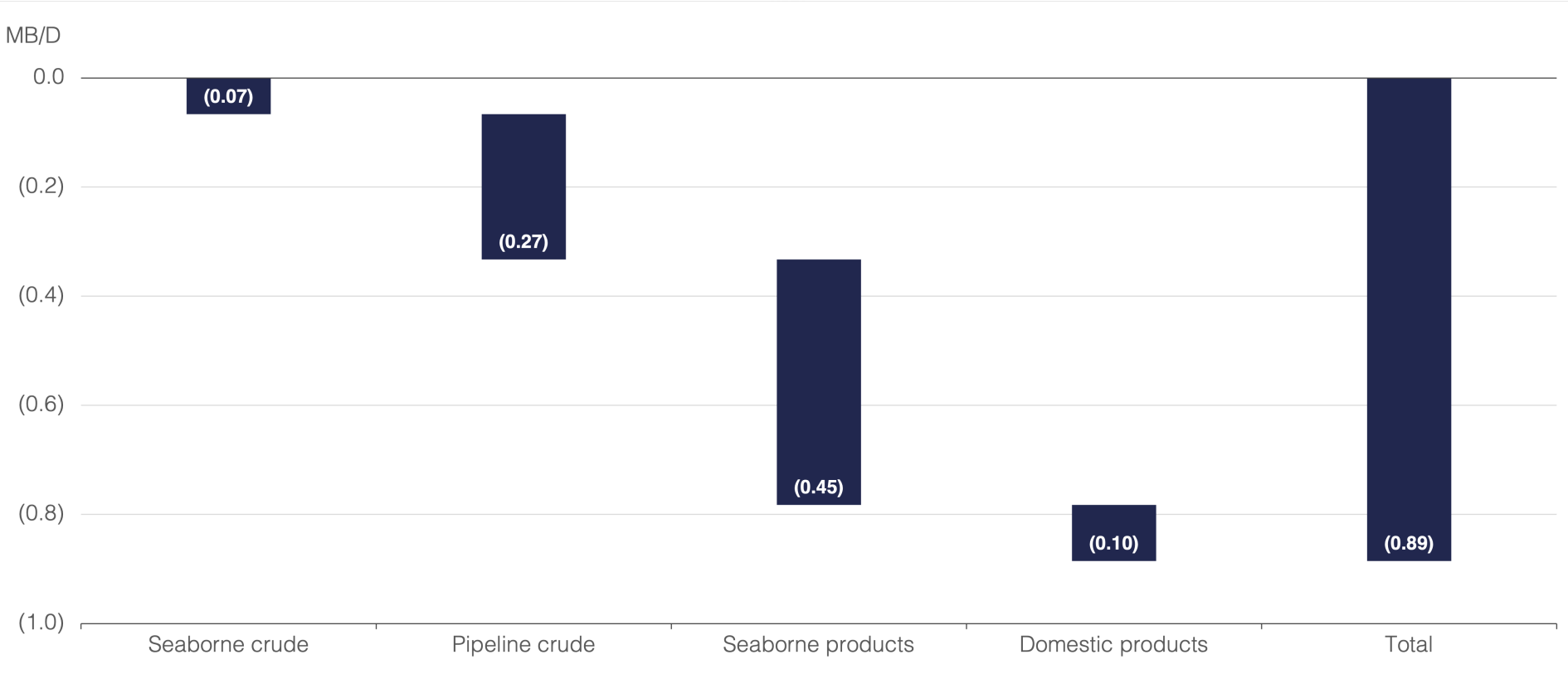
Notes: Estimated disruptions as compared to pre-war Jan/Feb-22 levels.
Source: OIES

Russia's seaborne crude exports will remain resilient

Russia seaborne crude oil exports by destination
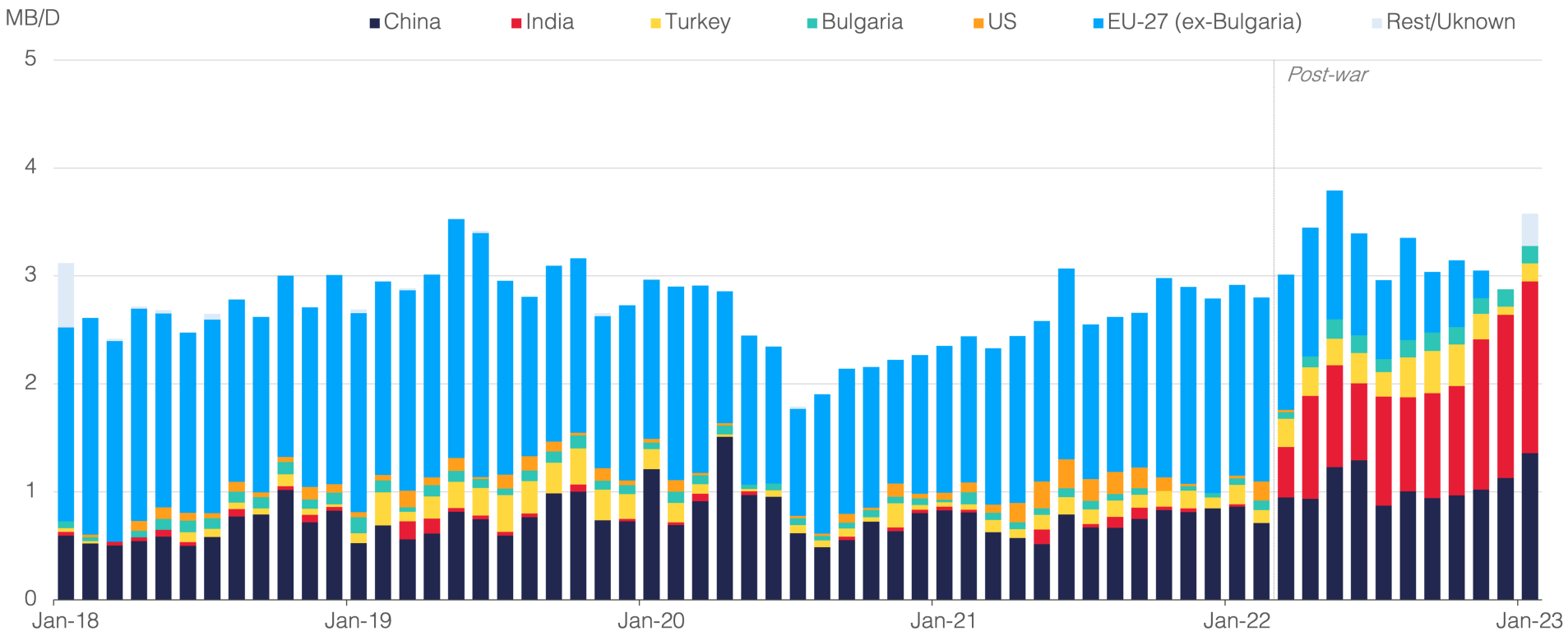
Source: Kpler, OIES

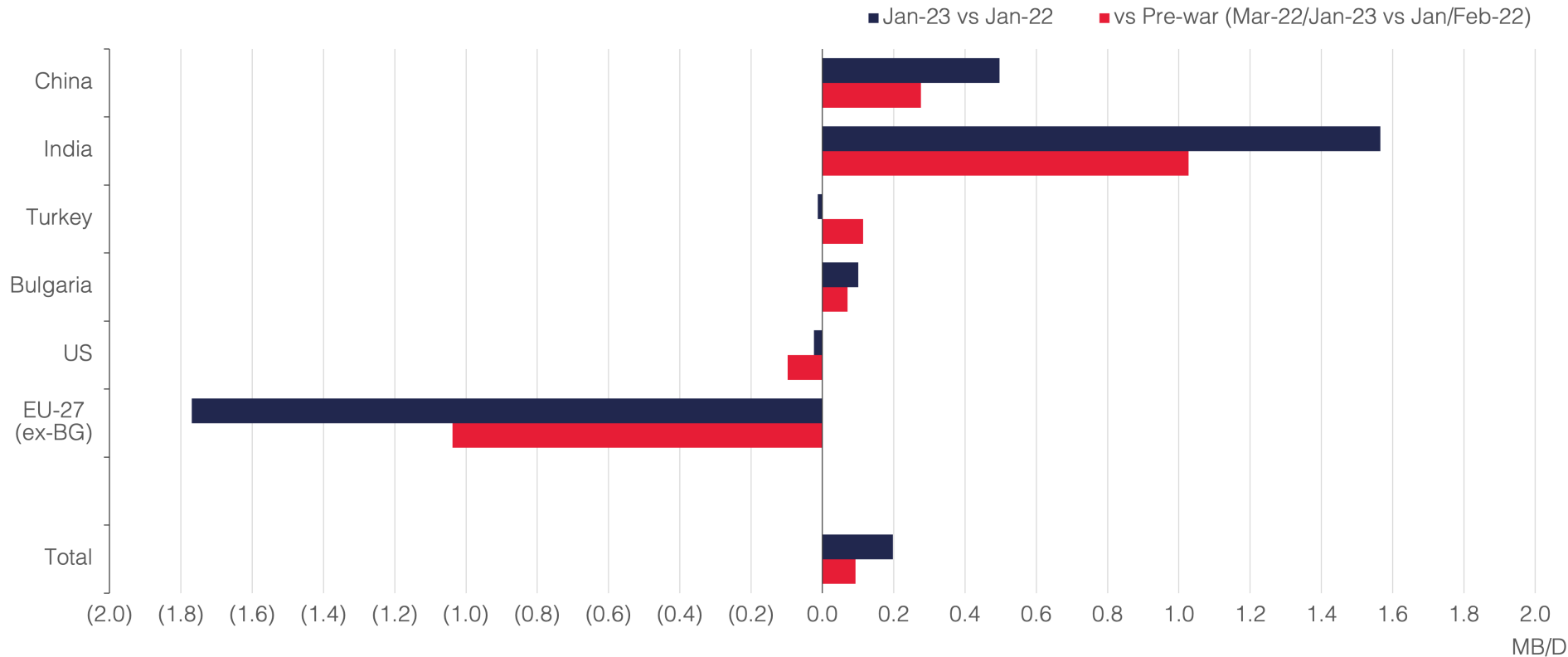# With China and India remaining the two main customers but the Chinese pivot potentially accelerating in 2023
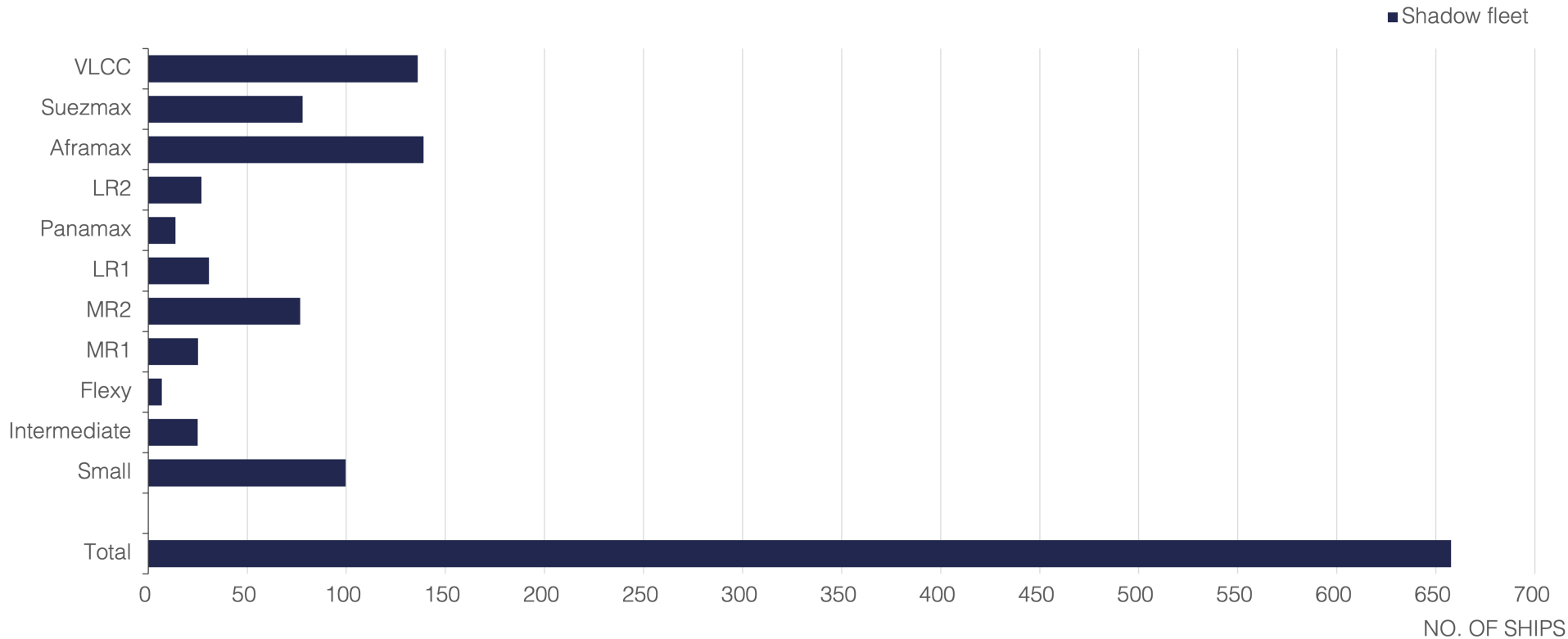
Russia seaborne crude oil exports shifts

