



Guide to the Markets

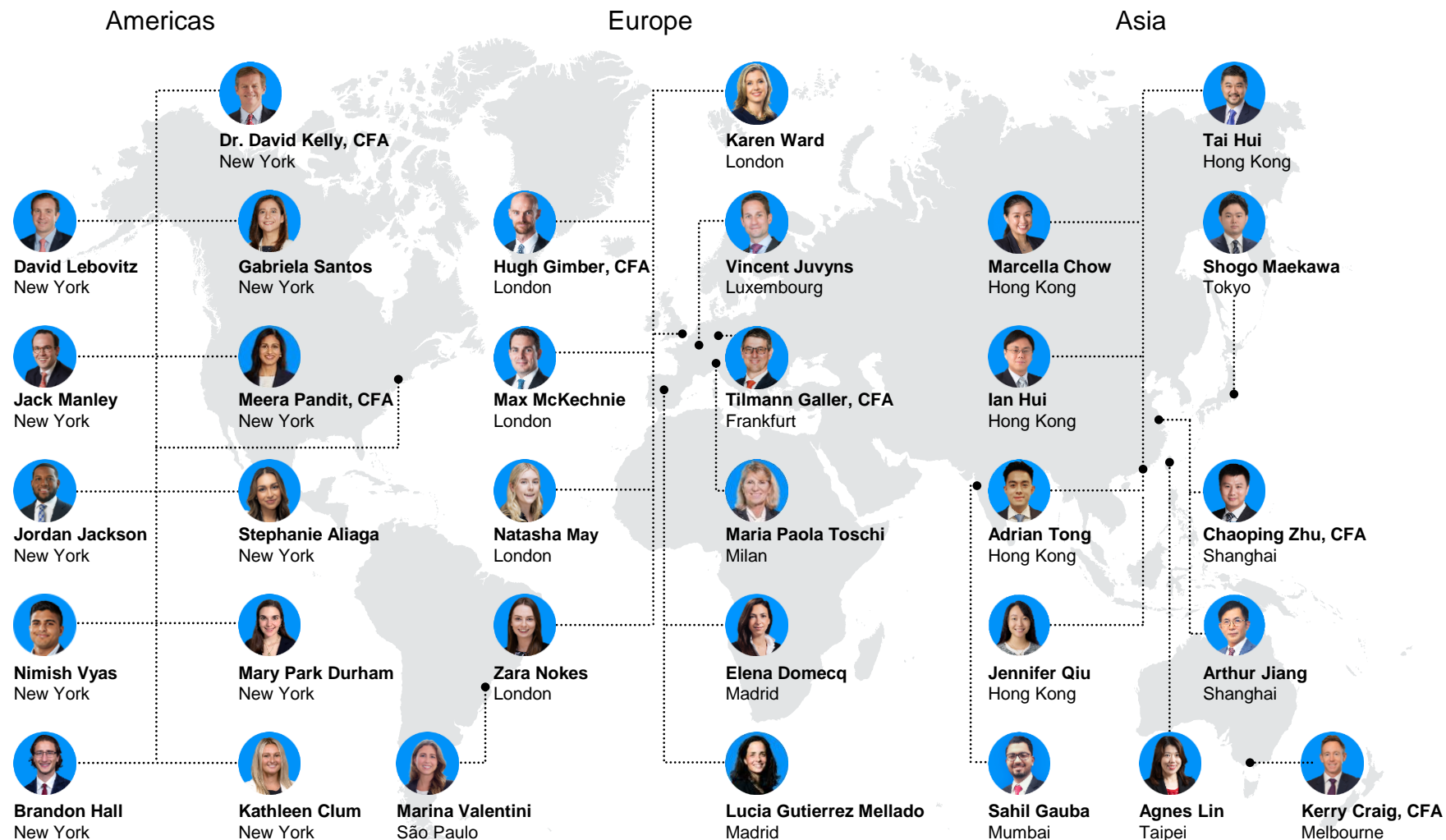
UK | Q3 2023
As of 30 June 2023





Global Market Insights Strategy Team

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Global growth

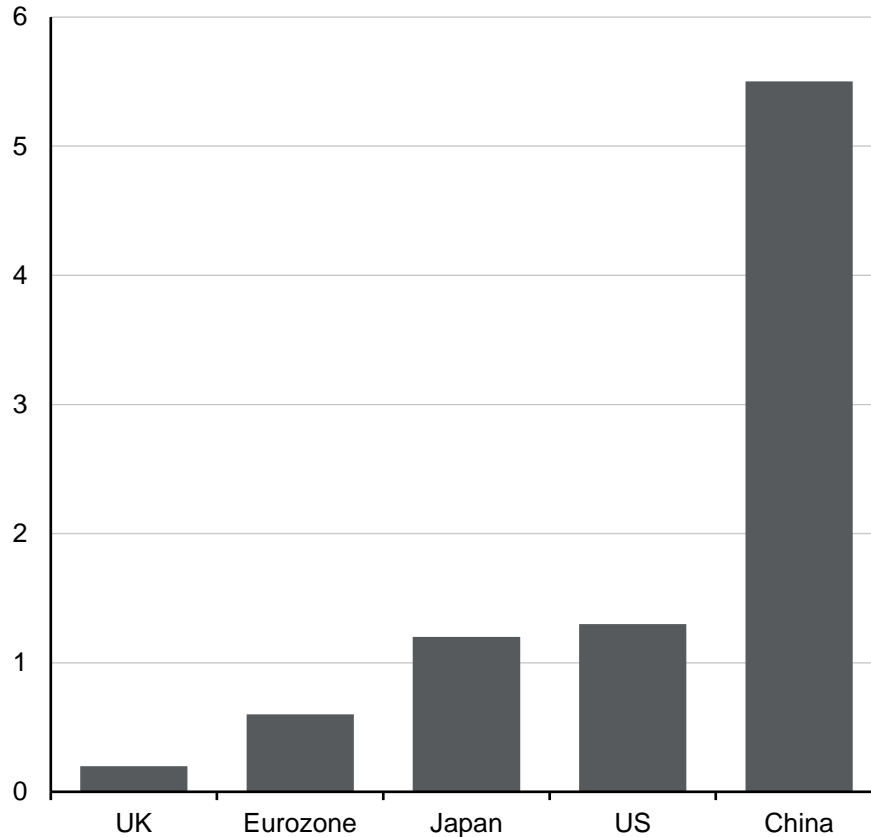
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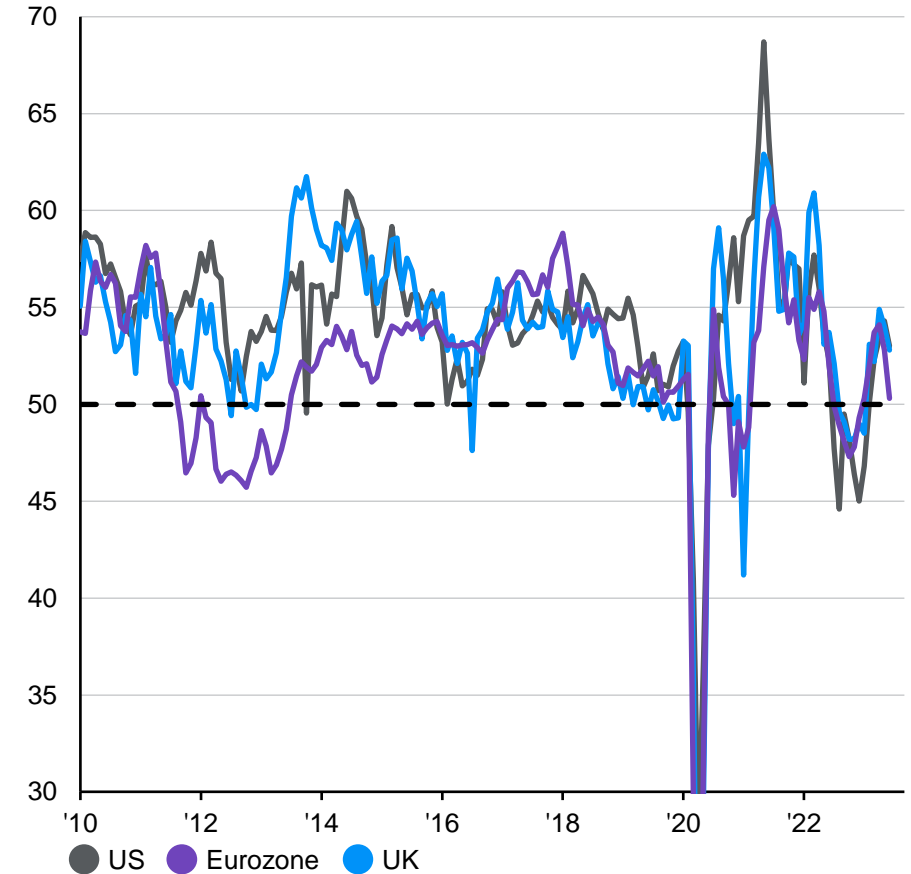
Consensus forecasts for 2023 real GDP growth

% change year on year



Composite Purchasing Managers' Index (PMI)

Index level



Source: (Left) Bloomberg, J.P. Morgan Asset Management. Forecasts are from Bloomberg contributor composite. (Right) S&P Global, J.P. Morgan Asset Management. A score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. *Guide to the Markets - UK*. Data as of 30 June 2023.



Global Purchasing Managers' Index (PMI) for manufacturing

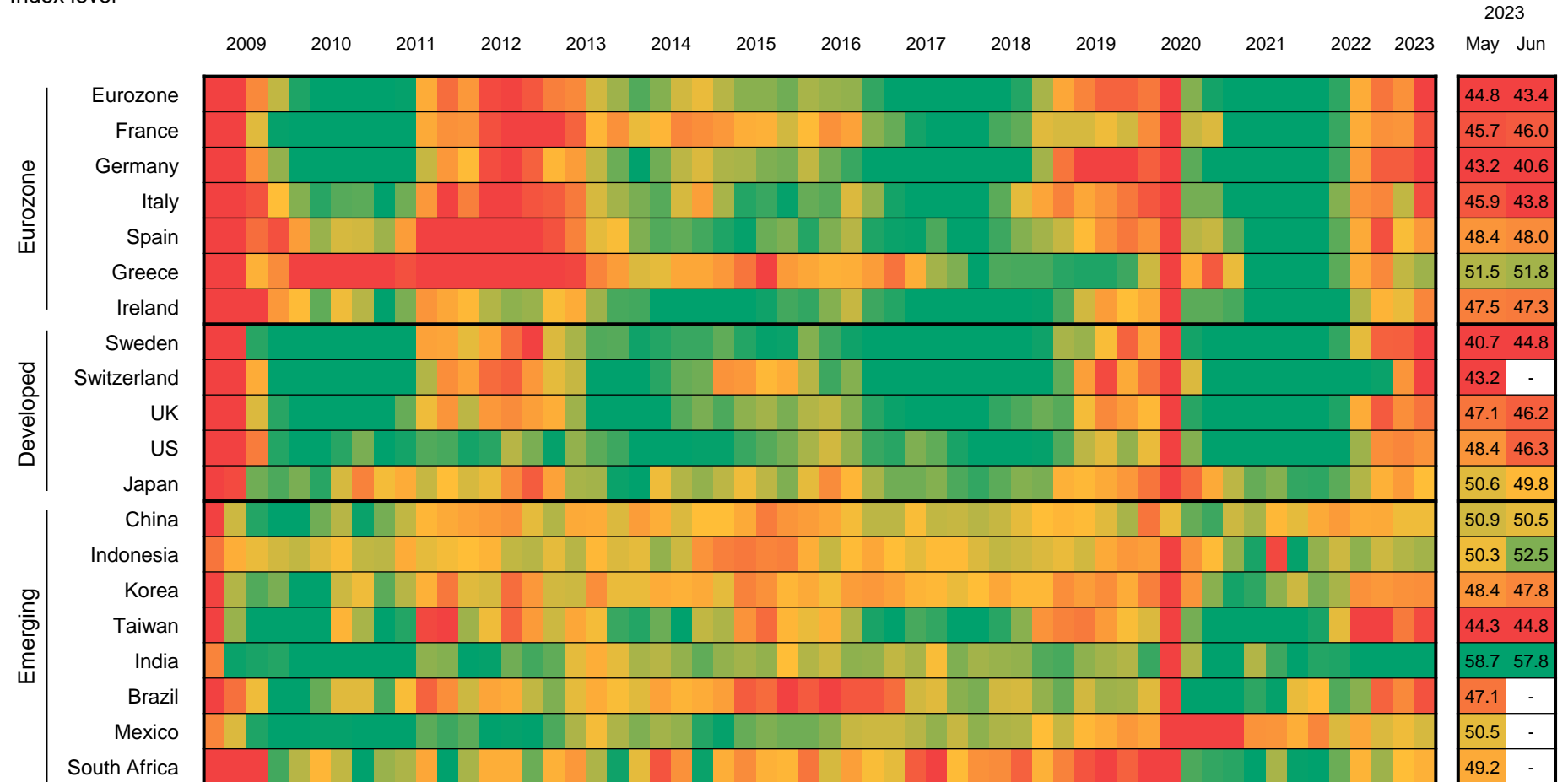
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Global manufacturing PMI

Index level



Source: S&P Global, J.P. Morgan Asset Management. A score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. The heatmap colours range from red to yellow to green, where red is below 50, yellow is at 50 and green is above 50. Quarterly averages are shown, except the two most recent monthly data points. *Guide to the Markets - UK*. Data as of 30 June 2023.



Global inflation

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Headline inflation

% change year on year

		2021							2022												2023				
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Eurozone	Eurozone	1.9	2.2	3.0	3.4	4.1	4.9	5.0	5.1	5.9	7.4	7.4	8.1	8.6	8.9	9.1	9.9	10.6	10.1	9.2	8.6	8.5	6.9	7.0	6.1
	France	1.9	1.5	2.4	2.7	3.2	3.4	3.4	3.3	4.2	5.1	5.4	5.8	6.5	6.8	6.6	6.2	7.1	7.1	6.7	7.0	7.3	6.7	6.9	6.0
	Germany	2.1	3.1	3.4	4.1	4.6	6.0	5.7	5.1	5.5	7.6	7.8	8.7	8.2	8.5	8.8	10.9	11.6	11.3	9.6	9.2	9.3	7.8	7.6	6.3
	Italy	1.3	1.0	2.5	2.9	3.2	3.9	4.2	5.1	6.2	6.8	6.3	7.3	8.5	8.4	9.1	9.4	12.6	12.6	12.3	10.7	9.8	8.1	8.6	8.0
	Spain	2.5	2.9	3.3	4.0	5.4	5.5	6.6	6.2	7.6	9.8	8.3	8.5	10.0	10.7	10.5	9.0	7.3	6.7	5.5	5.9	6.0	3.1	3.8	2.9
	Greece	0.6	0.7	1.2	1.9	2.8	4.0	4.4	5.5	6.3	8.0	9.1	10.5	11.6	11.3	11.2	12.1	9.5	8.8	7.6	7.3	6.5	5.4	4.5	4.1
	Ireland	1.6	2.2	3.0	3.8	5.1	5.4	5.7	5.0	5.7	6.9	7.3	8.3	9.6	9.6	9.0	8.6	9.4	9.0	8.2	7.5	8.1	7.0	6.3	5.4
Developed	Sweden	1.8	1.8	2.5	3.0	3.3	3.9	4.5	3.9	4.4	6.3	6.6	7.5	8.9	8.3	9.5	10.3	9.8	10.1	10.8	9.6	9.7	8.1	7.7	6.7
	Switzerland	0.5	0.5	0.8	0.8	1.3	1.5	1.3	1.4	1.9	2.2	2.3	2.7	3.2	3.3	3.3	3.2	2.9	2.9	2.7	3.2	3.2	2.7	2.6	2.2
	UK	2.5	2.0	3.2	3.1	4.2	5.1	5.4	5.5	6.2	7.0	9.0	9.1	9.4	10.1	9.9	10.1	11.1	10.7	10.5	10.1	10.4	10.1	8.7	8.7
	US	5.4	5.4	5.3	5.4	6.2	6.8	7.0	7.5	7.9	8.5	8.3	8.6	9.1	8.5	8.3	8.2	7.7	7.1	6.5	6.4	6.0	5.0	4.9	4.0
	Japan	-0.5	-0.3	-0.4	0.2	0.1	0.6	0.8	0.5	0.9	1.2	2.5	2.5	2.4	2.6	3.0	3.0	3.7	3.8	4.0	4.3	3.3	3.2	3.5	3.2
Emerging	China	1.1	1.0	0.8	0.7	1.5	2.3	1.5	0.9	0.9	1.5	2.1	2.1	2.5	2.7	2.5	2.8	2.1	1.6	1.8	2.1	1.0	0.7	0.1	0.2
	Indonesia	1.3	1.5	1.6	1.6	1.7	1.7	1.9	2.2	2.1	2.6	3.5	3.6	4.3	4.9	4.7	6.0	5.7	5.4	5.5	5.3	5.5	5.0	4.3	3.9
	Korea	2.3	2.6	2.6	2.4	3.2	3.8	3.7	3.6	3.7	4.1	4.8	5.4	6.0	6.3	5.7	5.6	5.7	5.0	5.0	5.2	4.8	4.2	3.7	3.3
	Taiwan	1.8	1.9	2.3	2.6	2.5	2.8	2.6	2.8	2.3	3.3	3.4	3.4	3.6	3.4	2.7	2.8	2.7	2.4	2.7	3.1	2.4	2.4	2.3	2.0
	India	6.3	5.6	5.3	4.3	4.5	4.9	5.7	6.0	6.1	7.0	7.8	7.0	7.0	6.7	7.0	7.4	6.8	5.9	5.7	6.5	6.4	5.7	4.7	4.3
	Brazil	8.3	9.0	9.7	10.2	10.7	10.7	10.1	10.4	10.5	11.3	12.1	11.7	11.9	10.1	8.7	7.2	6.5	5.9	5.8	5.8	5.6	4.7	4.2	3.9
	Mexico	5.9	5.8	5.6	6.0	6.2	7.4	7.4	7.1	7.3	7.5	7.7	7.7	8.0	8.2	8.7	8.7	8.4	7.8	7.8	7.9	7.6	6.8	6.3	5.8
	South Africa	4.9	4.7	4.9	5.0	5.0	5.4	5.9	5.7	5.7	5.9	5.9	6.5	7.4	7.8	7.6	7.5	7.6	7.4	7.2	6.9	7.0	7.1	6.8	6.3

Source: Bank of Mexico, DGBAS, ECB, Federal Reserve, IBGE, India Ministry of Statistics & Programme Implementation, Japan Ministry of Internal Affairs & Communication, Korean National Statistical Office, National Bureau of Statistics of China, ONS, Refinitiv Datastream, Riksbank, Statistics Indonesia, Statistics South Africa, Swiss National Bank, J.P. Morgan Asset Management. Eurozone countries use HICP inflation, all other countries use CPI inflation. Heatmap colours are based on the respective central bank target inflation rates. Blue is below target, white is at target and red is above target. *Guide to the Markets - UK*. Data as of 30 June 2023.



Global inflation expectations

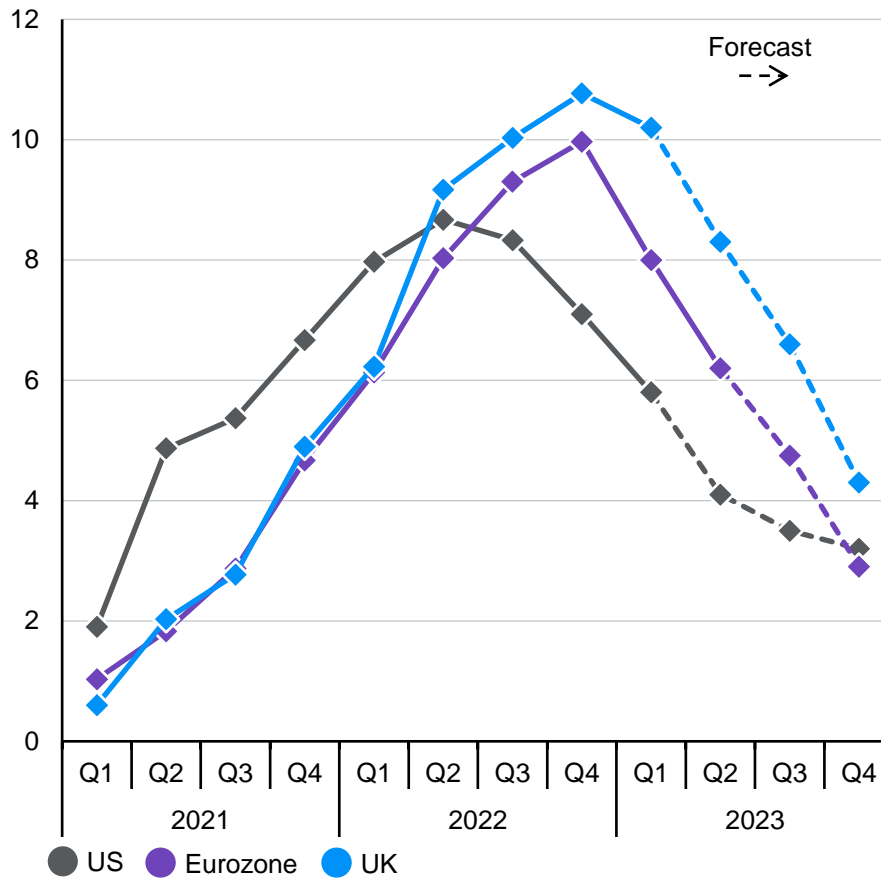
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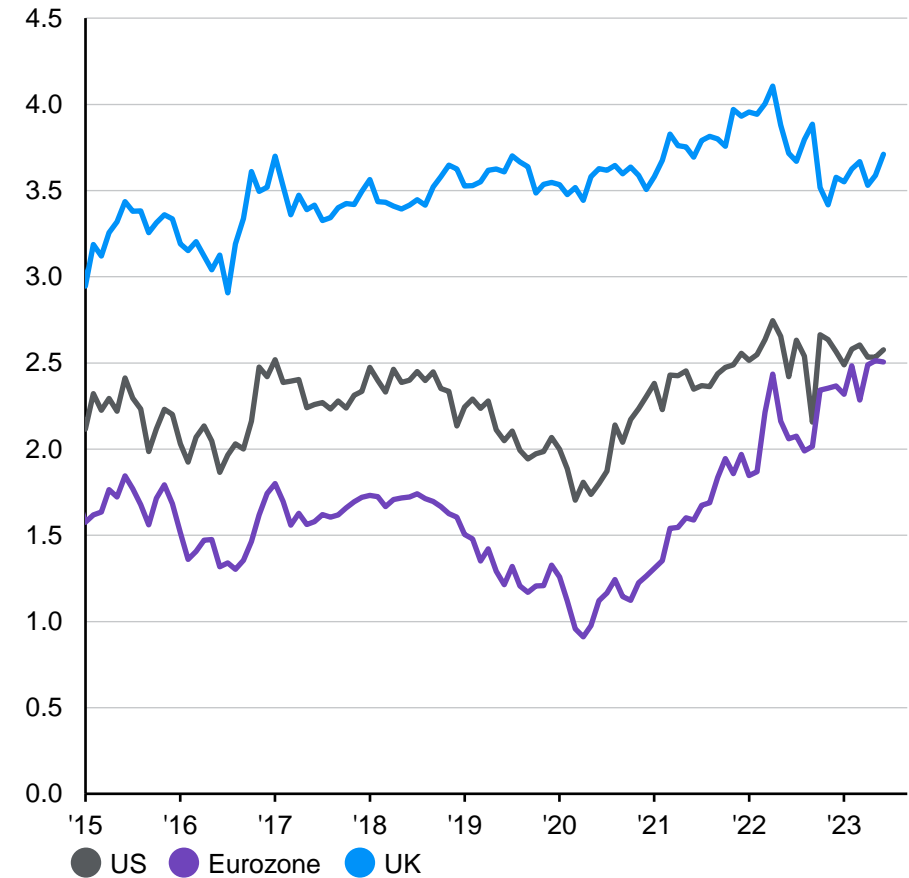
Median of economists' forecasts for headline CPI

% change year on year, quarterly average



Market-based inflation expectations

%, 5y5y inflation swap



Source: (Left) Bloomberg, BLS, Eurostat, ONS, J.P. Morgan Asset Management. CPI is consumer price index. (Right) Bloomberg, J.P. Morgan Asset Management. 5y5y inflation swaps represent the market's expectation of five-year average inflation, starting in five years' time. UK inflation swaps use RPI rather than CPI as the reference point, which partly explains why the UK 5y5y is higher than other regions. Strong demand for index-linked Gilts from defined benefit UK pension funds also drives the UK 5y5y higher. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



Global inflationary pressures

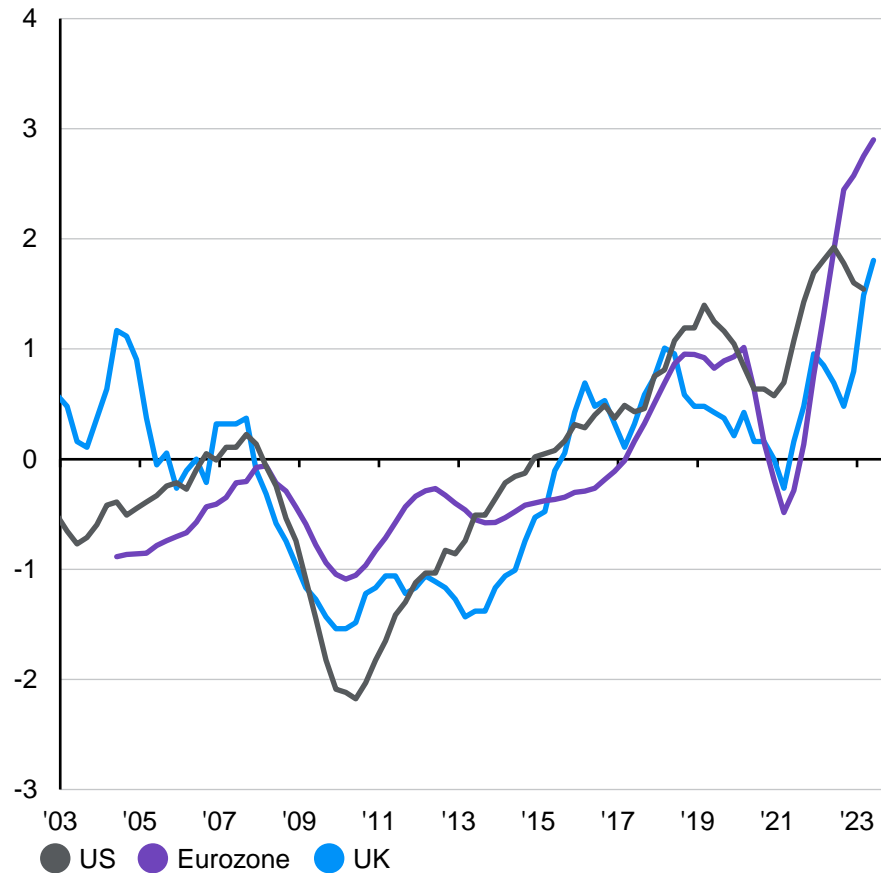
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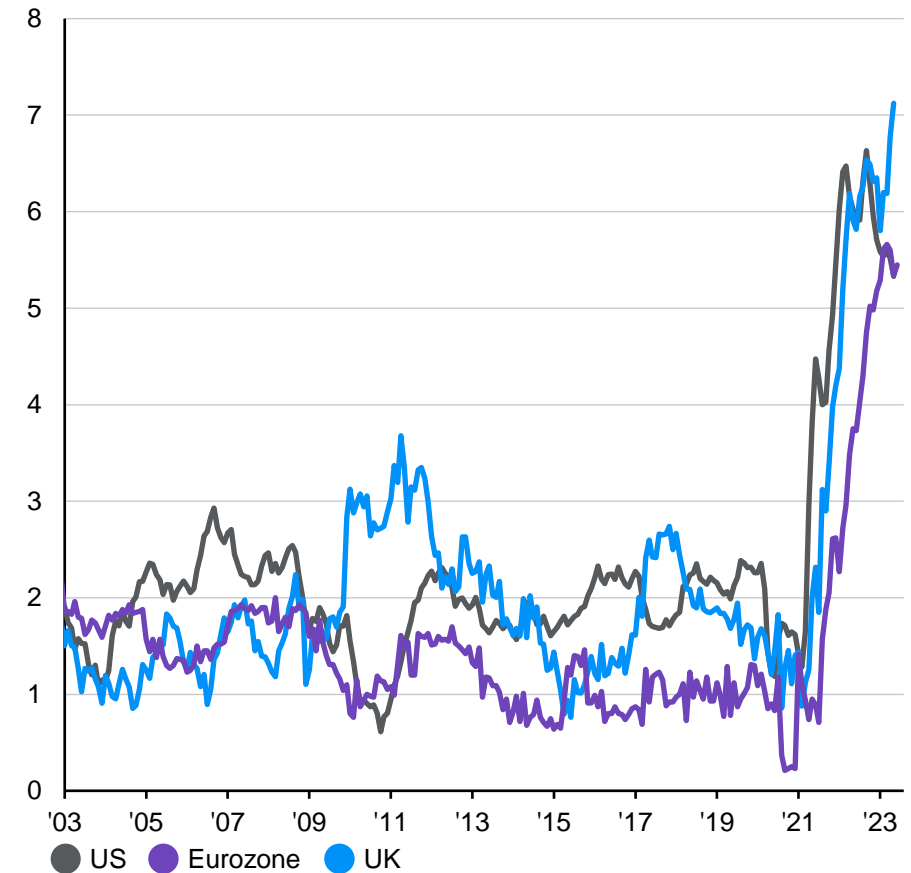
Proportion of firms struggling to find workers

z-score, four-quarter moving average



Core inflation

% change year on year



Source: (Left) CBI, DG ECFIN, National Federation of Independent Business, Refinitiv Datastream, J.P. Morgan Asset Management. (Right) BLS, Eurostat, ONS, Refinitiv Datastream, J.P. Morgan Asset Management. Core inflation excludes food and energy in the US, and food, energy, alcohol and tobacco in the eurozone and the UK. *Guide to the Markets - UK*. Data as of 30 June 2023.



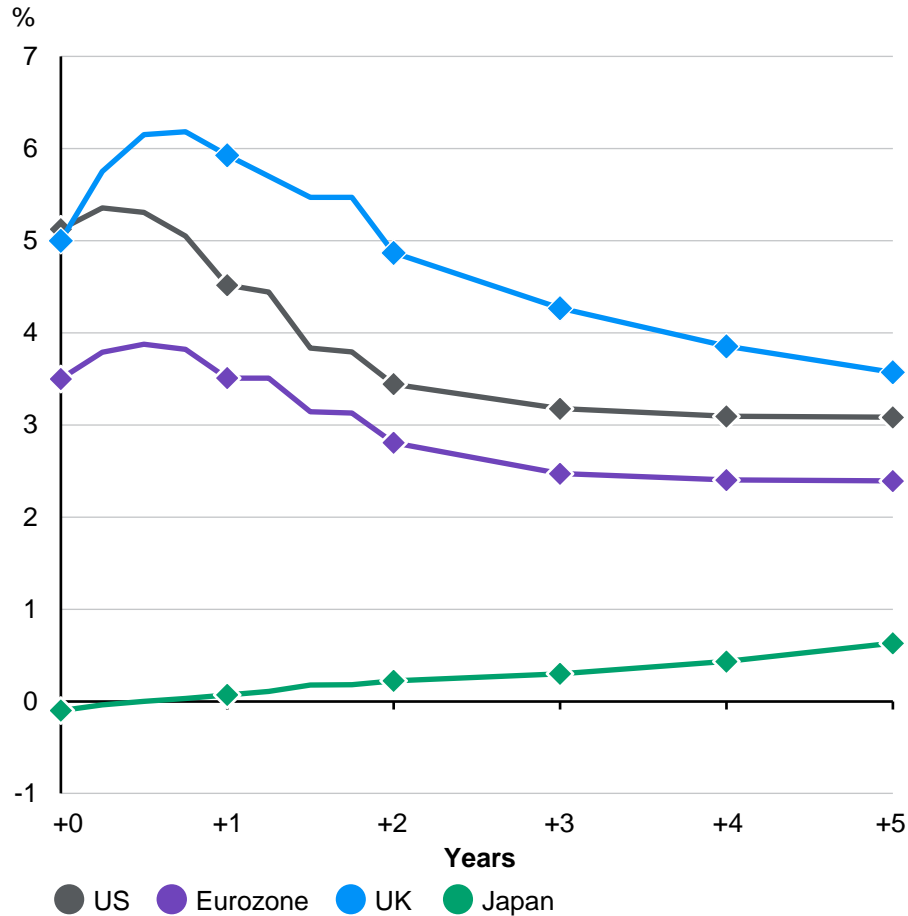
Global monetary policy

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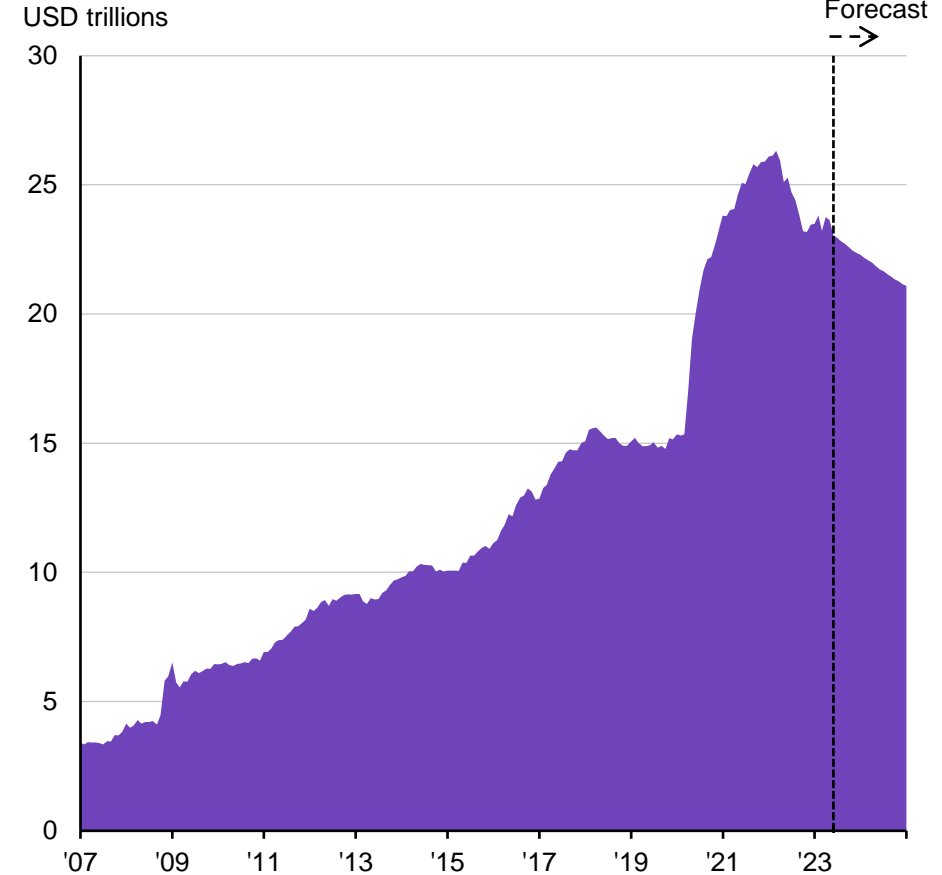
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Market expectations for central bank policy rates



Global central bank balance sheets



Source: (Left) Bloomberg, J.P. Morgan Asset Management. Expectations are calculated using OIS forwards. (Right) BoE, BoJ, ECB, Fed, Refinitiv Datastream, J.P. Morgan Asset Management. Global central bank balance sheet is the sum of the balance sheets of the BoE, BoJ, ECB and Fed. Forecast from J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

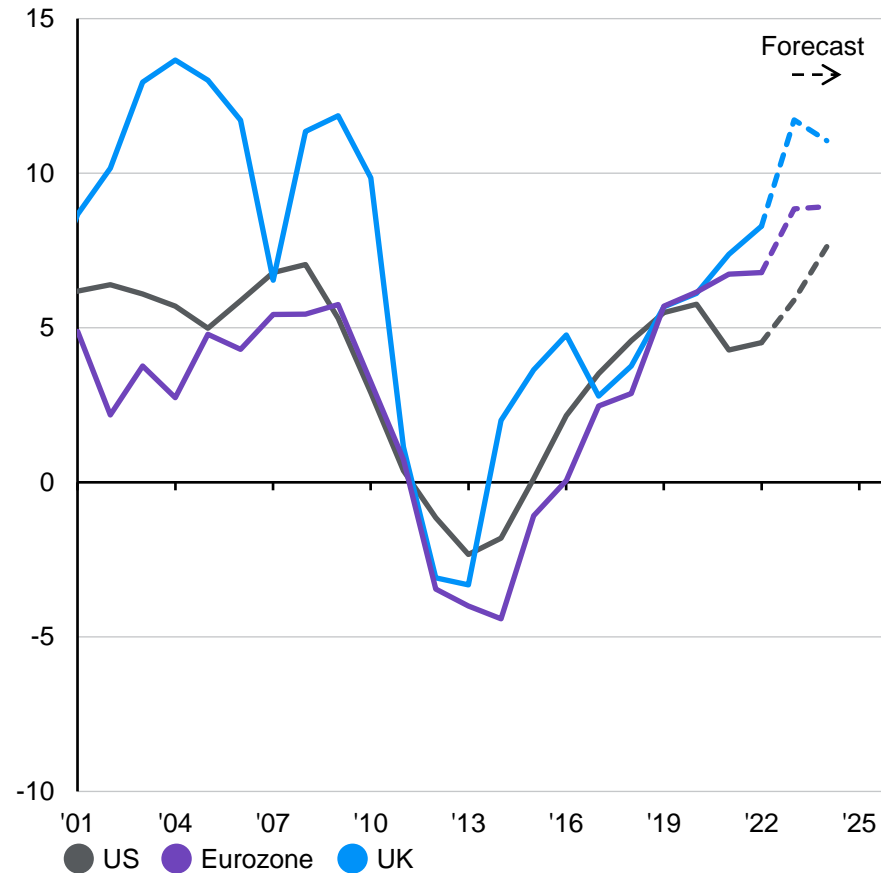


Global fiscal policy

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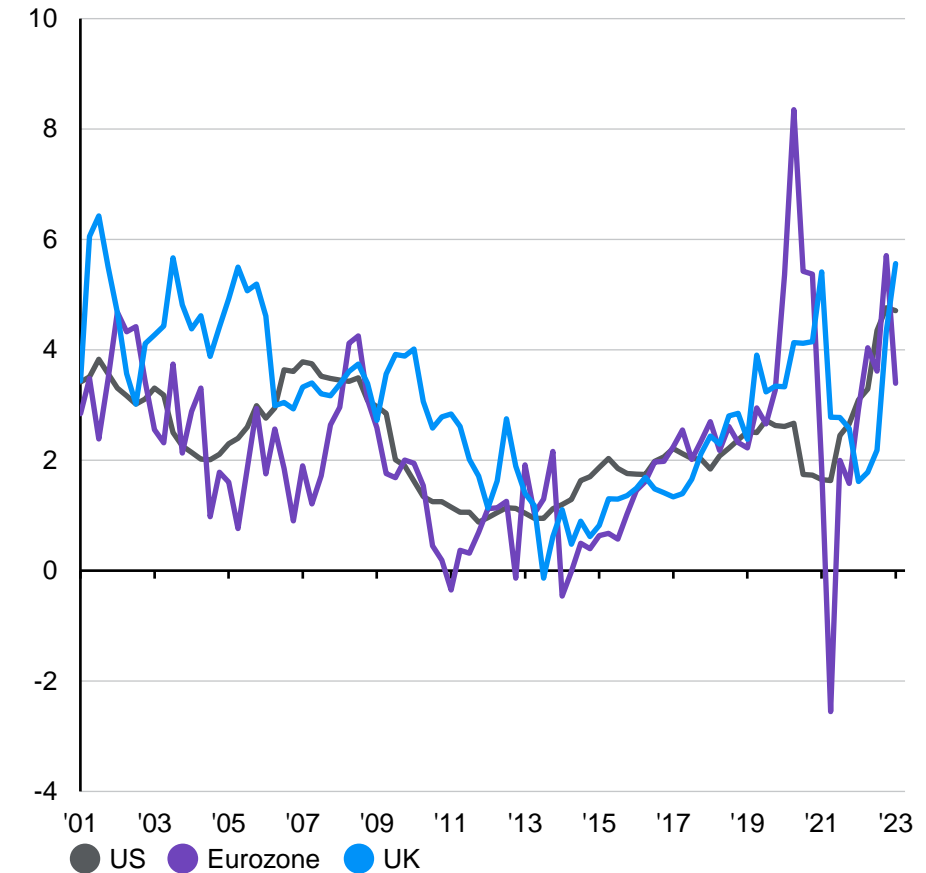
Public sector investment

% change year on year, three-year moving average



Public sector wage growth

% change year on year



Source: (Left) Deutsche Bundesbank, INE, INSEE, ISTAT, OECD, Refinitiv Datastream, J.P. Morgan Asset Management. Chart shows a smoothed measure of government gross fixed capital formation. Forecast is OECD. Eurozone is GDP-weighted average of France, Germany, Italy and Spain. (Right) BLS, Eurostat, ONS, Refinitiv Datastream, J.P. Morgan Asset Management. *Guide to the Markets - UK*. Data as of 30 June 2023.



Global government debt

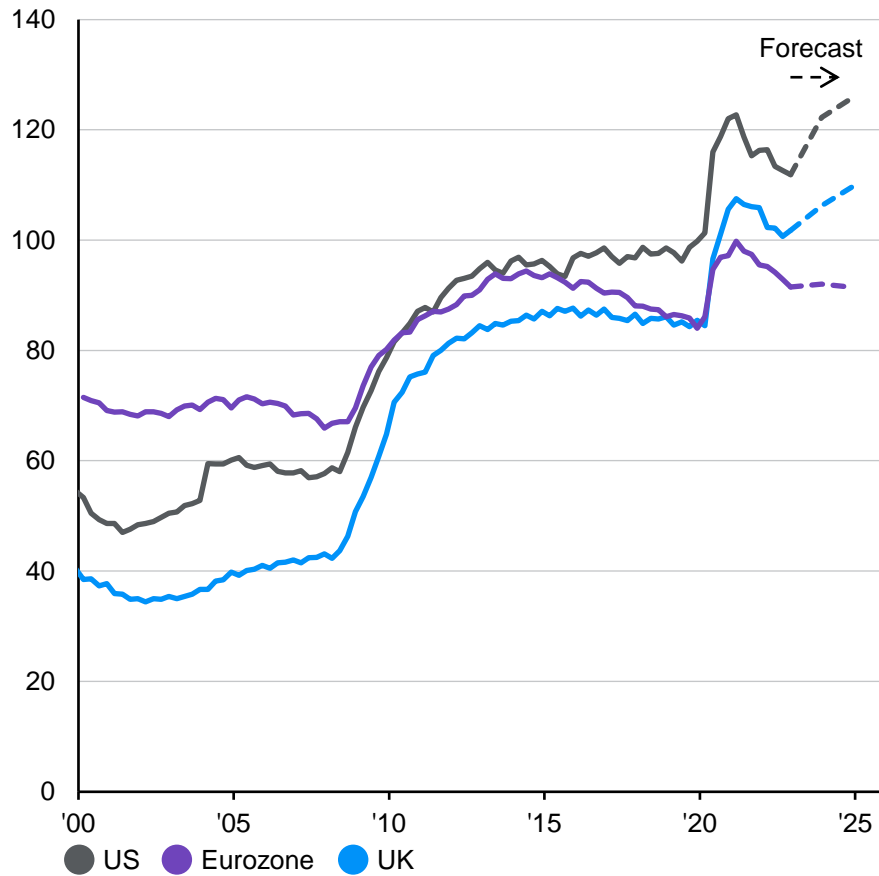
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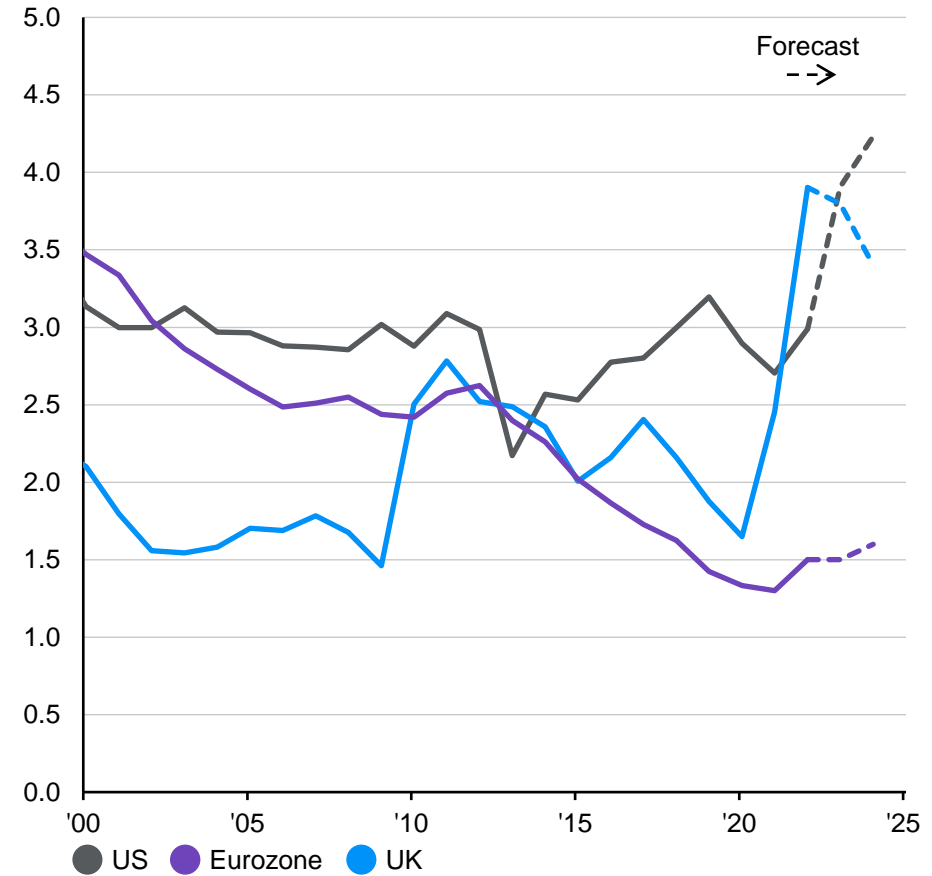
Government debt

% of nominal GDP



Government interest payments

% of nominal GDP



Source: (Left) Bank for International Settlements, Eurostat, IMF, Refinitiv Datastream, J.P. Morgan Asset Management. Debt refers to gross debt at face value. Dotted lines represent the IMF forecasts for government debt to GDP in 2023 and 2024. (Right) OECD, Refinitiv Datastream, J.P. Morgan Asset Management. 2023 is OECD forecast. Eurozone refers to 17 OECD countries in the eurozone, which excludes Croatia, Cyprus and Malta. *Guide to the Markets - UK*. Data as of 30 June 2023.

