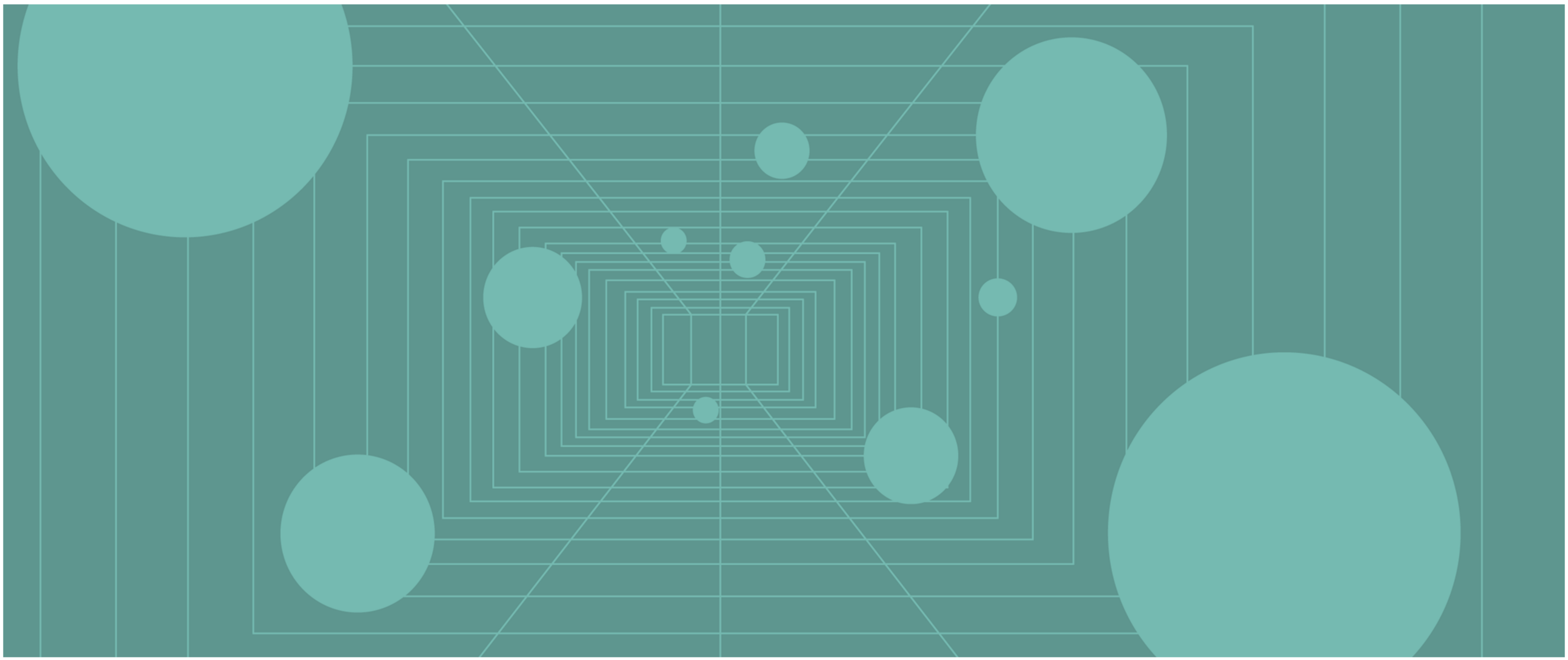
THE RISE IN INFLATION

A LOOK AT THE DYNAMICS AT PLAY



CAMBRIDGE ASSOCIATES

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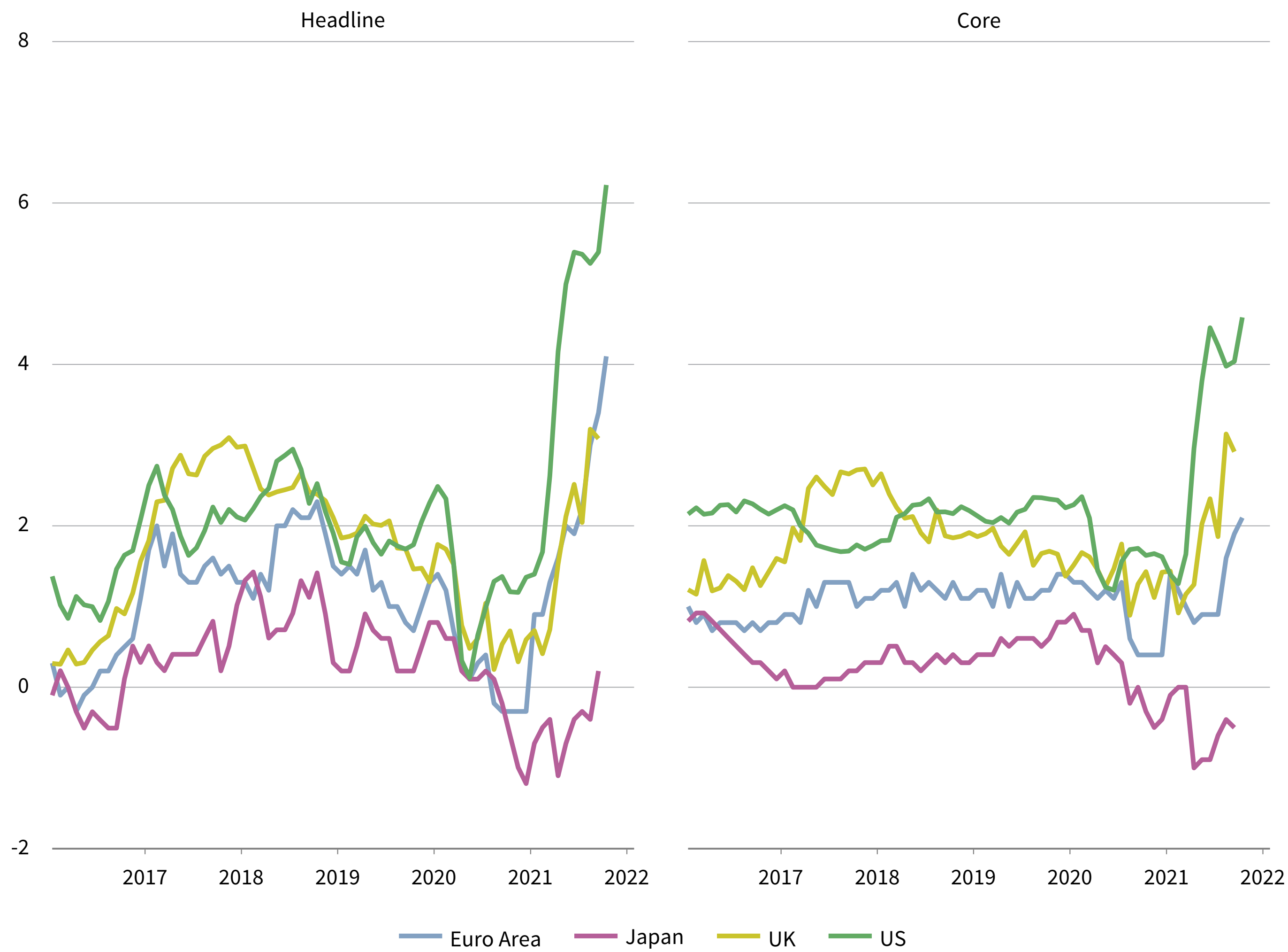
Key points