Legend: ■ Jan-23 vs Jan-22   ■ vs Pre-war (Mar-22/Jan-23 vs Jan/Feb-22)

Categories (top to bottom): China, India, Turkey, Bulgaria, US, EU-27 (ex-BG), Total

X-axis: (2.0) (1.8) (1.6) (1.4) (1.2) (1.0) (0.8) (0.6) (0.4) (0.2) 0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 MB/D

Source: OIES

The size of shadow tanker fleet a catalyst in 2023

Global shadow tanker fleet by type

Druzhba exports expected to be halved

Russia pipeline crude exports

MB/D

Legend: Germany, Poland, Czech Rep., Slovakia, Hungary, China

Post-war

Y-axis: 0.0, 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0

X-axis: Jan-18, Jan-19, Jan-20, Jan-21, Jan-22
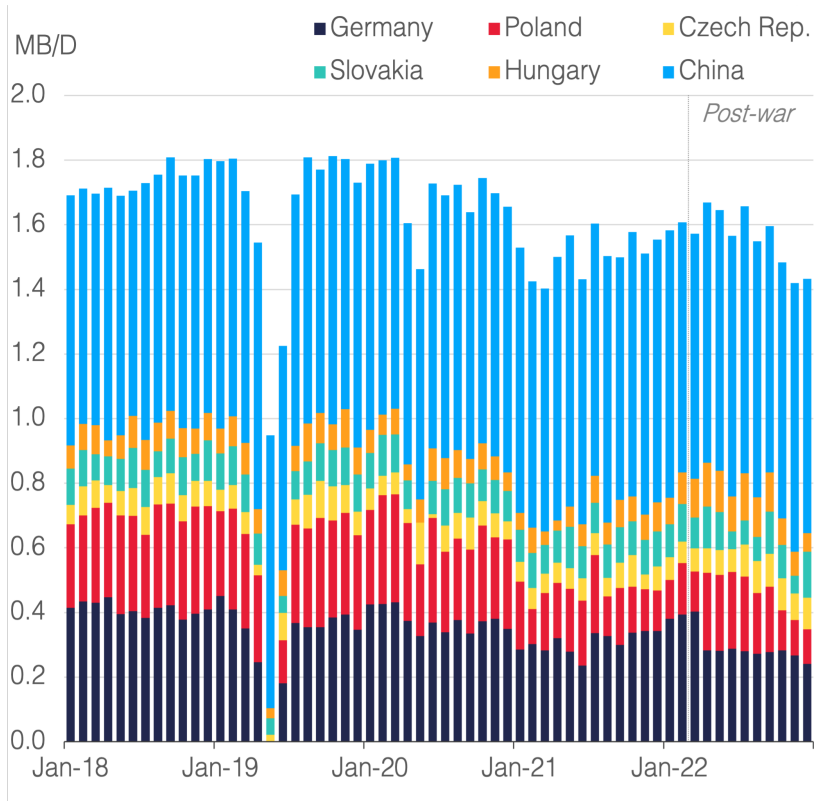
Source: Argus

Druzhba pipeline crude exports

MB/D

Legend: Druzhba Urals

Post-war

Y-axis: 0.0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2

X-axis: Jan-18, Jan-19, Jan-20, Jan-21, Jan-22, Jan-23
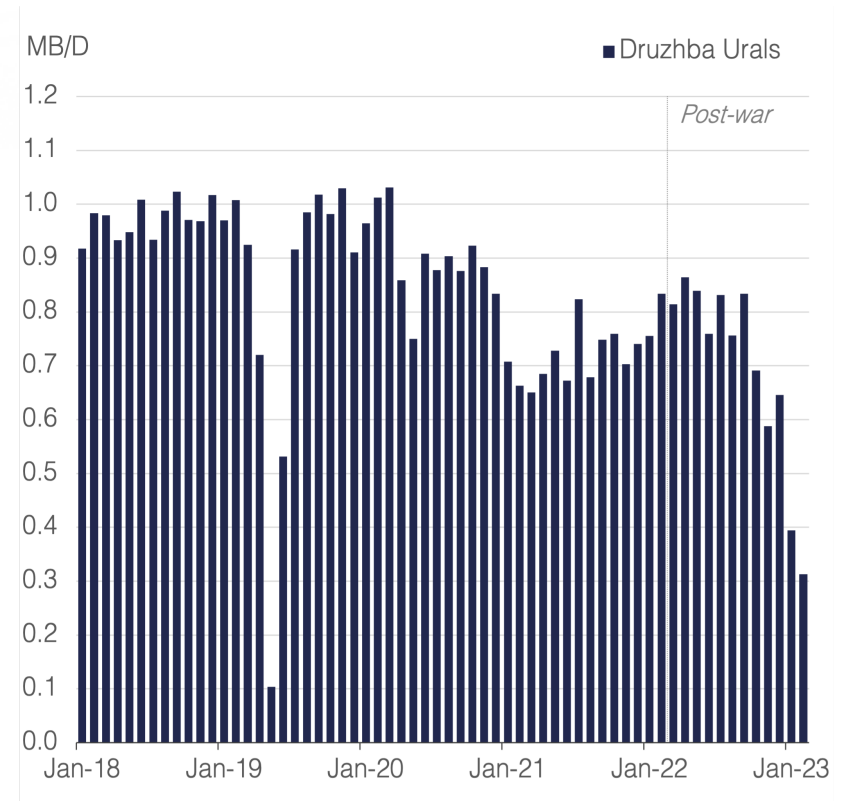
Source: Argus, OIES

Russia will find it more difficult to market its products than crude, while losing access to a key market