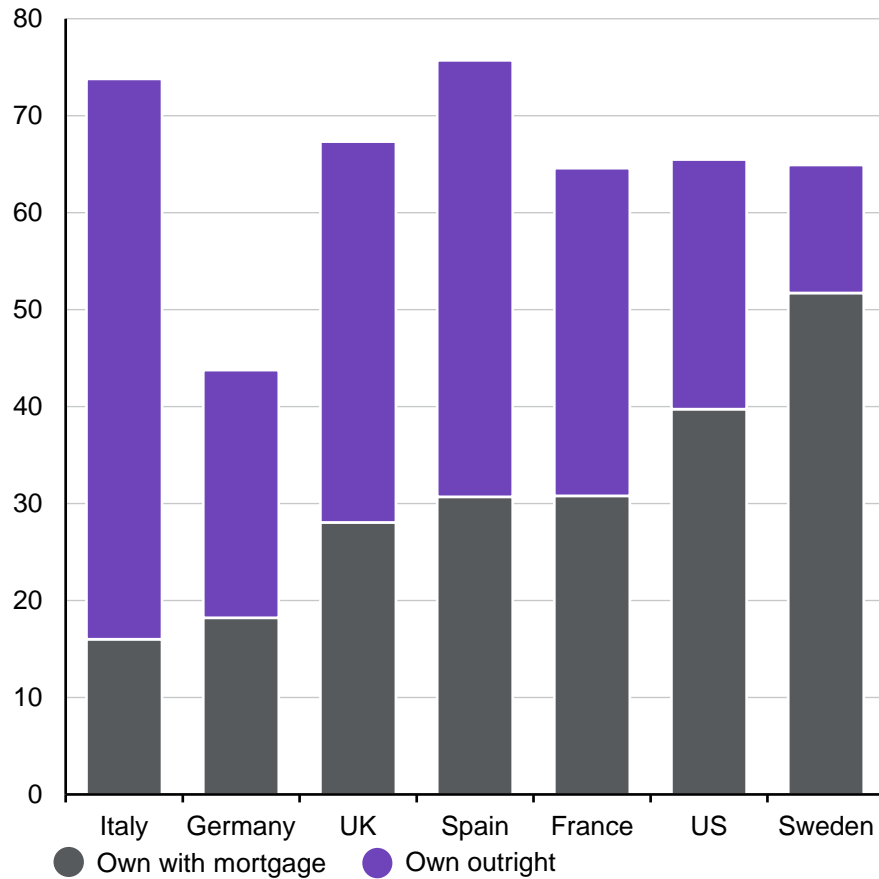


Global housing markets

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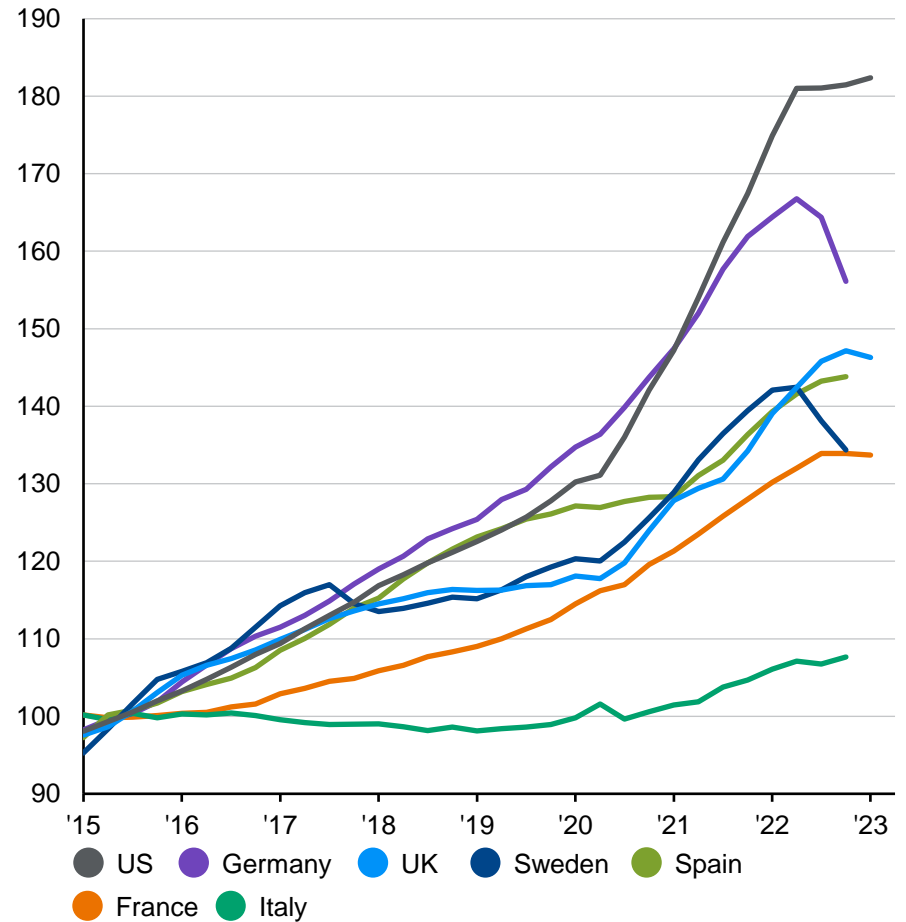
Home ownership by mortgage status

% of households



Nominal house prices

Index level, rebased to 100 in 2015





Credit quality and capital ratios

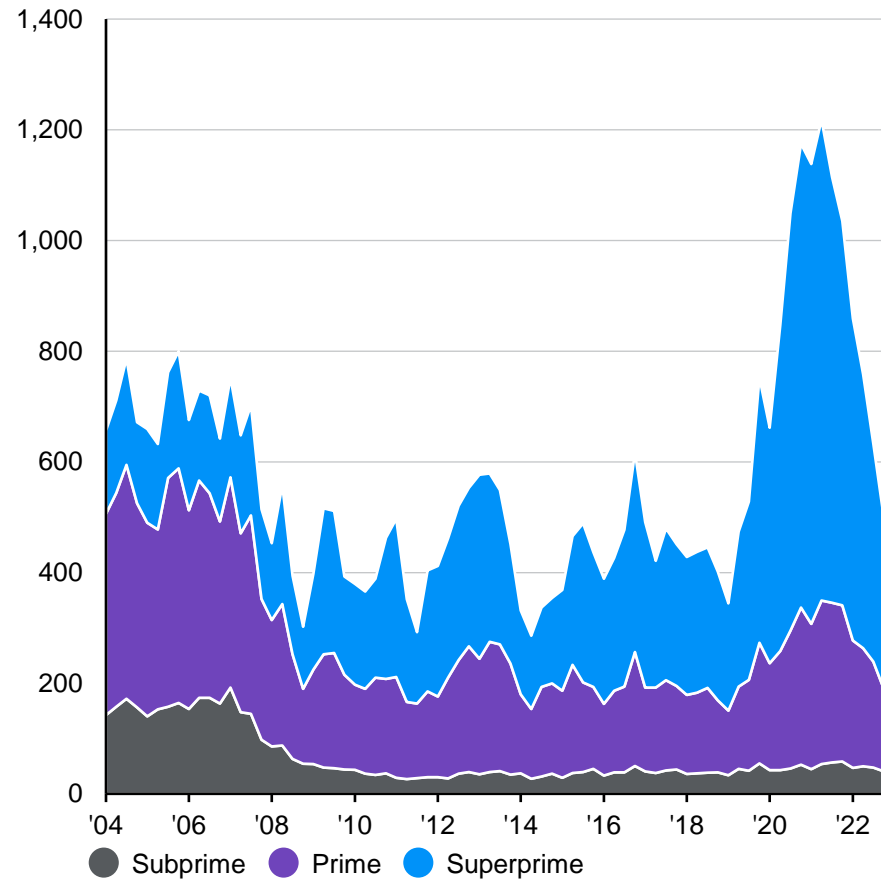
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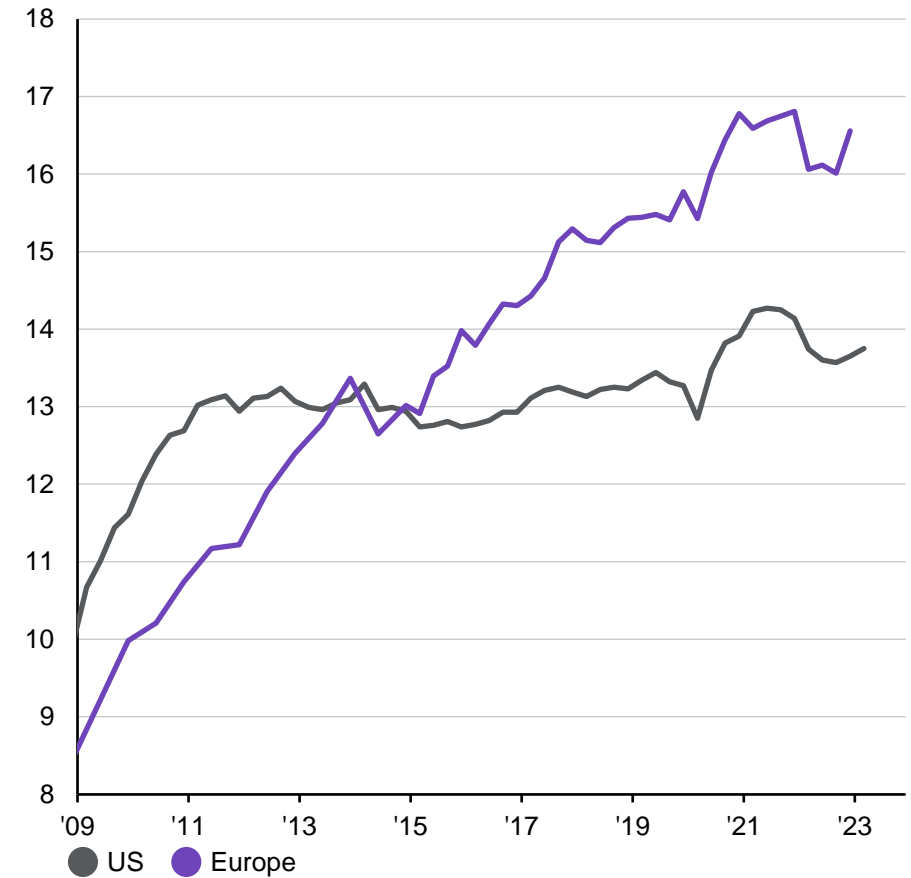
US mortgage origination by credit score

USD billions



Core tier 1 capital ratios

%, regulatory tier 1 capital to risk-weighted assets



Source: (Left) Federal Reserve Bank of New York, Refinitiv Datastream, J.P. Morgan Asset Management. Mortgages are grouped by FICO score. Subprime are those with FICO scores below 659, prime those between 660 and 759 and superprime those above 760. (Right) Bloomberg, FDIC, IMF, Refinitiv Datastream, J.P. Morgan Asset Management. Core tier 1 ratios are a measure of banks' financial strength, comparing core tier 1 capital (equity capital and disclosed reserves) against total risk-weighted assets. Europe shows average of France, Germany, Italy, Spain and UK. *Guide to the Markets - UK*. Data as of 30 June 2023.

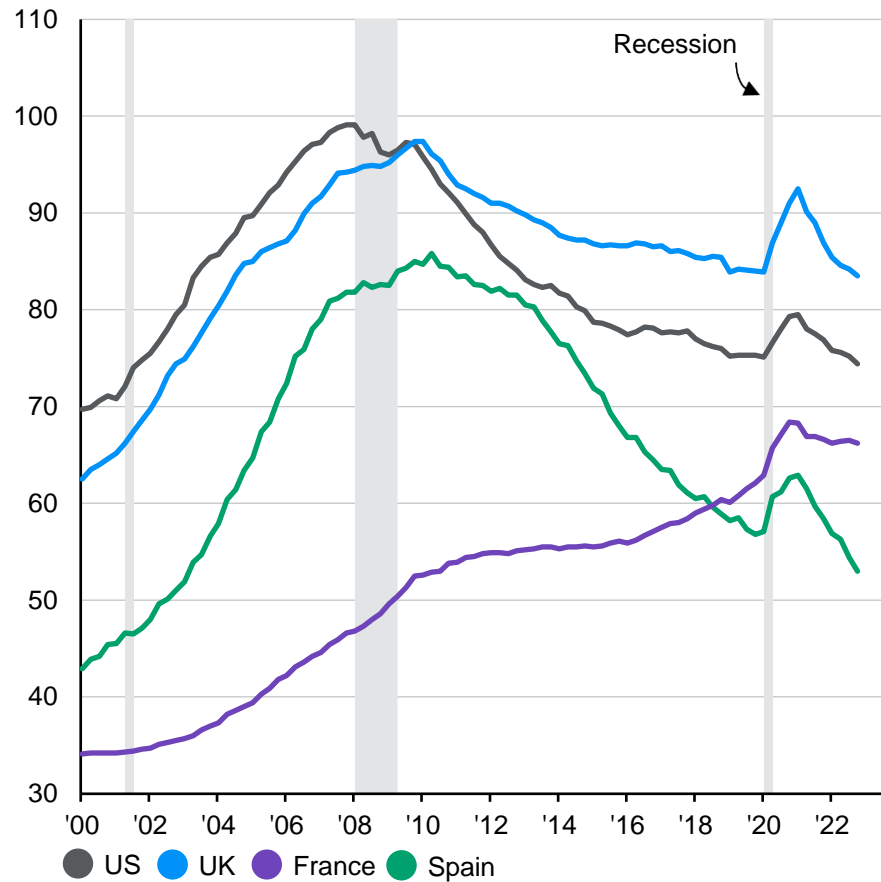


Household debt and construction investment

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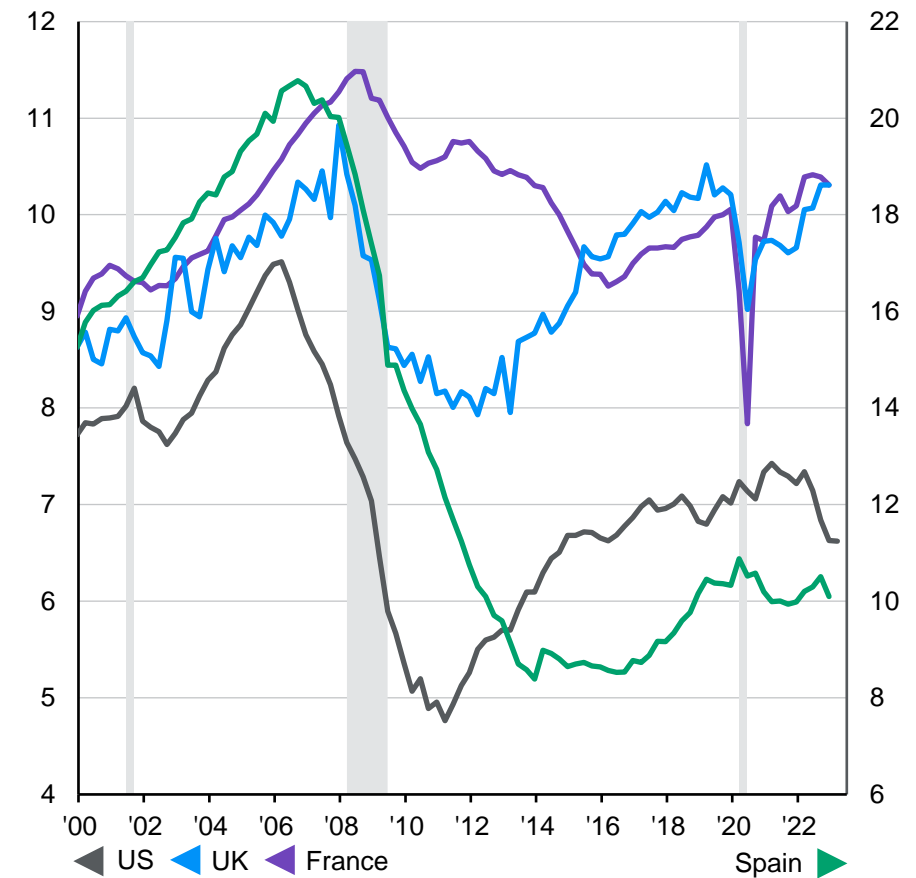
Household debt

% of nominal GDP



Fixed investment in construction

% of nominal GDP



Source: (Left) BEA, Eurostat, ONS, Refinitiv Datastream, J.P. Morgan Asset Management. (Right) BEA, Haver Analytics, Statistical Office of the European Communities, J.P. Morgan Asset Management. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. Guide to the Markets - UK. Data as of 30 June 2023.



US dollar

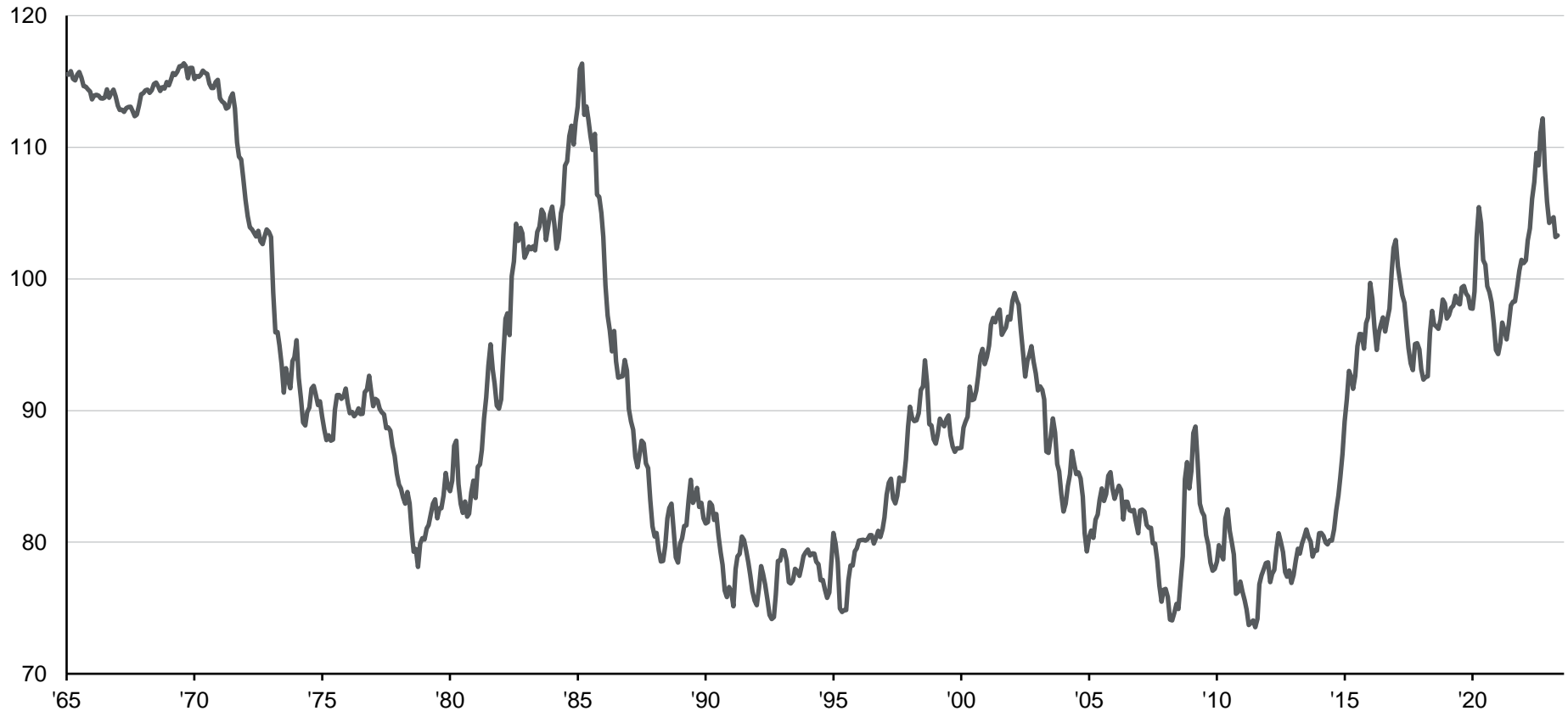
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USD real effective exchange rate

Index level



Source: Bank for International Settlements, Refinitiv Datastream, J.P. Morgan Asset Management. Real effective exchange rate is a geometric average of bilateral exchange rates, adjusted by relative consumer prices. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



Global demographics

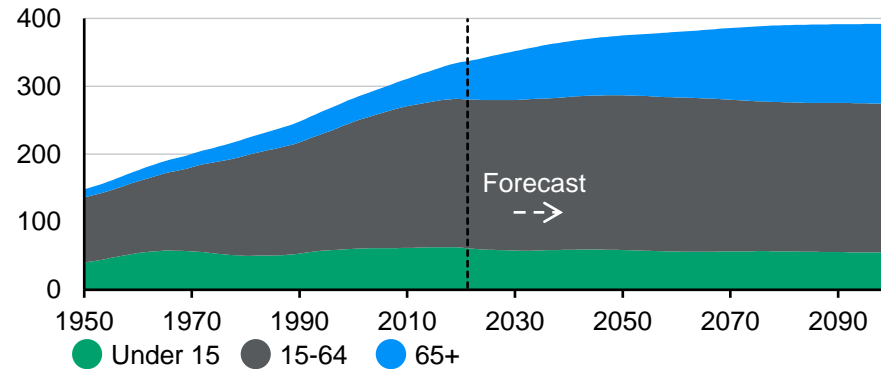
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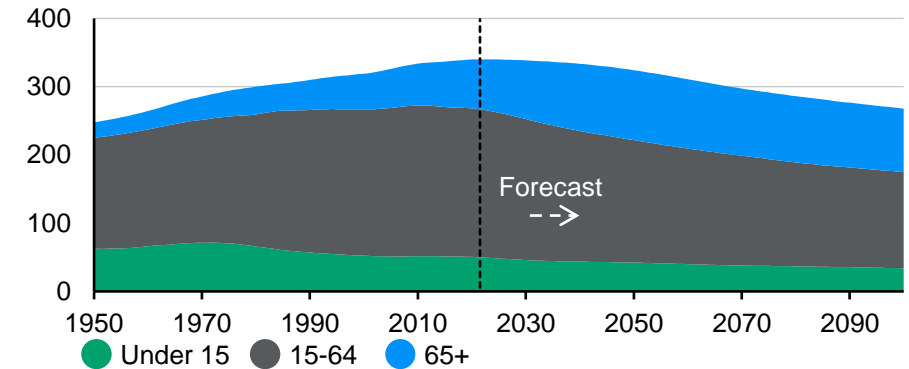
Population split by age: US

Millions of people



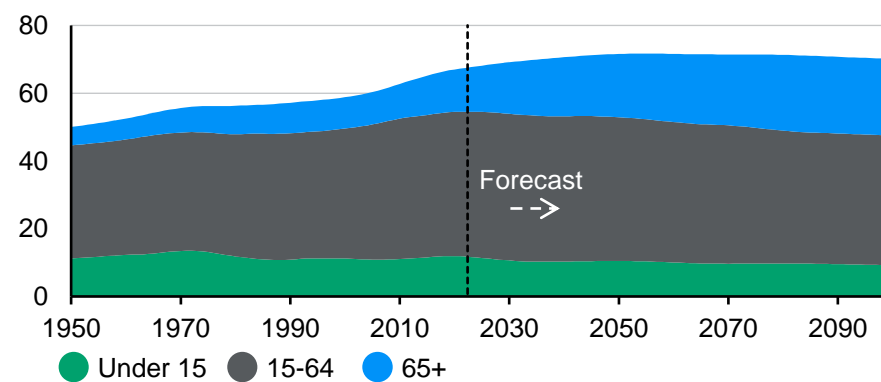
Population split by age: eurozone

Millions of people



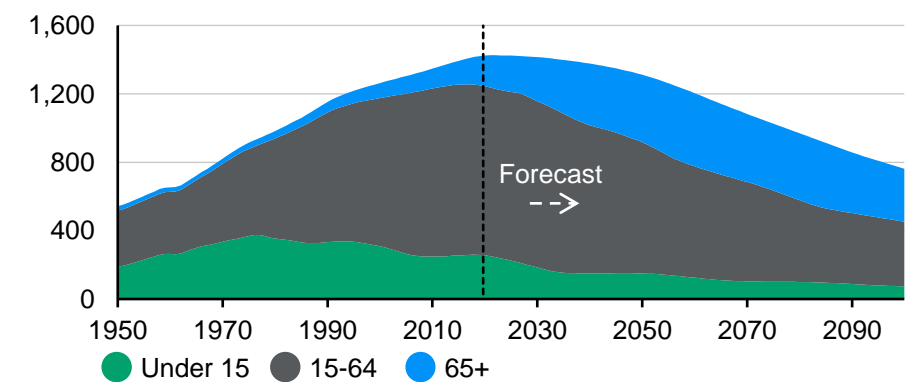
Population split by age: UK

Millions of people



Population split by age: China

Millions of people

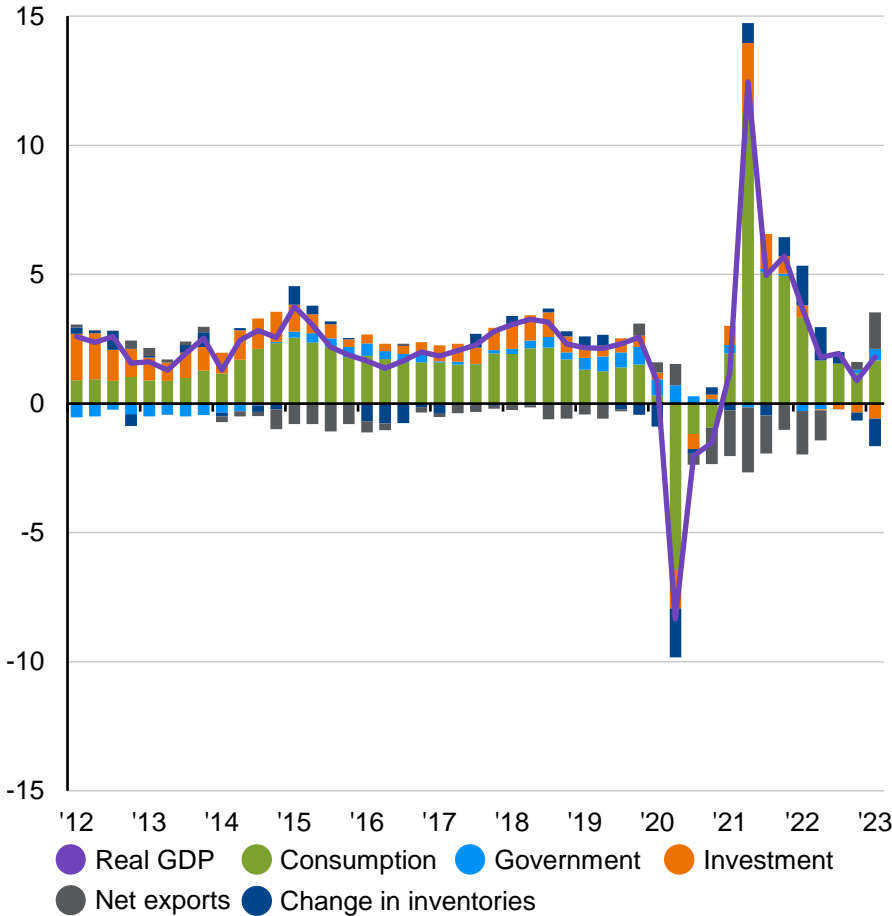




US GDP

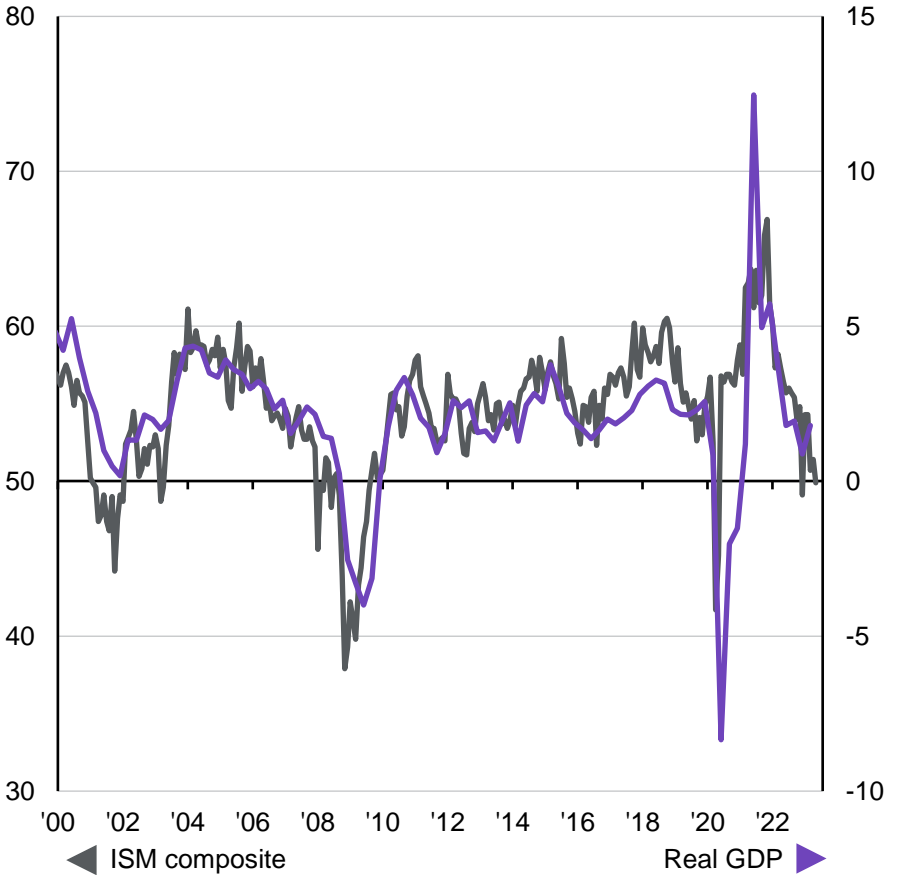
Contribution to US real GDP growth

% change year on year



US real GDP growth and ISM composite

Index level (LHS); % change year on year (RHS)



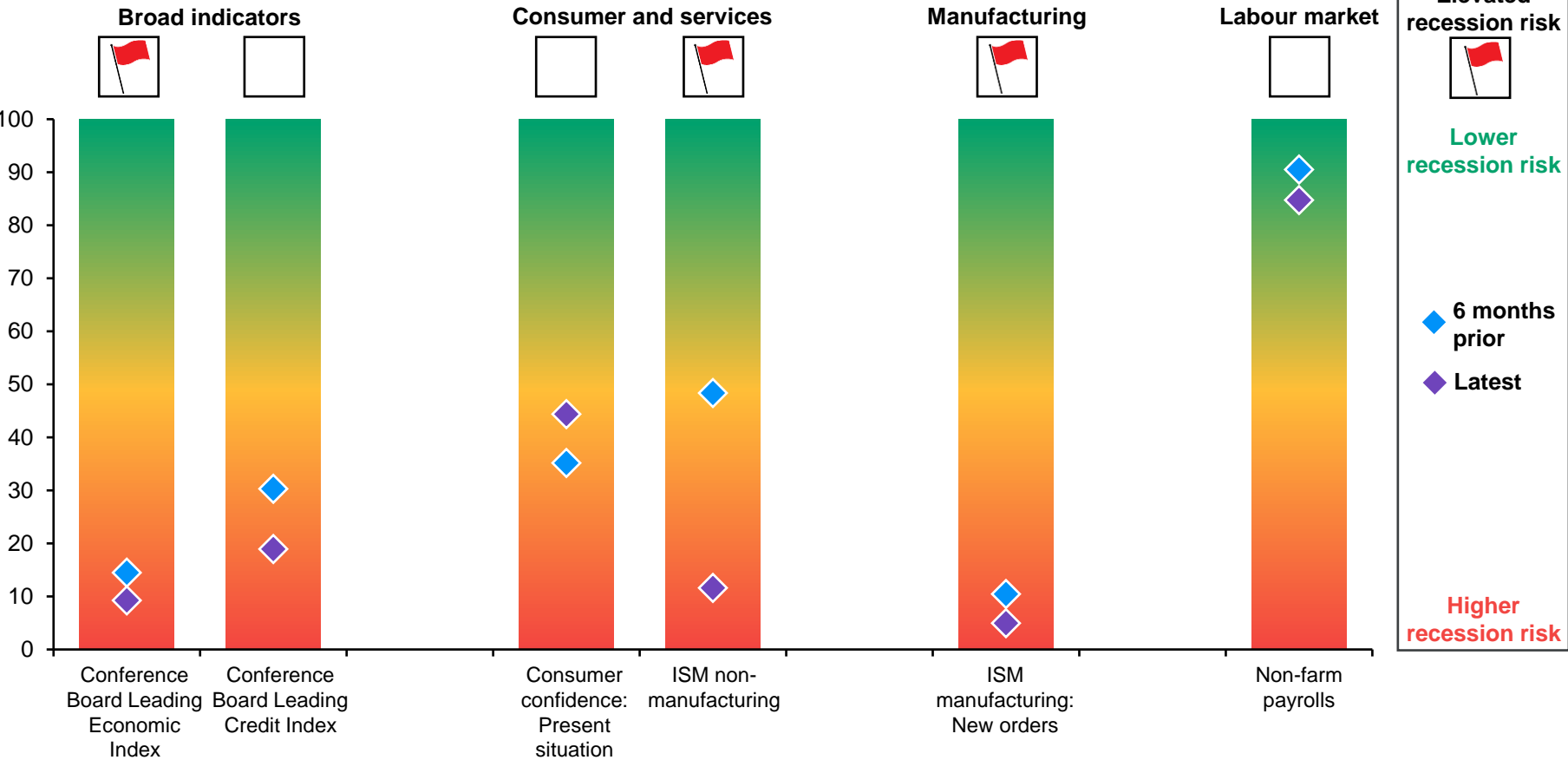
Source: (All charts) BEA, Bloomberg, ISM, Refinitiv Datastream, J.P. Morgan Asset Management. The Institute for Supply Management (ISM) composite is an economy-weighted average of the manufacturing and non-manufacturing surveys. A score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. *Guide to the Markets - UK*. Data as of 30 June 2023.



US Economic Monitor

US economic indicators

Percentile rank relative to historic data since 1990



Source: BLS, Conference Board, ISM, Refinitiv Datastream, J.P. Morgan Asset Management. Elevated recession risk flags are shown when the underlying indicator is at a level consistent with the onset of any of the three recessions prior to the Covid-19 recession. *Guide to the Markets - UK*. Data as of 30 June 2023.



US business and residential investment

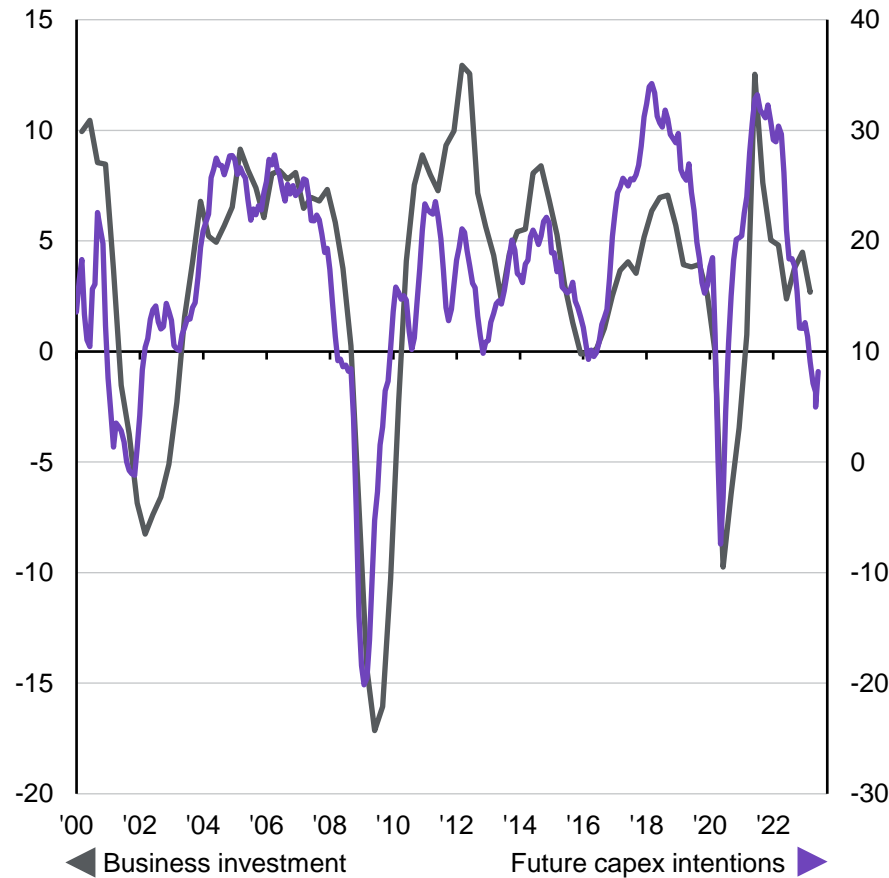
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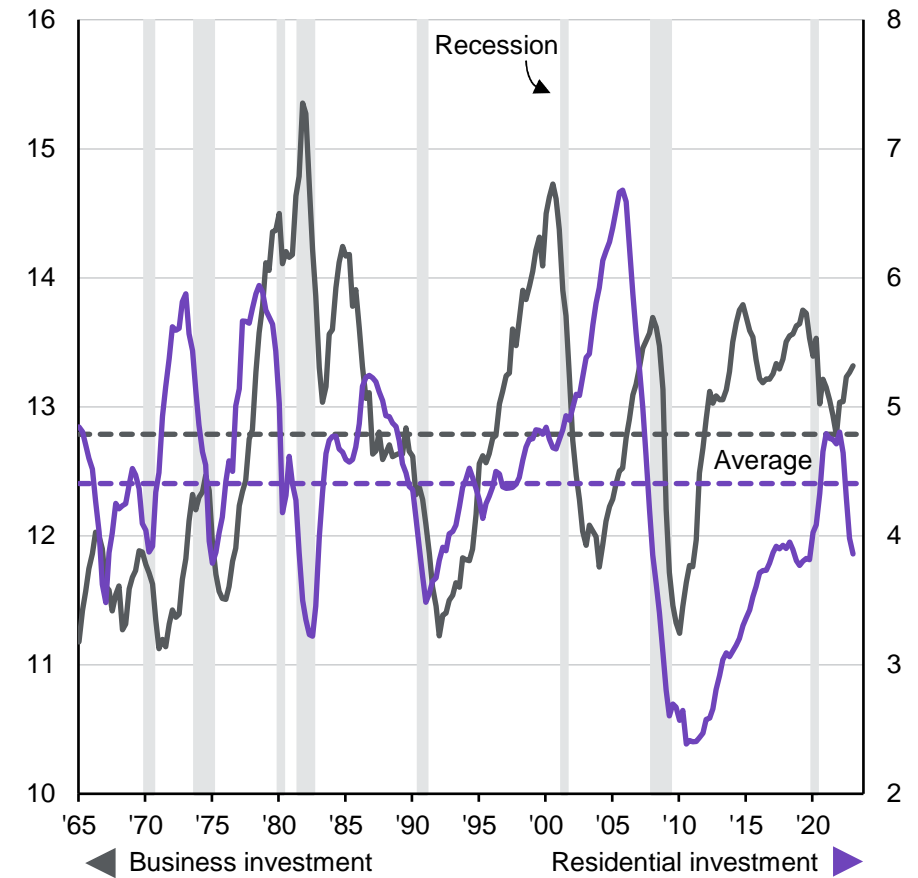
US real business investment and future capex intentions

% change year on year (LHS); index level (RHS)



US residential and business investment

% of nominal GDP



Source: (Left) BEA, Dallas Fed, Kansas City Fed, New York Fed, Philadelphia Fed, Refinitiv Datastream, Richmond Fed, J.P. Morgan Asset Management. Future capex intentions is an equally weighted average of the five aforementioned Fed districts' capex intentions measures, shown as a three-month moving average. (Right) BEA, Refinitiv Datastream, J.P. Morgan Asset Management. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. *Guide to the Markets - UK*. Data as of 30 June 2023.

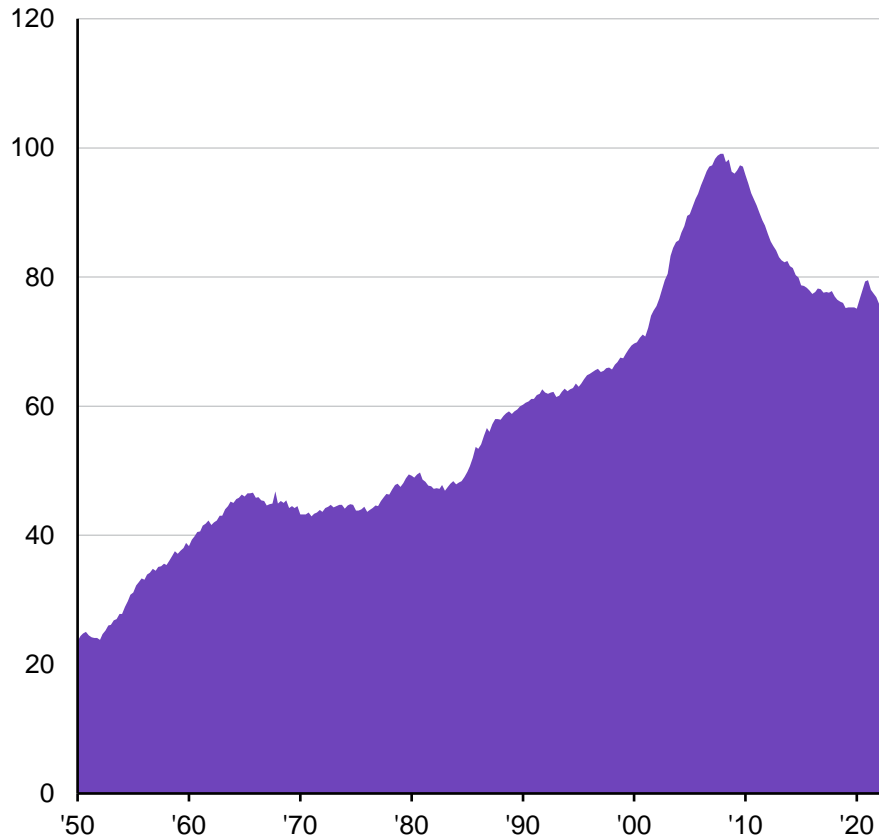


US consumer

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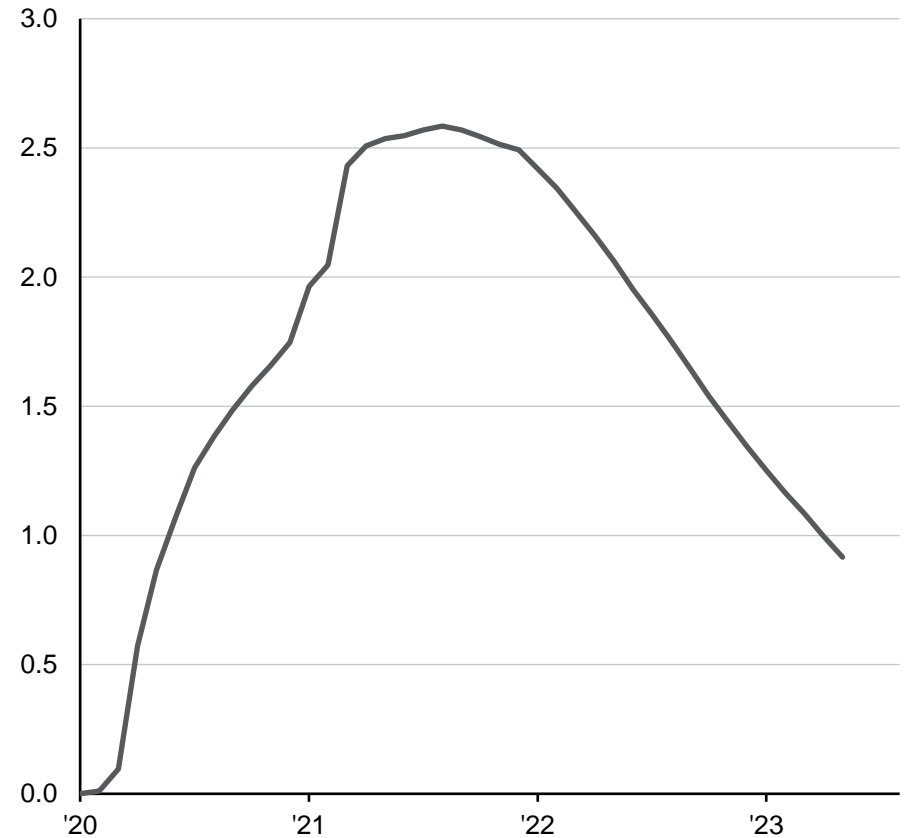
US household debt to GDP

% of nominal GDP



US accumulated excess savings

USD trillions



Source: (Left) Bank for International Settlements, Refinitiv Datastream, J.P. Morgan Asset Management. (Right) BEA, Refinitiv Datastream, J.P. Morgan Asset Management. Excess savings calculated relative to the Q4 2019 savings rate. *Guide to the Markets - UK*. Data as of 30 June 2023.