- Inflation rates have spiked in many countries due in part to the strong economic recovery from 2020's virus-linked downturn, the ongoing disruption in global supply chains, and the recent spike in energy prices.
- Goods prices have been particularly impacted. In the US, goods prices tended to fall in the years leading up to the pandemic, but record levels of government support and reduced demand for services both contributed to higher goods orders.
- That demand led to a surge in Asian exports. Many developed countries reported record levels of new orders, even as prior orders were backlogged. At the same time, inventory levels were low in many countries, which added to price pressures.
- The strong economic recovery has boosted wages in some countries. In the US, the labor market is exceptionally tight, with more job openings than people that are unemployed. So far, wage pressures have been most evident among lower paid and younger workers.
- Home prices in the euro area, Japan, the UK, and the US have also all spiked in the last year, outstripping income growth in those countries. Alongside home prices, energy prices have also soared, as investment and oil & gas rig counts remain at low levels.
- The expectation of higher rates, reduced government support, and a rebalancing of goods/services demand, along with a belief that the functioning of global supply chains will improve, is likely behind the market's belief that inflation will moderate.

Inflation has spiked in many countries, becoming the dominant market narrative

ANNUAL INFLATION RATES
January 2016 – October 2021 • Percent (%)

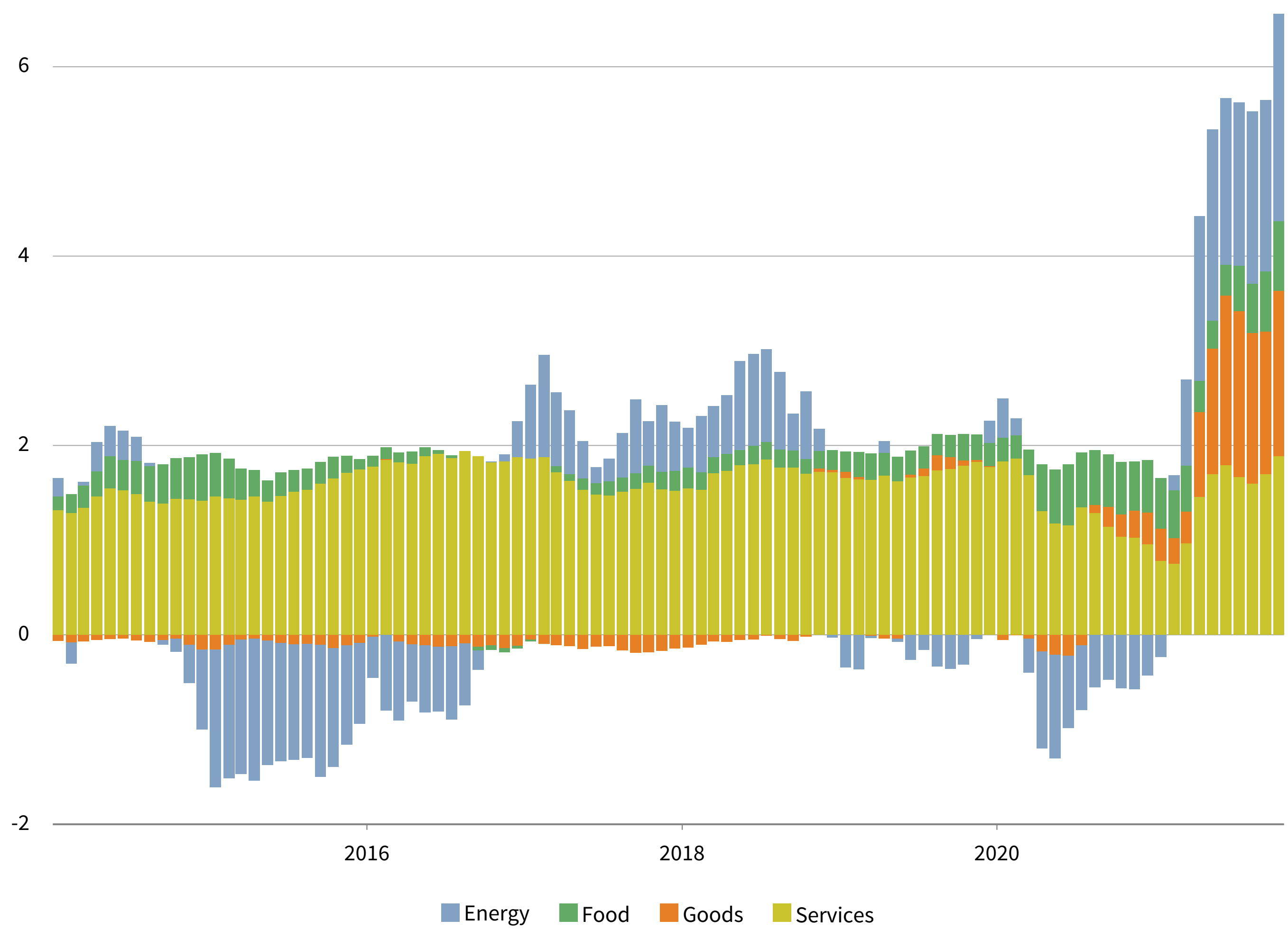


The jump in many countries' inflation rates are linked to the strong economic recovery from 2020's virus-linked downturn, the recent spike in energy prices, and the ongoing disruption in global supply chains. So far, price pressures have been most acute in the US, where the headline inflation rate hit 6.2% in October. Even after stripping out volatile food and energy items, US core inflation still rose 4.6% in its last reading and is at its highest level since 1991. But Europe eased lockdown measures later than the US, and the Bank of England recently warned inflation could hit 5% early next year, as the accumulated pent-up demand filters through the economy. In the euro area, energy has so far played a prominent role, contributing 2.2 percentage points (ppts) to the October 4.1% headline inflation rate.