Russia seaborne product exports by destination
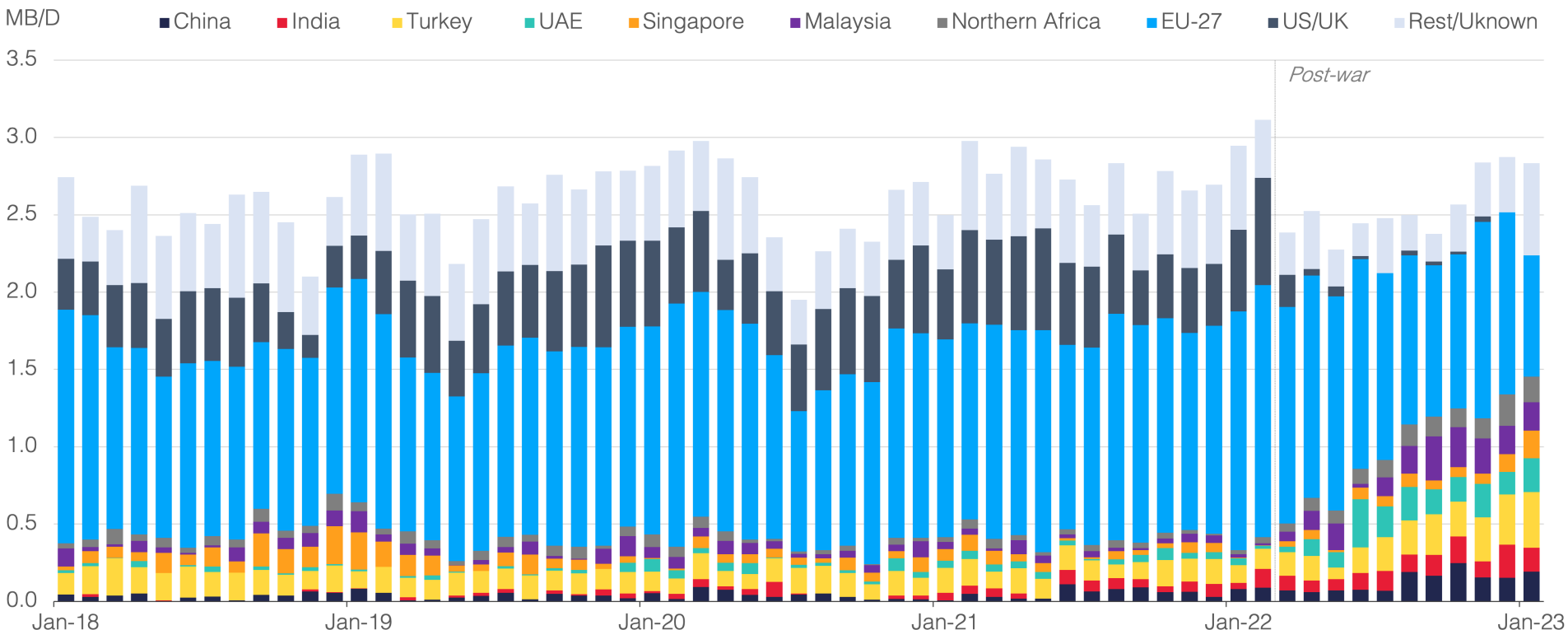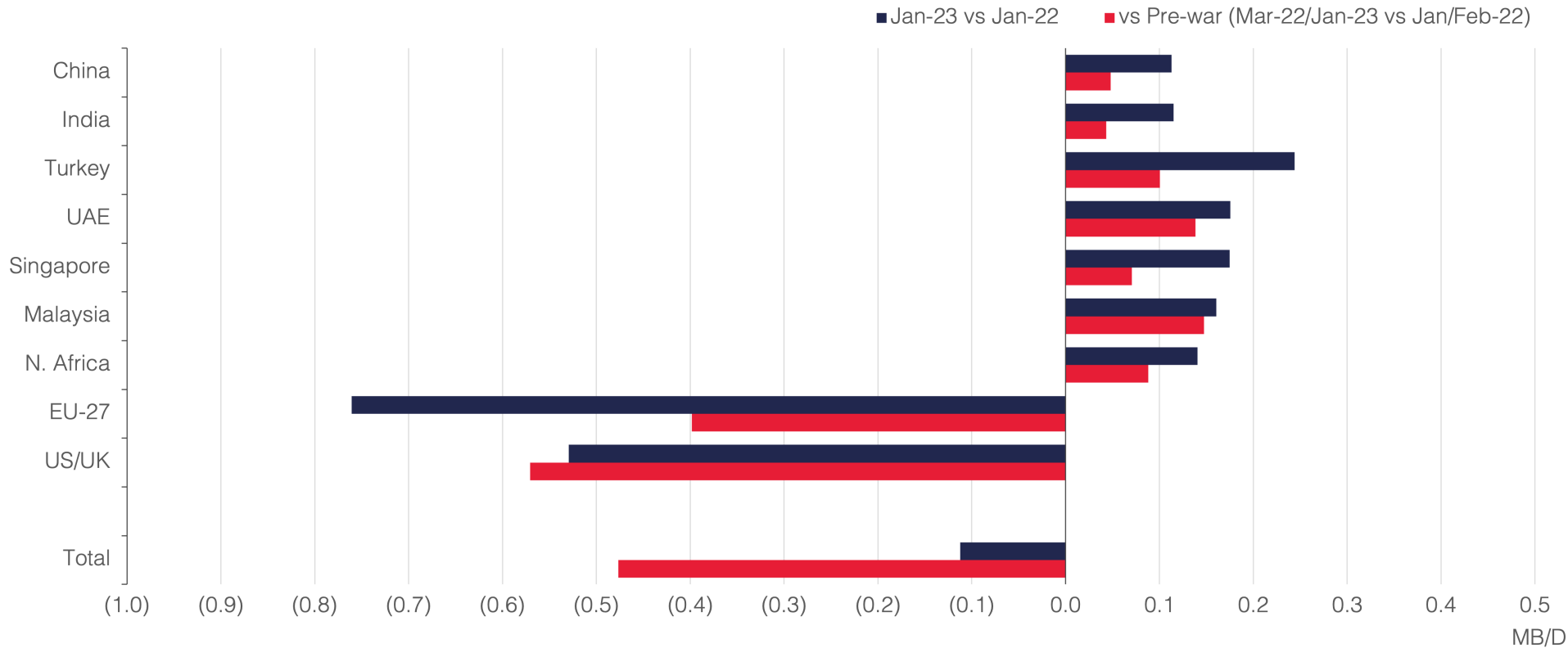

Source: Kpler, OIES

The main off-takers of Russian products will be Asia and Africa, with Turkey becoming a wildcard
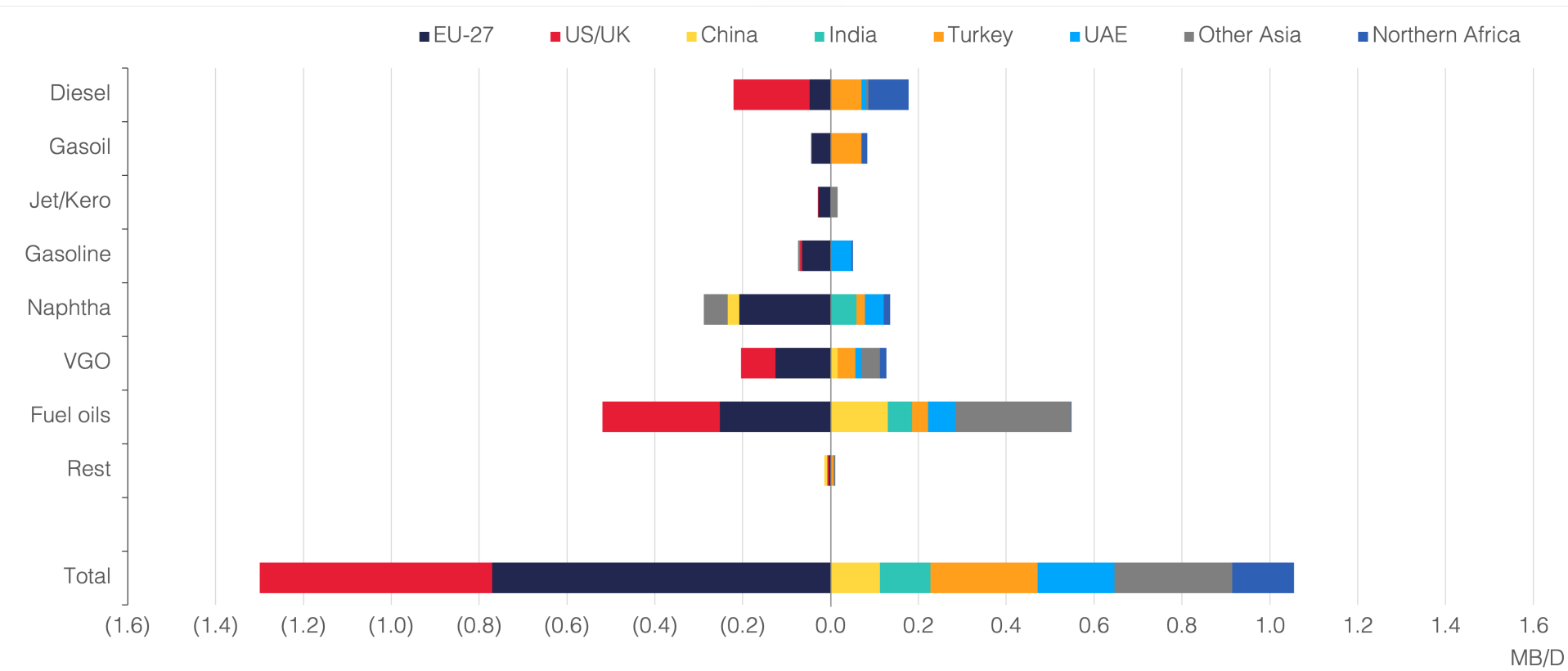
Russia seaborne products export shifts

■ Jan-23 vs Jan-22   ■ vs Pre-war (Mar-22/Jan-23 vs Jan/Feb-22)

MB/D

FO and gasoil/diesel account for 75% of total product shifts rerouted mainly to Asia and Northern Africa respectively

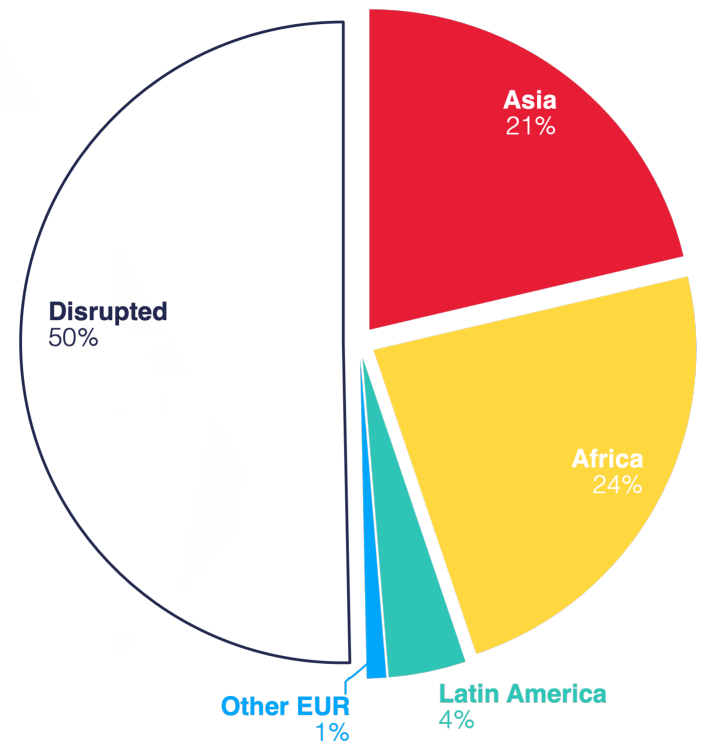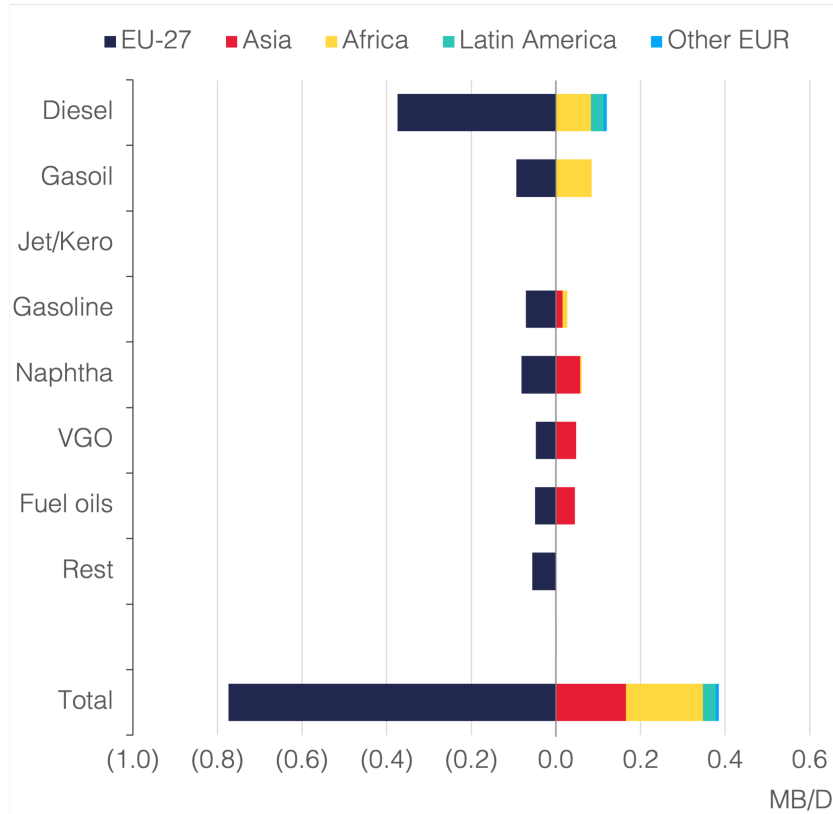**Russia seaborne products export shifts by product/destination**

Source: Kpler, OIES

Russia will struggle to redirect half of the total EU banned volumes of product exports to new buyers

Russia seaborne products exports curtailment assumptions

Legend: EU-27, Asia, Africa, Latin America, Other EUR

Categories: Diesel, Gasoil, Jet/Kero, Gasoline, Naphtha, VGO, Fuel oils, Rest, Total

X-axis: (1.0) (0.8) (0.6) (0.4) (0.2) 0.0 0.2 0.4 0.6 MB/D

Pie chart: Disrupted 50%, Asia 21%, Africa 24%, Latin America 4%, Other EUR 1%

Notes: Other Europe (EUR) includes Turkey. Based on Russian product exports to EU-27 as of Jan-23.