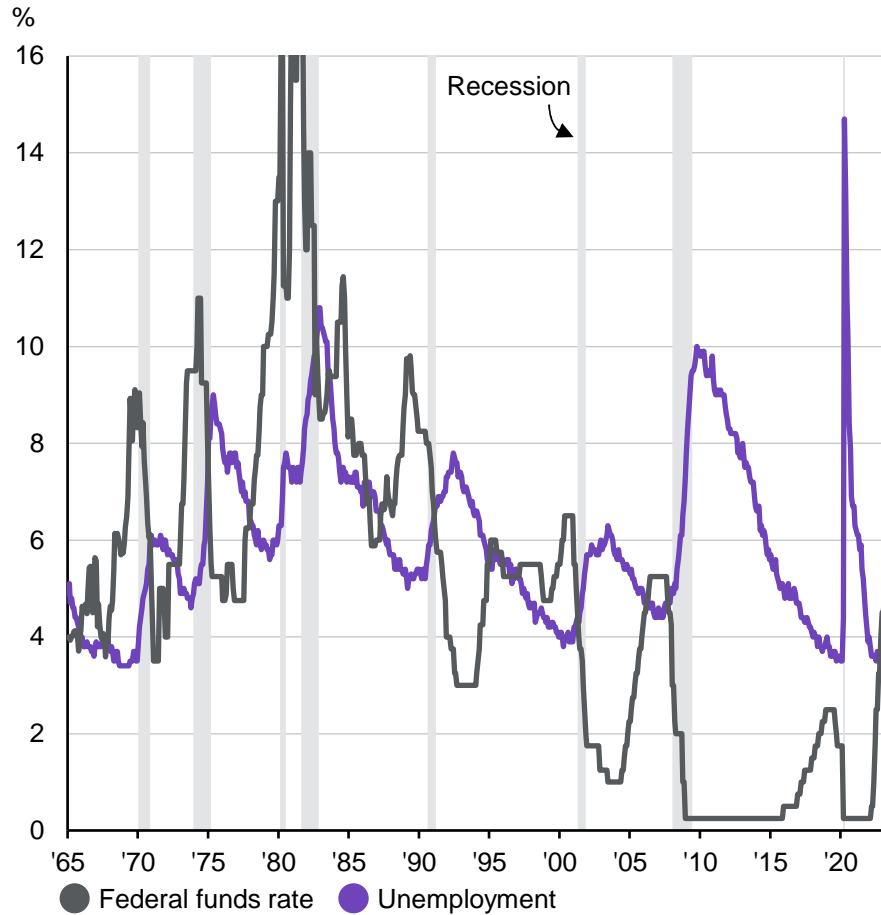
US labour market

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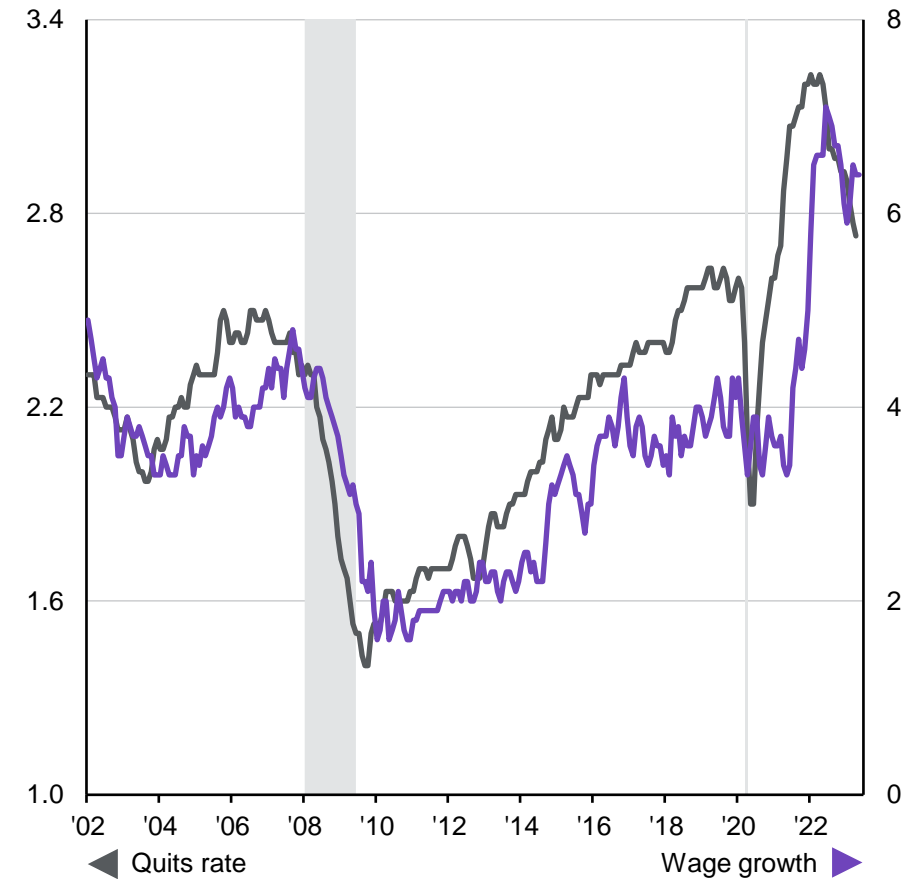
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US unemployment and Fed funds rate



US job quits and wage growth

%, three-month moving averages, wage growth is year on year



Source: (Left) BLS, Federal Reserve, Refinitiv Datastream, J.P. Morgan Asset Management. (Right) BLS, Federal Reserve Bank of Atlanta, Refinitiv Datastream, J.P. Morgan Asset Management. Wage growth is the Atlanta Fed wage tracker. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. *Guide to the Markets - UK*. Data as of 30 June 2023.

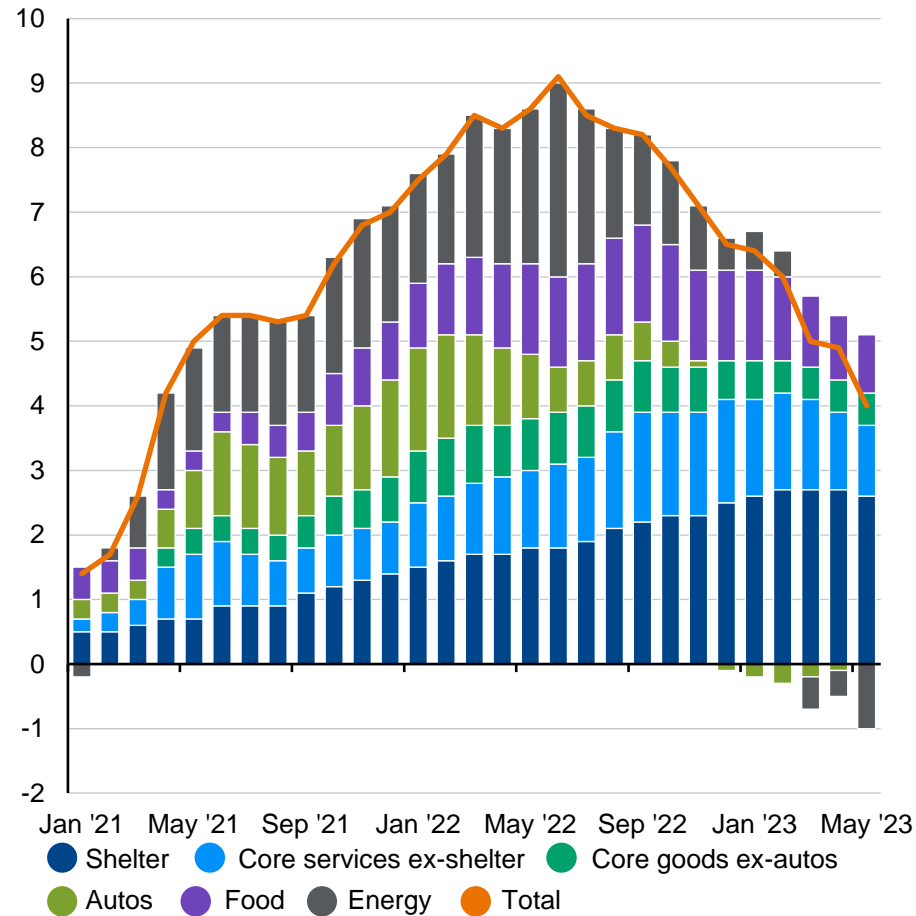


US inflation

GTM | UK | 22

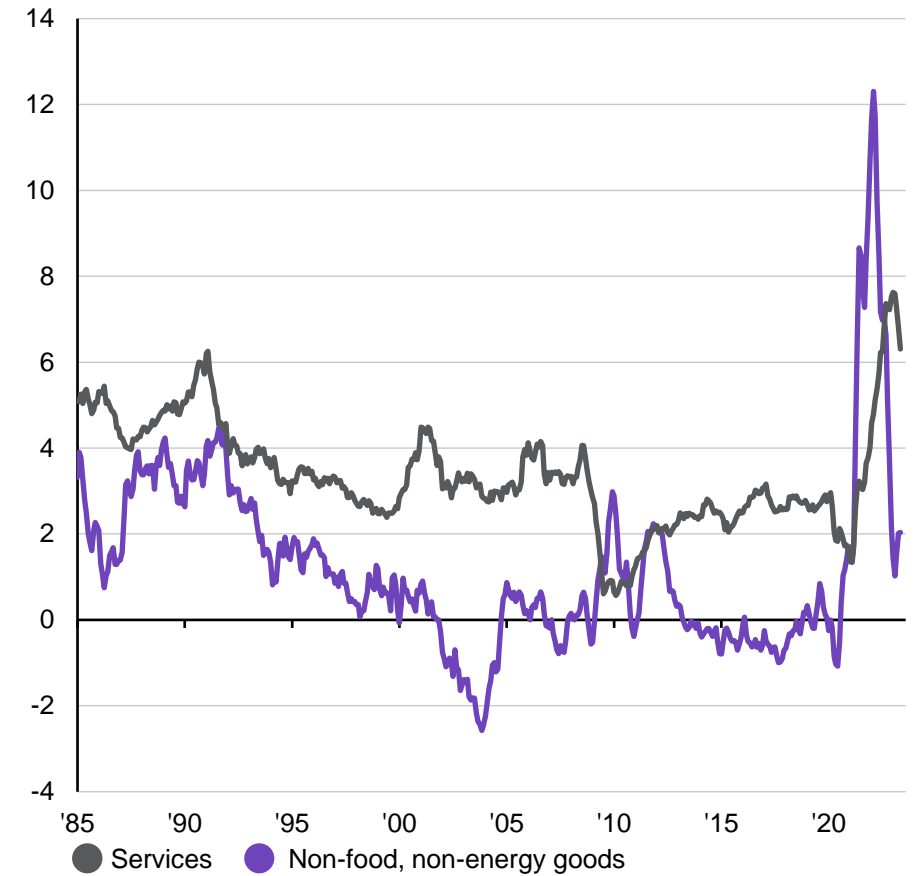
US headline inflation breakdown

% change year on year



US goods and services inflation

% change year on year





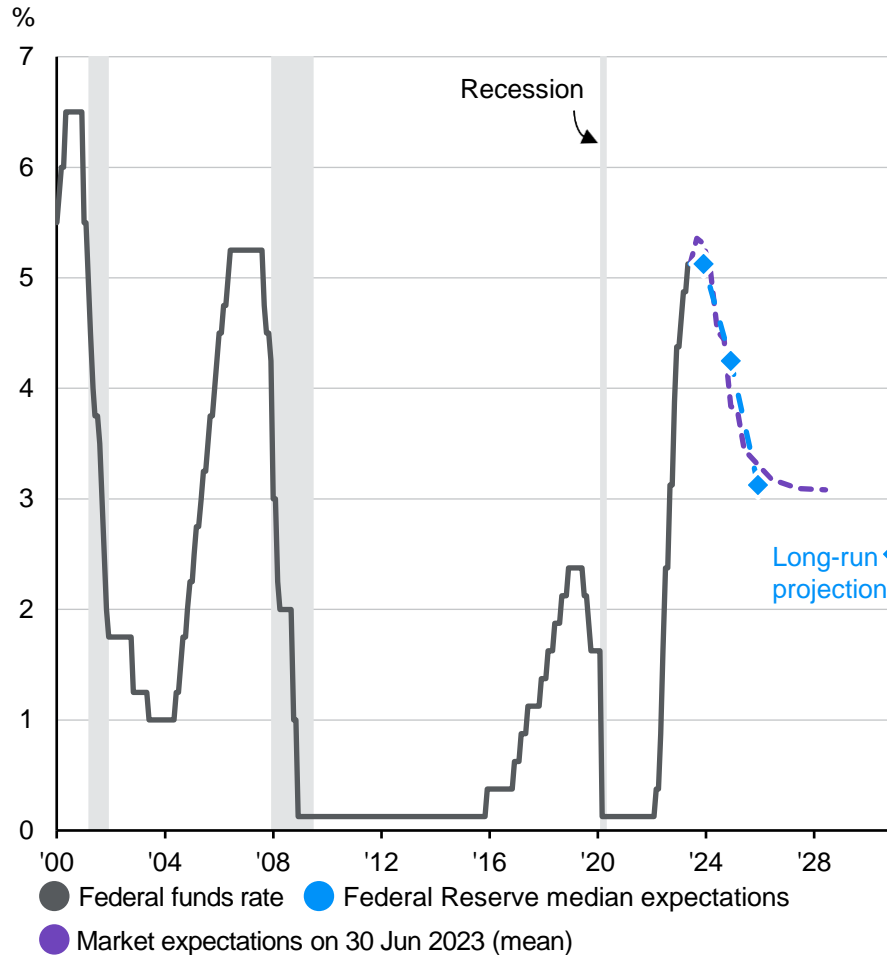
US Federal Reserve policy

GTM

UK

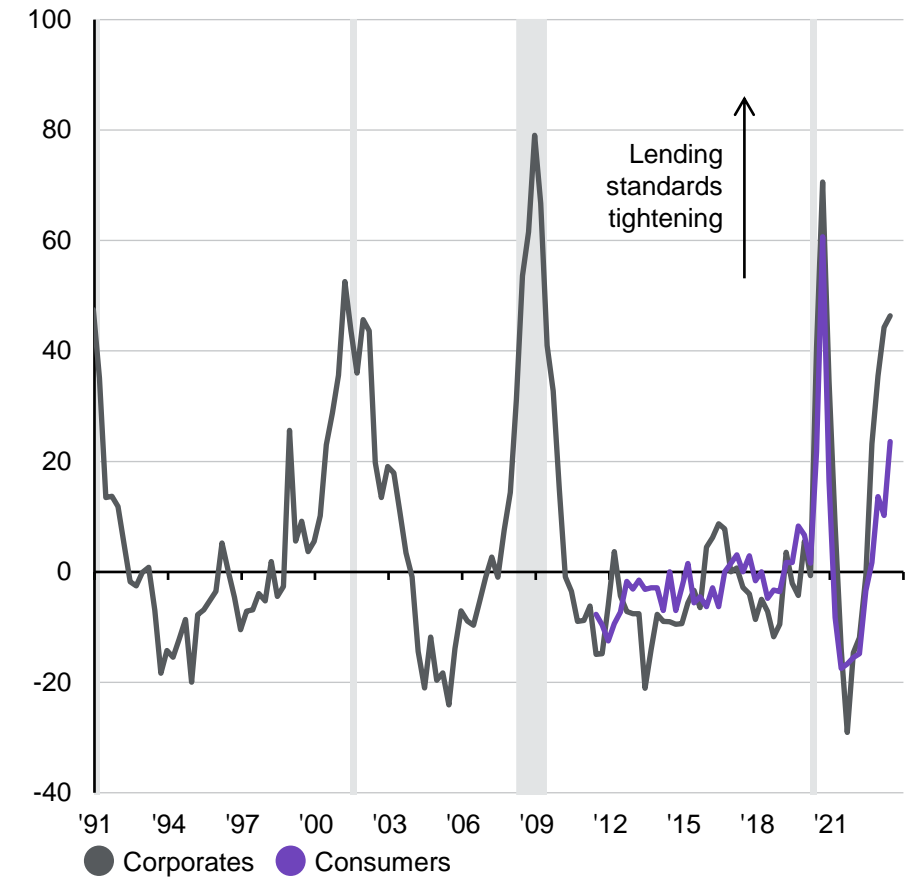
23

Federal Reserve policy rate expectations



US credit conditions

% of banks tightening lending standards



Source: (Left) Bloomberg, BLS, Federal Reserve, J.P. Morgan Asset Management. Market expectations are calculated using OIS forwards. The long-run projection represents the committee's median assessment of where the federal funds rate would be expected to converge to under the appropriate monetary policy and in the absence of further shocks to the economy. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. (Right) Federal Reserve, Refinitiv Datastream, J.P. Morgan Asset Management. Data is from the Senior Loan Officer Opinion Survey. Corporates is the average of large and small firm survey responses. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



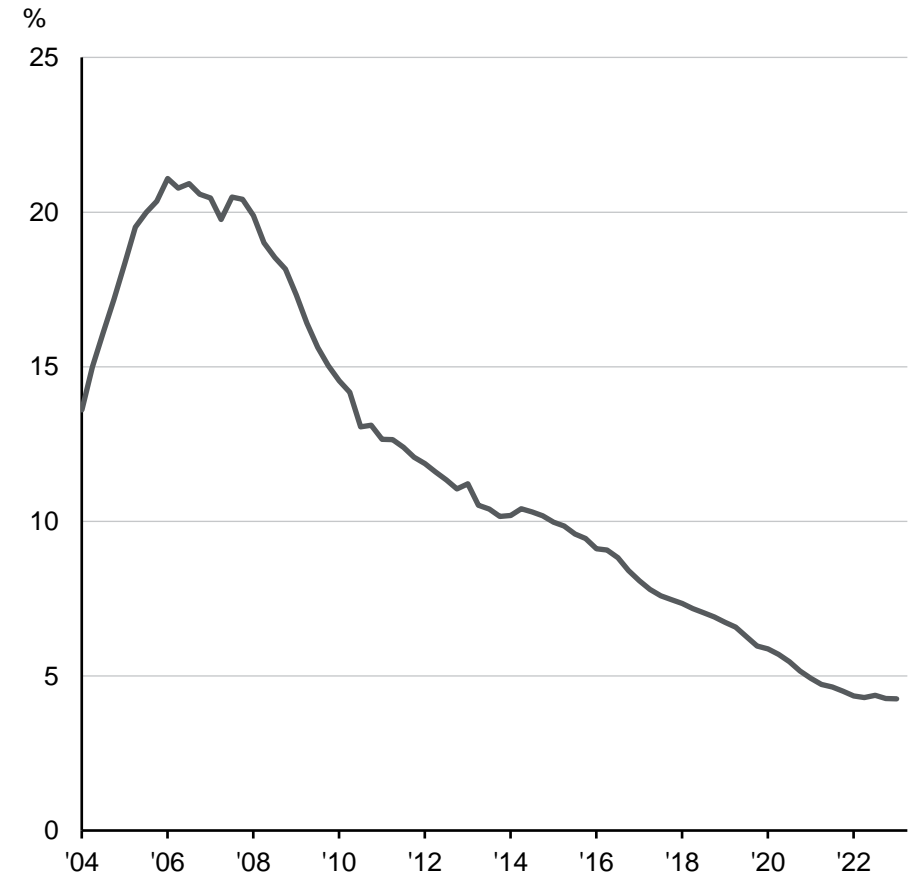
US mortgage costs and sensitivity

US mortgage cost

Payments on a new mortgage as a % of total income



Share of outstanding US mortgages on adjustable rates



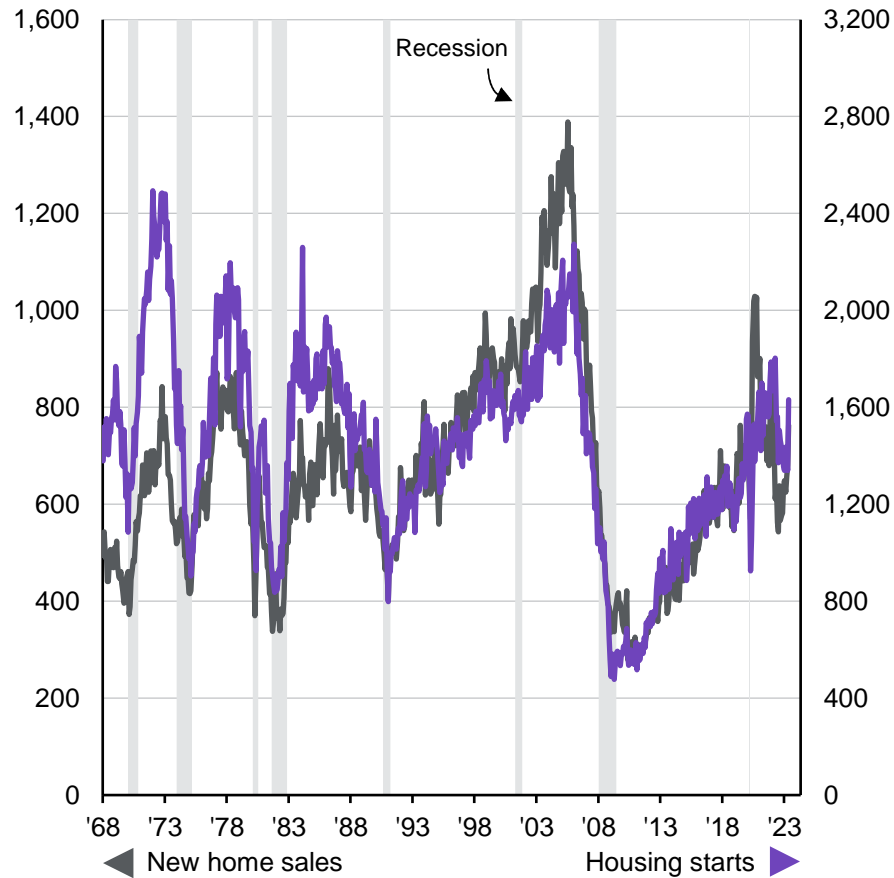
Source: (Left) National Association of Realtors, Refinitiv Datastream, J.P. Morgan Asset Management. The calculation is based on the national median-priced, existing single-family home relative to median family income as reported by the US Census Bureau. (Right) Mortgage Bankers Association of America, Refinitiv Datastream, J.P. Morgan Asset Management. *Guide to the Markets - UK*. Data as of 30 June 2023.



US housing activity and inventories

US single-family home sales and housing starts

Thousands, seasonally adjusted annualised rate



US housing inventories

Thousands, seasonally adjusted



Source: (Left) Census Bureau, Refinitiv Datastream, J.P. Morgan Asset Management. Periods of “recession” are defined using US National Bureau of Economic Research (NBER) business cycle dates. (Right) Census Bureau, National Association of Realtors, Refinitiv Datastream, J.P. Morgan Asset Management. Housing inventories include new and existing single-family homes for sale. *Guide to the Markets - UK*. Data as of 30 June 2023.



US focus: Shelter inflation, profits and payrolls

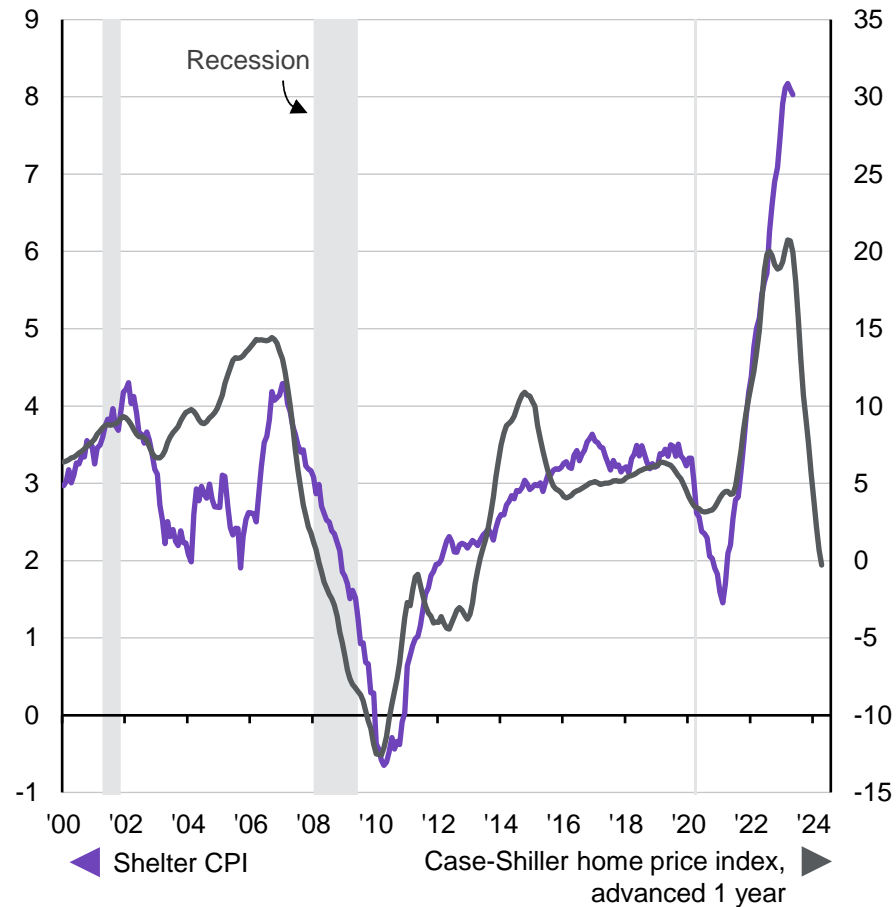
GTM

UK

26

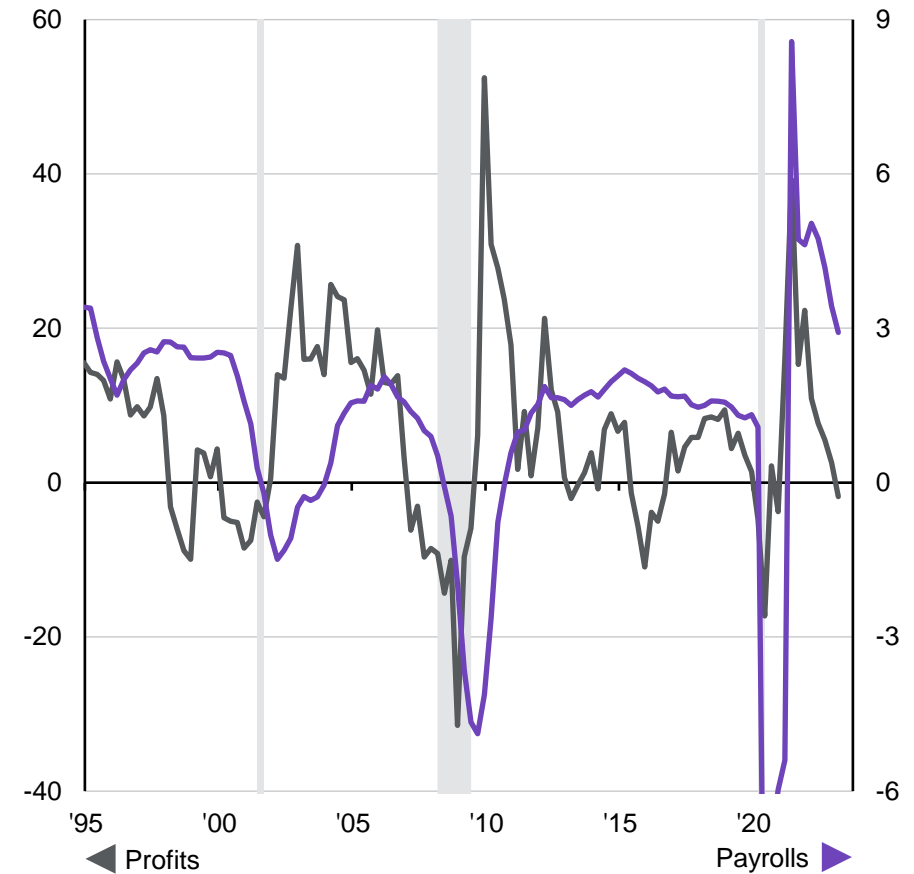
US house prices and shelter inflation

% change year on year



US corporate profits and non-farm payrolls

% change year on year



Source: (Left) BLS, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. (Right) BEA, BLS, Refinitiv Datastream, J.P. Morgan Asset Management. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. *Guide to the Markets - UK*. Data as of 30 June 2023.



Eurozone GDP

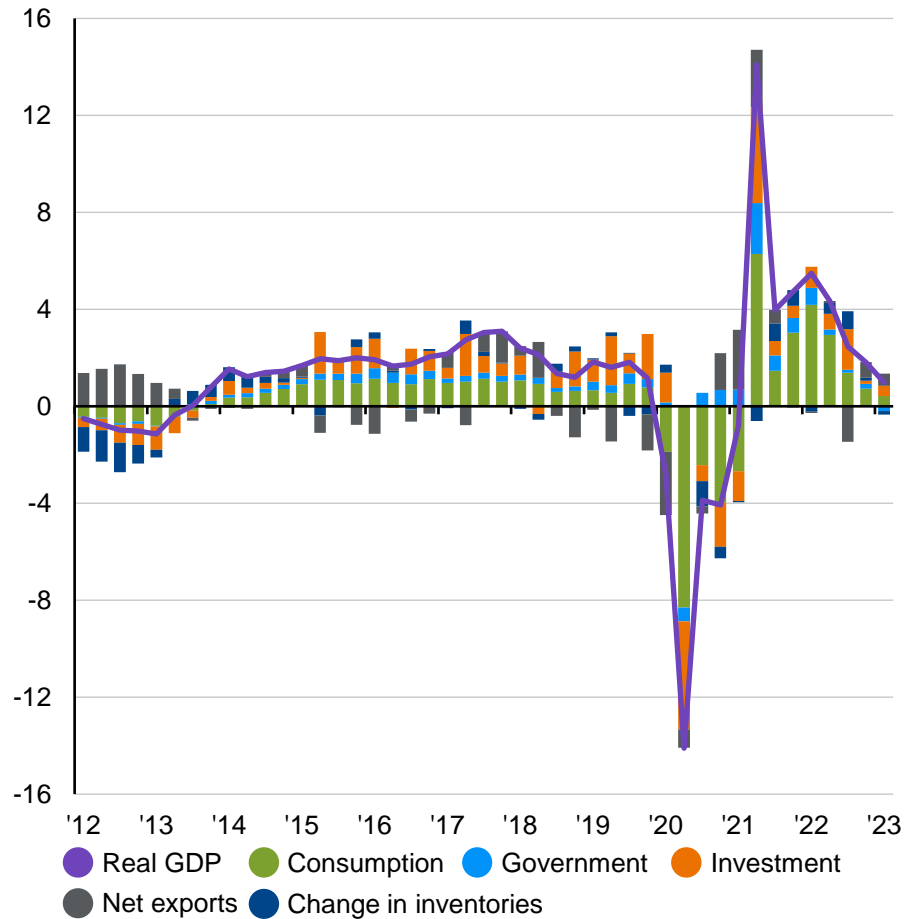
GTM

UK

27

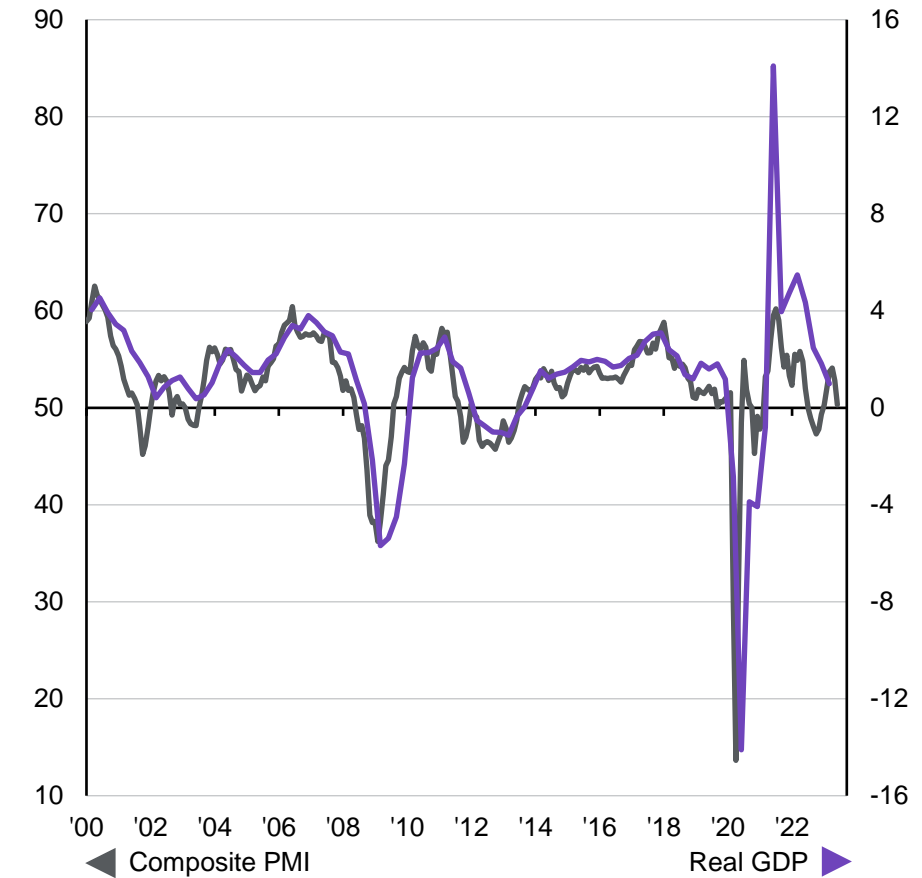
Contribution to eurozone real GDP growth

% change year on year



Eurozone real GDP and composite PMI

Index level (LHS); % change year on year (RHS)

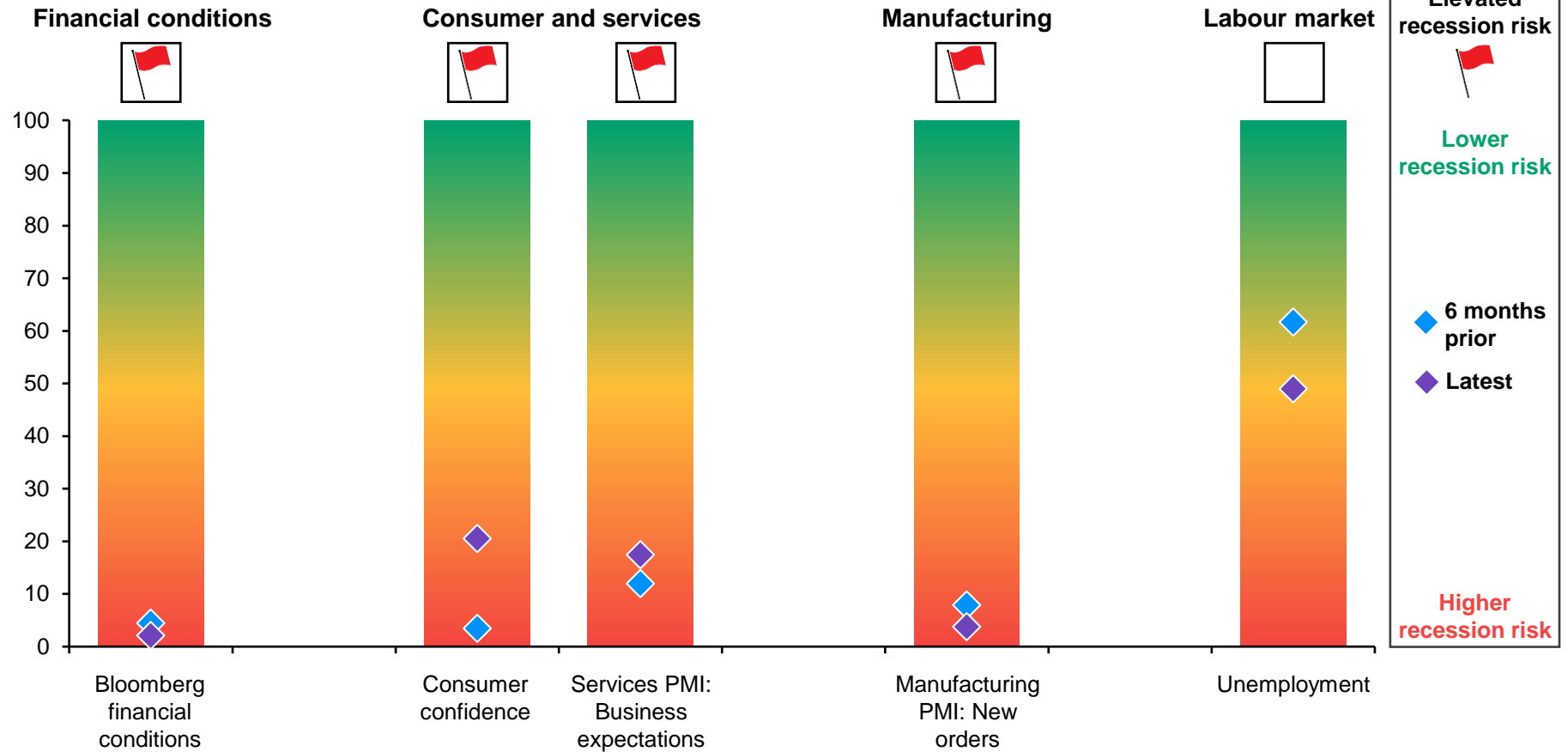




Eurozone Economic Monitor

Eurozone economic indicators

Percentile rank relative to historic data since 1999



Source: Bloomberg, European Commission, Eurostat, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. Elevated recession risk flags are shown when the underlying indicator is at a level consistent with eurozone recessions prior to the Covid-19 recession. *Guide to the Markets - UK*. Data as of 30 June 2023.



Eurozone business investment and credit conditions

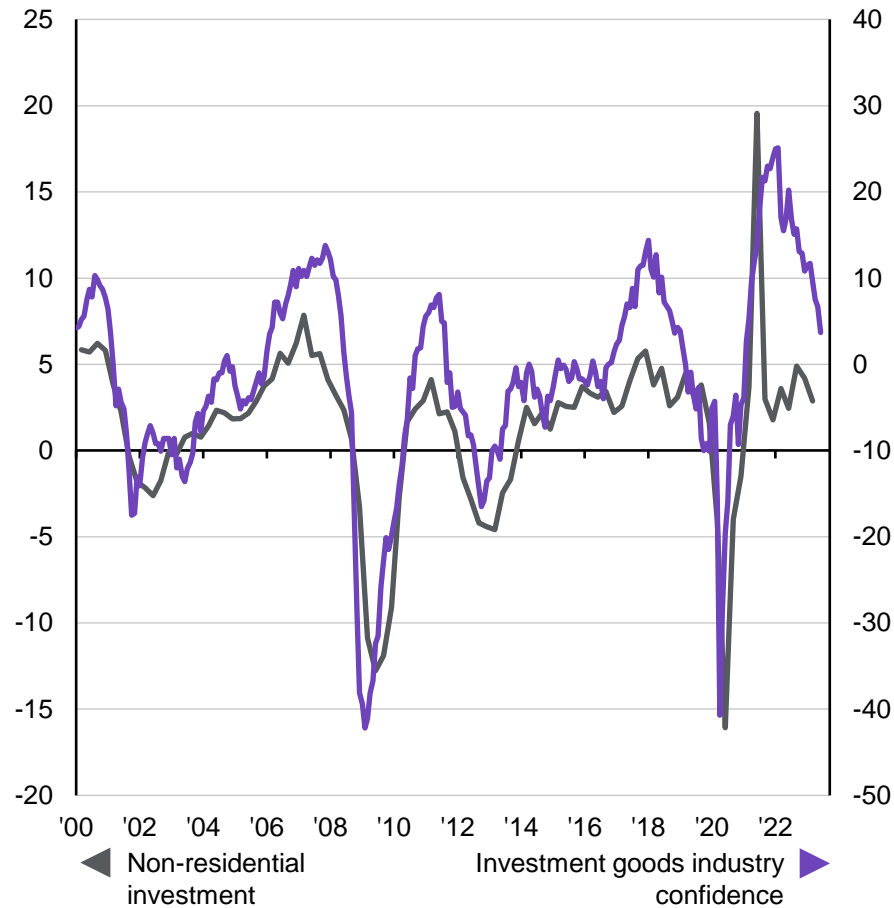
GTM

UK

29

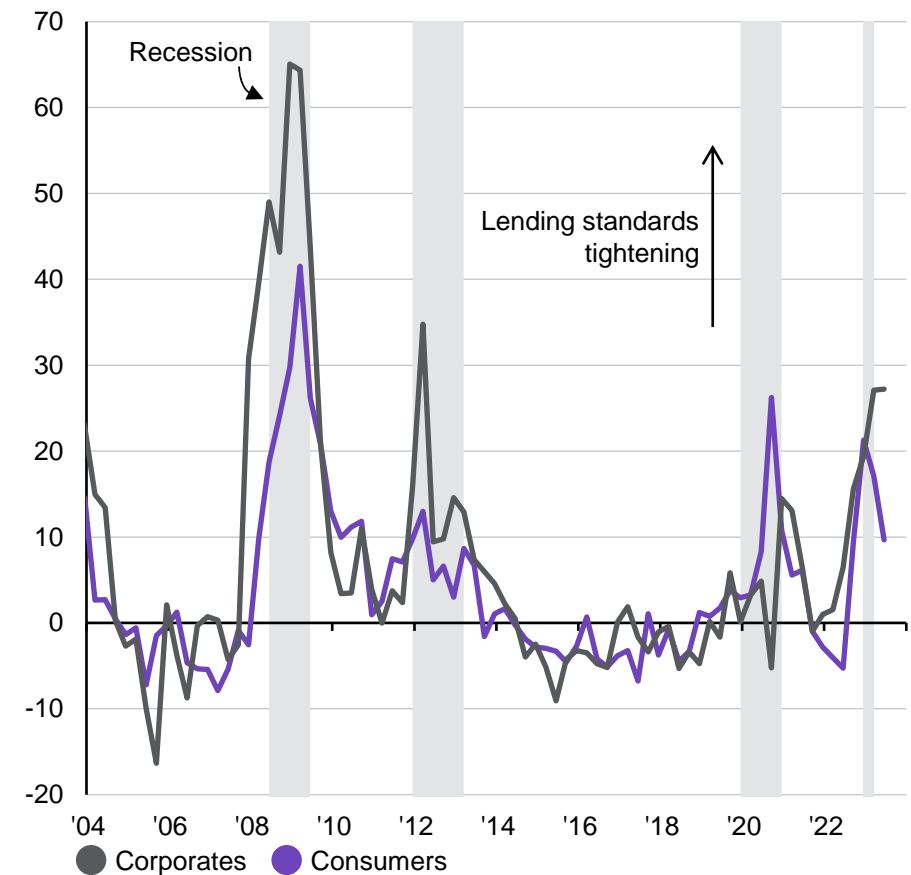
Eurozone real investment and investment confidence

% change year on year (LHS); index level (RHS)



Eurozone credit conditions

% of banks tightening credit standards

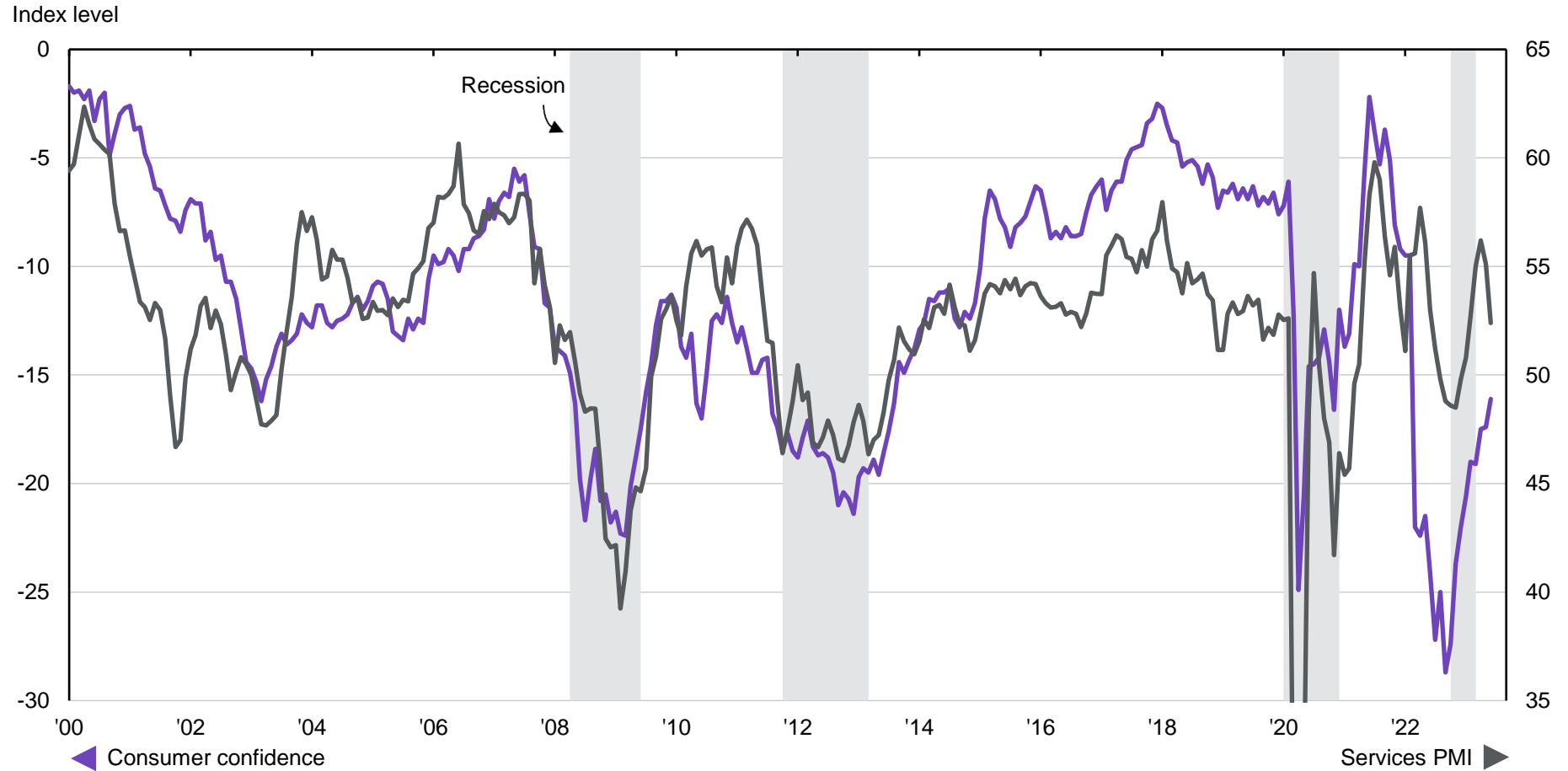


Source: (Left) Eurostat, Refinitiv Datastream, J.P. Morgan Asset Management. Non-residential investment is in real terms and includes both public and private investment. (Right) European Central Bank, Refinitiv Datastream, J.P. Morgan Asset Management. Data is from the Euro Area Bank Lending Survey. *Guide to the Markets - UK*. Data as of 30 June 2023.



