

FEBRUARY 2022

CHARTBOOK

Introduction

Updated monthly, this publication is designed to deliver a comprehensive view of geopolitical and macroeconomic trends, giving you insight into the factors currently priced into markets - and some of those that aren't. The goal isn't to provide a spuriously precise outlook on foreign exchange rates, but simply to highlight some of the areas in which the consensus could shift.

I hope that you find it useful, and welcome your thoughts, questions, and ideas - particularly on any areas we should cover in the next edition.

Email me at: kschamotta@cambridgefx.com

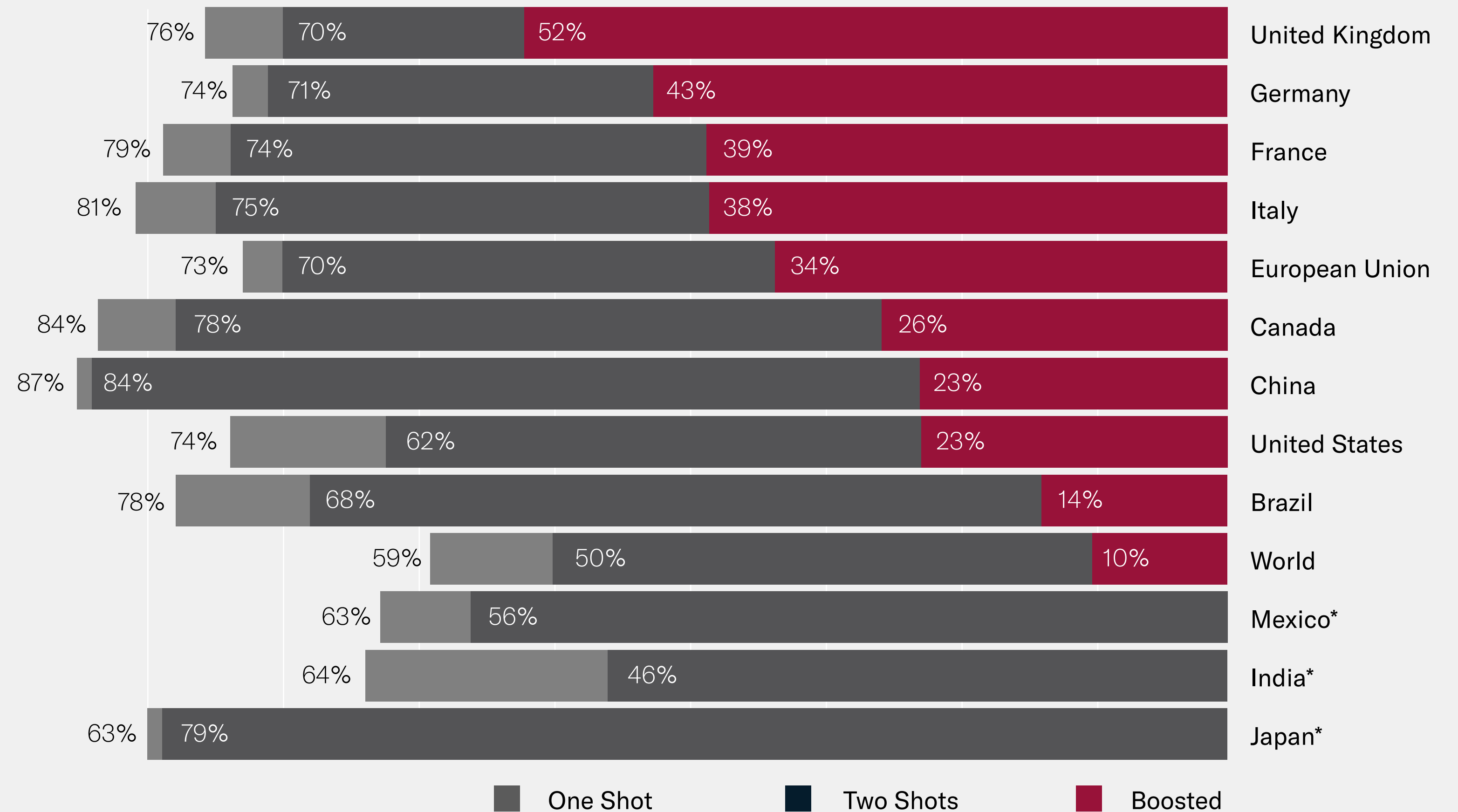
- *Karl Schamotta, Chief Market Strategist*

01 GLOBAL

Protection levels are rising.

Covid-19 shots administered, share of population, as at January 10, 2022

Vaccination rates continue to climb at a rapid pace in the world's largest economies, putting populations on course toward herd immunity.



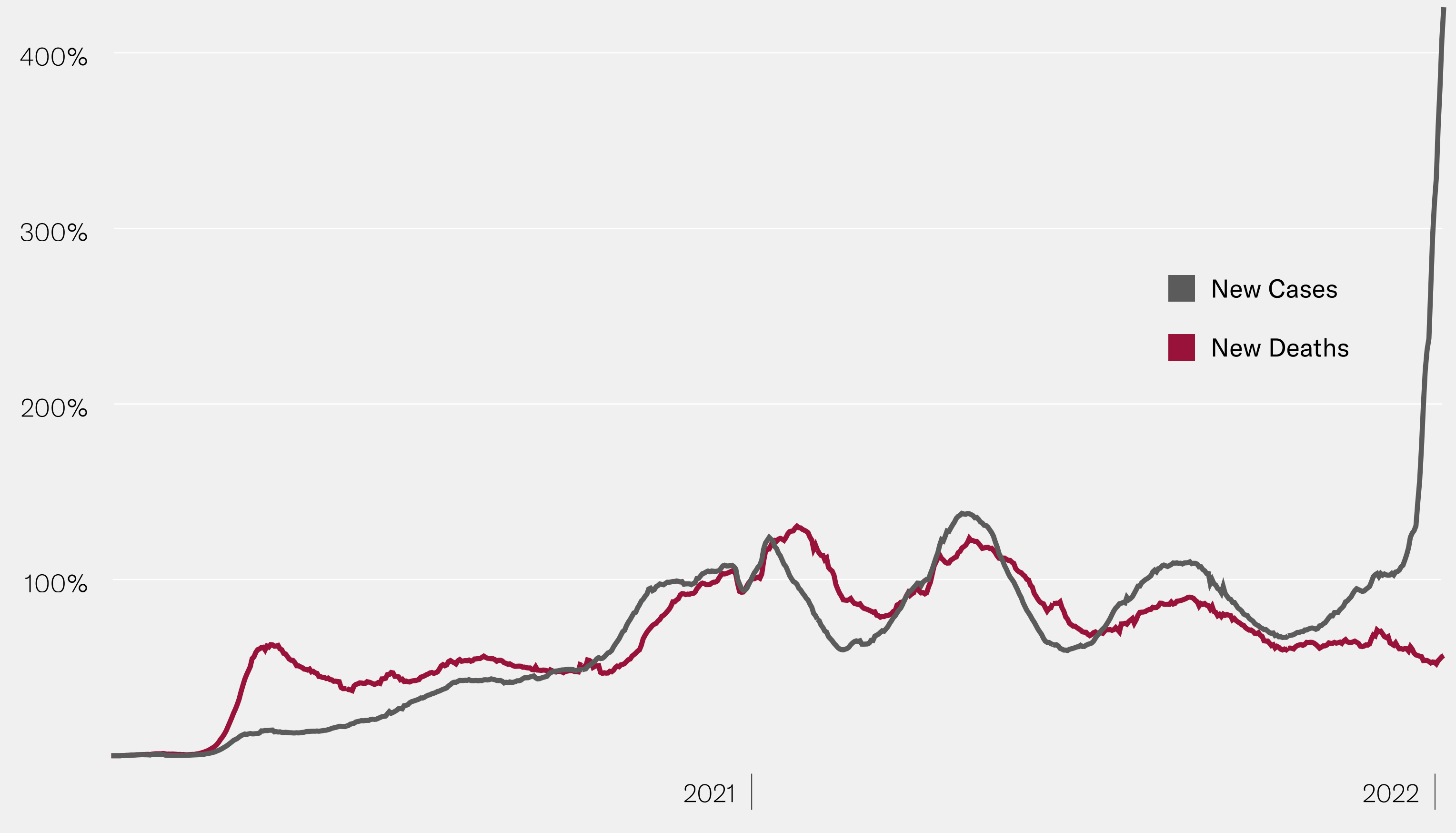
*Booster data missing.

Sources: Our World in Data, Author Calculations

The link between Covid-19 cases and deaths is breaking.

New Covid-19 cases and deaths, as a % of value on January 01, 2021, January 2020 - January 2022

The Omicron wave, a milder form of coronavirus, intersecting with better-protected populations, has not taken the devastating toll suffered under previous waves. Lockdowns are likely to become far less frequent as high vaccination rates and political pressures keep policymakers sidelined.



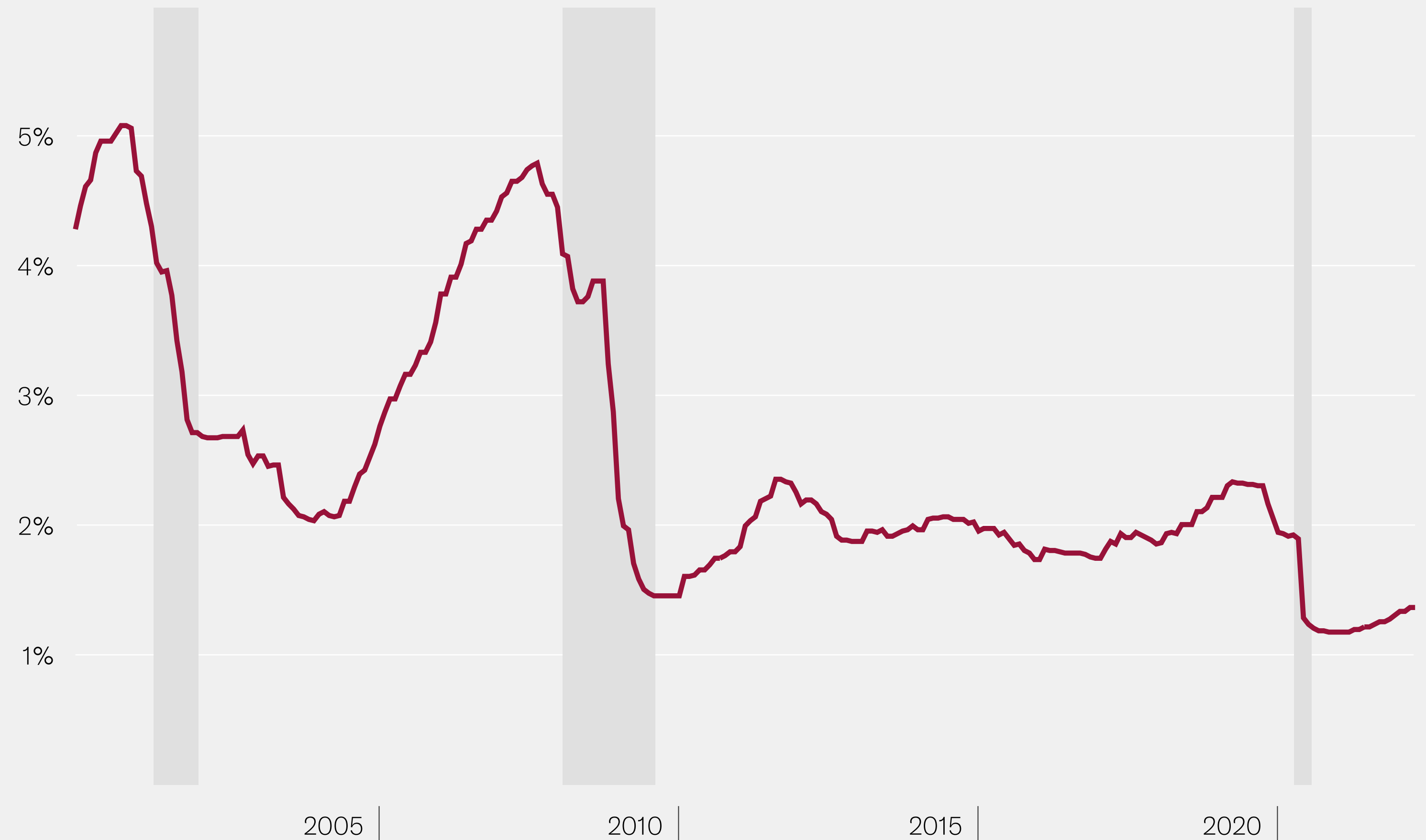
Seven-day rolling averages, shown as a % of value on January 01, 2021,

Sources: Our World in Data, Author Calculations

Central bank intervention continues.

GDP-weighted policy rate, percentage, January 2000 - January 2022

Nominal global interest rates remain near historic lows, keeping financial conditions at unprecedentedly-loose levels.



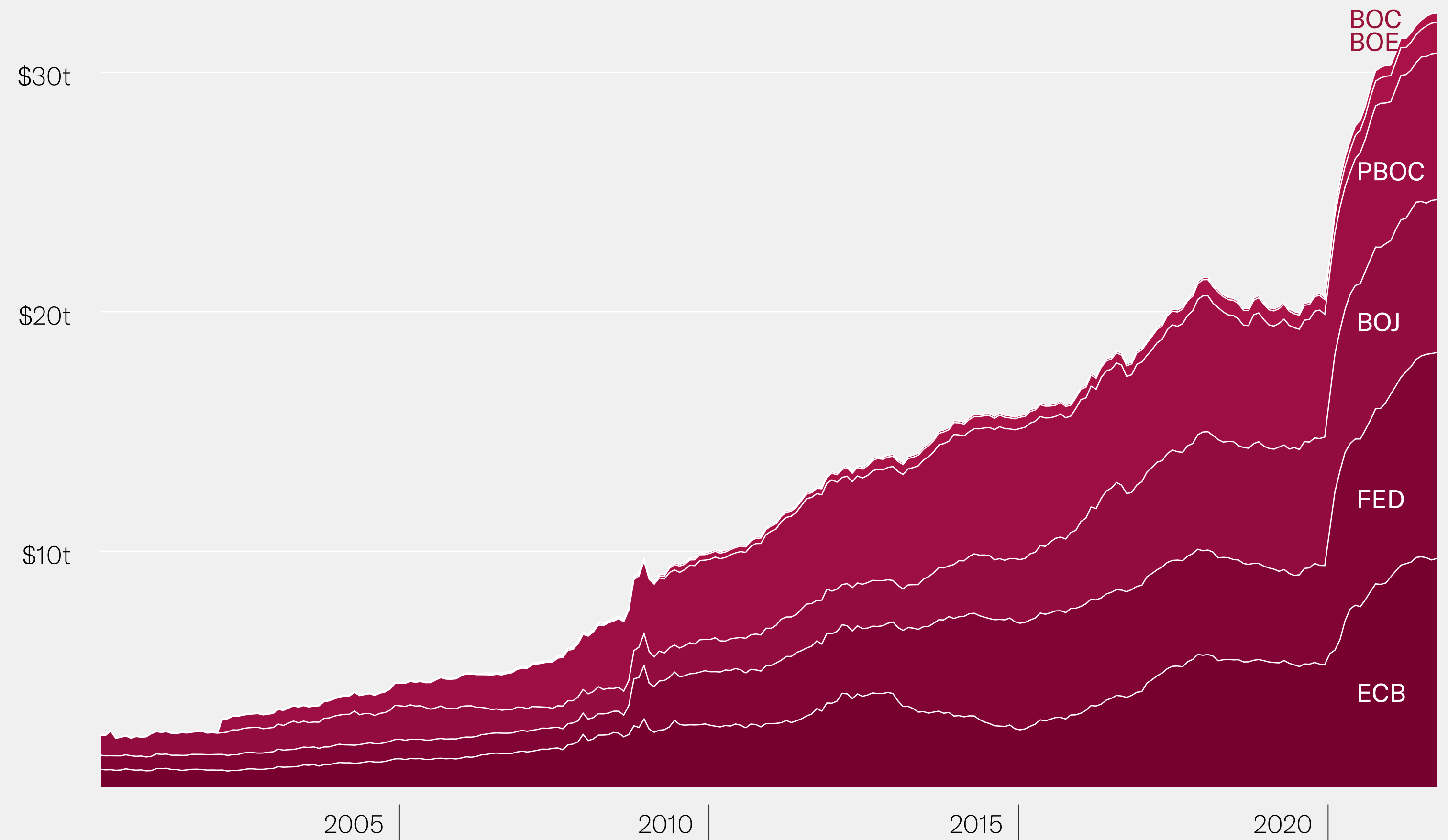
Regions: Euro Area, Brazil, Canada, China, India, United Kingdom, United States

Sources: Bank for International Settlements, International Monetary Fund, Author Calculations

Balance sheets are still growing.

Central bank balance sheets, trillions USD, January 2000 - November 2021

Several major central banks have announced plans to exit or wind down their asset purchase programmes, but, on aggregate, balance sheets have continued to grow, contributing to overall financial system liquidity.

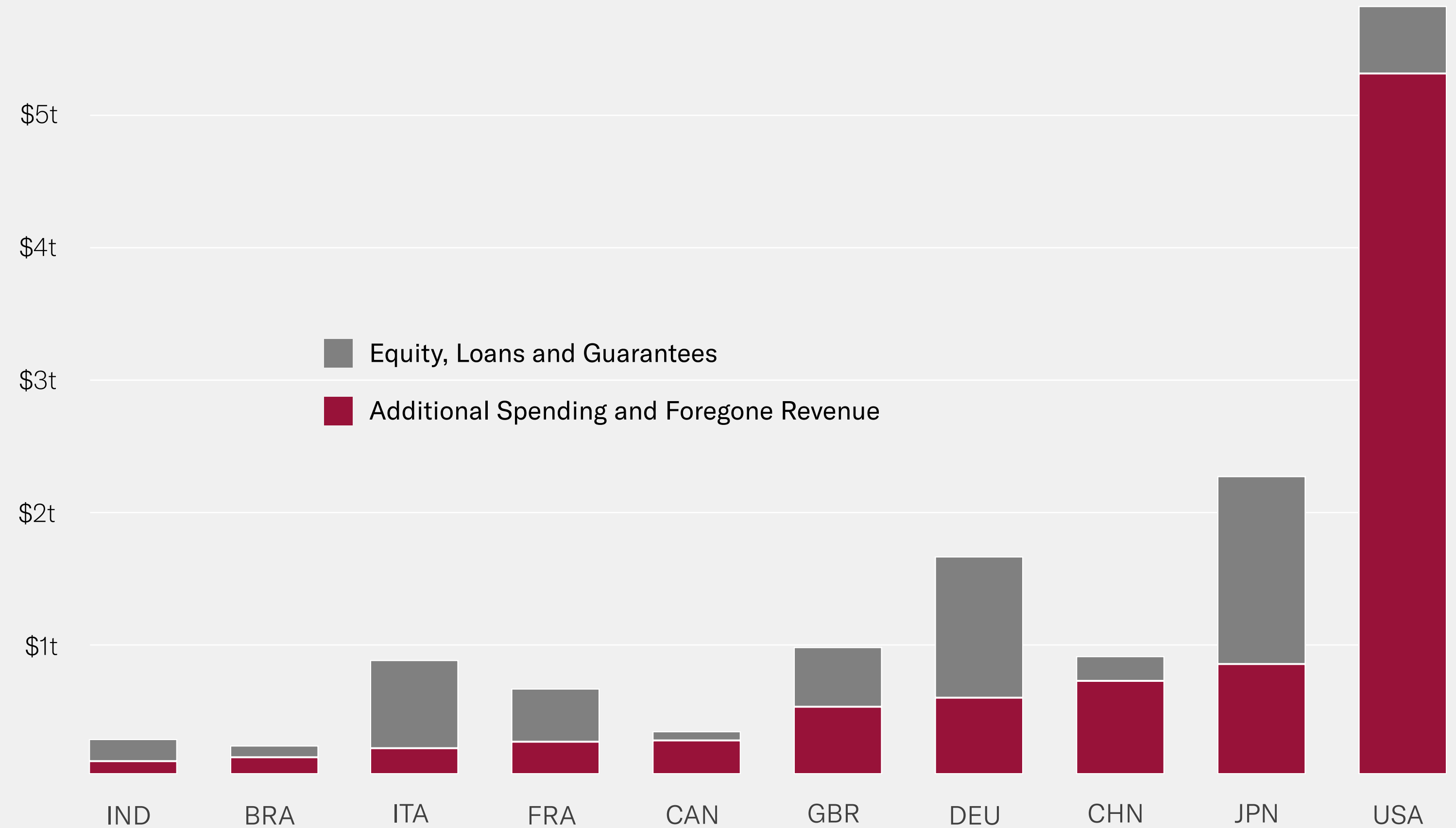


Sources: Bank of Canada, European Central Bank, Federal Reserve, Bank of Japan, People's Bank of China, Author Calculations.

And the fiscal response continues to change the game.

Covid 19 fiscal measures, trillions USD, January 2020 - December 2021

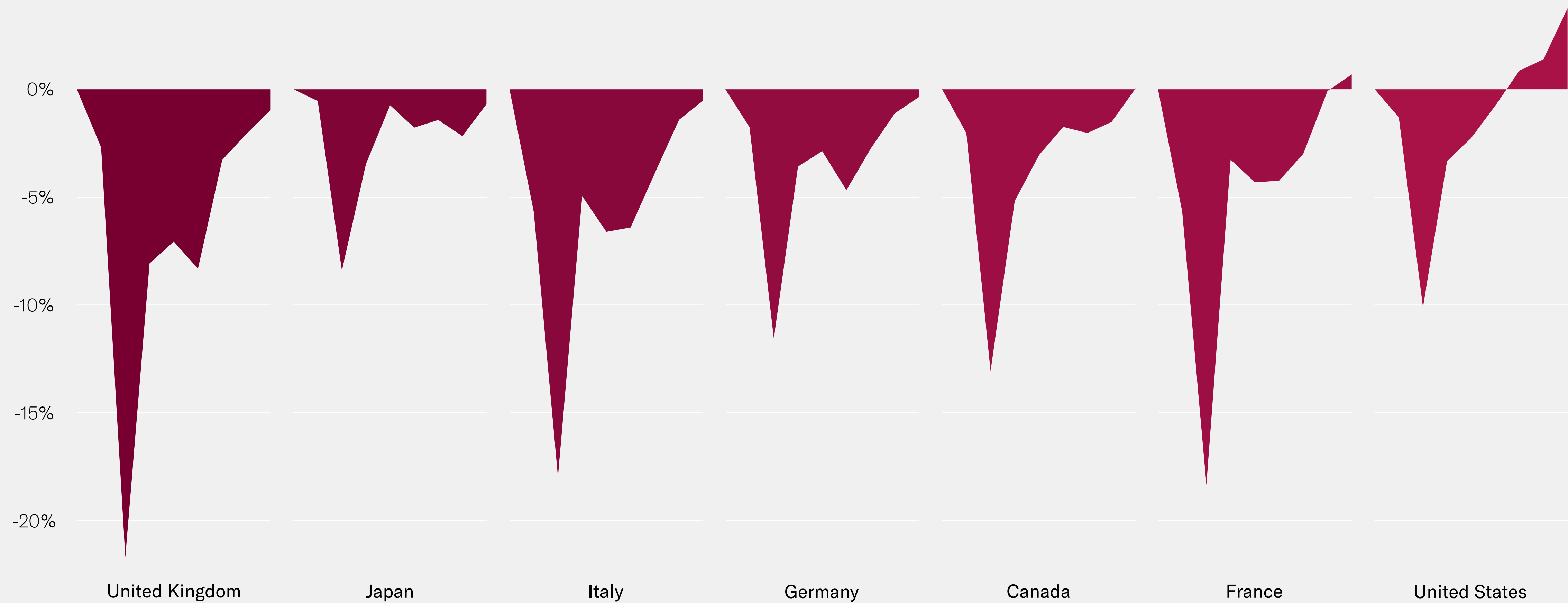
An unprecedented fiscal response from global governments - the United States chief among them - is turning the economic tide remarkably quickly.



Source: International Monetary Fund, Author Calculations.

Most major economies are nearing pre-pandemic output levels.

Real gross domestic product, % change, Q4 2019 - Q4 2021



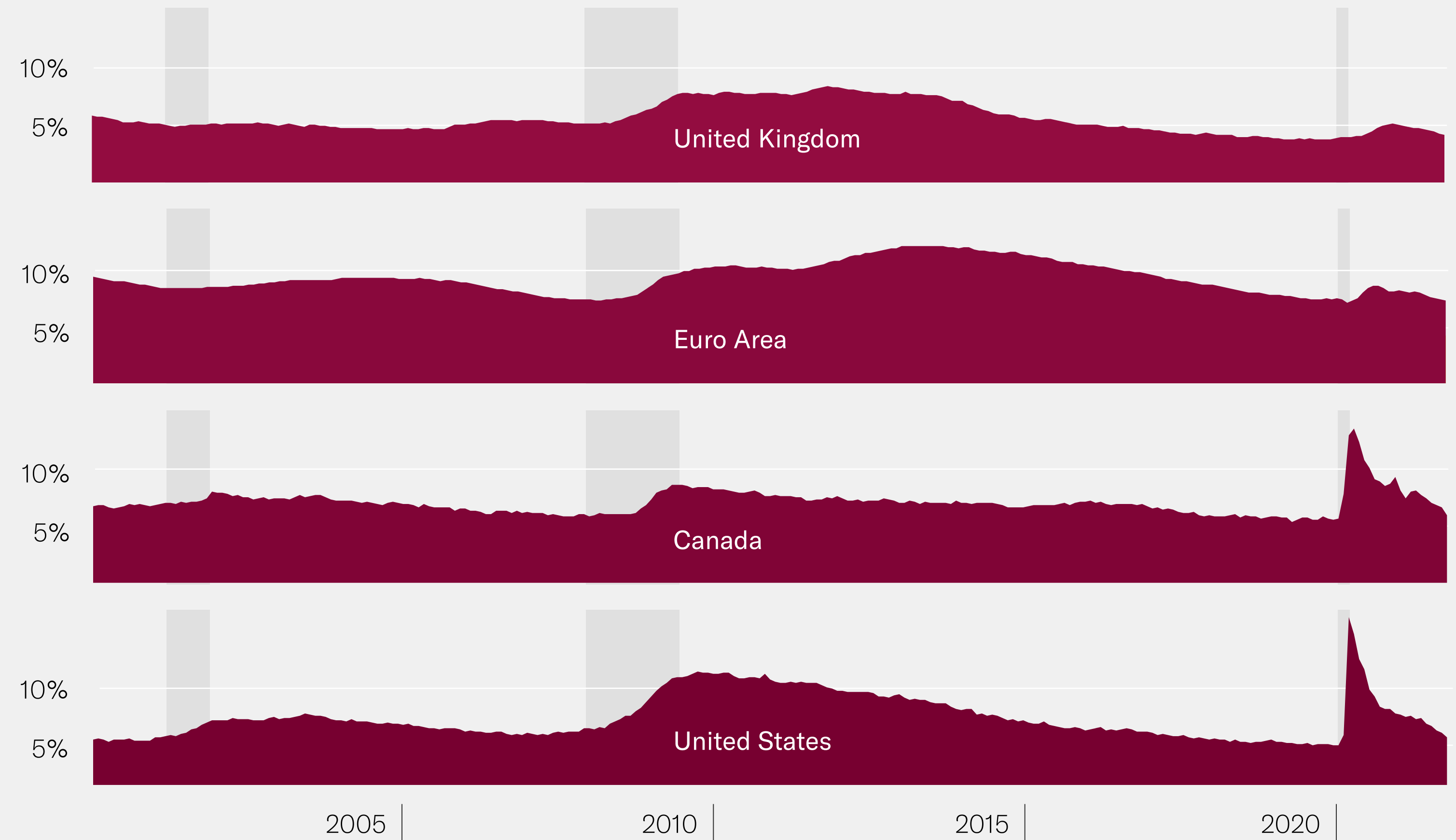
Notes: With the exception of the United States, values for Q4 2021 are derived from OECD forecasts.

Sources: Bureau of Economic Analysis, Organization for Economic Cooperation and Development, Author Calculations

Job markets are almost fully healed.

Unemployment rates, January 2000 - December 2021

Relative to the 2008 Global Financial Crisis, unemployment rates have come down far more quickly.

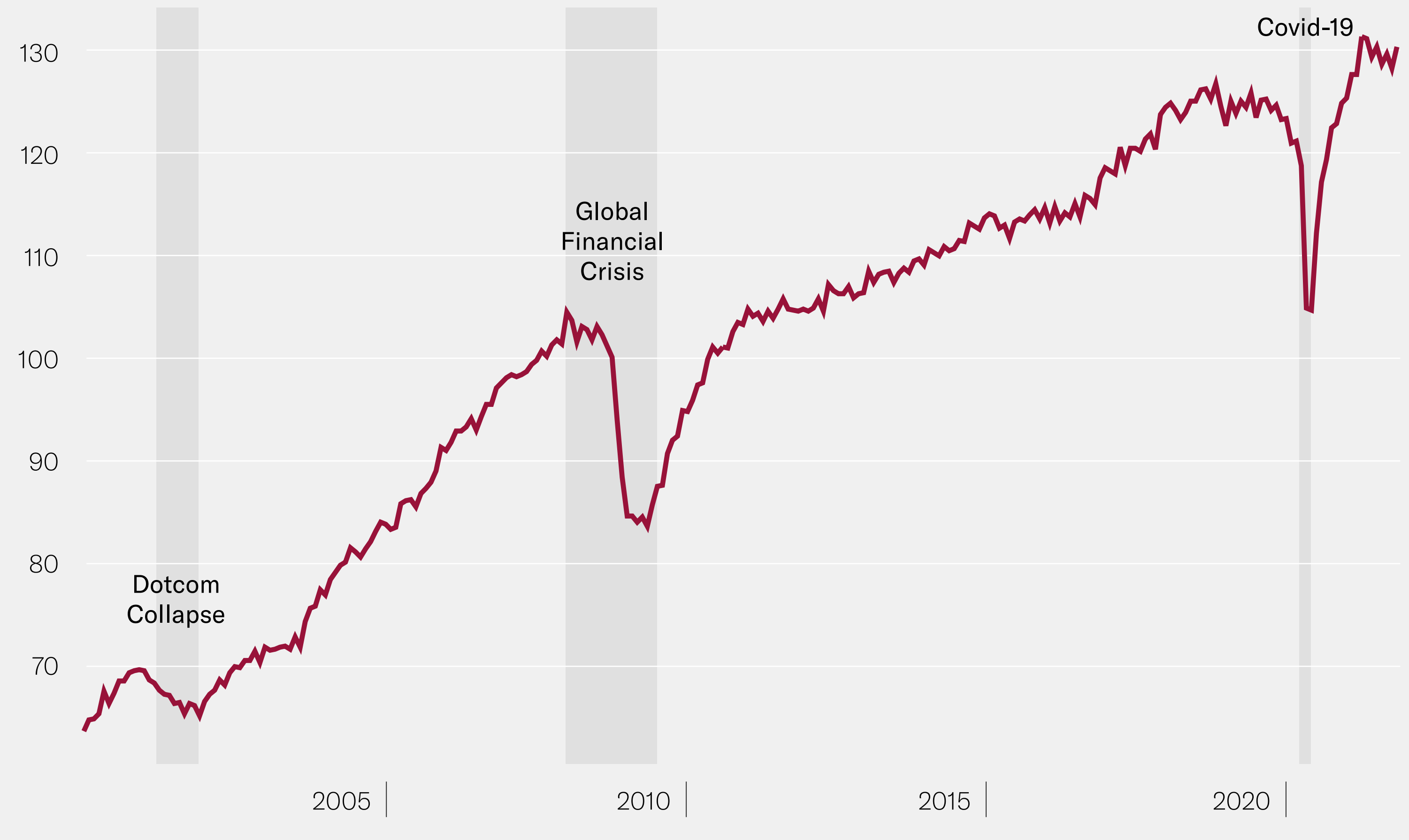


Notes: Unemployed persons as a share of labour force. Shaded areas = US recessions

Sources: Bureau of Labor Statistics, Statistics Canada, Office of National Statistics, Eurostat, Author Calculations

Trade volumes are well above pre-pandemic levels.

World merchandise trade volume, 2010 = 100, January 2000 - October 2021

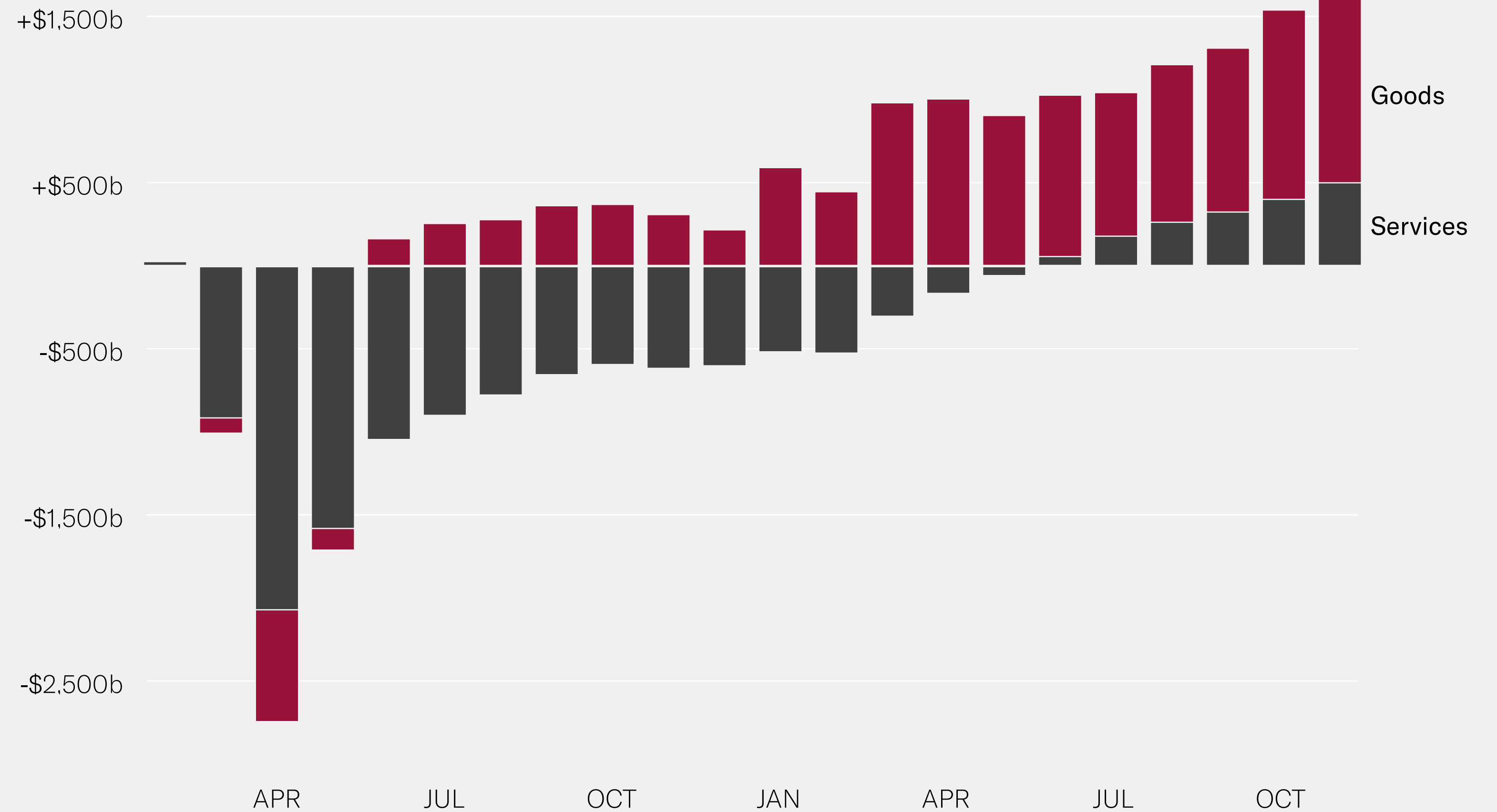


Defying widespread concerns about “deglobalization”, international trade volumes have rebounded well beyond pre-pandemic levels. This may prove unsustainable however, if Western consumer spending shifts back toward services and state intervention in supply chains grows more burdensome.

Sources: CPB Netherlands Bureau for Economic Policy Analysis, National Bureau of Economic Research, Author Calculations

Goods demand has broken historical records.

