

Global Macroeconomic Impact of the Russian Invasion of Ukraine

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March 9, 2022

Agenda

1. Current State of the Crisis
2. Macroeconomic Impacts
3. Considering the Scenarios
4. Russia & Ukraine: Economic Catastrophe
5. Europe: Meaningful Blow
6. U.S. and Regions: Modest Hit

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Current State of the Crisis

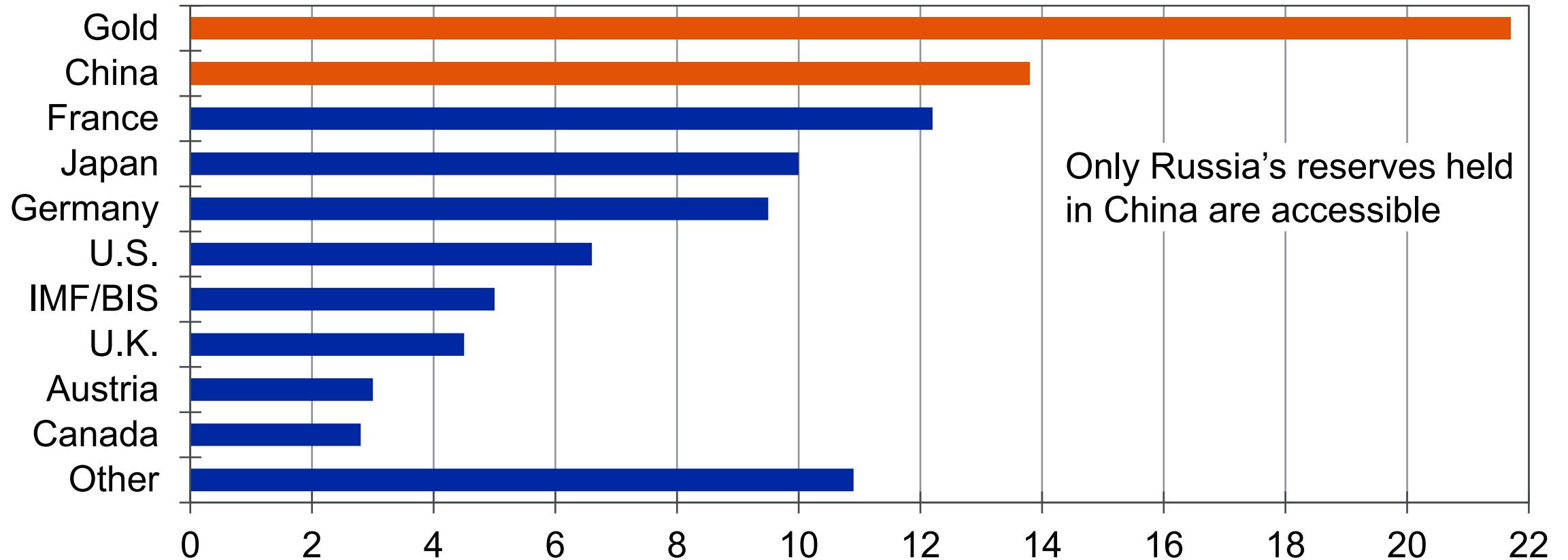
A Growing Humanitarian Crisis in Europe



Sources: UNHCR, Moody's Analytics

Sanctions Cripple the Russian Economy

% of reserves held in each country and monetary gold, as of Jun 2021



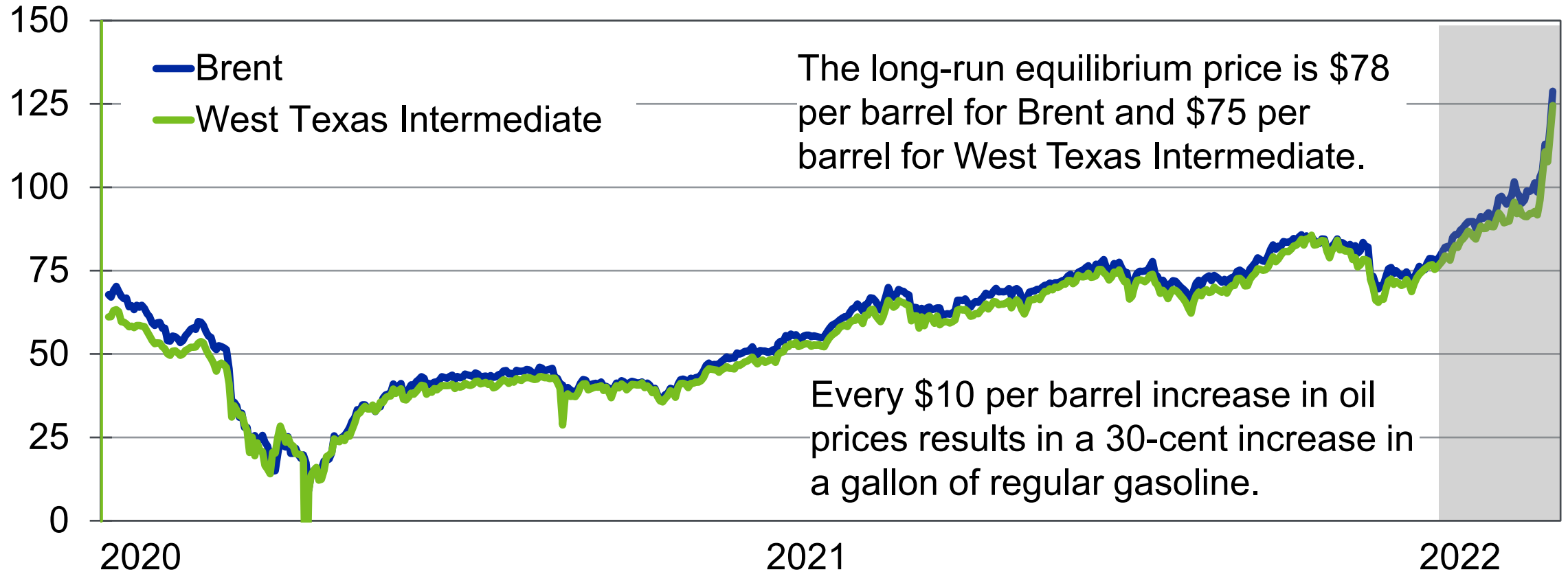
Sources: Central Bank of Russia, Moody's Analytics

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Macroeconomic Impacts

Oil Prices Spike...