Eurozone consumer and services activity

Eurozone consumer confidence and services sector



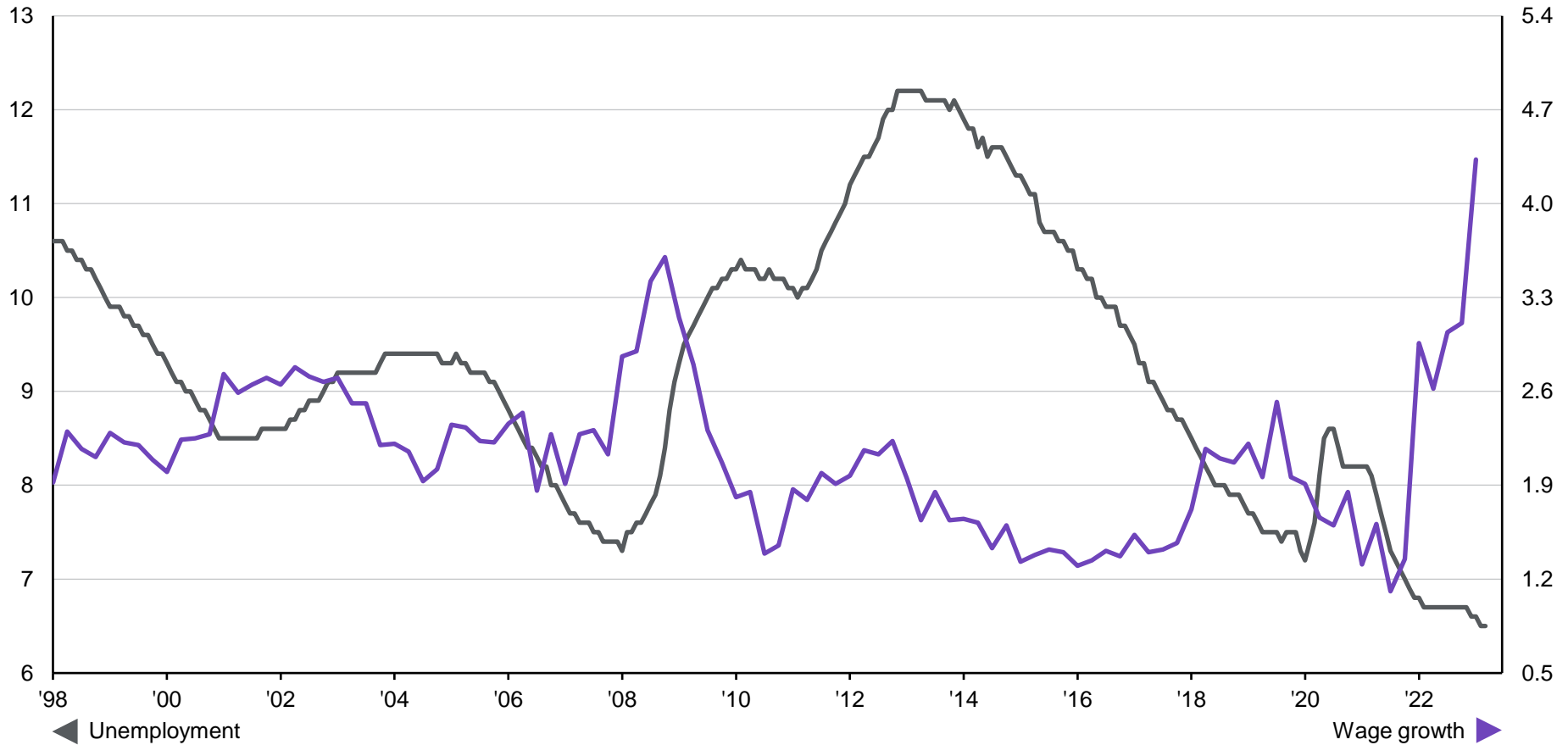


Eurozone labour market

GTM UK 31

Eurozone unemployment and wage growth

%, wage growth is year on year





Eurozone inflation

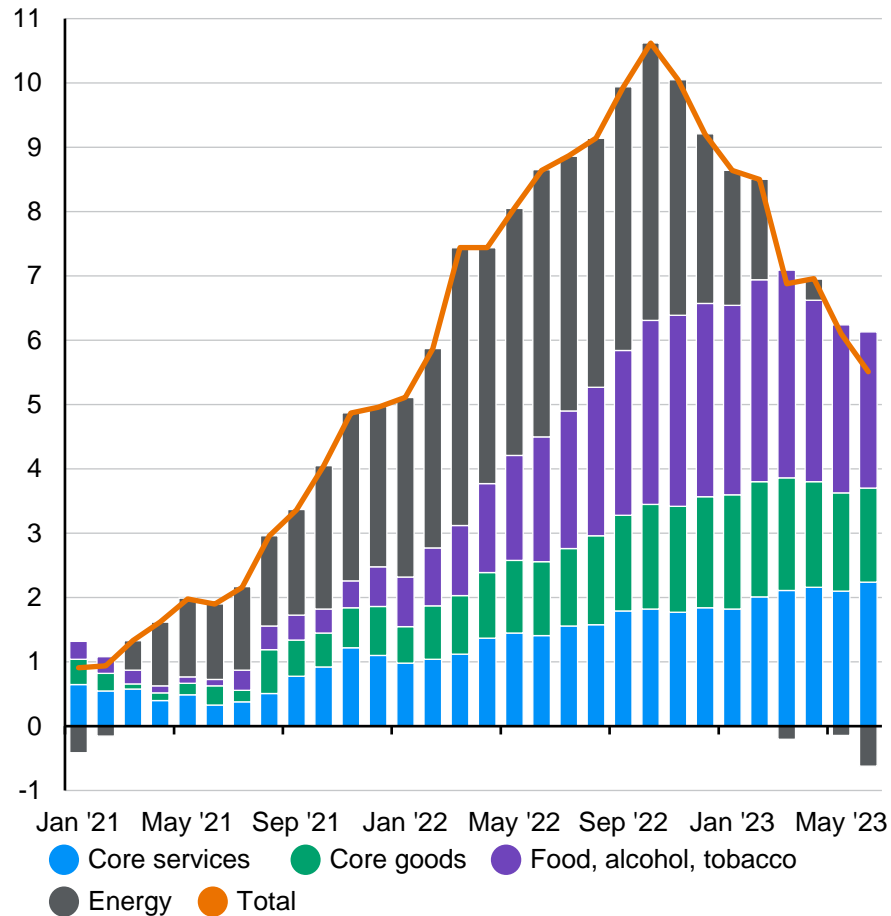
GTM

UK

32

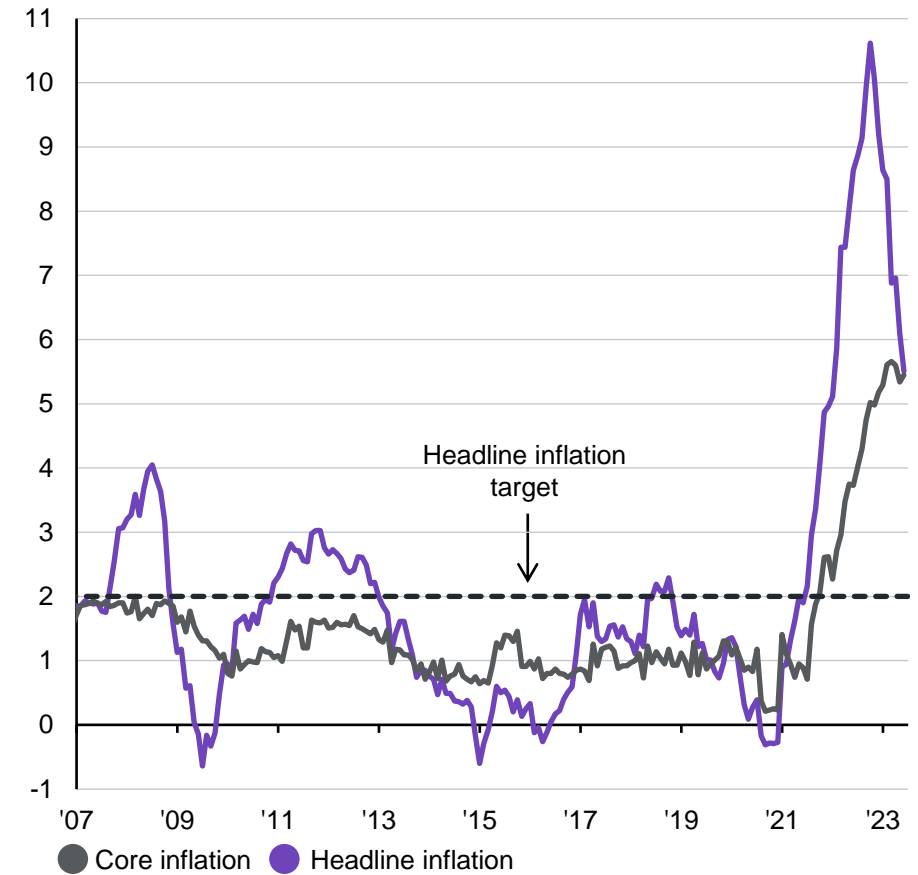
Eurozone headline inflation breakdown

% change year on year



Eurozone headline and core inflation

% change year on year



Source: (All charts) Eurostat, Refinitiv Datastream, J.P. Morgan Asset Management. Core inflation is defined as headline inflation less energy, food, alcohol and tobacco. *Guide to the Markets - UK*. Data as of 30 June 2023.



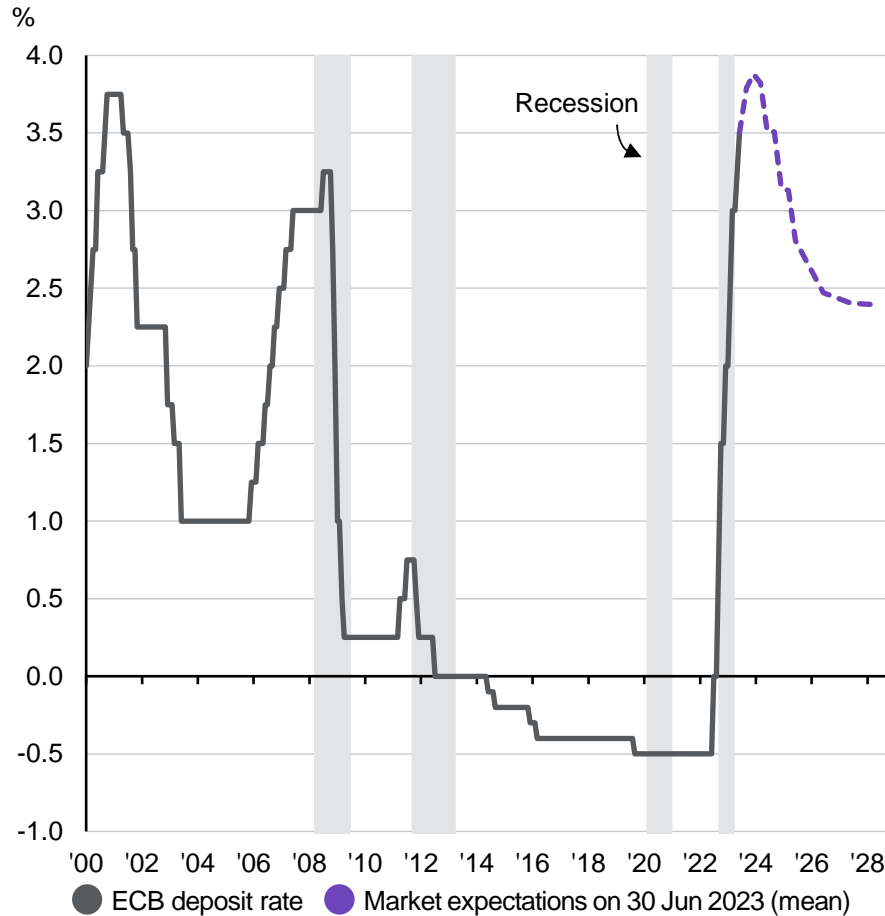
European Central Bank policy

GTM

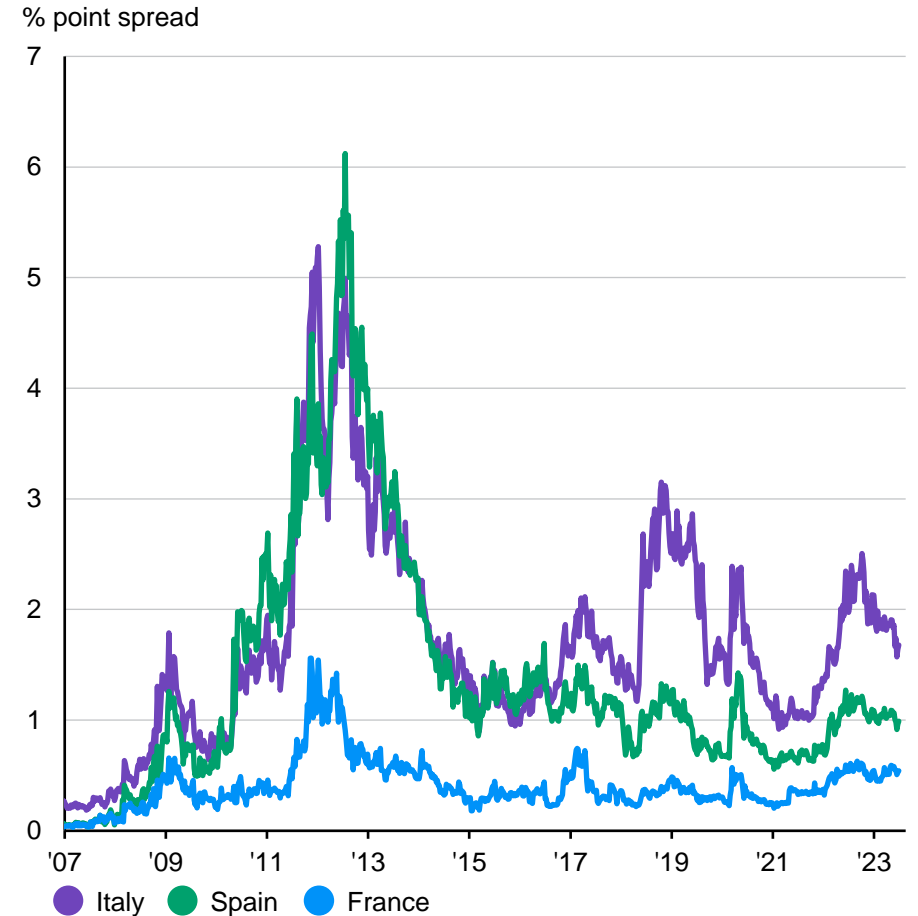
UK

33

European Central Bank policy rate expectations



European 10-year government bond spreads over Germany



Source: (Left) Bloomberg, European Central Bank, J.P. Morgan Asset Management. Market expectations are calculated using OIS forwards. (Right) Refinitiv Datastream, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



Eurozone focus: Natural gas storage and electricity prices

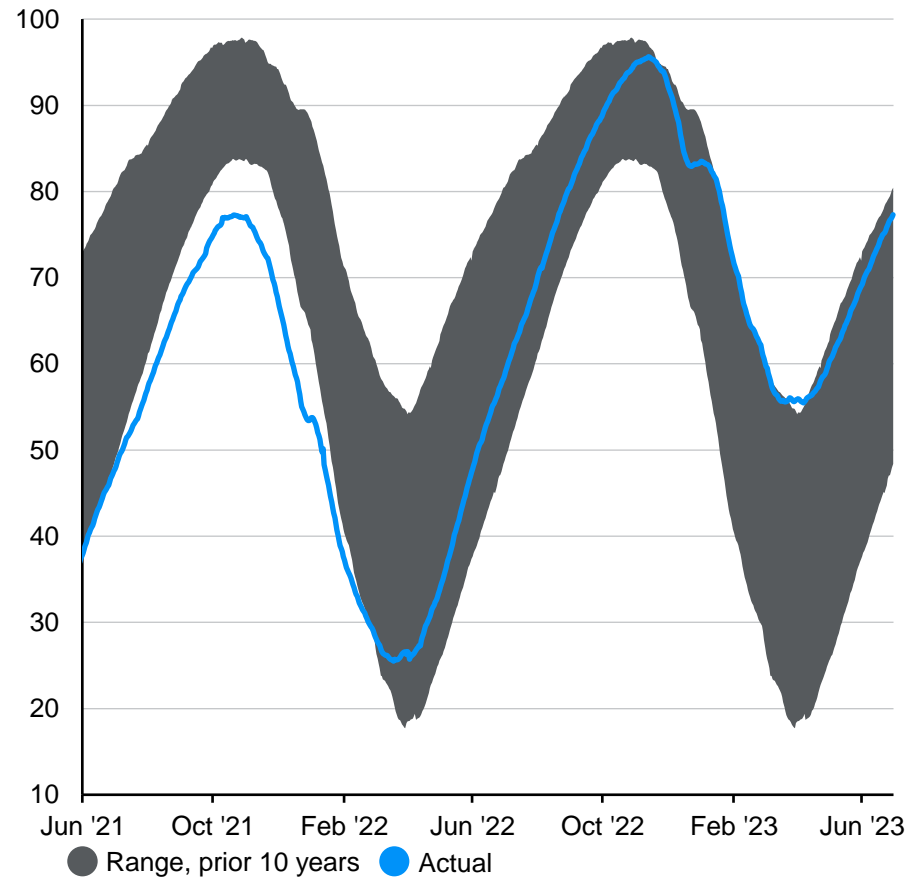
GTM

UK

34

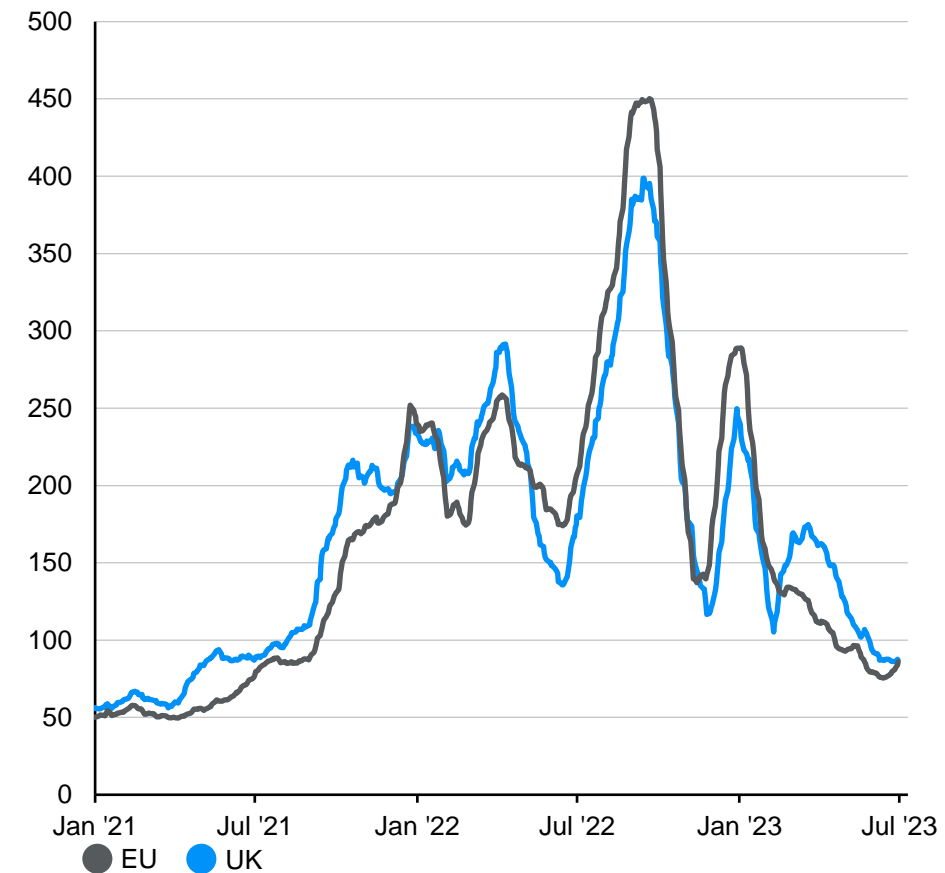
EU natural gas inventories

% of capacity



EU and UK electricity prices

EUR/GBP per MWh, 30-day moving average



Source: (Left) Bloomberg, Gas Infrastructure Europe, J.P. Morgan Asset Management. (Right) APX UK, Refinitiv Datastream, TTF, J.P. Morgan Asset Management. UK price is the EPX daily fixing half hour 0730 – 0800 price, EU price is the Netherlands base load first day futures price. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

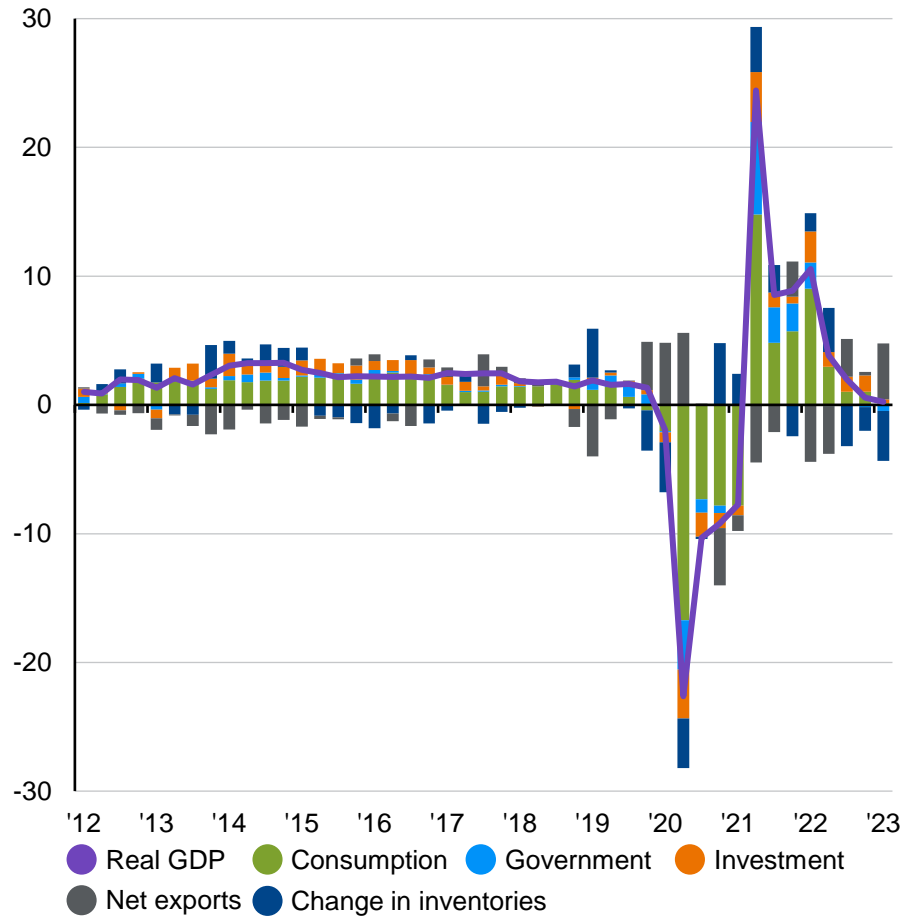


UK GDP

GTM UK 35

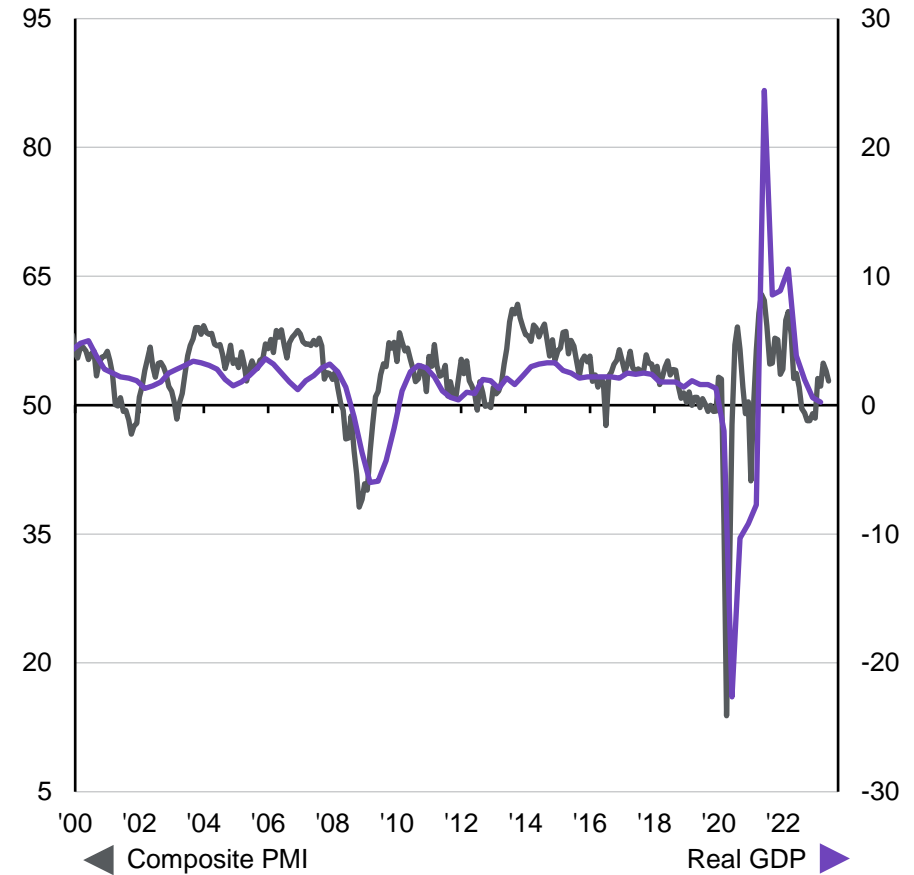
Contribution to UK real GDP growth

% change year on year



UK real GDP and composite PMI

Index level (LHS); % change year on year (RHS)





UK housing market

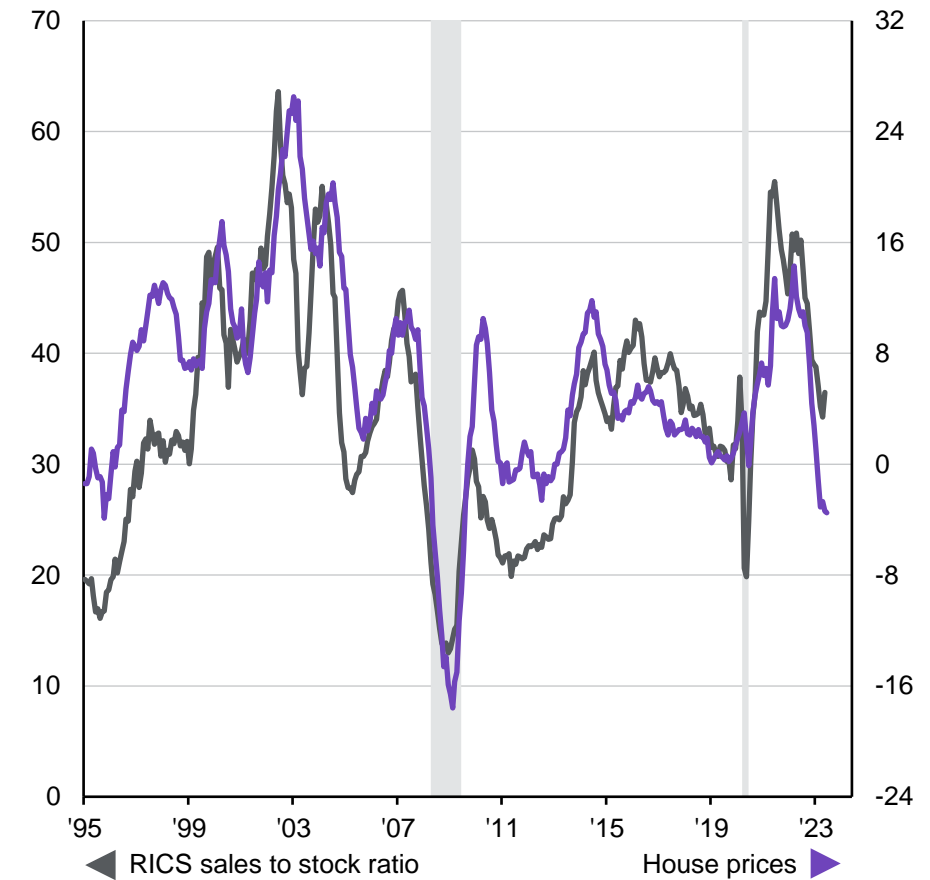
GTM UK 36

UK mortgage rates



UK housing market

Index level (LHS); % change year on year (RHS)





UK consumer and labour market

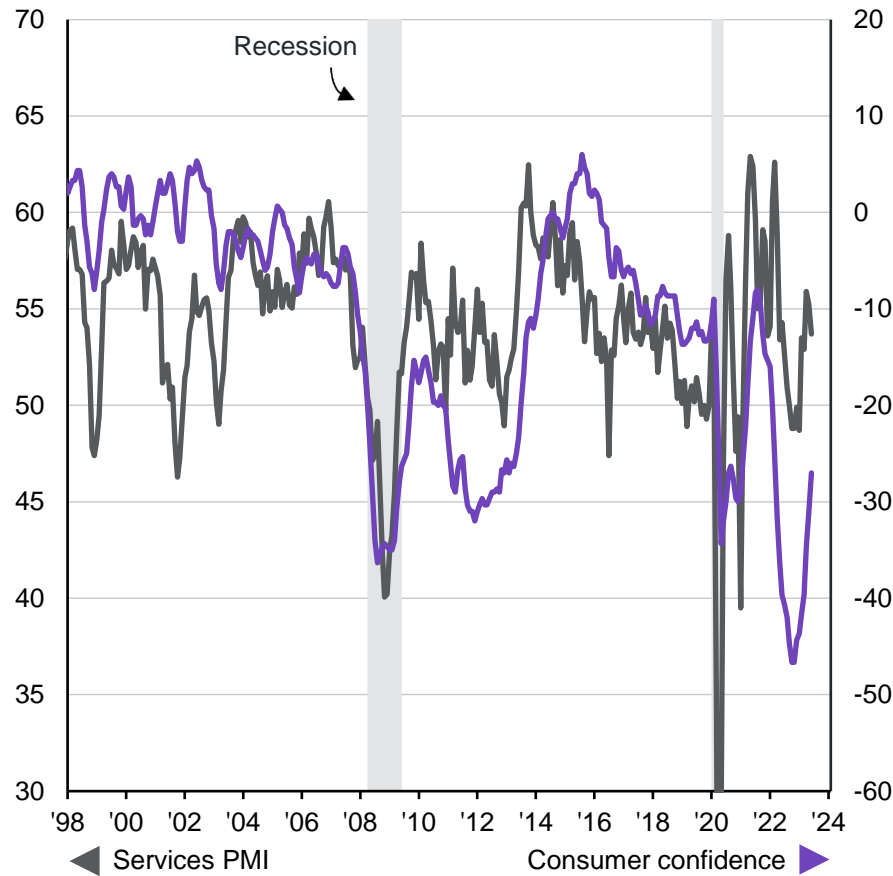
GTM

UK

37

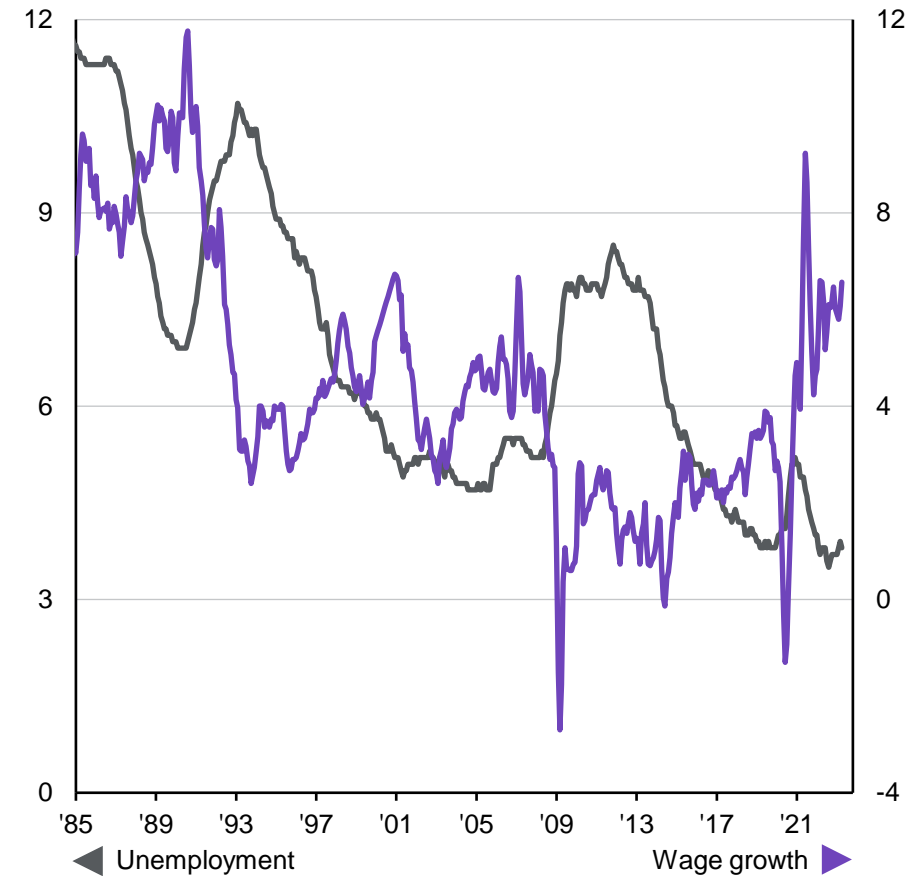
UK consumer confidence and services sector

Index level (LHS); index level, three-month moving average (RHS)



UK unemployment rate and wage growth

%, wage growth is year on year



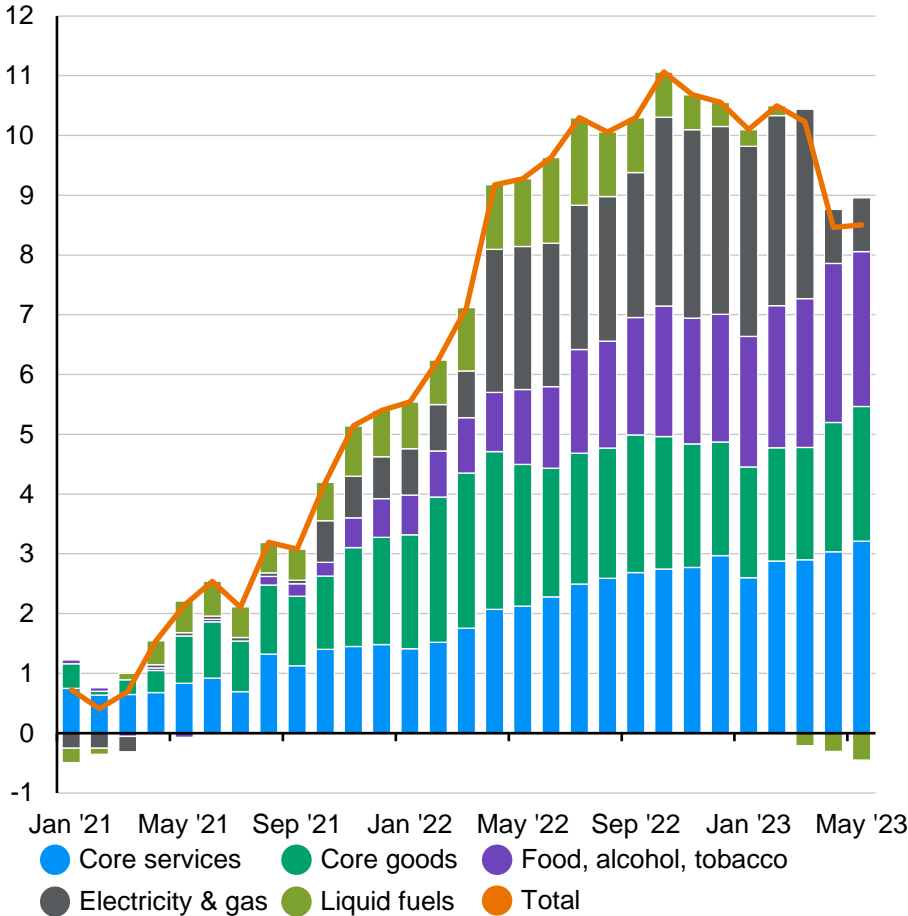
Source: (Left) GfK, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. (Right) ONS, Refinitiv Datastream, J.P. Morgan Asset Management. Wage growth is a three-month moving average of average weekly earnings for the whole economy, including bonuses and arrears. *Guide to the Markets - UK*. Data as of 30 June 2023.



UK inflation

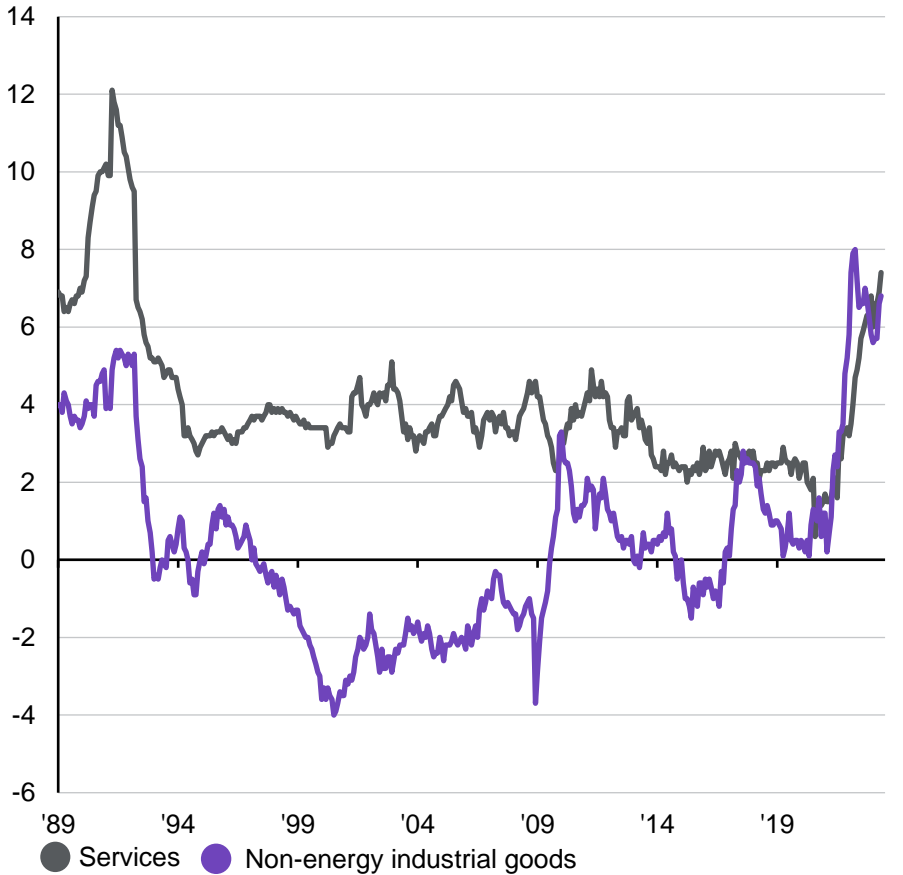
UK headline inflation breakdown

% change year on year



UK goods and services inflation

% change year on year





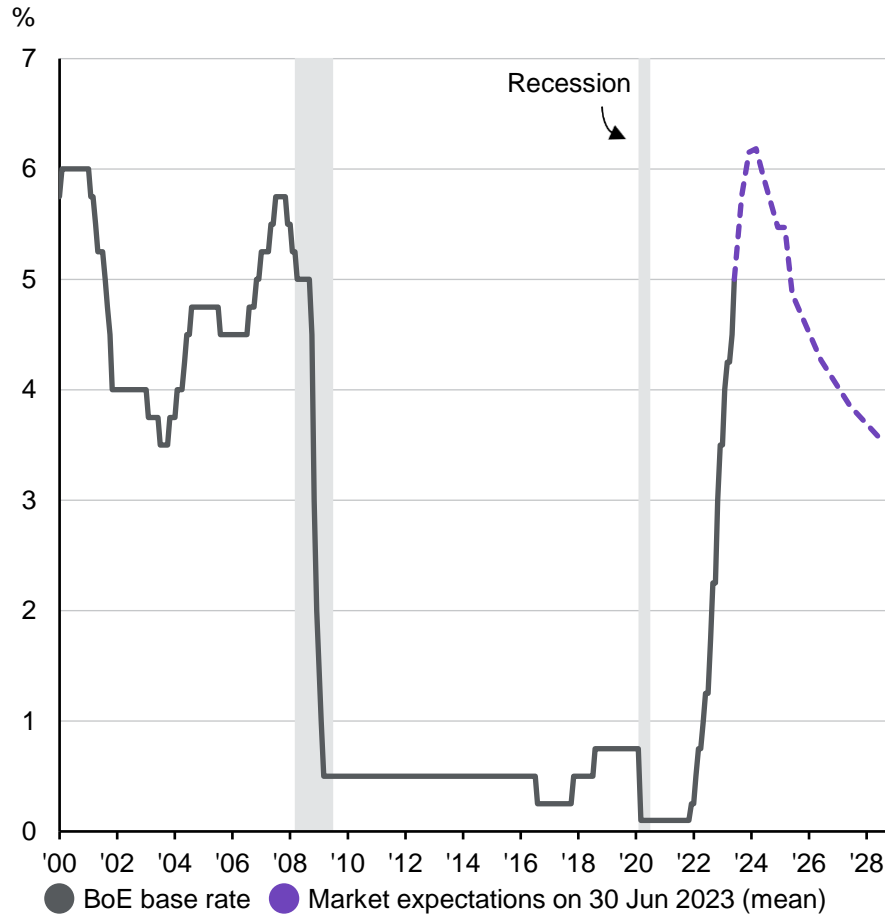
UK Bank of England policy

GTM

UK

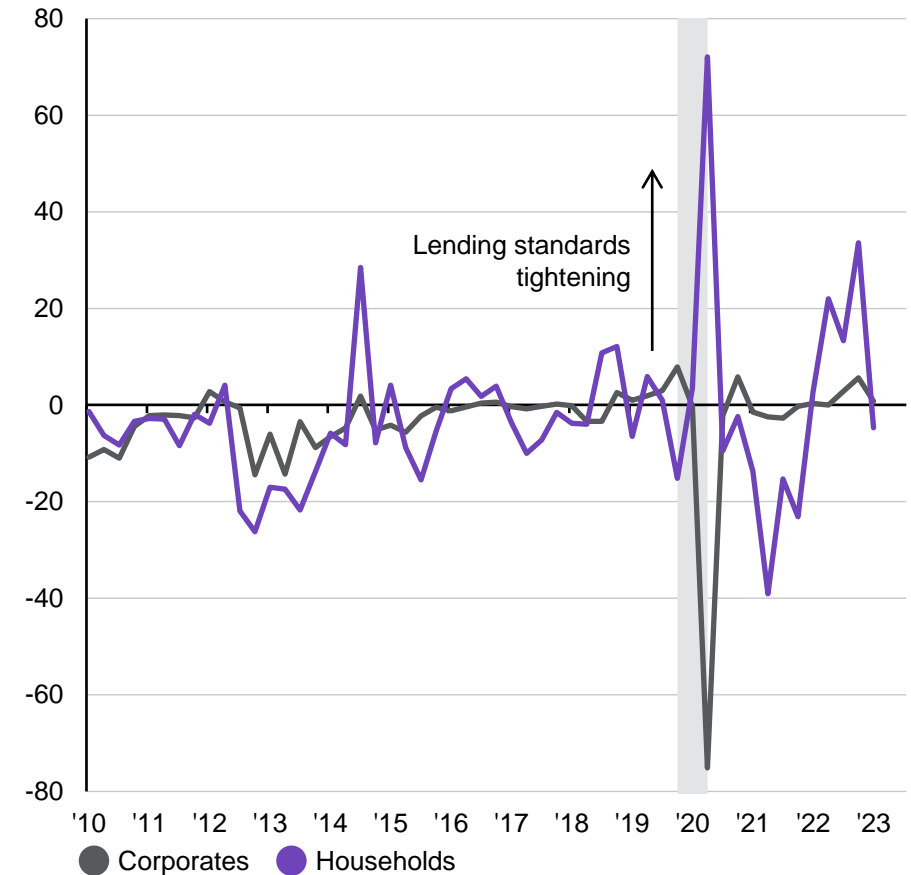
39

Bank of England policy rate expectations



UK credit conditions

% of banks tightening credit standards



Source: (Left) Bank of England, Bloomberg, J.P. Morgan Asset Management. Market expectations are calculated using OIS forwards. (Right) Bank of England, Refinitiv Datastream, J.P. Morgan Asset Management. Data is from the Bank of England's Credit Conditions Survey. Corporates refers to the average of large, medium and small firm responses. Households refers to secured credit availability. Past performance is not a reliable indicator of current and future results. Guide to the Markets - UK. Data as of 30 June 2023.