Cumulative change in personal consumption, billions USD, February 2020 - November 2021

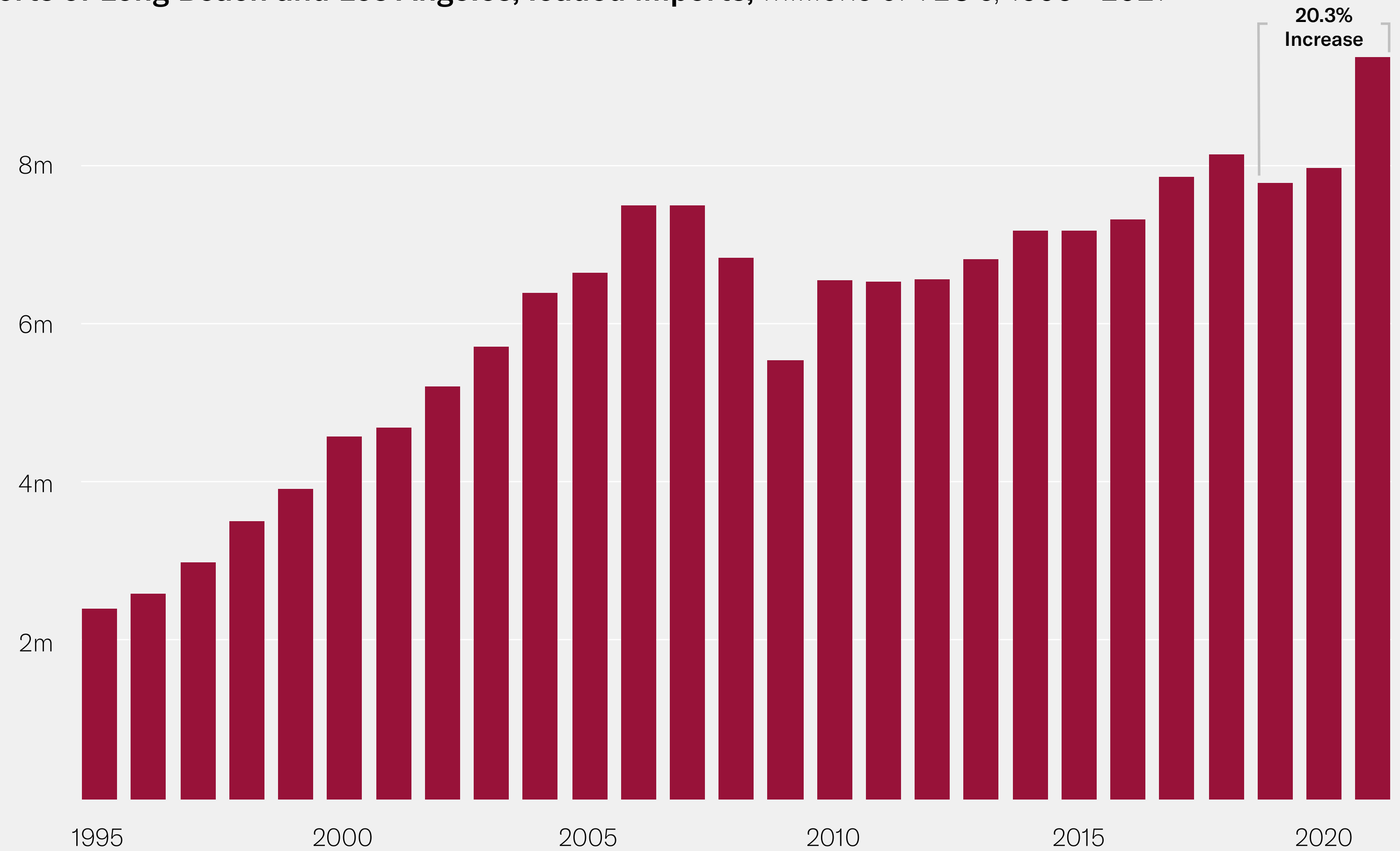


Consumer spending on tangible goods soared throughout the recovery, vastly outpacing growth in the services sector.

Sources: Bureau of Economic Analysis, Author Calculations

Supply chains have adapted remarkably well.

Ports of Long Beach and Los Angeles, loaded imports, millions of TEU's, 1995 - 2021



Relative to the same period in 2019, the number of shipping containers handled by the Los Angeles and Long Beach ports climbed 20.3 percent in the eleven months through November.

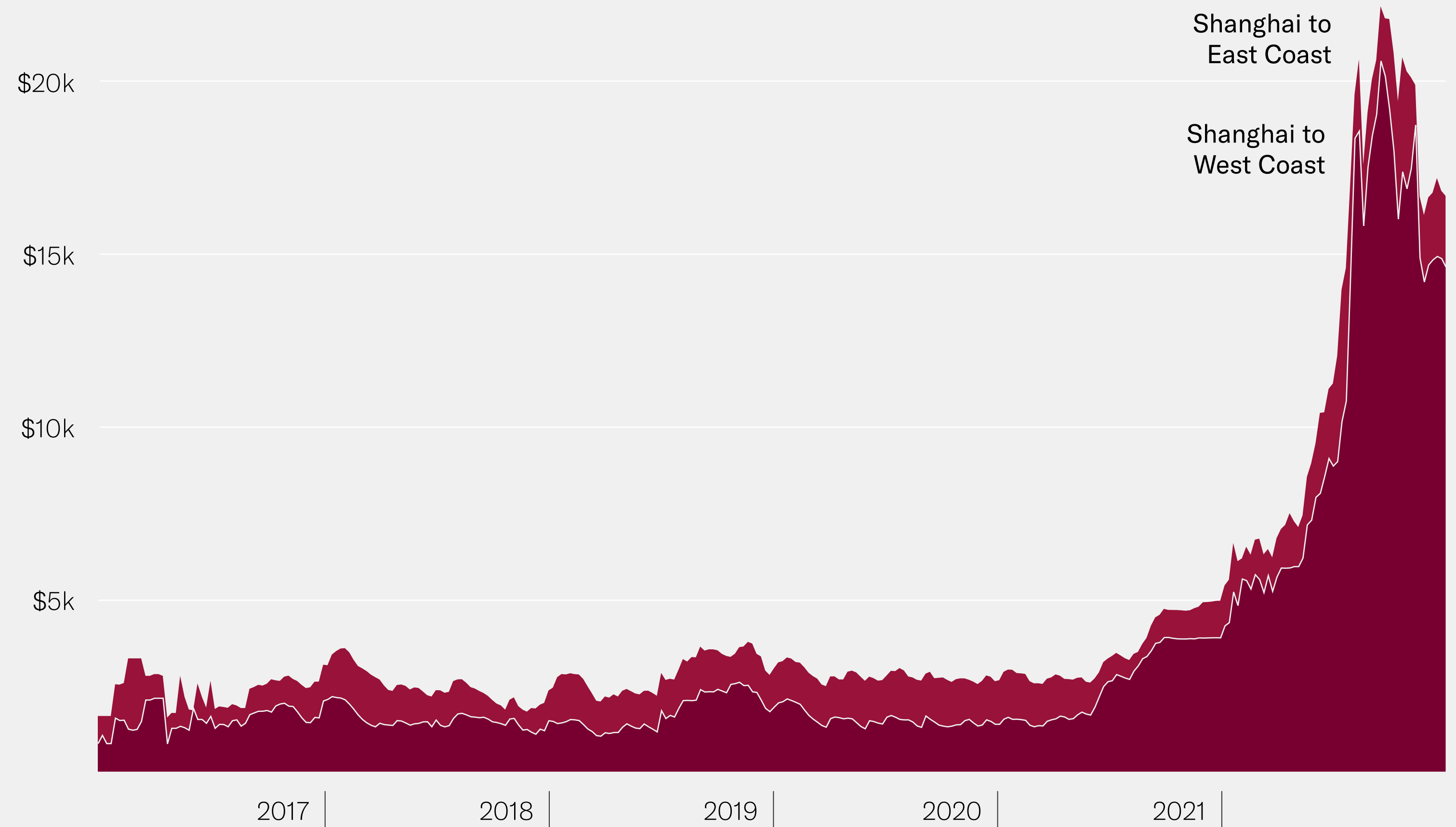
Notes: TEU's = Twenty-Foot Equivalent Units, Cumulative to November

Sources: Port of Long Beach, Port of Los Angeles, Bloomberg, Author Calculations

Shipping costs are falling.

Shipping cost, 40-foot containers, January 2016 - December 2021

Shipping costs soared last year as consumers rushed to buy goods, even as the pandemic continued to snarl global supply chains. Container rates more than quadrupled, and delivery times lengthened. But prices began to roll over in September, and - although still elevated - appear likely to drop further in the months to come as spending patterns normalize and inventories recover.

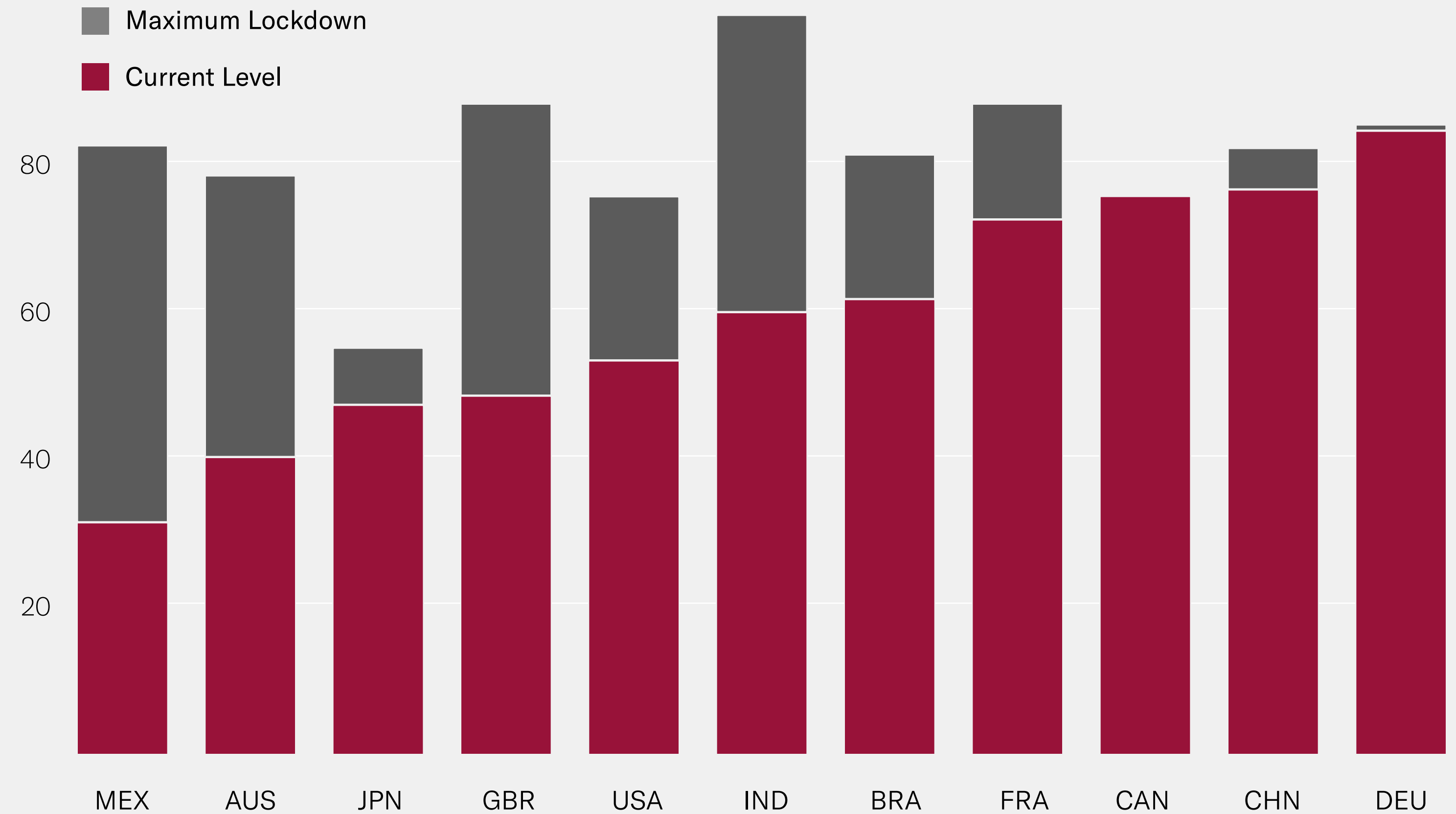


Sources: Freightos, Bloomberg, Author Calculations

But manufacturing in China could be disrupted.

COVID-19 Stringency Index, January 2020 - January 2022

Last year, rolling provincial lockdowns and terminal closures at two of the world's five biggest container ports - Shenzhen and Ningbo-Zhoushan - put pressure on global manufacturing and shipping networks. Draconian lockdowns in Tianjin, Xi'an, and Shenzhen suggest Chinese authorities are prepared to take a similar approach in fighting the far-more-infectious omicron variant.



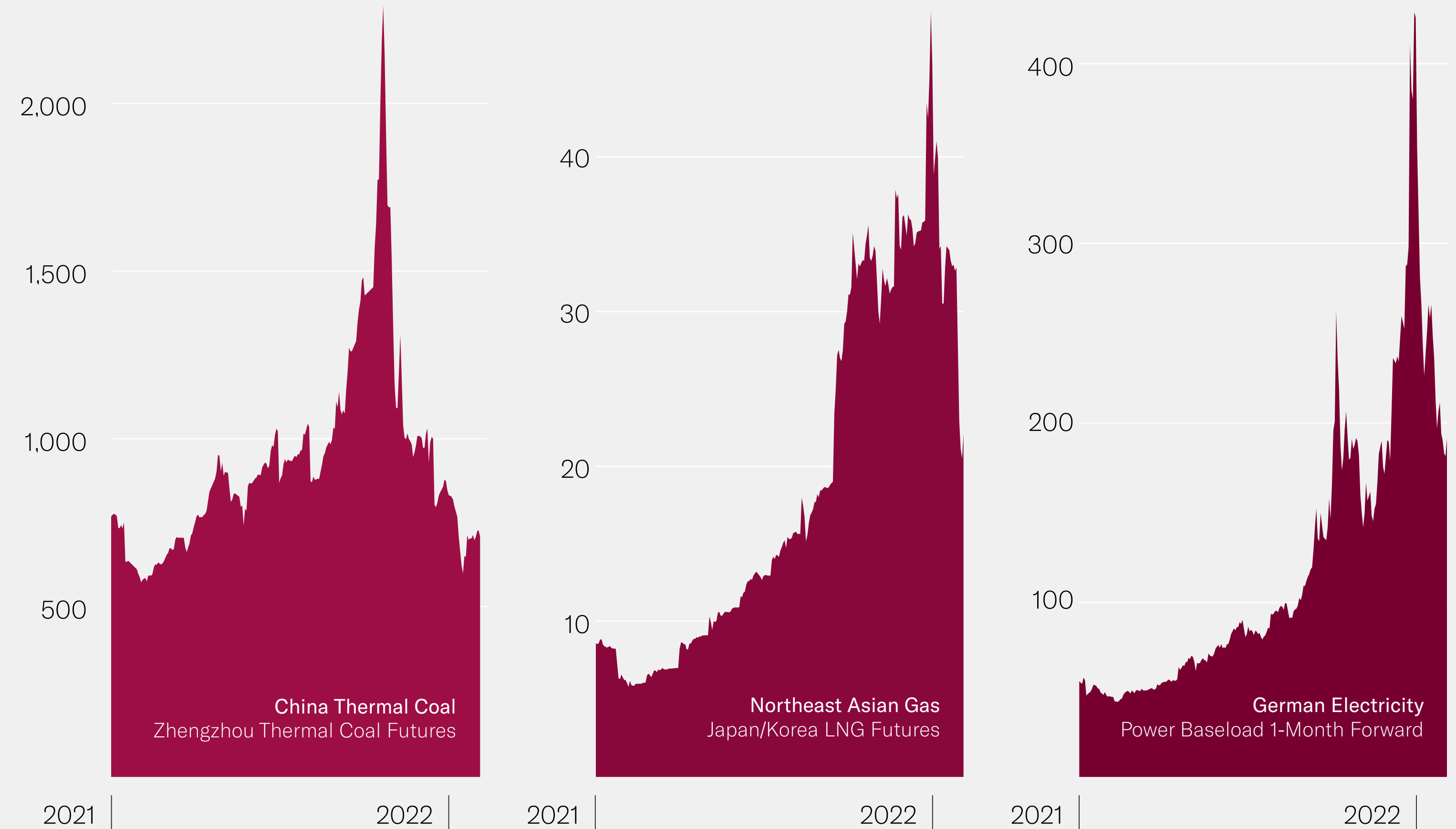
The stringency index is a composite measure based on nine response indicators including school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100 (100 = strictest). If policies vary at the subnational level, the index shows the response level of the strictest subregion.

Sources: Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, University of Oxford, Author Calculations

Global energy market disruptions are related.

Energy prices, January 2021 - January 2022

A series of supply and demand factors - some evolving over years, some pandemic-related - put the global energy complex under severe stress in the fourth quarter of 2022. Chinese coal supply imbalances, worldwide natural gas outages, rising geopolitical tensions, and a severe investment deficit drove costs upward - but, to some extent, warmer weather and official intervention efforts are now bringing prices back to earth.

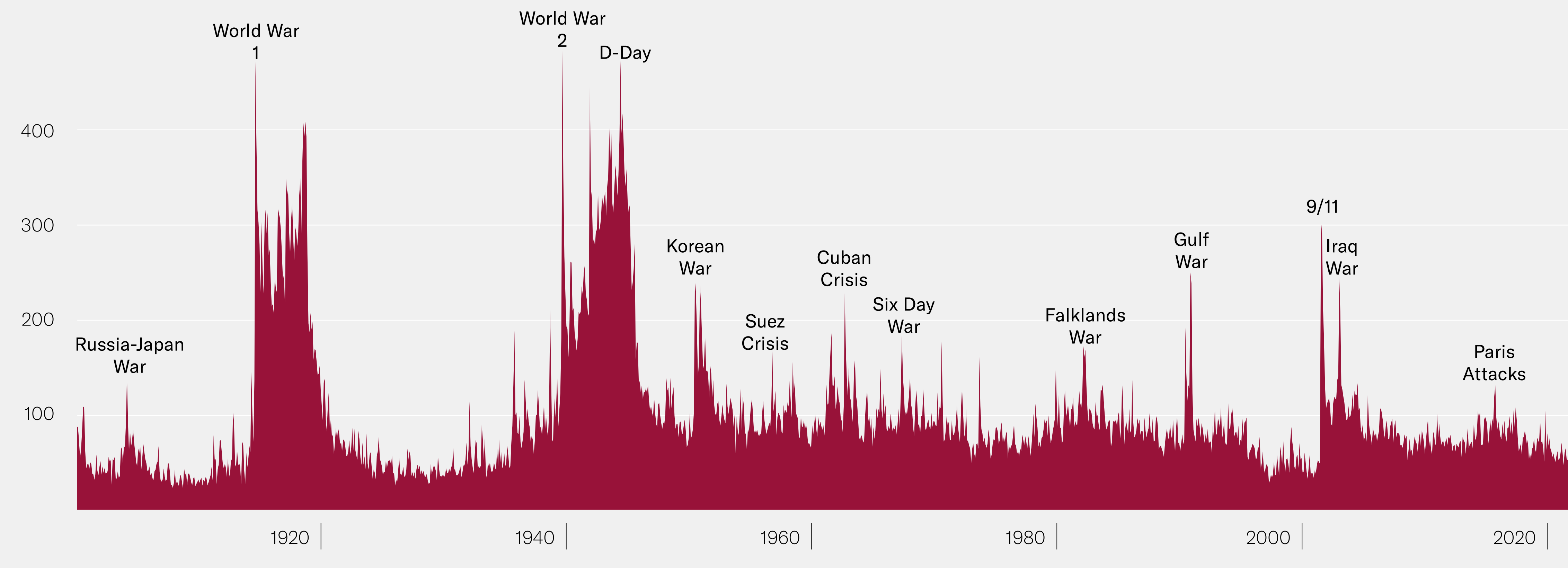


Zhengzhou 1-Month Thermal Coal Futures: CNY per tonne, LNG Japan/Korea Marker Platts 1-Month Swap Futures: USD per MMBtu, EUR per MWh

Sources: Bloomberg, Author Calculations

Despite growing Russia-Ukraine tensions, geopolitical risk measures remain subdued.

Historical geopolitical risk index, normalized to 100, January 1900 - December 2021



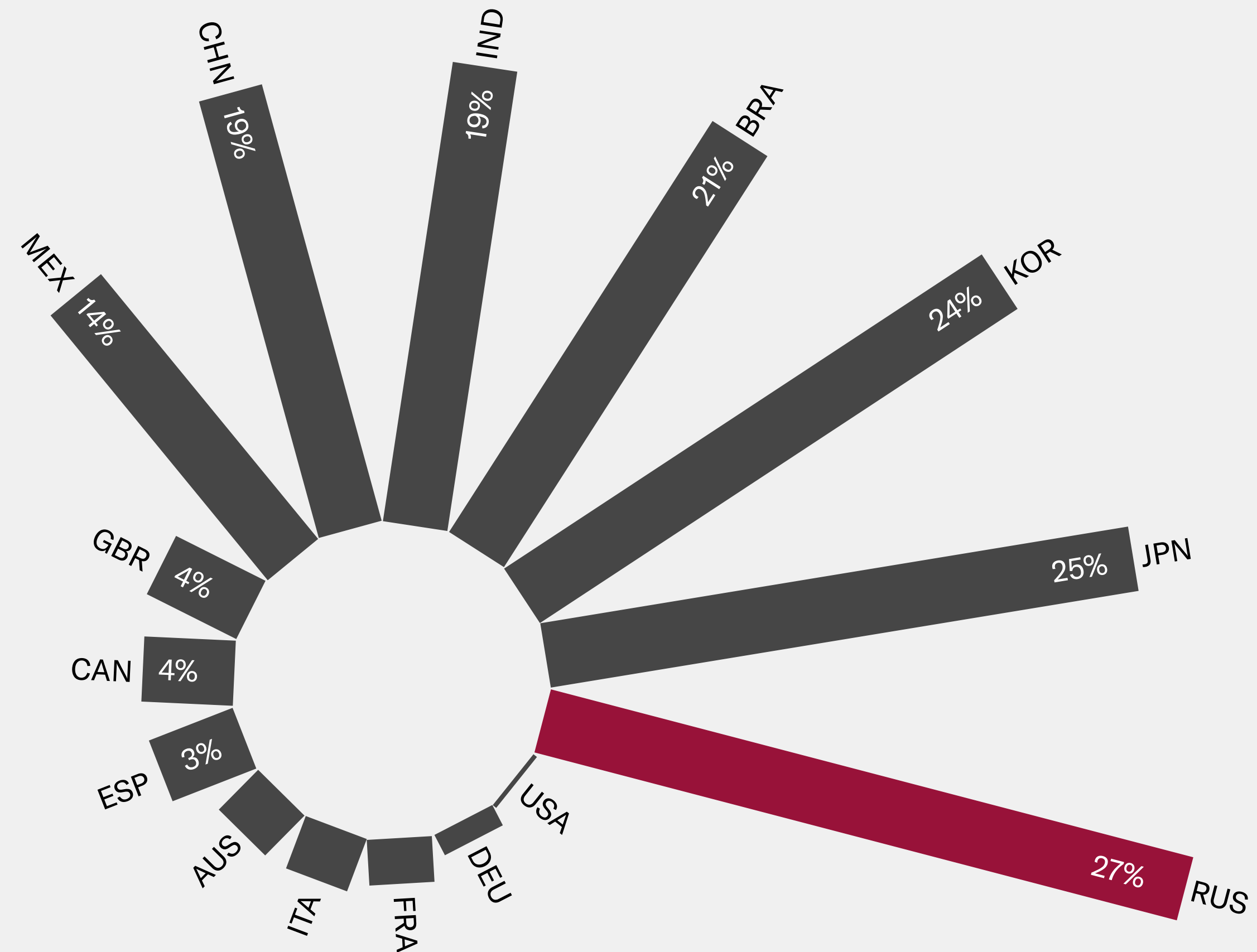
Index derived from the number of articles related to adverse geopolitical events in each newspaper for each month (as a share of the total number of news articles).

Sources: Caldara, Dario, and Matteo Iacoviello (2021), "Measuring Geopolitical Risk," working paper, Board of Governors of the Federal Reserve Board, November 2021, Author Calculations

The ruble is somewhat insulated.

Official foreign exchange reserve holdings, % of GDP, November 2021

Russian policymakers have spent much of the last decade building up supply chain independence and strengthening immunity to sanctions - Russia's foreign reserves now amount to more than 27% of gross domestic product, the highest proportion among the world's 15 largest economies. To some extent, this war chest can be used to protect the financial system.

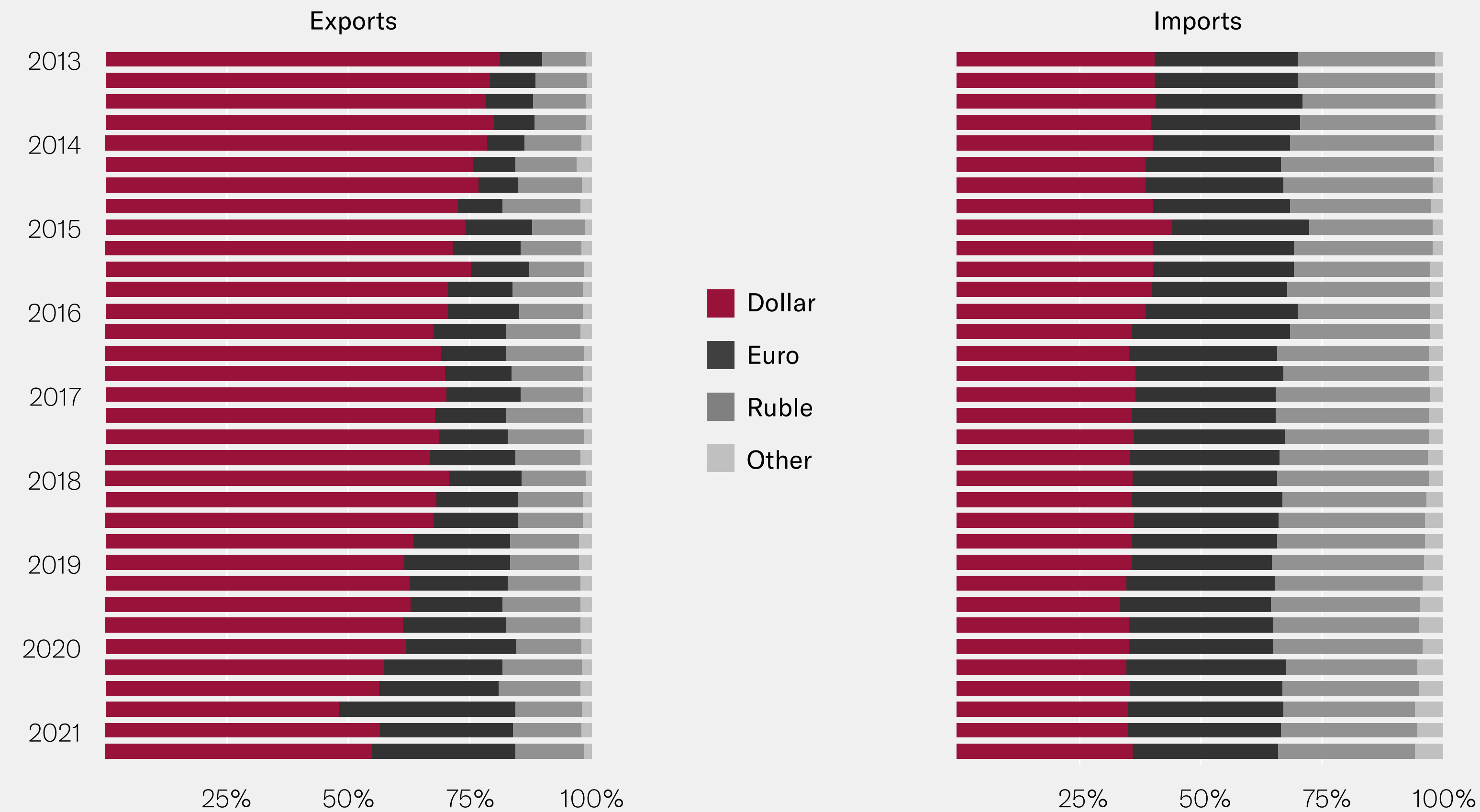


Sources: International Monetary Fund, Author Calculations

But Russia's dependence on dollars remains high.

Currency share of trade, % share, Q1 2013 - Q2 2021

Russian authorities are trying to reduce dependence on the dollar, but 54.9% of export revenues and 36.3% of import payments remained dollar-denominated in the second quarter. US financial sanctions could prove painful.



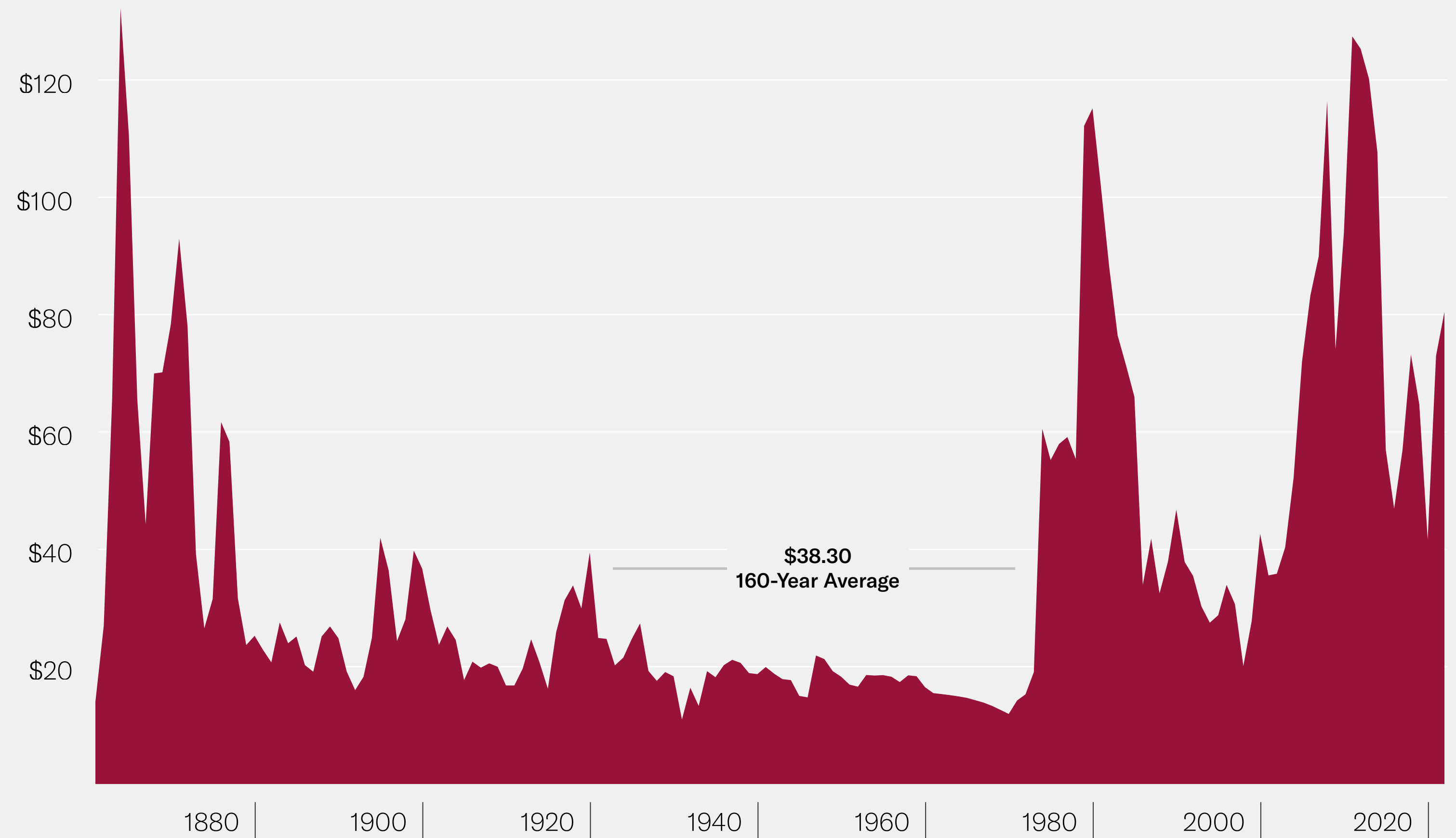
Currency composition of settlement for goods and services.

Sources: Bank of Russia, Author Calculations

Oil prices are well above long-term averages.

Real oil prices, \$2020 dollars, 1861 - 2022

Oil prices have soared - partly driven by an unexpectedly fast rebound in demand, but also reflecting limited investment in new capacity. This has been exacerbated by financial overhangs from the shale boom and bust, along with concern among oil majors that long-term investments might prove uneconomical or politically unpopular as the world attempts to execute a transition toward greener energy sources.



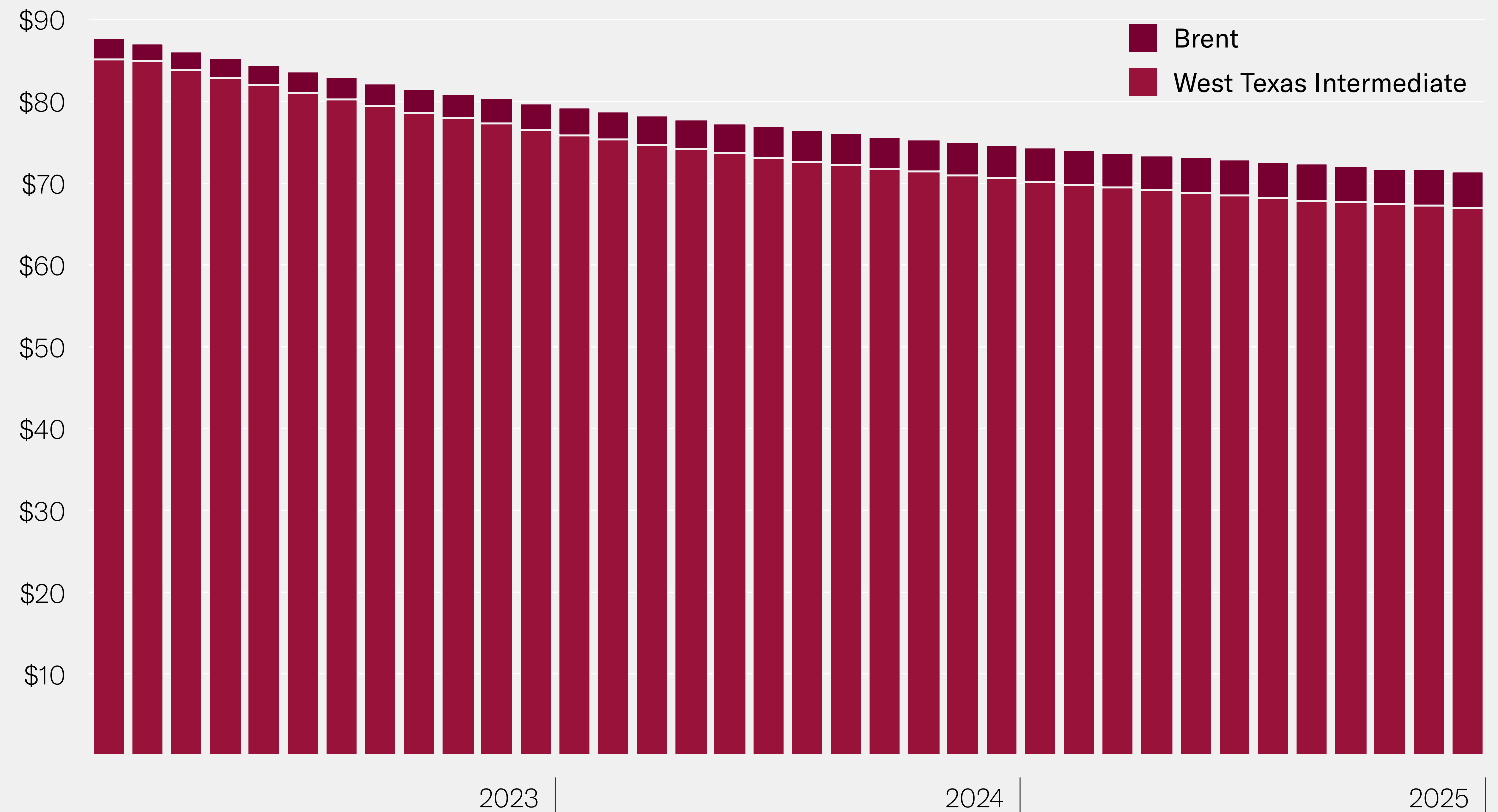
1861-1944 US Average., 1945-1983 Arabian Light posted at Ras Tanura., 1984-2022 Brent, deflated using the US Consumer Price Index

Sources: BP Statistical Review of World Energy 2021, Bloomberg, Author Calculations

Markets are in backwardation.

Crude oil futures prices, USD per barrel, as at 21 January 2022

The oil futures curve is currently in "backwardation" - a term which describes the situation when spot prices and the front month futures price exceed futures prices for delivery in months that are further out. This doesn't necessarily mean prices will drop in the future, but it does mean market participants are willing to pay a premium for barrels delivered promptly.