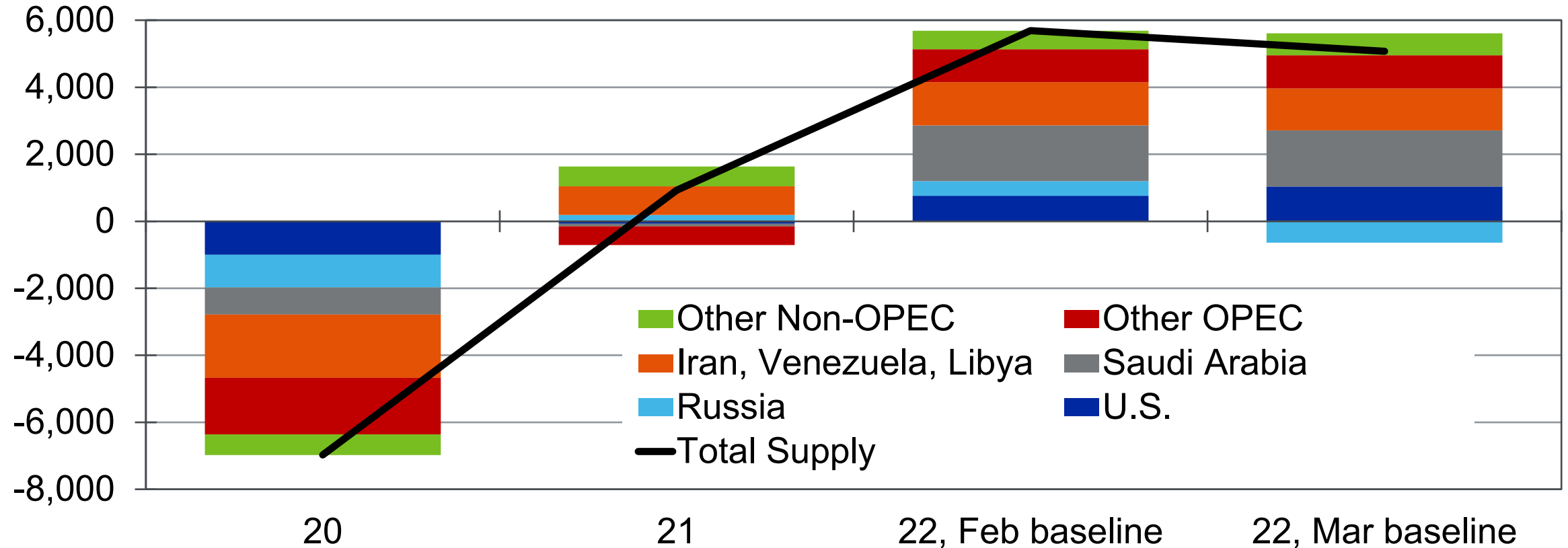
\$ per barrel



Sources: U.S. EIA, Moody's Analytics

...As It Is Unclear Where the Oil Will Come From

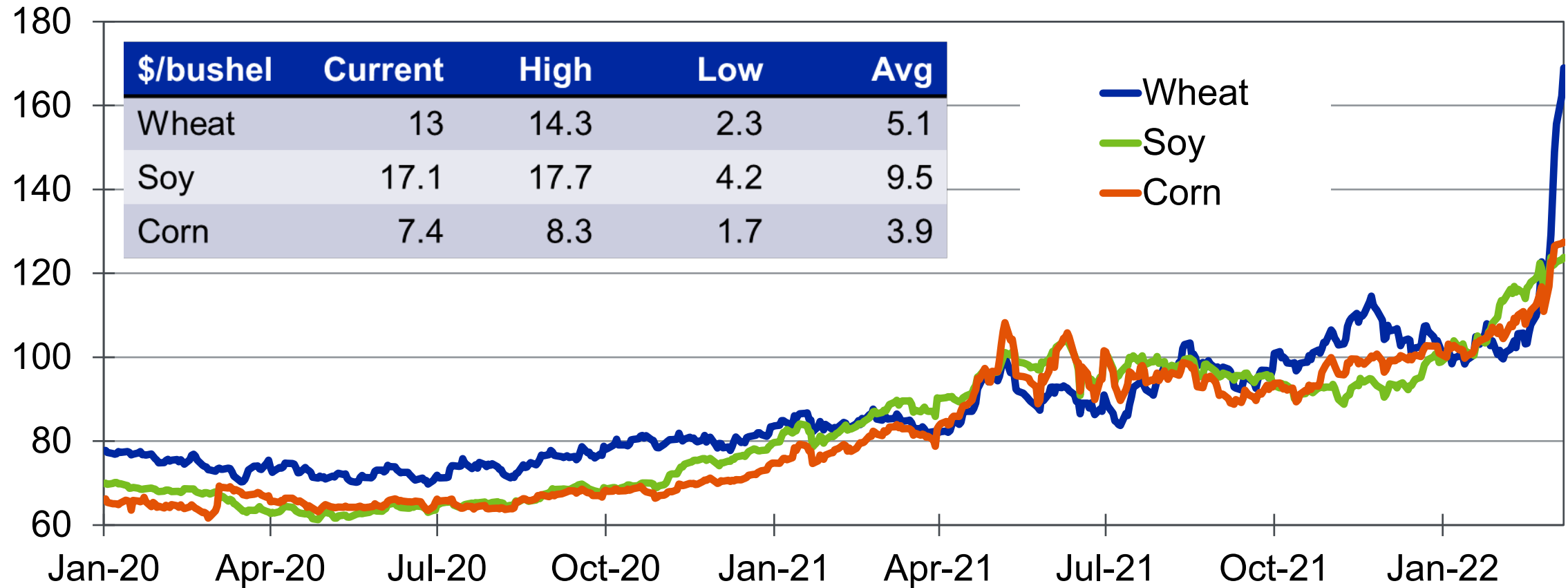
Change in global oil supply, ths of bpd



Sources: IEA, Moody's Analytics

Agricultural Prices Surge...