Source: OIES

Russian refinery runs to decline with expected demand pick-up in H2 to set a floor

We project Russian refinery runs to fall y/y by 510,000 b/d to 4.9 mb/d in 2023, after a 170,000 b/d y/y decline to 5.4 mb/d in 2022.
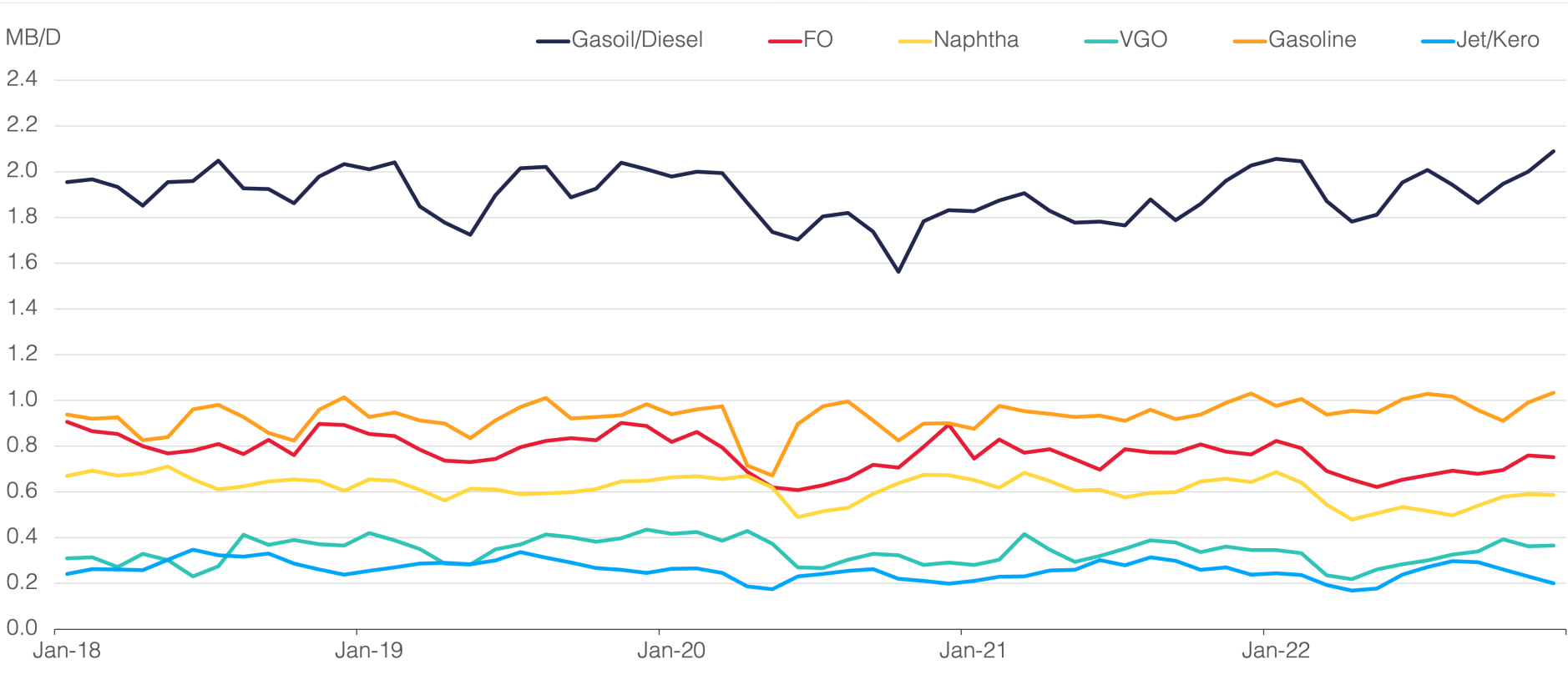
Russia refinery runs
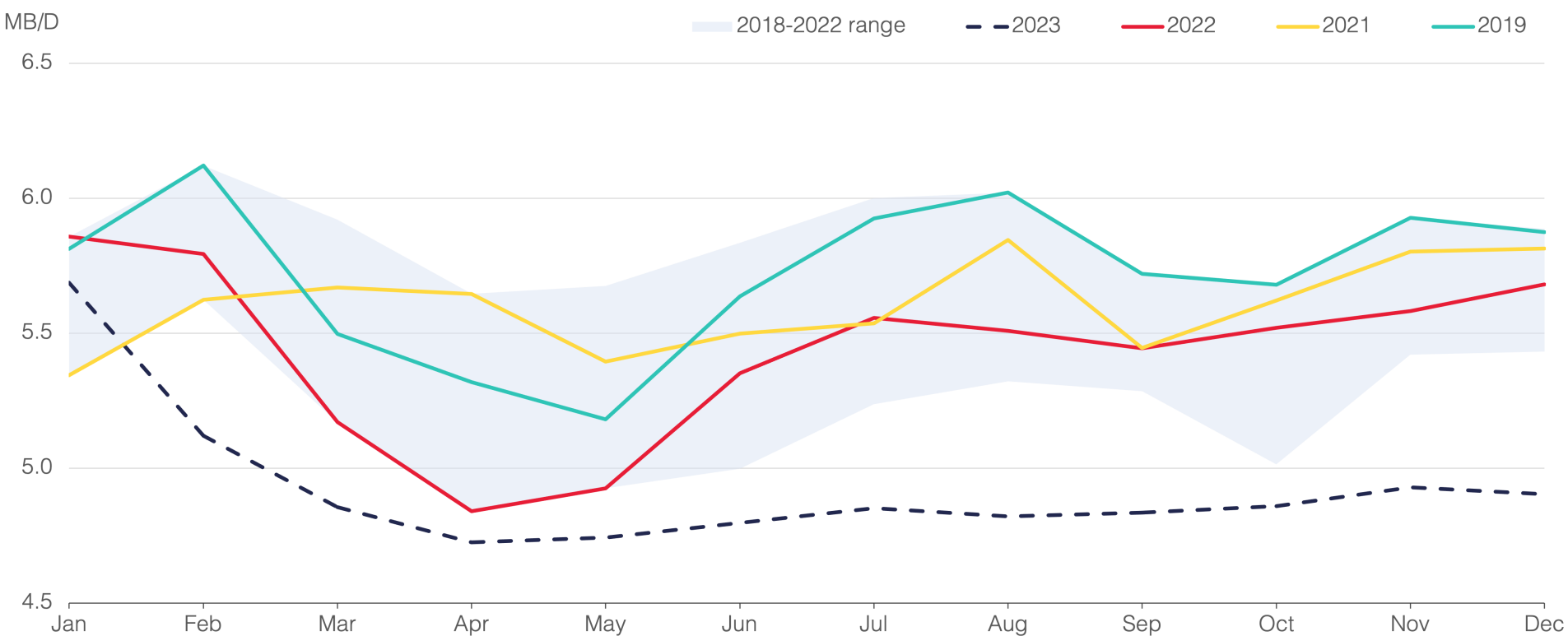
Source: Argus, OIES

Clean products except gasoil are expected to see the largest disruptions with FO output expected to hold

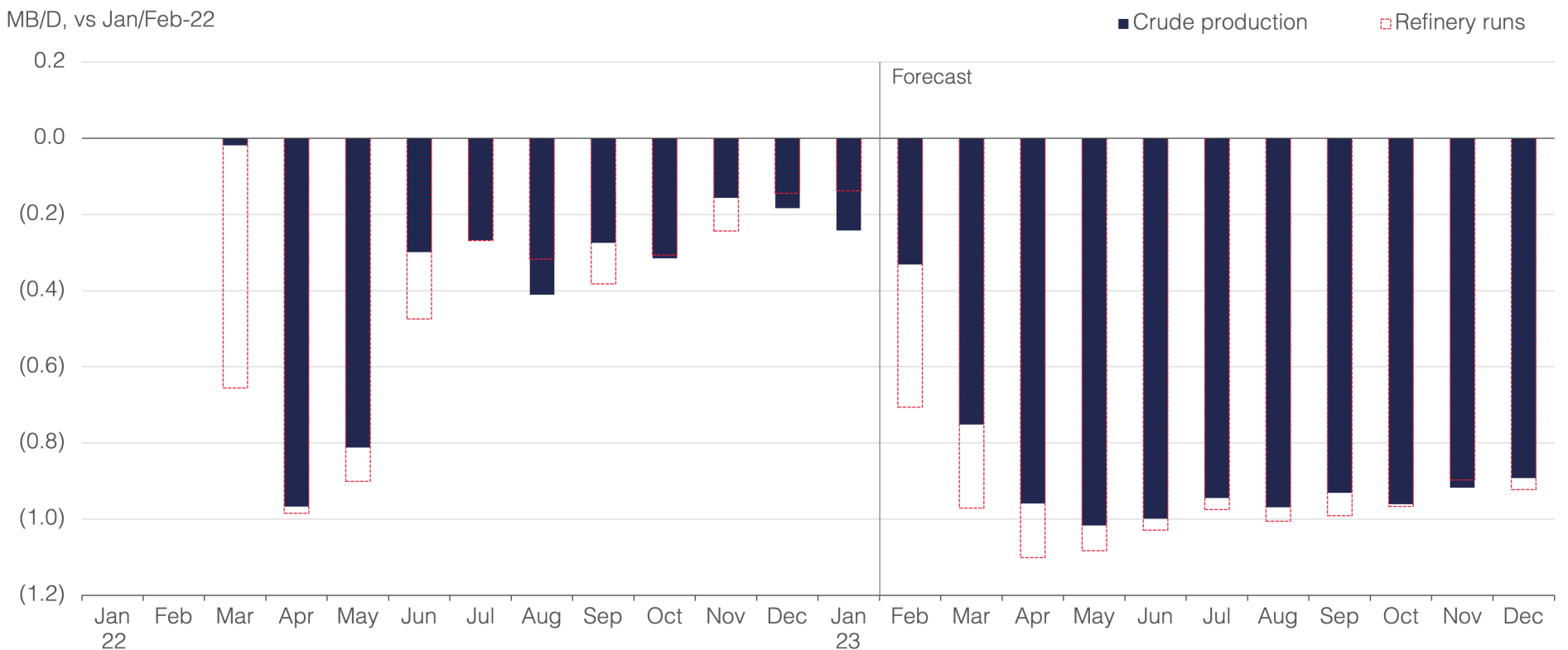**Russia refinery output by selected products**

Source: Argus, OIES

Russian supply disruptions to accelerate through May with a slow-moving reversal likely in H2