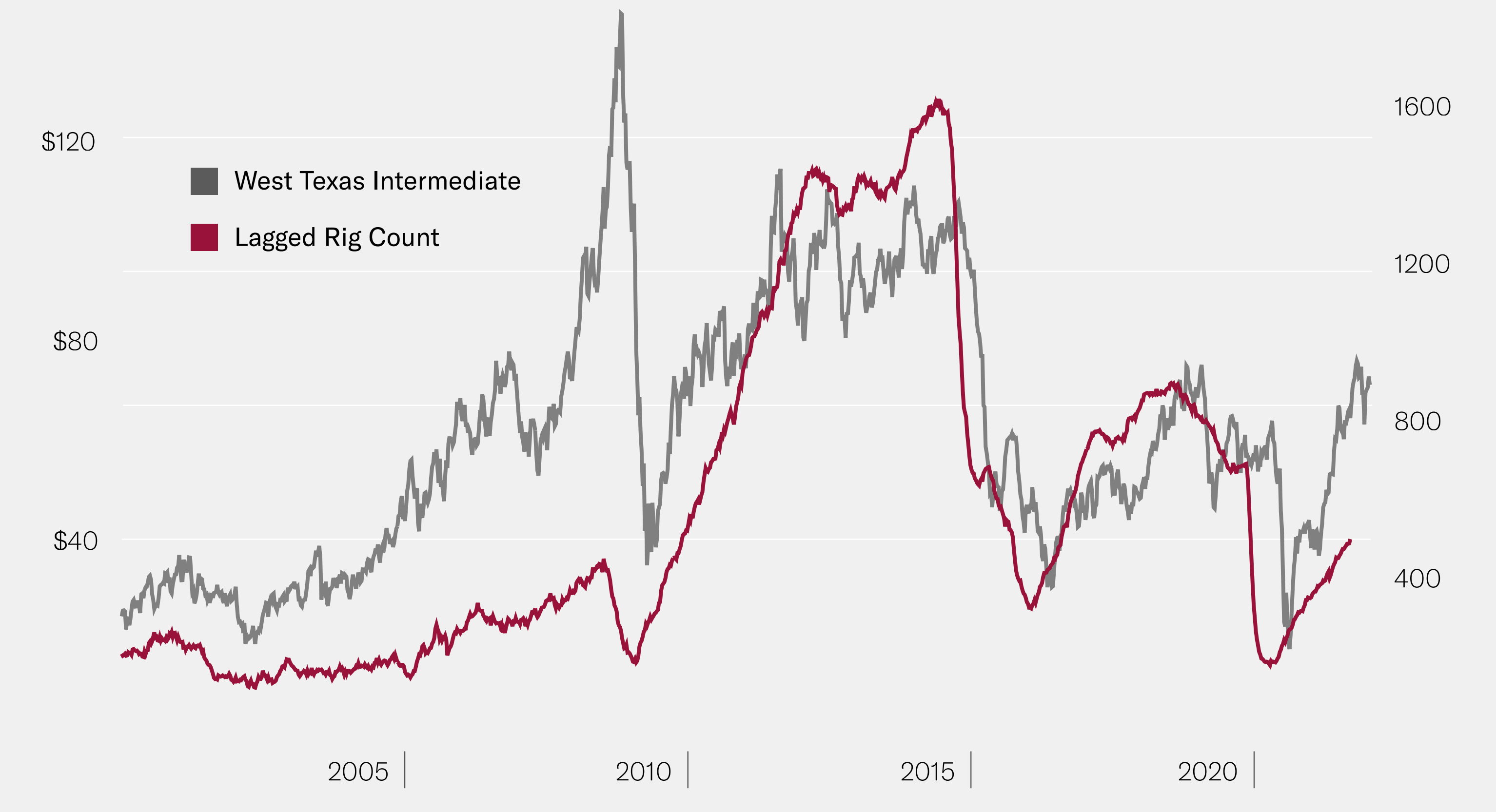


Sources: Bloomberg, Nymex, Author Calculations

Oil supply levels are beginning to respond.

West Texas Intermediate price vs. lagged rig count, January 2000 - January 2022

Drilling activity is beginning to rebound after a decade-long investment drought.



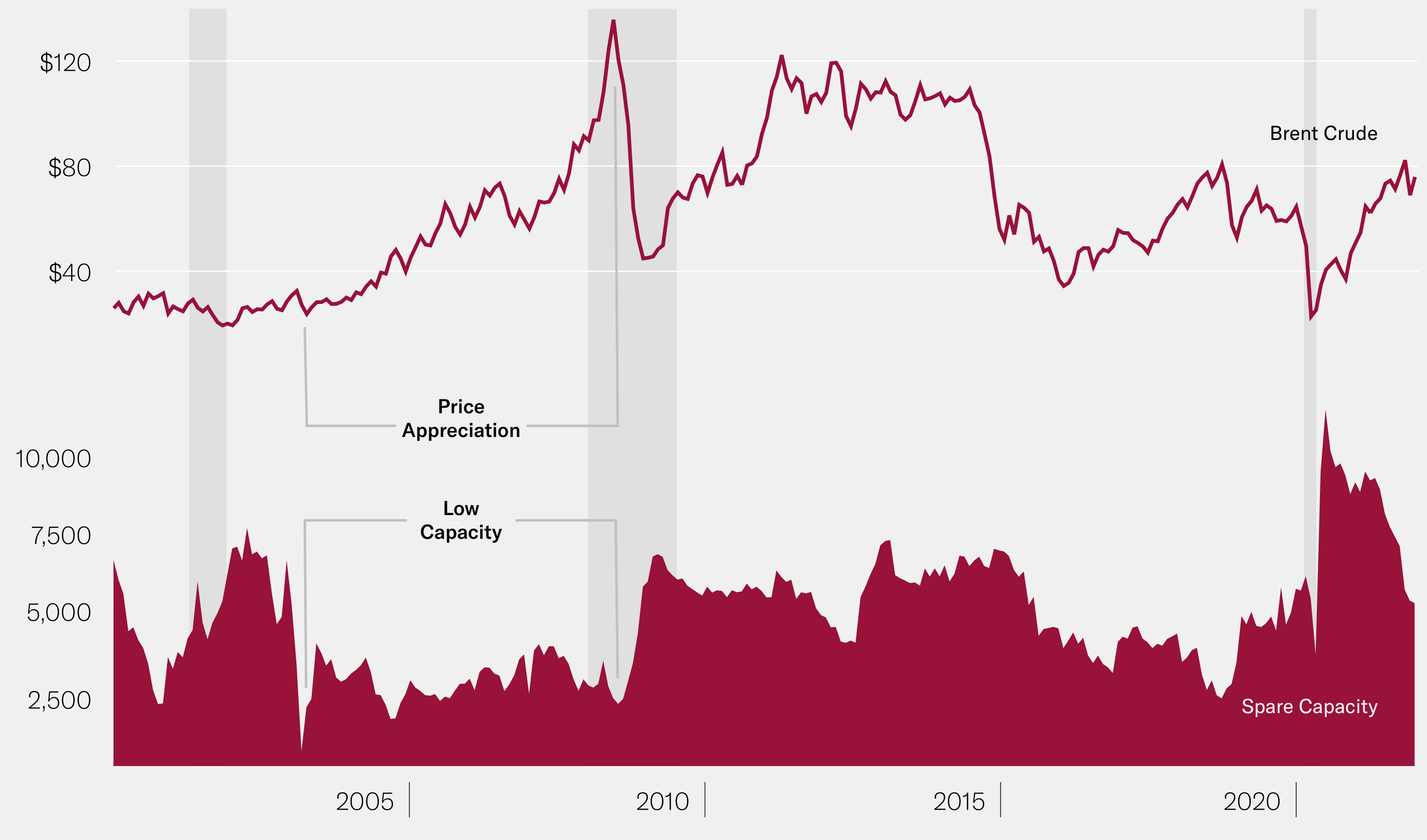
LHS: West Texas Intermediate crude price, RHS: Baker Hughes rotary rig count, lagged 17 weeks

Sources: Bloomberg, Baker Hughes, Author Calculations

But margins of safety are shrinking.

After 2020's sharp downturn in prices and investment, spare capacity among OPEC member nations is dropping rapidly. History suggests that the supply risk premia built into oil prices tends to rise when producers lose the capacity to respond to potential crises - particularly during periods of increasing demand.

OPEC spare capacity, million barrels a day, January 2000 - December 2021



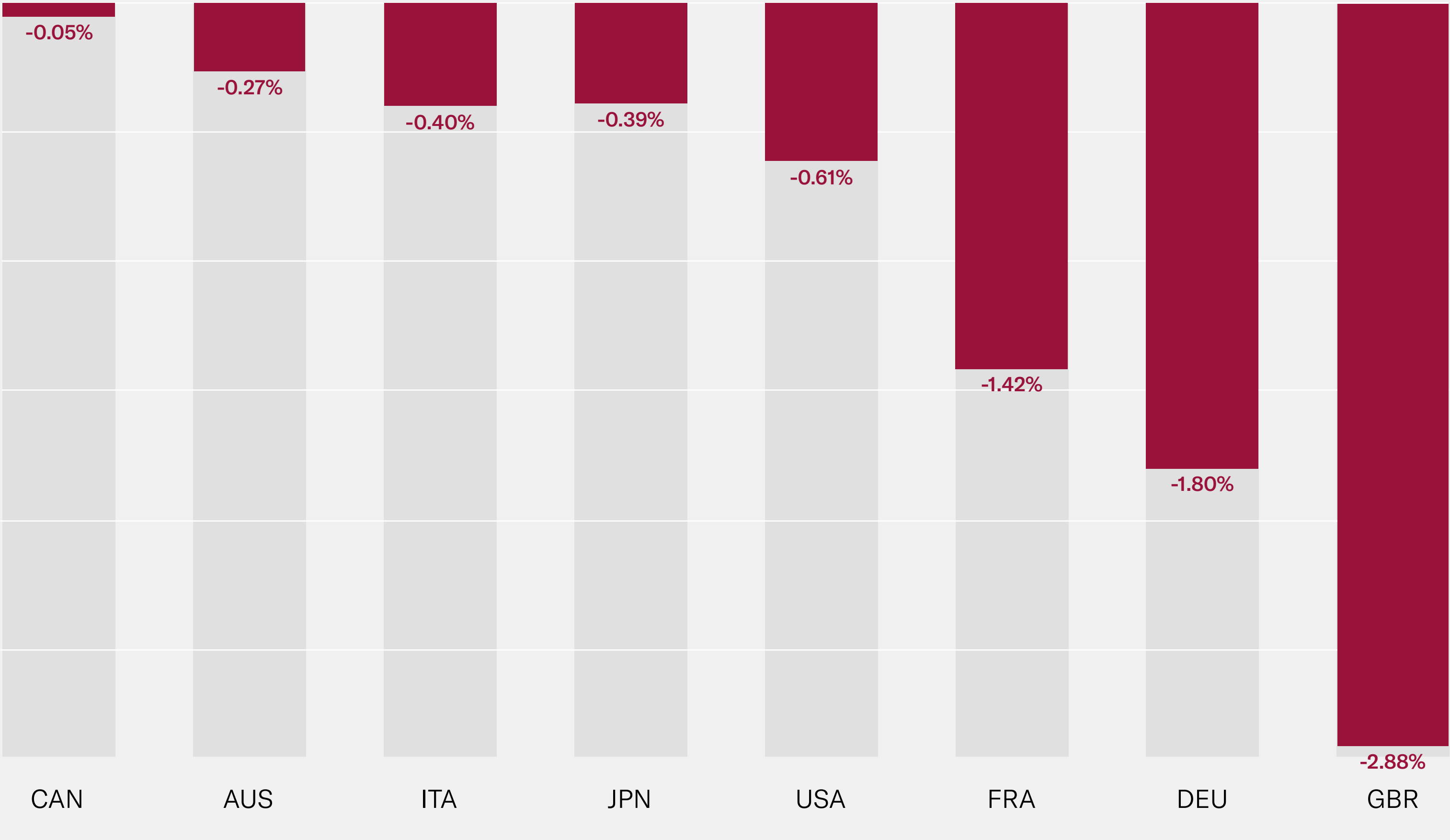
OPEC spare capacity: the volume of crude production (in barrels a day) that member states can bring on within 30 days and sustain for at least 90 days

Sources: Energy Information Administration, Author Calculations

Real yields remain in negative territory.

Real yields, as at 27 January, 2022

Despite increasingly hawkish talk from central bankers, real yields remain in negative territory across the G7.

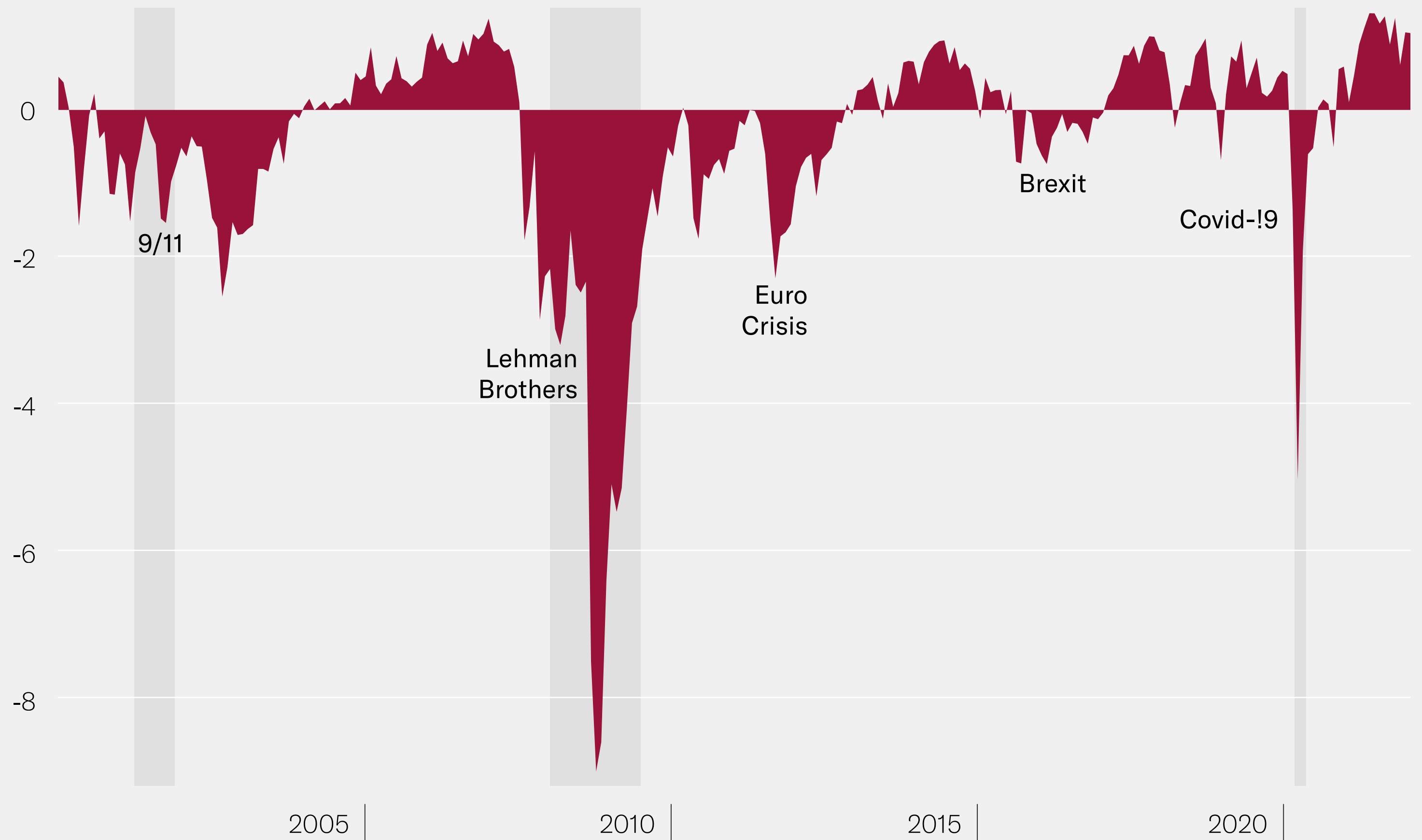


Notes: Derived from 10-year breakevens subtracted from 10-year government bond yields

Sources: Bloomberg, Author Calculations

Financial conditions remain extremely accommodative.

Bloomberg US Financial Condition Index, January 2000 - January 2022



Liquidity remains abundant in financial markets and borrowing conditions are historically loose. The policy-driven impetus for higher asset prices hasn't gone away.

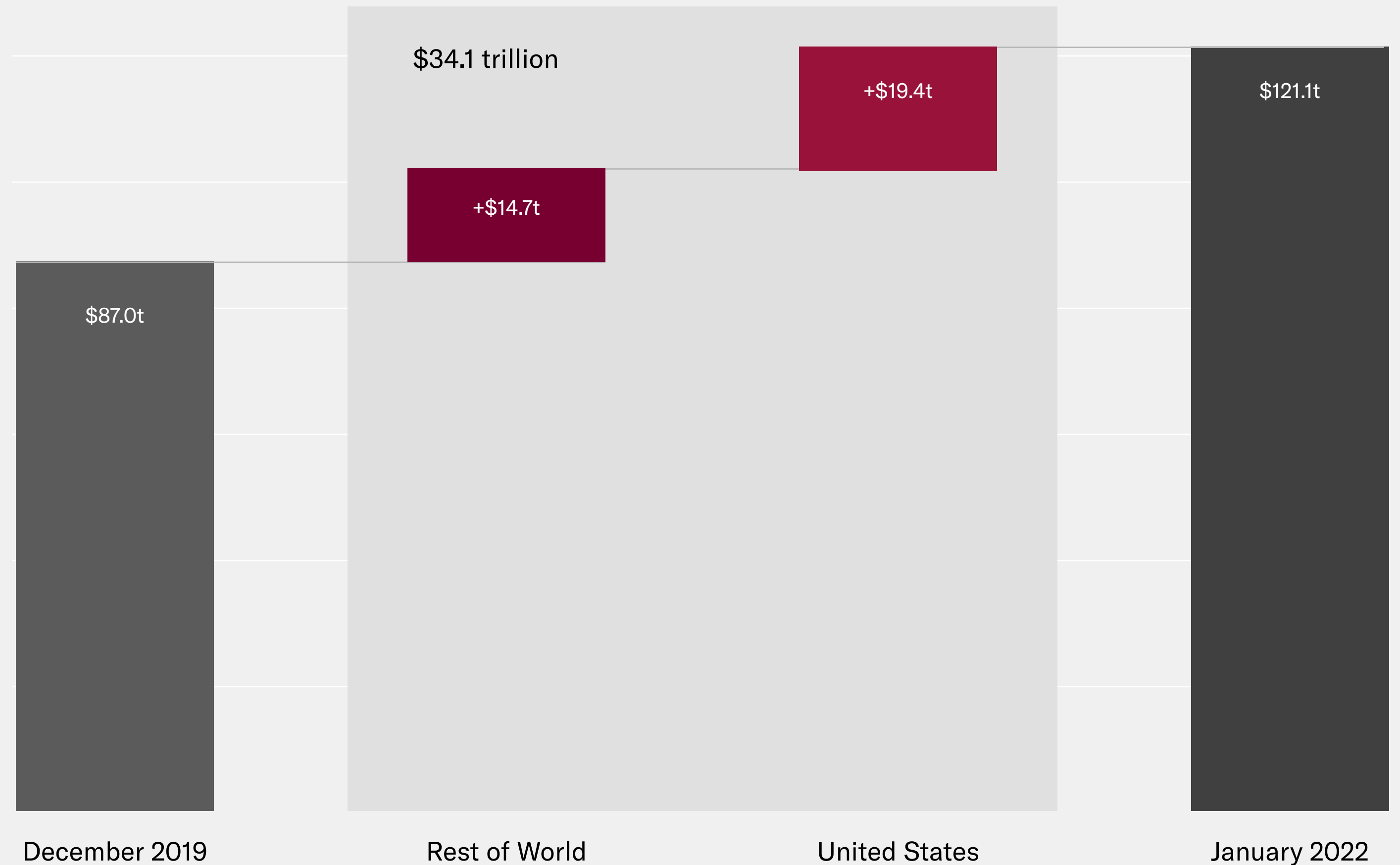
Notes: Positive values indicate accommodative financial conditions, negative values indicate tighter financial conditions.

Sources: Bloomberg, Author Calculations

Markets have reached nose-bleed levels.

Gain in global equity market capitalization, trillions USD, December 2019 - January 2022

Global equity market capitalization jumped by more than \$34.1 trillion during the pandemic, with \$19.4 trillion added in the United States alone.

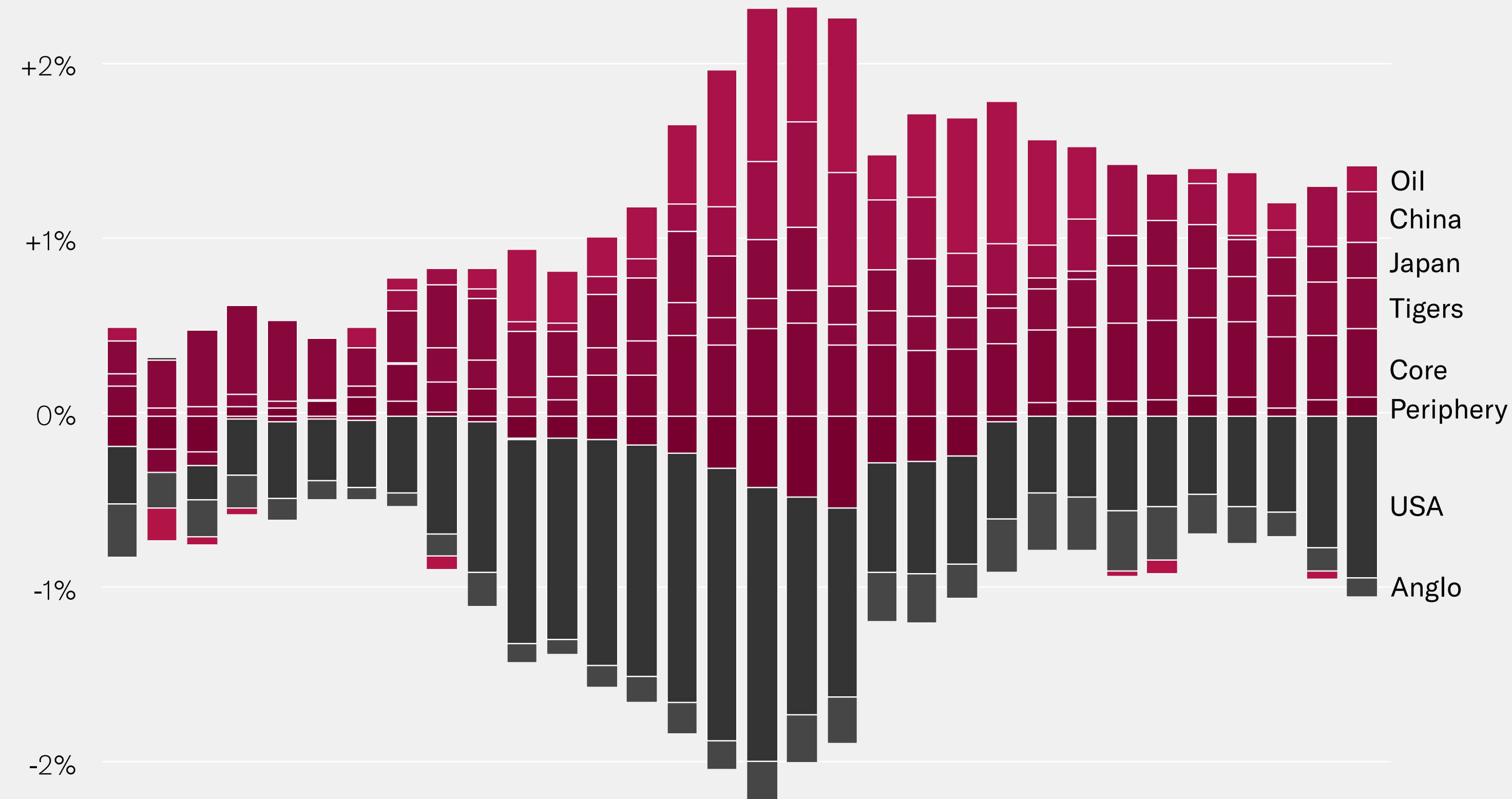


Sources: Bloomberg, Author Calculations

Trade imbalances are back.

Current account balances, share of global gross domestic product, 1990 - 2021

Current account imbalances helped put the conditions in place for the 2008 financial crisis, as manufacturers and oil producers recycled excessive trade surpluses into English-speaking countries. A similar pattern played out throughout the pandemic as Western consumers spent on tangible goods - something that could trigger another round of instability.

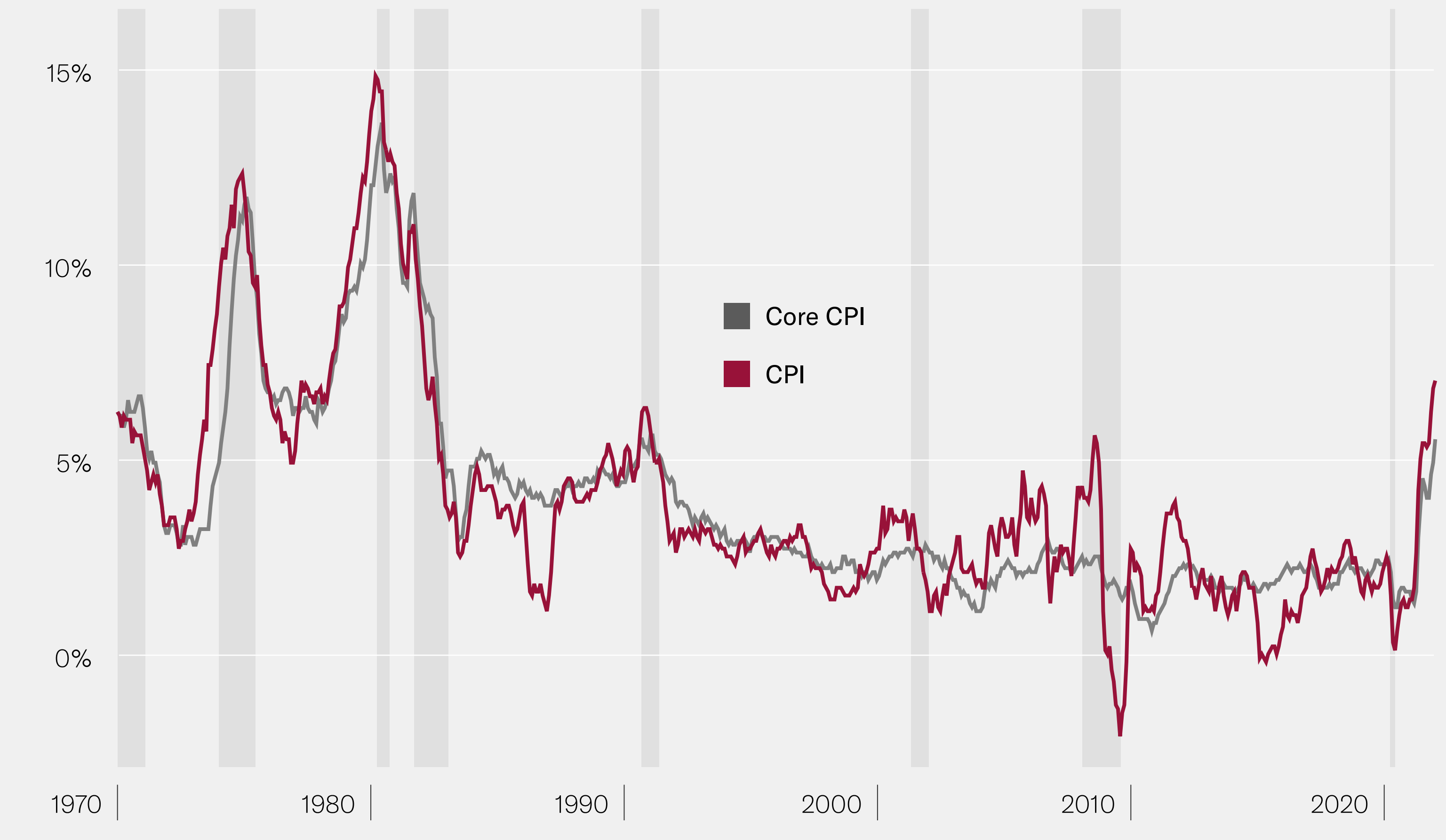


Tigers: Hong Kong, Singapore, South Korea, Taiwan, Vietnam. Periphery: Belgium, Cyprus, Estonia, Greece, Ireland, Italy, Latvia, Lithuania, Malta, Portugal, Slovenia, Spain. Oil: Algeria, Angola, Azerbaijan, Iraq, Kazakhstan, Kuwait, Kyrgyz Republic, Libya, Nigeria, Norway, Oman, Qatar, Russia, Saudi Arabia, Turkmenistan, United Arab Emirates. Anglo: Australia, Canada, New Zealand, United Kingdom. Core: Austria, Finland, France, Germany, Luxembourg, Netherlands, Slovak Republic
Sources: International Monetary Fund, Author Calculations

US inflation has hit early-eighties levels.

Consumer price indices, % change year-over-year, seasonally adjusted, January 1970 - December 2021

Soaring consumer demand, tight labor markets, energy supply disruptions, and logistical frictions have lifted inflation to highest levels in decades, prompting a decisive policy reversal from the Federal Reserve and other central banks. Fed Chair Jerome Powell has pivoted toward fighting higher prices, declining to rule out raising interest rates at every policy meeting this year.

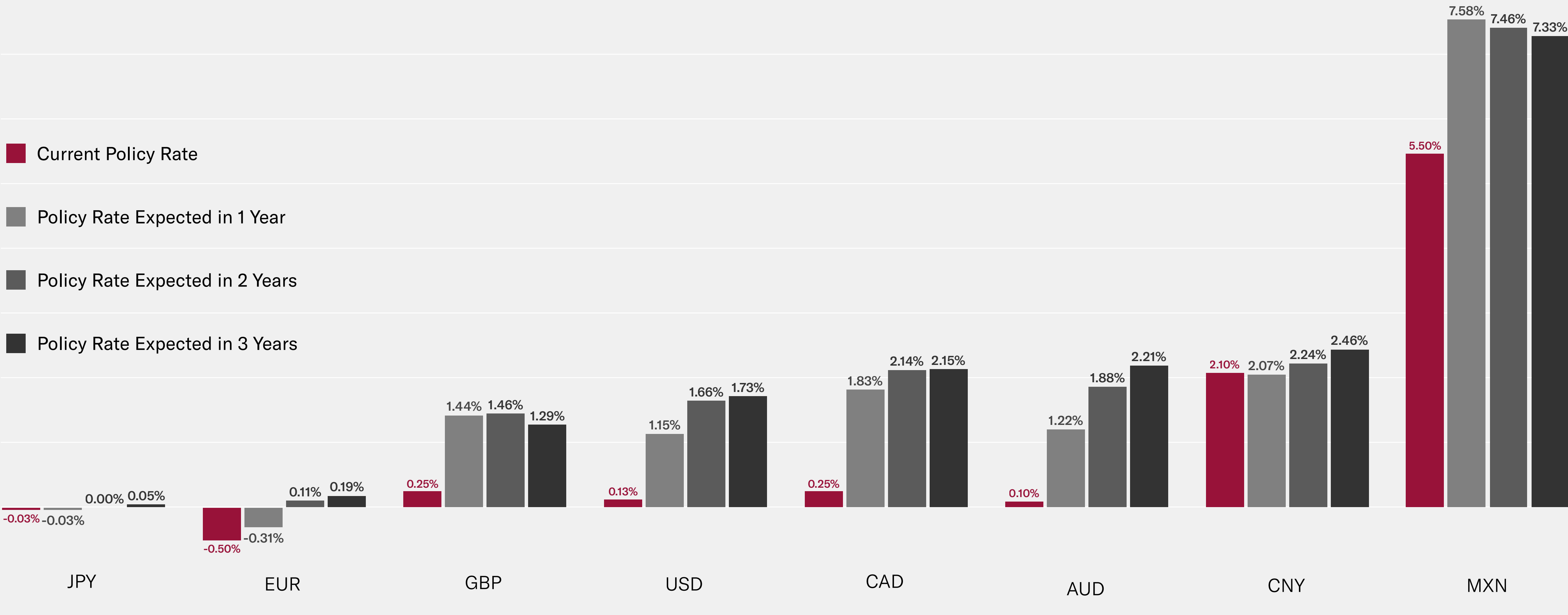


CPI Core = CPI excluding food and energy prices

Sources: Bureau of Labor Statistics, Author Calculations

Markets expect every major central bank to raise rates over the next three years.

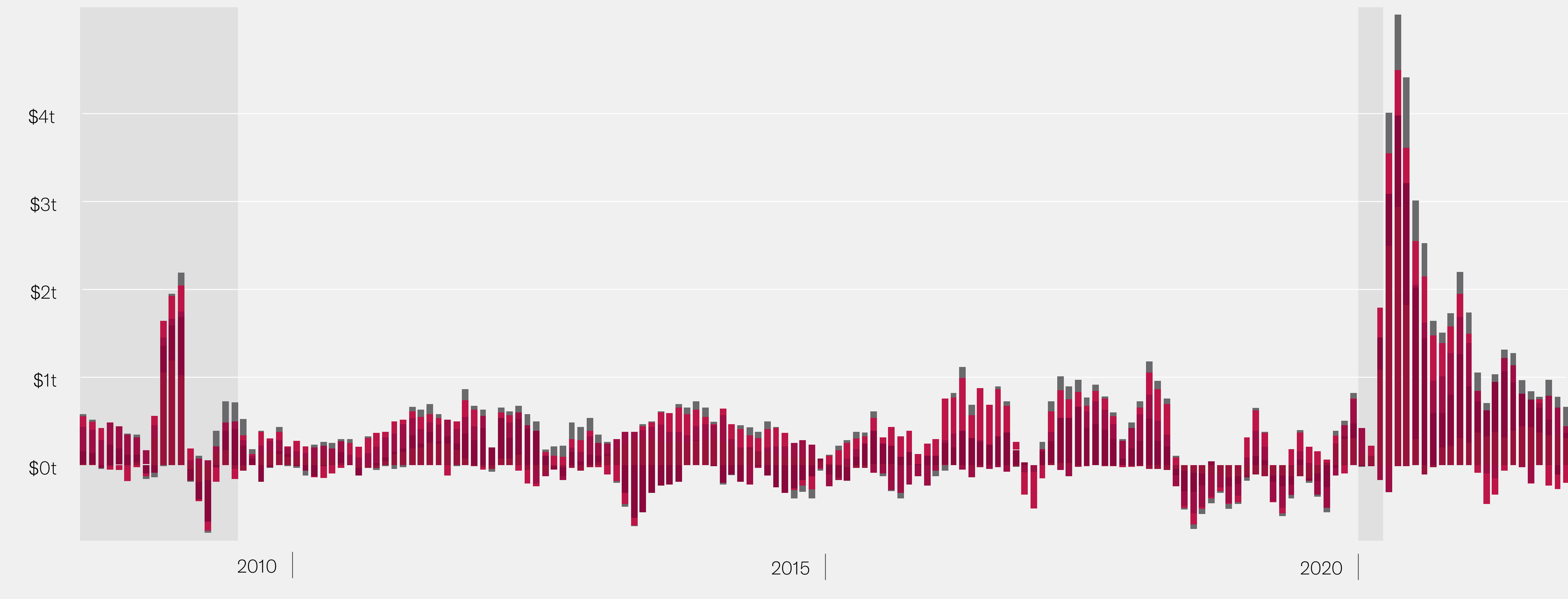
Market-implied policy rates, percent, as at 22 January 2022



Sources: Bloomberg, Author Calculations

Quantitative tightening is coming.