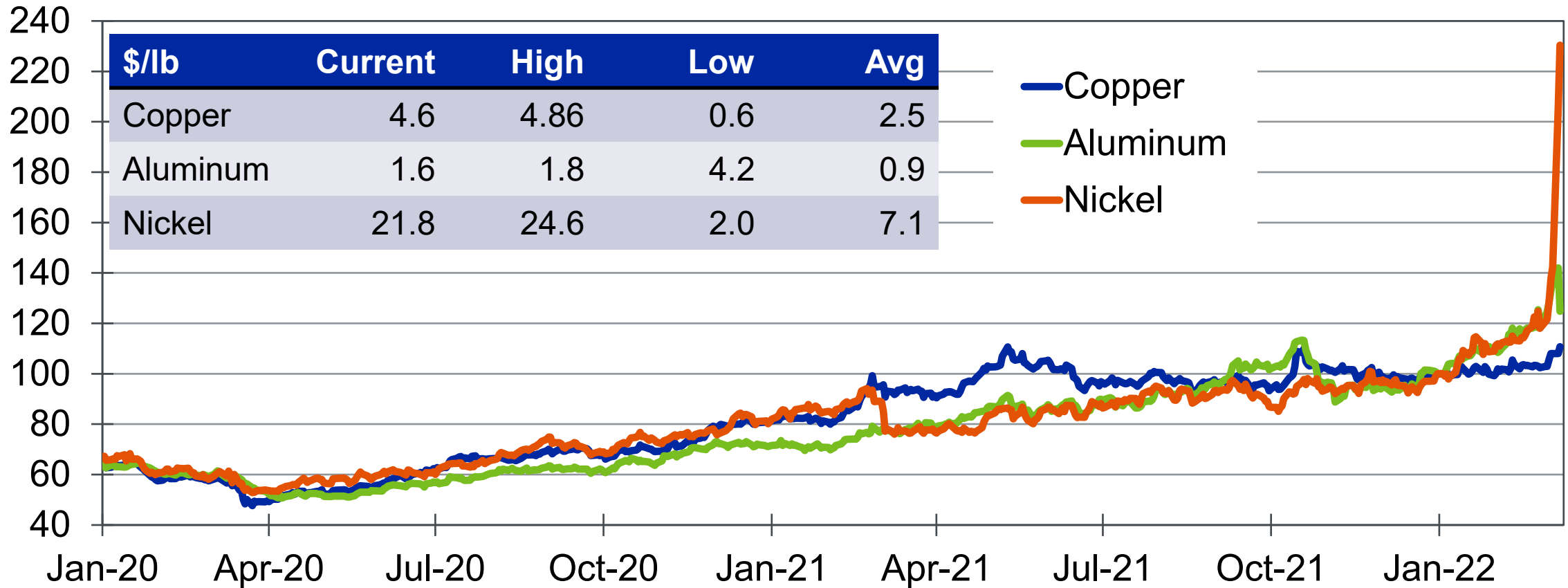
Jan 1, 2022=100



Sources: Chicago Mercantile Exchange, Moody's Analytics

...As Do Metals Prices

Jan 1, 2022=100



Sources: London Metals Exchange, Moody's Analytics

More Stress for Already Stressed Global Supply Chains

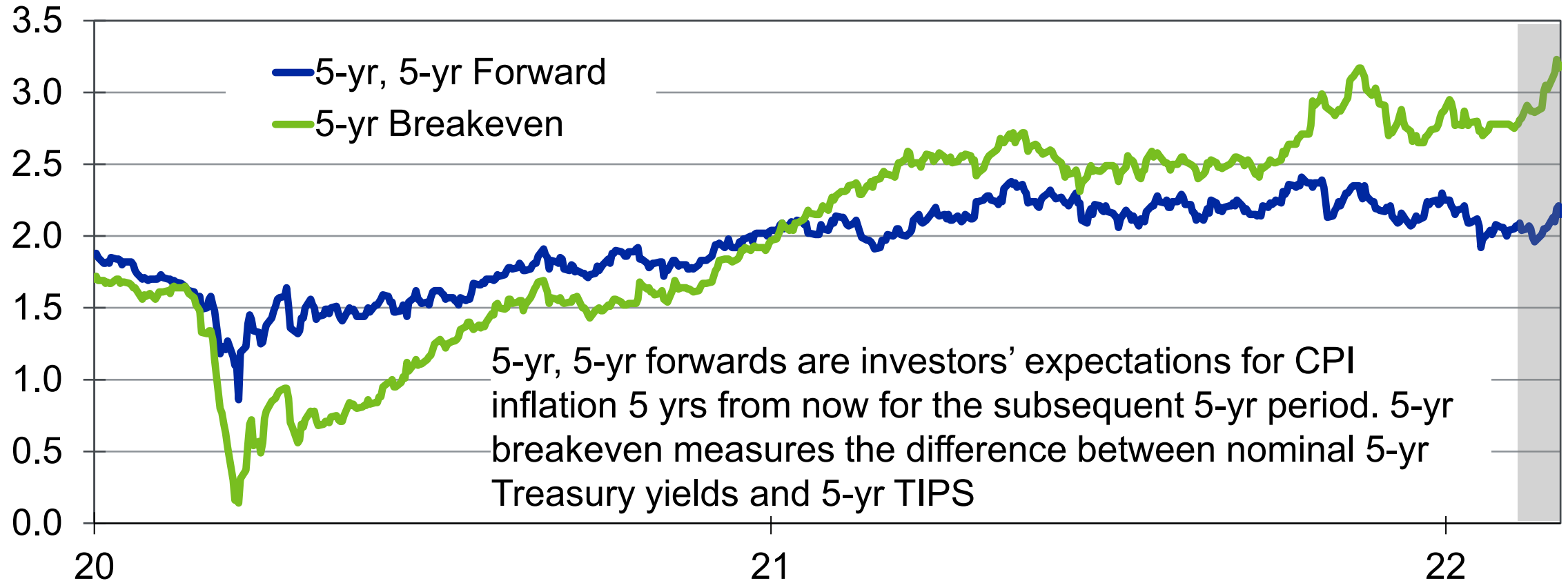
Supply-chain stress, 2019Q4=100



Sources: Baltic Exchange, Federal Reserve, Census Bureau, Cass Info, Moody's Analytics

Inflation Expectations Are Uncomfortably High

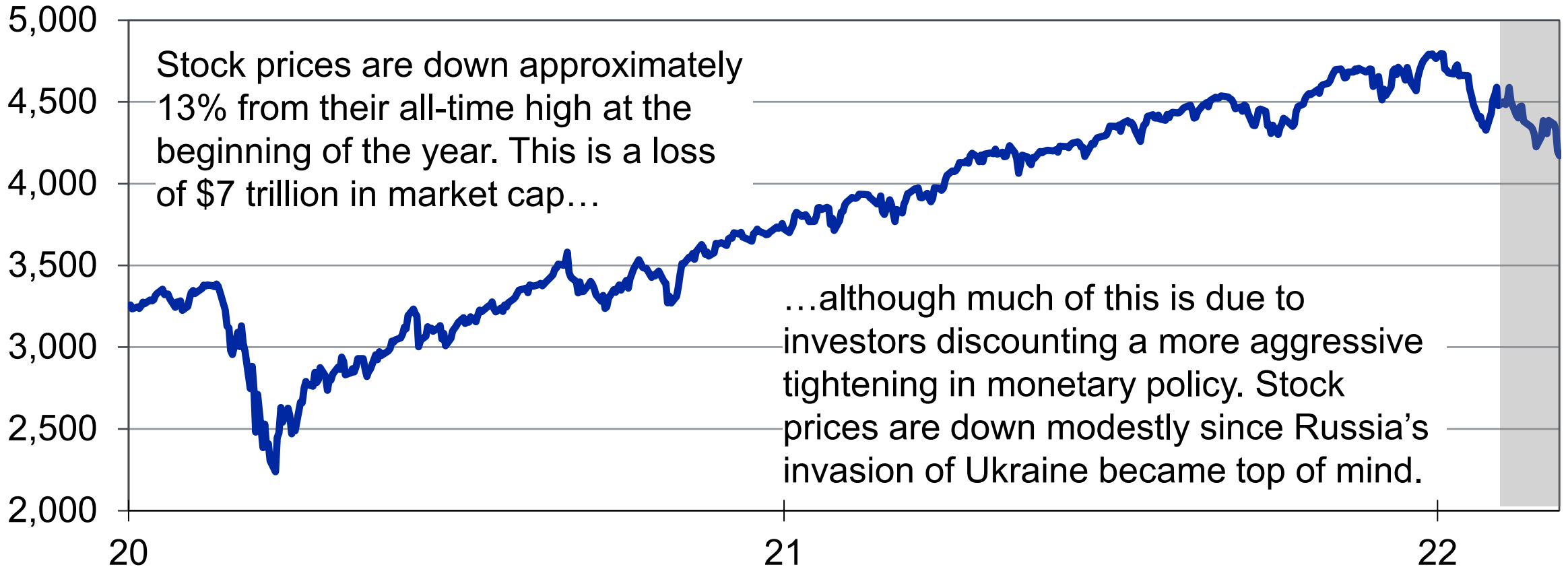
U.S. inflation expectation, %



Sources: Federal Reserve, Moody's Analytics

Stock Prices Are Fragile

S&P 500 stock index



Sources: S&P, Moody's Analytics

3

Considering the Scenarios

Russian Invasion of Ukraine Scenarios

March 2022 Baseline

- Russia occupies much of Ukraine but does not venture outside of the country. Military tensions abate by this time next year.
- Russia faces wide ranging sanctions targeted at individuals and entities. The Russian financial system and economy are shut off from the rest of the world.
- Oil, natural gas and other commodity supplies are modestly disrupted. Self-sanctioning by the West reduces Russian oil exports by as much as 1.5 million barrels per day through mid-year.
- Brent settles at over \$100 per barrel through mid-year. European gas of \$35/million BTU. Supply chains are not severely impacted.

Limited Disruptions

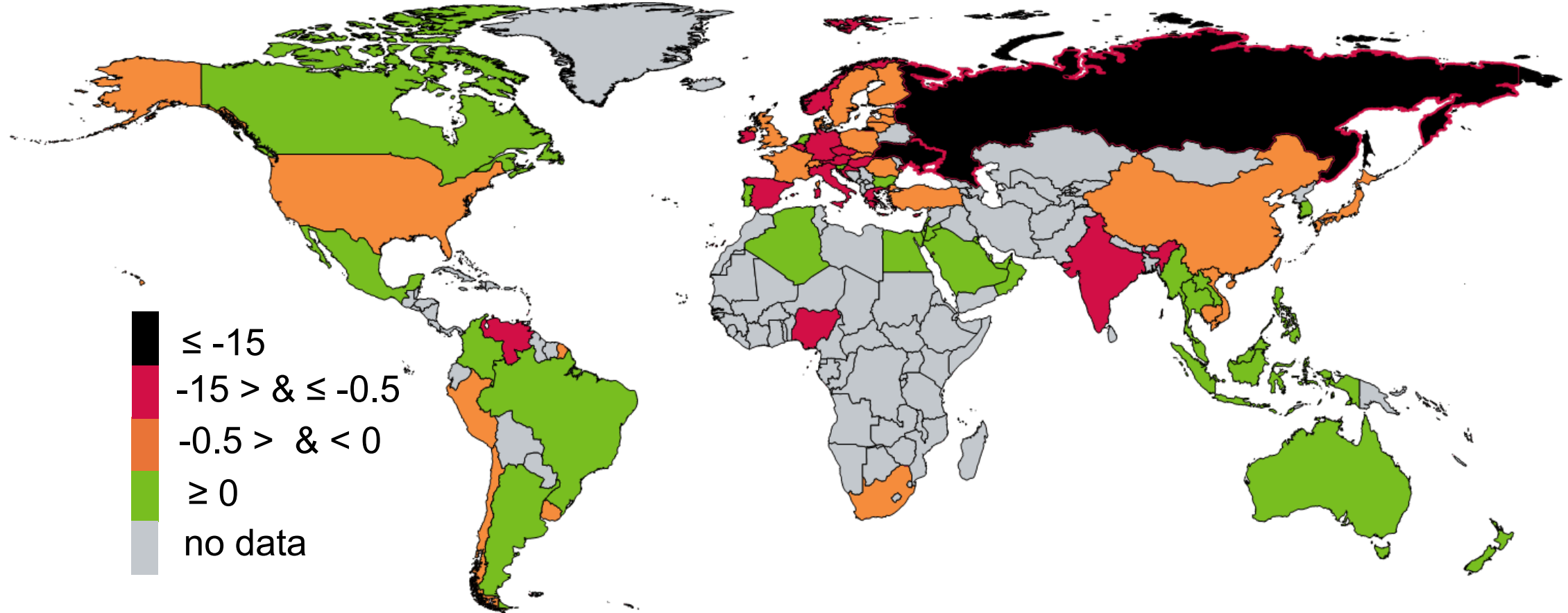
- Russia occupies Ukraine and military tensions continue through the end of next year. Severe sanctions on Russia remain firmly in place.
- Russian oil exports decline by as much as 2.5 million barrels per day. Brent settles at \$125 per barrel and European gas at \$40/million BTU.