Source: Thomson Reuters Datastream.

Changes in goods prices has been a large driver of the recent surge in US inflation

COMPOSITION OF US HEADLINE INFLATION
January 2014 – October 2021 • Percent (%)



The pandemic's impact on consumer behavior led to dramatic shifts in underlying price dynamics. At its highest level, it can be seen in US goods inflation, which contributed over 1.5 ppts to both core and headline inflation rates in recent months. That level is materially higher than levels in the last business cycle, when advancements in technology and automation from companies like Amazon resulted in goods deflation. Unlike goods, recent services inflation prints were much more consistent with those observed pre-pandemic, which is due in part to smaller changes in medical care services offsetting faster rises in home rental prices. While energy has been a large contributor to US headline inflation in recent months, its highly variable nature is a key reason why energy is often excluded when making inflation forecasts.

Source: Thomson Reuters Datastream.
Note: The CPI subindexes used are as follows: Commodities Less Food and Energy Commodities (Goods); Services Less Energy Services (Services); Energy; and Food.

Government support aided the economic recovery and supported inflation

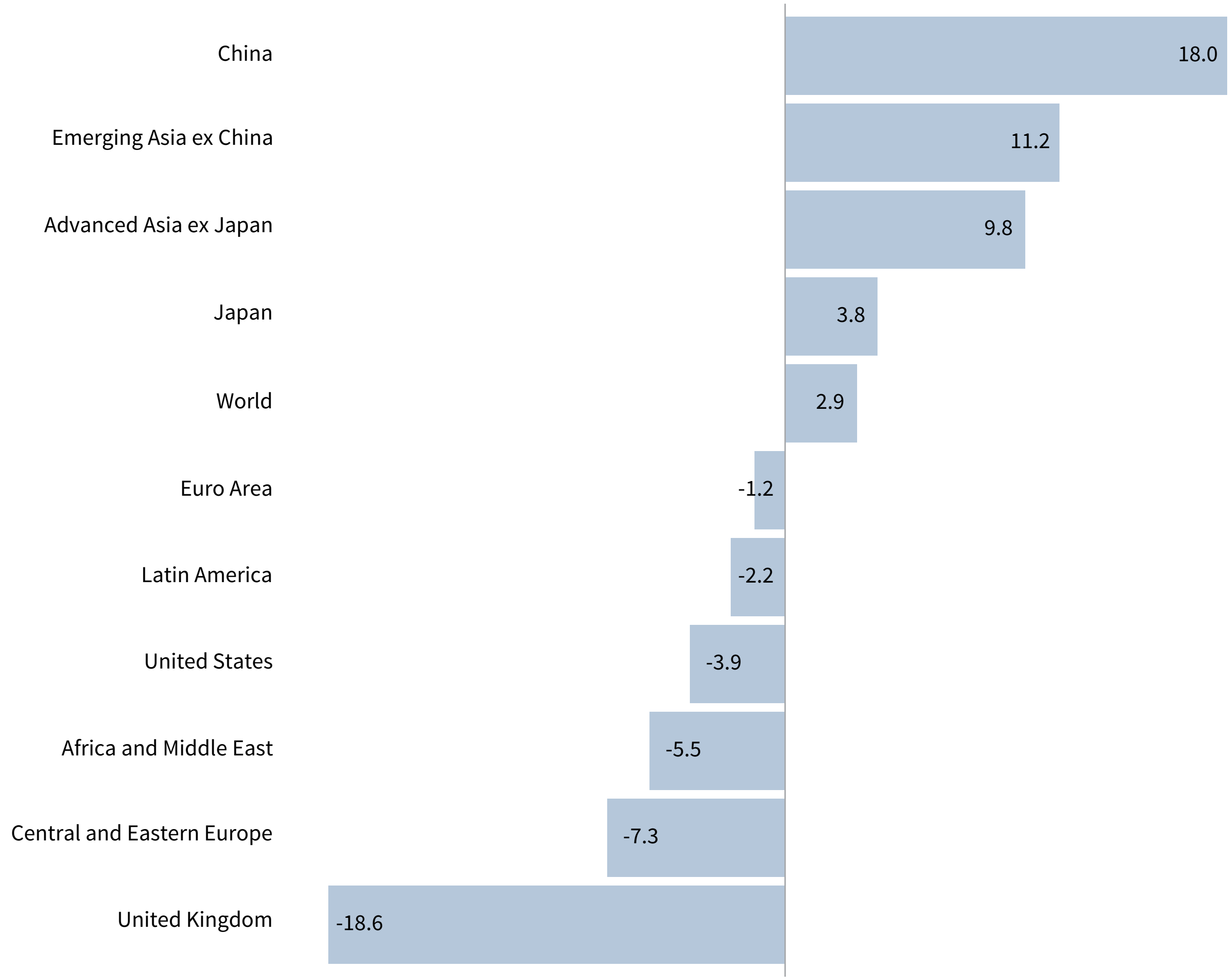
G4 MONEY SUPPLY
December 1995 – June 2021 • Percent (%) of GDP

Many monetary and fiscal authorities engaged in unprecedented measures to support economies during the pandemic. Their actions led to a record expansion in money supply. Among the four major developed economies—the euro area, Japan, US, and UK—broad money supply increased $9.6 trillion to 50.7 trillion from the end of 2019 to present. As a share of the aggregate economy, the money supply increase was equally impressive. This stimulus helped personal income and savings soar. In the US, the savings rate was so high that in six different months during the pandemic the rate was higher than all other available monthly data, which dates to 1959. That build up in wealth, in addition to the pent-up demand from pandemic restrictions, reduced the sensitivity of consumers to prices. This reality, along with reduced demand for services, supported goods inflation.