3-month change in central bank balance sheets, trillions USD, 2008 January - December 2021



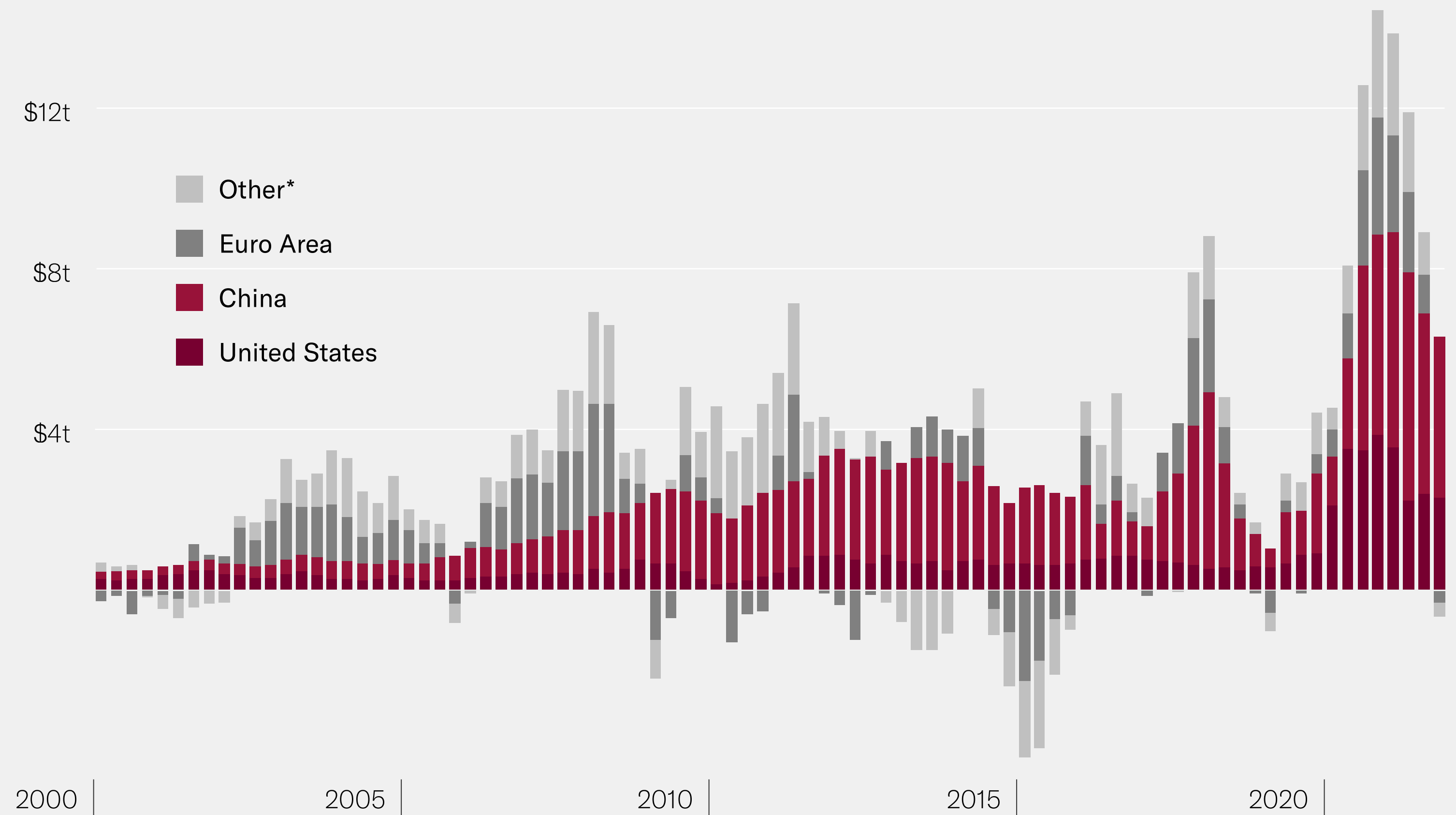
*Others: Bank of England, Bank of Canada, Reserve Bank of Australia, Swiss National Bank, Sveriges Riksbank, Bank of Korea

Sources: Federal Reserve, European Central Bank, Bank of Japan, People's Bank of China, Bank of England, Bank of Canada, Reserve Bank of Australia, Swiss National Bank, Sveriges Riksbank, Bank of Korea, Author Calculations.

Money supply growth is slowing.

12-month change in M2 money supply, trillions USD, January 2000 - December 2021

The global liquidity impulse - defined as the rolling 12-month money supply growth in the major economies - is slowing as credit growth slows and central banks make tightening noises.



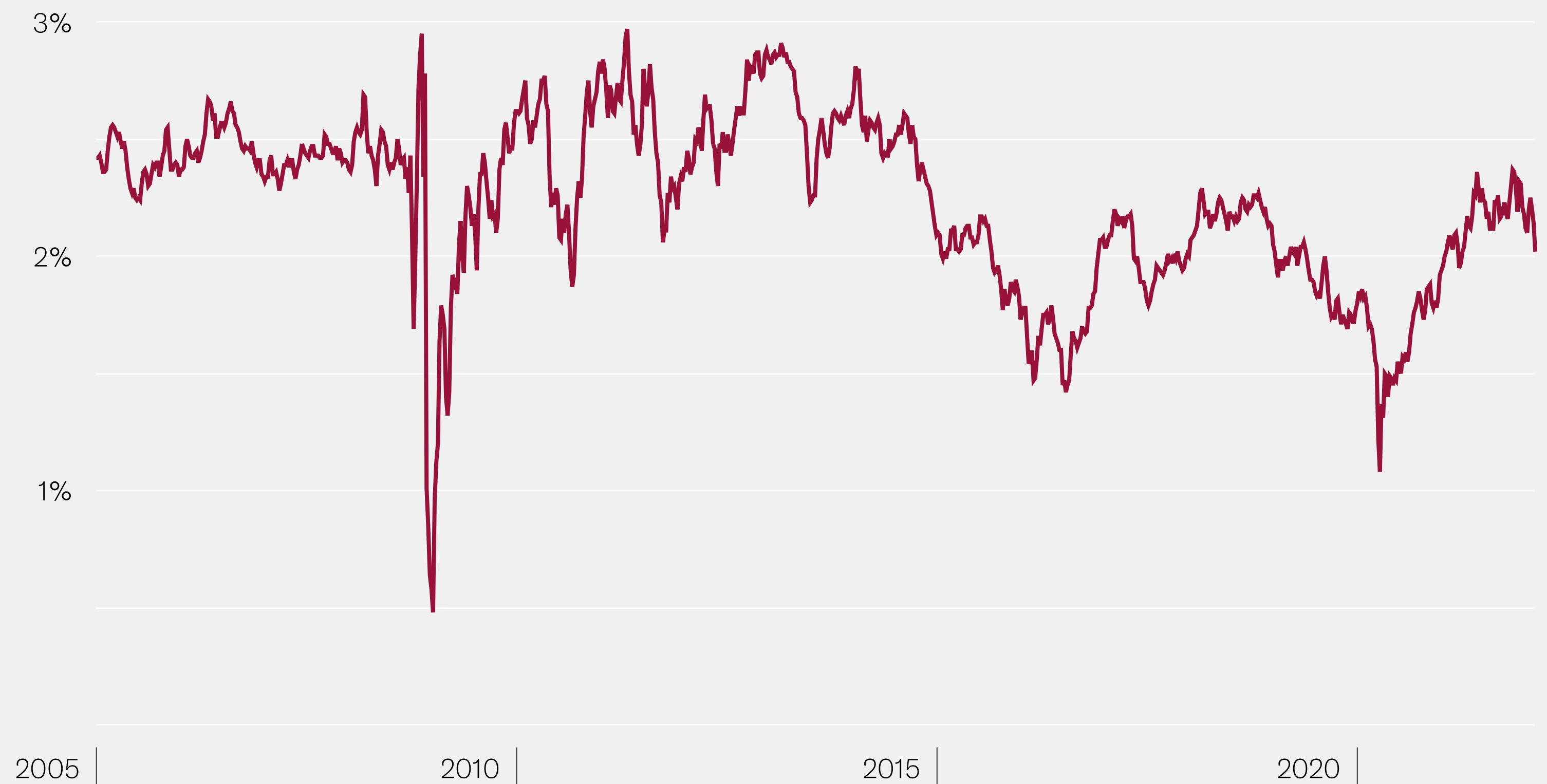
*Other: Australia, Brazil, Canada,, Japan, Mexico, Russia, South Korea, United Kingdom

Sources: Federal Reserve, Respective Central Banks, Bloomberg, Author Calculations

Long-term inflation expectations are falling.

Expected 5-year, 5-year forward inflation rate, percent, January 2005 - January 2022

The 5-year, 5-year forward inflation expectation rate - a measure of expected inflation over the five-year period that begins five years from today - has fallen from its mid-October highs, and is now sitting a few basis points above the Federal Reserve's 2-percent target.



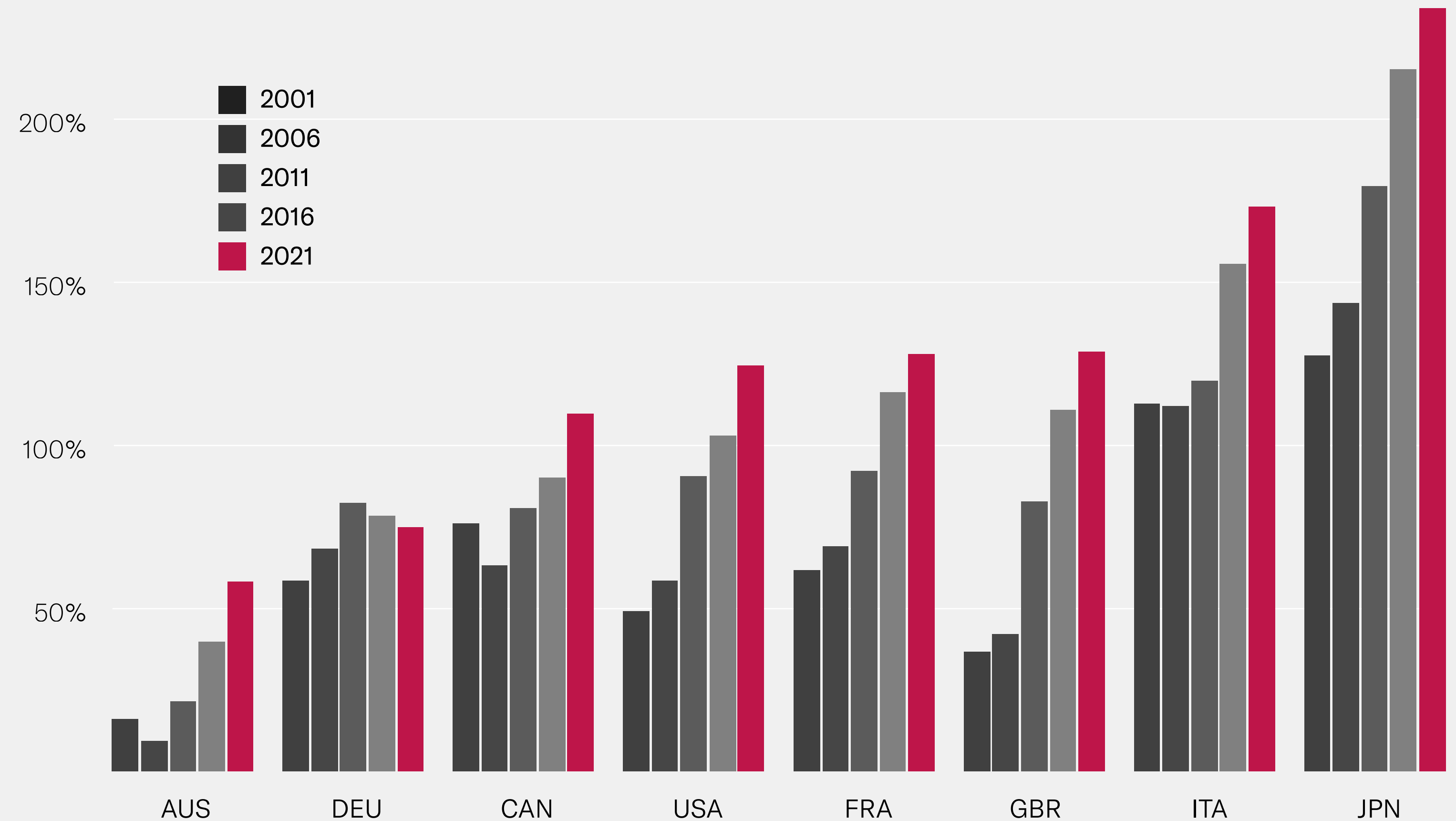
Notes: Derived from 10-year breakevens subtracted from 10-year government bond yields

Sources: Federal Reserve Bank of St. Louis, Author Calculations

Government debt levels have reached extremes.

Credit to general government, percentage of GDP, at market value, 2001 Q1 - Q2 2021

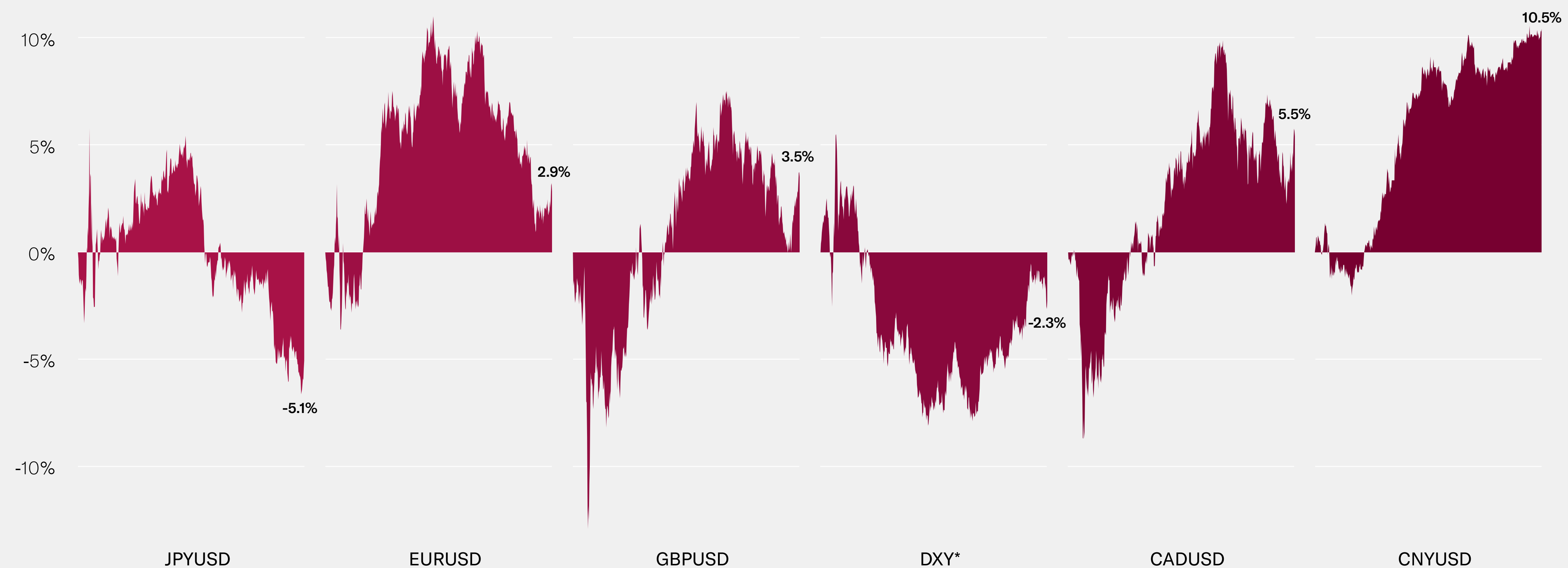
Central bank balance sheets that ballooned to backstop pandemic-era fiscal expansion helped limit government borrowing costs. Unwinding these measures (particularly if tightening is required to fight inflationary pressures) could raise questions about private appetite for government debt and negatively impact debt dynamics.



Sources: Bank for International Settlements, Author Calculations

The dollar is coming back, but the renminbi remains well ahead.

Change in nominal exchange rate, January 2, 2020 - January 21, 2022



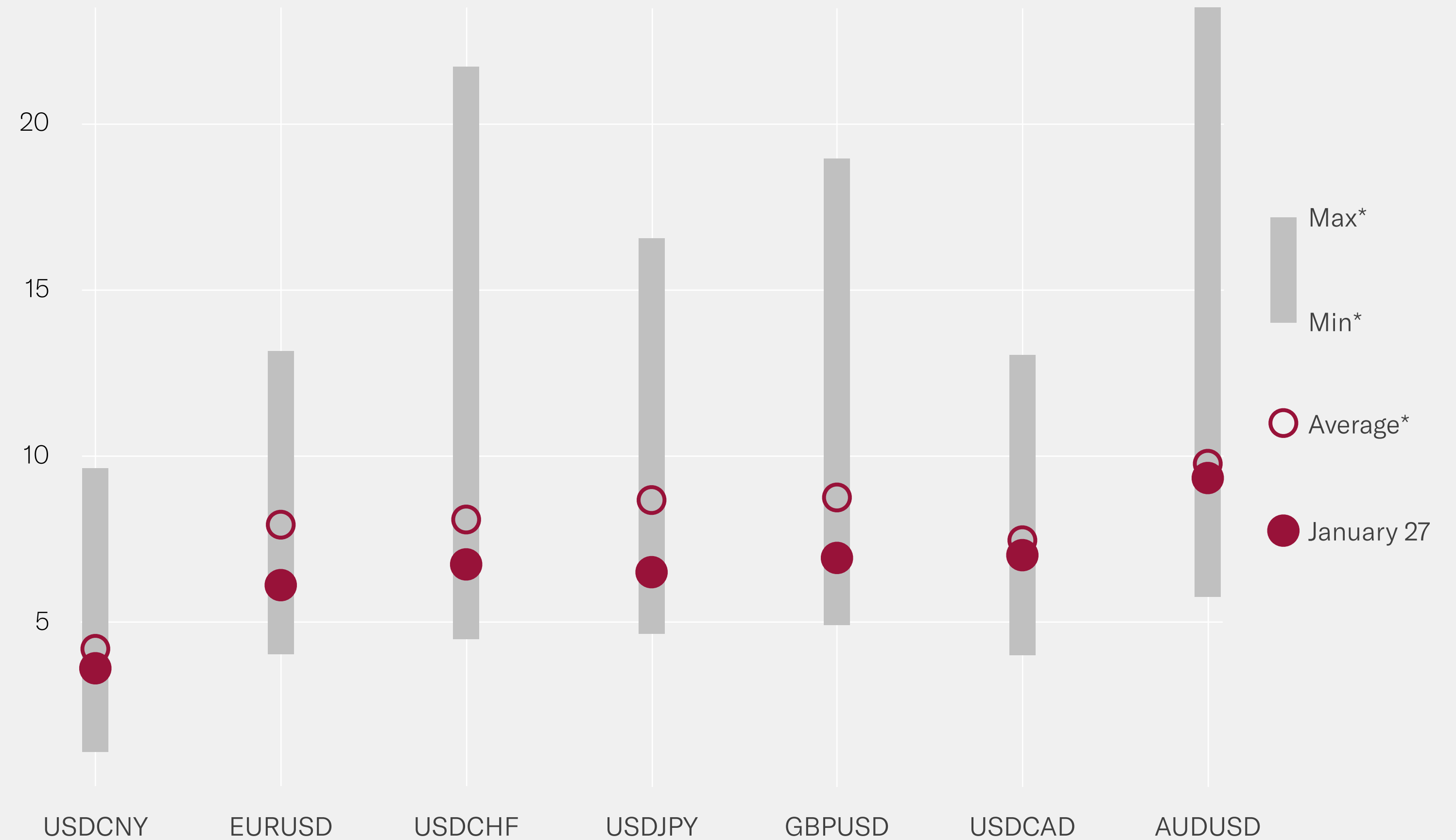
*DXY: US dollar index

Sources: Corpay, Bloomberg, Author Calculations

Implied volatility levels are relatively low.

Implied volatilities, 3-month at-the-money options, January 2012 - January 2022

Implied volatility levels - which measure the cost of insuring against negative moves in the currency markets - are below average in most major currency pairs, but are not at lows that would suggest widespread complacency.



*The maximum, minimum, and average levels recorded over the preceding ten years, derived from daily closing data

Sources: Bloomberg, Author Calculations

Correlations are mixed.

Daily correlations, last 200 trading days, as at 21 January 2021

The binary risk-on/risk-off trading narratives seen in the aftermath of the global financial crisis are largely absent. Tight and volatile yield differentials have limited carry trade activity, while China’s efforts to contain financial risks have weighed on the commodity complex.

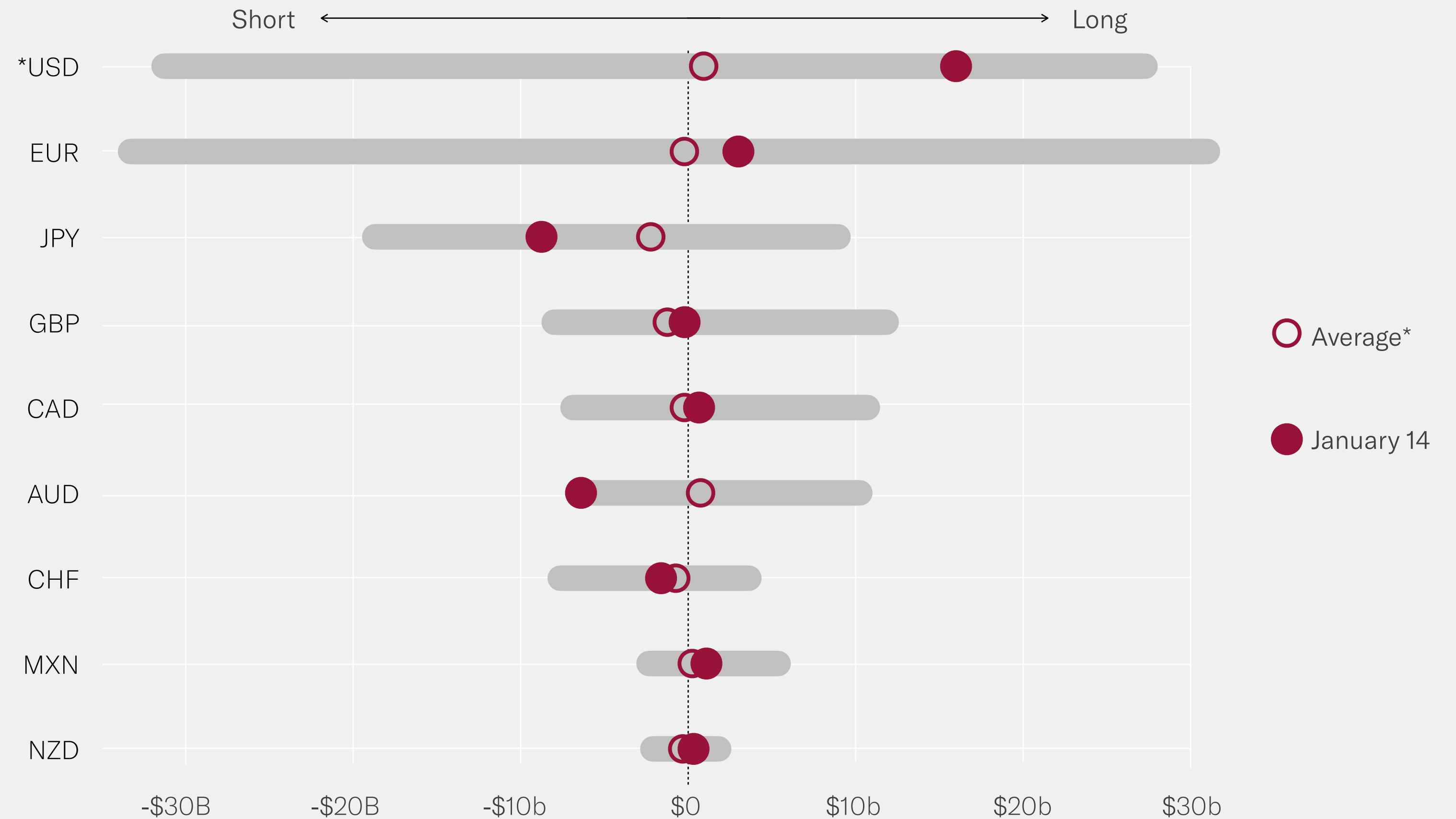
CAD	0.57												
GBP	-0.74	-0.62											
EUR	-0.95	-0.45	0.62										
CNY	0.42	0.36	-0.31	-0.35									
JPY	0.53	-0.08	-0.22	-0.49	0.12								
AUD	-0.68	-0.74	0.71	0.59	-0.41	-0.13							
MXN	0.52	0.44	-0.50	-0.47	0.26	0.27	-0.54						
CHF	0.82	0.37	-0.50	-0.81	0.33	0.59	-0.46	0.36					
WTI	-0.14	-0.45	0.28	0.09	-0.11	0.30	0.36	-0.22	0.00				
10Y	0.18	-0.21	0.09	-0.19	-0.07	0.63	0.10	0.10	0.34	0.31			
SPX	-0.26	-0.50	0.38	0.23	-0.14	0.11	0.51	-0.46	-0.11	0.42	0.21		
COPPER	-0.36	-0.44	0.40	0.29	-0.33	0.08	0.45	-0.28	-0.21	0.35	0.14	0.36	
	DXY	CAD	GBP	EUR	CNY	JPY	AUD	MXN	CHF	WTI	10Y	SPX	

Notes: WTI = West Texas Intermediate, SPX = S&P 500, 10Y = US 10-Year Treasury

Sources: Bloomberg, Author Calculations

Speculators are still long dollars.

Net non-commercial futures positions, billions USD, January 2000 - January 2022



Although non-commercial bets on the dollar have fallen since early January, the aggregate long position remains large relative to historical levels.

*Maximum long, maximum short, and average position recorded between January 2000 and January 2022, derived from weekly data.

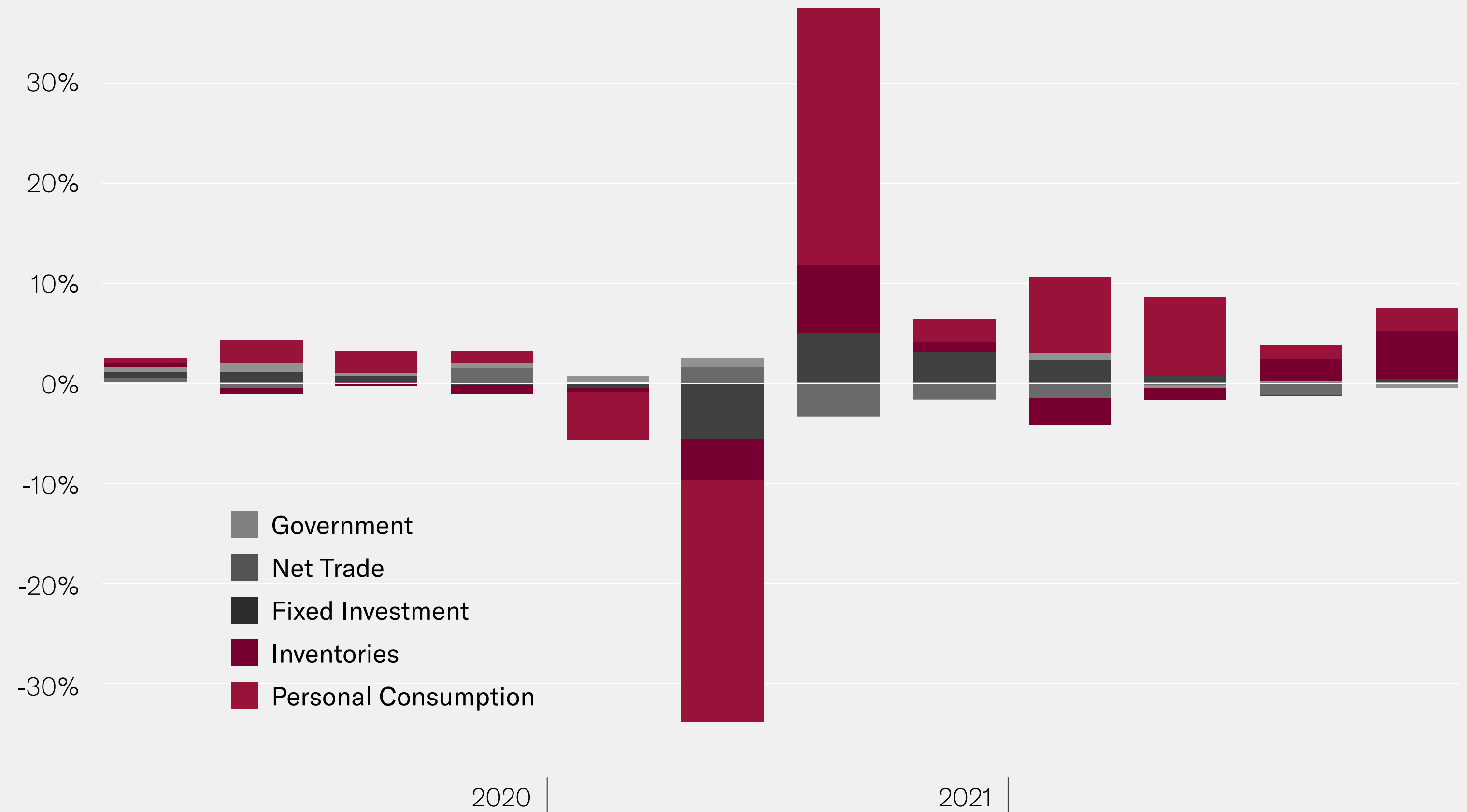
Sources: Chicago Mercantile Exchange, Commodity Futures Trading Commission, Author Calculations

02 UNITED STATES

The US economy is booming, but remains volatile.

Contribution to real GDP growth, quarter over quarter %, SAAR, Q1 2019 - Q4 2021

Changes in consumer consumption and inventories are driving quarter-over-quarter volatility in gross domestic product data. This looks likely to continue in the first quarter of 2022 as inventories are drawn down and consumer spending weakens.

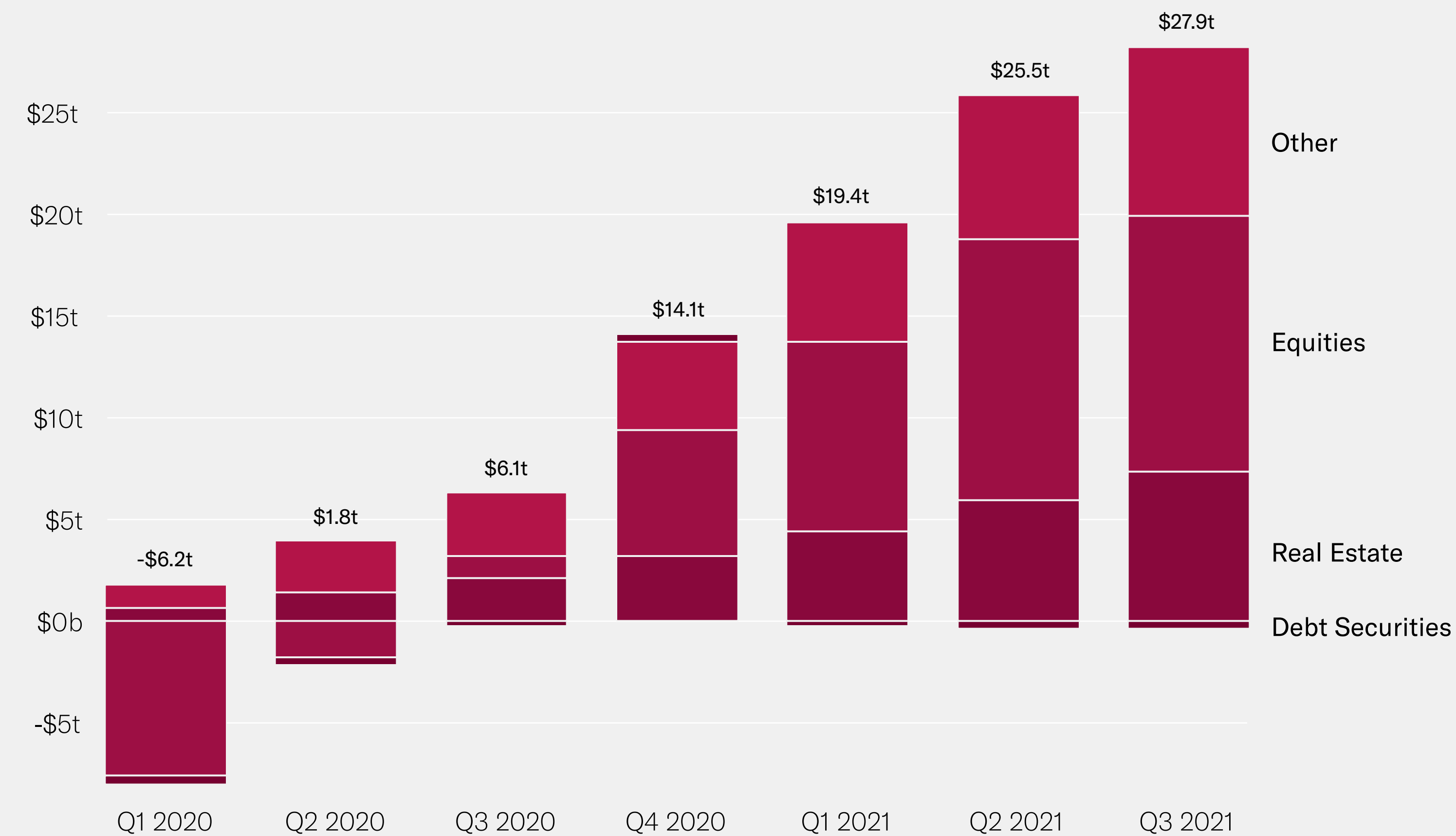


Sources: Bureau of Economic Analysis, Author Calculations

Wealth levels have reached new heights.

Cumulative change in household wealth, trillions USD, Q1 2020 - Q3 2021

American household wealth climbed by an unprecedented \$27.9 trillion dollars during the pandemic. Booming stock markets and soaring home prices generated spectacular wealth effects, spurring a surge in consumption that lifted overall economic growth.

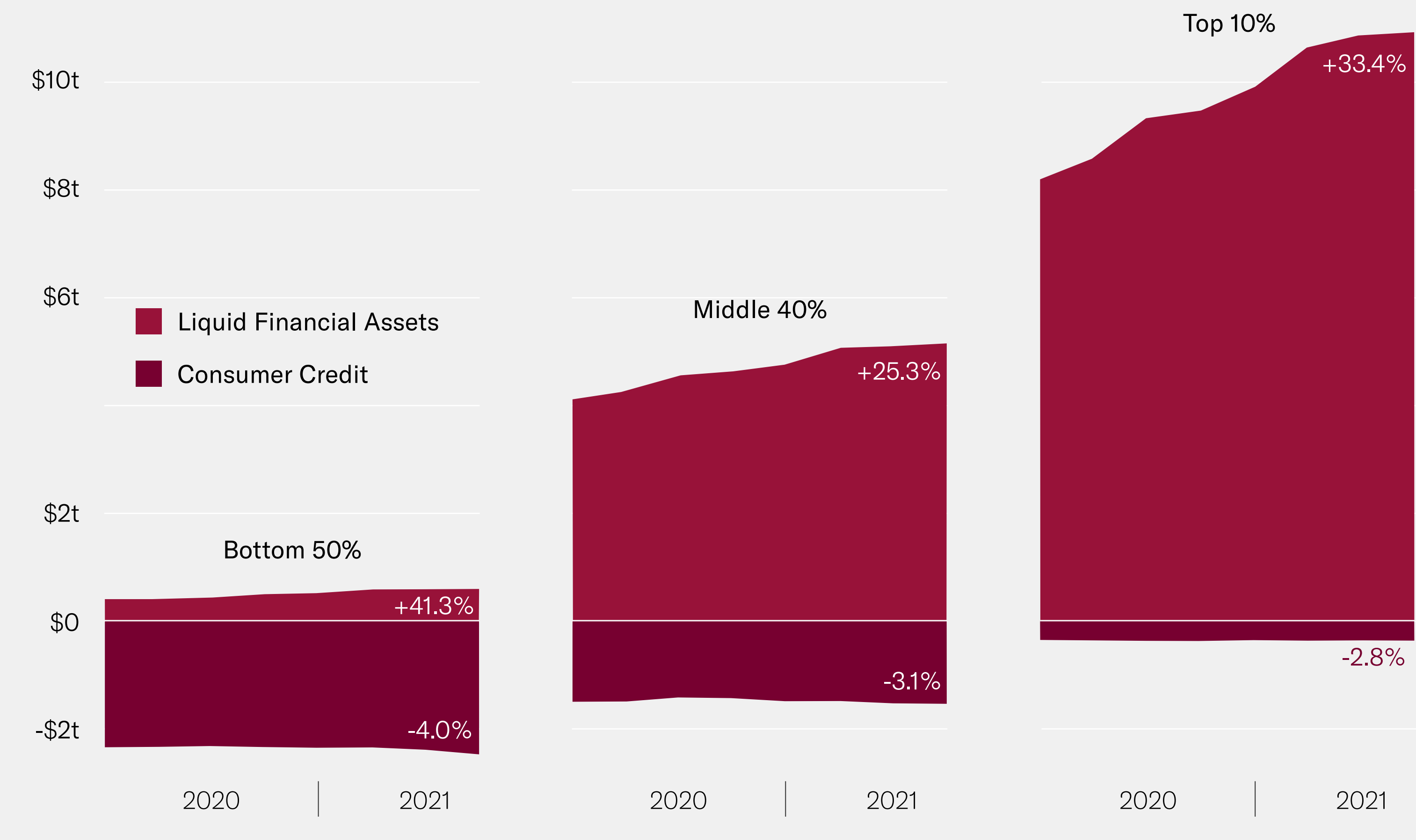


Sources: Federal Reserve, Financial Accounts of the United States, Author Calculations

Households are sitting on high savings balances.

Liquid financial assets and consumer credit balances, trillions USD, Q1 2020 - Q3 2021

Savings - defined here as “liquid financial assets” - climbed sharply across all US income categories during the pandemic. But consumer credit balances also increased, and the absolute level of liquidity accrued by the bottom 50% of households was relatively modest in comparison with higher income groups. Pent-up demand may prove more limited than currently anticipated.