Lengthy Military Conflict

- Russia occupies Ukraine and a lengthy period of military conflict ensues. Sanctions on Russia continue to steadily tighten.
- Russian oil exports decline by as much as 3.5 million barrels per day. Brent rises to \$150 per barrel, European gas to \$50/million BTU. Global supply chains are badly scrambled.

Russian Invasion Hits the Global Economy Hard...

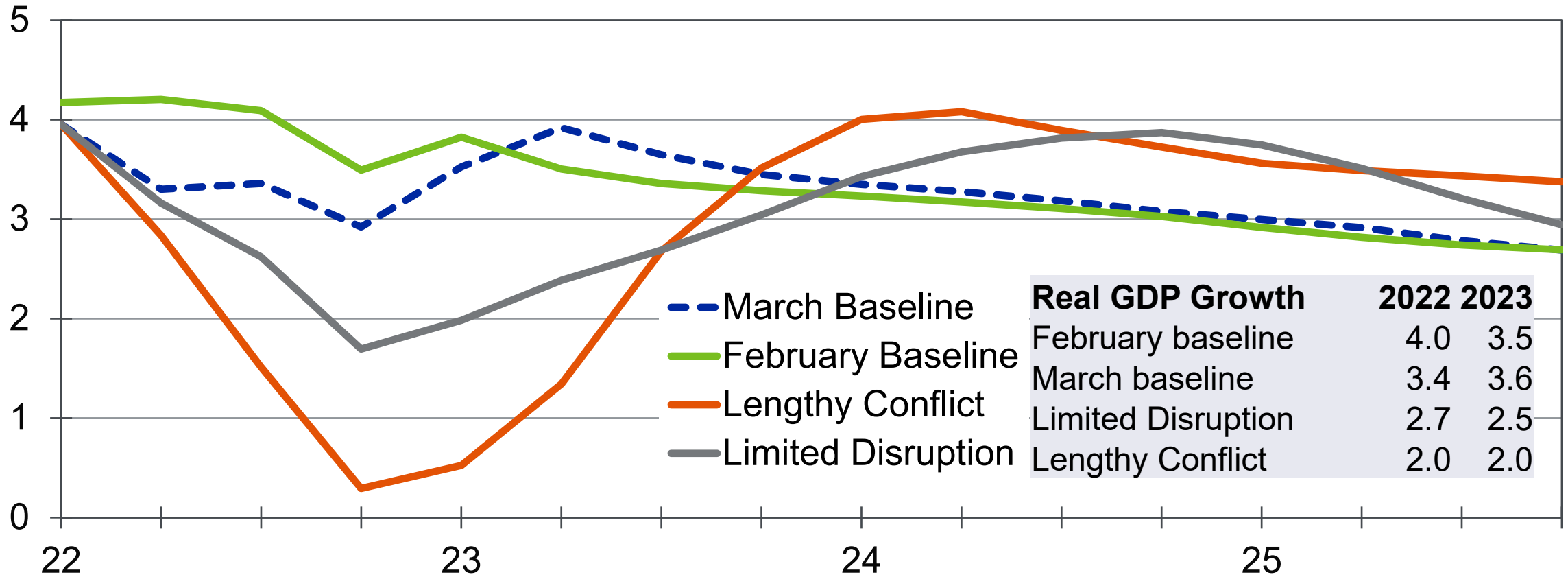
Change in 2022 real GDP growth, ppt, baseline scenario



Sources: National Accounts of Various Countries, Moody's Analytics

...And Harder in Some Scenarios

Global real GDP growth, % change yr ago



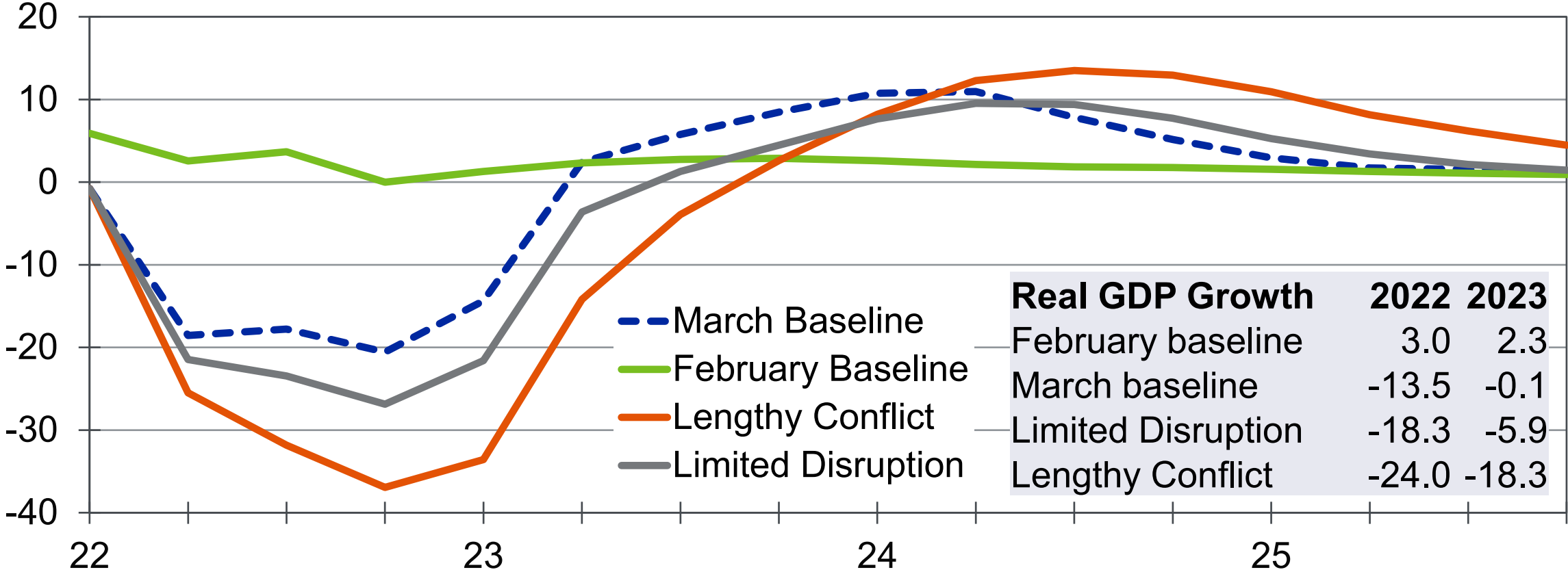
Sources: Government sources, Moody's Analytics

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Russia & Ukraine:
Economic Catastrophe