Source: Thomson Reuters Datastream.
Notes: The data highlight the size of a broad measure of money supply (M2) relative to GDP for the Euro Area, Japan, United States, and United Kingdom in aggregate. The dotted line highlights the long-term trend of money supply.

The magnitude of the growth in goods demand led to supply chain challenges

GLOBAL EXPORT GROWTH
As of August 31, 2021 • Percent (%) Change From 2019

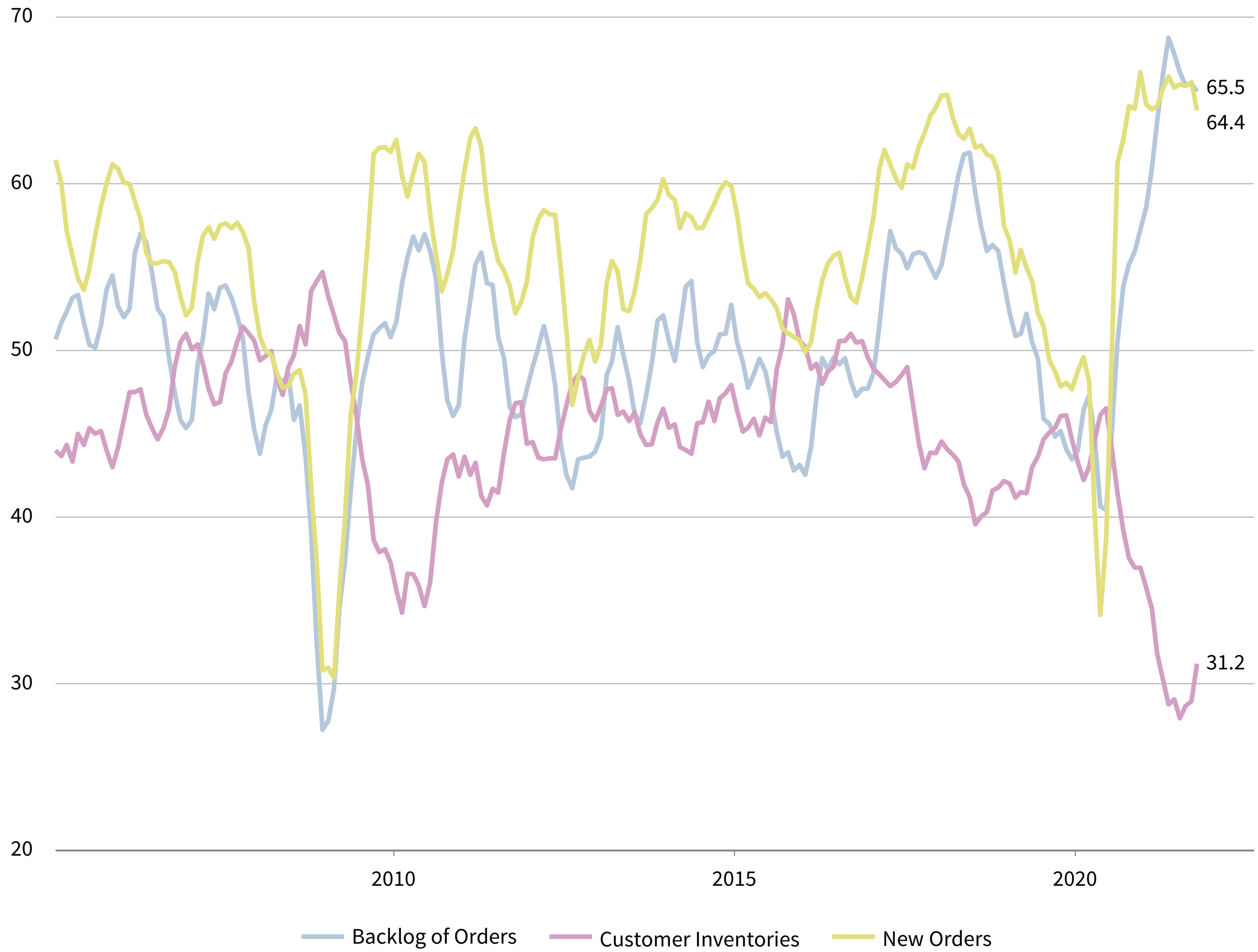


Asia is the clear winner from the growth in global goods demand. Relative to prior to the pandemic, China's export volumes have surged 18%. Taiwan (33%), Vietnam (21%), and South Korea (16%) have also experienced considerable increases. The strong rate in growth came as the world wrestled with supply/demand mismatches, virus outbreaks, and more recently, power shortages. These factors resulted in longer-than-expected supply disruptions and exposed the shortcomings of just-in-time manufacturing and global supply networks. While supply bottlenecks have challenged operations, many Asian businesses have been able pass along higher input prices to less price-sensitive consumers. In fact, in China, the 12% rate of growth in producer prices over the past year very nearly matches the rise in export prices over the same period.

Sources: CPB Netherlands Bureau for Economic Policy Analysis and Thomson Reuters Datastream.
Note: Data are the volume growth in exports as compared to the average level in 2019.