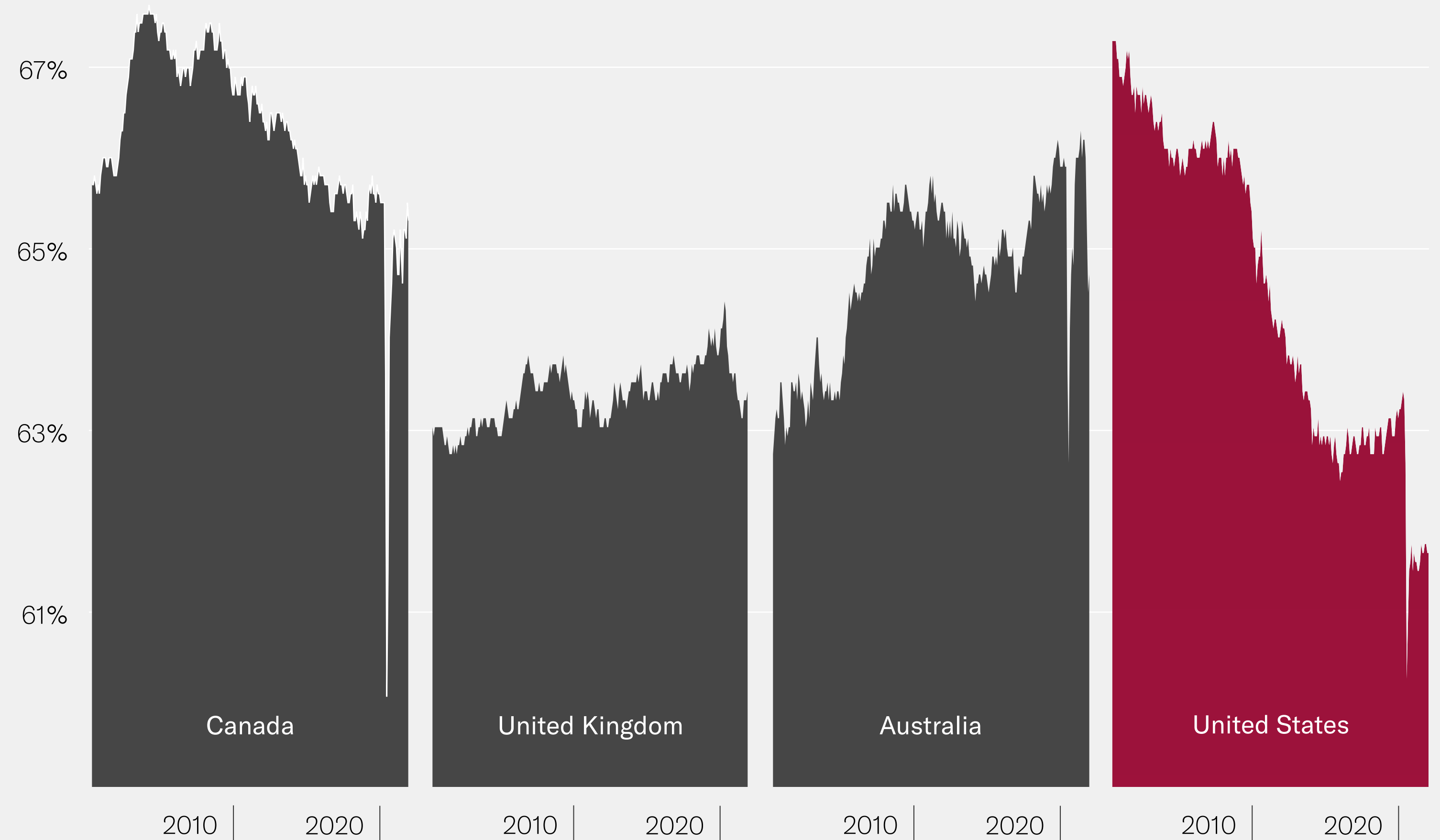
Cumulative change in liquid financial assets (checkable deposits and currency, time deposits and short-term investments, money market fund shares), and consumer credit balances by household income category.

Sources: Federal Reserve Distributional Financial Accounts, Author Calculations

Participation rates remain low.

Across the developed world, millions of people stopped looking for work when the pandemic hit. In most countries, the bulk of these workers have returned to the labour force. Not so in the United States, where ongoing concerns about contracting COVID-19, childcare requirements, people staying in retirement or retiring early, and wealth effects associated with soaring asset prices and increased savings balances are keeping workers sidelined.

Labour Force Participation Rates, Percentage, Seasonally Adjusted, January 2000 - November 2021

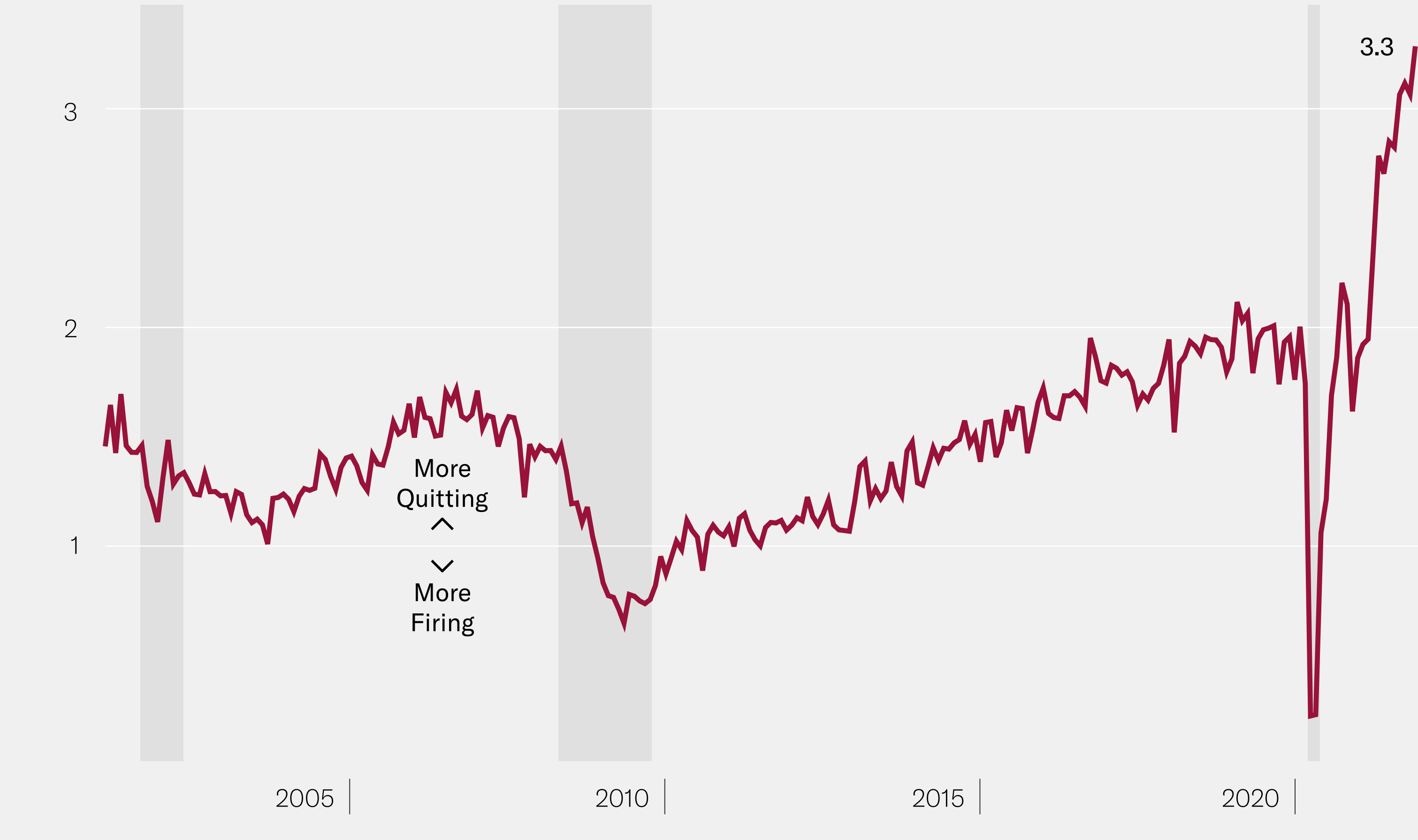


Sources: Bureau of Labor Statistics, Office for National Statistics, Statistics Canada, Australian Bureau of Statistics, Author Calculations

Labour markets are exceptionally tight.

Ratio of quits to firings, private sector, January 2001 - November 2021

4.3 million Americans quit their jobs in November, while only 1.3 million were laid off or discharged,



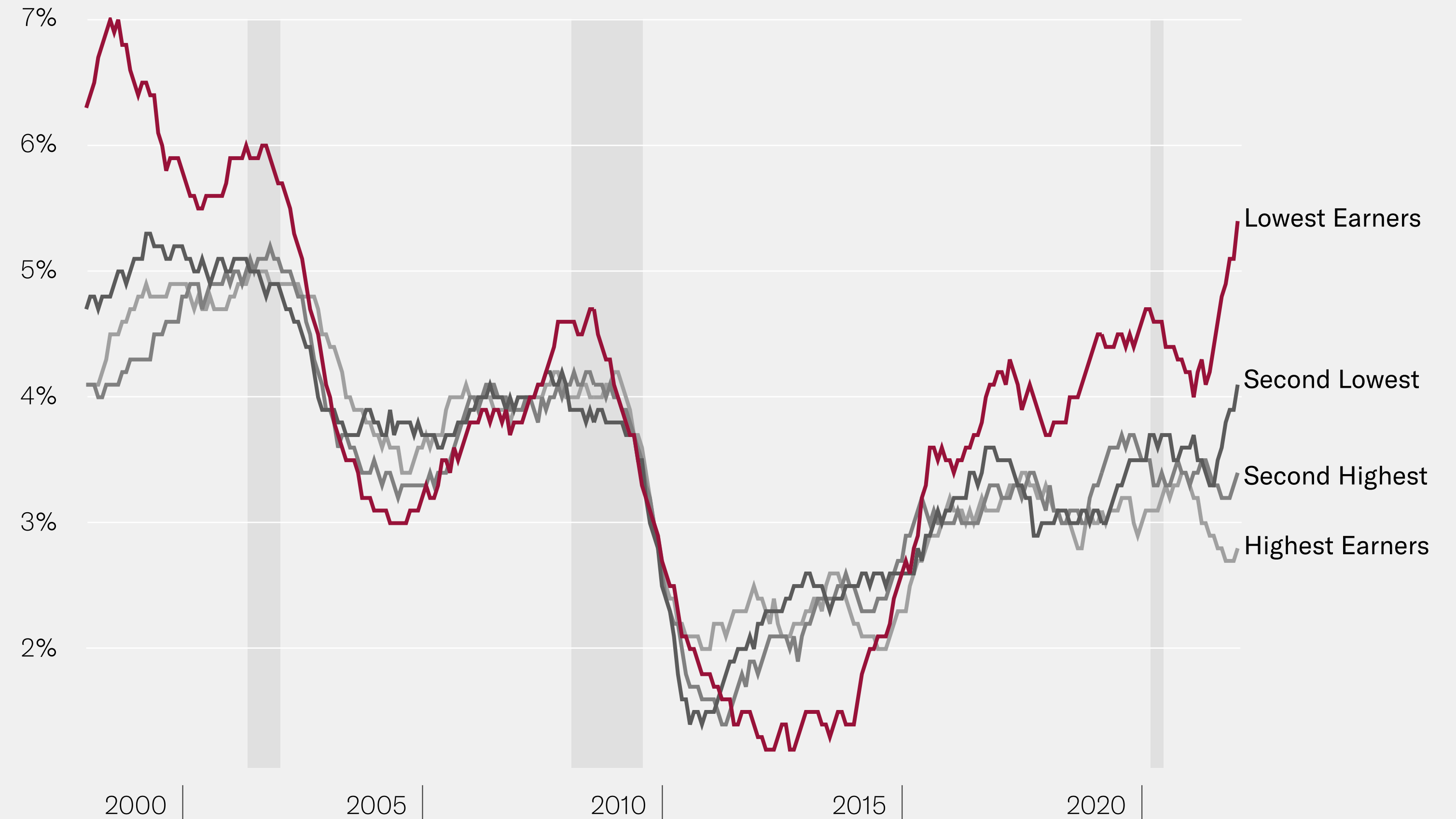
Notes: Ratio of quits to layoffs and discharges

Sources: Bureau of Labor Statistics, Author Calculations

But wages are mostly rising at the bottom.

Wage Growth by Income Quartile, 1997 Dec - Dec 2021

Nominal wages accelerated for the two lowest American wage quintiles last year, but increases lagged general inflation measures - suggesting that a widely feared seventies-style “wage-price spiral” is not underway.

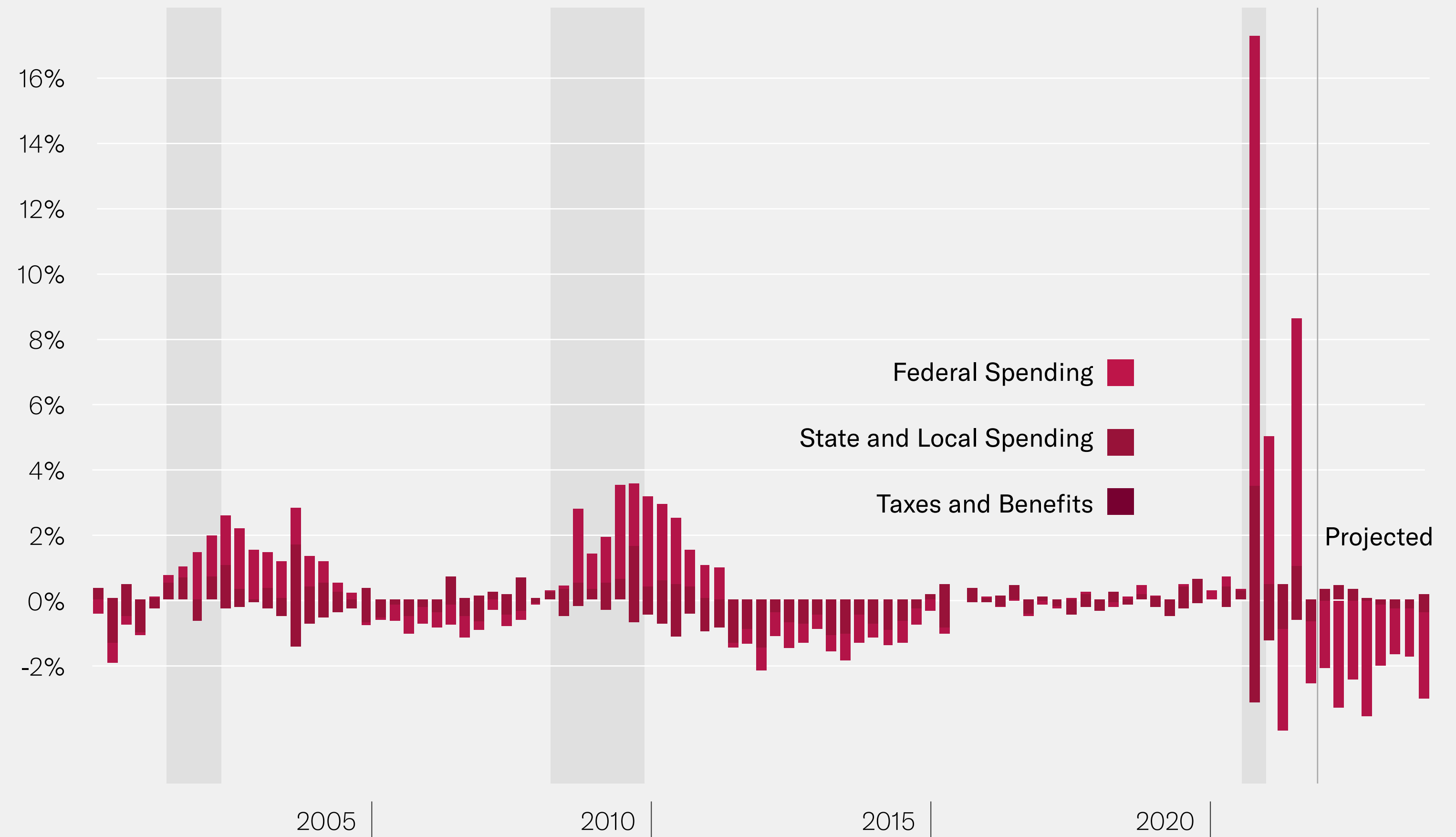


Median Wage Growth, 3-Month Moving Average

Source: Atlanta Federal Reserve, Bureau of Labor Statistics, Author Calculations.

The US fiscal impulse has turned negative.

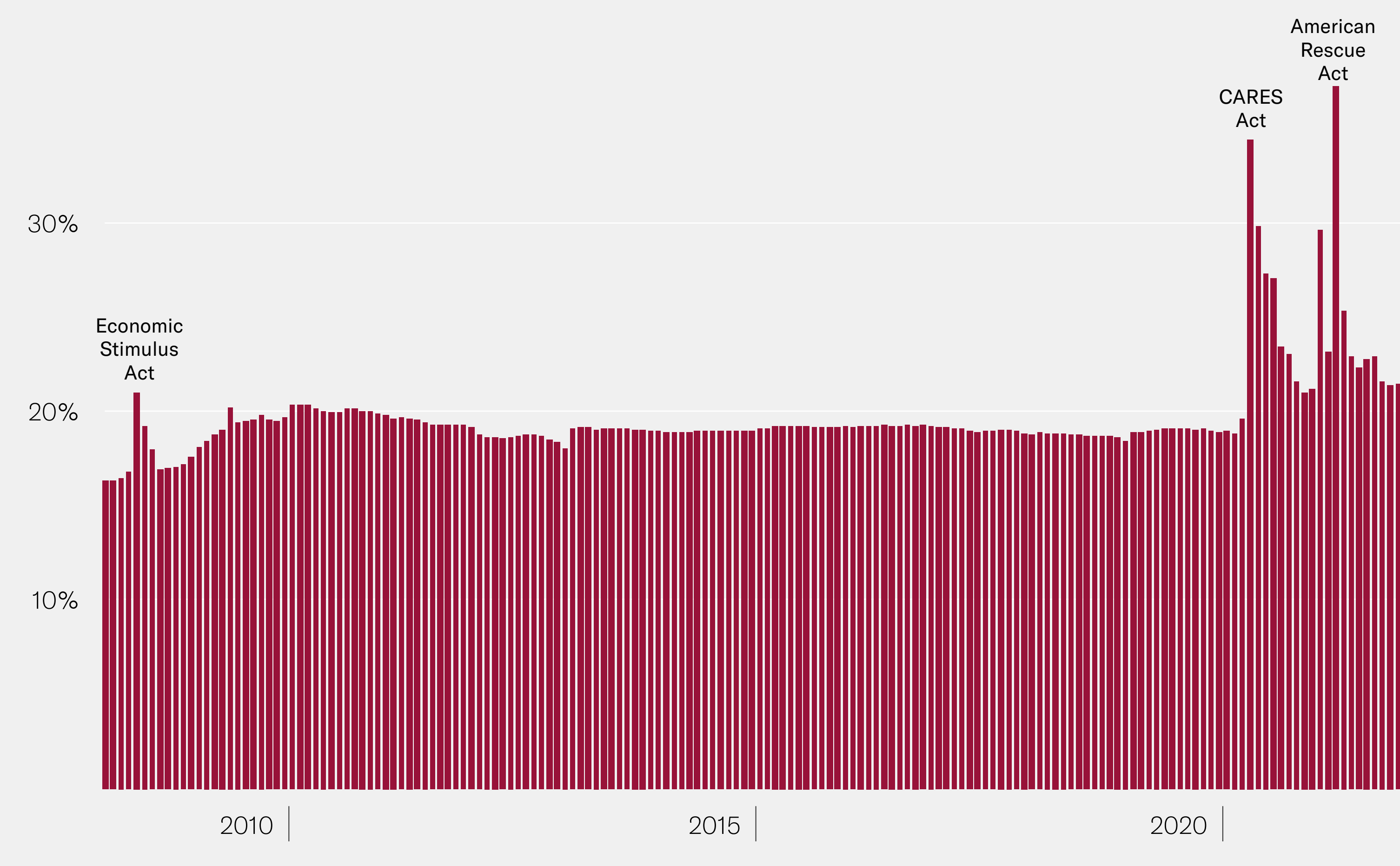
Fiscal policy contribution to real gross domestic product growth, Q4 1999 - Q2 2023



With mid-terms looming, and the pandemic's spirit of cross-aisle cooperation lying in shambles, significant new government spending programs are far less likely to pass in the year ahead. On a net basis, government spending is very likely to pull money out of the economy in the next few years - even if state and local outlays jump.

Fiscal income support has likely peaked.

Government transfer payments as share of personal income, January 2008 - November 2021



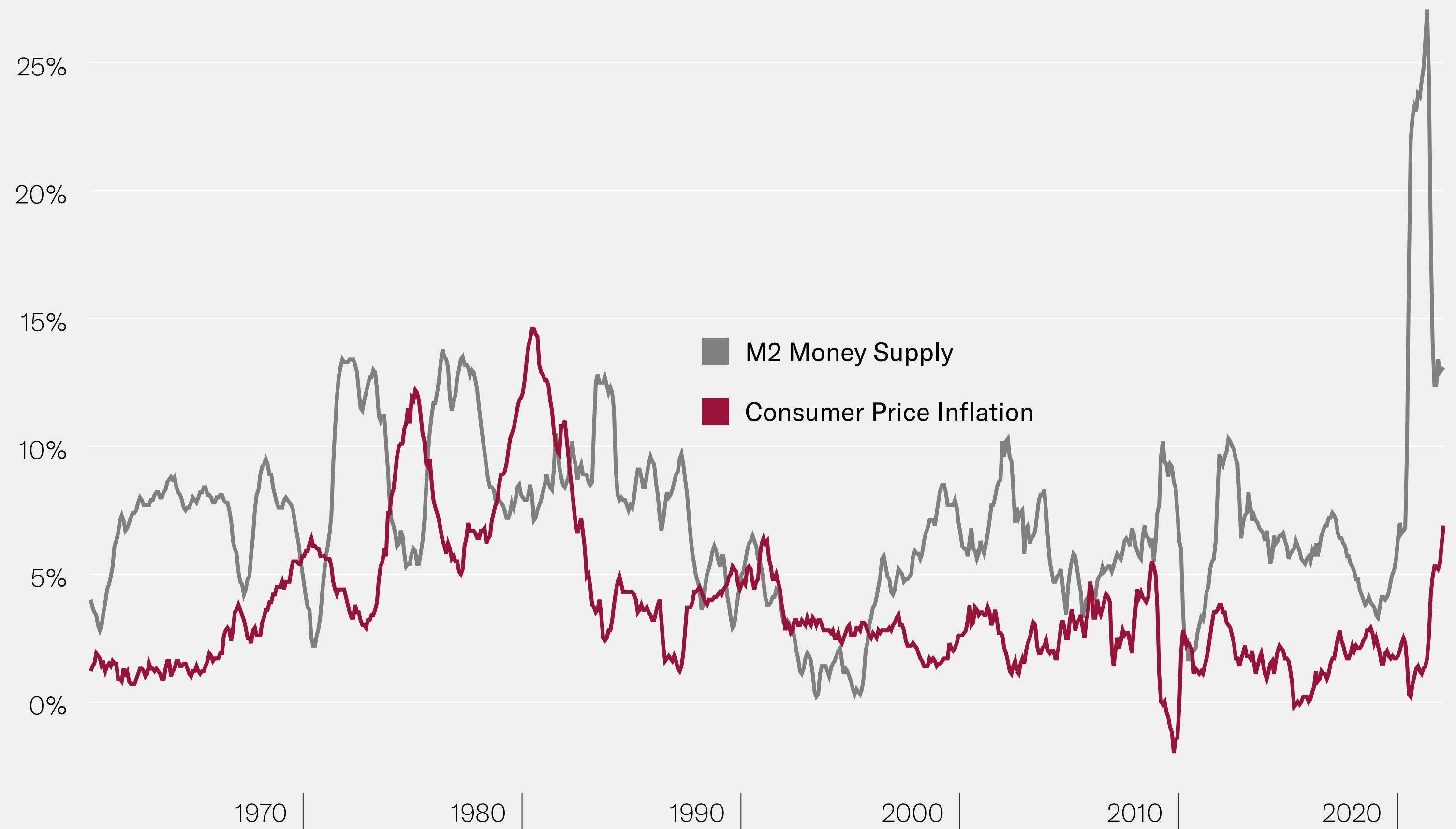
The share of personal income generated through government transfers remains elevated, but is falling back toward pre-pandemic norms.

Notes: Personal income transfer payments and government social benefits as a share of US disposable personal income, nominal dollars, seasonally adjusted annual averages
Sources: Bureau of Economic Analysis, Author Calculations

Money supply growth is falling.

Money supply and consumer price inflation, year over year % change, 1960 January - December 2021

Money supply growth - which has often preceded prior bouts of inflation - is rapidly subsiding as monetary policy normalizes, federal government spending falls, and lending conditions tighten.



M2 Money Supply: M2 Money Supply, Percent Change from Year Ago, Monthly, Seasonally Adjusted

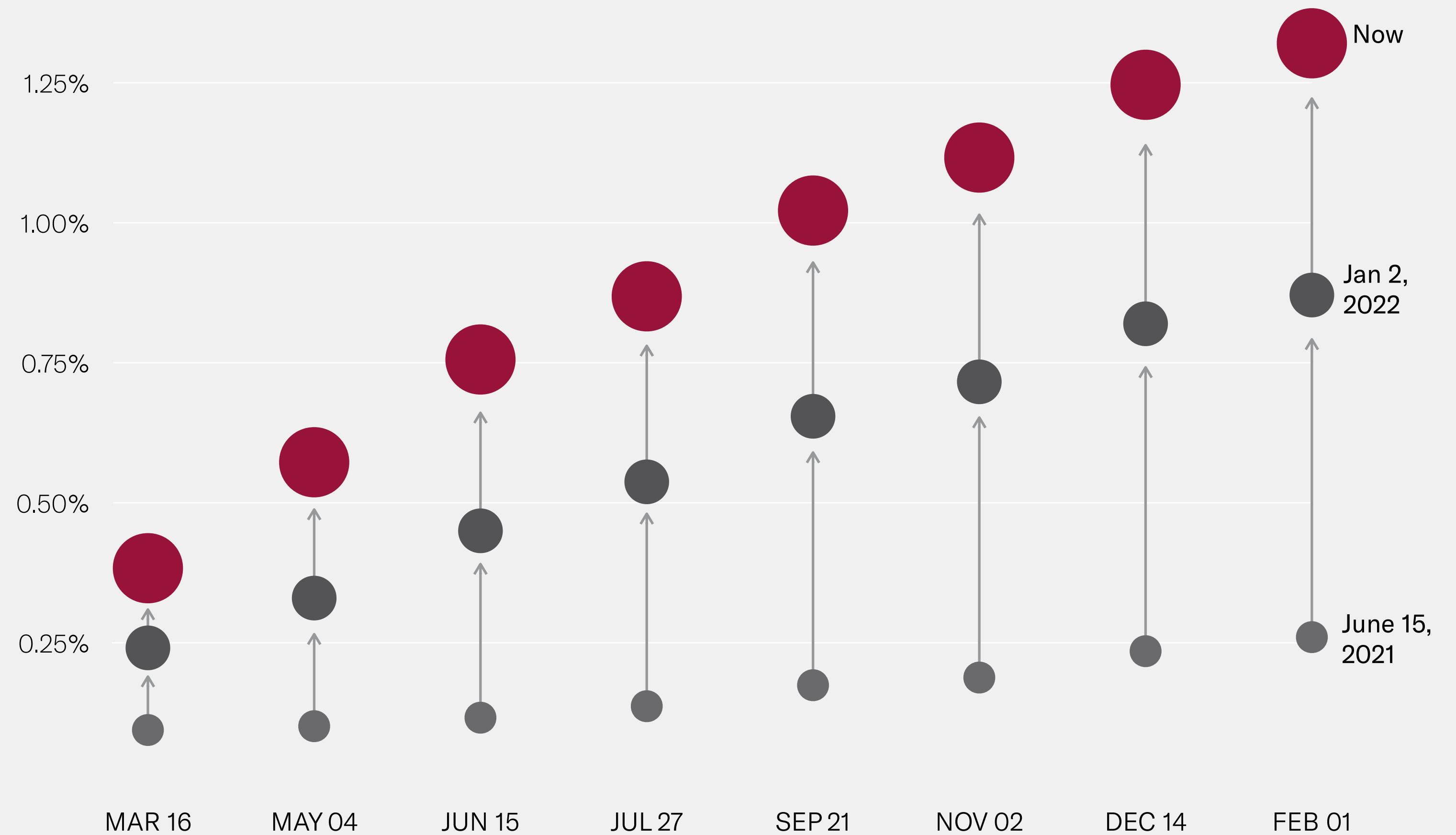
Consumer Price Inflation: Consumer Price Index for All Urban Consumers: All Items in U.S. City Average, Percent Change from Year Ago, Monthly, Seasonally Adjusted

Sources: Federal Reserve, Bureau of Labor Statistics, Bloomberg, Author Calculations

Rate expectations are climbing.

Market implied policy rate by meeting date, as at January 27

Market expectations for the effective Federal Funds Rate moved up at a remarkable pace in January, rivalling the move seen in the latter half of last year.



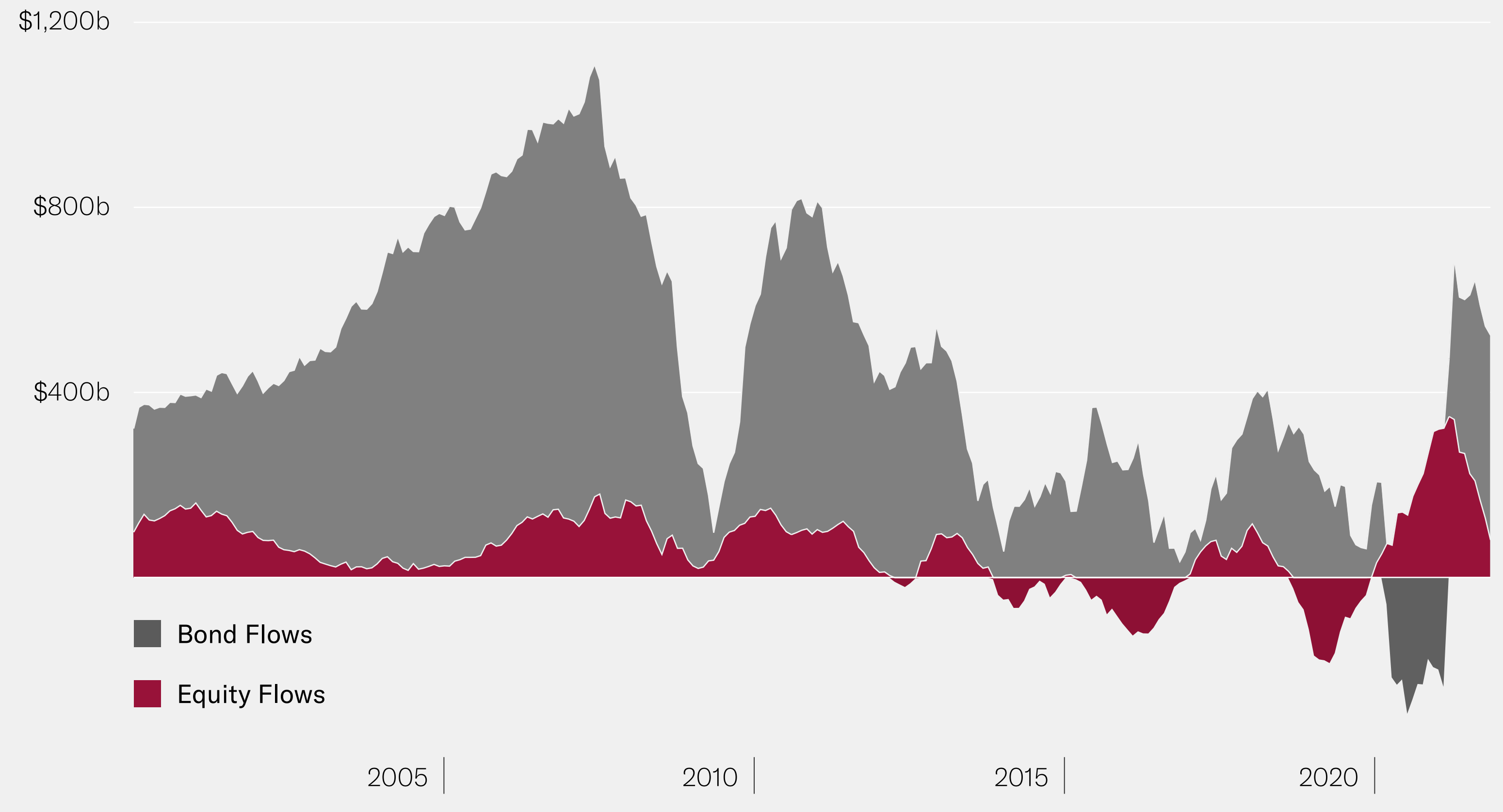
Derived from Fed Funds futures.

Source: Bloomberg

Flows into US markets have faded.

Net foreign portfolio investment, billions USD, January 2000 - November 2021

On a net basis, flows into US equities peaked in March 2021, with bond flows reaching a post-2014 high shortly thereafter.

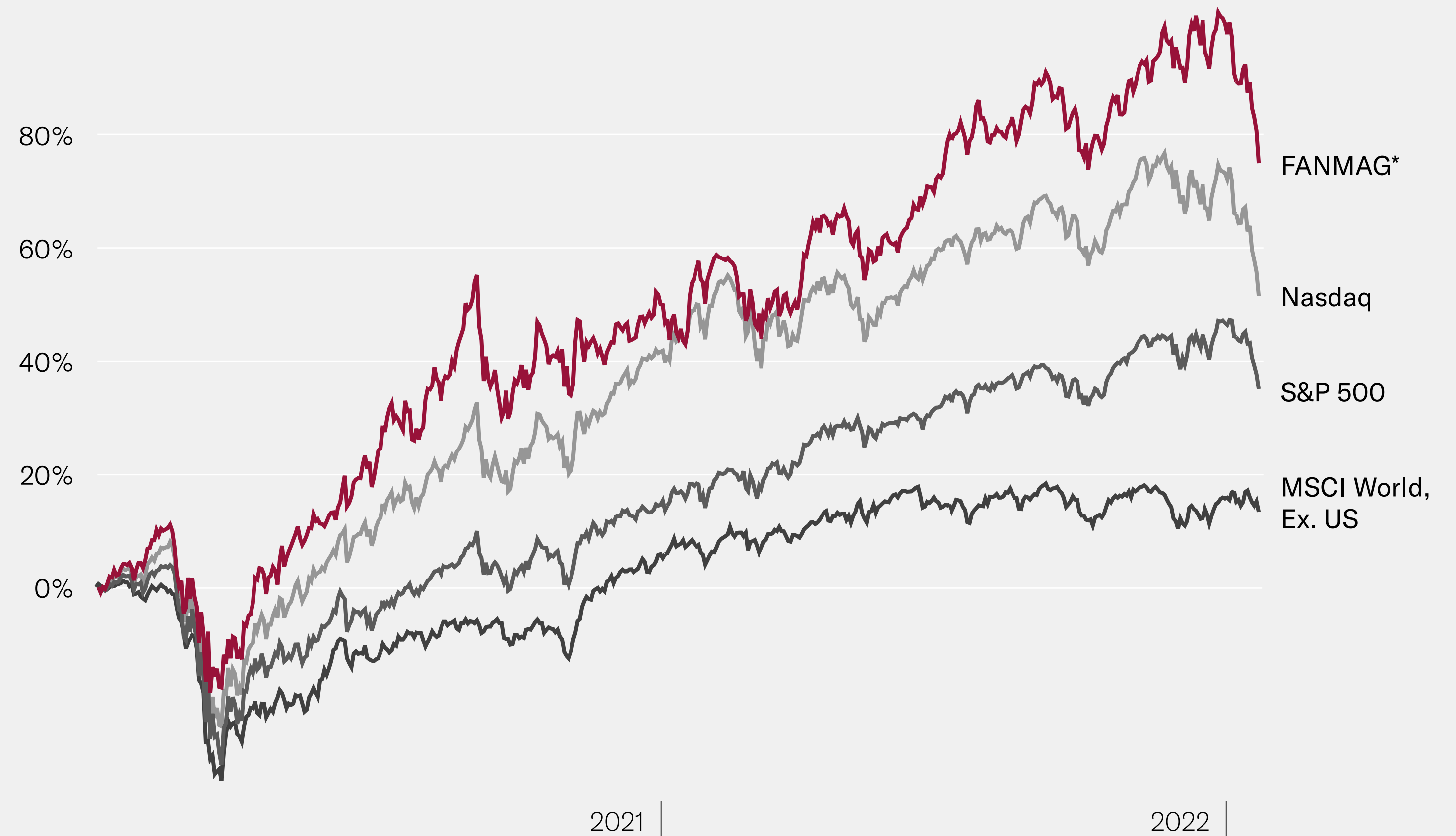


Sources: Treasury Department, Author Calculations

American exceptionalism may be fading.

Equity indices, % change, January 2, 2020 - January 21 2022

In January, a downturn in speculative technology stocks - coinciding with a convergence in relative performance between global equity indices - provided evidence of a reversal in the “US exceptionalism” trade.