Russia's Economy Is Severely Diminished

Russian real GDP growth, % change yr ago



Sources: Government sources, Moody's Analytics

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Europe: Meaningful Blow

European Equity Prices Are Very Vulnerable

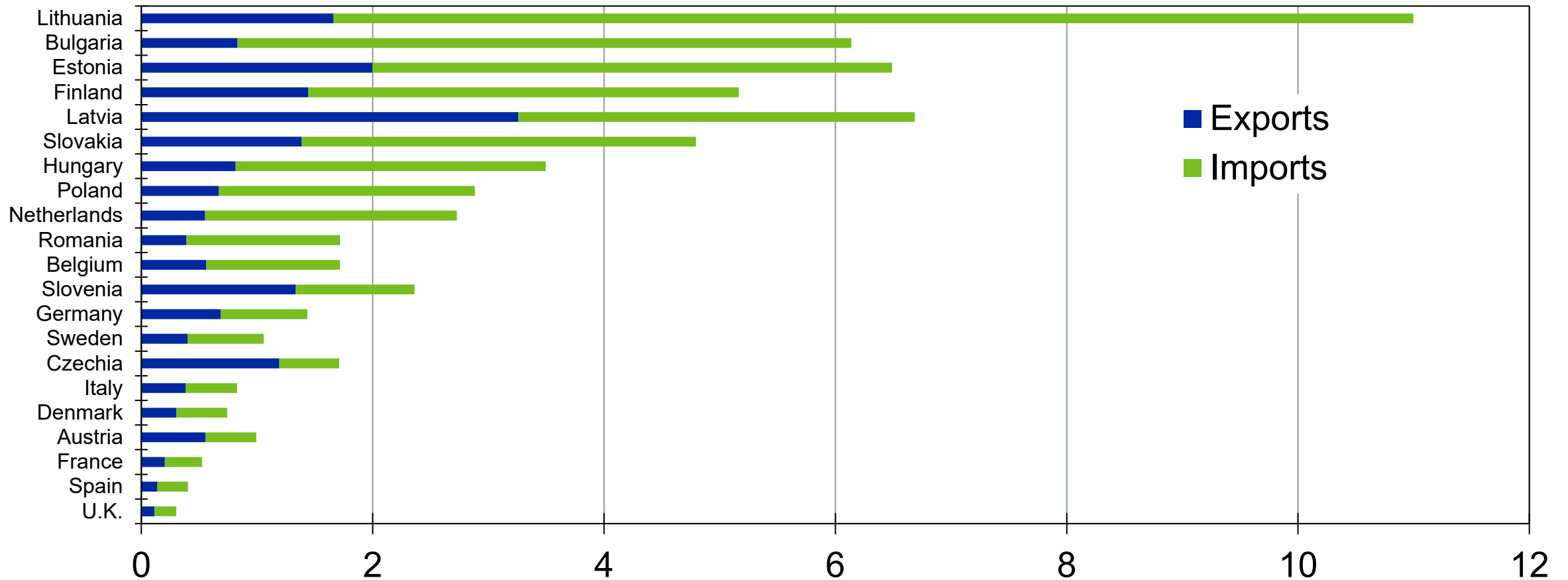
DAX stock index



Sources: SIX Financial, Moody's Analytics

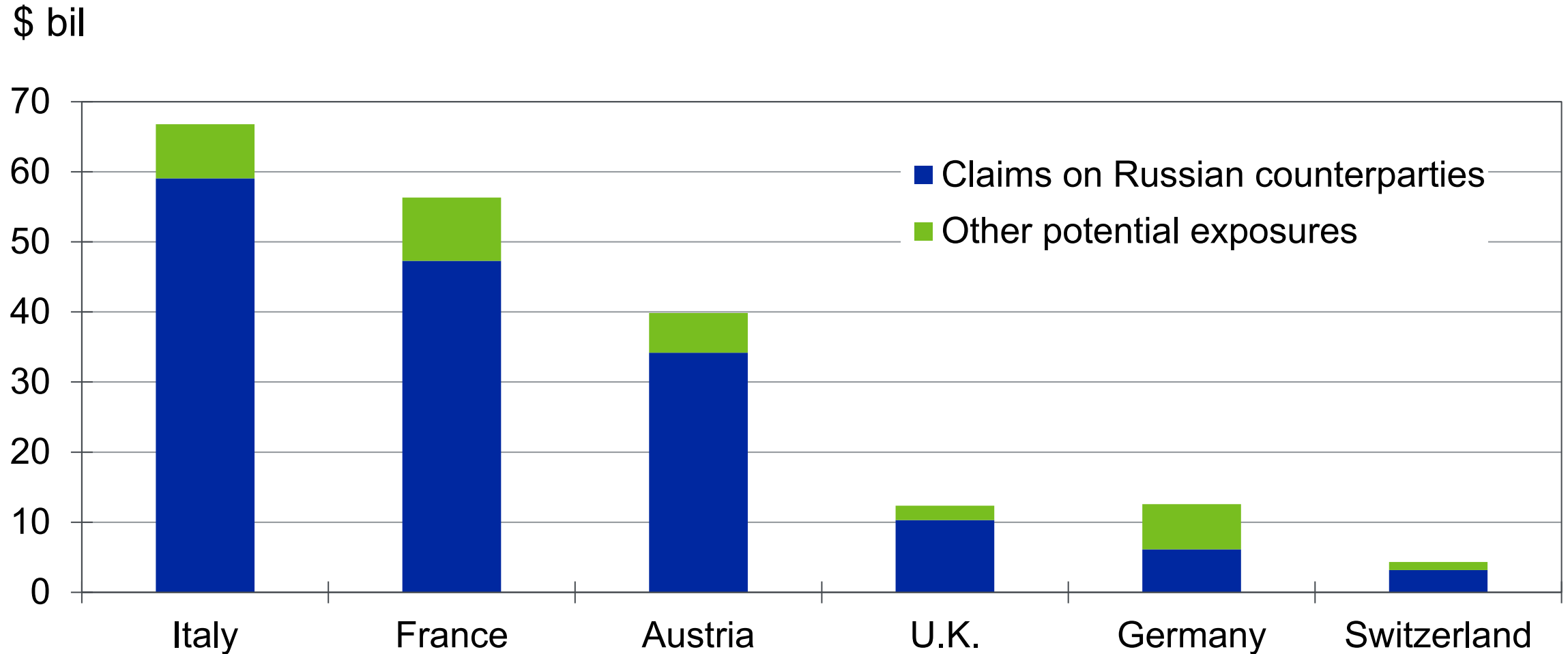
Central Europe Relies on Russian Trade

Total trade with Russia, % of GDP



Sources: Eurostat, Moody's Analytics

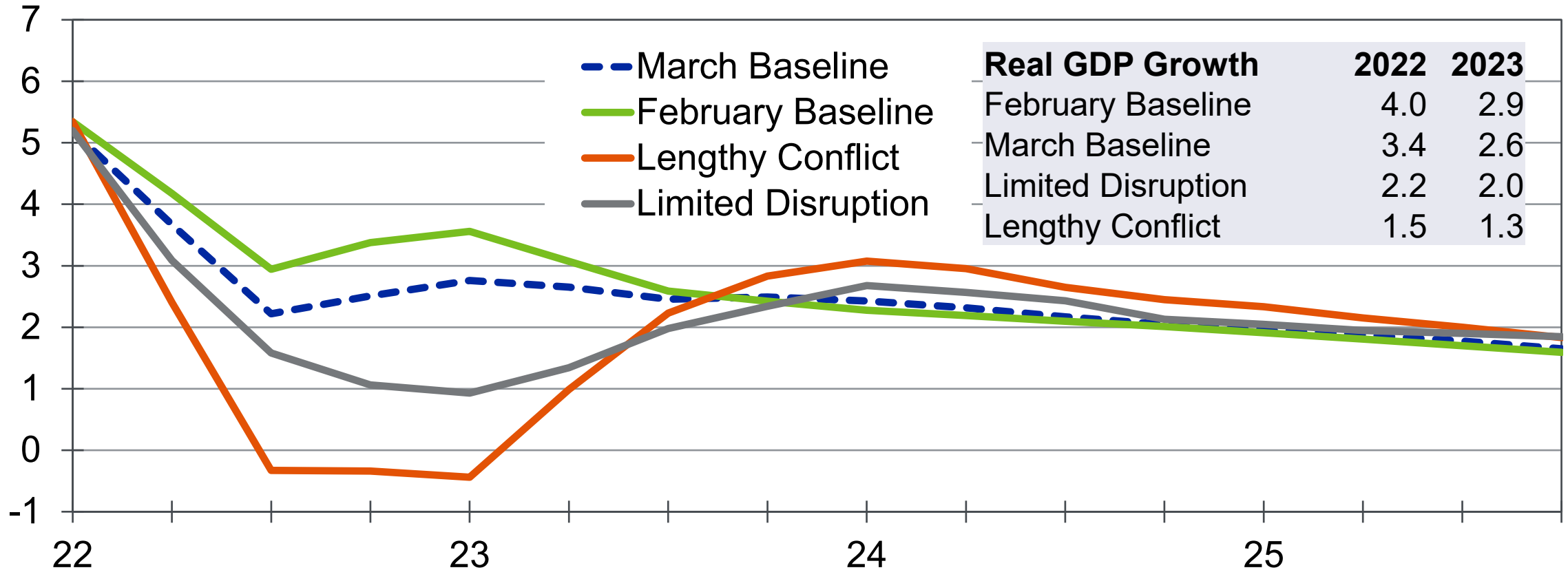
Financial Links Across Europe Are More Limited