Russia crude production vs refinery runs disruptions profile

MB/D, vs Jan/Feb-22

■ Crude production   ☐ Refinery runs

Forecast
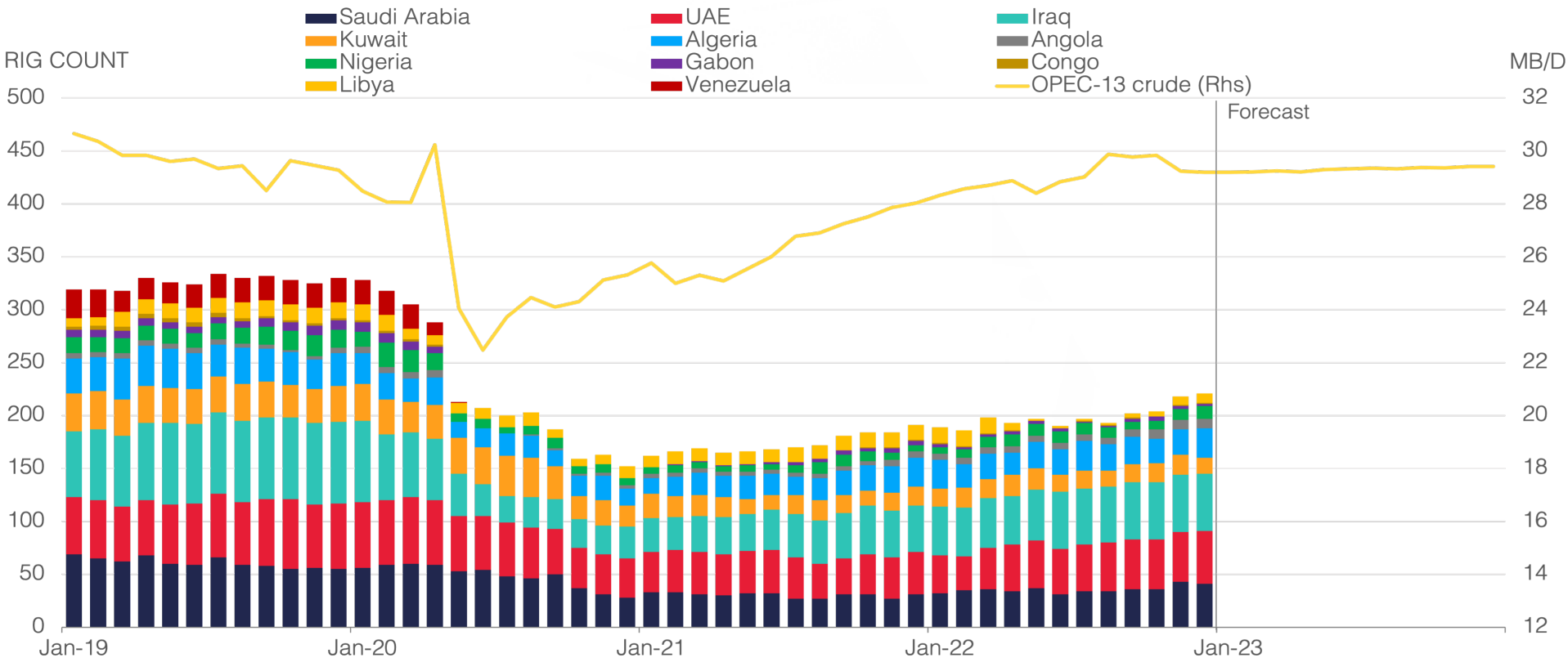
Source: OIES

Oil market outlook

Key assumptions: OPEC+ policy remains unchanged

OPEC+ target supply remains unchanged until the end of 2023, with OPEC crude forecast to grow only by 300,000 b/d in 2023 compared to 2.6 mb/d in 2022.

OPEC supply

Notes: Missing drilling activity data for Iran and Equatorial Guinea.
Source: Baker Hughes, OIES

Key assumptions: No Iranian return

Our reference case assumes no progress in the Iranian nuclear negotiations in 2023 and sanctions remaining in effect for the year, with Iran crude output averaging 2.6 mb/d up by 100,000 b/d y/y.

Iran supply
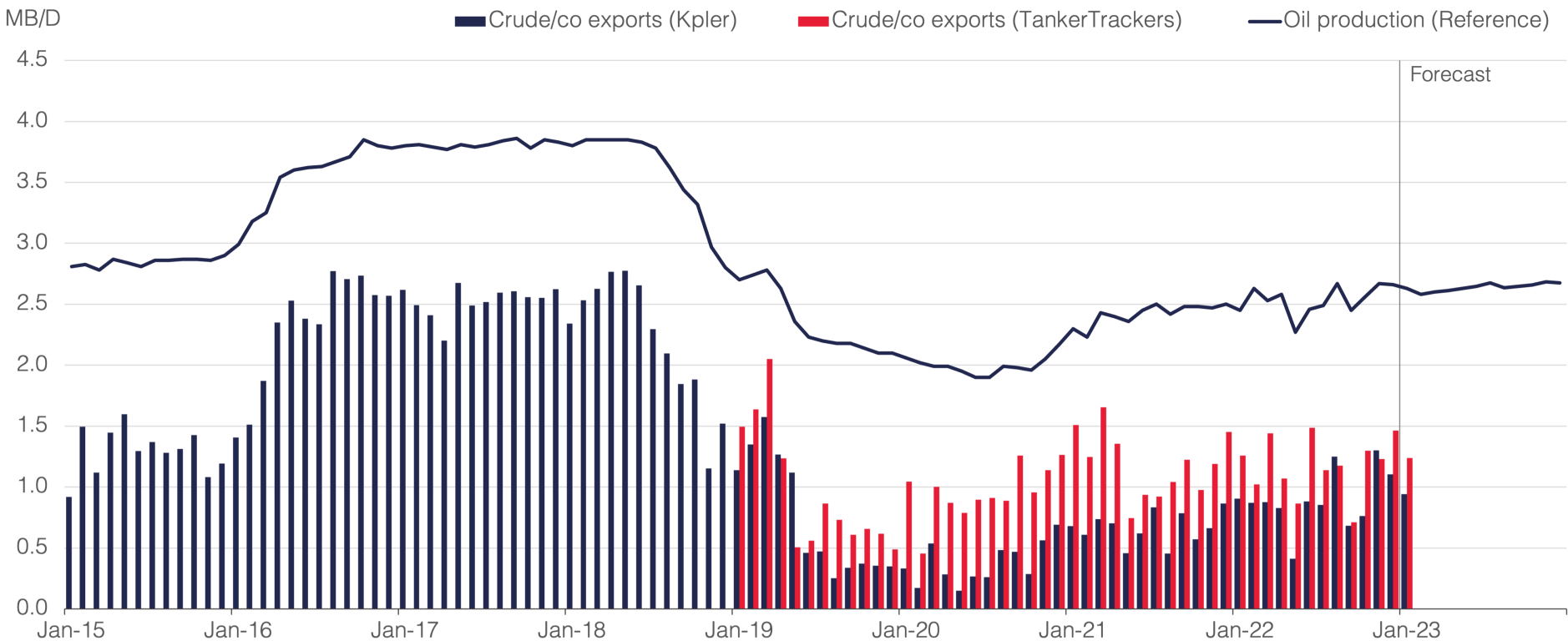
Legend: Crude/co exports (Kpler) · Crude/co exports (TankerTrackers) · Oil production (Reference)

Y-axis: MB/D (0.0 to 4.5)
X-axis: Jan-15 to Jan-23
Forecast line near Jan-23

Key assumptions: A deeper and prolong global economic recession will be avoided

Baseline global GDP growth forecast for 2023 stands at 2% from 3.2% in 2022, on a PPP-weighted basis, 0.9% lower compared to IMF's January update to 2.9% from 2.7% previously.

Global GDP growth

%, Y/Y (PPP)

■ Baseline ☐ IMF WEO
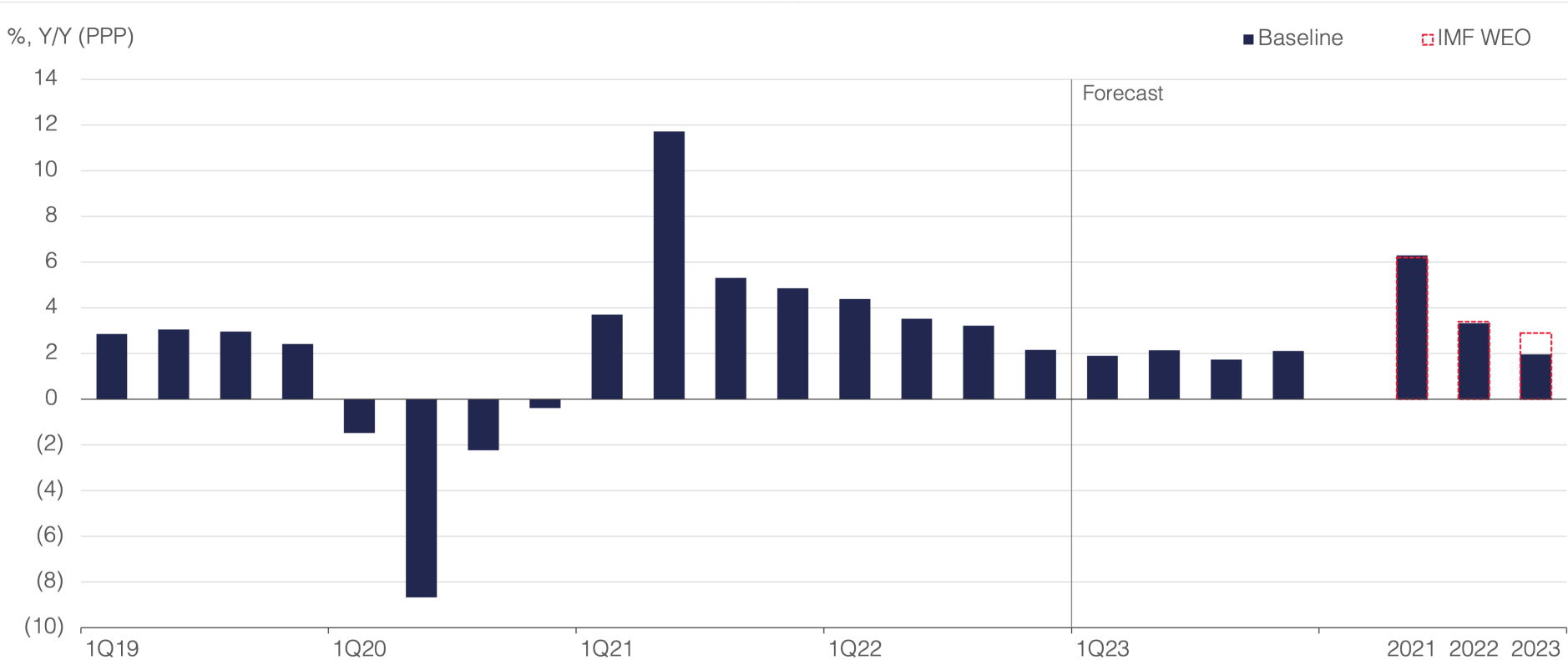
Notes: Global GDP forecasts are reported on a purchasing-power-parity (PPP) weighted basis.