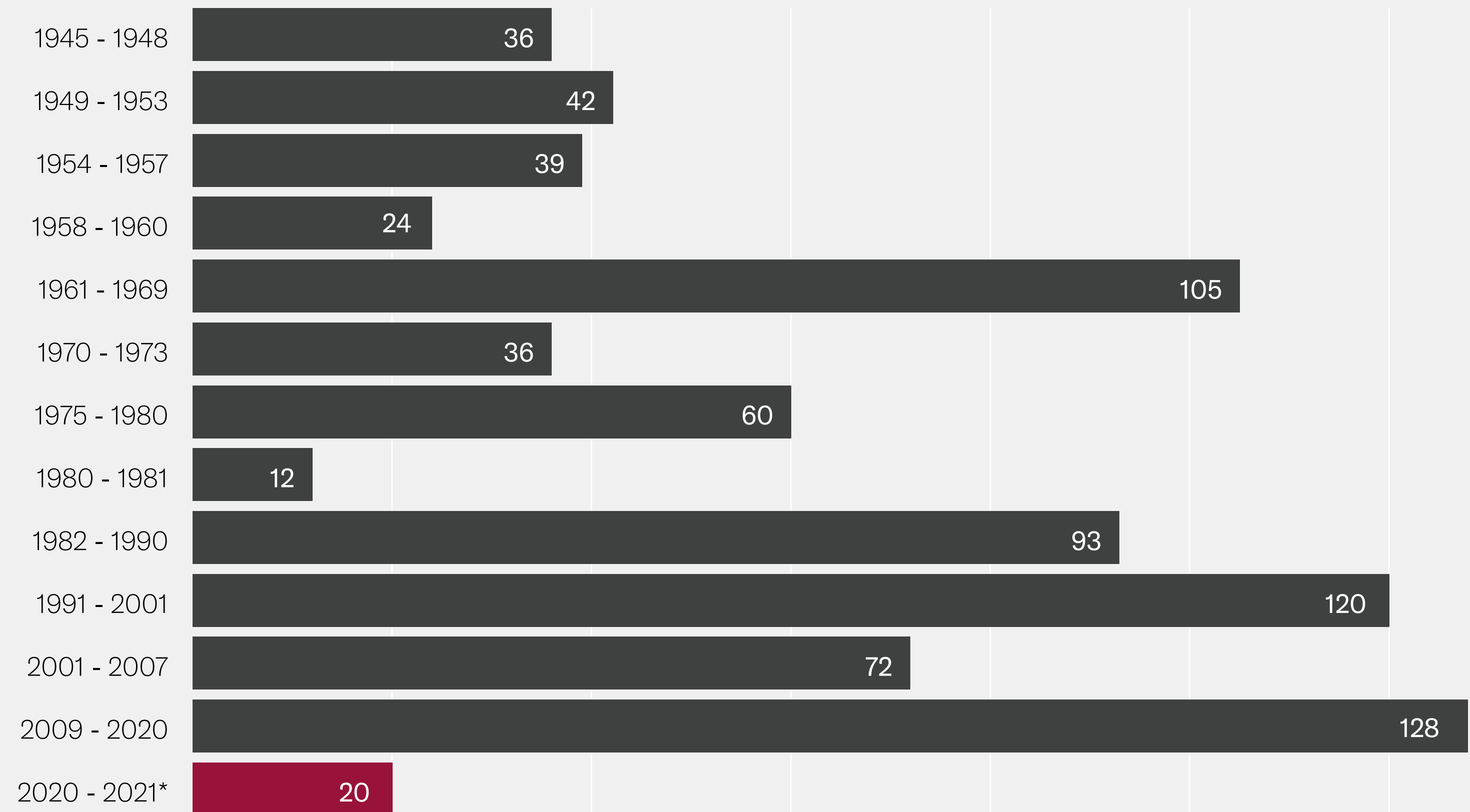


*FANMAG: Facebook, Amazon, Netflix, Microsoft, Apple, Google

Sources: Bloomberg, Author Calculations

And business cycle comparisons may be misplaced.

Economic expansions, months, 1945 - 2021



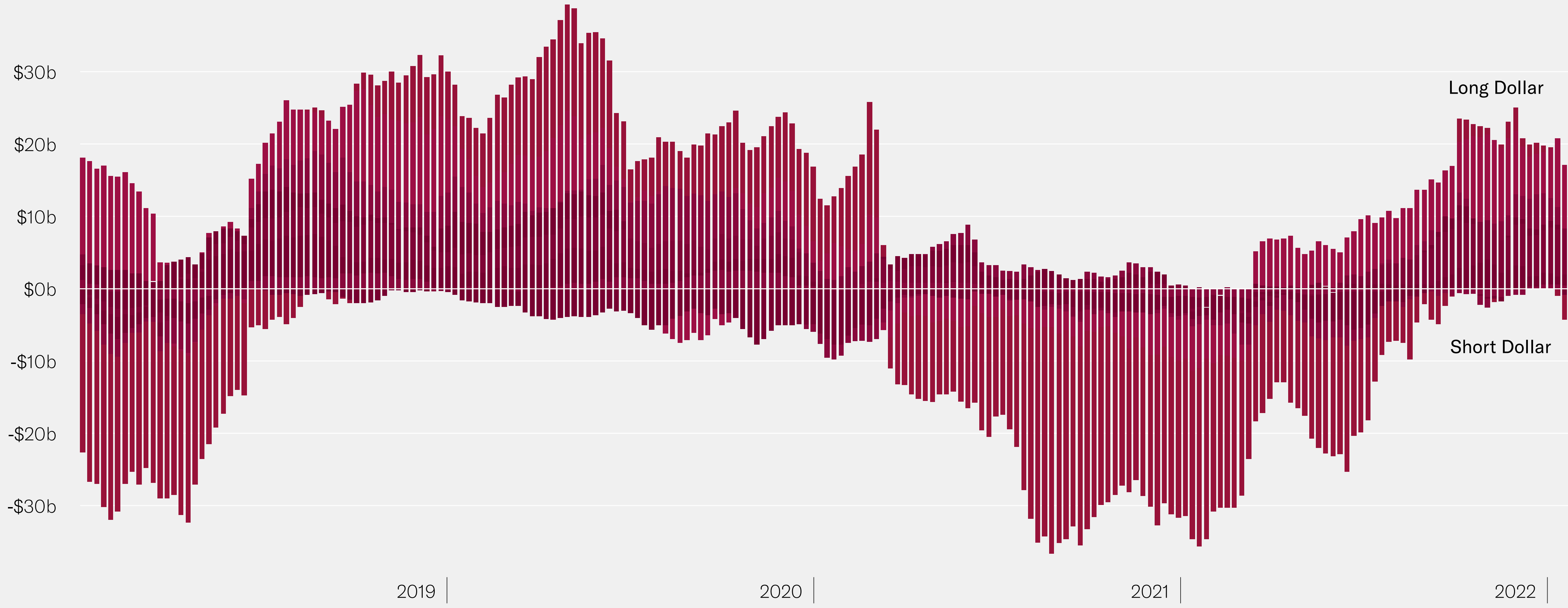
The unusual nature of the coronavirus crisis could mean that cyclical market behaviours do not unfold in a normal fashion.

*To December 2021

Sources: National Bureau for Economic Research, Author Calculations

Speculative dollar positioning could shift suddenly.

Aggregate non-commercial dollar position, billions USD, January 2018 - January 2022



Sources: Chicago Mercantile Exchange, Commodity Futures Trading Commission, Bloomberg, Author Calculations

03 CANADA

A hawkish policy stance is supporting the loonie.

USDCAD forecasts, as at January 21, 2022

With employment, domestic consumption, and exports supporting growth, markets expect the Bank of Canada to raise rates at least five times over the course of 2022. We think this might be too aggressive, and favour a more gradual liftoff, with the Canadian dollar giving up early gains as the year progresses and oil prices stabilize.

Consensus: —

Q1 1.26 Q2 1.25 Q3 1.25 Q4 1.24

Corpay: - - - - -

Q1 1.22 Q2 1.24 Q3 1.28 Q4 1.29



*Uncertainty bands derived from geometric Brownian motion Monte Carlo model, outer

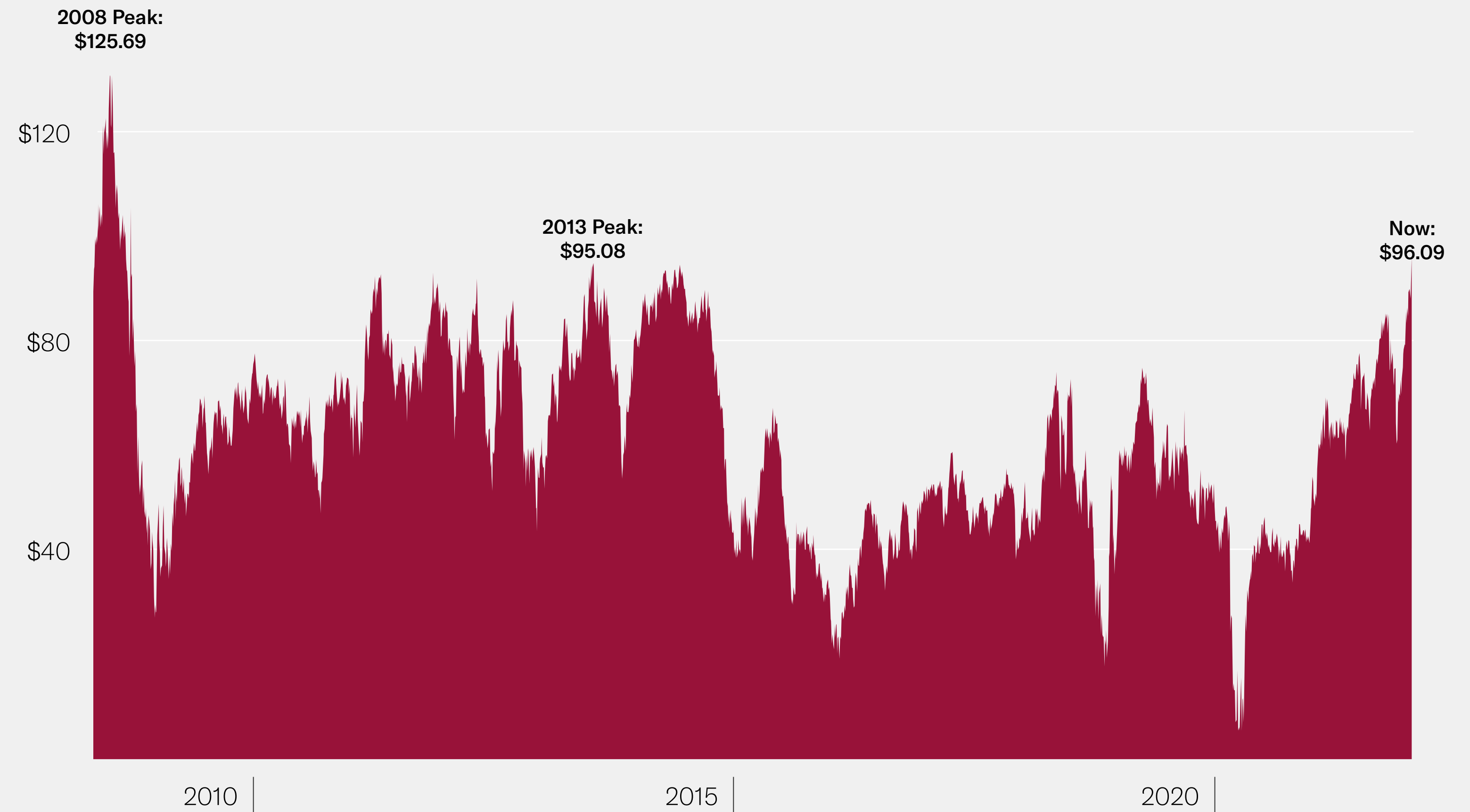
Sources: Bloomberg, Reuters, Author Calculations.

- +/- 90% Confidence Interval
- +/- 70% Confidence Interval
- +/- 50% Confidence Interval

Currency-adjusted oil revenues are soaring.

Western Canada Select in Canadian dollars, May 01, 2008 - January 27, 2022

High prices and a relatively weak Canadian dollar are combining to lift oil producer revenues, supporting growth in the wider economy.



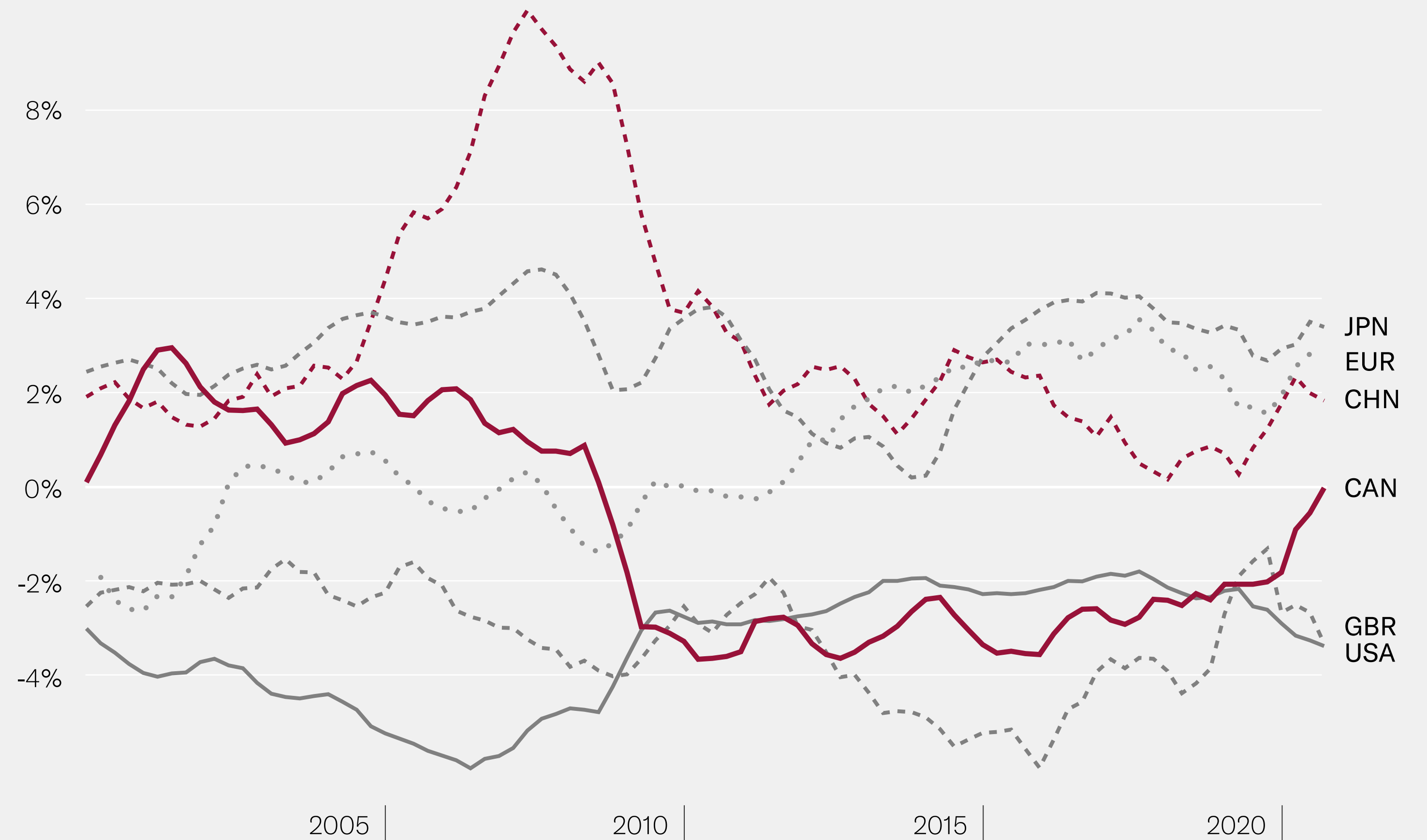
Notes: West Texas Intermediate crude oil delivered at Cushing, Oklahoma minus Western Canada Select crude oil at Hardisty, adjusted for CADUSD exchange rate

Sources: Inspired by Rory Johnston, @rory_johnston, <https://commoditycontext.substack.com>, Bloomberg, Author Calculations

Canada's current account has moved toward surplus.

Current account, share of GDP, four-quarter moving average, Q1 2000 - Q3 2021

Strong global demand has brought Canada's current account back into balance - for the first time since the run-up to the global financial crisis in 2008.

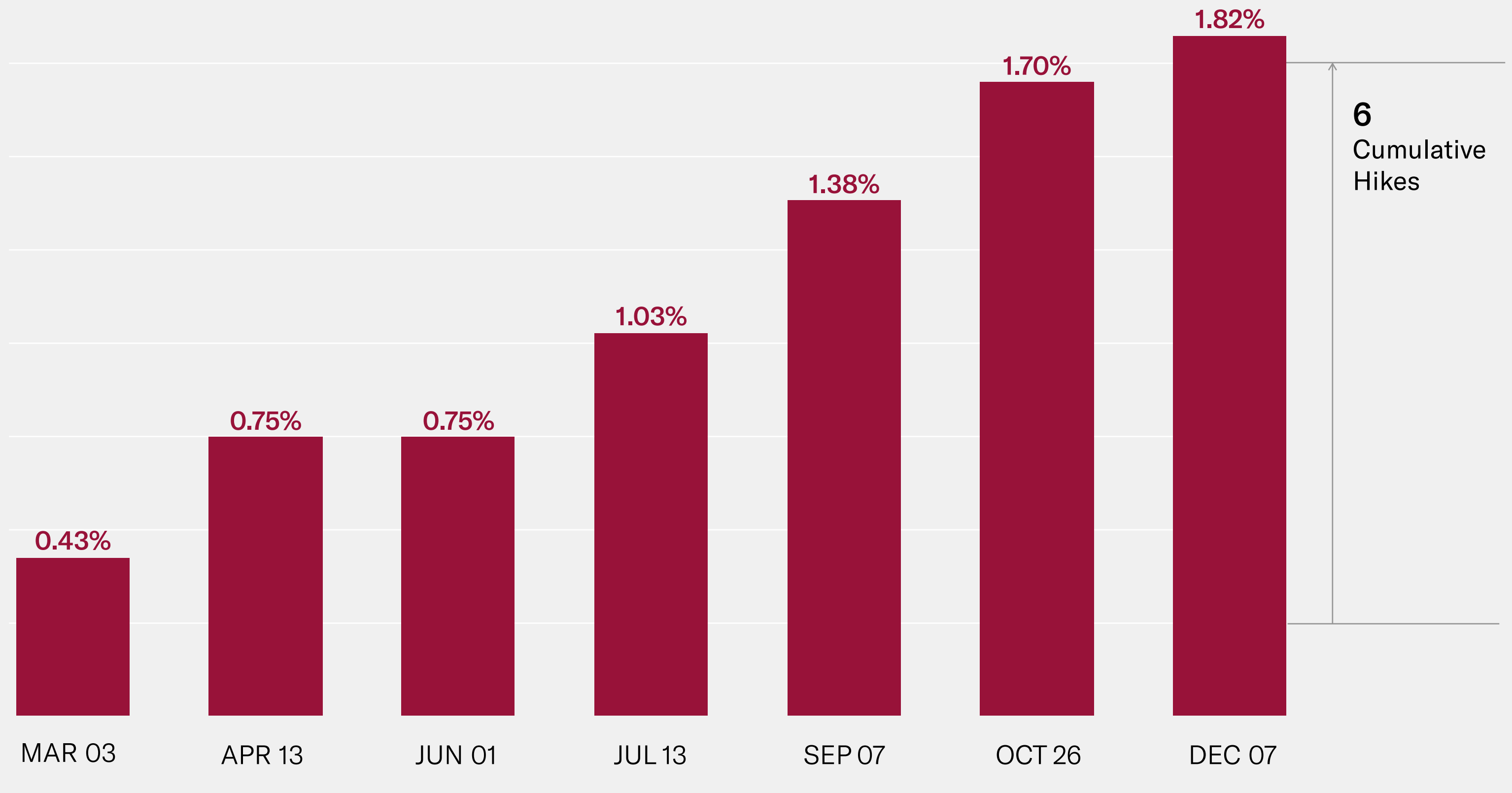


Sources: Bureau of Economic Analysis, Eurostat, National Bureau of Statistics, Office of National Statistics, Statistics Bureau of Japan, Statistics Canada, Author Calculations

Markets expect the Bank of Canada to hike. A lot.

Market implied policy rate by meeting date, as at January 27

The Bank of Canada is widely expected to begin a rapid-fire hiking cycle in March, responding to strong growth, tightness in the jobs market, high inflation, and exploding real estate prices as it seeks to tighten financial conditions.



Derived from overnight index swaps pricing.

Source: Bloomberg

But real estate markets are clearly overheated.

Real home prices vs. real disposable income, % change, Q1 1975 - Q3 2021

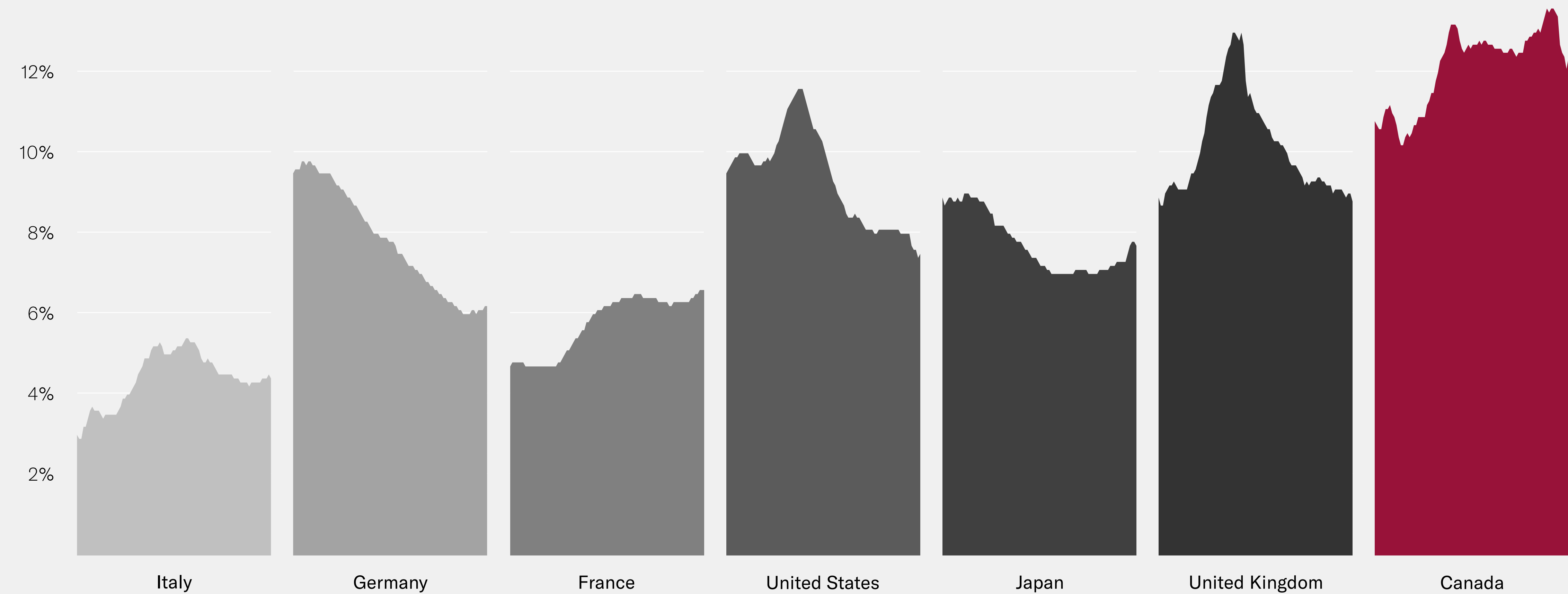
Home prices in Canada are vastly outpacing incomes - a trend that raises financial stability risks, and suggests investment resources have been misallocated.



Sources: Data adapted from Mack, A., and E. Martínez-García. 2011. "A Cross-Country Quarterly Database of Real House Prices: A Methodological Note." Globalization and Monetary Policy Institute Working Paper No. 99, Federal Reserve Bank of Dallas, Author Calculations.

Canada's household debt service ratios are the highest in the G7.

Household debt service ratios, Q1 1999 - Q2 2021



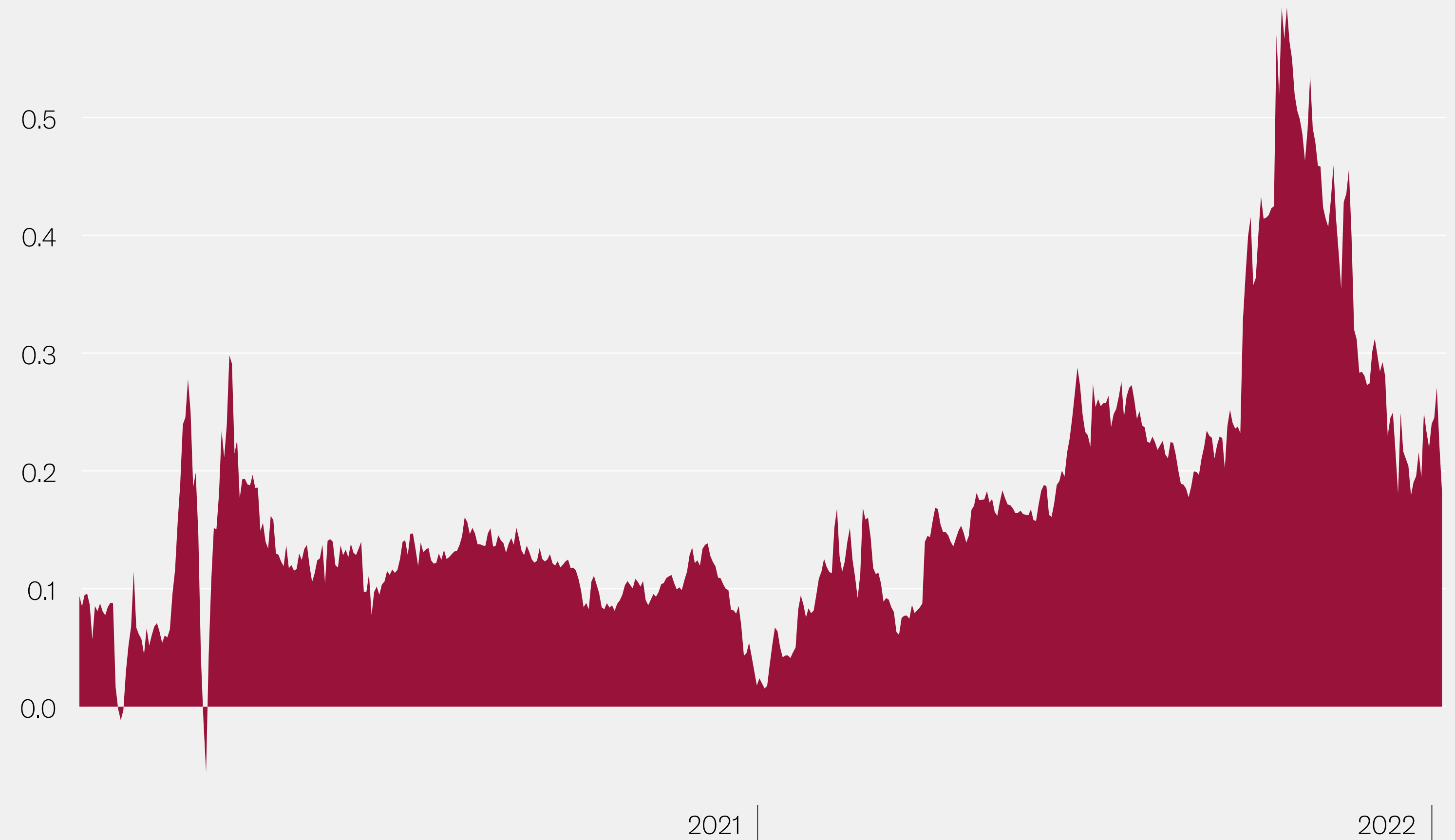
Households and non-profit institutions, ratio of interest payments and amortisations to income.

Sources: Bank for International Settlements, Author Calculations

Bets on US-Canada policy divergences are falling.

2-year rate spread, %, January 2, 2020 - January 26, 2022

After climbing spectacularly in the last half of 2022, bets on a more hawkish Bank of Canada outpacing its southern cousin have faded, pulling the Canadian dollar downward. Fed Chair Jerome Powell's hawkish pivot deserves much of the blame, but investors may also be turning wary on the country's incredibly high household debt levels.



Sources: Bloomberg, Author Calculations

04 MEXICO

Political risks are weighing on the Mexican economy.

USDMXN forecasts, as at January 15, 2022

The Mexican economy is expected to recover further in the first quarter, with household consumption beginning to catch up with strong export volumes. But fiscal policy remains tight and political risks are elevated, meaning that fundamental improvements are unlikely to trigger a sharp reversal in the peso’s fortunes.

Consensus: ———				
Q1	20.76	Q2	21.00	Q3 21.03 Q4 21.00
Corpay: -----				
Q1	20.75	Q2	21.00	Q3 20.50 Q4 20.50



*Uncertainty bands derived from geometric Brownian motion Monte Carlo model, outer

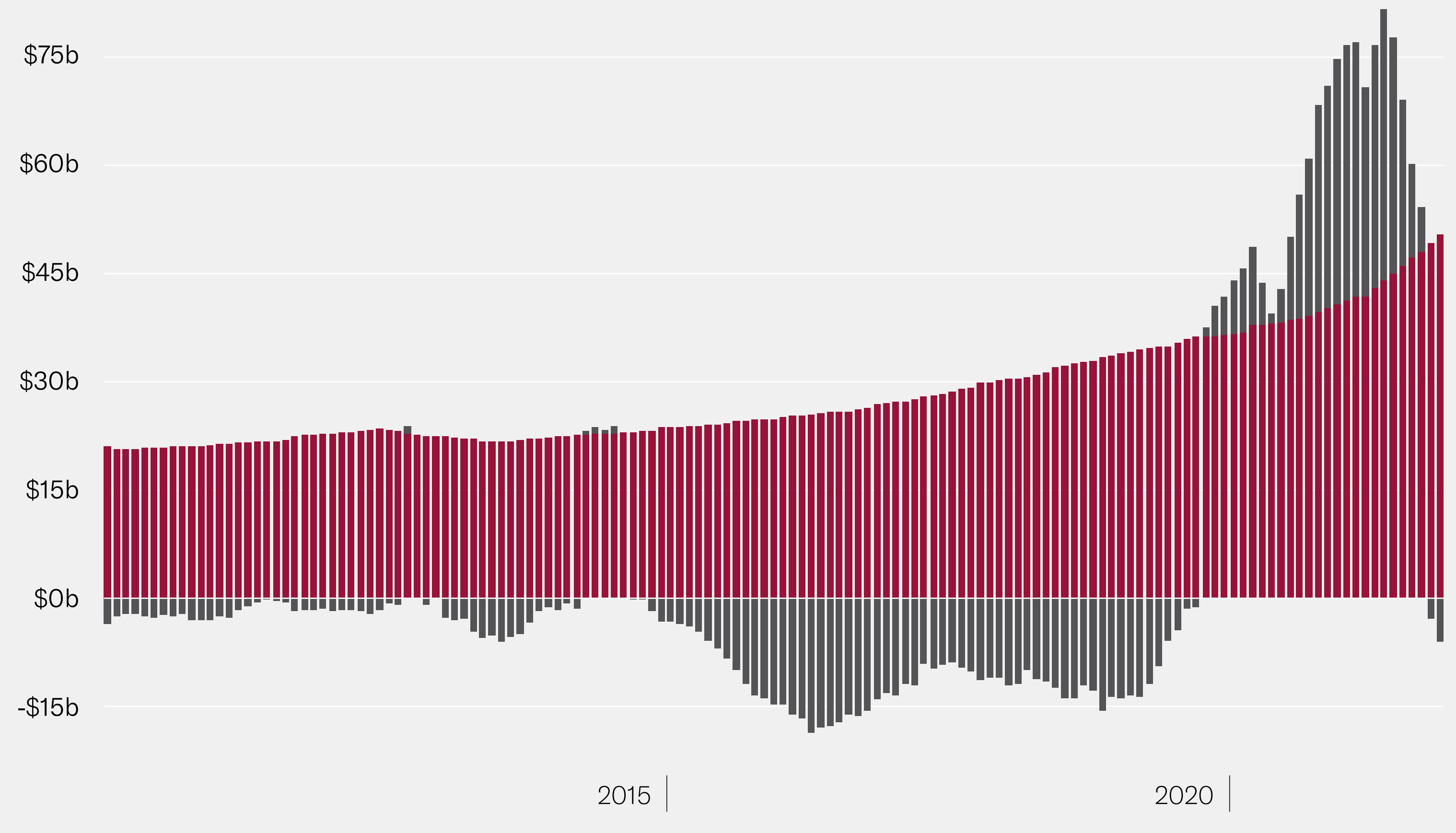
Sources: Bloomberg, Reuters, Author Calculations.

- +/- 90% Confidence Interval
- +/- 70% Confidence Interval
- +/- 50% Confidence Interval

Remittances are helping offset export weakness.

Remittances v. net exports, USD, 12-month rolling sums, January 2010 - November 2021

Driven by a booming US economy, billions of dollars in worker remittances have helped support the peso over the last year. Easing supply chain problems - particularly for semiconductors used in the auto industry - should mean exports play a more constructive role in the months to come.



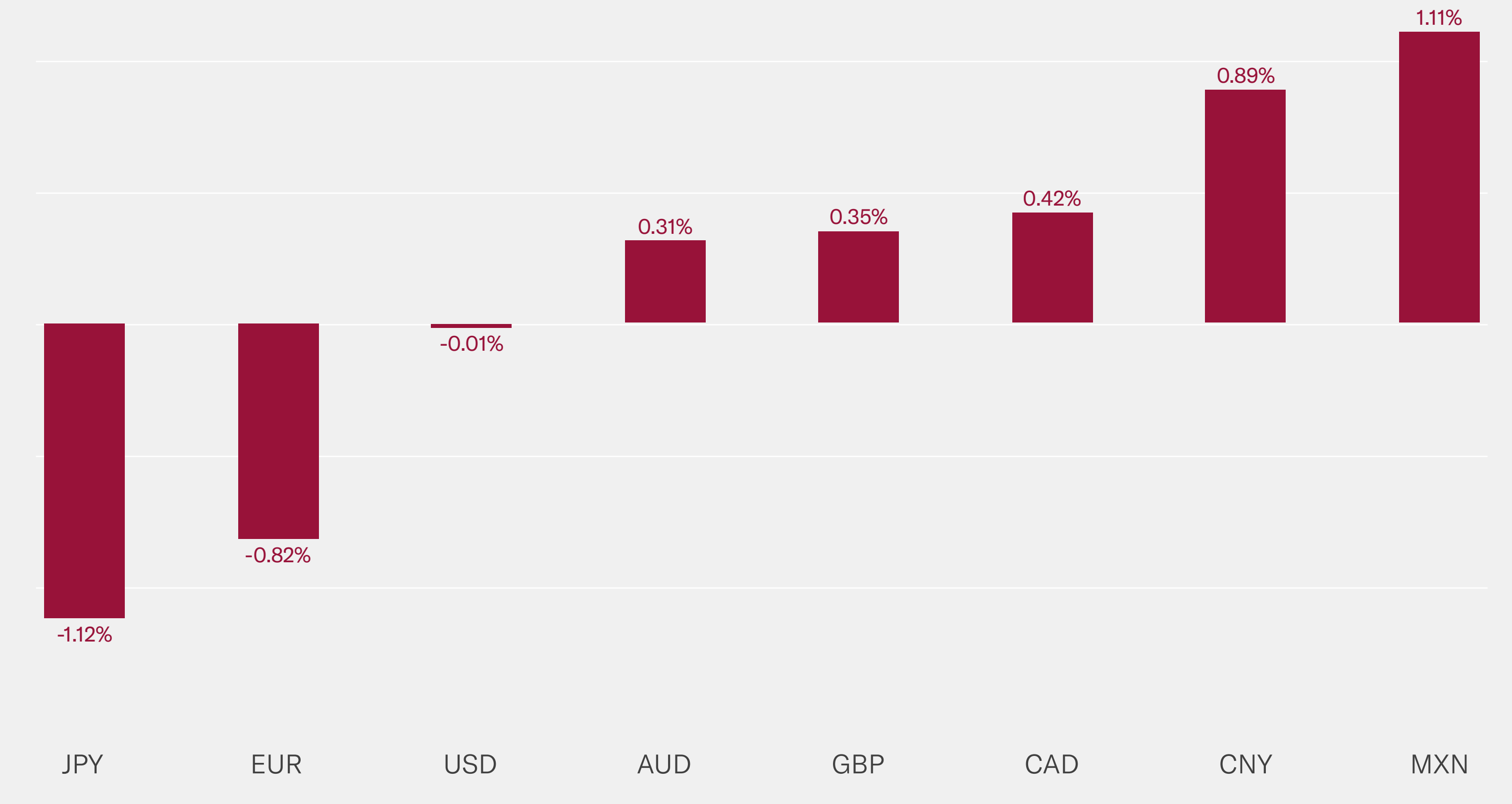
Remittances: Money sent by workers outside Mexico.

Sources: Bank of Mexico, Bloomberg, Author Calculations

Carry trading could provide support.

Trade-weighted interest differentials, as at 21 January 2022

A recovery in carry trades - strategies that involve borrowing in low-yielding currencies and investing in high-yielding currencies - could support the peso in the coming months, particularly if the dollar loses strength.