Sources: BIS, Moody's Analytics

Euro Zone GDP Immediately Weaker

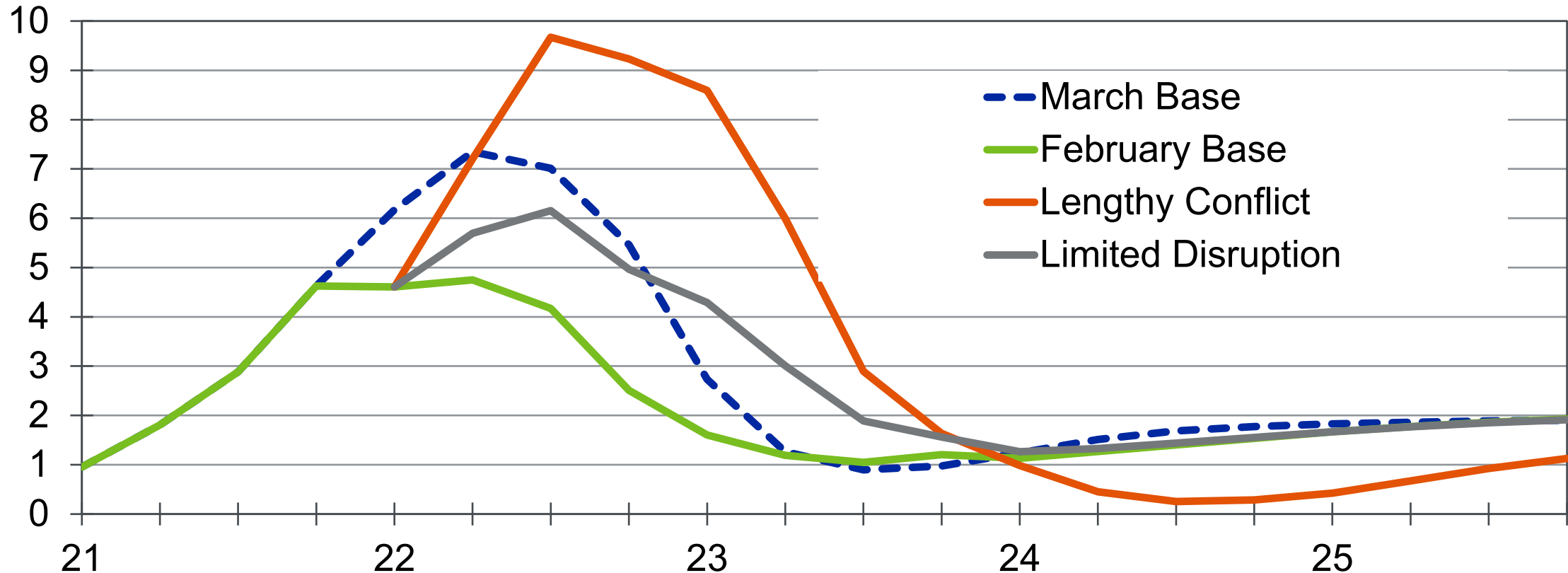
Euro Zone real GDP growth, % change yr ago



Source: Moody's Analytics

Euro Zone Inflation Outlook Deteriorates

Harmonized CPI, year-over-year % change



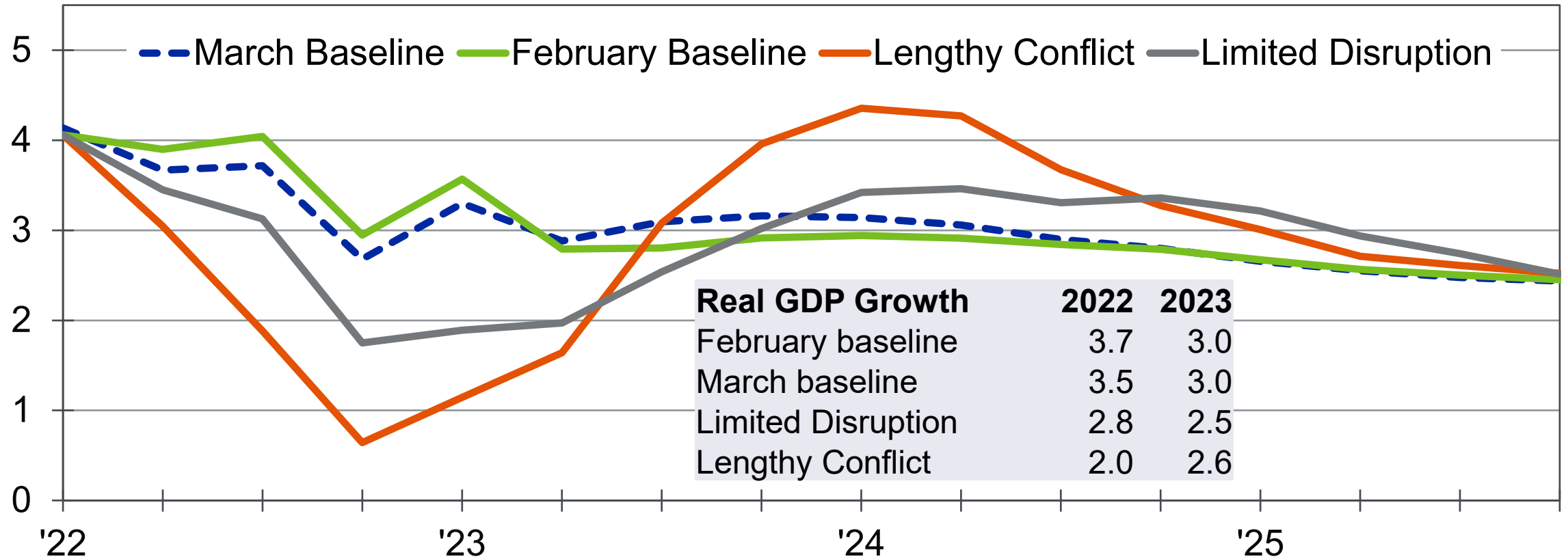
Source: Moody's Analytics

6

U.S. and Regions: Modest Hit

U.S. Economy Takes a Modest Hit...