US order activity suggests demand pressures are still present

US MANUFACTURERS ORDER ACTIVITY
January 2005 – October 2021

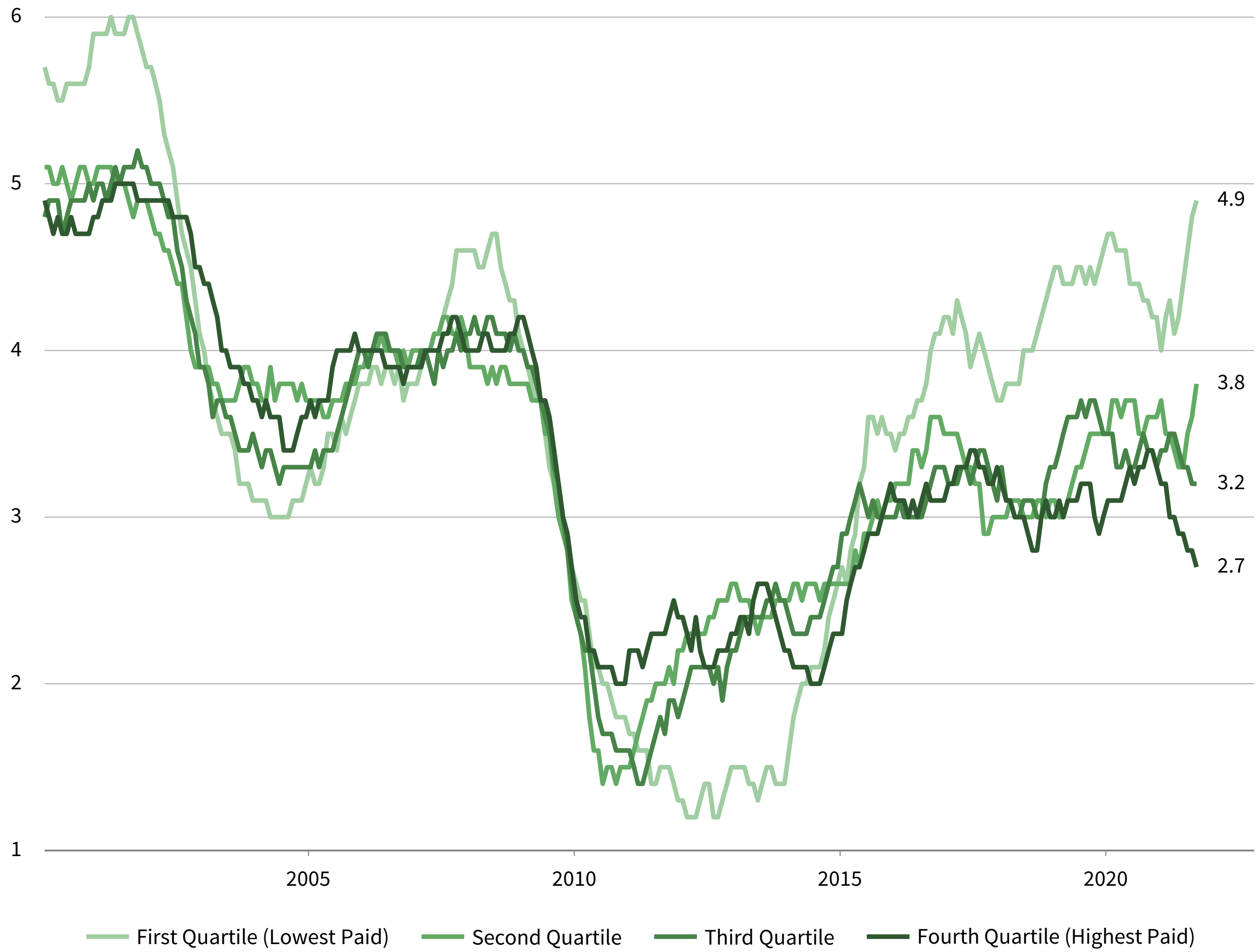


New order activity remains elevated relative to history, with 14 of 18 US manufacturing industries reporting growth in new orders in October. These new orders came despite the considerable backlog in existing orders. This congestion is visible at the ports of Los Angeles and Long Beach, where a historically high number of containers ships (~100) have often been anchored at sea waiting to enter and unload raw and intermediate goods for US manufacturers. The difficulty in getting products to market and the surge in demand has caused inventory levels to plummet. While inventory declines are common during recessions, current levels are near the lowest they've been in recent decades. These matters have also been complicated by labor shortages, with manufacturers and nonmanufacturers widely reporting that they are seeking to hire.

Sources: Institute for Supply Management and Thomson Reuters Datastream.
Notes: The data are diffusion indexes summarizing US economic activity. Levels above (below) 50 indicate an expansion (reduction) in that activity gauge. Data are smoothed, using a three-month moving average.

Tight labor markets have pushed up wages

US WAGE GROWTH BY INCOME QUARTILES
January 2000 – September 2021 • Percent (%)