Source: Oxford Economics, IMF

Demand outlook is upgraded on less pessimism and China's faster than anticipated reopening

Global oil demand growth outlook is upgraded by 150,000 b/d to 1.6 mb/d in 2023, from 1.5 mb/d anticipated previously.
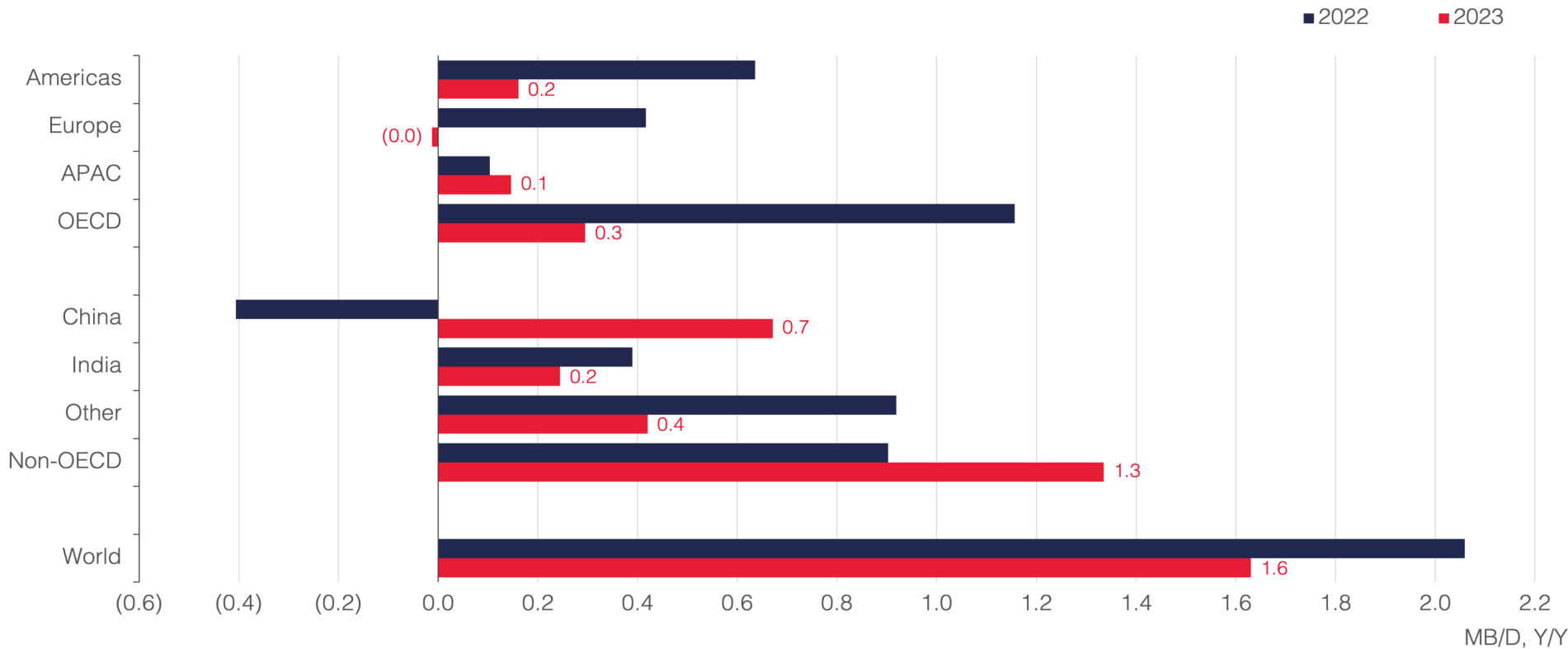
Global oil demand
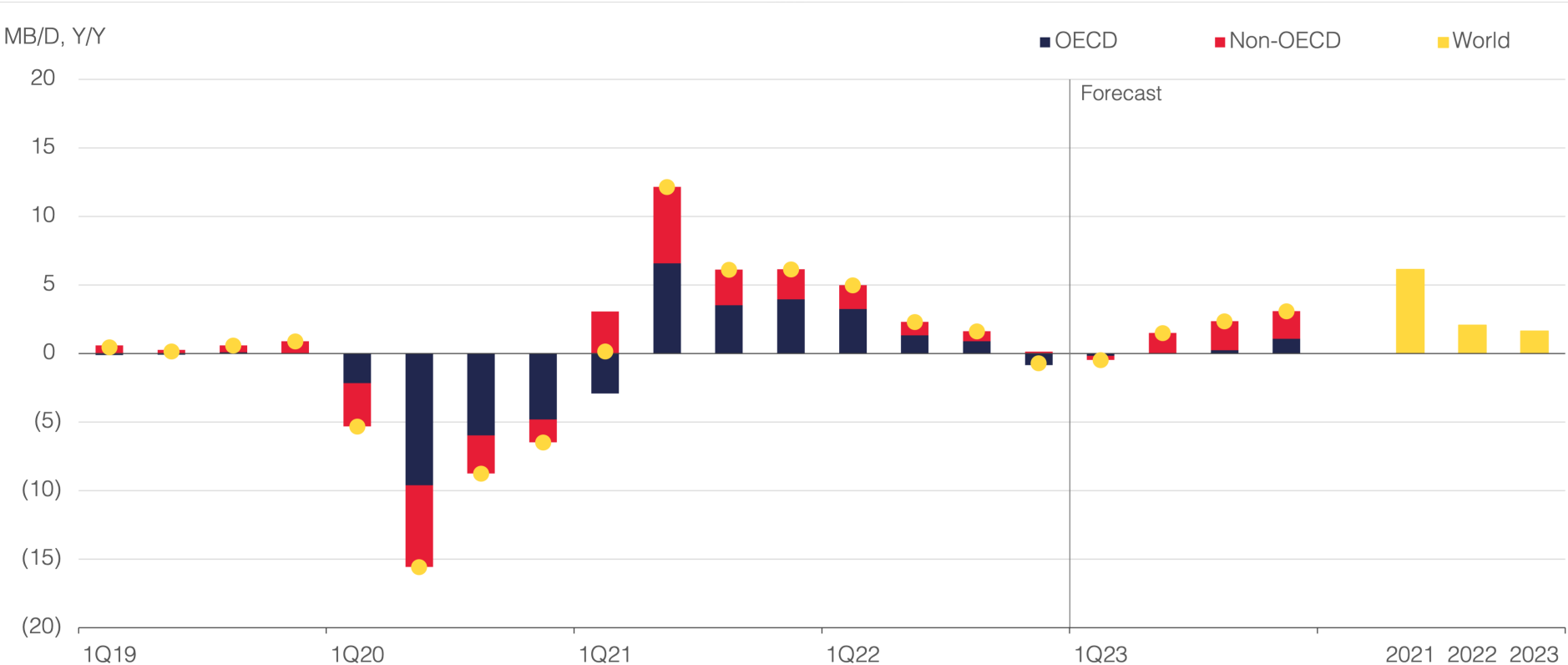
Source: OIES

Chinese demand to return as the main engine of growth in 2023, with India's robust growth supporting the outlook

Global oil demand growth

Source: OIES

Global oil supply growth to slow this year closer to its 2010-2019 average

After rising 4.7 mb/d in 2022, global oil supply growth is projected to slow to 1.6 mb/d in 2023, with non-OPEC crude outside OPEC+ accounting for most of the gains.
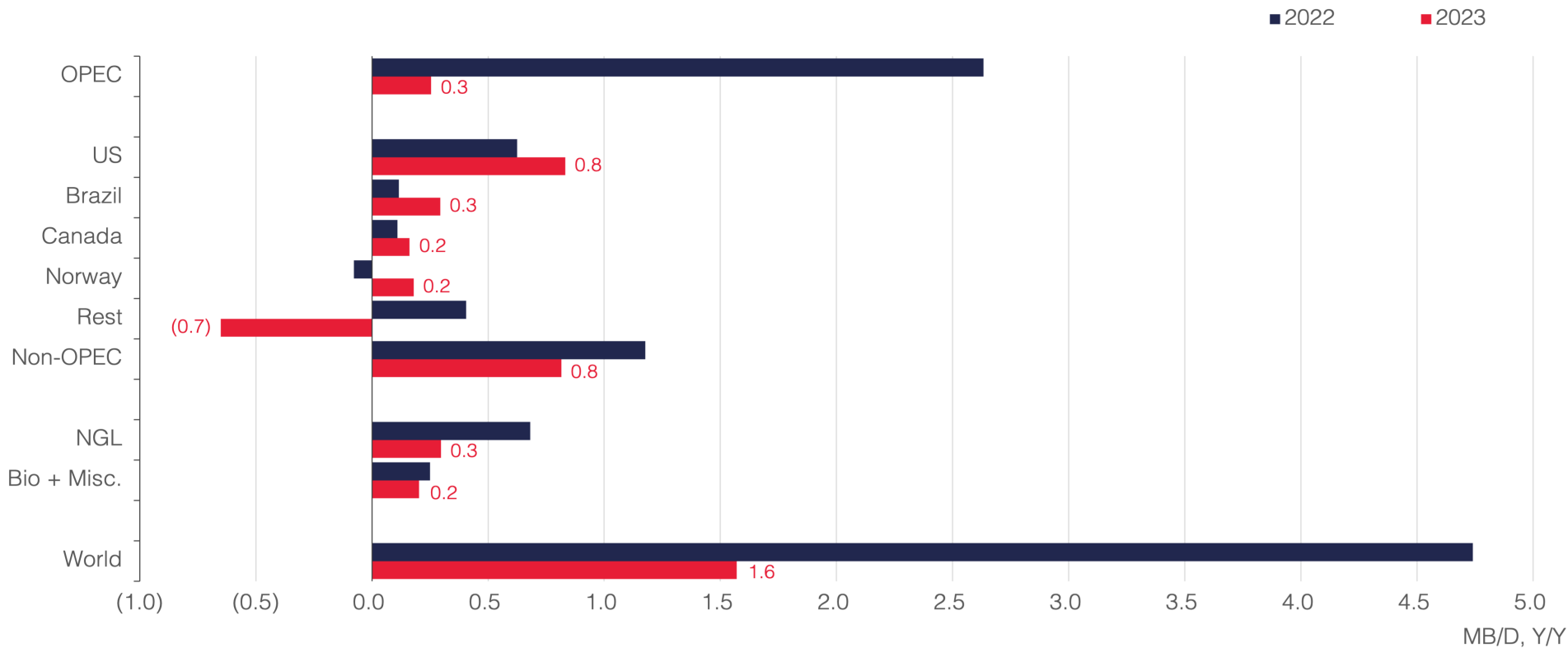
Global oil supply
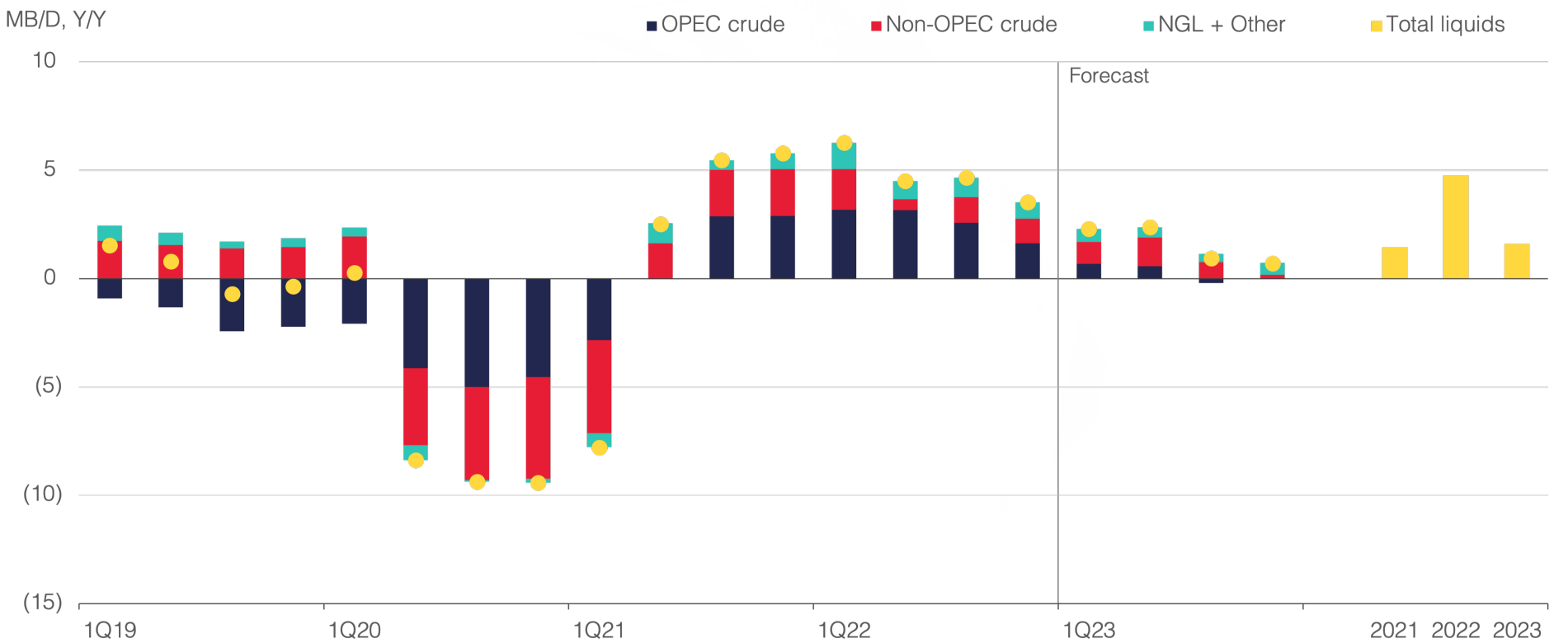
MB/D, Y/Y