UK focus: Mortgages and labour participation

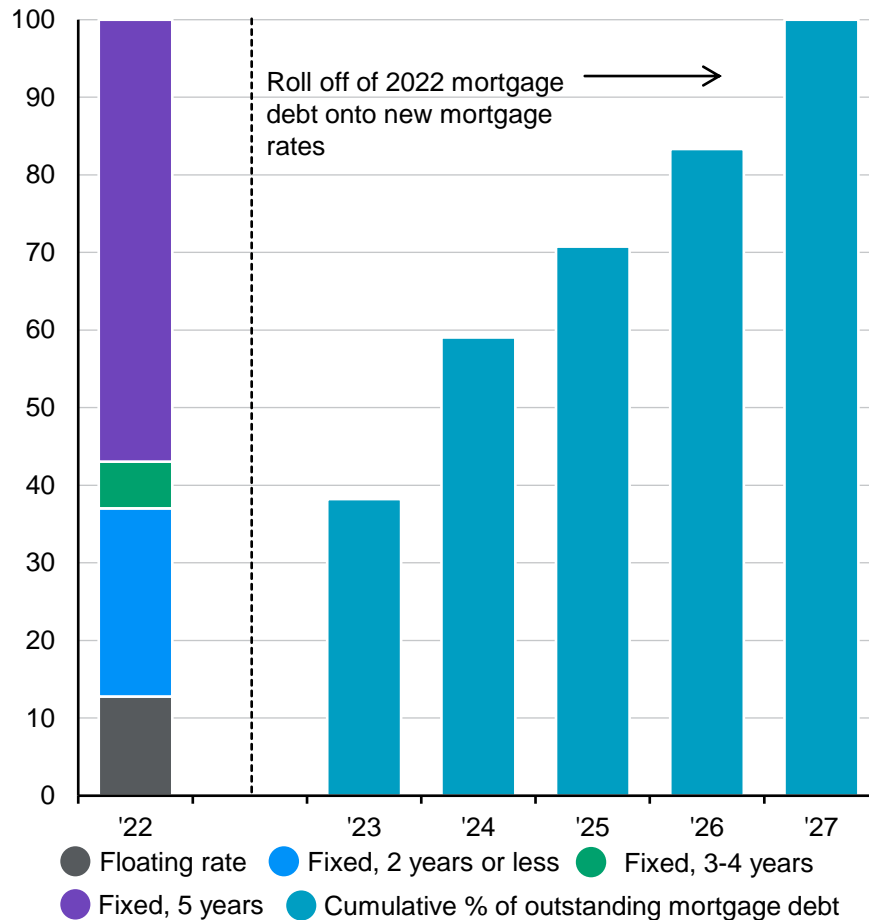
GTM

UK

40

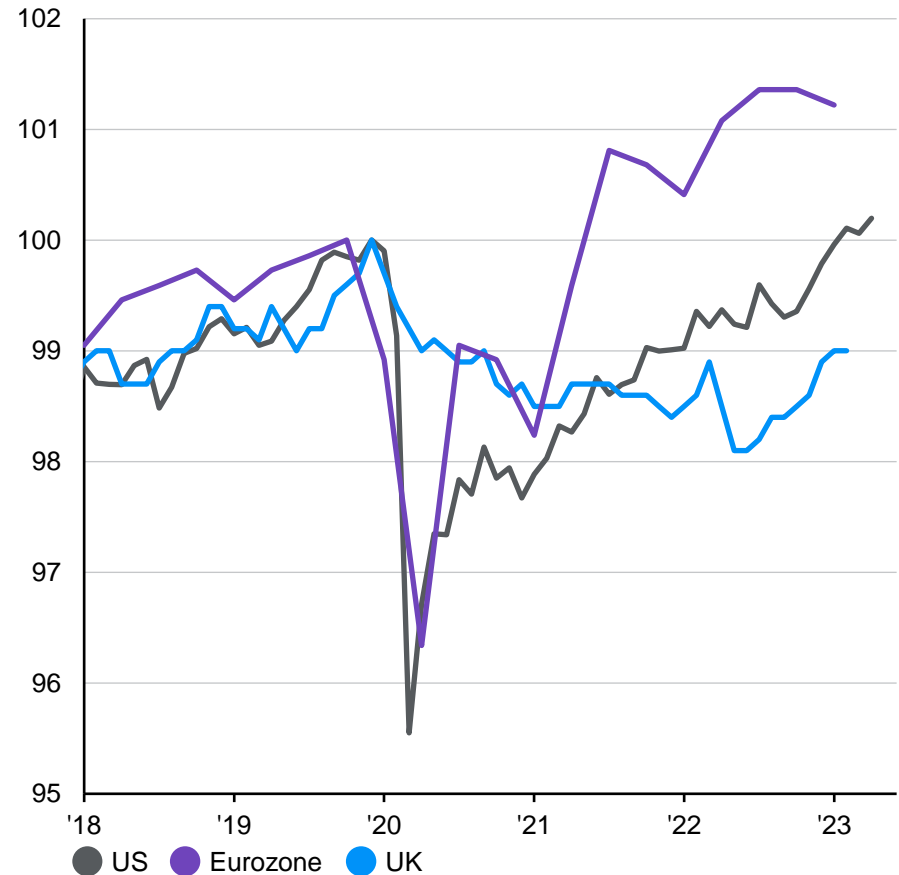
UK mortgages exposed to higher rates

% of mortgage stock, cumulative % of outstanding mortgage debt



Labour force participation rates

Index level, rebased to 100 at pre-pandemic peak



Source: (Left) Bank of England, J.P. Morgan Asset Management. Mortgages exposed to higher rates are based on internal J.P. Morgan Asset Management calculations and estimates. The first bar shows the proportion of UK mortgage debt as of Q4 2022 that is either floating rate or with historical fixed rate agreements. The subsequent bars show the cumulative proportion of this debt that will be exposed to higher interest rates over time. (Right) Eurostat, OECD, ONS, Refinitiv Datastream, J.P. Morgan Asset Management. Participation rates are for people between the age of 16-64 for the US and UK, and 15-64 for the eurozone. *Guide to the Markets - UK*. Data as of 30 June 2023.

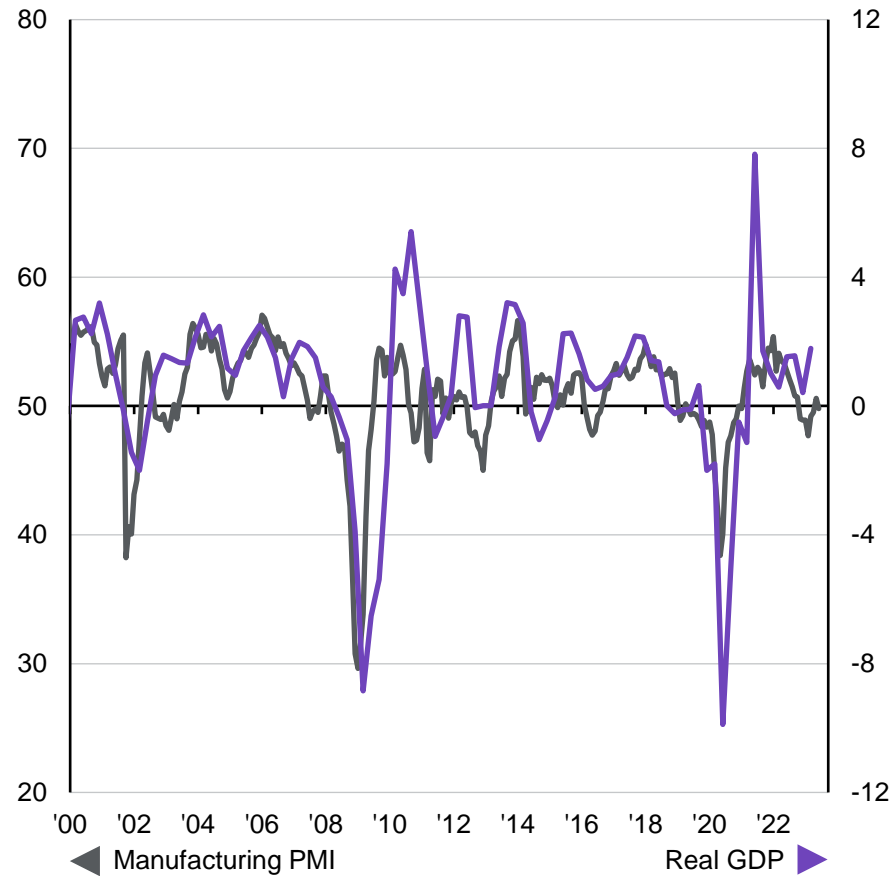


Japan GDP and inflation

GTM UK 41

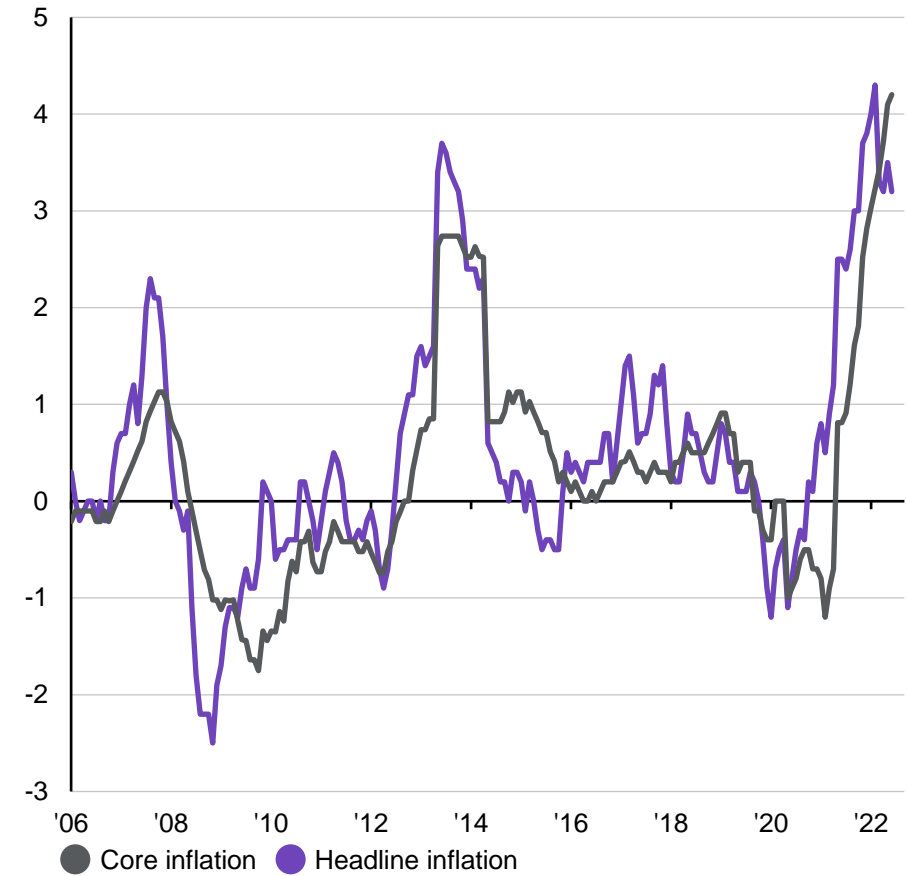
Japan real GDP and manufacturing PMI

Index level (LHS); % change year on year (RHS)



Japan inflation

% change year on year



Source: (Left) Japan Cabinet Office, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. A score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. (Right) Japan Statistics Bureau, Refinitiv Datastream, J.P. Morgan Asset Management. Core inflation is defined as excluding fresh food and energy, as preferred by the Bank of Japan. *Guide to the Markets - UK*. Data as of 30 June 2023.



China GDP and business surveys

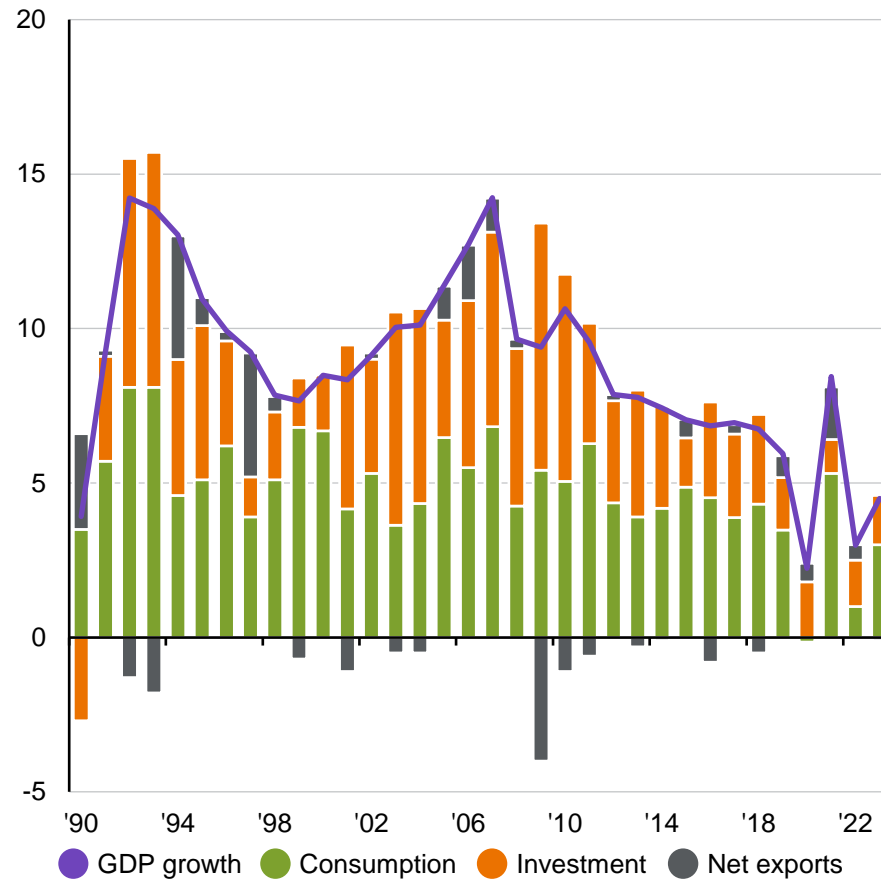
GTM

UK

42

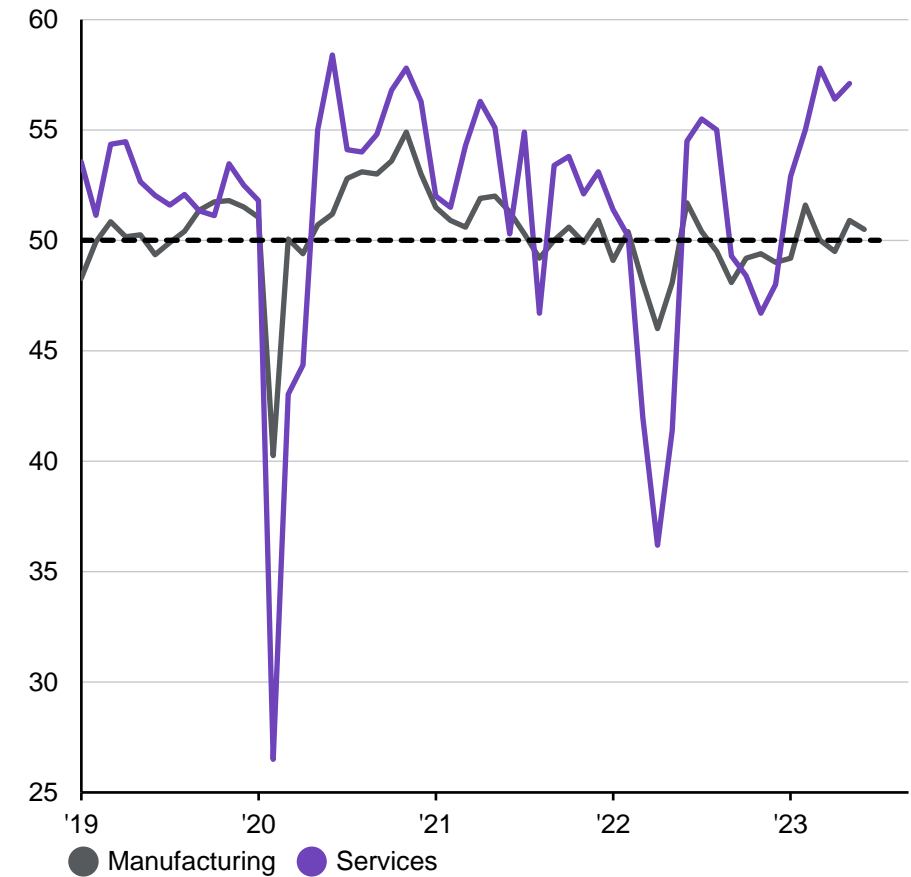
Contribution to China real GDP growth

% change year on year



China Caixin manufacturing and services PMIs

Index level



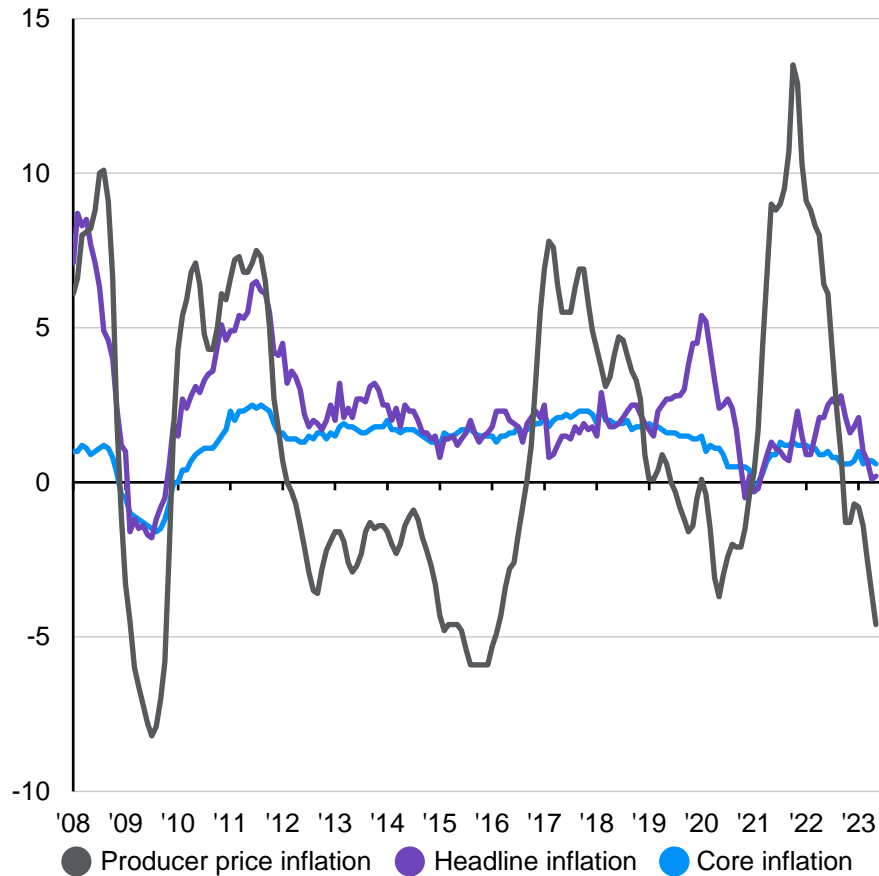
Source: (Left) National Bureau of Statistics of China, Refinitiv Datastream, J.P. Morgan Asset Management. Data for 2023 is the year on year change in year-to-date GDP. (Right) S&P Global, J.P. Morgan Asset Management. For the PMI indices, a score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. *Guide to the Markets - UK*. Data as of 30 June 2023.



China inflation and credit dynamics

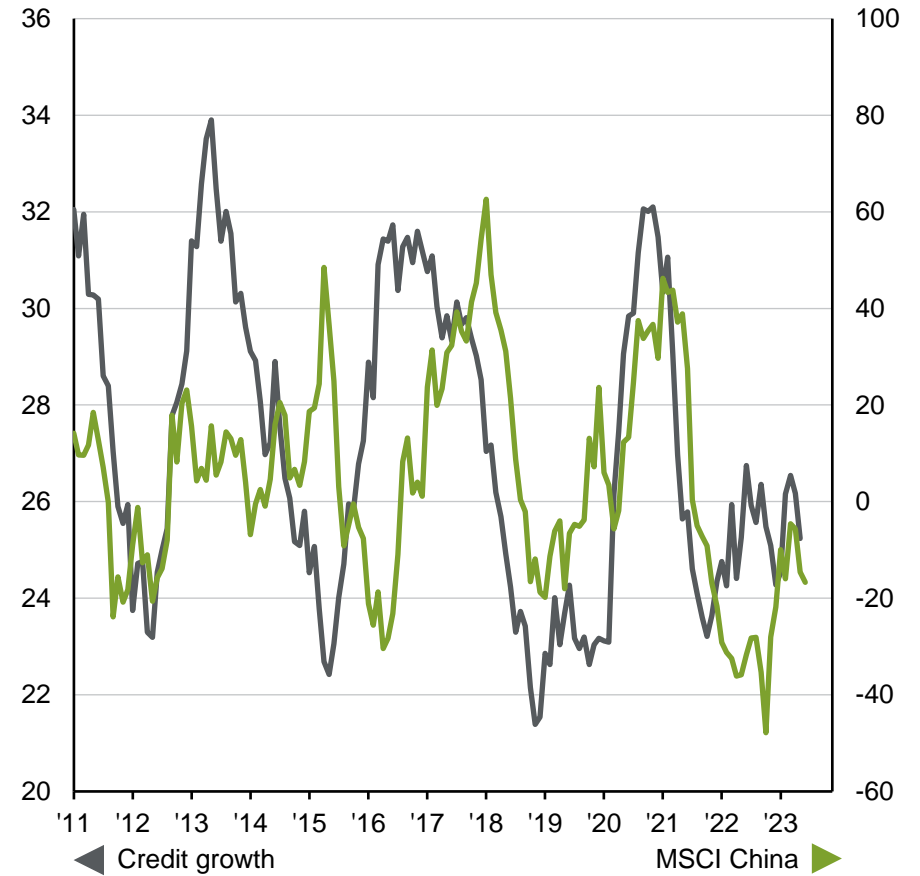
China inflation

% change year on year



China credit growth and equity performance

% of nominal GDP (LHS); % change year on year, total return (RHS)



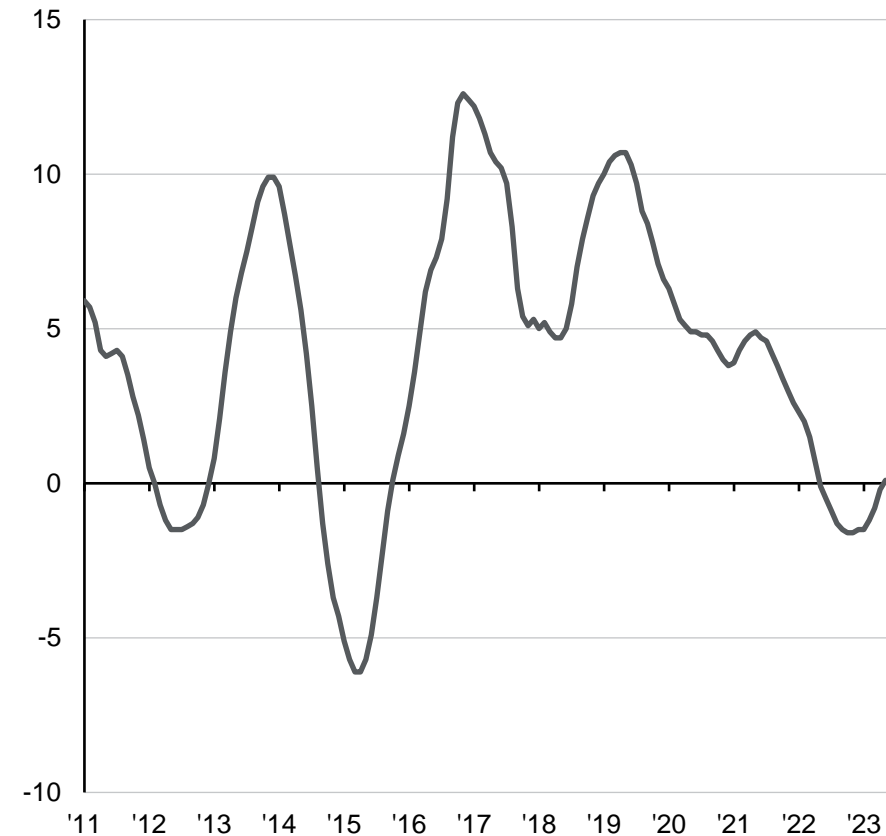
Source: (Left) Bloomberg, Refinitiv Datastream, J.P. Morgan Asset Management. Core inflation excludes food and energy. (Right) Bloomberg, MSCI, People's Bank of China, J.P. Morgan Asset Management. Credit growth is the 12-month change in the credit stock to the real economy as a percent of nominal GDP. MSCI China returns shown in USD. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



China real estate

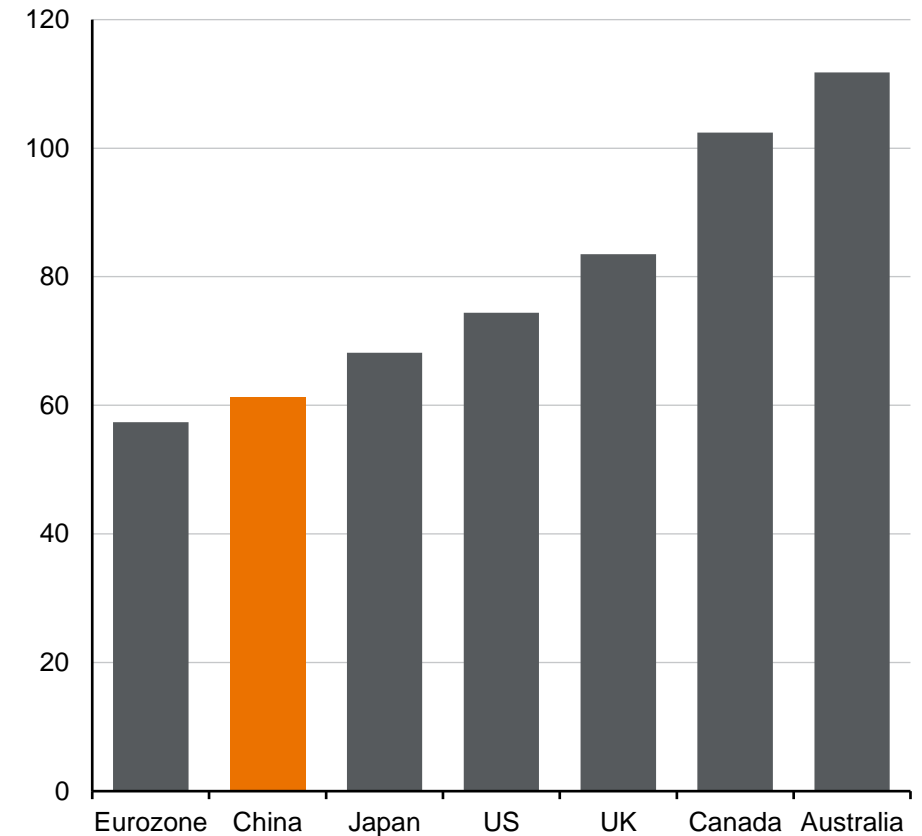
New residential property prices

% change year on year



Household debt to GDP

%



Source: (Left) National Bureau of Statistics of China, Refinitiv Datastream, J.P. Morgan Asset Management. The index shows the percentage change year on year in new house prices in 70 medium and large Chinese cities. (Right) BIS, Refinitiv Datastream, J.P. Morgan Asset Management. *Guide to the Markets - UK*. Data as of 30 June 2023.

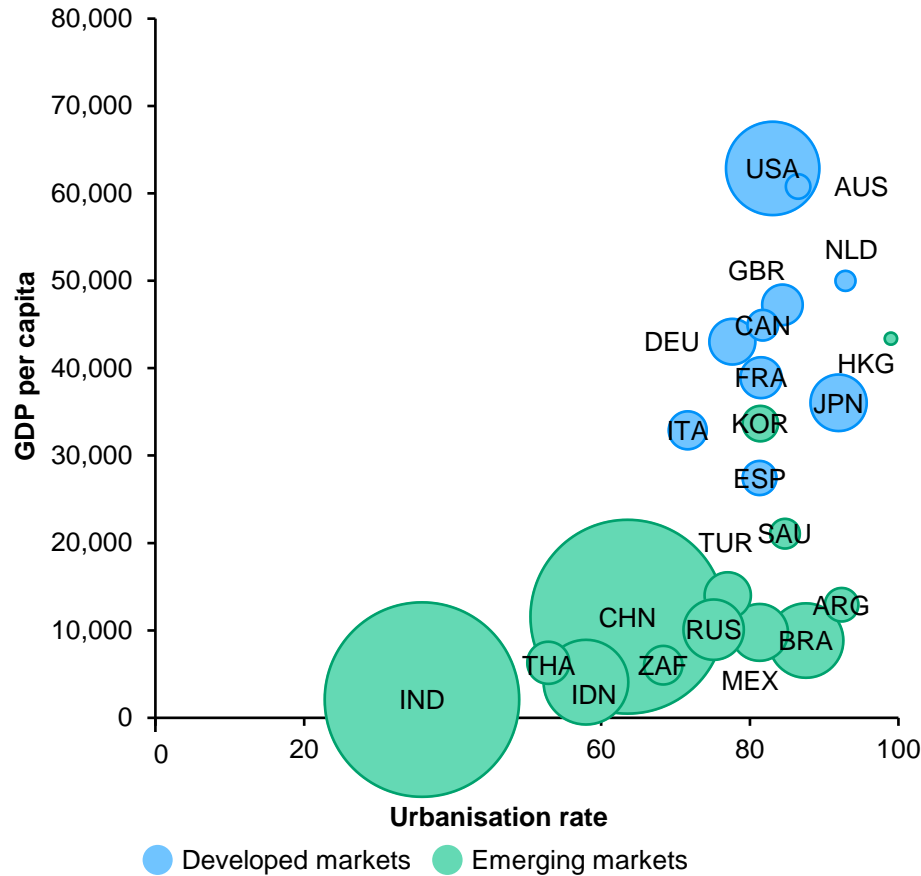


Emerging market structural dynamics

GTM UK 45

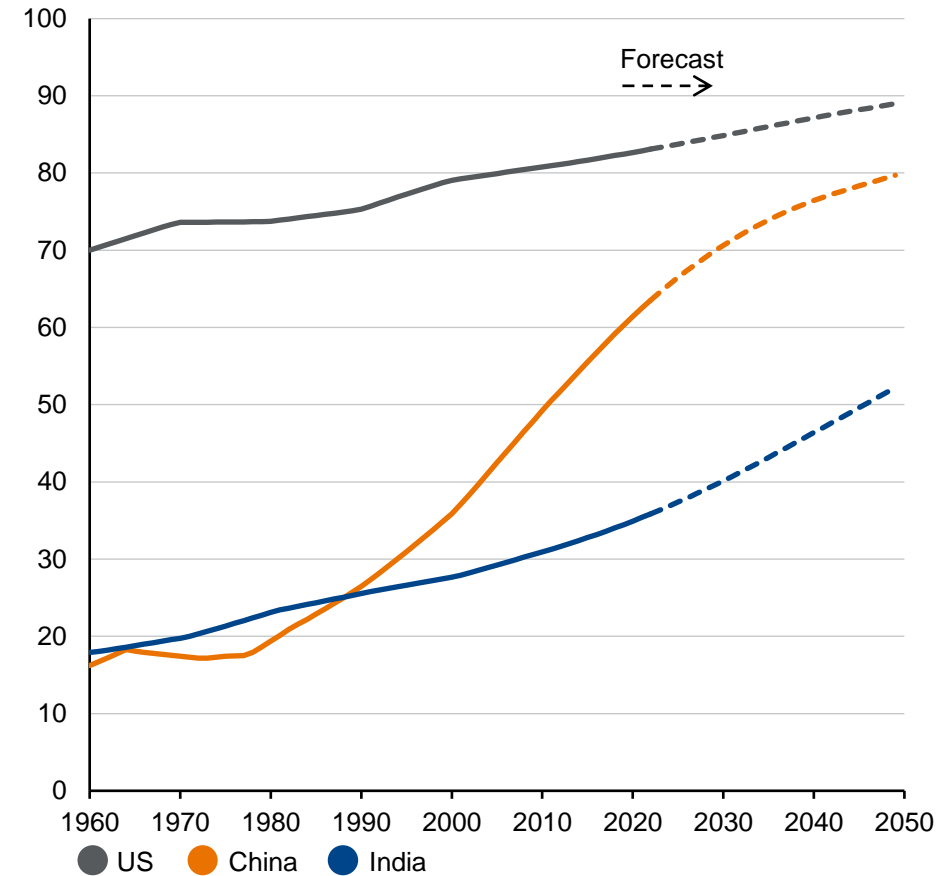
Urbanisation, real GDP per capita and population size

% of population and USD, bubble size is population



Urbanisation rates

% of population



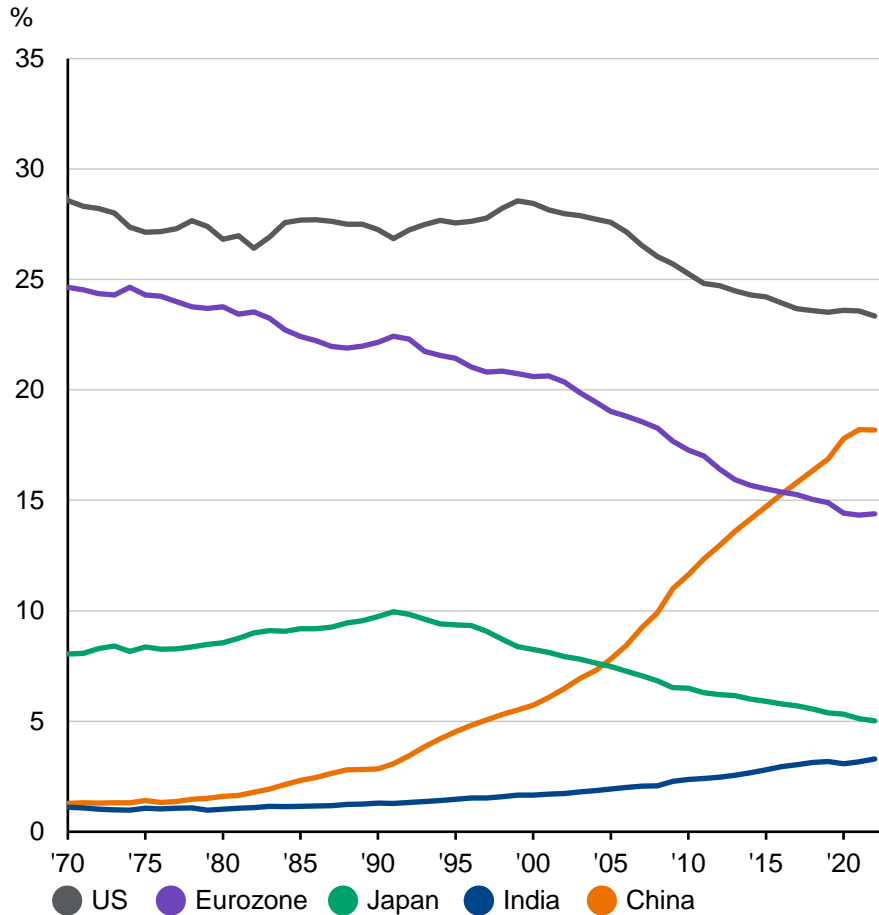
Source: (All charts) World Bank, J.P. Morgan Asset Management. Urbanisation rate refers to the proportion of the total population living within an urban area defined by national statistical offices. Countries are labelled using three-letter International Organisation of Standardisation country codes. Forecasts are from World Bank for 2022 onwards. *Guide to the Markets* - UK. Data as of 30 June 2023.



Emerging market growth

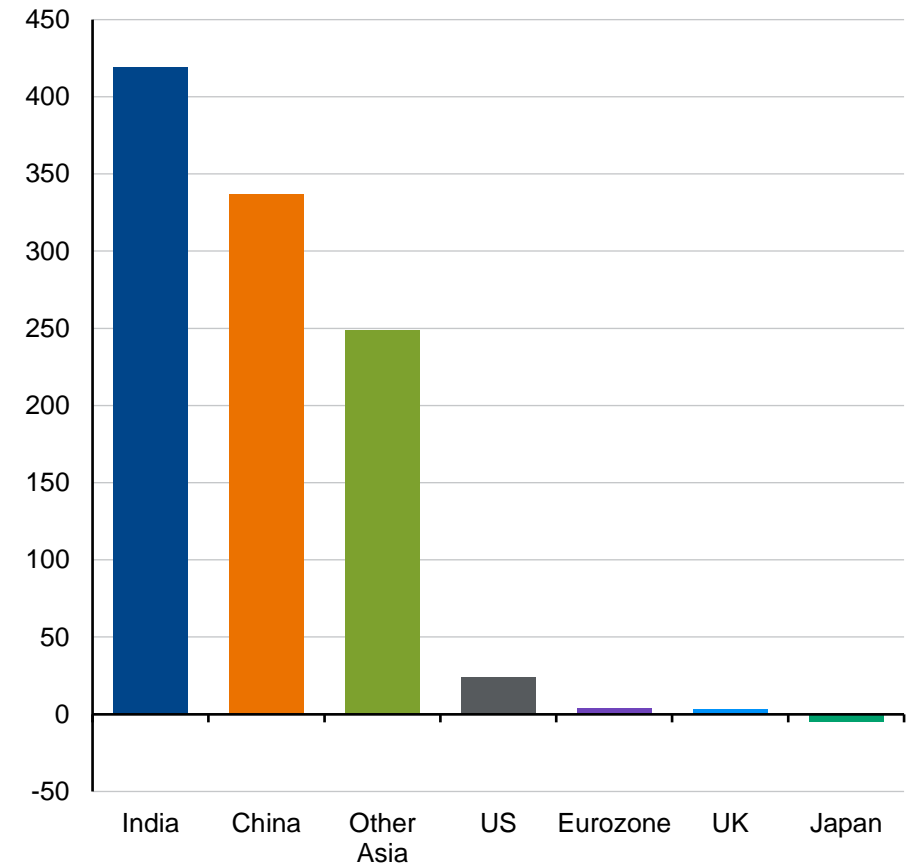
GTM UK 46

Share of global real GDP



Estimated change in the “consumer class” by 2030

Millions of people



Source: (Left) Refinitiv Datastream, World Bank, J.P. Morgan Asset Management. (Right) Brookings Institute, J.P. Morgan Asset Management. Change in “consumer class” is the change in the number of people from 2020 to 2030 living in a household and spending at least USD 11 per day per person. Other Asia includes Bangladesh, Indonesia, Pakistan, Philippines and Vietnam. Eurozone includes France, Germany, Italy and Spain. *Guide to the Markets - UK*. Data as of 30 June 2023.