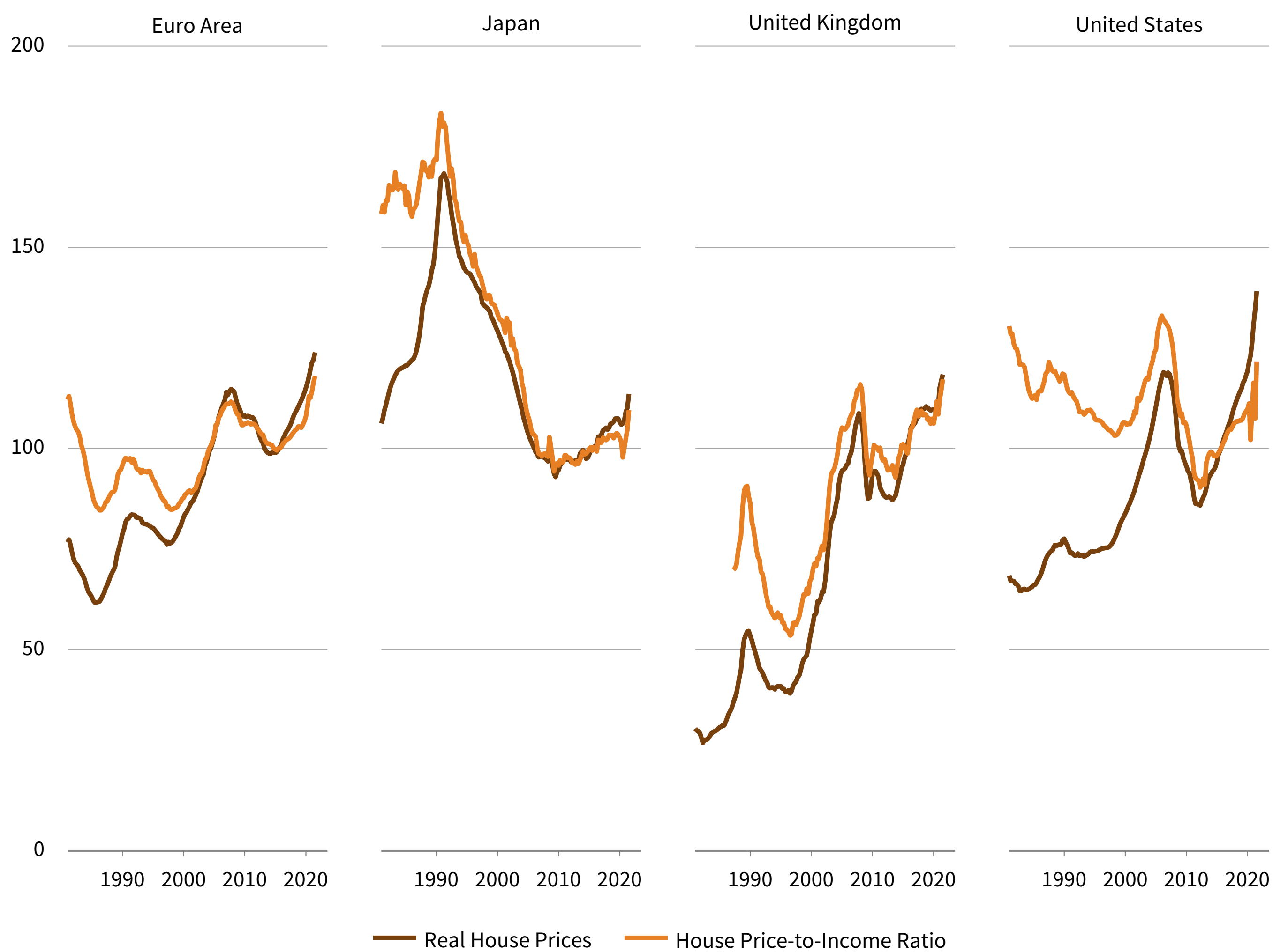


Labor markets have tightened in many countries since last year's downturn. In the US, the employment-to-population ratio of working aged people is just a couple percentage points shy of its peak last cycle. But much more telling is the number of job openings, which relative to the number of unemployed has never been larger. The difficulty in recruiting individuals to work has led to wage gains. To date, these gains have benefited lower-income workers and younger workers disproportionately. Across the Atlantic, the UK is also reporting labor shortages and wage growth gains, with the office of national statistics estimating private sector pay grew between 4.1–5.6%. In the euro area, wage pressures, like core inflation pressures, have so far been less acute.

Sources: Federal Reserve Bank of Atlanta and Thomson Reuters Datastream.
Note: Data are the 12-month moving average of median wage growth for each category and based on hourly data.

Home prices have risen, supported by a confluence of factors

G4 HOUSE PRICES
December 1980 – June 2021 • 2015 = 100



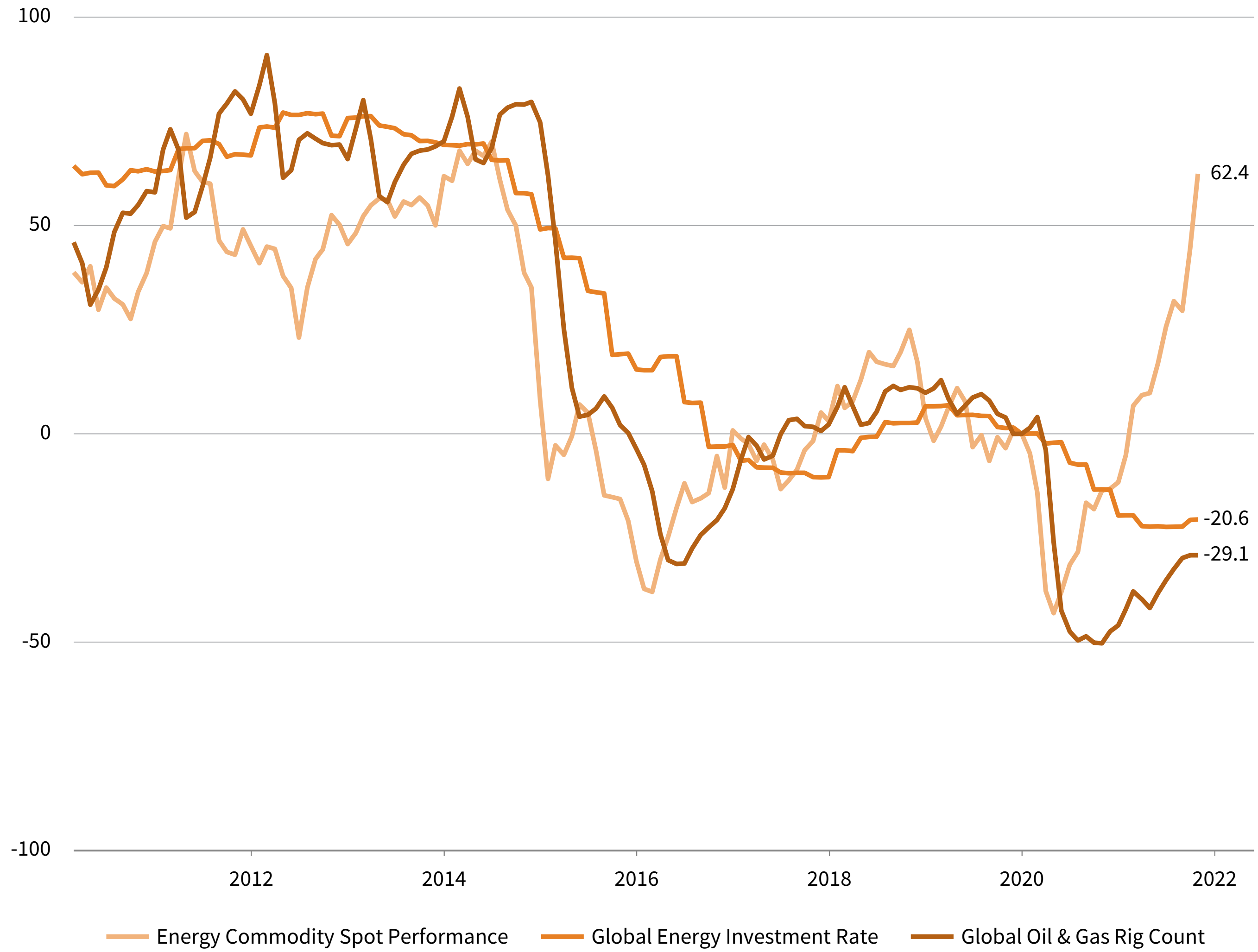
Source: Organization for Economic Cooperation and Development.
Note: Data are indexed to 100 in 2015 by the OECD.