Legend: ■ OPEC crude ■ Non-OPEC crude ■ NGL + Other ● Total liquids

Source: OIES

US crude will account for over 60% of the growth gains, with Brazil, Canada and Norway also contributing

Global oil supply growth

■ 2022   ■ 2023

MB/D, Y/Y

The oil market to remain relatively balanced in 2023

2023 is shaping up to be a year of two halves with an expected 1.5 mb/d surplus in H1 offset by a -900,000 b/d deficit in H2, leaving the market to a 300,000 b/d surplus for the year as a whole.
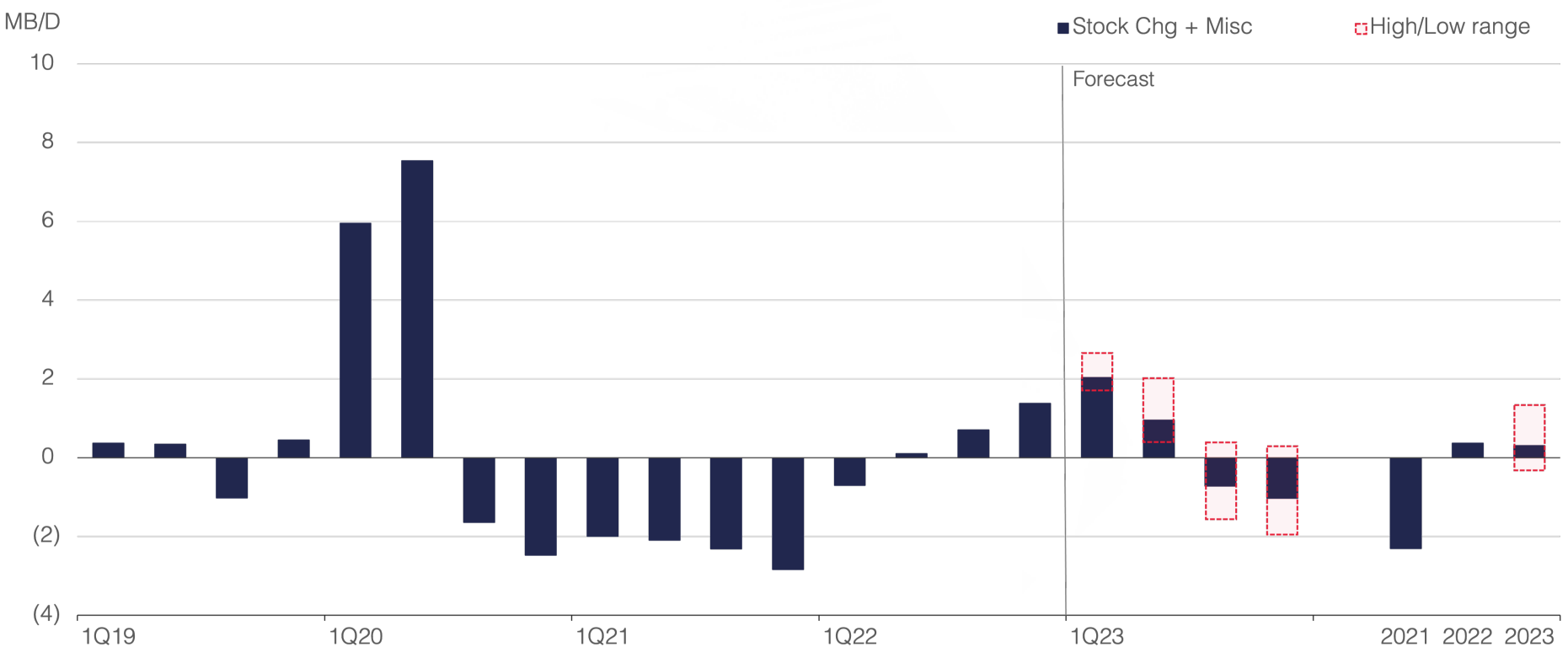
Global balance
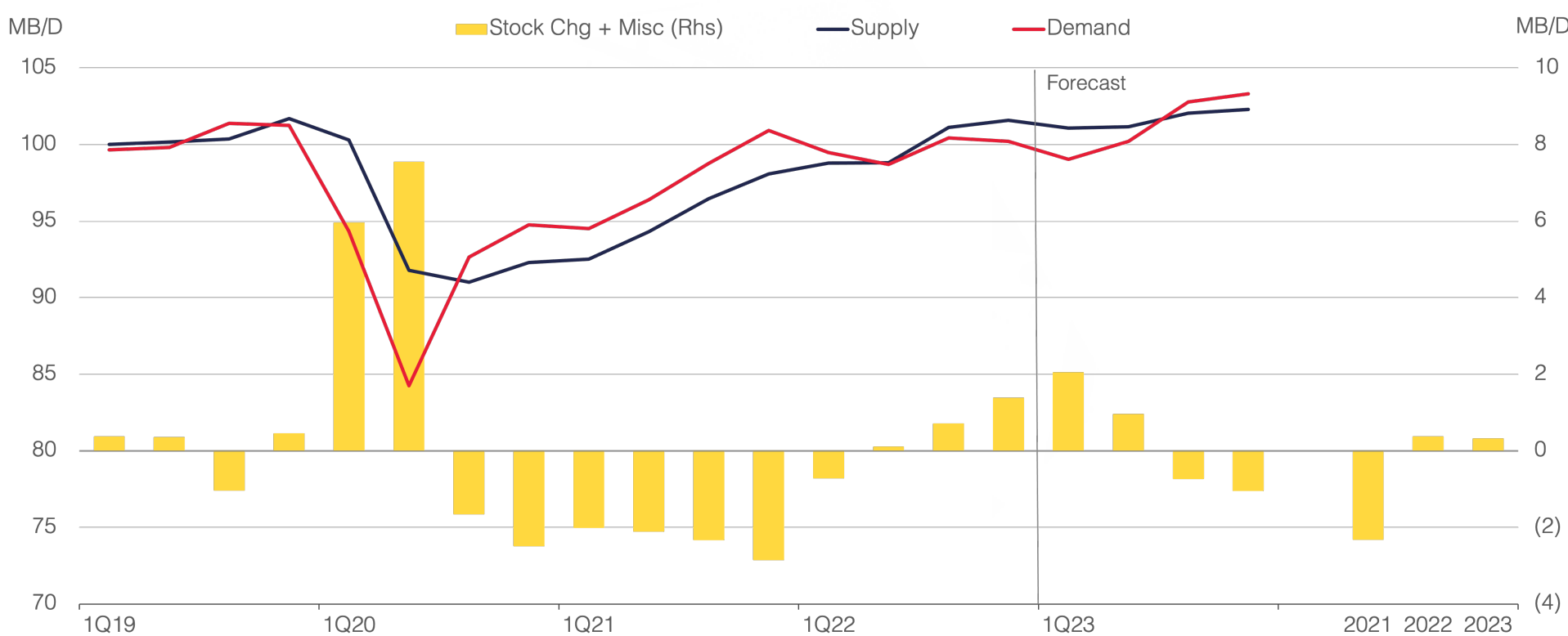
Legend: Stock Chg + Misc (Rhs) — Supply — Demand

Forecast

MB/D (left axis): 105, 100, 95, 90, 85, 80, 75, 70
MB/D (right axis): 10, 8, 6, 4, 2, 0, (2), (4)

X-axis: 1Q19, 1Q20, 1Q21, 1Q22, 1Q23, 2021, 2022, 2023

Source: OIES

Market uncertainty remains elevated with global balance risks favoring weaker market conditions

Global balance risks

Source: OIES

Global oil demand growth prospects remain a key wildcard but downside risks ease

Risks to the reference demand outlook remain tilted to the downside, particularly in the near-term, but the low/high range for 2023 is uplifted between 1 mb/d and 1.9 mb/d.