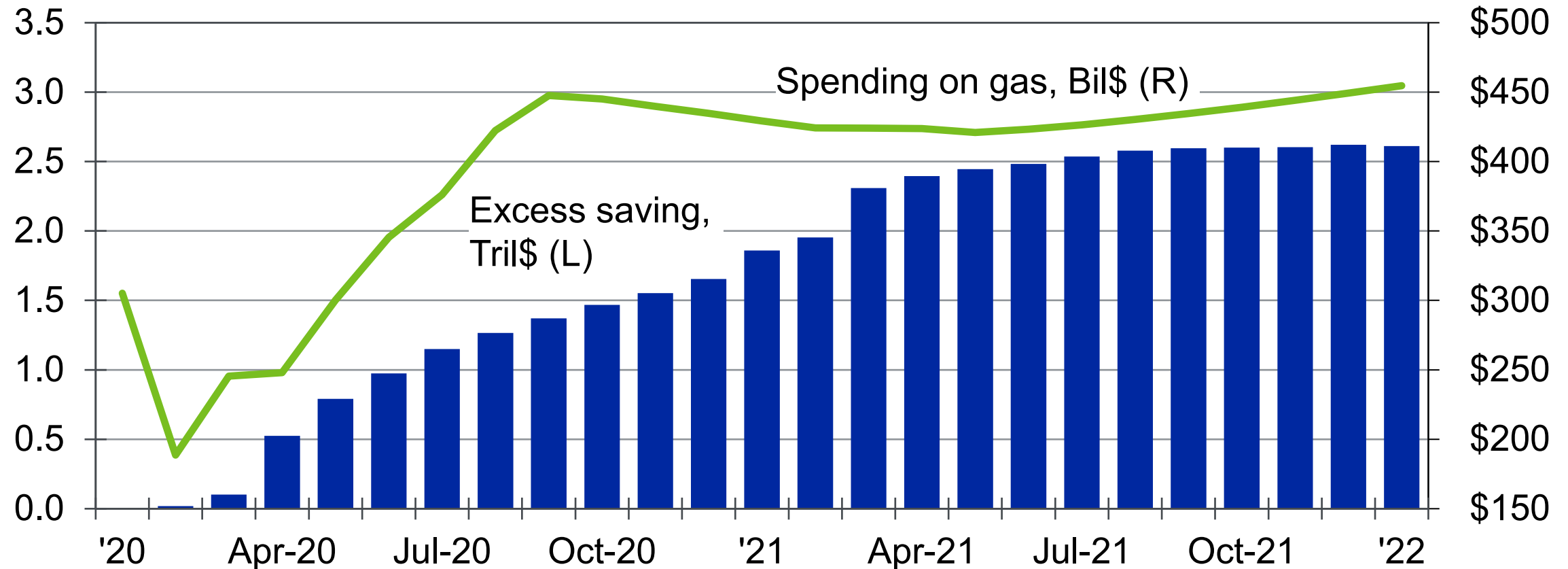
U.S. real GDP growth, % change year ago



Sources: Government sources, Moody's Analytics

...As Excess Household Saving Will Cushion the Blow

Cumulative household excess savings during pandemic, \$ tril

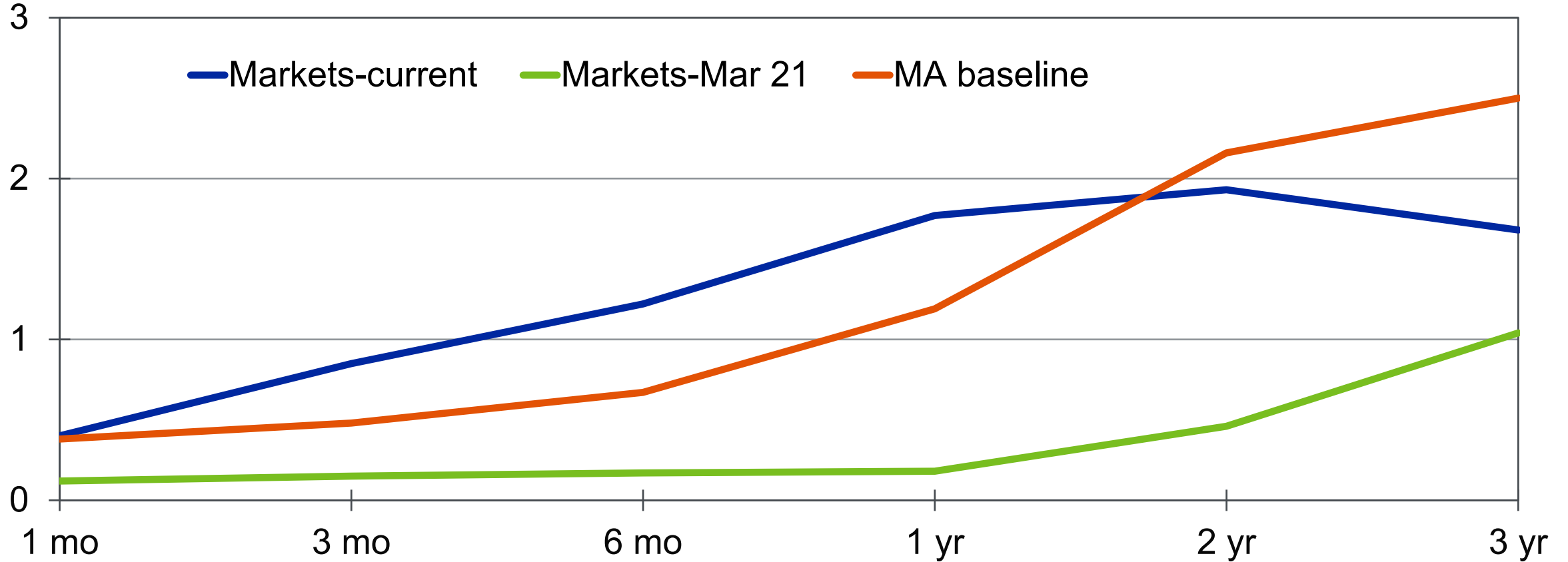


Sources: BEA, Moody's Analytics

Excess savings=Personal savings greater than 7% saving rate

Investors Expect Aggressive, but Short, Tightening Cycle

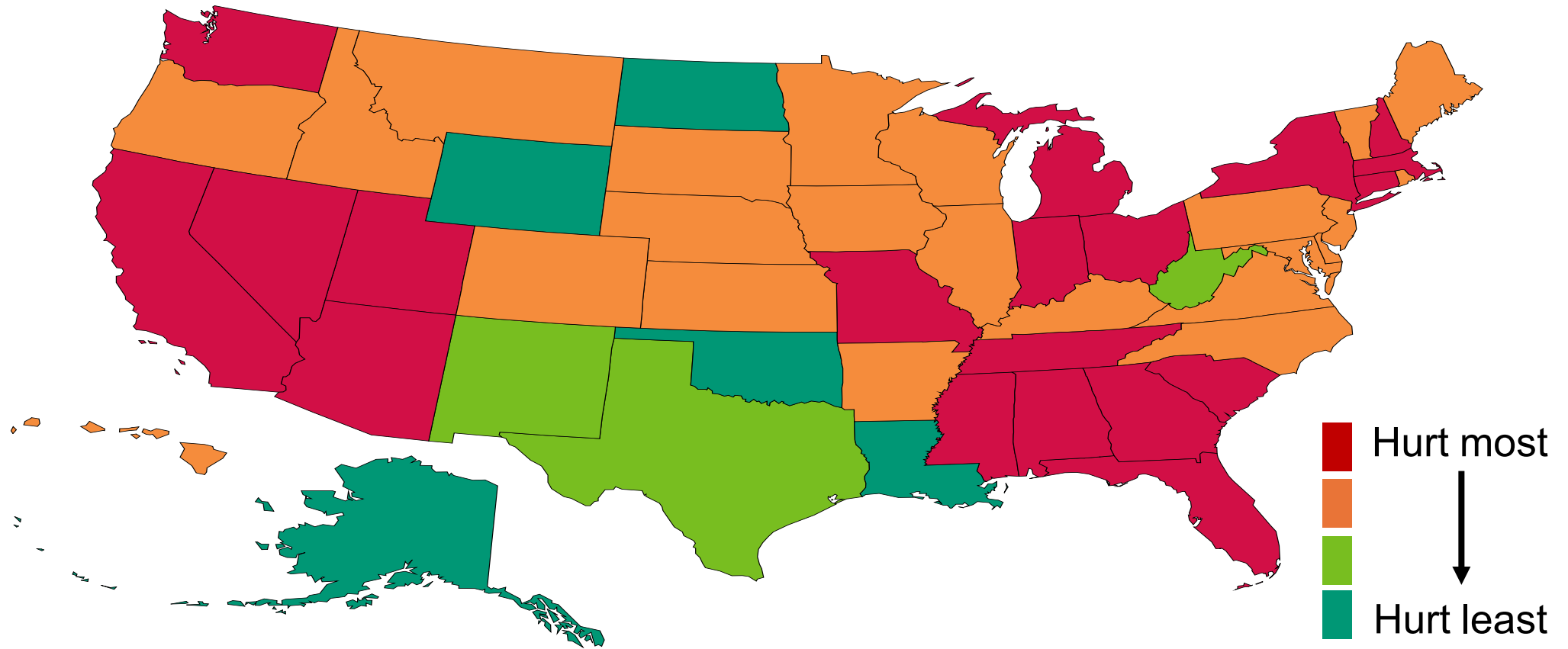
Expected path of the target fed funds rate, %



Sources: Bloomberg LP, Moody's Analytics

Clear Differences Across the U.S...