Several countries are seeing a spike in home prices, which is outpacing the growth in incomes. This is particularly true in the US, where home prices have increased 13.1% over the last year. That rate of growth is the fastest recorded in over four decades, and it is higher than the growth in the UK (8.9%), Japan (7.0%), and the euro area (5.2%). While affordability worsened across each of these countries in the last year, the US's house price-to-income ratio deteriorated the most. These gains are linked in part to unique impacts to supply and demand. On the supply side, pandemic restrictions and scarce raw materials caused new home building to plummet. Also, far fewer existing homes were added to the market, given broad foreclosure protections. On the demand side, many were forced to delay home buying plans, but with higher levels of wealth and access to cheap capital, demand has surged in many areas.

The pickup in demand and years of under investment led to increases in energy prices

GLOBAL ENERGY SECTOR DYNAMICS

February 2010 – October 2021 • Percent (%) Change From December 2019 Levels

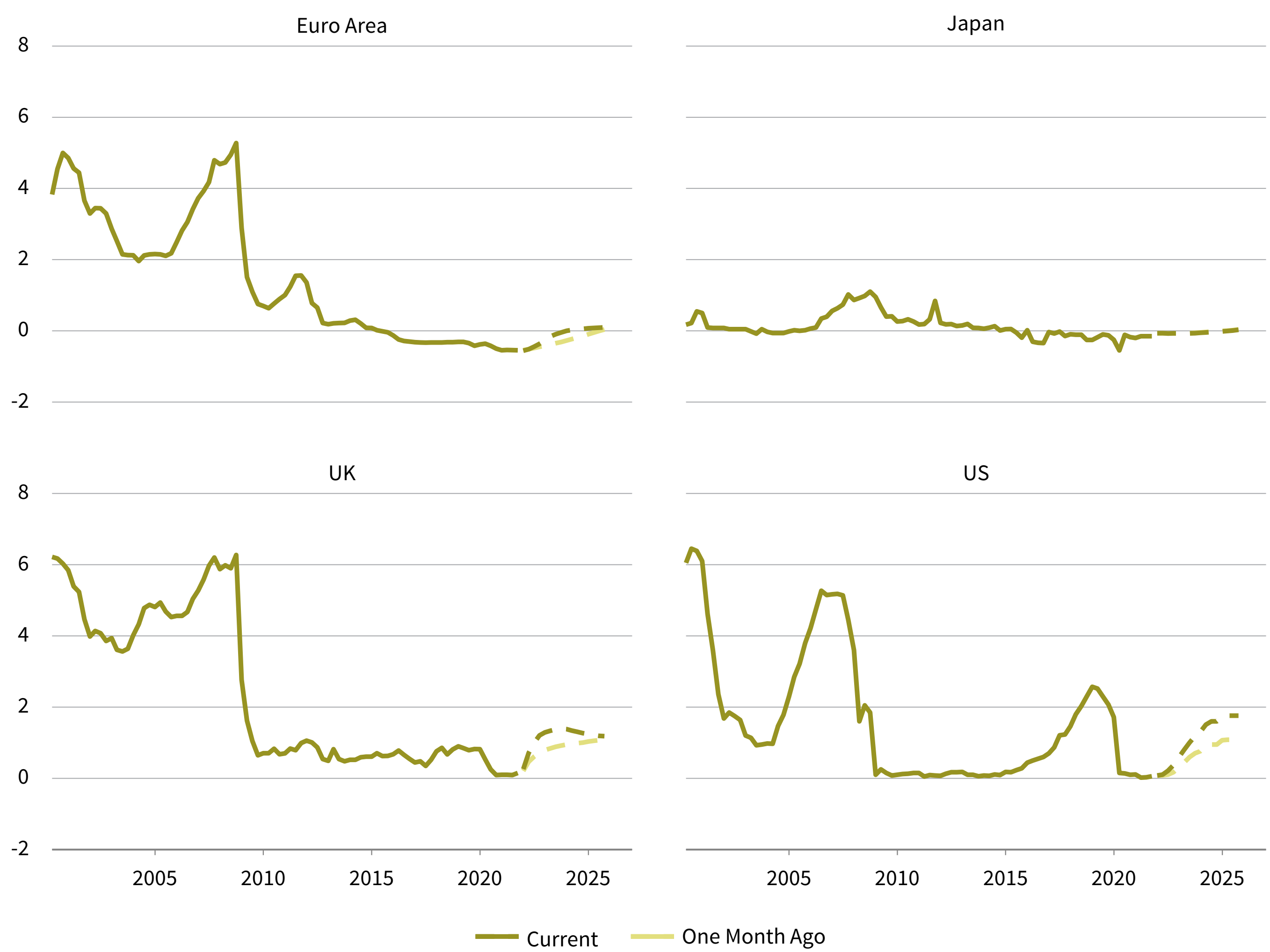


Energy prices have climbed over 60% since the end of 2019, with European natural gas prices up significantly more. Like other areas of the economy, virus outbreaks and pandemic restrictions impacted this sector. More than 1,100 oil & gas rigs went offline in the first eight months of the pandemic, reducing the global count to the lowest level (1,016) since 1975 when data was first tracked. But OPEC and its partner countries are also restricting available crude oil supply. According to the US government, OPEC's unused capacity in 2021 will amount to roughly 7 million barrels per day, almost three times more than its pre-pandemic long-term average. While the cartel has agreed to incrementally deliver more supply to the market, the years of under investment remains a challenge for the industry. Even prior to the pandemic, the industry's investment rate was barely sufficient to keep production stable.

Sources: Baker Hughes International, Bloomberg L.P., and Thomson Reuters Datastream.
Notes: Energy commodity spot performance is based on the Bloomberg Energy Spot Index in US Dollars. The global energy investment rate is the sector's aggregate capital expenditures relative to its aggregate depreciation and amortization.