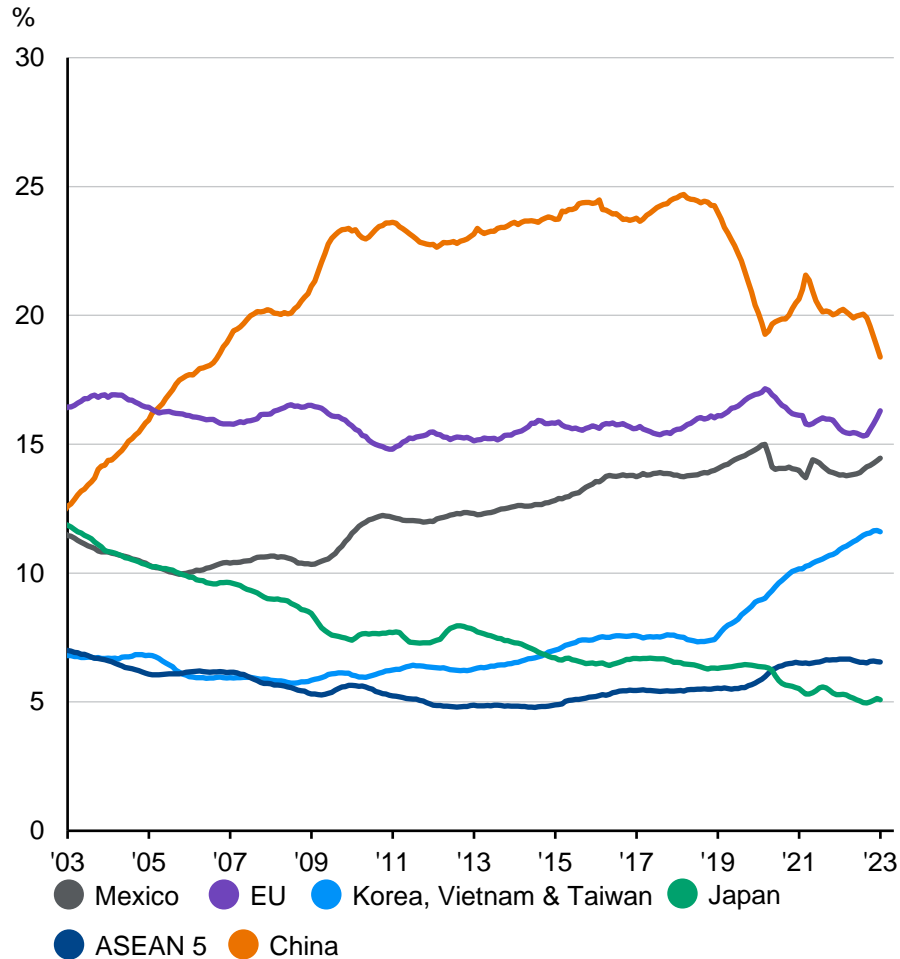
EM focus: Trade dynamics and Chinese economy composition

GTM

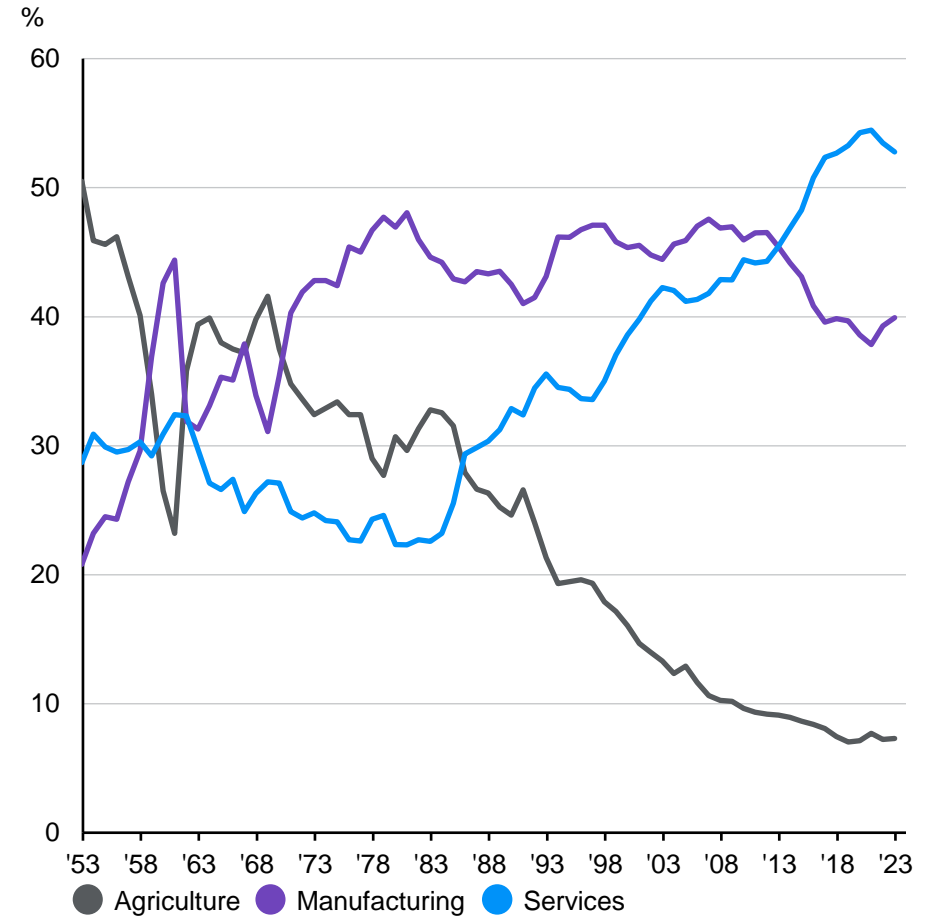
UK

47

Share of US manufacturing imports



Share of China GDP





World equity valuations

GTM UK 48

Equities

MSCI World forward P/E ratio

x, multiple





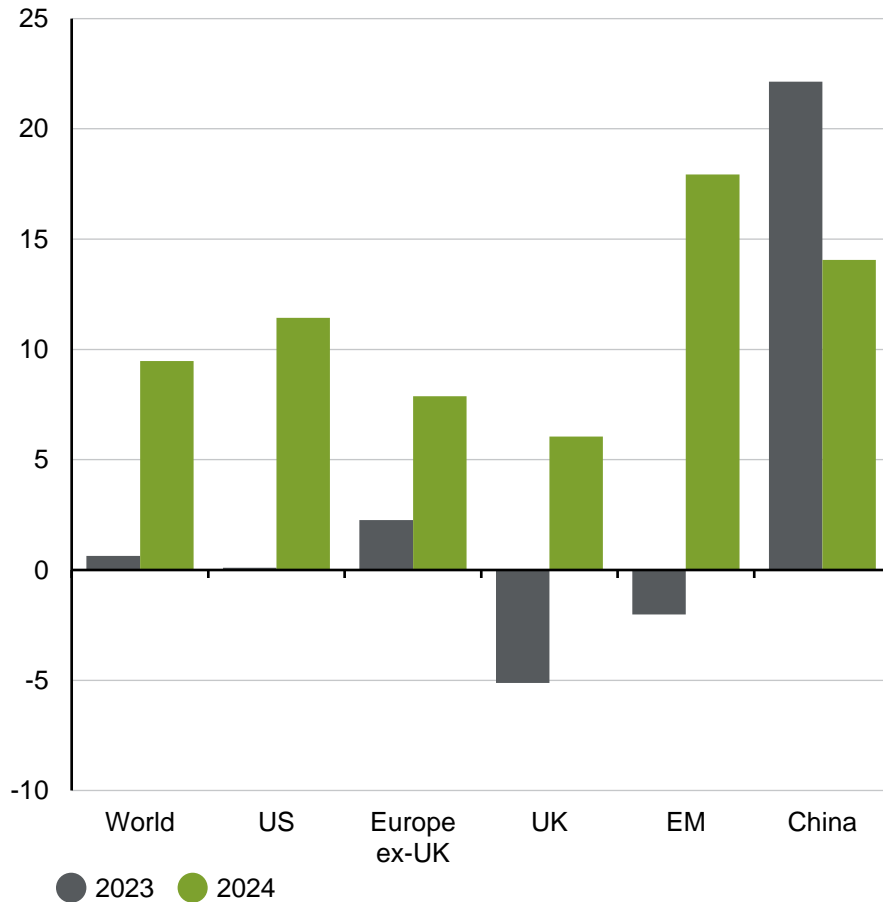
Regional earnings expectations and equity valuations

GTM UK 49

Equities

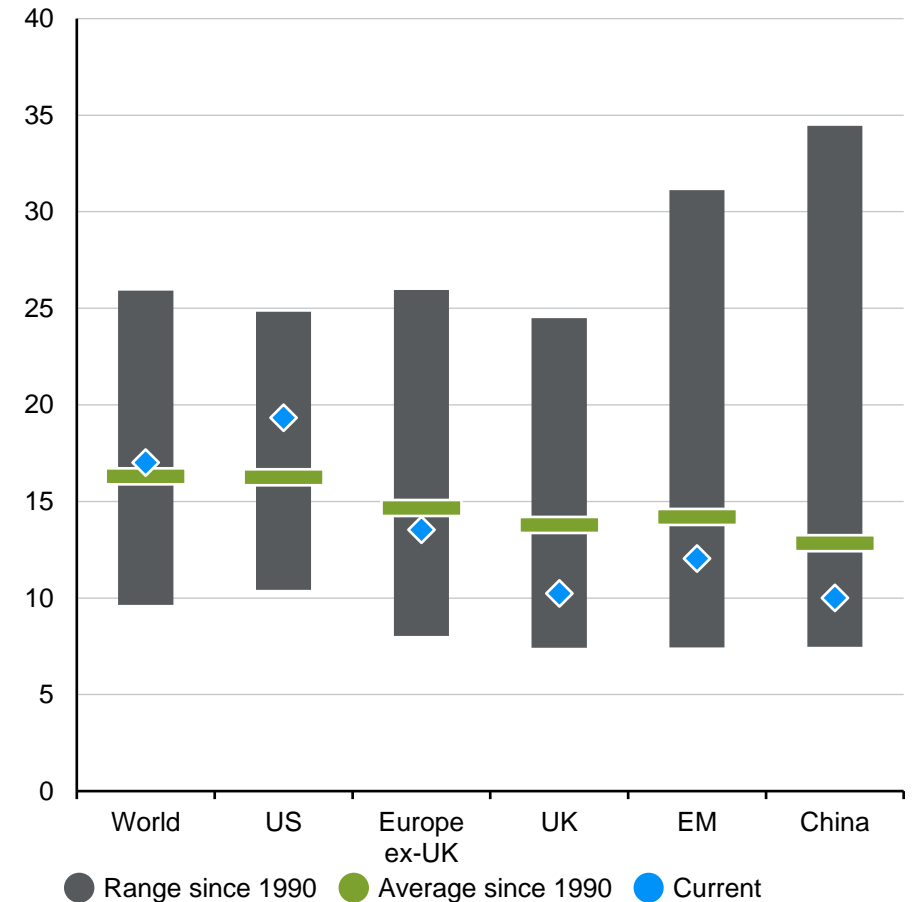
Consensus estimates for global earnings per share growth

% change year on year



Global forward P/E ratios

x, multiple



Source: (Left) FTSE, IBES, MSCI, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. MSCI indices are used for World, Europe ex-UK, EM and China. UK is FTSE All-Share and US is S&P 500. Earnings data is based on 12-month forward estimates. (Right) IBES, MSCI, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. Forward P/E ratio is price to 12-month forward earnings. MSCI indices are used for all regions/countries (due to data availability), except for the US, which is represented by the S&P 500. Range and average for China is since 1996, due to data availability. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

J.P.Morgan
ASSET MANAGEMENT



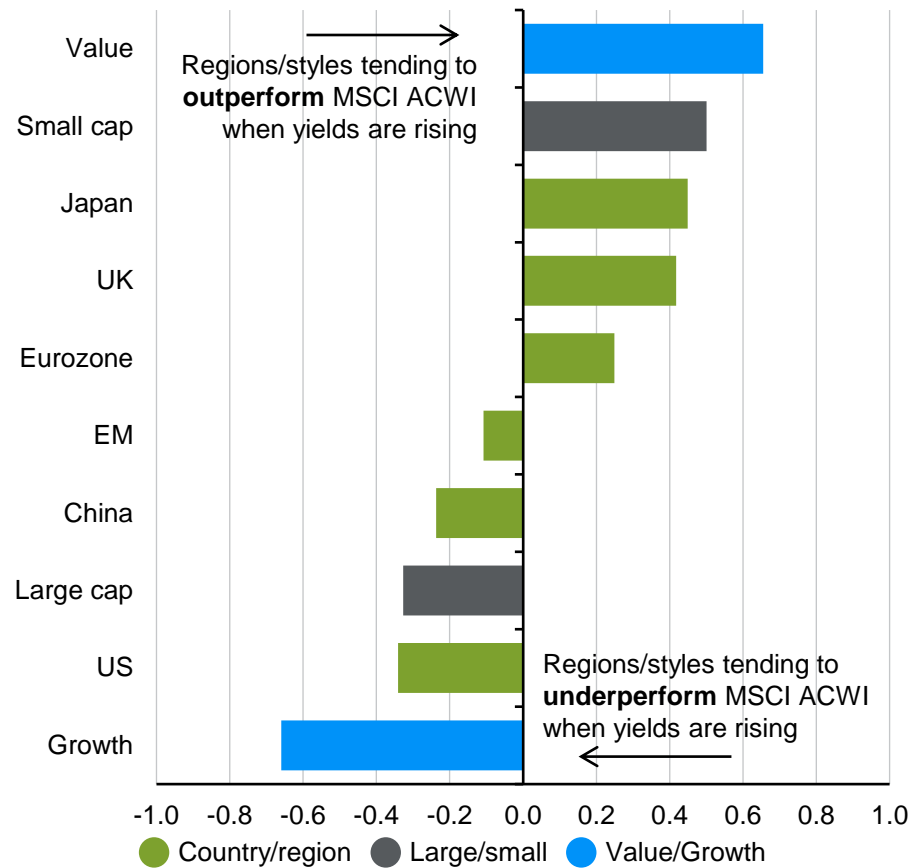
Global equity market correlations with Treasury yields

GTM UK 50

Equities

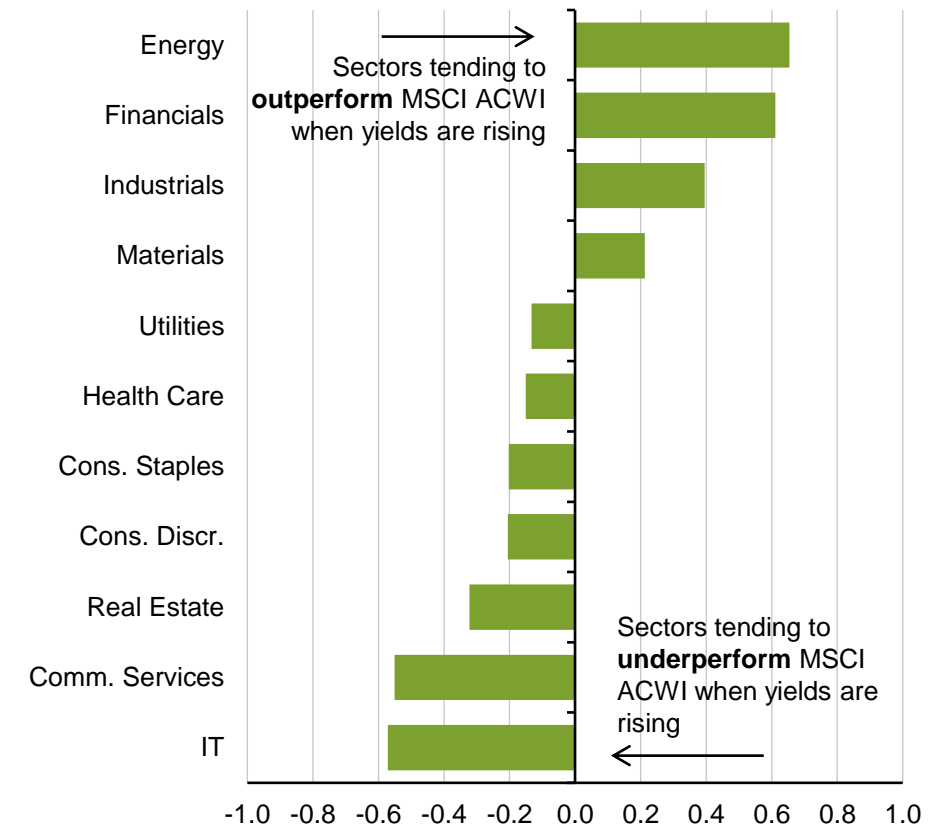
Correlation of regions and styles to US 10y Treasury yield

10y correlation of rel. performance with US 10y Treasury yield



Correlation of MSCI ACWI sectors to US 10y Treasury yield

10y correlation of sector rel. performance with US 10y Treasury yield



Source: (All charts) MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Correlation of regions and styles is calculated between the six-month change in US 10-year Treasury yields and the six-month relative performance of each region and style to MSCI All-Country World Index. Correlation of sectors is calculated between the six-month change in US 10-year Treasury yields and the six-month relative performance of each sector to MSCI All-Country World Index. All indices used are MSCI. Value and Growth as well as size indices used are for the MSCI All-Country World universe. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

J.P.Morgan
ASSET MANAGEMENT

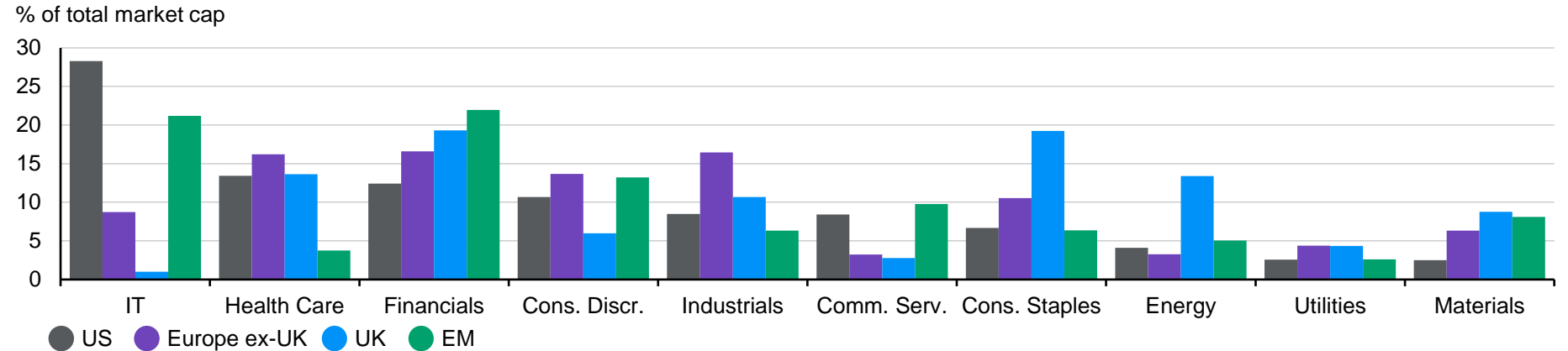


Global equity sector weights

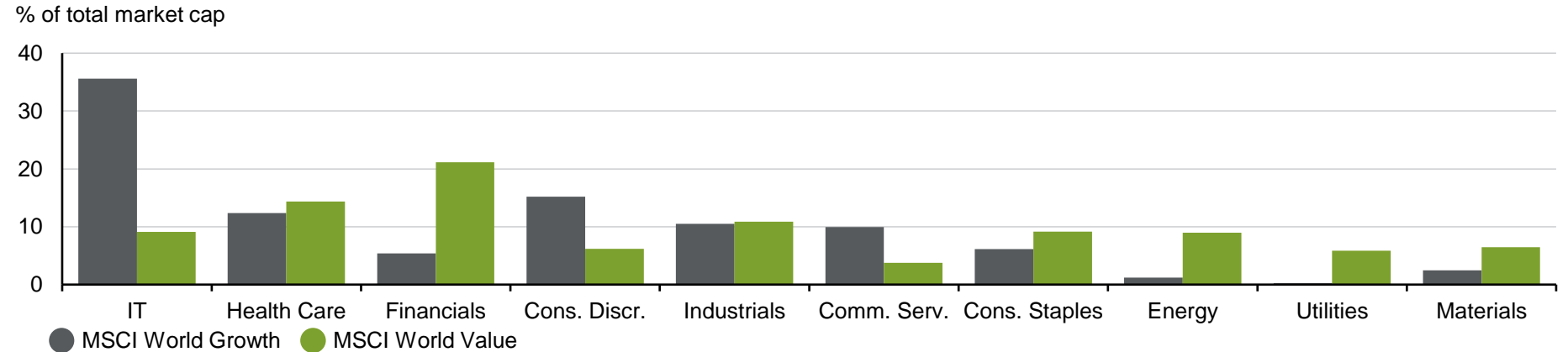
GTM UK 51

Equities

Global equity sector weights



MSCI World Growth and Value sector weights



Source: (Top) MSCI, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. Indices are all MSCI, except for US, which is S&P 500. (Bottom) MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Real estate is not included in these sector breakdowns due to the small size of the weight in each index. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

J.P.Morgan
ASSET MANAGEMENT



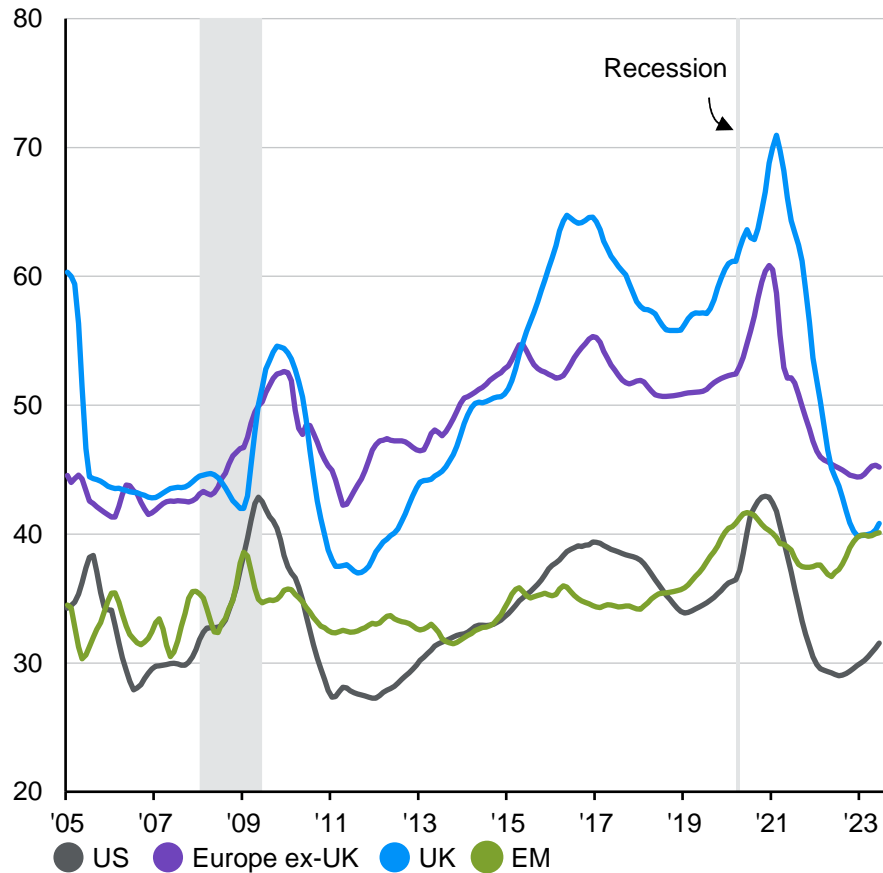
Global equity income

GTM UK 52

Equities

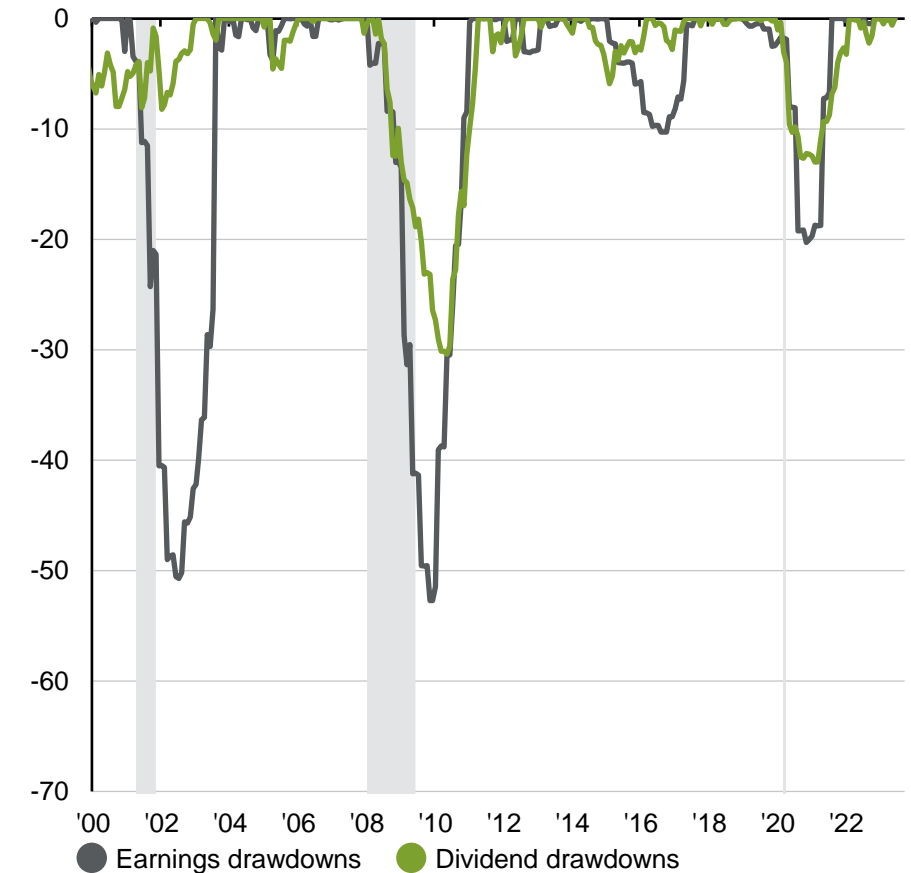
Dividend payout ratios

%, three-month moving average



MSCI World earnings and dividend drawdowns

% drawdown from rolling 2-year high



Source: (Left) FTSE, MSCI, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. US is S&P 500, UK is FTSE All-Share, MSCI indices used for Europe ex-UK and EM. Dividend payout ratio shows 12-month trailing dividend per share divided by 12-month trailing earnings per share. (Right) Bloomberg, MSCI, J.P. Morgan Asset Management. Earnings and dividends are both calculated on a per share basis. Earnings data is last 12 months' earnings per share. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

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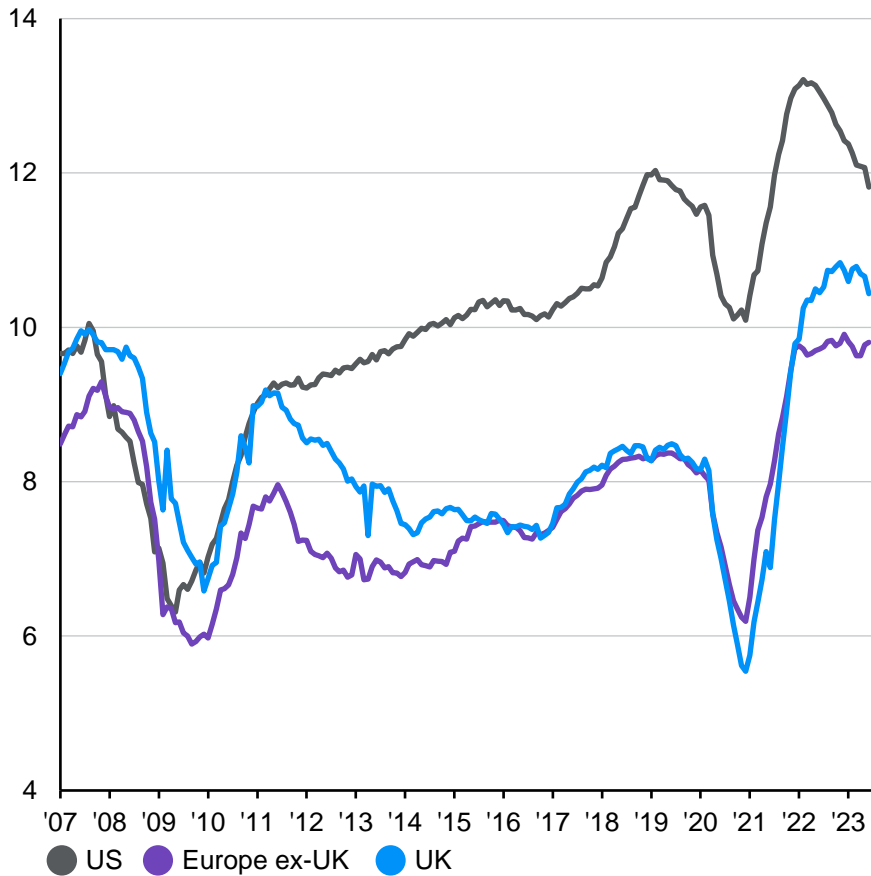


Profit margins

GTM | UK | 53

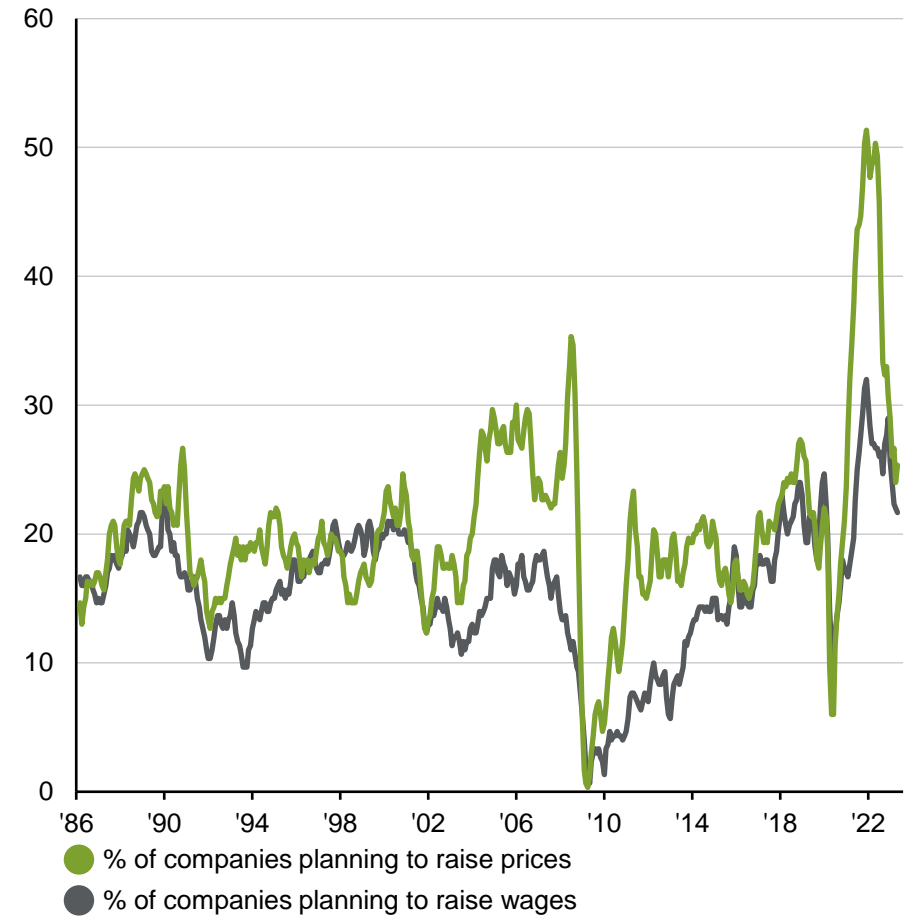
Profit margins

%, margins of 12-month trailing earnings relative to sales



US NFIB survey: Prices and wages

% of respondents, three-month moving average



Source: (Left) FTSE, MSCI, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. US: S&P 500, Europe ex-UK: MSCI Europe ex-UK, UK: FTSE All-Share. (Right) National Federation of Independent Business, Refinitiv Datastream, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



Equity market factors

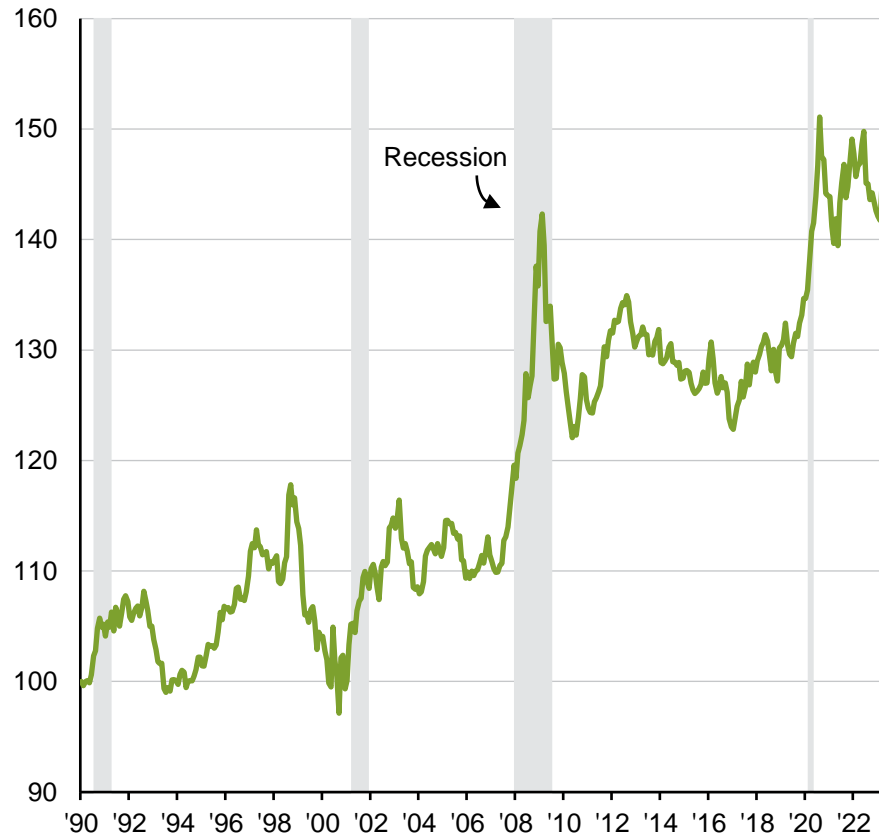
GTM

UK

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S&P 500 Quality/S&P 500 relative performance

Relative total return index level, rebased to 100 in January 1990



MSCI World Growth and Value forward P/E ratios

x, multiple



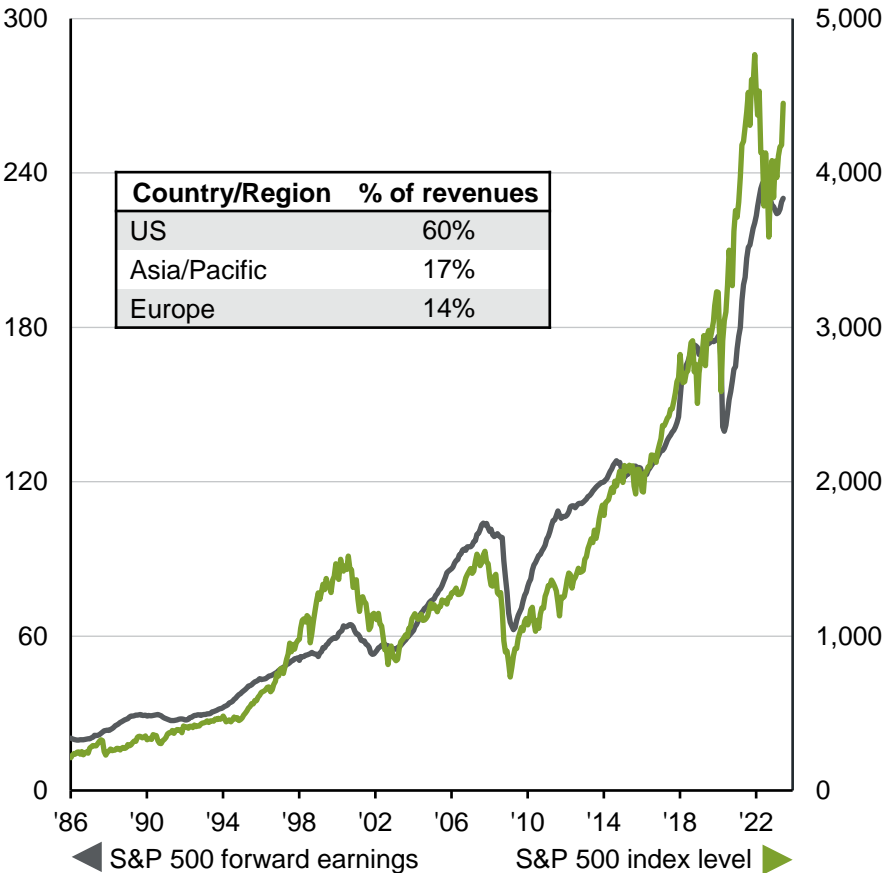
Source: (Left) J.P. Morgan Asset Management Quantitative Beta Solutions, S&P Global, J.P. Morgan Asset Management. S&P 500 Quality index is the top quartile quality stocks in the S&P 500 determined by JPMAM Quantitative Beta Strategies based on measures of profitability, financial risk and earnings quality. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. (Right) MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Forward P/E ratio is price to 12-month forward earnings, as published by MSCI. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



US earnings

S&P 500 earnings and performance

Next 12 months' earnings per share estimates USD (LHS); index level (RHS)



US inflation and earnings growth

% change year on year



Source: (Left) FactSet, IBES, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. Earnings data is based on 12-month forward estimates. (Right) BLS, IBES, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. Earnings data is last 12 months' earnings per share. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



US equity valuations

GTM

UK

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Equities

S&P 500 forward P/E ratio

x, multiple



Source: IBES, Refinitiv Datastream, Robert Shiller, S&P Global, J.P. Morgan Asset Management. Forward P/E ratio is price to 12-month forward earnings, calculated using IBES earnings estimates. P/E data may differ from *Guide to the Markets - US*, which uses FactSet earnings estimates. Shiller cyclically adjusted P/E (CAPE) is price-to-earnings ratio adjusted using trailing 10-year average inflation-adjusted earnings. P/B ratio is trailing price-to-book ratio. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

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US valuations and subsequent returns

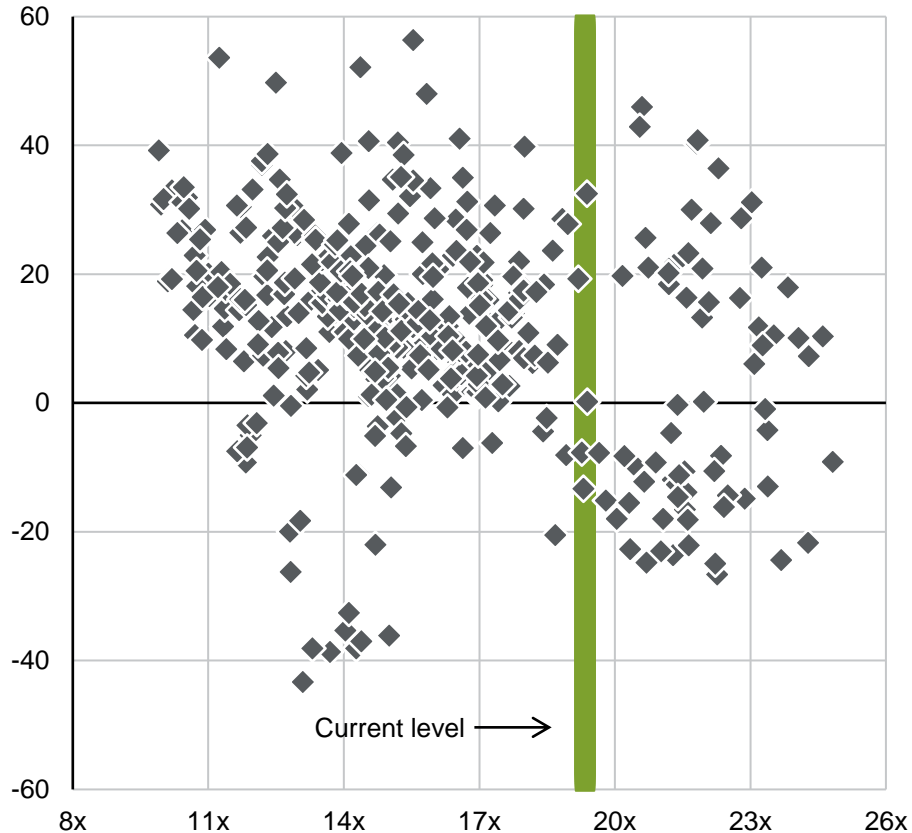
GTM

UK

57

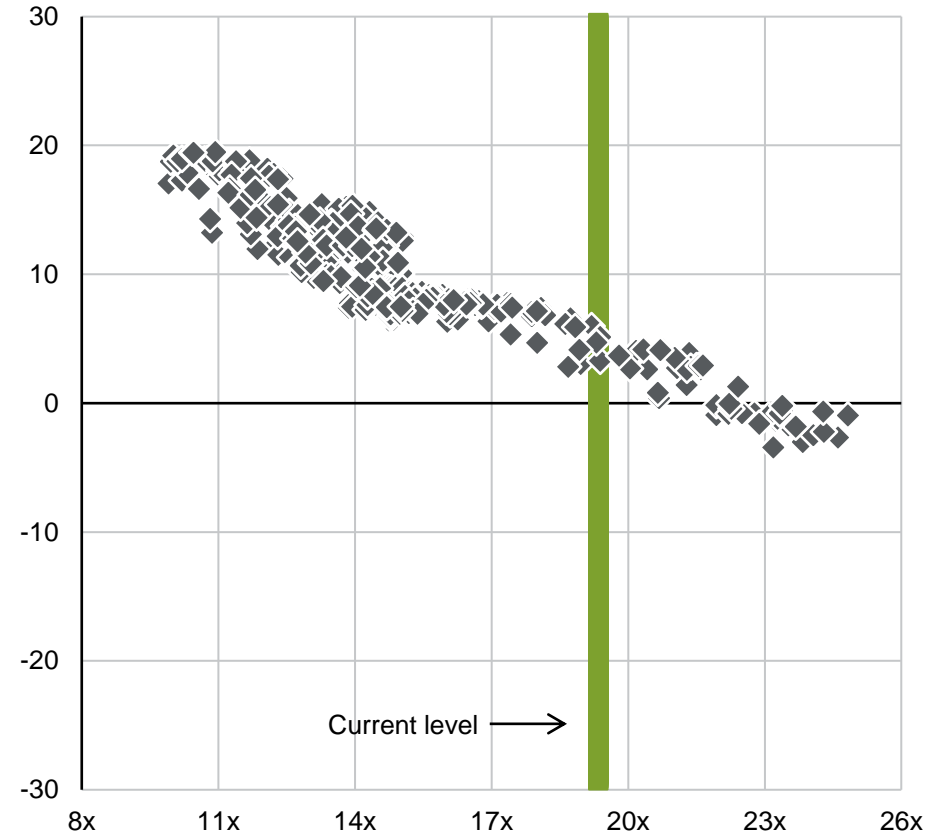
S&P 500 forward P/E ratios and subsequent 1-year returns

%, annualised total return*



S&P 500 forward P/E ratios and subsequent 10-year returns

%, annualised total return*

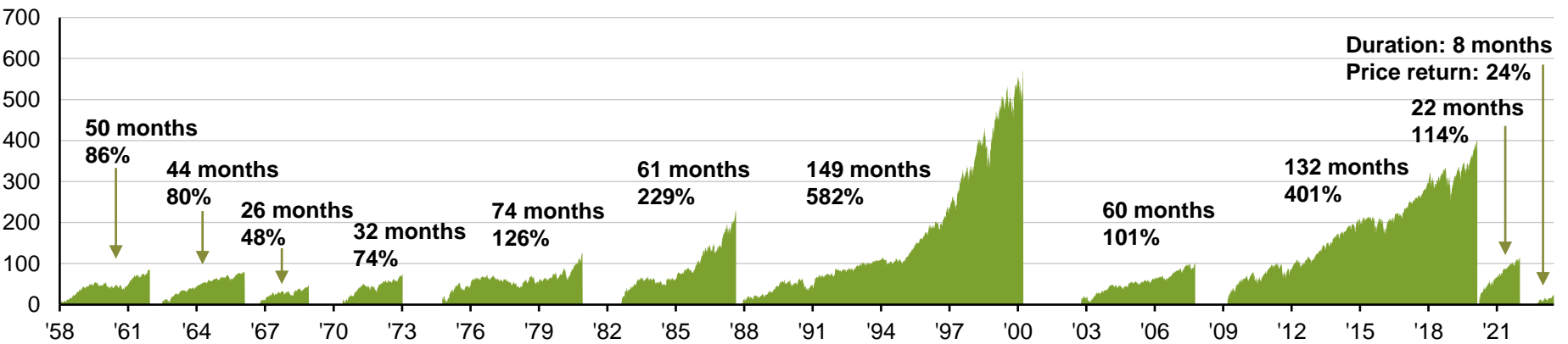


Source: (All charts) IBES, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. *Dots represent monthly data points since 1988, which is earliest available. Forward P/E ratio is price to 12-month forward earnings, calculated using IBES earnings estimates. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

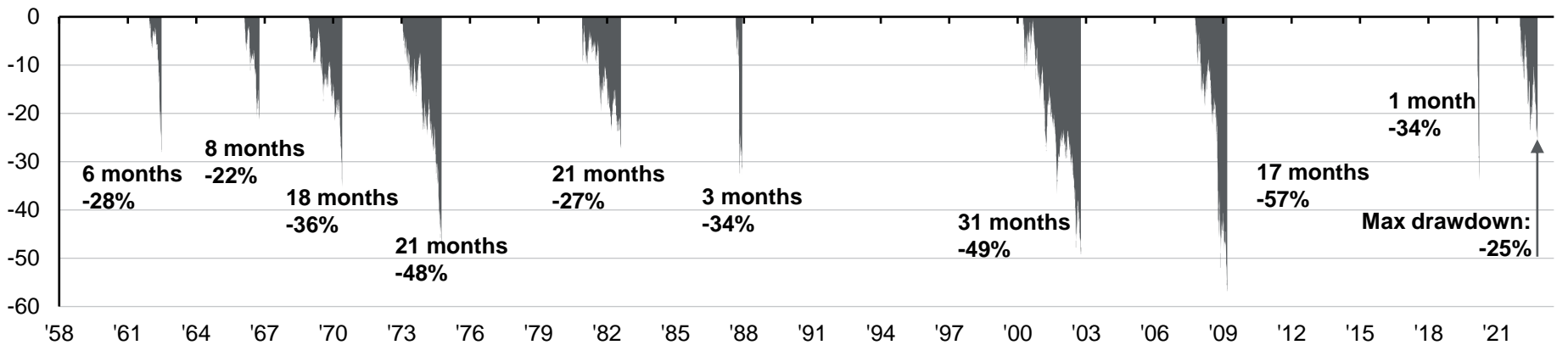


US bull and bear markets

S&P 500 bull markets, %



S&P 500 bear markets, %



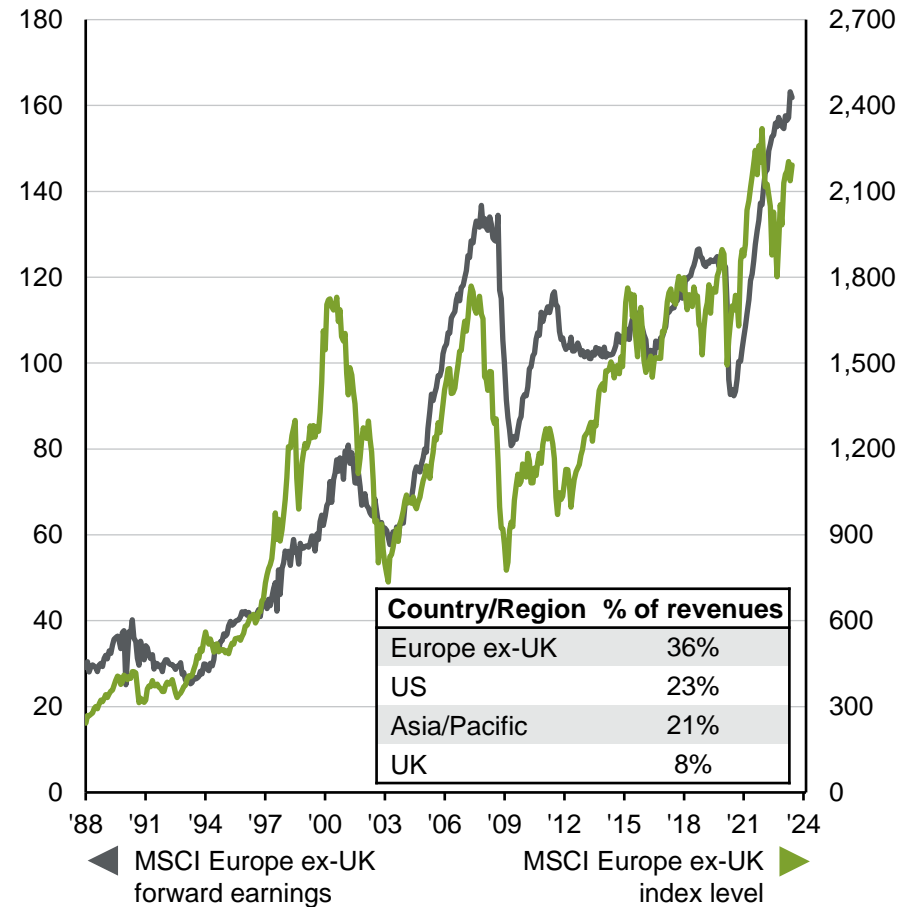
Source: (All charts) Bloomberg, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. Charts and labels refer to price return. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