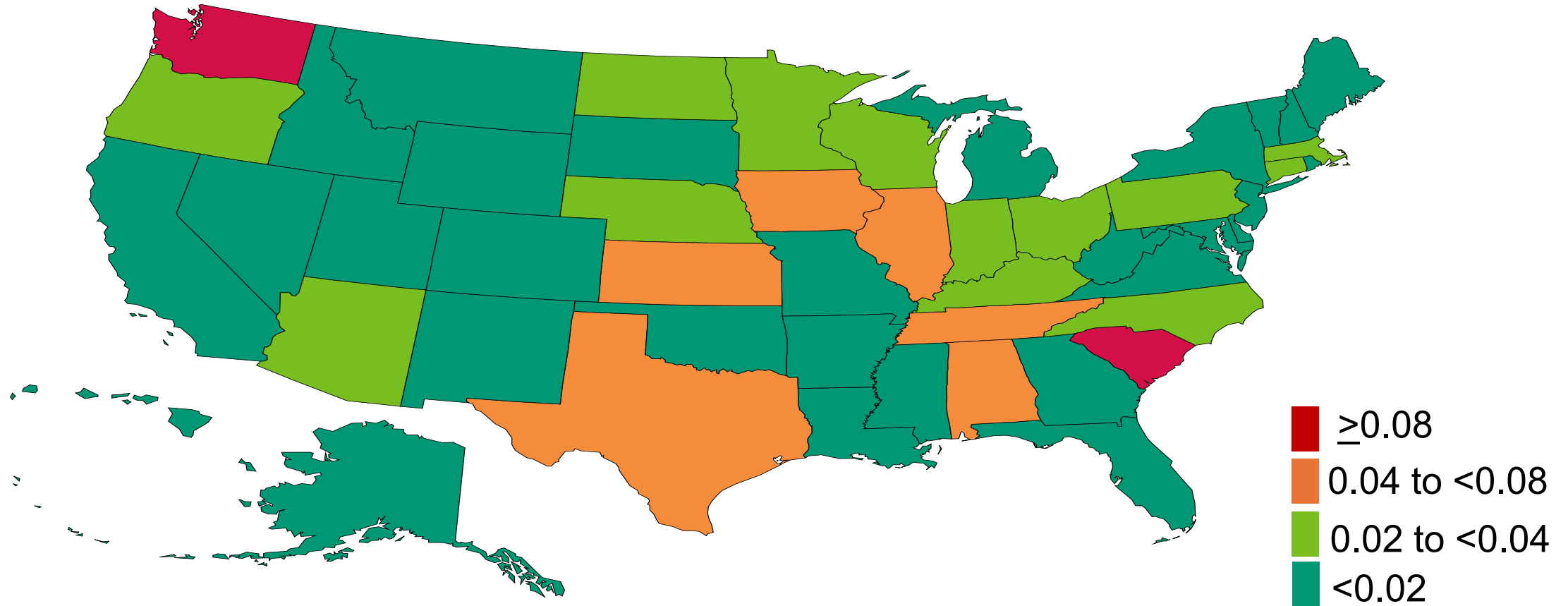
State regional GDP impact of Russian invasion of Ukraine



Sources: BEA, Moody's Analytics

...But the Economic Impacts Are Modest

U.S. exports to Russia, 2019-20 avg, % of GDP



Sources: Census Bureau, Moody's Analytics

Sample of Moody's Analytics Economics offering

Global Impact of Russian Invasion

Europe will struggle more than the U.S., but Russia will take the biggest

Geopolitical Risk Calendar: Russia, Ukraine Agree to Evacuation Corridors

Meanwhile, Europe looks for alternatives to Russian gas.

Invasion of Ukraine Exacerbates Weakness in Egypt's Economy

The largest buyer of Russian and Ukrainian wheat faces higher costs.

Military Conflict Threatens Global Commodity Supplies

The world relies on both Russia and Ukraine for key products.

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Russian Federation Summary

Indicators View Calendar < Mar 7 2022

- Industrial Production Jan 2022: 1.4% m/m
- Unemployment rate Feb 2022: 2.2%
- Industrial Production Jan 2022: 0.9% m/m

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Ukraine Summary

Indicators View Calendar < Mar 7 2022

- Industrial Production Jan 2022: 1.4% m/m
- Unemployment rate Feb 2022: 2.2%
- Industrial Production Jan 2022: 0.9% m/m

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EMEA Summary Analysis Indicators Trackers

Indicators View Calendar < Feb 22 2022

- Unemployment rate Jan 2022: 7.5% y/y
- Consumer Price Index Jan 2022: 4.8% y/y
- Moody's Analytics Survey of February 18: -0.9

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MOODY'S ANALYTICS | Economic View Real Time

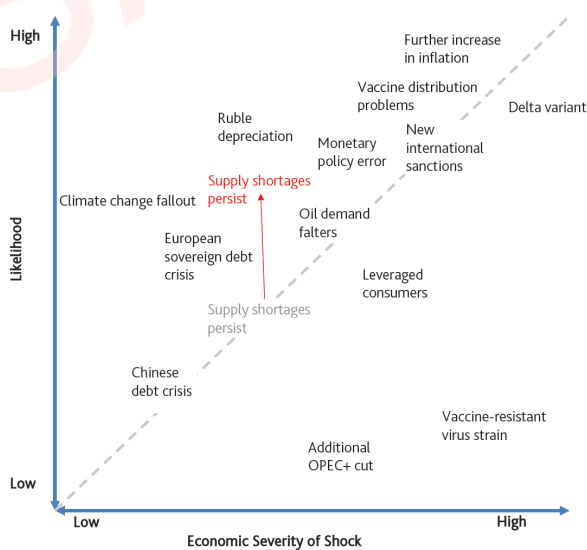
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| | Units | 21Q1 | 21Q2 | 21Q3 | 21Q4E | 22Q1F | 22Q2F | 22Q3F | 2019 | 2020 | 2021 | 21Q2 |
|-------------------------------|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| National Accounts (NA) | | | | | | | | | | | | |
| Gross Domestic Product | BI RUS, chained | 92,282.9 | 91,162.8 | 92,422.8 | 95,103.9 | 95,602.3 | 95,552.9 | 95,811.8 | 91,103.1 | 88,991.5 | 92,952.5 | 95,798.8 |
| change | % Y/Y | -0.4 | 7.6 | 0.8 | 7.2 | 5.8 | 2.6 | 3.7 | 1.8 | -2.3 | 4.5 | 3.0 |
| Private Consumption | BI RUS, chained | 48,323.6 | 51,748.9 | 51,975.2 | 52,943.2 | 52,819.1 | 52,499.8 | 52,371.3 | 55,680.8 | 46,759.3 | 51,248.5 | 52,506.3 |
| change | % Y/Y | -1.5 | 16.9 | 11.7 | 12.3 | 8.3 | 1.5 | 0.8 | 3.0 | -7.7 | 8.6 | 2.5 |
| Government Consumption | BI RUS, chained | 17,495.8 | 17,580.9 | 17,514.9 | 17,807.1 | 17,722.7 | 17,801.9 | 17,843.7 | 18,811.8 | 17,481.8 | 17,804.4 | 17,876.1 |
| change | % Y/Y | 1.0 | 1.1 | 0.0 | 1.4 | 1.5 | 0.6 | 0.7 | 2.4 | 3.8 | 0.9 | 0.4 |
| Fixed Investment | BI RUS, chained | 18,748.8 | 20,977.2 | 20,473.2 | 21,696.4 | 22,217.3 | 22,884.8 | 23,129.3 | 20,129.3 | 19,259.4 | 20,896.6 | 22,818.3 |
| change | % Y/Y | -0.2 | 11.8 | 8.0 | 10.7 | 12.5 | 8.1 | 13.0 | 1.0 | -4.3 | 7.5 | 10.7 |
| Changes in Inventories | BI RUS, chained | 2,805.8 | -1,375.2 | 1,826.8 | 1,800.1 | 1,687.3 | 1,865.8 | 1,848.8 | 941.4 | 1,736.6 | 1,778.7 | 1,852.9 |
| share of GDP | % | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

The Risk Matrix

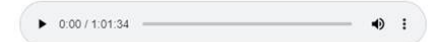


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Russia-Ukraine Conflict

The Impact on the Global Economy

REGISTER 24 February | 09:00 EST | 14:00 GMT | 15:00 CET

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ANALYSIS JANUARY 2022

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Russia Macroeconomic Outlook Baseline and Alternative Scenarios

UPDATED BIMONTHLY

Economic View

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GEOPOLITICAL RISK CALENDAR

Hong Kong chief executive election could be postponed

As Hong Kong battles with a record COVID-19 wave, it is not clear if next month's election will proceed as planned. The position is decided by the vote of the 1,463-member Ele known candidates until early this year, and at the time of writing, only four candi announced they would run. Chief Executive Carrie Lam, who is struggling to cont unfolding in the city, has declined to say if she will contest her position. Tam Yi delegate to China's National People's Congress Standing Committee, is reported race considering Chinese President Xi Jinping's call just days ago that Hong Kong pandemic. Should the election proceed as scheduled, a nomination period will be go through a national security vetting process before seeking nominations from 1 members. The nomination process ends on 6 March ahead of a vote on 27 March.

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