Inflation pressures have prompted the market to expect rates to rise more quickly

G4 SHORT-TERM YIELDS
As of November 10, 2021 • Percent (%)

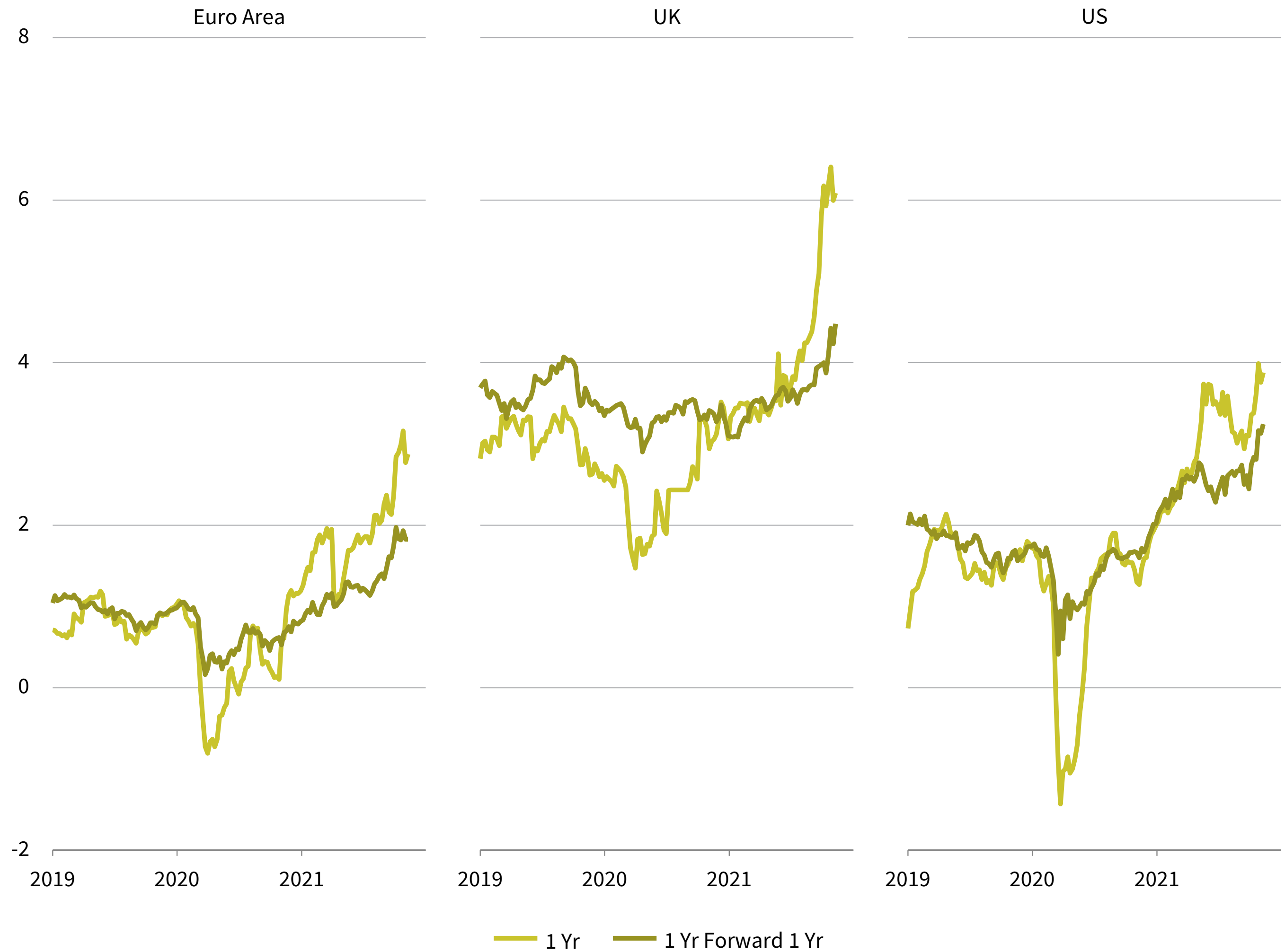


The market's expectation of short-term rates in many major countries are higher now than they were a month ago. This is most evident in the UK and the US. For instance, the futures-implied three-month deposit yield in the UK at the end of 2022 is currently 1.29%, versus 0.80% one month ago or even 0.03% at the beginning of 2021. While the Bank of England's decision to hold rates firm last week did push rate expectations lower in the days that followed, the movement this year has been mostly in one direction. This trend was also visible in US and euro area rates. In the US, market pricing currently suggests that policymakers will probably hike rates for the first time this cycle at the June 2022 meeting, according to CME's Fed watch tool.

Source: Thomson Reuters Datastream.
Note: The data are based on historical three-month deposit rates as well as the rates implied by futures contracts on deposit rates. Dotted lines indicate where the rates are implied by futures.

The market expects inflation to moderate next year

INFLATION-LINKED SWAP RATES
January 01, 2019 – November 09, 2021 • Percent (%)



One way to see the market's embedded expectation of inflation is to compare one year inflation-linked swap rates to a similar one-year swap rate that starts in one year's time, a so-called one-year forward, one-year swap. In the EU, these swap rates diverge considerably (2.8% vs 1.8%), and they indicate that the market expects inflation to be higher this year relative to next year. This moderation in inflation is also expected in the UK and the US, and it is consistent with central bank guidance. Just last week, the Fed repeated its belief that inflation largely reflects "factors that are expected to be transitory." In lockstep, the Bank of England said that global cost pressures will likely "prove transitory, leading to a one-off increase in consumer prices rather than persistently higher inflation rates." Only time will tell if the market and central banks were correct.

Source: Thomson Reuters Datastream.
Notes: A zero-coupon inflation-linked swap exchanges a pre-determined fixed rate in return for an inflation-linked payment over the life of the swap. Swaps are linked to the Harmonised Indices of Consumer Prices – All Items excluding Tobacco in the euro area, the Retail Price Index in the UK, and the Consumer Price Index in the US.

Kevin Rosenbaum, Global Head of Capital Markets Research