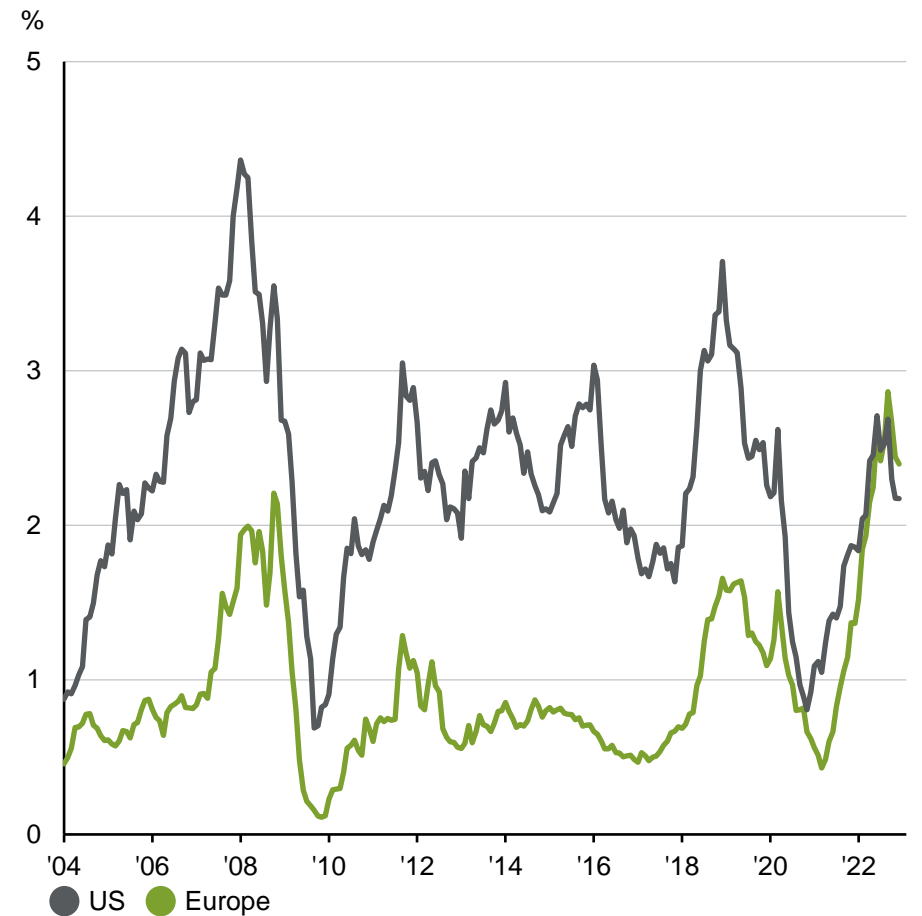
Europe earnings and buyback yields

MSCI Europe ex-UK earnings and performance

Next 12 months' earnings per share estimates, EUR (LHS); index level (RHS)



European and US buyback yields



Source: (Left) FactSet, IBES, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Earnings data is based on 12-month forward estimates. (Right) Bernstein, Bloomberg, Refinitiv Datastream, J.P. Morgan Asset Management. Buyback yields are the value of total stock buyback announcements over the previous 12 months as a percentage of Datastream regional index market cap. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



Europe equity valuations

GTM UK 60

Equities

MSCI Europe ex-UK forward P/E ratio

x, multiple



Source: IBES, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Forward P/E ratio is price to 12-month forward earnings, calculated using IBES earnings estimates. Cyclically adjusted P/E (CAPE) is price-to-earnings ratio adjusted using trailing 10-year average inflation-adjusted earnings. P/B ratio is trailing price-to-book ratio. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

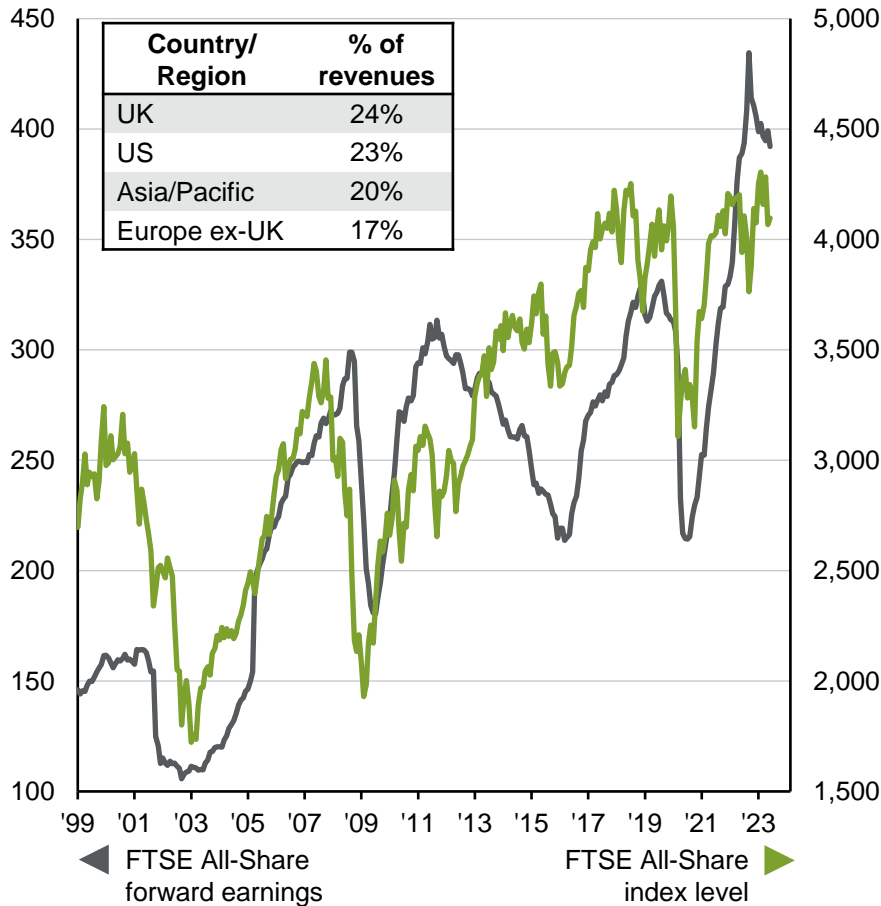
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UK earnings

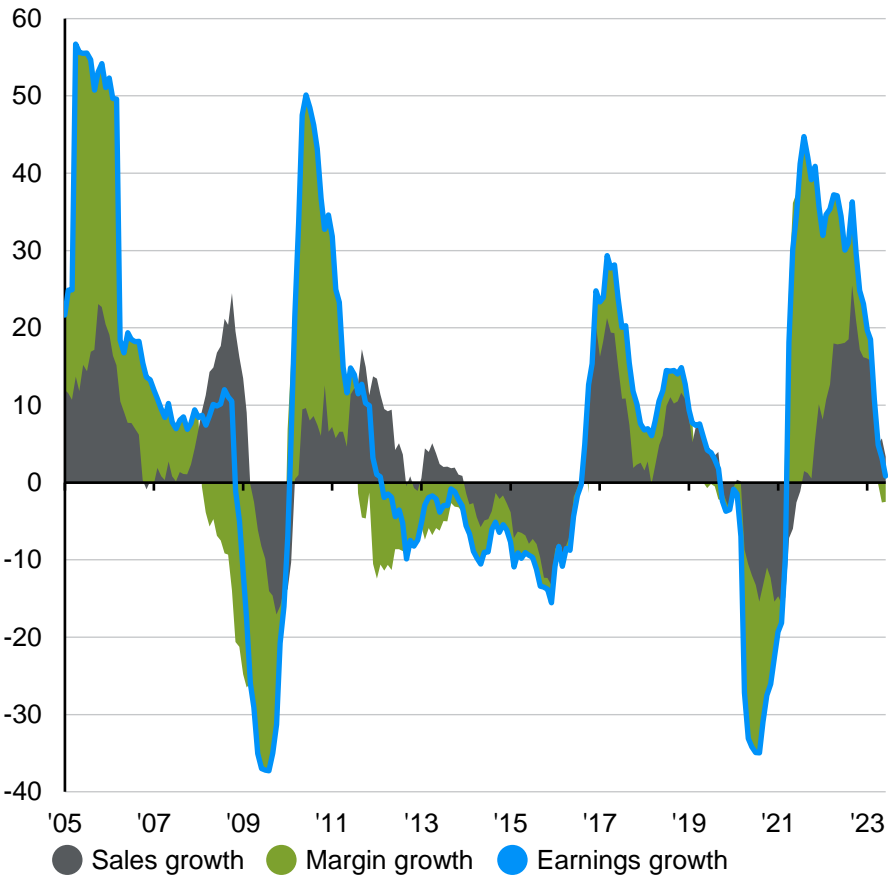
FTSE All-Share earnings and performance

Next 12 months' earnings per share estimates, GBP (LHS); index level (RHS)



FTSE All-Share earnings per share growth

% change year on year



Source: (All charts) FactSet, FTSE, IBES, Refinitiv Datastream, J.P. Morgan Asset Management. Earnings data are based on 12-month forward estimates. Margin growth is the growth rate of earnings per share divided by sales per share. Past performance is not a reliable indicator of current and future results. Guide to the Markets - UK. Data as of 30 June 2023.



UK equity valuations

GTM UK 62

Equities

UK FTSE All-Share forward P/E ratio

x, multiple



30 Jun 2023:
10.4x

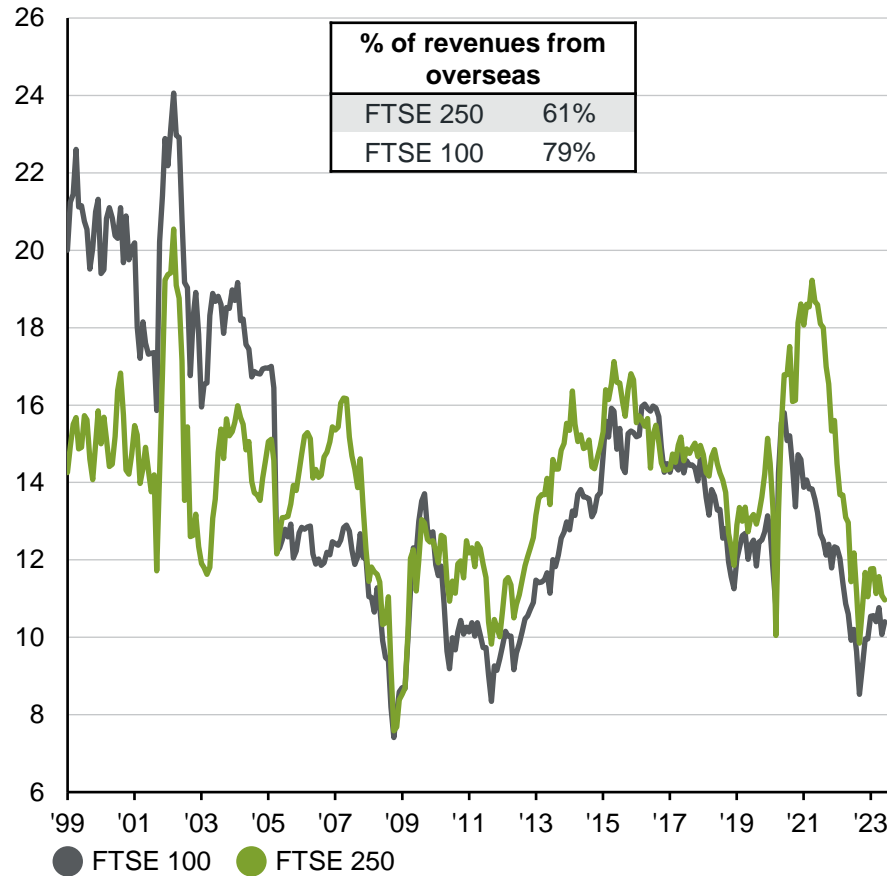


UK large, mid and small capitalisation equities

GTM UK 63

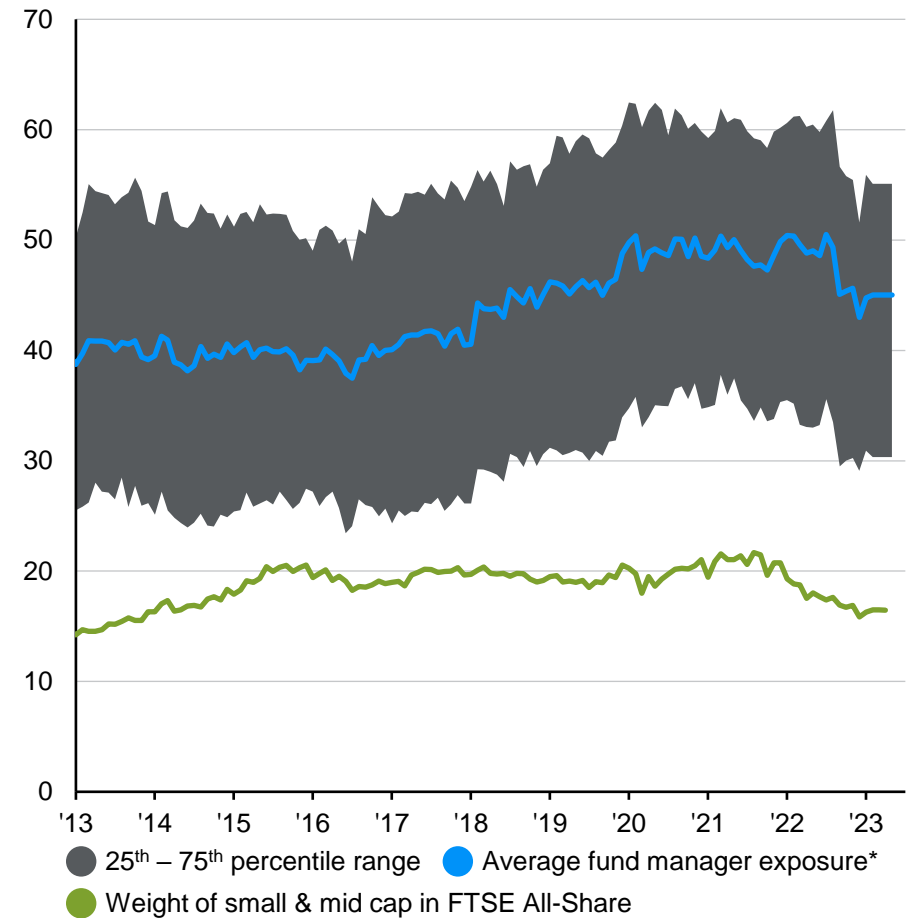
FTSE 100 vs. FTSE 250 forward P/E ratios

x, multiple



UK small & mid cap exposure

%



Source: (Left) FactSet, FTSE, IBES, Refinitiv Datastream, J.P. Morgan Asset Management. Forward P/E ratio is price to 12-month forward earnings, calculated using IBES earnings estimates. (Right) Bloomberg, Morningstar, J.P. Morgan Asset Management. *Exposure to small & mid cap companies is the exposure of flexible cap UK funds. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

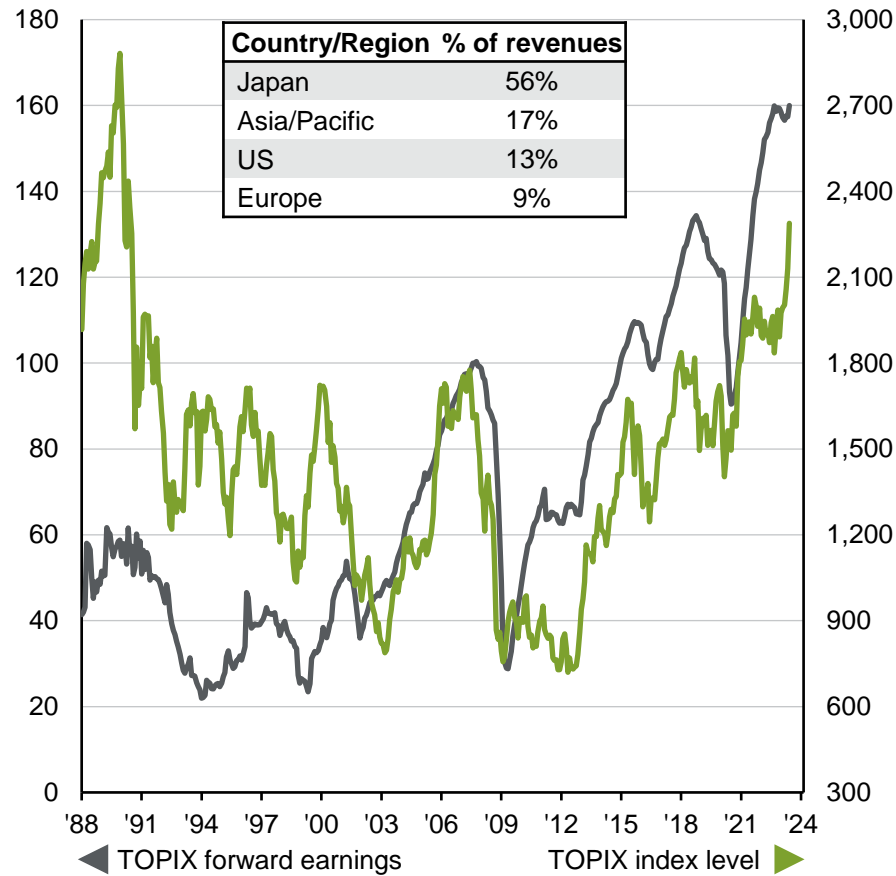


Japan equity market and currency

GTM UK 64

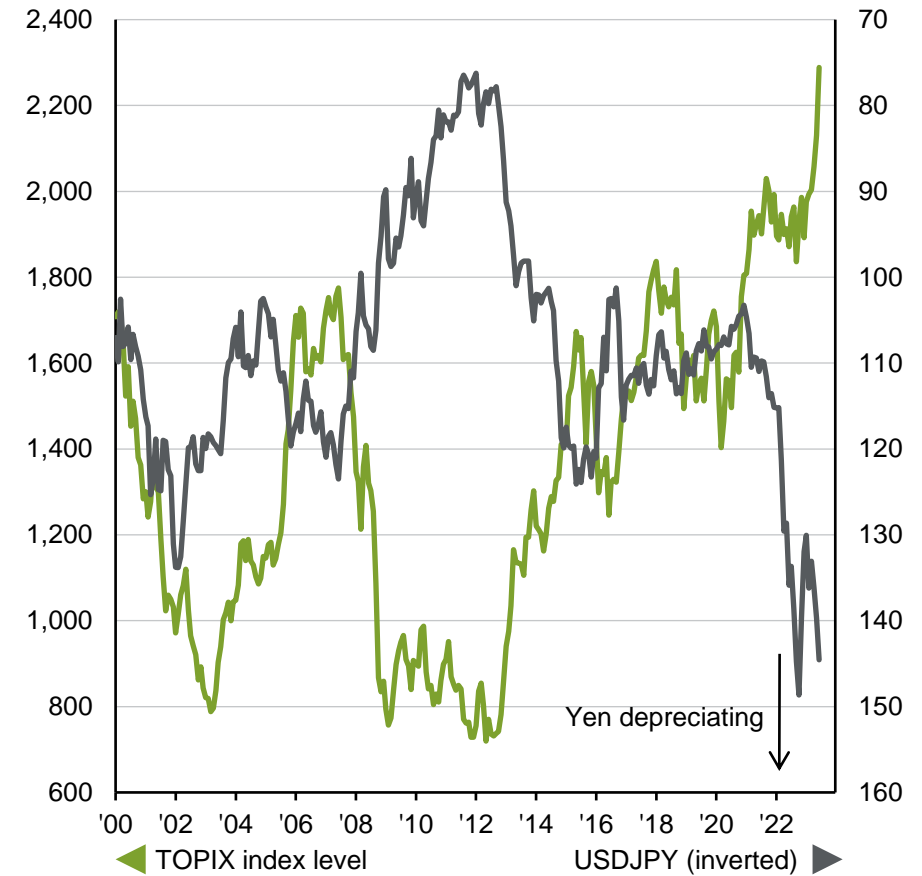
TOPIX earnings and performance

Next 12 months' earnings per share estimates, JPY (LHS); index level (RHS)



TOPIX and the yen vs. US dollar

Index level (LHS); JPY per USD (RHS)

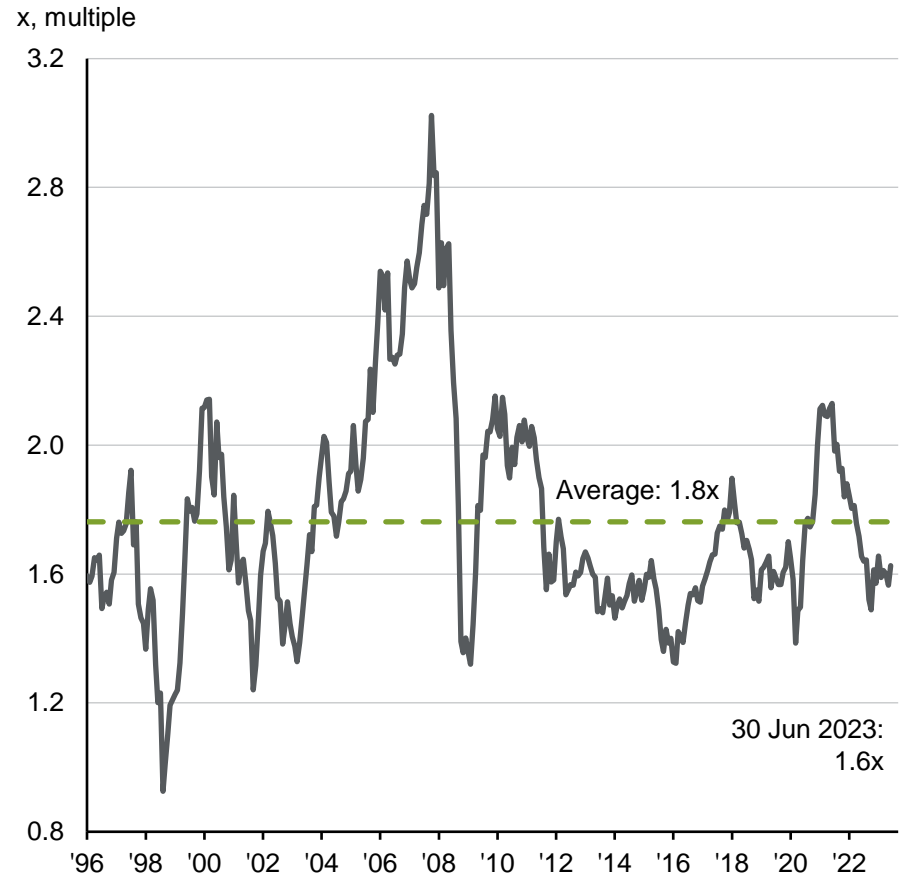


Source: (Left) FactSet, IBES, Refinitiv Datastream, TOPIX, J.P. Morgan Asset Management. Earnings data are based on 12-month forward estimates. (Right) Refinitiv Datastream, TOPIX, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

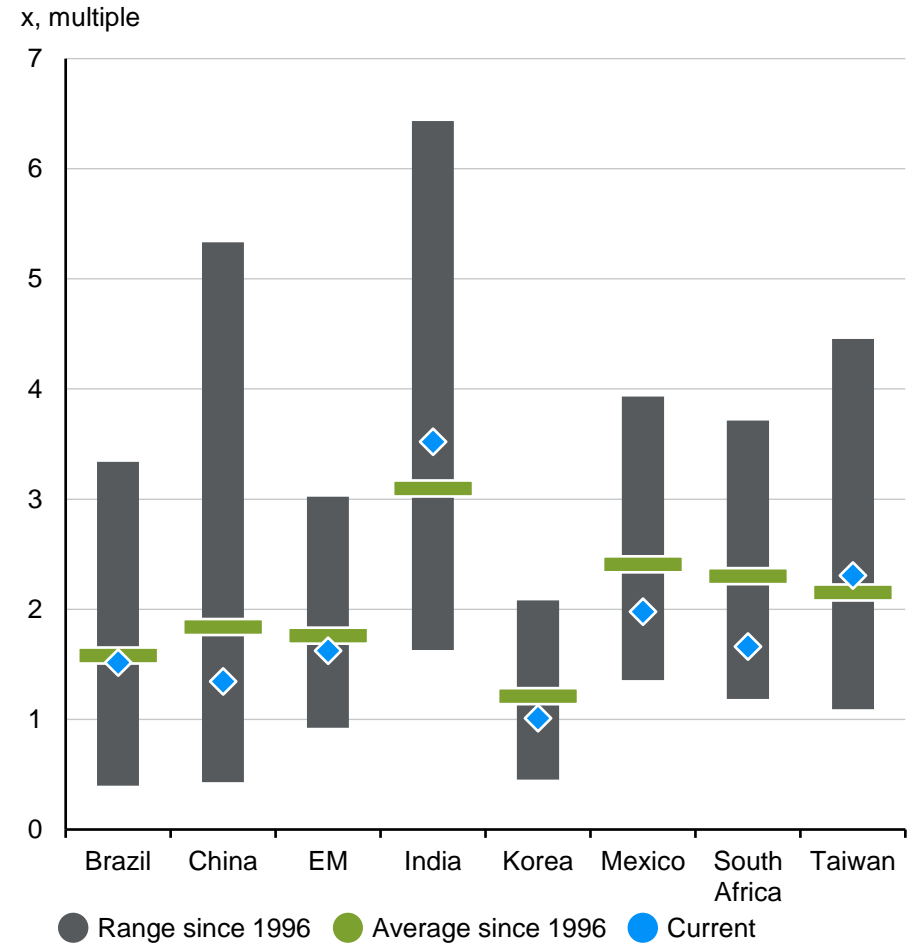


Emerging market equity valuations

MSCI EM price-to-book ratio



EM price-to-book ratios by country

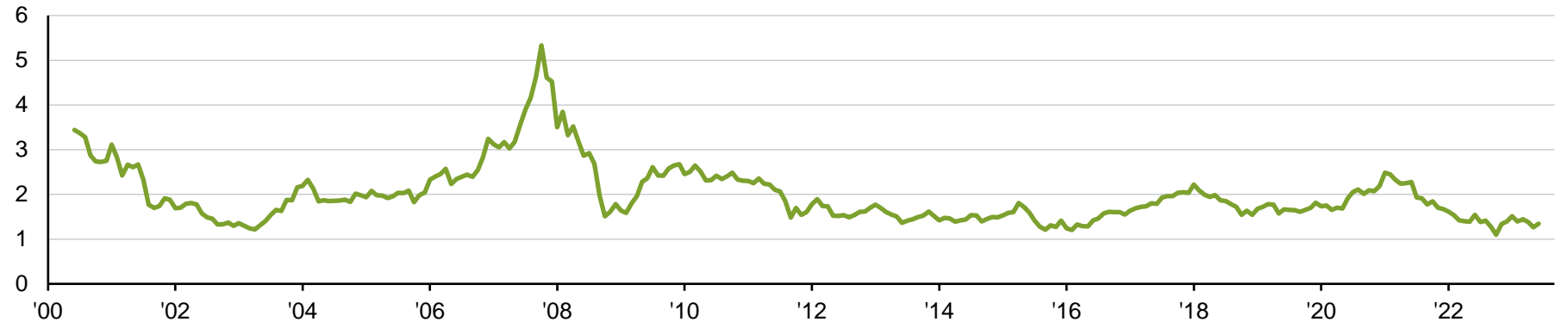




China equity price-to-book ratio and drawdowns

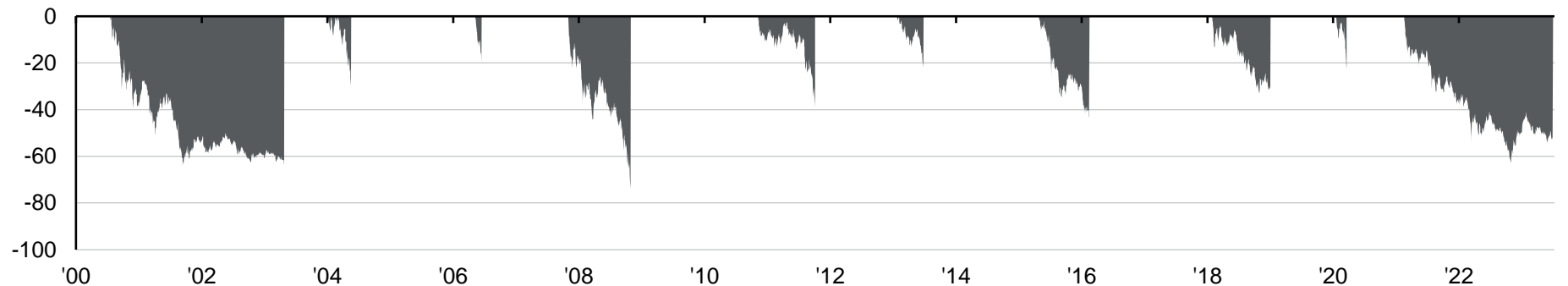
MSCI China price-to-book ratio

x, multiple



MSCI China historical drawdowns

% drawdown from local peak, price return in local currency





Equity focus: S&P 500 valuations and technology earnings

GTM

UK

67

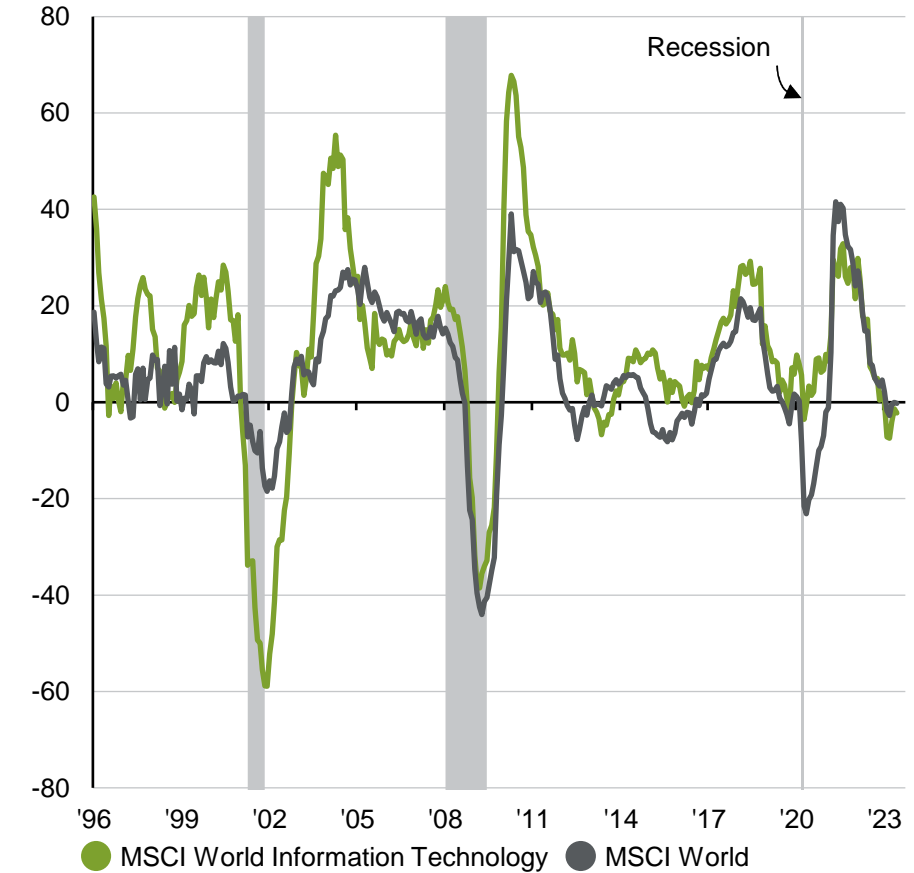
Forward P/E ratio of the S&P 500 top 10 vs. the rest

x, multiple



MSCI World IT sector and broad index earnings

% change year on year, 12-month forward earnings expectations



Source: (Left) FactSet, S&P Global, J.P. Morgan Asset Management. The top 10 stocks are based on the 10 largest index constituents at the start of each month. (Right) MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



World stock market returns

GTM UK 68

Equities

	2015	2016	2017	2018	2019	2020	2021	2022	Q2 '23	YTD	10-year ann. return
GBP	18.2% TOPIX	33.6% S&P 500	29.8% Asia ex-Jp	1.6% S&P 500	26.4% S&P 500	21.5% Asia ex-Jp	29.9% S&P 500	0.3% FTSE All-Share	5.8% S&P 500	10.6% S&P 500	16.0% S&P 500
Local	12.1%	12.0%	35.9%	-4.4%	31.5%	22.7%	28.7%	0.3%	8.7%	16.9%	12.6%
	7.2% S&P 500	33.1% MSCI EM	25.8% MSCI EM	-6.4% Portfolio	21.0% Euro ex-UK	15.0% MSCI EM	18.3% FTSE All-Share	-4.1% TOPIX	2.5% TOPIX	9.7% Euro ex-UK	9.6% Portfolio
	1.4%	10.1%	31.0%	-9.3%	27.5%	19.5%	18.3%	-2.4%	14.4%	13.8%	8.6%
	5.9% Euro ex-UK	26.2% Asia ex-Jp	17.0% Portfolio	-8.4% TOPIX	19.6% Portfolio	14.7% S&P 500	17.6% Euro ex-UK	-5.7% Portfolio	1.0% Portfolio	6.0% TOPIX	9.3% Euro ex-UK
	9.1%	6.4%	21.4%	-16.0%	23.2%	18.4%	24.4%	-10.3%	4.2%	22.7%	8.1%
	2.9% Portfolio	25.4% Portfolio	16.7% Euro ex-UK	-8.8% Asia ex-Jp	19.2% FTSE All-Share	9.6% TOPIX	14.3% Portfolio	-6.9% Euro ex-UK	0.6% Euro ex-UK	5.0% Portfolio	9.3% TOPIX
	1.8%	9.8%	14.5%	-12.0%	19.2%	7.4%	16.4%	-12.2%	3.0%	10.5%	10.6%
	1.0% FTSE All-Share	23.4% TOPIX	15.6% TOPIX	-8.9% MSCI EM	14.6% TOPIX	8.2% Euro ex-UK	2.0% TOPIX	-7.8% S&P 500	-0.5% FTSE All-Share	2.6% FTSE All-Share	7.0% Asia ex-Jp
	1.0%	0.3%	22.2%	-9.7%	18.1%	2.1%	12.7%	-18.1%	-0.5%	2.6%	5.1%
	-3.6% Asia ex-Jp	19.7% Euro ex-UK	13.1% FTSE All-Share	-9.1% Euro ex-UK	14.3% MSCI EM	7.8% Portfolio	-1.3% MSCI EM	-9.2% Asia ex-Jp	-1.7% MSCI EM	-0.6% MSCI EM	6.5% FTSE All-Share
	-5.3%	3.2%	13.1%	-10.6%	18.5%	8.4%	0.1%	-15.1%	1.8%	5.8%	6.5%
	-9.7% MSCI EM	16.8% FTSE All-Share	11.3% S&P 500	-9.5% FTSE All-Share	13.9% Asia ex-Jp	-9.8% FTSE All-Share	-3.6% Asia ex-Jp	-9.6% MSCI EM	-3.9% Asia ex-Jp	-2.4% Asia ex-Jp	4.9% MSCI EM
	-5.4%	16.8%	21.8%	-9.5%	18.2%	-9.8%	-2.8%	-15.2%	-0.1%	4.4%	5.0%

Source: MSCI, Refinitiv Datastream, S&P Global, TOPIX, J.P. Morgan Asset Management. Annualised return covers the period 2013 to 2022 inclusive. Hypothetical portfolio (for illustrative purposes only and should not be taken as a recommendation): 25% FTSE 100; 25% S&P 500; 15% EM; 15% Euro ex-UK; 10% Asia ex-Japan; 10% TOPIX. All indices are total return. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

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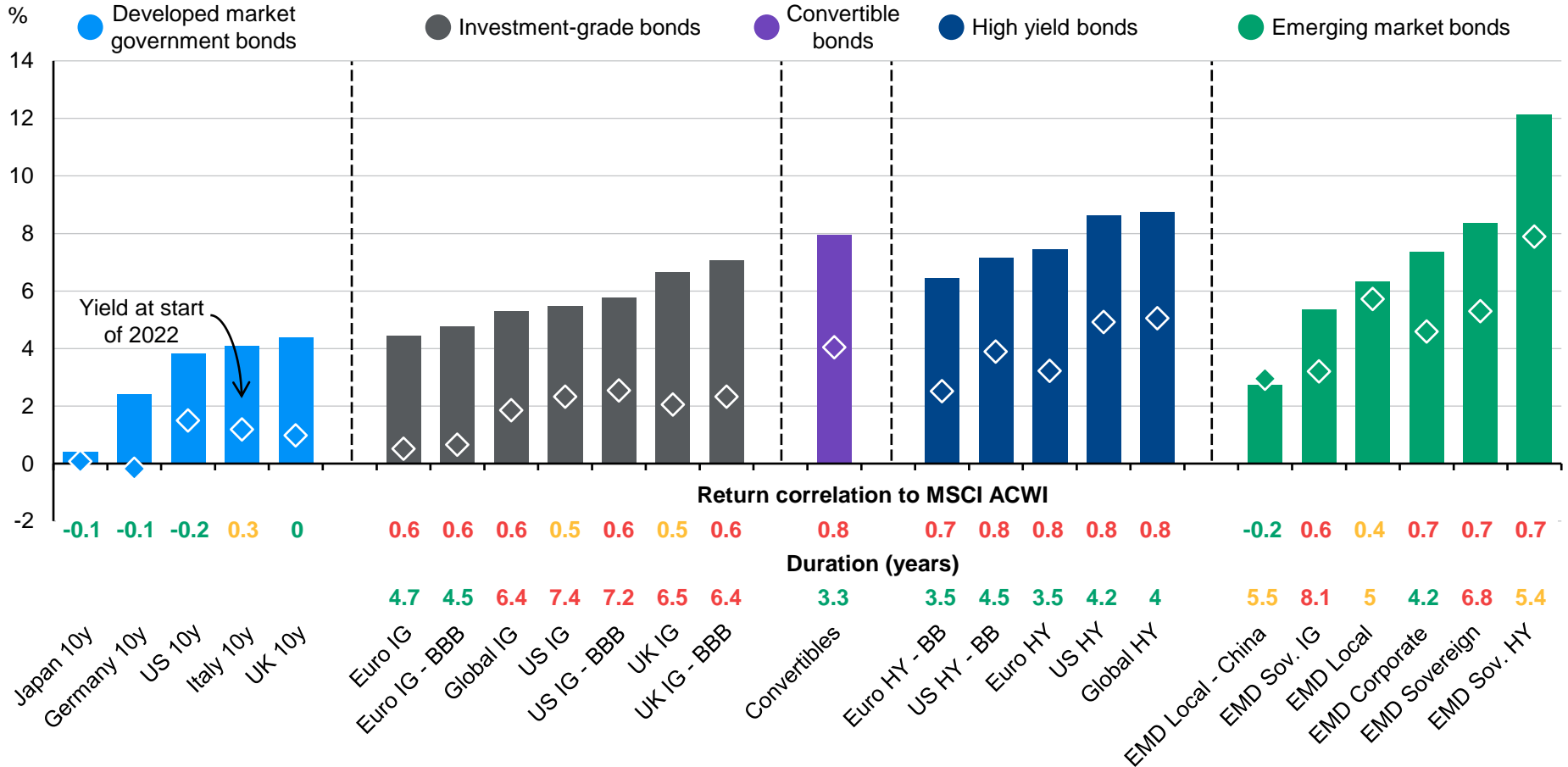


Fixed income yields

GTM UK 69

Fixed income

Fixed income yields



Source: Bloomberg, Bloomberg Barclays, ICE BofA, J.P. Morgan Economic Research, Refinitiv Datastream, J.P. Morgan Asset Management. Return correlation to MSCI All-Country World Index is calculated using monthly total returns since 2008. Indices used are as follows: Euro IG: Bloomberg Barclays Euro-Aggregate – Corporate; Global IG: Bloomberg Barclays Global Aggregate – Corporate; UK IG: Bloomberg Barclays Sterling Aggregate – Corporate; US IG: Bloomberg Barclays US Aggregate – Corporate; Convertible bonds: Bloomberg Barclays Global Convertible Rate Sensitive hedged to USD; Euro HY: ICE BofA Euro Developed Markets Non-Financial High Yield Constrained Index; Global HY: ICE BofA Global High Yield Index; US HY: ICE BofA US High Yield Constrained Index; EMD corporate: CEMBI Broad Diversified; EMD local: GBI-EM Global Diversified; EMD local – China: JP Morgan GBI-EM Broad Diversified China; EMD sovereign: EMBI Global Diversified; EMD sov. IG: EMBI Global Diversified IG; EMD sov. HY: EMBI Global Diversified HY. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

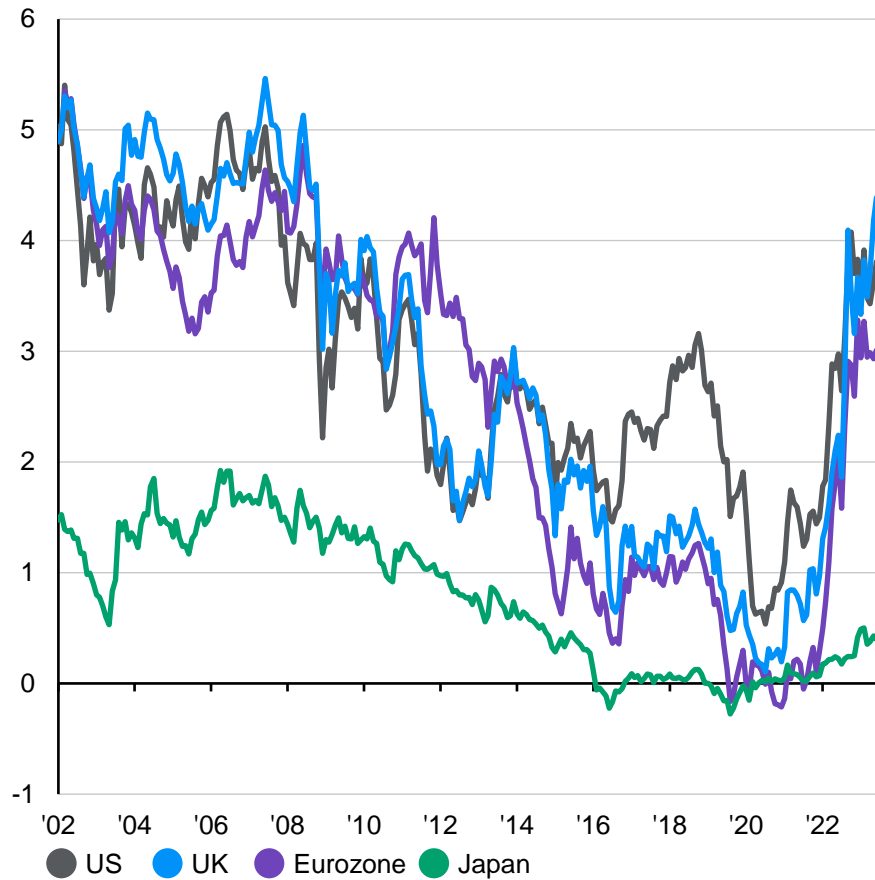


Global government bond yields

GTM UK 70

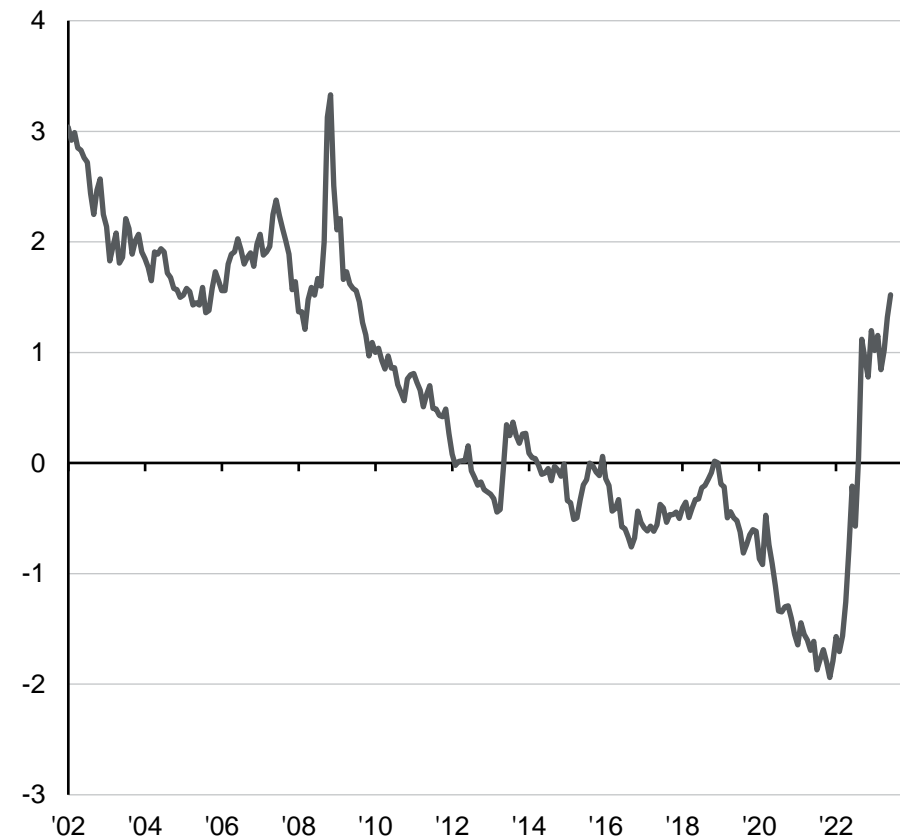
Nominal 10-year government bond yields

% yield



Real global government bond yield

% yield



Source: (Left) Refinitiv Datastream, J.P. Morgan Asset Management. Eurozone is a GDP-weighted average of the French, German, Italian and Spanish 10-year government bond yields. (Right) ICE BofA, Refinitiv Datastream, J.P. Morgan Asset Management. Index shown is the ICE BofA Global Inflation-Linked Government Bond index. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