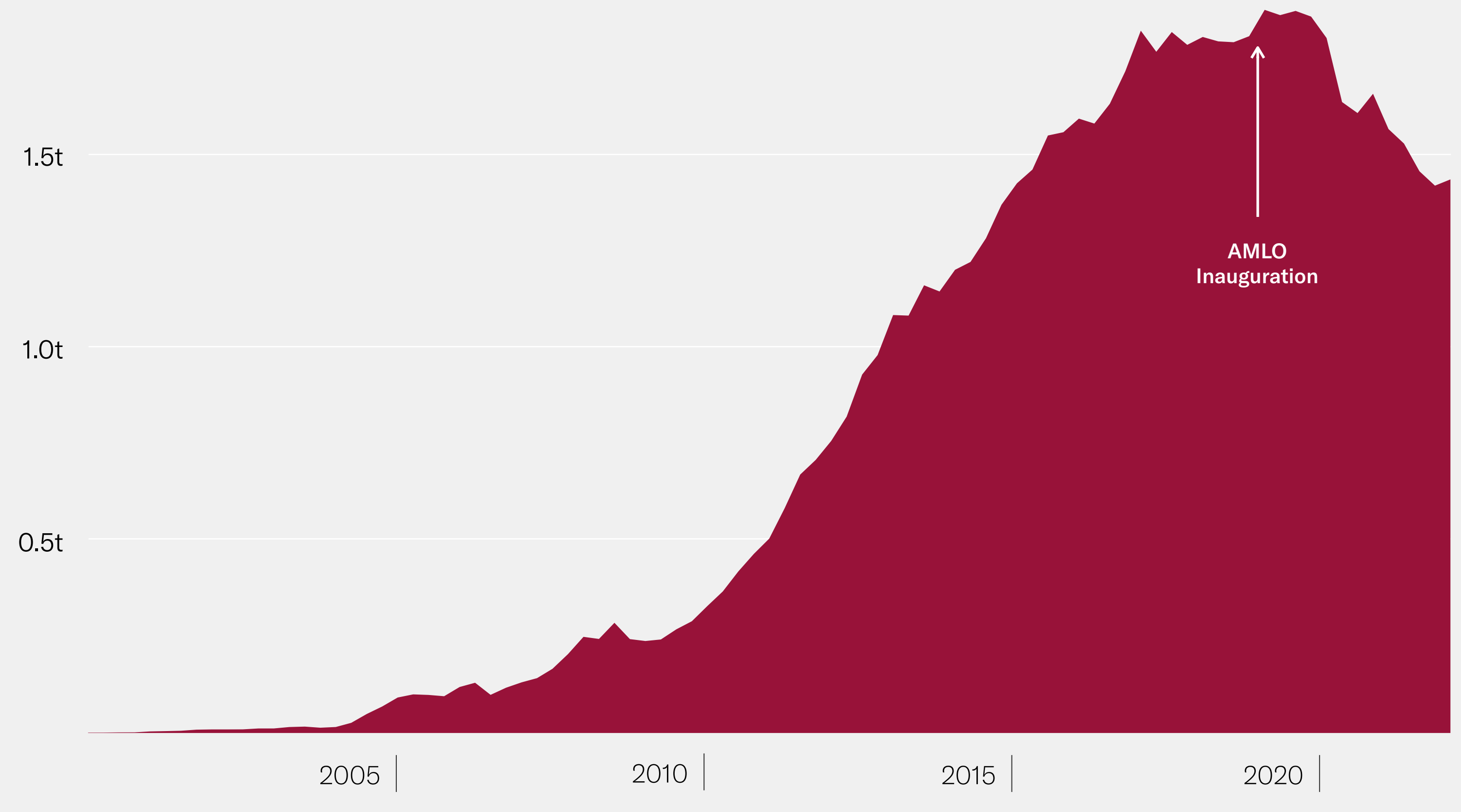


Sources: Corpay, Author Calculations

Foreign investment has room to climb.

Foreign holdings of Mexican government bonds, trillions MXN, January 2000 - January 2022

A series of business-unfriendly policy choices has sent foreign investors fleeing under President Lopez Obrador - AMLO's - leadership. But Mexico has been a model of fiscal rectitude during the coronavirus crisis, borrowing far less than its emerging market peers - a stance that could strengthen the country's appeal in a downturn.



Sources: Bank of Mexico, Bloomberg, Author Calculations

05 EURO AREA

The European Central Bank is coming under pressure.

EURUSD forecasts, as at January 15, 2022

With energy prices driving a surge in European inflation levels, calls for a more hawkish stance from the ECB are growing louder. Despite President Lagarde's rhetorical efforts, markets are pricing in at least one rate hike for late 2022. We expect price pressures to subside - but broader dollar weakness could enable the common currency to climb slightly.

Consensus: —

Q1 1.12 Q2 1.12 Q3 1.13 Q4 1.14

Corpay: - - - - -

Q1 1.13 Q2 1.15 Q3 1.15 Q4 1.15



*Uncertainty bands derived from geometric Brownian motion Monte Carlo model, outer

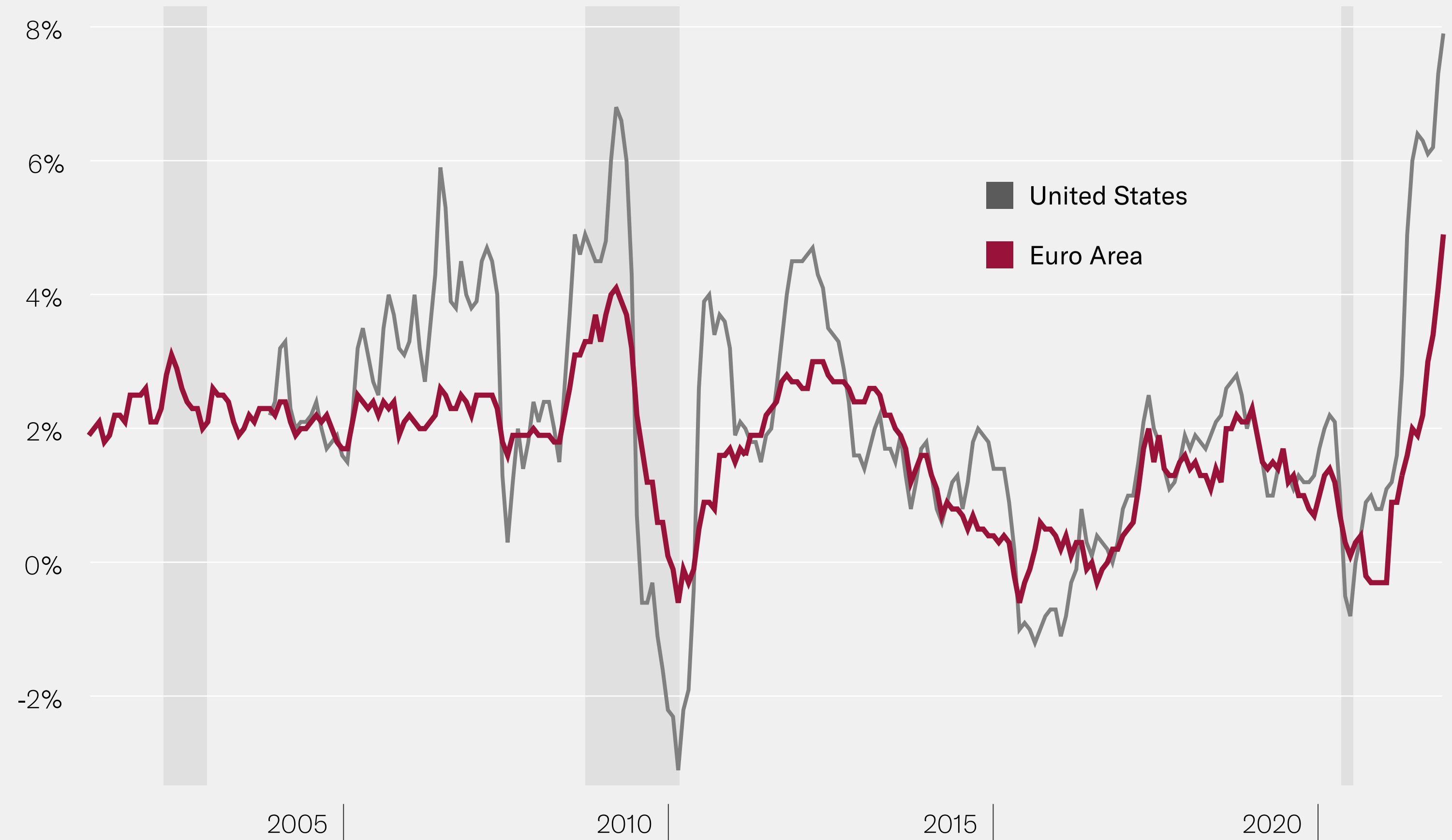
Sources: Bloomberg, Reuters, Author Calculations.

+/- 90% Confidence Interval
+/- 70% Confidence Interval
+/- 50% Confidence Interval

European headline price gains are catching up with the US.

Harmonized consumer price indices, % change year-over-year, January 2000 - November 2021

Consumer price indices in the euro area have followed their American brethren higher, putting pressure on monetary and fiscal policymakers.



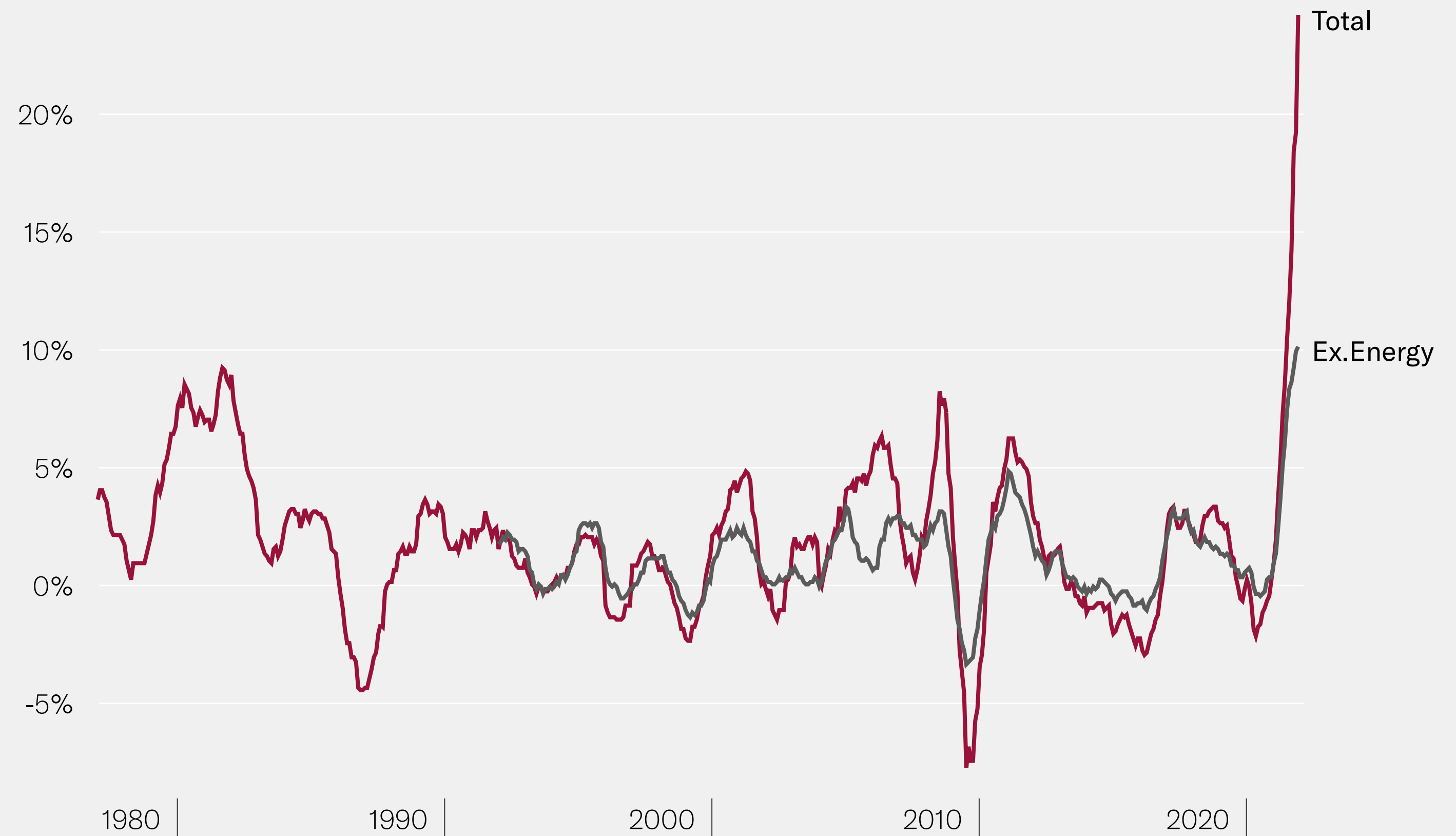
Harmonized consumer price indices: all items, % change year-over-year, monthly, not seasonally adjusted

Sources: Eurostat, Author Calculations

Soaring energy costs are playing a critical role.

Producer Price Index, January 1977 - December 2021

German producer prices rose 24.2% year-over-year in December, with a 69% jump in energy prices lifting the headline print. Stripping out the energy component, prices were up 10.4% on the year.

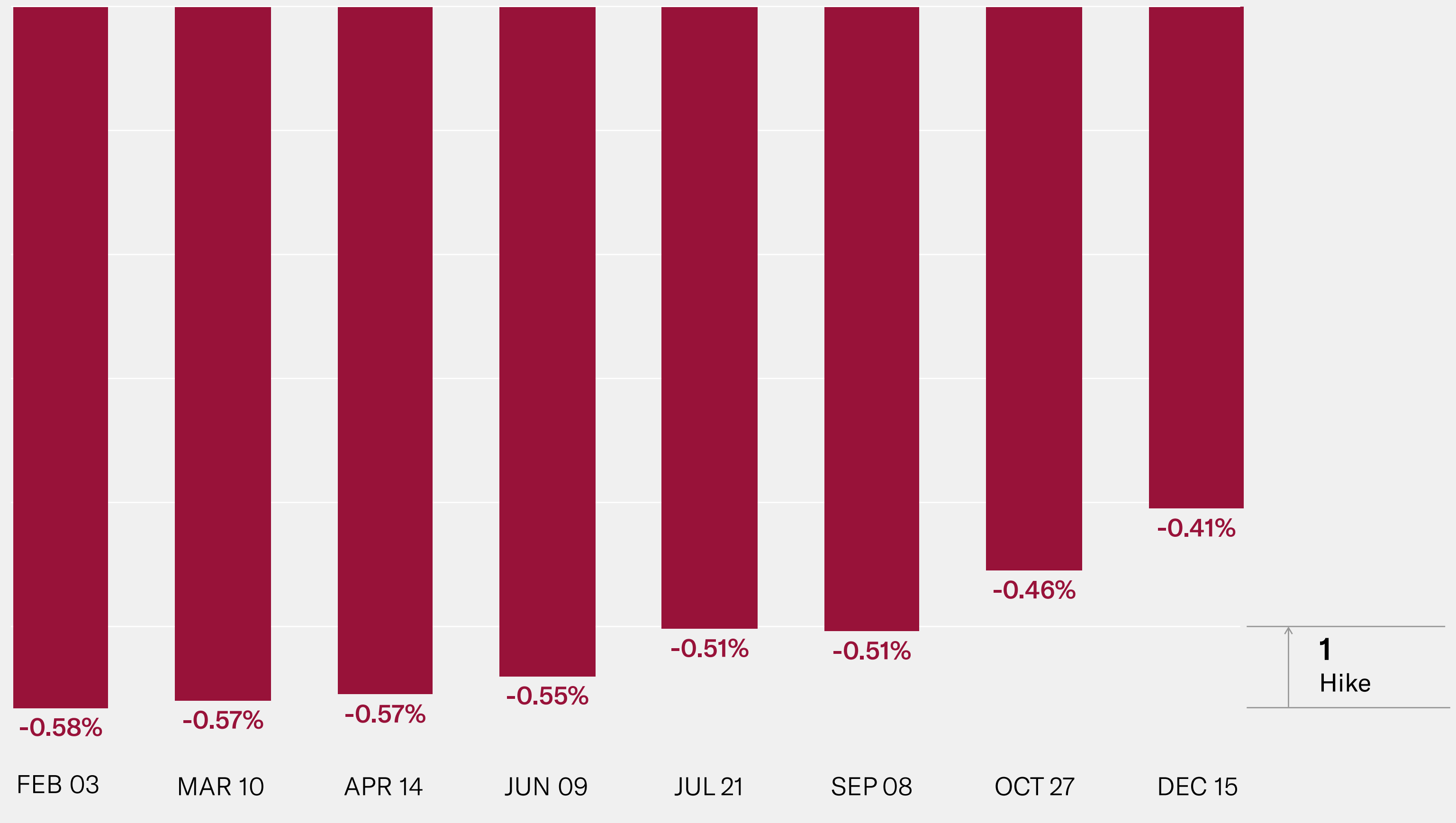


Source: German Federal Statistics Office, Author Calculations

The ECB is preparing to shelve its crisis-fighting tools.

Market implied policy rate by meeting date, as at January 27

Traders expect the European Central Bank to end its net asset purchases in the coming months, with interest rates gradually rising toward zero over the next two years.



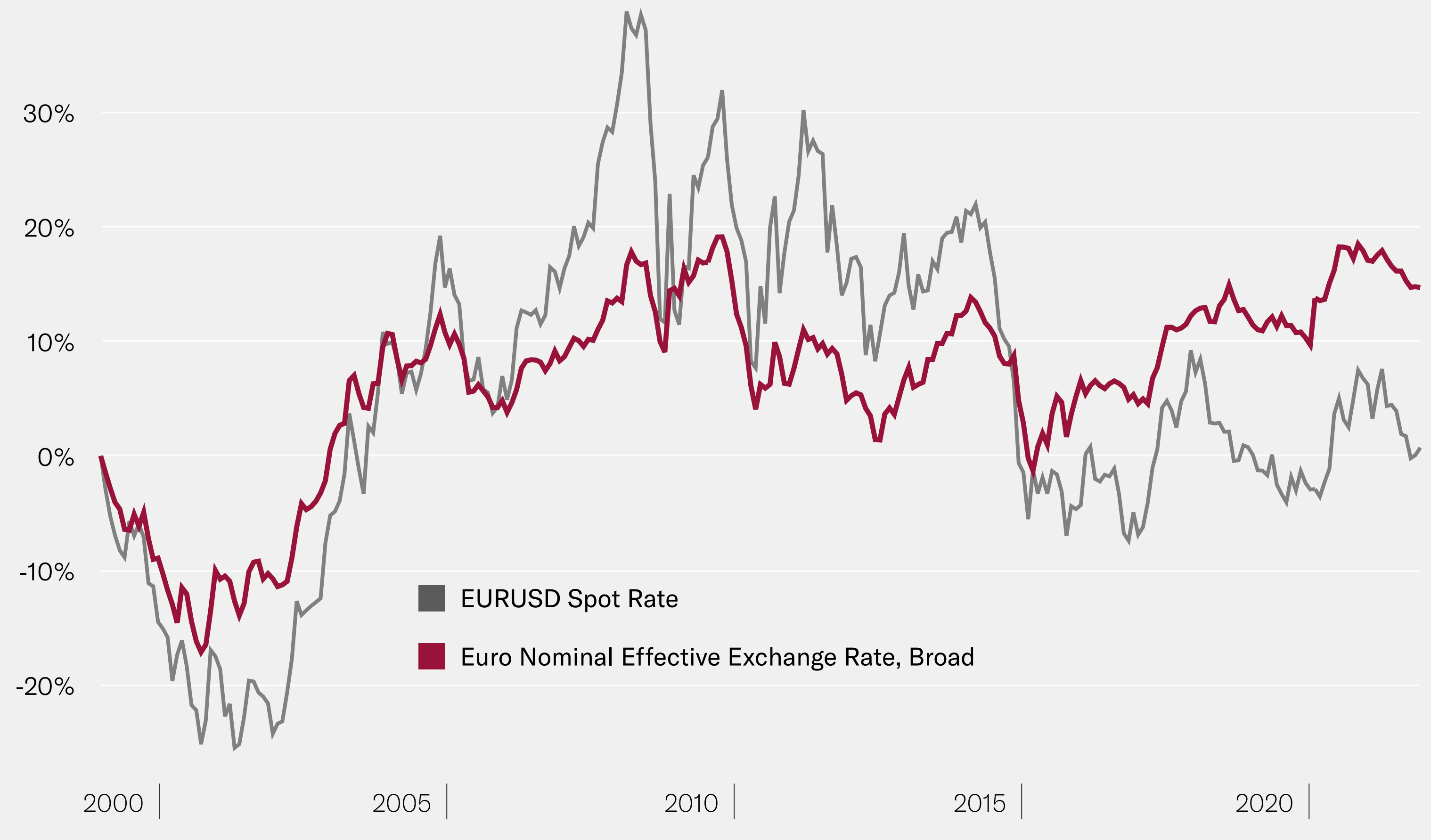
Derived from overnight index swaps pricing.

Source: Bloomberg

The euro is not as weak as it looks.

Euro exchange rates, January 1999 - January 2022

The euro area's trading relationships are diverse, and heavily weighted toward non-dollar jurisdictions. Weakness in the euro-dollar exchange rate has not been matched on a trade-weighted basis, where the common currency is trading well above levels that prevailed in 1999.



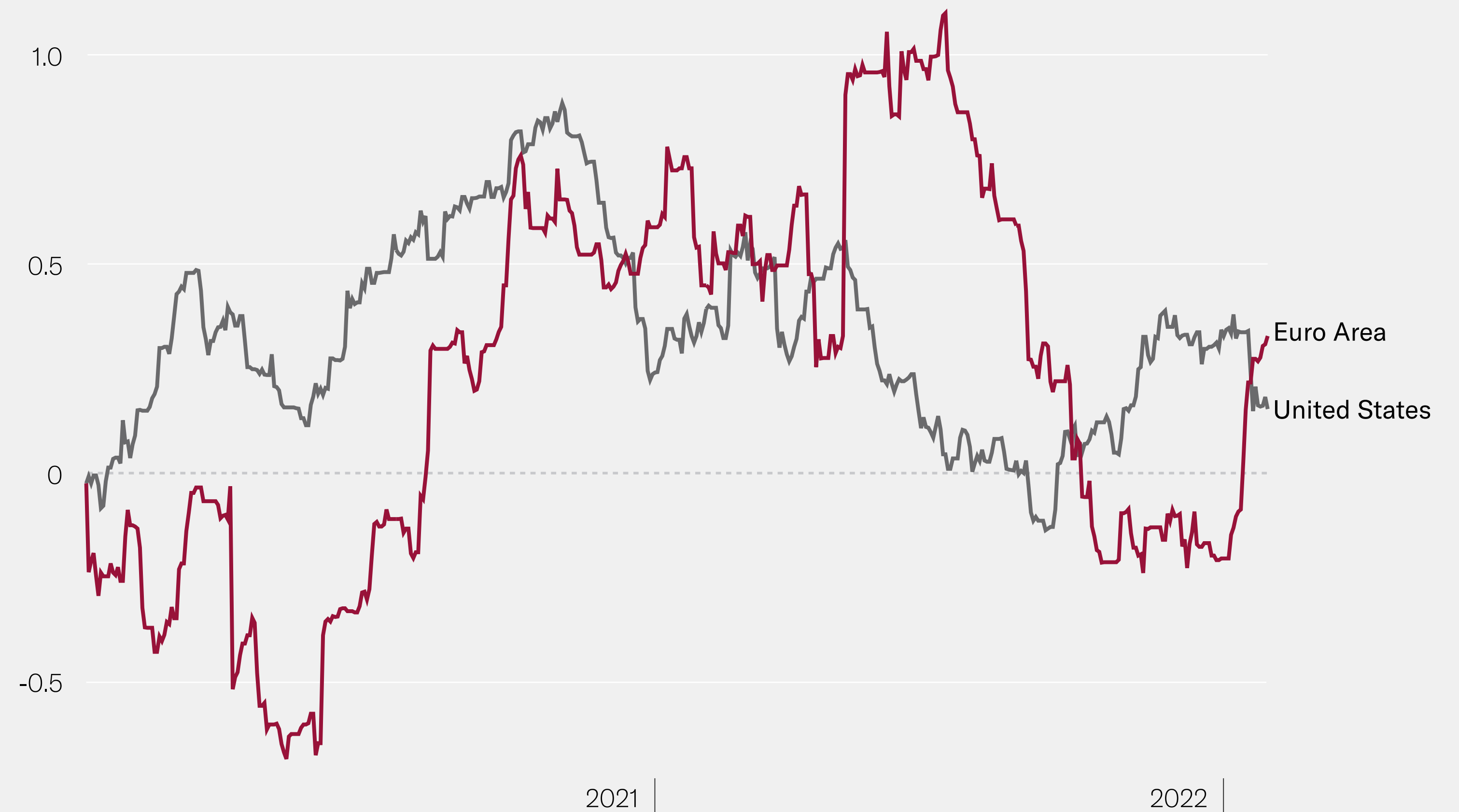
EURUSD: Euro/US dollar spot rate,

Sources: Bank for International Settlements, Corpay, Author Calculations

European economic data is surprising to the upside.

Bloomberg economic surprise indices, January 2020 - January 2022

Although the US economy continues to outperform on an absolute basis, euro area data is now beating analyst forecasts by a wider margin. This could indicate the beginning of a cyclical upswing in other parts of the global economy, and presage a shift in capital flows out of overvalued US markets.



Economic surprise indices show the difference between analyst forecasts and the published value of economic data releases, expressed as z-scores. A negative value indicates data releases are surprising to the downside, while a positive value indicates upside surprises.

Sources: Bloomberg, Author Calculations

06 UNITED KINGDOM

Markets expect outperformance from the pound.

GBPUSD forecasts, as at January 15, 2022

The Bank of England is widely expected to raise rates again in February, tightening policy as inflation rises and the latest wave of omicron infections loses steam. Thus far, political risks have had no discernible impact on the pound, and - with Boris Johnson's potential challengers largely aligned on EU policy - markets don't expect this to change.

Consensus: ———							
Q1	1.35	Q2	1.35	Q3	1.36	Q4	1.37
Corpay: - - - - -							
Q1	1.34	Q2	1.37	Q3	1.38	Q4	1.39



*Uncertainty bands derived from geometric Brownian motion Monte Carlo model, outer

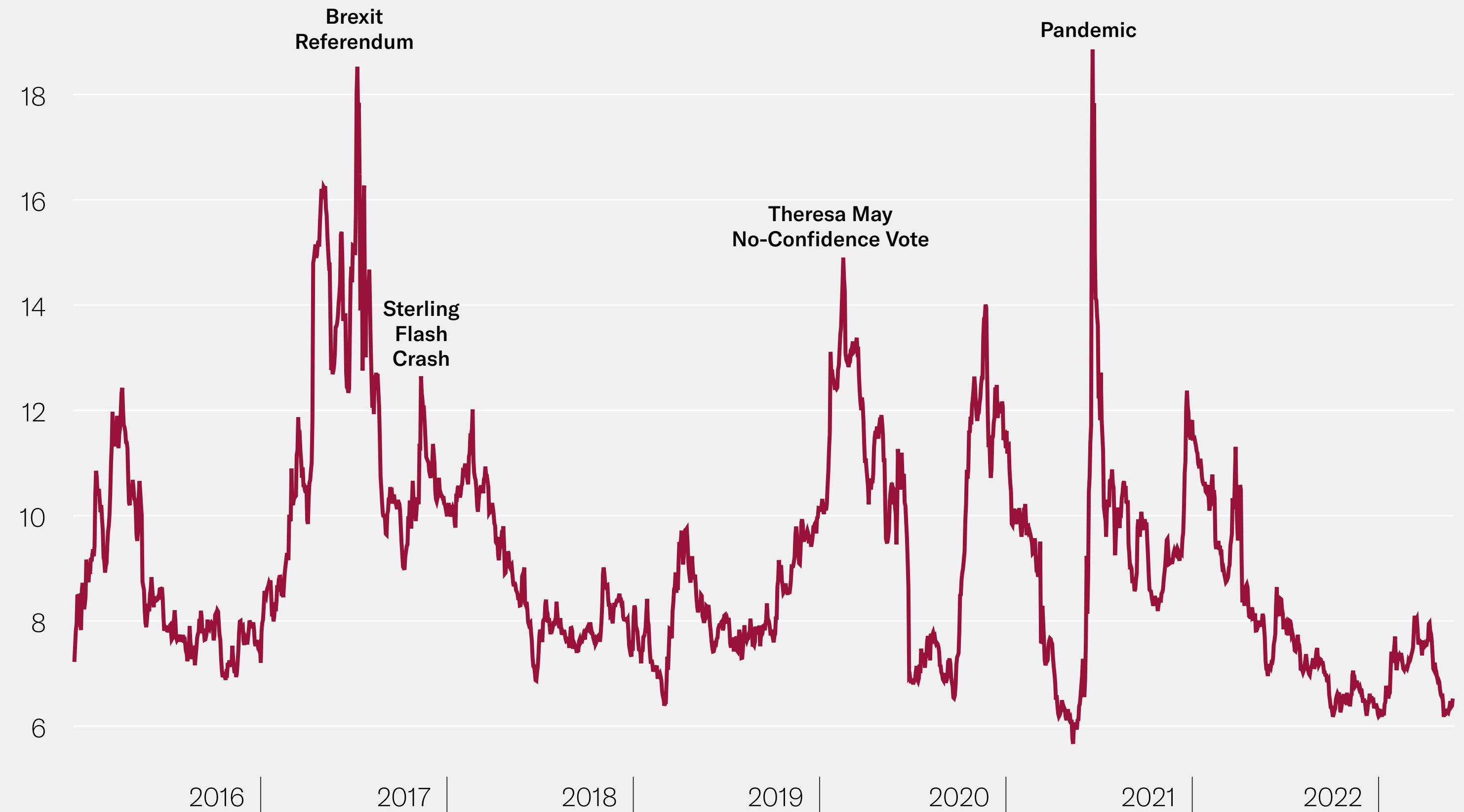
Sources: Bloomberg, Reuters, Author Calculations.

- +/- 90% Confidence Interval
- +/- 70% Confidence Interval
- +/- 50% Confidence Interval

Boris Johnson's political travails have left markets unworried.

Implied volatility, 3-month dollar-sterling exchange rate, 02 January 2015 - 27 January 2022

With Chancellor Rishi Sunak widely seen as the most likely candidate to take over in the event of a Boris Johnson resignation, fears of a rapid pivots in economic policy, or changes in the EU-UK trading relationship have largely been shelved by financial markets.



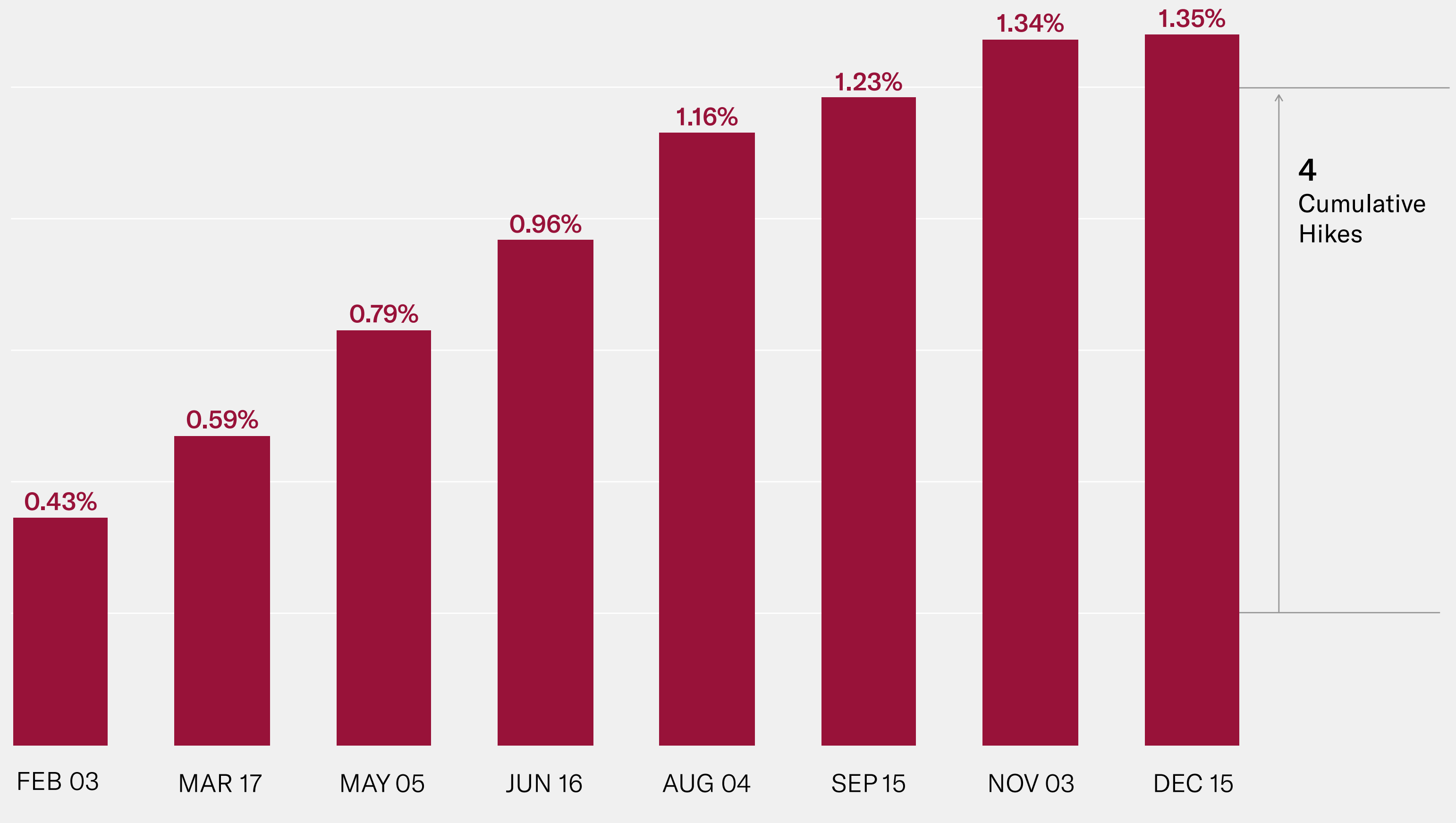
Notes: Derived from 3-Month At the Money options

Sources: Bloomberg, Author Calculations

The “unreliable boyfriend” can be relied upon to raise rates.

Market implied policy rate by meeting date, as at January 27

The Bank of England’s hawkish stance has helped protect the pound against a rising dollar, but this appears front-loaded, with rates ultimately hitting lower terminal levels than in the United States.



Derived from overnight index swaps pricing.

Source: Bloomberg

07 CHINA

Investors expect stability from the renminbi.

USDCNY forecasts, as at January 15, 2022

China has unleashed a stimulus campaign in 2022 with rates falling, fiscal spending ramping up, and energy controls easing as policymakers fight omicron-related shutdowns and support a beleaguered property sector. But exports are likely to fall as Western consumers shift toward services, and currency intervention risks are growing.

Consensus: ———				
Q1	6.41	Q2	6.42	Q3 6.42 Q4 6.40
Corpay: -----				
Q1	6.35	Q2	6.40	Q3 6.45 Q4 6.45



*Uncertainty bands derived from geometric Brownian motion Monte Carlo model, outer

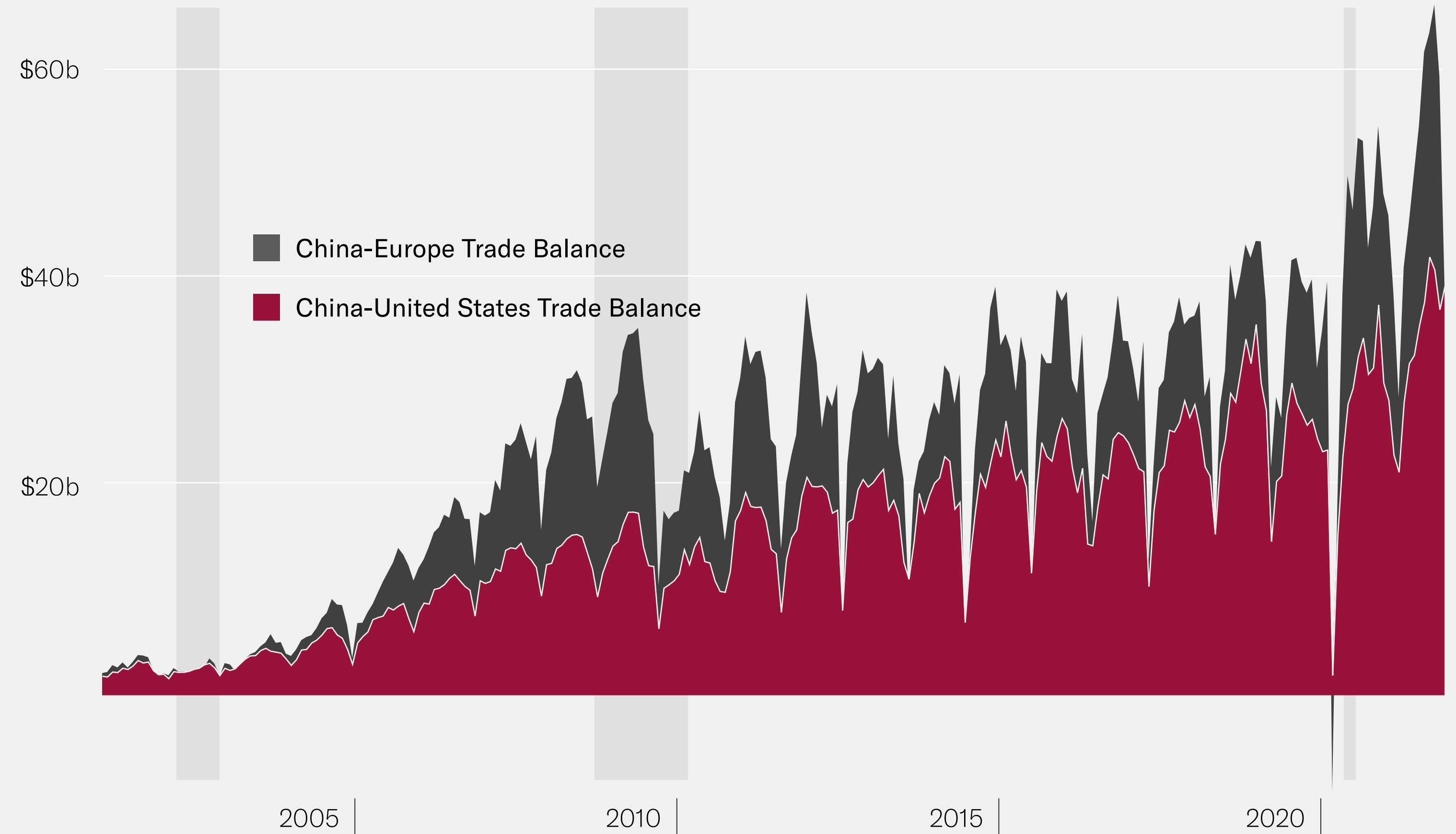
Sources: Bloomberg, Reuters, Author Calculations.