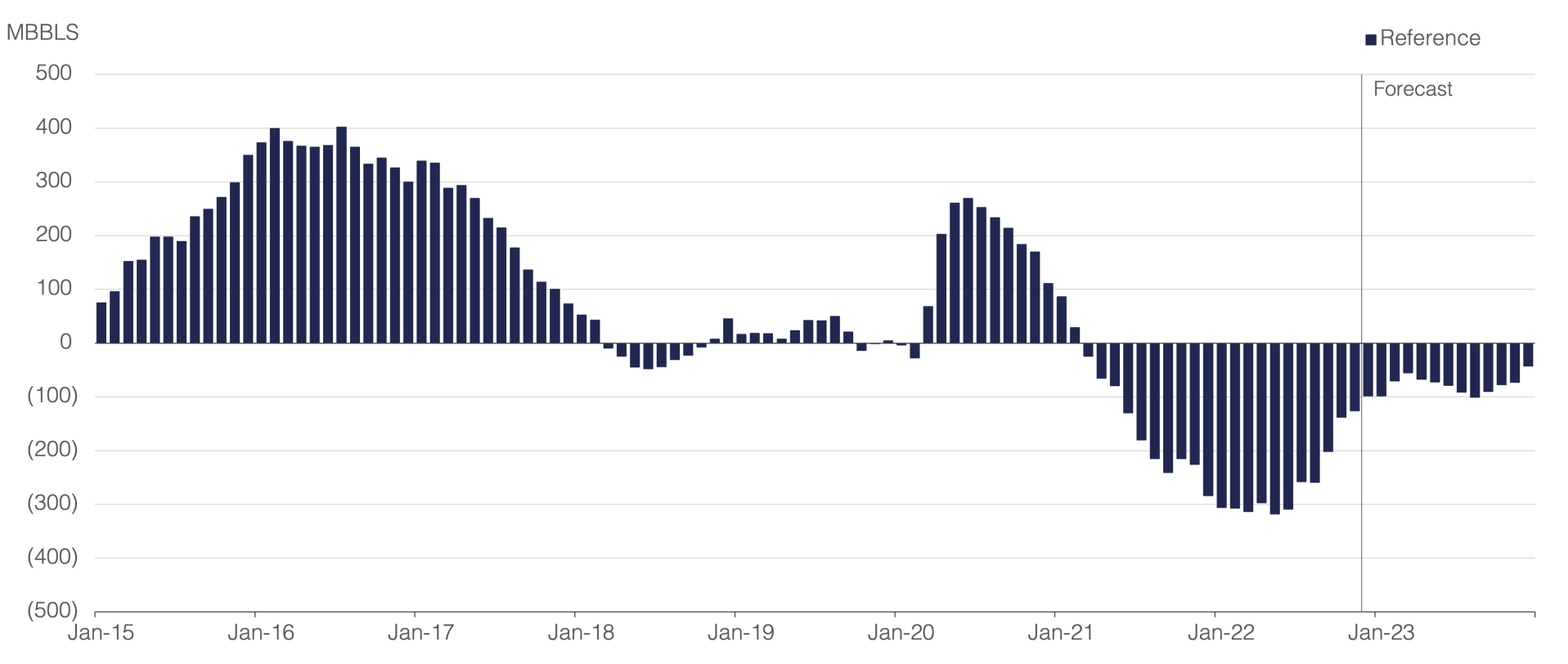**Global oil demand prospects in 2023**
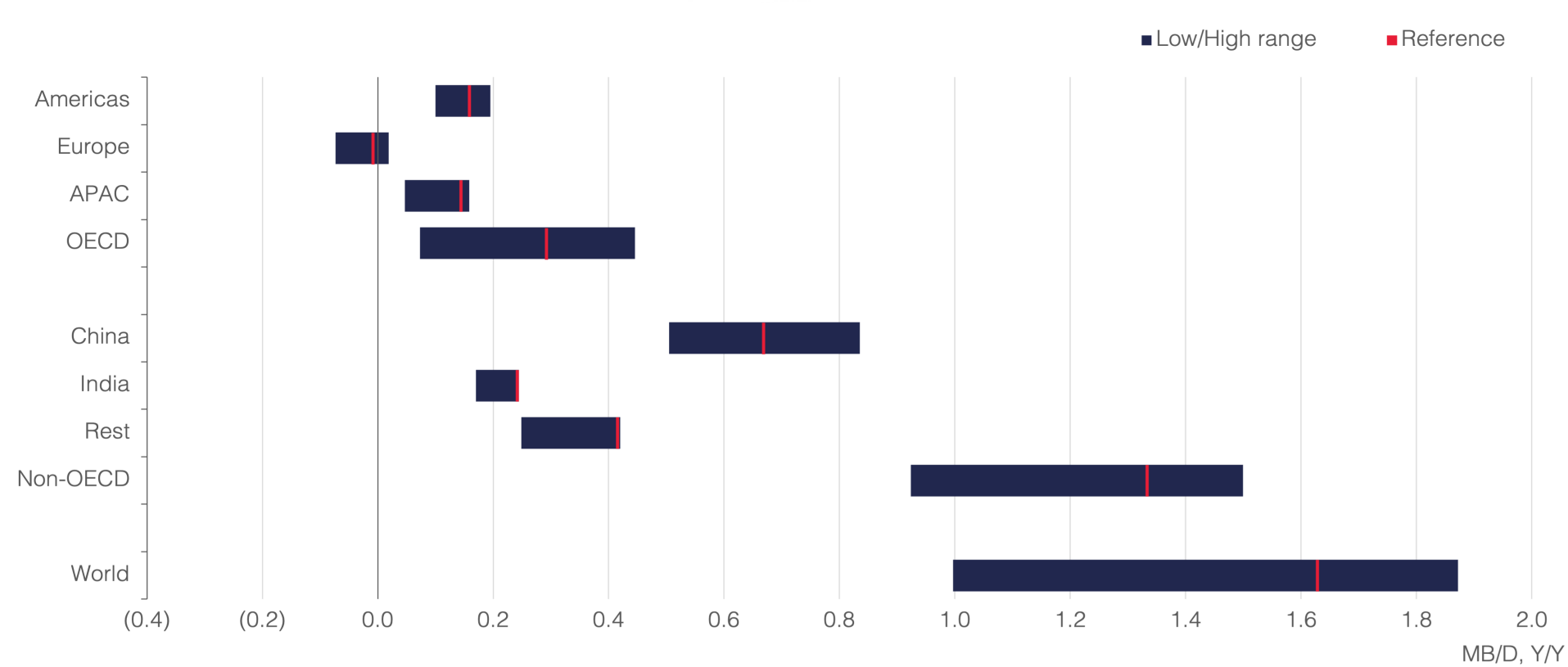
Source: OIES

OECD stock builds are accelerating but commercial stocks are not expected to clear above their 5-year average in 2023

OECD commercial stocks vs 5-year average

Source: OIES

Price outlook

Price outlook strengthens further ahead in 2023

Our Reference forecast for Brent in 2023 stands at $95.7/b, from $99.8/b in 2022, but the Brent Prospect that takes into account the uncertainty underlying the reference outlook remains $5.1/b lower at $90.6/b.

Brent price outlook

Source: OIES

The balance of risks remains tilted to the downside

The Brent price band in 2023 ranges between $79.9/b and $107.6/b annually, with downside demand-risks remaining dominant throughout the outlook but easing as we move towards H2.

Balance of risks
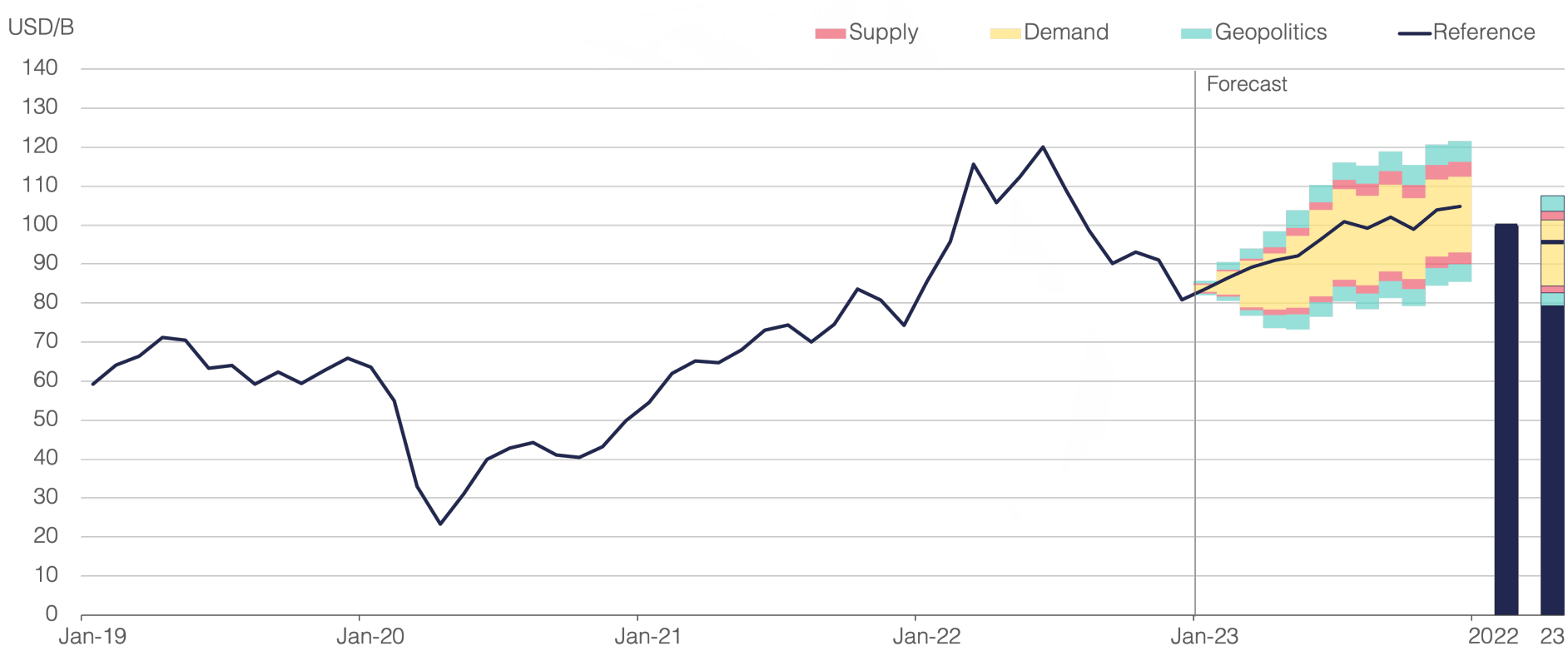
Notes: Brent price.
Source: OIES

Q2 appears the most at risk as the weakest quarter to the balance in 2023 with prices dragged to the mid-$70s

Downside risks are mainly associated with a longer period of global growth weakness and/or a slower pace of China's recovery, but also a lower realization of Russian supply disruptions on the supply side.

Decomposition of downside price risks

Notes: Brent price.
Source: OIES

$100/b could still return by May if balances tighten faster

Upside risks reflect a stronger V-shaped Chinese recovery amid tighter supplies on larger-than-anticipated Russian disruptions or a surprise weakness in non-OPEC crude, while geopolitical risks remain elevated.

Decomposition of upside price risks

Legend:
- Russia high case
- Geopolitical risks
- Reference
- Non-OPEC low response
- Global growth rebound

USD/B

Notes: Brent price.
Source: OIES

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-Armenia Conflict:
potential escalation

Bassam Fattouh
Director, OIES

Andreas Economou
Head of Oil Research

Michal Meidan
Head of China Energy Research

February 2023