- +/- 90% Confidence Interval
- +/- 70% Confidence Interval
- +/- 50% Confidence Interval

Chinese trade surpluses are bigger than ever.

Chinese trade balances, billions USD, NSA, January 2000 - November 2021

With Western consumers trapped at home and flush with cash, demand for manufactured exports has driven Chinese trade surpluses into record territory. We think these are likely to shrink in the months ahead as spending patterns shift and the country's internal easing campaign begins to lift domestic consumption.

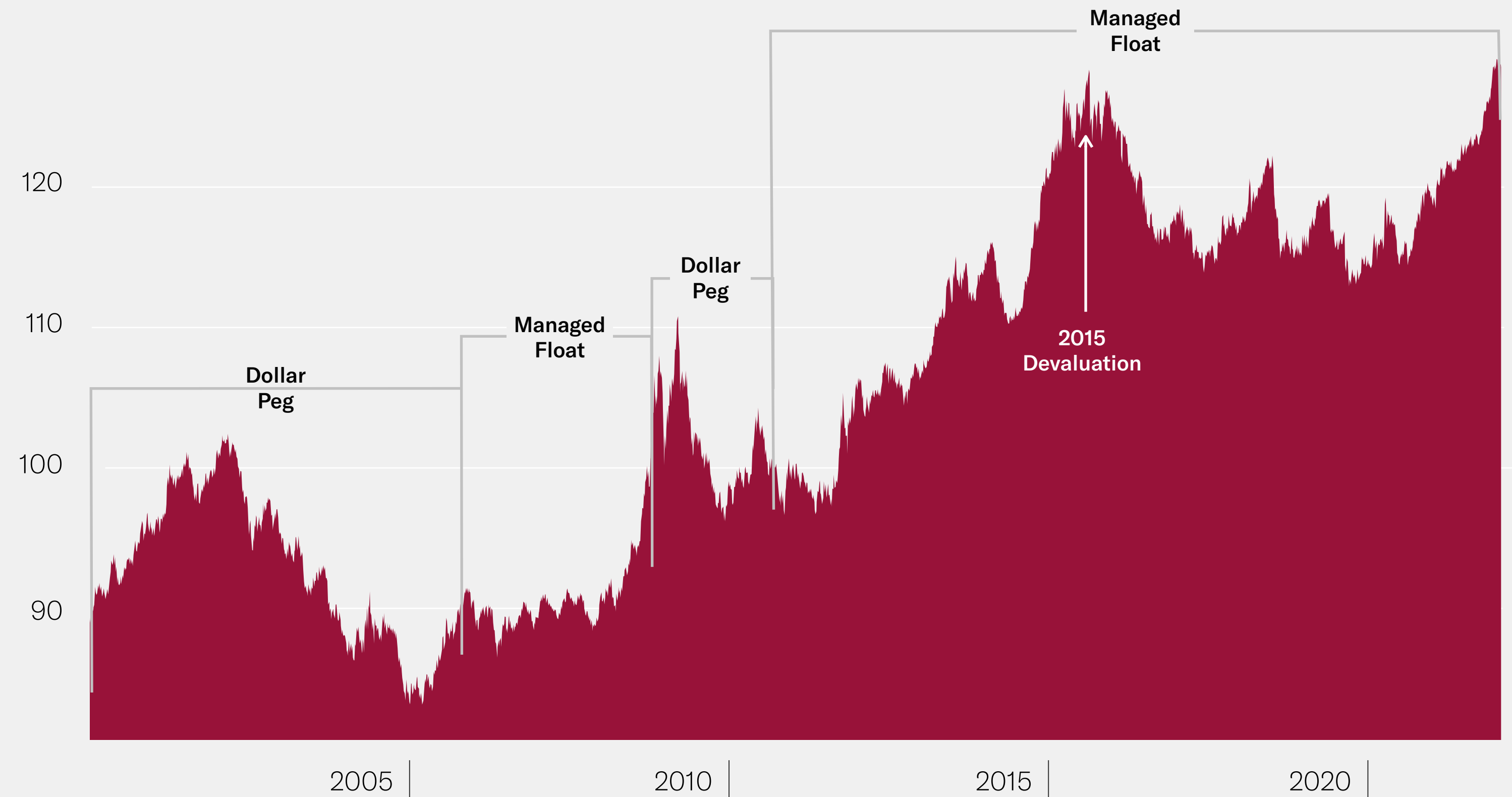


Sources: National Bureau of Statistics, Census Bureau, Eurostat, Author Calculations

The yuan is above levels that previously triggered intervention.

Nominal effective exchange rate, broad, 2010 = 100, January 2000 - January 2022

Strong bond inflows and record trade surpluses have pushed the trade-weighted renminbi well beyond levels which previously triggered explicit intervention. This may have been a deliberate policy choice, designed to offset higher raw materials costs - but officials could step in again if commodity prices tumble and competitiveness suffers.

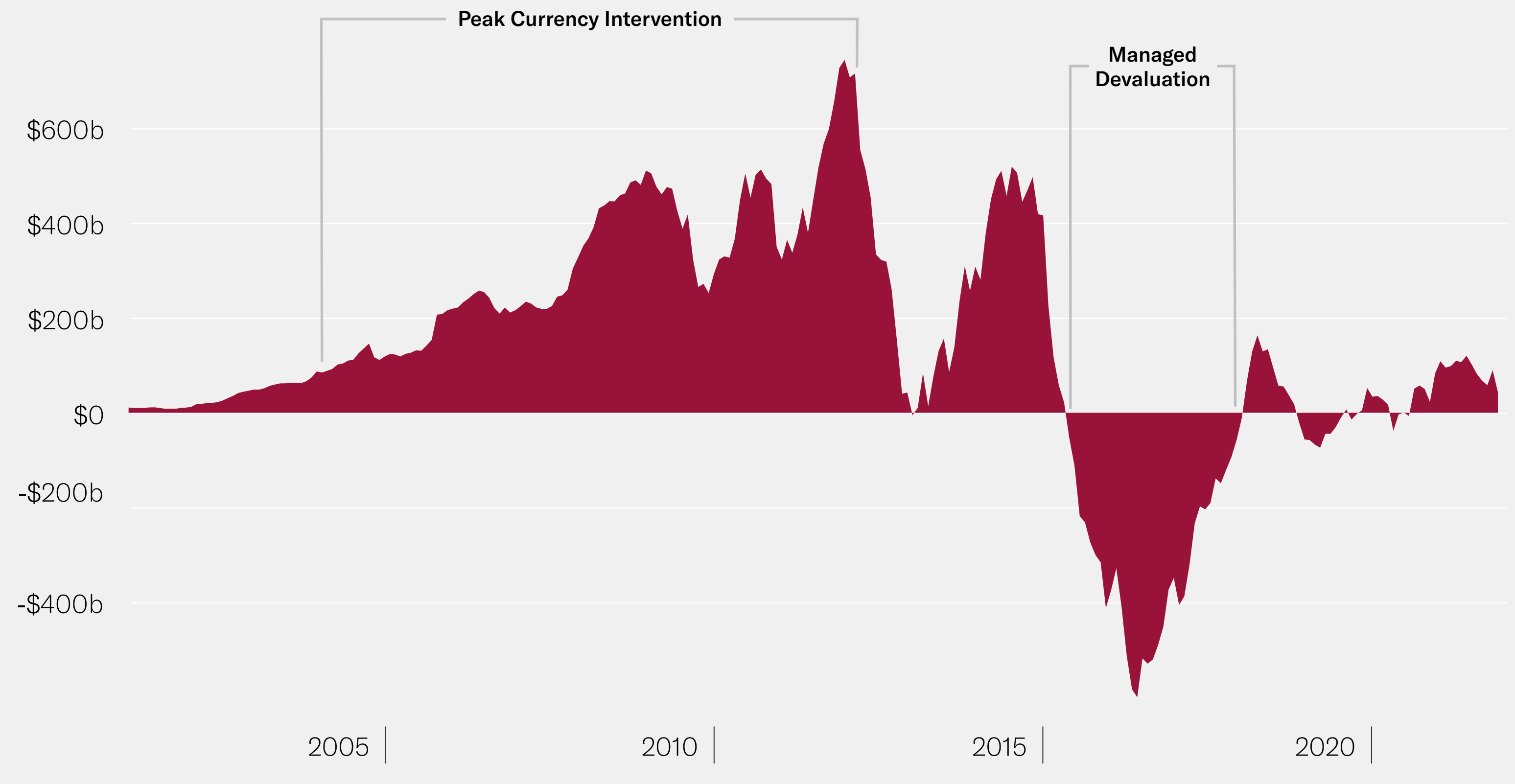


Sources: Bank for International Settlements, Author Calculations

Intervention could be stealthy.

12-month change in official foreign exchange reserves, billions USD, January 2000 - January 2022

If a more deliberate intervention campaign is launched, we don't expect official reserve balances to climb significantly - instead, state-owned bank balance sheets are likely to record growth in net foreign assets.



Official foreign exchange reserve assets and other foreign currency assets, approximate market value

Sources: International Monetary Fund, Author Calculations

08 JAPAN

Forecasters see the yen flatlining against the dollar.

USDJPY forecasts, as at January 15, 2022

The Bank of Japan has lifted its inflation forecasts, but continues to expect a fading in commodity-driven price increases over the coming year. We don't expect any dramatic shifts in policy, but a slight relaxation in the Bank's yield curve control target could help lift rates slightly.

Consensus: ———				
Q1	115	Q2	116	Q3 116 Q4 116
Corpay: - - - - -				
Q1	114	Q2	113	Q3 112 Q4 112



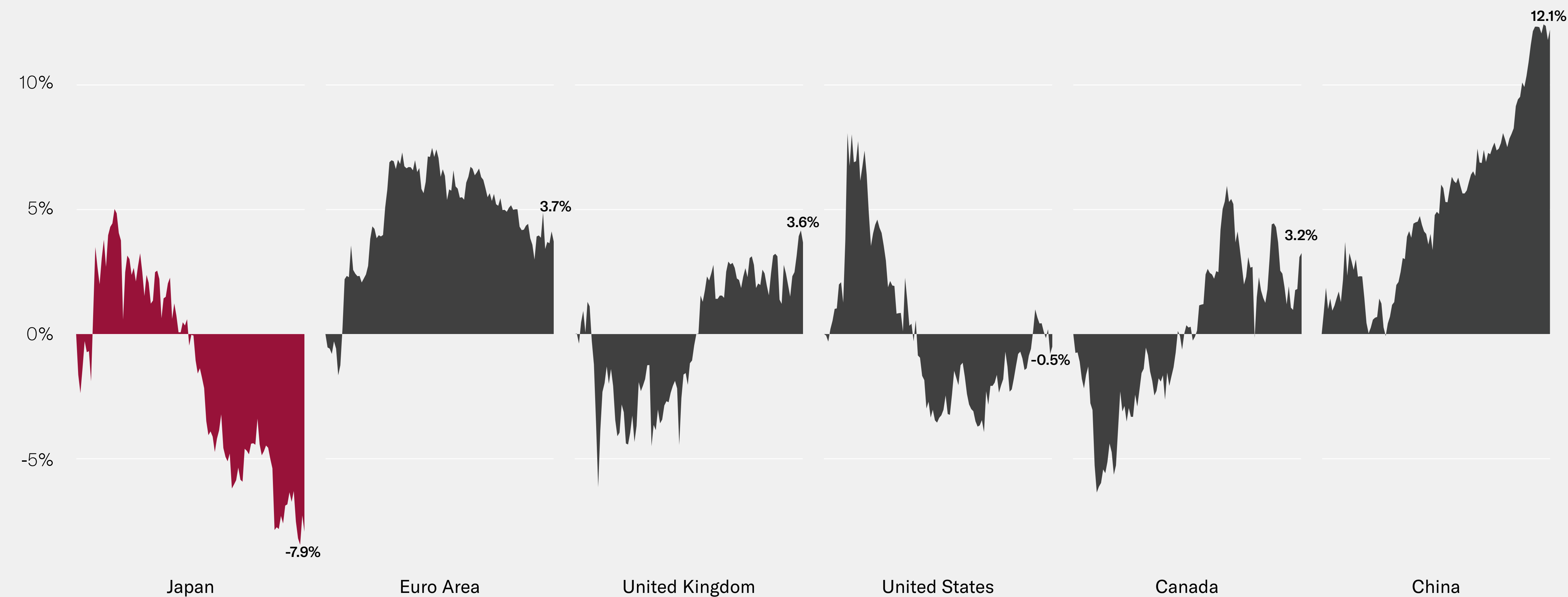
*Uncertainty bands derived from geometric Brownian motion Monte Carlo model, outer

Sources: Bloomberg, Reuters, Author Calculations.

- +/- 90% Confidence Interval
- +/- 70% Confidence Interval
- +/- 50% Confidence Interval

The yen has fallen sharply on a trade-weighted basis.

Change in nominal effective exchange rate, January 2, 2020 - January 21, 2022

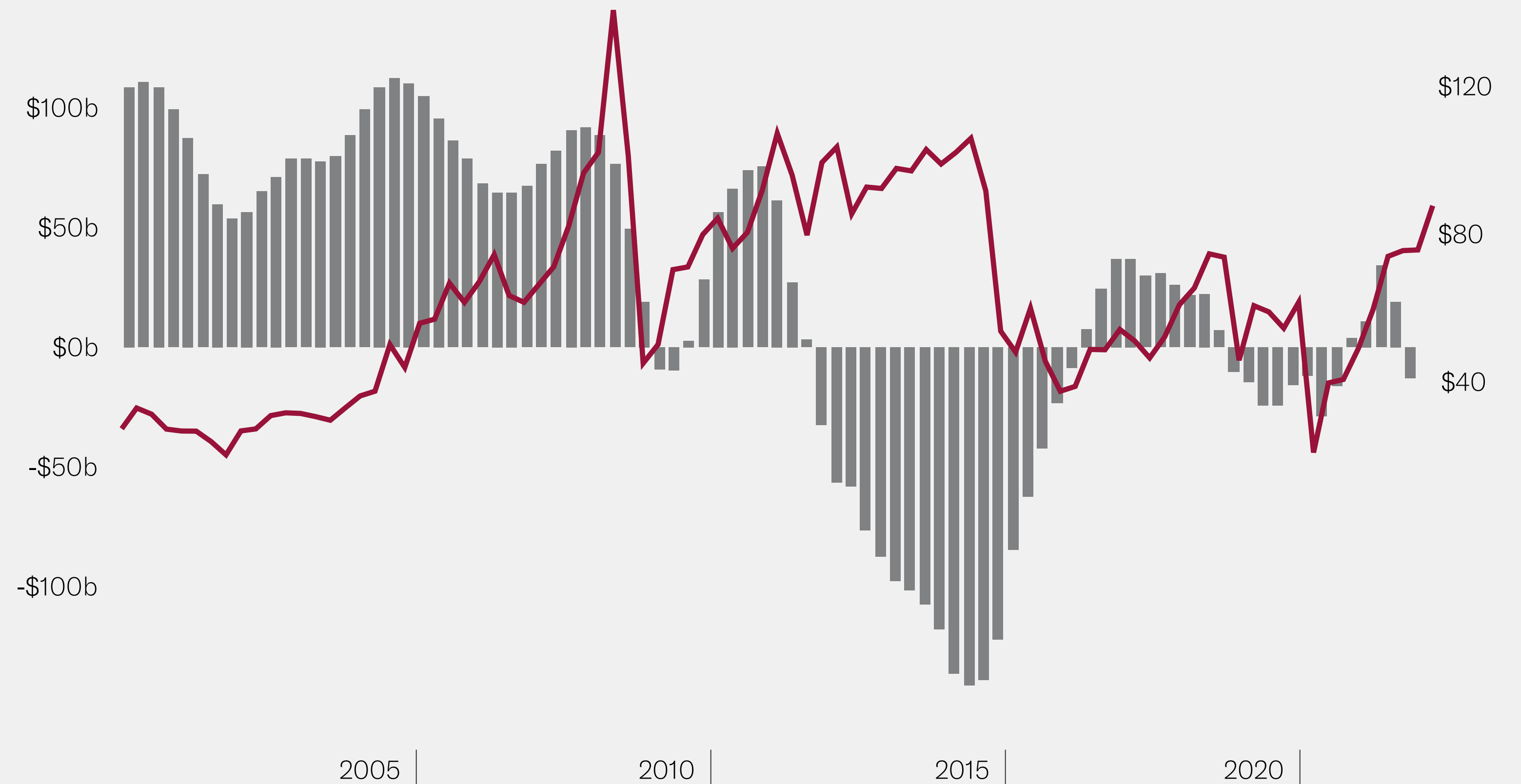


Sources: Bank for International Settlements, Author Calculations

Yet trade balances are likely to remain negative.

West Texas Intermediate v. Japan Trade Balance, Q1 2000 - Q4 2021

With oil prices approaching post-2014 highs, Japan's dependence on imported energy is offsetting currency-assisted competitiveness gains, pushing the trade balance into negative territory.



LHS: Japan trade balance, billions USD, RHS: West Texas Intermediate, USD per barrel

Sources: Ministry of Finance, Bloomberg, Author Calculations

09 AUSTRALIA

Forecasters expect the Australian dollar to rise.

AUDUSD forecasts, as at January 15, 2022

The Australian dollar continues to be well supported by improving domestic fundamentals and a sharp improvement in commodity prices. Yields are constructive around the middle of the curve, with investors expecting the Reserve Bank of Australia to begin tightening in 2023. But the currency’s relationship with global risk sentiment could limit upside.

Consensus:	———
Q1	0.73
Q2	0.73
Q3	0.74
Q4	0.75
Corpay:	-----
Q1	0.72
Q2	0.73
Q3	0.73
Q4	0.74



*Uncertainty bands derived from geometric Brownian motion Monte Carlo model, outer

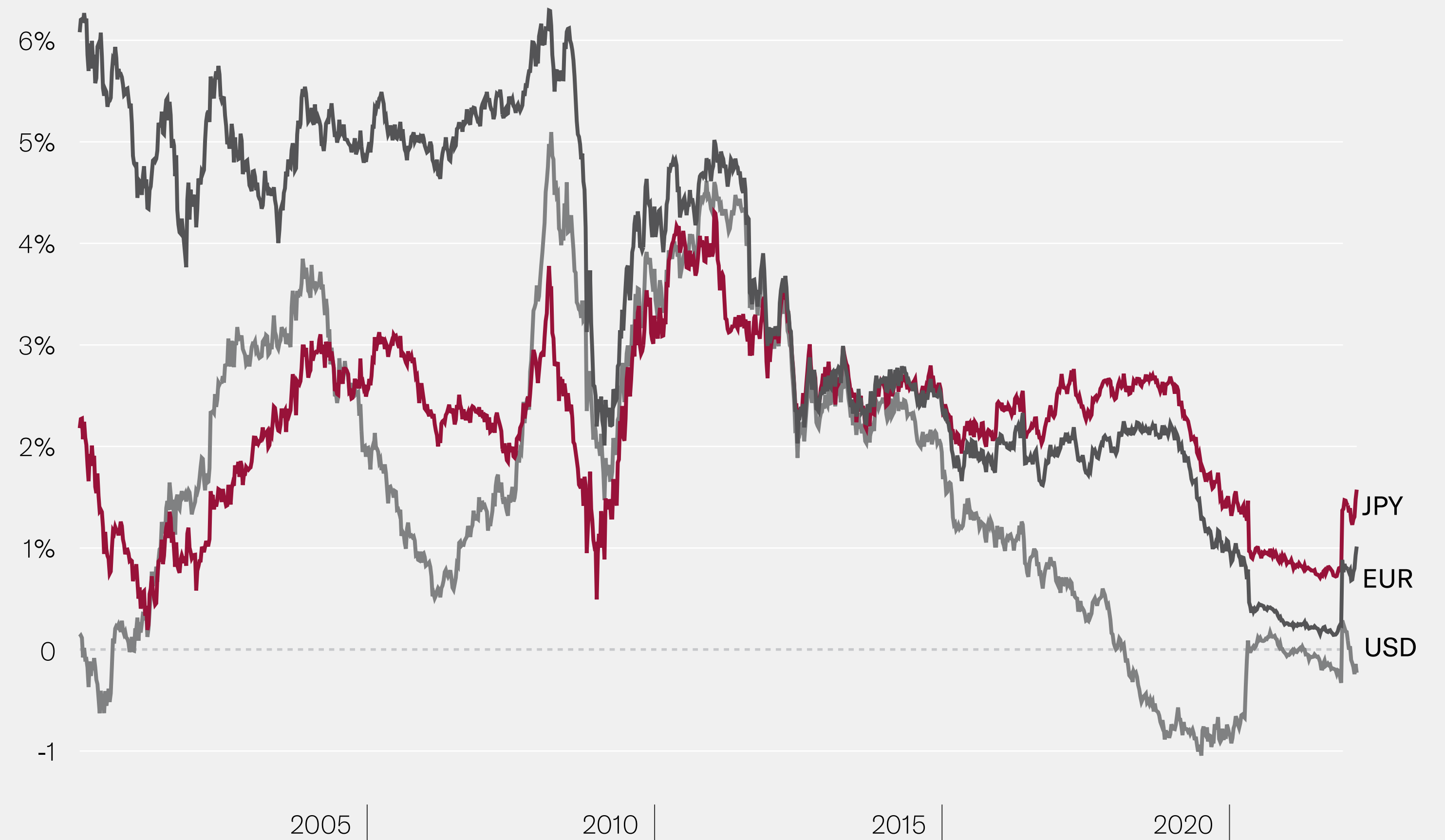
Sources: Bloomberg, Reuters, Author Calculations.

- +/- 90% Confidence Interval
- +/- 70% Confidence Interval
- +/- 50% Confidence Interval

Euro- and yen-funded carry trades are regaining appeal.

2-year sovereign yield differentials*, %, January 7, 2000 - January 27, 2022

Australian dollar yield differentials are far from the halcyon days of the carry trade, but are becoming marginally more attractive as the Reserve Bank of Australia moves toward policy normalization.



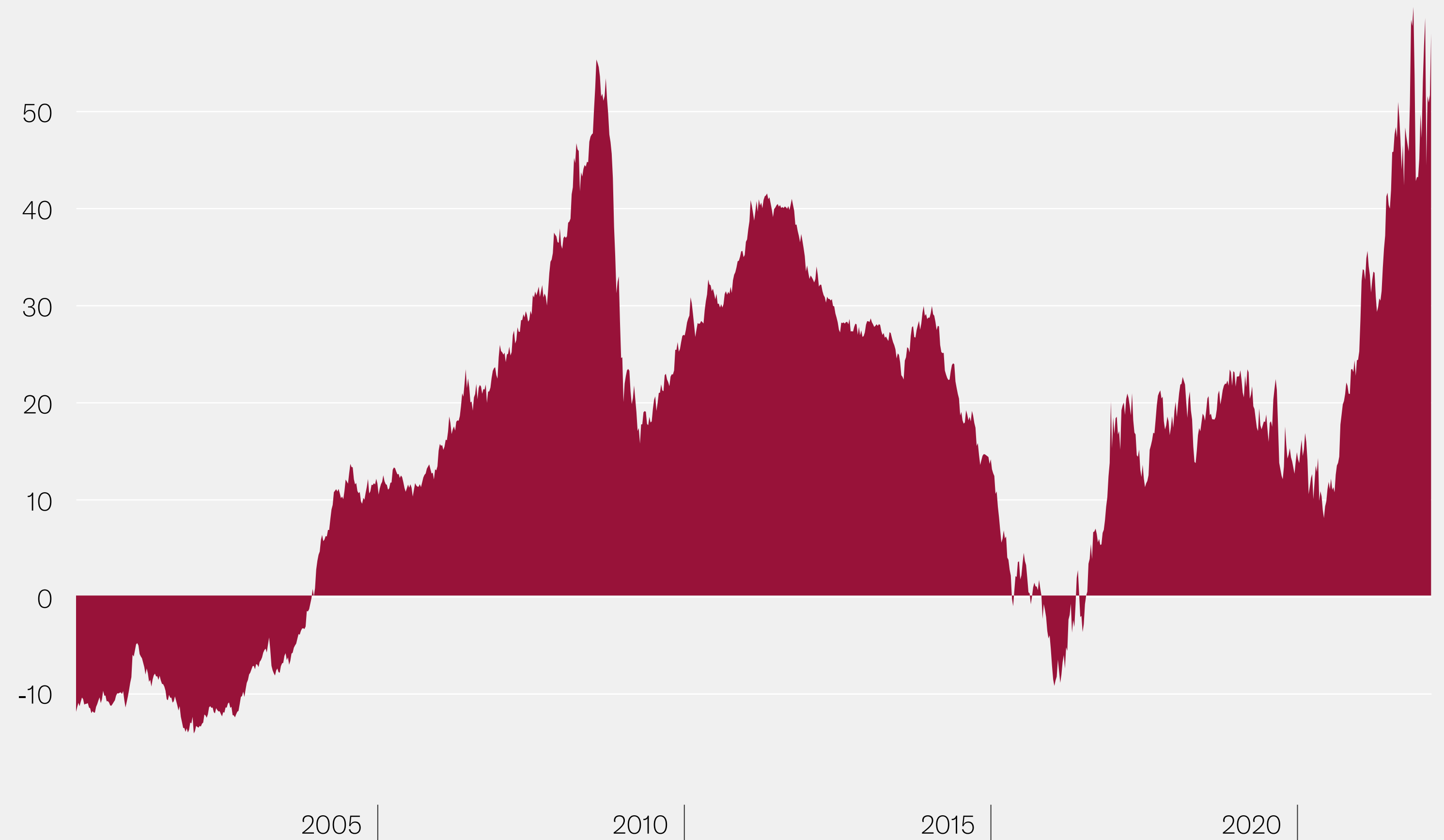
*Australian yields less foreign yields.

Sources: Bloomberg, Author Calculations

Australia's terms of trade have turned enormously positive.

Terms of trade, index, January 7, 2000 - January 27, 2022

Australia's terms of trade - the ratio of export to import prices - have improved in line with global commodity prices, and are now sitting near levels last reached in mid-2008.



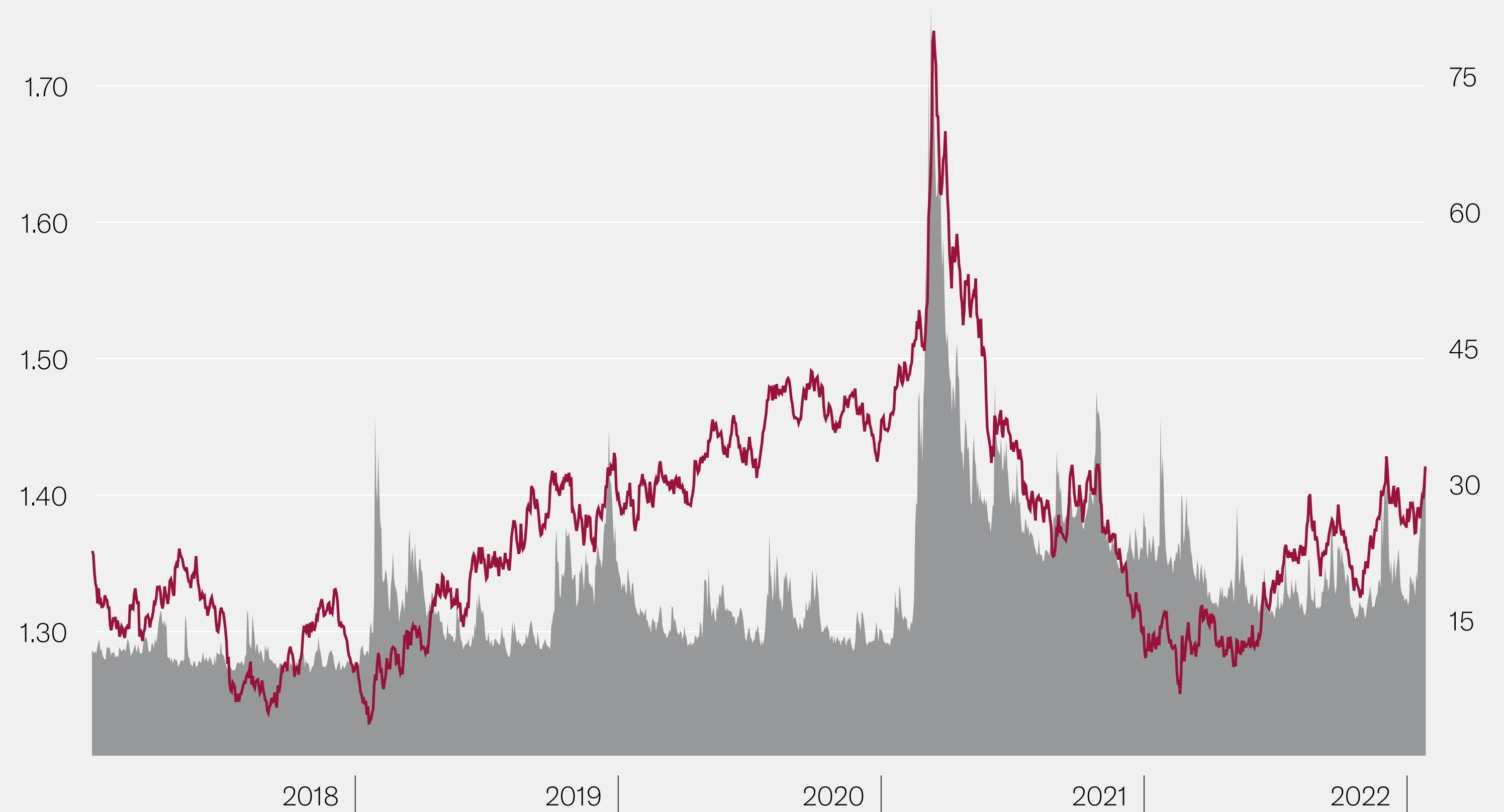
*Terms of Trade index represents a weighted measure of relative commodity export and import prices, with a deficit represented as a negative value, a surplus as a positive value.

Sources: International Monetary Fund, Bloomberg, Author Calculations

But shifts in global risk appetite are driving short-term moves.

VIX v. USDAUD, January 2017 - January 2022

The Australian dollar remains a high-beta currency, leveraged to the global financial cycle. A high correlation between US equity movements and the exchange rate tends to appear during periods of heightened financial market volatility - meaning that turmoil in US financial markets could continue to limit the currency's gains in the months ahead.



LHS: USDAUD exchange rate, RHS: VIX Cboe Volatility Index

Sources: Corpay, Chicago Board Options Exchange, Author Calculations

10 CALENDARS

2022 Economic Calendar

First Quarter

02 February	BRL	Central Bank of Brazil Rate Decision
03 February	GBP	Bank of England Rate Decision
03 February	EUR	European Central Bank Rate Decision
08 February	INR	Reserve Bank of India Rate Decision
10 February	MXN	Bank of Mexico Rate Decision
20 February	CNY	People's Bank of China Rate Decision (LPR)
23 February	KRW	Bank of Korea Rate Decision
28 February	AUD	Reserve Bank of Australia Rate Decision
02 March	CAD	Bank of Canada Rate Decision
09 March	KRW	South Korea Presidential Election
10 March	EUR	European Central Bank Rate Decision
16 March	USD	Federal Reserve Rate Decision
16 March	BRL	Central Bank of Brazil Rate Decision
17 March	JPY	Bank of Japan Rate Decision
17 March	GBP	Bank of England Rate Decision
20 March	CNY	People's Bank of China Rate Decision (LPR)
24 March	MXN	Bank of Mexico Rate Decision

Second Quarter

05 April	AUD	Reserve Bank of Australia Rate Decision
10 April	EUR	France Presidential Election
13 April	CAD	Bank of Canada Rate Decision
13 April	KRW	Bank of Korea Rate Decision
14 April	EUR	European Central Bank Rate Decision
19 April	CNY	People's Bank of China Rate Decision (LPR)
27 April	JPY	Bank of Japan Rate Decision
03 May	AUD	Reserve Bank of Australia Rate Decision
04 May	USD	Federal Reserve Rate Decision
04 May	BRL	Central Bank of Brazil Rate Decision
05 May	GBP	Bank of England Rate Decision
12 May	MXN	Bank of Mexico Rate Decision
19 May	CNY	People's Bank of China Rate Decision (LPR)
21 May	AUD	Australia Federal Election
25 May	KRW	Bank of Korea Rate Decision
01 June	CAD	Bank of Canada Rate Decision
07 June	AUD	Reserve Bank of Australia Rate Decision
09 June	EUR	European Central Bank Rate Decision
15 June	USD	Federal Reserve Rate Decision
15 June	BRL	Central Bank of Brazil Rate Decision
16 June	JPY	Bank of Japan Rate Decision
16 June	GBP	Bank of England Rate Decision
19 June	CNY	People's Bank of China Rate Decision (LPR)
23 June	MXN	Bank of Mexico Rate Decision

2022 Economic Calendar

Third Quarter

05 July	AUD	Reserve Bank of Australia Rate Decision
13 July	CAD	Bank of Canada Rate Decision
13 July	KRW	Bank of Korea Rate Decision
19 July	CNY	People's Bank of China Rate Decision (LPR)
20 July	JPY	Bank of Japan Rate Decision
21 July	EUR	European Central Bank Rate Decision
27 July	USD	Federal Reserve Rate Decision
02 August	AUD	Reserve Bank of Australia Rate Decision
03 August	BRL	Central Bank of Brazil Rate Decision
04 August	GBP	Bank of England Rate Decision
11 August	MXN	Bank of Mexico Rate Decision
21 August	CNY	People's Bank of China Rate Decision (LPR)
24 August	KRW	Bank of Korea Rate Decision
06 September	AUD	Reserve Bank of Australia Rate Decision
07 September	CAD	Bank of Canada Rate Decision
08 September	EUR	European Central Bank Rate Decision
15 September	GBP	Bank of England Rate Decision
19 September	CNY	People's Bank of China Rate Decision (LPR)
21 September	JPY	Bank of Japan Rate Decision
21 September	USD	Federal Reserve Rate Decision
21 September	BRL	Central Bank of Brazil Rate Decision
29 September	MXN	Bank of Mexico Rate Decision

Fourth Quarter

02 October	BRL	Brazil General Election
03 October	AUD	Reserve Bank of Australia Rate Decision
13 October	KRW	Bank of Korea Rate Decision
19 October	CNY	People's Bank of China Rate Decision
26 October	CAD	Bank of Canada Rate Decision
26 October	BRL	Central Bank of Brazil Rate Decision
27 October	JPY	Bank of Japan Rate Decision
27 October	EUR	European Central Bank Rate Decision
31 October	AUD	Reserve Bank of Australia Rate Decision
02 November	USD	Federal Reserve Rate Decision
03 November	GBP	Bank of England Rate Decision
08 November	USD	United States Mid-Term Elections
10 November	MXN	Bank of Mexico Rate Decision
20 November	CNY	People's Bank of China Rate Decision
23 November	KRW	Bank of Korea Rate Decision
05 December	AUD	Reserve Bank of Australia Rate Decision
07 December	CAD	Bank of Canada Rate Decision
07 December	BRL	Central Bank of Brazil Rate Decision
14 December	USD	Federal Reserve Rate Decision
15 December	GBP	Bank of England Rate Decision
15 December	EUR	European Central Bank Rate Decision
15 December	MXN	Bank of Mexico Rate Decision
19 December	JPY	Bank of Japan Rate Decision
19 December	CNY	People's Bank of China Rate Decision

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