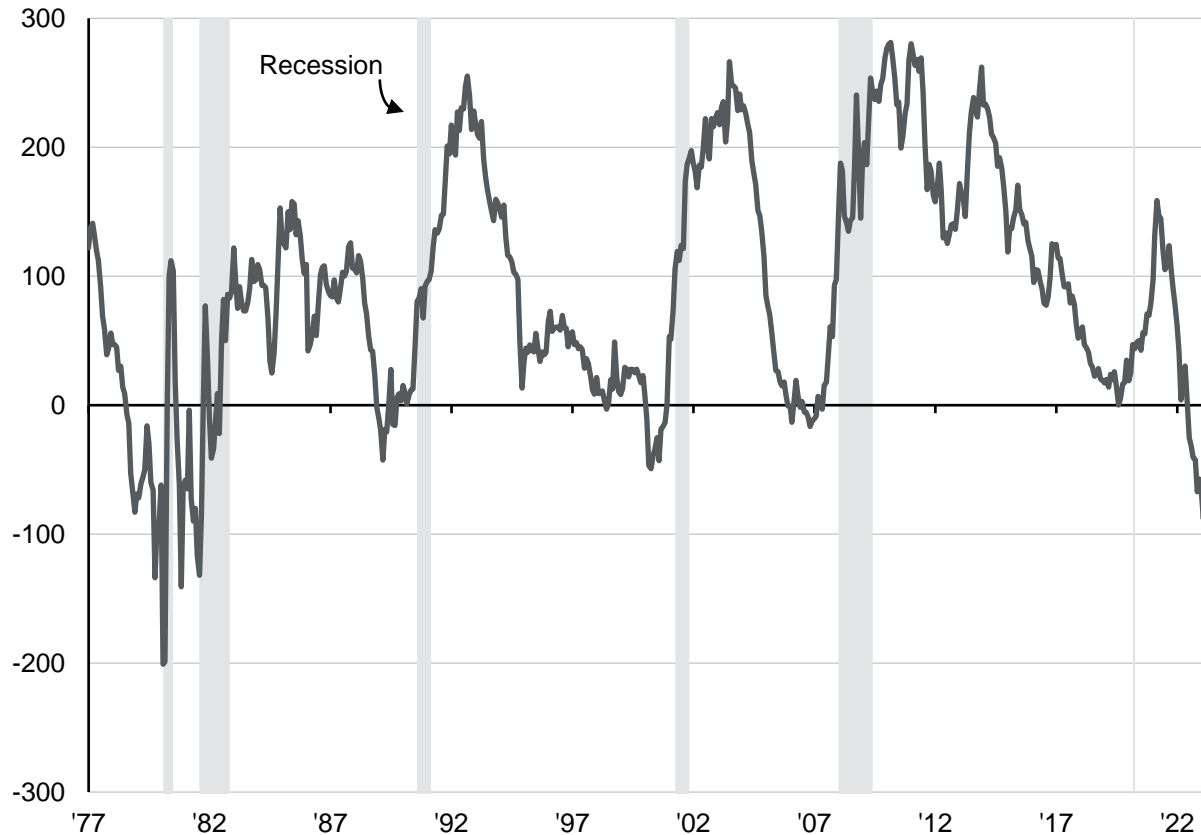


US yield curve

GTM UK 71

US yield curve

Basis points, 10-year Treasury yield minus 2-year Treasury yield



Yield curve inversion and recessions

Number of months from

Yield curve inversion date	Curve inversion to S&P 500 peak before recession	S&P 500 peak to start of recession	Curve inversion to recession
Aug '78	18	0	18
Sep '80	3	8	11
Dec '88	19	1	20
May '98	22	12	34
Dec '05	22	3	25
Median	19	3	20
Average	17	5	22

Source: (Left) Refinitiv Datastream, J.P. Morgan Asset Management. (Right) Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

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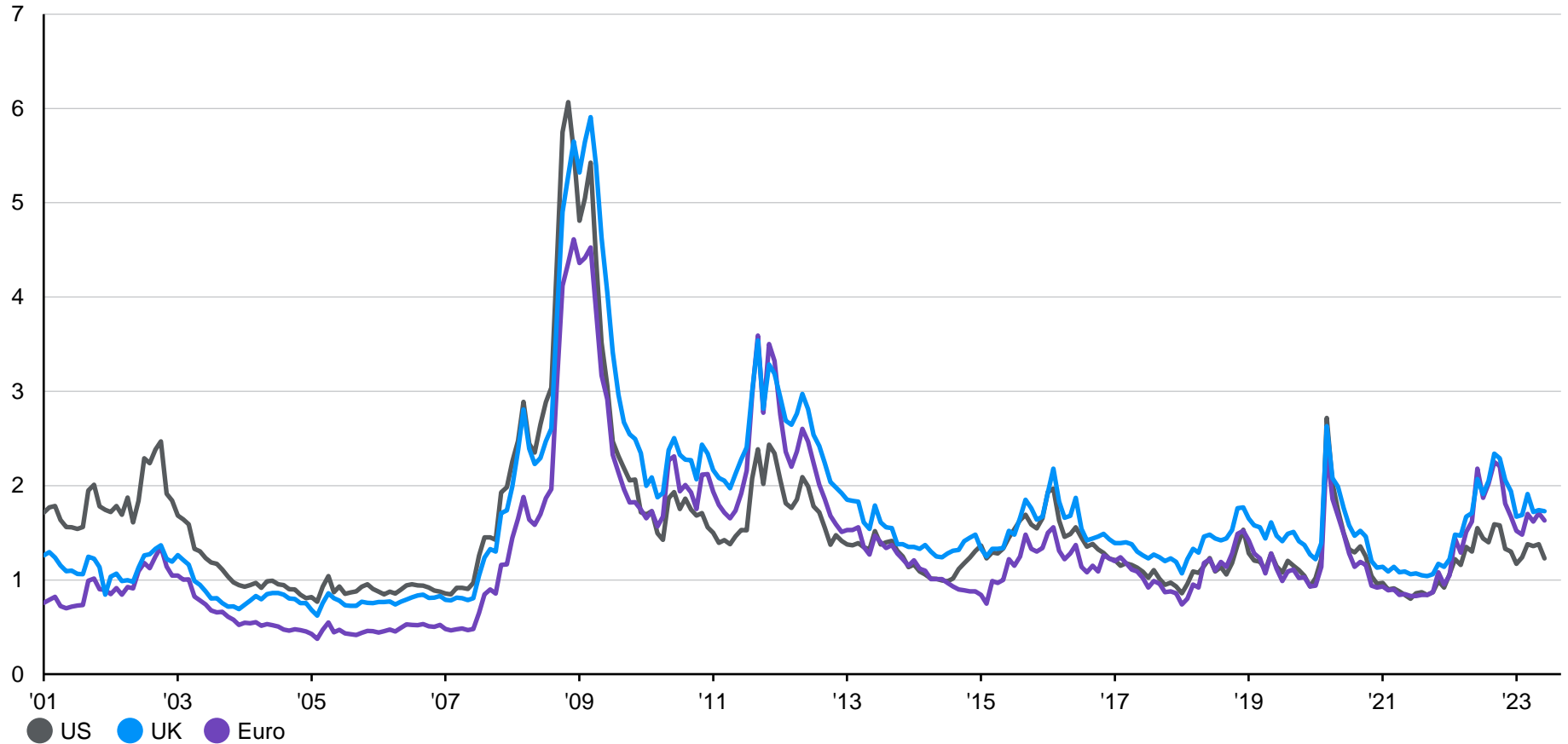
Investment-grade bonds

GTM UK 72

Fixed income

Investment-grade spreads

%, option-adjusted spread over government bond yields



Source: Bloomberg Barclays, Refinitiv Datastream, J.P. Morgan Asset Management. Indices are US inv. grade: Bloomberg Barclays US Aggregate – Corporate; Euro inv. grade: Bloomberg Barclays Euro Aggregate – Corporate; UK inv. grade: Bloomberg Barclays Sterling Aggregate – Corporate. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

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ASSET MANAGEMENT

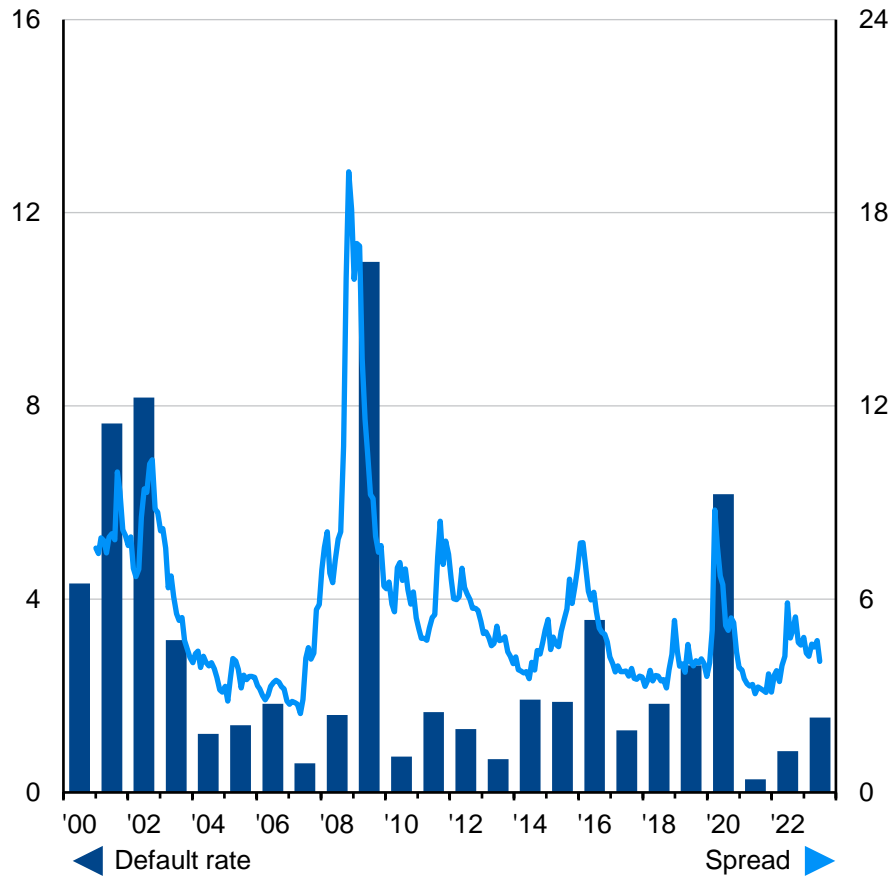


High yield bonds

GTM UK 73

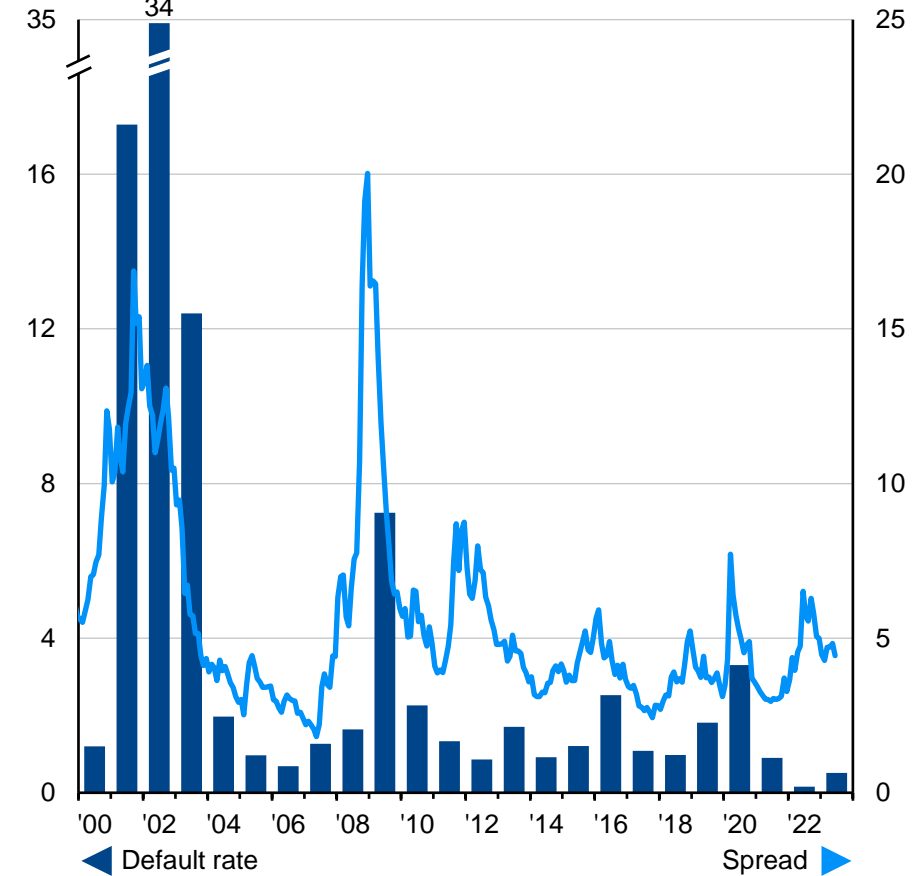
US high yield spread and defaults

%, default rate (LHS); %, option-adjusted spread (RHS)



Euro high yield spread and defaults

%, default rate (LHS); %, option-adjusted spread (RHS)



Source: (Left) ICE BofA, J.P. Morgan Securities Research, Refinitiv Datastream, J.P. Morgan Asset Management. US HY: ICE BofA US High Yield Constrained. US HY default rate is defined as the par value percentage of the total market trading at or below 50% of par value and includes any Chapter 11 filing, prepackaged filing or missed interest payments. (Right) Bloomberg, ICE BofA, J.P. Morgan Securities Research, J.P. Morgan Asset Management. Euro HY: ICE BofA Euro Developed Markets Non-Financial High Yield Constrained Index. Euro HY defaults occur when bonds are downgraded to C rating. The calculation universe is based on par value percentage of the EUR and GBP HY Non-Financials Corporate bond universe. Defaults include missed coupon payments, restructuring and distressed exchanges. 2023 default rate is for the 12 months the last 12 months of available data. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



Global fixed income spreads

GTM

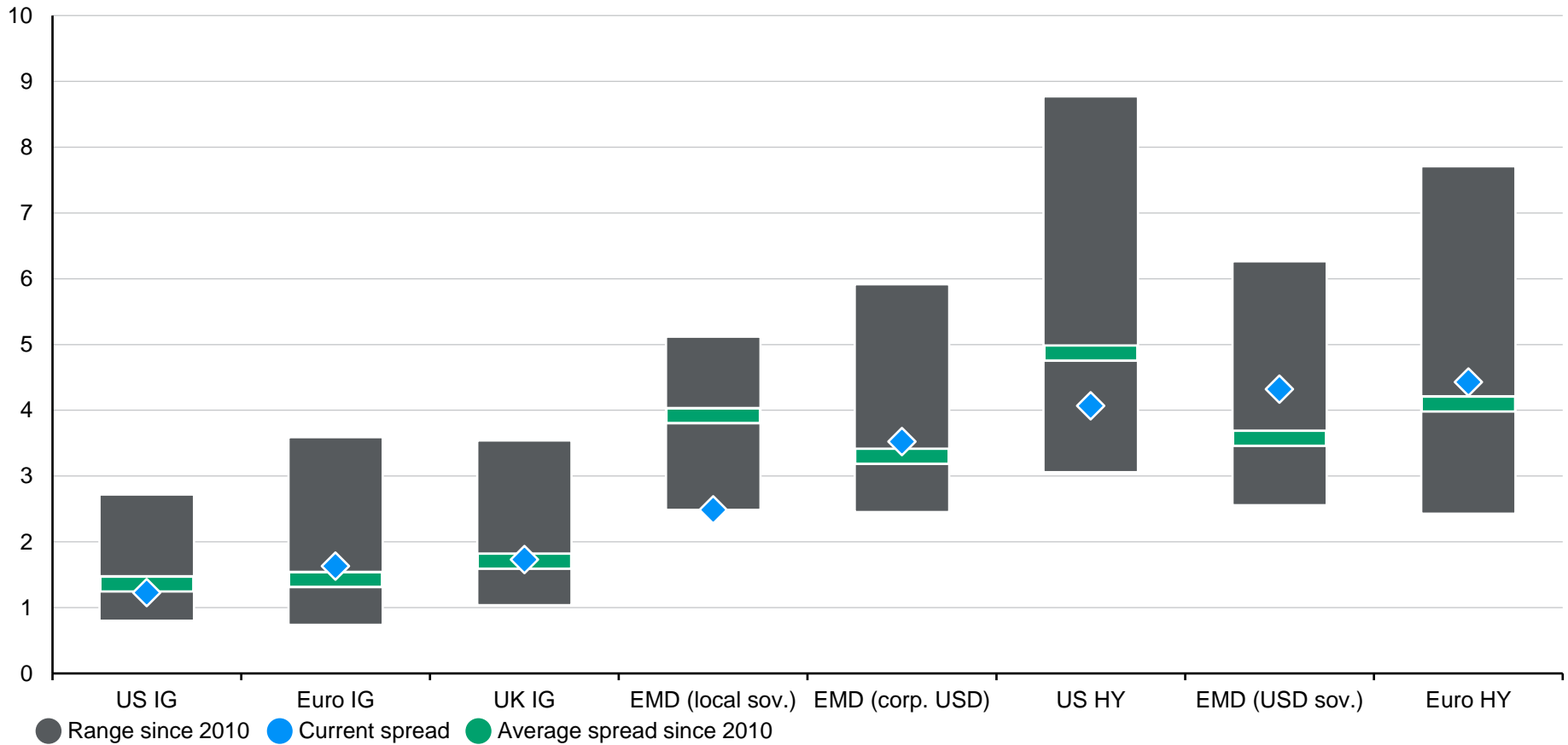
UK

74

Fixed income

Fixed income spreads

%, option-adjusted spread



Source: Bloomberg, Bloomberg Barclays, ICE BofA, J.P. Morgan Economic Research, Refinitiv Datastream, J.P. Morgan Asset Management. Euro IG: Bloomberg Barclays Euro Agg. – Corporate; US HY: ICE BofA US High Yield Constrained; EM Debt: J.P. Morgan EMBI Global Diversified; Euro HY: ICE BofA Euro Developed Markets Non-Financial High Yield Constrained; US IG: Bloomberg Barclays US Agg. Corporate – Investment Grade; UK IG: Bloomberg Barclays Sterling Agg. – Corporates; EMD local: J.P. Morgan GBI-EM Global Diversified; EMD corporate: J.P. Morgan CEMBI Broad Diversified. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

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Fixed income focus: Diversification potential

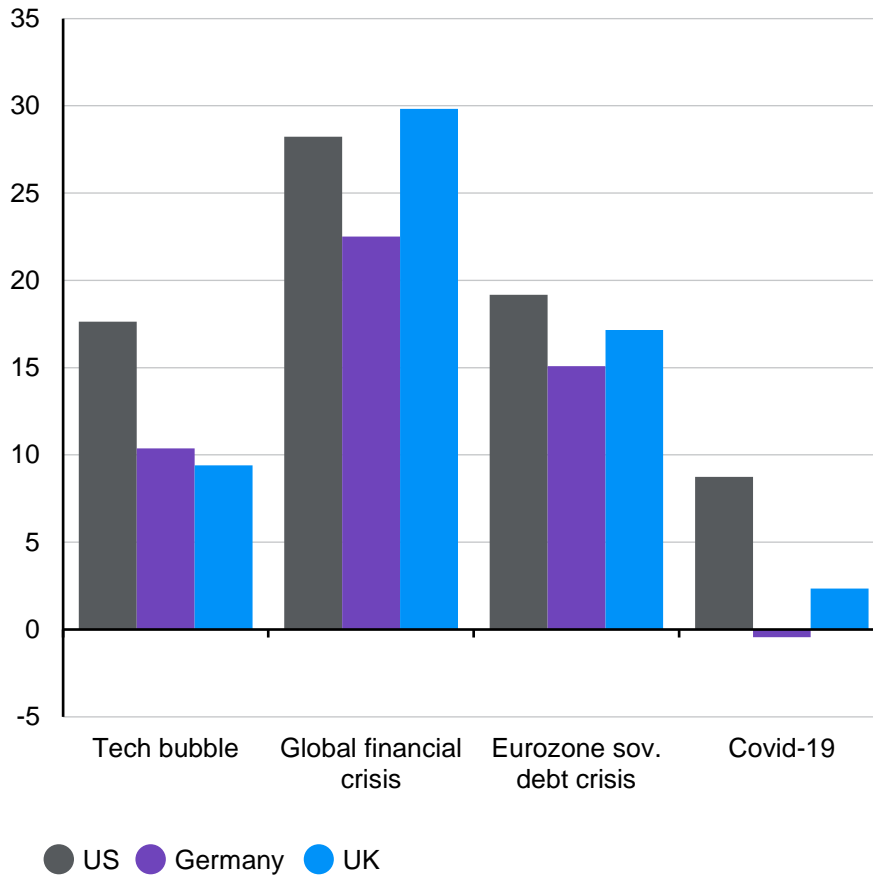
GTM

UK

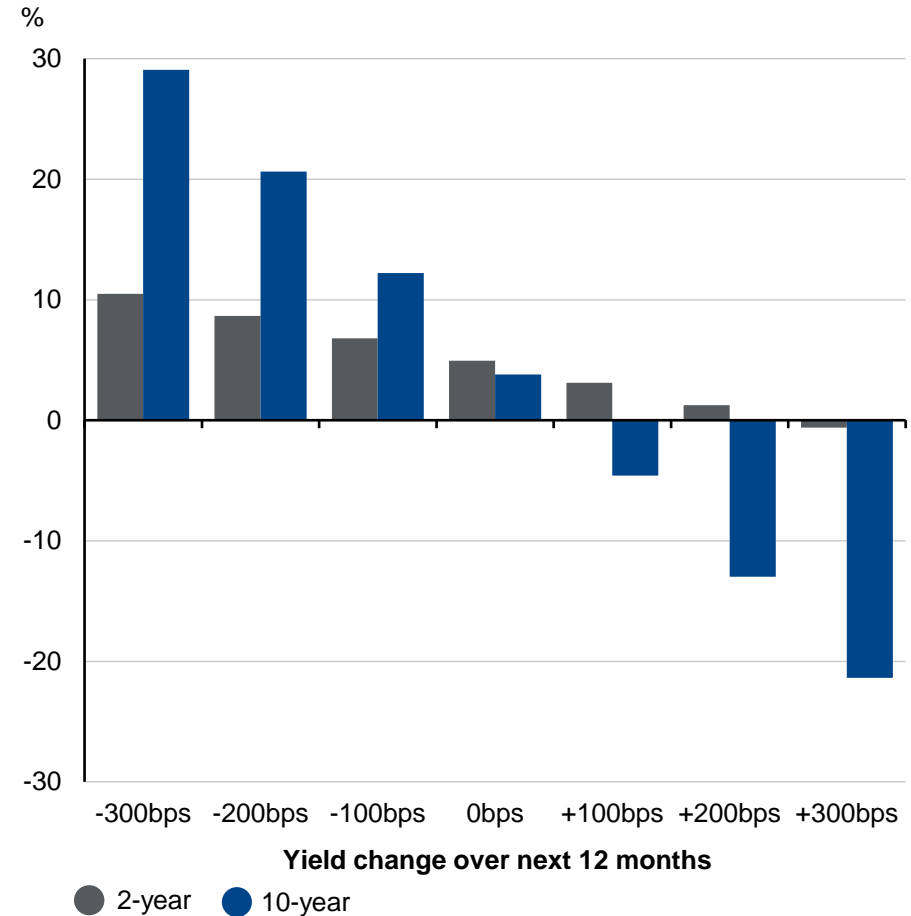
75

Historical returns from 10-year govt. bonds during shocks

%, total return over the period when stocks were falling



Total return scenarios for US Treasuries



Source: (Left) Refinitiv Datastream, J.P. Morgan Asset Management. Returns are shown over the period when MSCI World was falling in local currency terms. Tech bubble: 24 Mar '00 to 21 Sep '01; Global financial crisis: 13 Jul '07 to 9 Mar '09; Eurozone sovereign debt crisis: 18 Feb '11 to 3 Oct '11; Covid-19: 19 Feb '20 to 23 Mar '20. (Right) Bloomberg, J.P. Morgan Asset Management. Chart indicates the calculated total return achieved by purchasing US Treasuries at the current yield and selling in 12 months' time given various changes in yield. For illustrative purposes only. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



Global fixed income returns

GTM UK 76

	2015	2016	2017	2018	2019	2020	2021	2022	Q2 '23	YTD	10-year ann. return
GBP	7.0% EM Debt 1.2%	40.1% US HY 17.5%	10.6% Euro HY 6.3%	7.1% US Treas. 0.9%	11.0% UK IG 11.0%	11.3% Infl Linked 11.3%	6.3% US HY 5.3%	-0.0% US HY -11.2%	-0.6% EM Debt 2.2%	1.0% Euro HY 4.4%	7.1% US HY 3.9%
Local	6.7% US Treas. 0.8%	31.4% EM Debt 10.2%	4.9% UK IG 4.9%	3.8% US HY -2.3%	10.6% EM Debt 15.0%	9.1% UK IG 9.1%	3.9% Infl Linked 3.9%	-1.4% US Treas. -12.5%	-0.9% Euro HY 1.4%	-0.3% US HY 5.4%	5.1% US IG 2.0%
	5.1% US IG -0.7%	27.6% Euro HY 10.2%	2.3% Infl Linked 2.3%	3.6% US IG -2.5%	10.1% US IG 14.5%	8.9% UK Gilts 8.9%	-0.1% US IG -1.0%	-5.1% US IG -15.8%	-1.2% US HY 1.6%	-1.0% UK IG -1.0%	4.7% EM Debt 1.6%
	2.8% Portfolio -0.1%	26.6% US IG 6.1%	2.0% UK Gilts 2.0%	1.9% Portfolio -1.5%	10.0% Euro HY 14.4%	7.9% Euro HY 2.2%	-0.9% Portfolio -1.1%	-6.3% Euro HY -11.3%	-3.0% US IG -0.3%	-1.5% EM Debt 4.1%	4.1% Euro HY 3.2%
	0.9% US HY -4.6%	25.2% Infl Linked 25.2%	0.7% EM Debt 10.3%	1.7% EM Debt -4.3%	7.9% Portfolio 10.6%	6.5% US IG 9.9%	-0.9% EM Debt -1.8%	-7.4% EM Debt -17.8%	-3.4% UK IG -3.4%	-2.3% Portfolio 0.9%	3.7% US Treas. 0.6%
	0.7% UK IG 0.7%	23.1% Portfolio 10.8%	0.2% Portfolio 5.0%	0.5% UK Gilts 0.5%	7.1% UK Gilts 7.1%	6.5% Portfolio 8.0%	-1.4% US Treas. -2.3%	-12.8% Portfolio -19.0%	-3.5% Portfolio -1.9%	-2.3% US IG 3.2%	3.6% Portfolio 1.8%
	0.5% UK Gilts 0.5%	20.5% US Treas. 1.0%	-1.8% US HY 7.5%	-0.3% Infl Linked -0.3%	6.5% Infl Linked 6.5%	4.7% US Treas. 8.0%	-3.0% Euro HY 3.4%	-19.3% UK IG -19.3%	-4.1% US Treas. -1.4%	-2.9% Infl Linked -2.9%	2.3% UK IG 2.3%
	-1.2% Infl Linked -1.2%	12.3% UK IG 12.3%	-2.8% US IG 6.4%	-2.2% UK IG -2.2%	4.7% Euro HY 10.9%	2.8% US HY 6.1%	-3.3% UK IG -3.3%	-25.1% UK Gilts -25.1%	-6.0% UK Gilts -6.0%	-3.9% US Treas. 1.6%	1.9% Infl Linked 1.9%
	-3.7% Euro HY 1.4%	10.7% UK Gilts 10.7%	-6.5% US Treas. 2.3%	-3.0% Euro HY -4.0%	2.7% US Treas. 6.9%	2.0% EM Debt 5.3%	-5.3% UK Gilts -5.3%	-34.5% Infl Linked -34.5%	-6.9% Infl Linked -6.9%	-3.9% UK Gilts -3.9%	0.4% UK Gilts 0.4%

Source: Bloomberg, Bloomberg Barclays, ICE BofA, J.P. Morgan Economic Research, Refinitiv Datastream, J.P. Morgan Asset Management. Euro IG: Bloomberg Barclays Euro Agg. – Corporate; US HY: ICE BofA US High Yield Constrained; EM Debt: J.P. Morgan EMBI Global Diversified; Euro HY: ICE BofA Euro Developed Markets Non-Financial High Yield Constrained; US IG: Bloomberg Barclays US Agg. Corporate – Investment Grade; UK IG: Bloomberg Barclays Sterling Agg.– Corporates; UK Gilts: Bloomberg Barclays Sterling Gilts; US Treasuries: Bloomberg Barclays US Agg. Gov. – Treasury; Infl Linked: ICE BofA UK Gilt Inflation-Linked Government. Hypothetical portfolio (for illustrative purposes only and should not be taken as a recommendation): 20% UK Gilts; 15% US Treasuries; 10% Linkers; 15% US IG; 10% UK IG; 10% US HY; 5% Euro HY; 15% EM Debt. Annualised return covers period 2013 to 2022 inclusive. Returns are unhedged in sterling and local currencies. Past performance is not a reliable indicator of current and future results.
Guide to the Markets - UK. Data as of 30 June 2023.

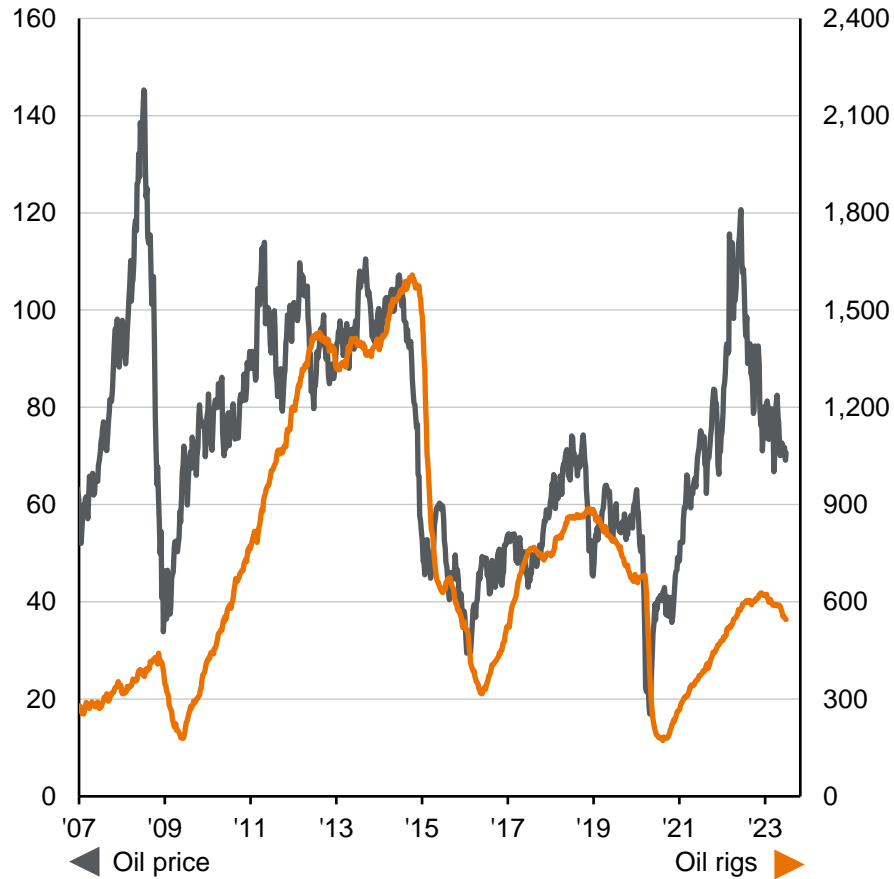


Oil

GTM UK 77

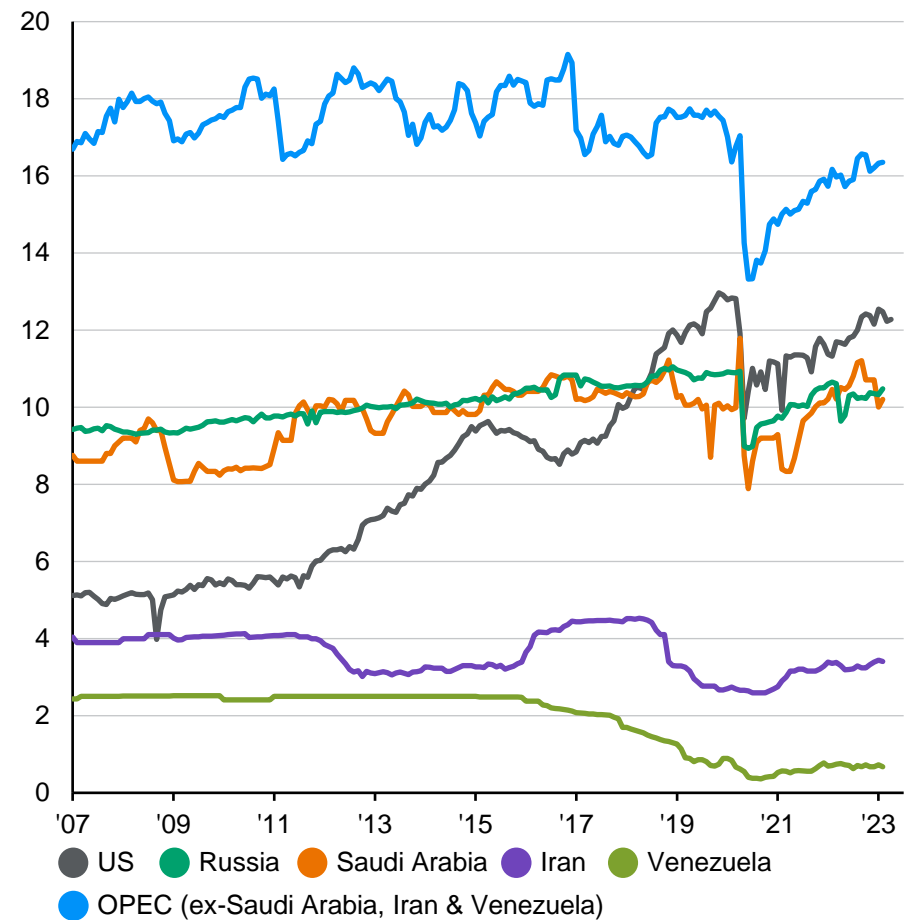
WTI crude oil price and US rig count

USD per barrel (LHS); number of rigs (RHS)



Crude oil production by country

Million barrels per day



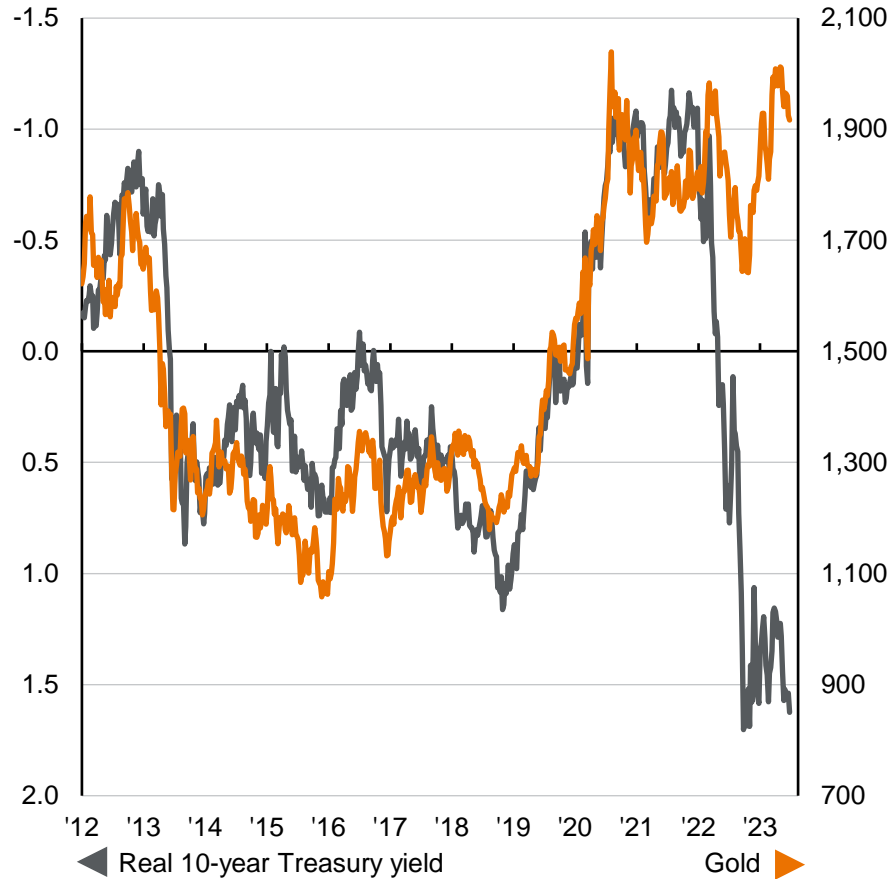
Source: (Left) Baker Hughes, Bloomberg, J.P. Morgan Asset Management. (Right) EIA, Refinitiv Datastream, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



Commodities

Real US 10-year Treasury yield vs. gold

%, inverted (LHS); USD per Troy ounce (RHS)



Commodity prices

Index level, rebased to 100 in Jan 2007



Source: (Left) Refinitiv Datastream, J.P. Morgan Asset Management. Real yield is the US 10-year Treasury inflation-protected security yield. (Right) Bloomberg, J.P. Morgan Asset Management. Industrial metals include aluminium, copper, nickel and zinc. Agriculture includes coffee, corn, soybeans, soybean oil, sugar and wheat. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



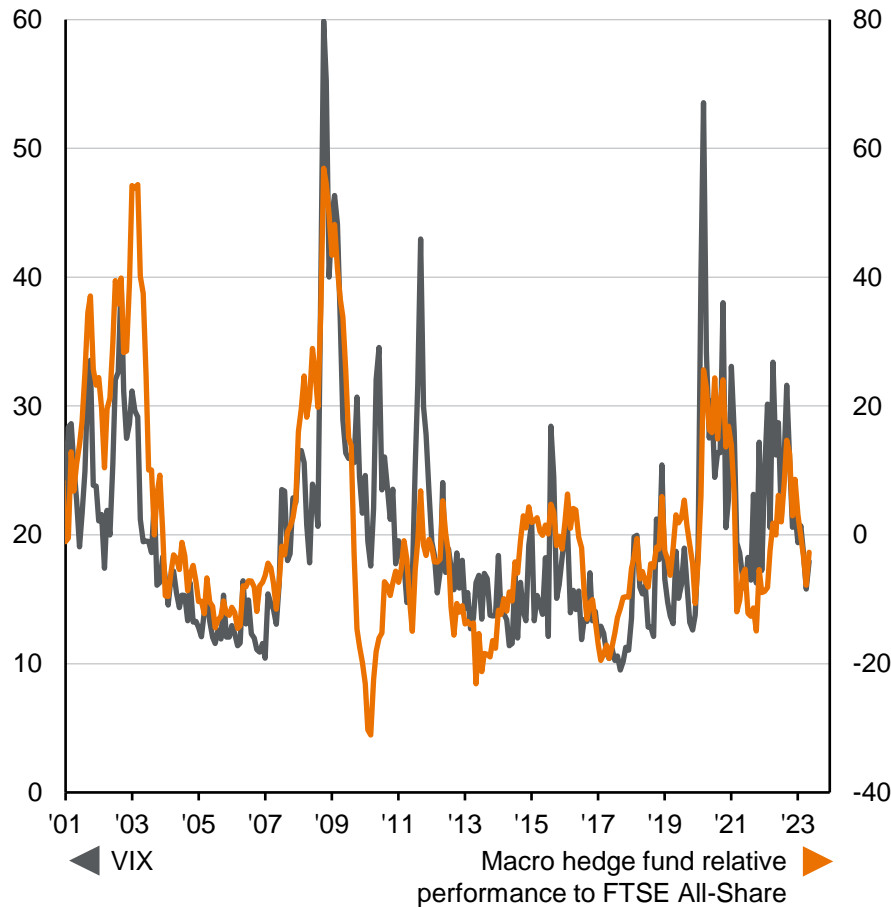
Volatility and alternative investments

GTM UK 79

Other assets

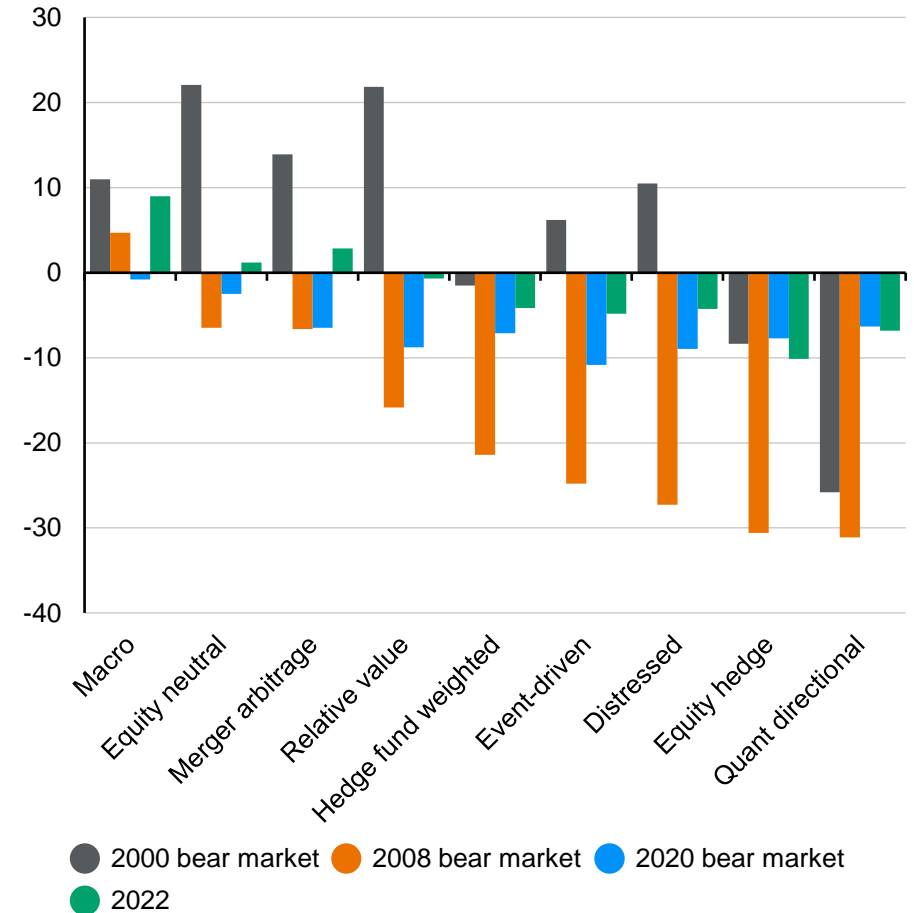
Macro hedge fund relative performance & volatility

Index level (LHS); % change year on year (RHS)



Hedge fund style returns during bear markets

% total return



Source: (Left) CBOE, FTSE, Hedge Fund Research Indices (HFRI), Refinitiv Datastream, J.P. Morgan Asset Management. Macro hedge fund (total return in USD) relative performance is calculated relative to the FTSE All-Share (total return in GBP). VIX is the implied volatility of S&P 500 Index based on options pricing. (Right) Hedge Fund Research Indices (HFRI), Refinitiv Datastream, J.P. Morgan Asset Management. 2000 bear market is from 31 March 2000 to 31 October 2002, 2008 bear market is from 31 October 2007 to 28 February 2009, 2020 bear market is from 31 January 2020 to 30 April 2020. Hedge fund strategies are defined in the HFRI hedge fund strategy classification system. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

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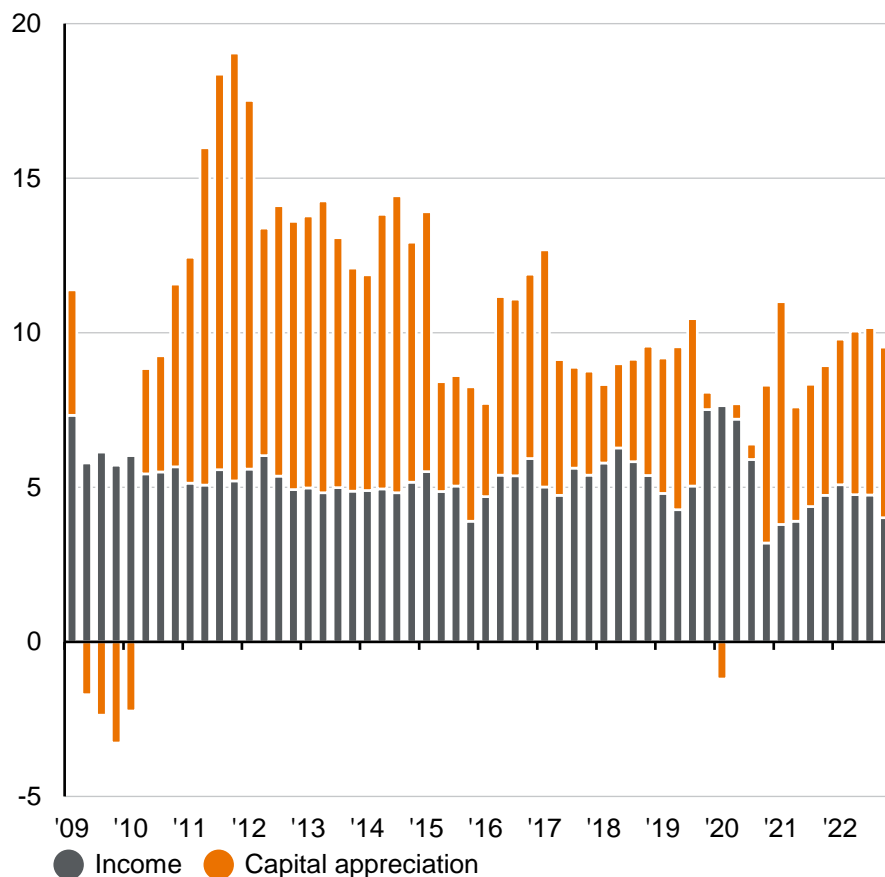
Inflation protection and alternative investments

GTM UK 80

Other assets

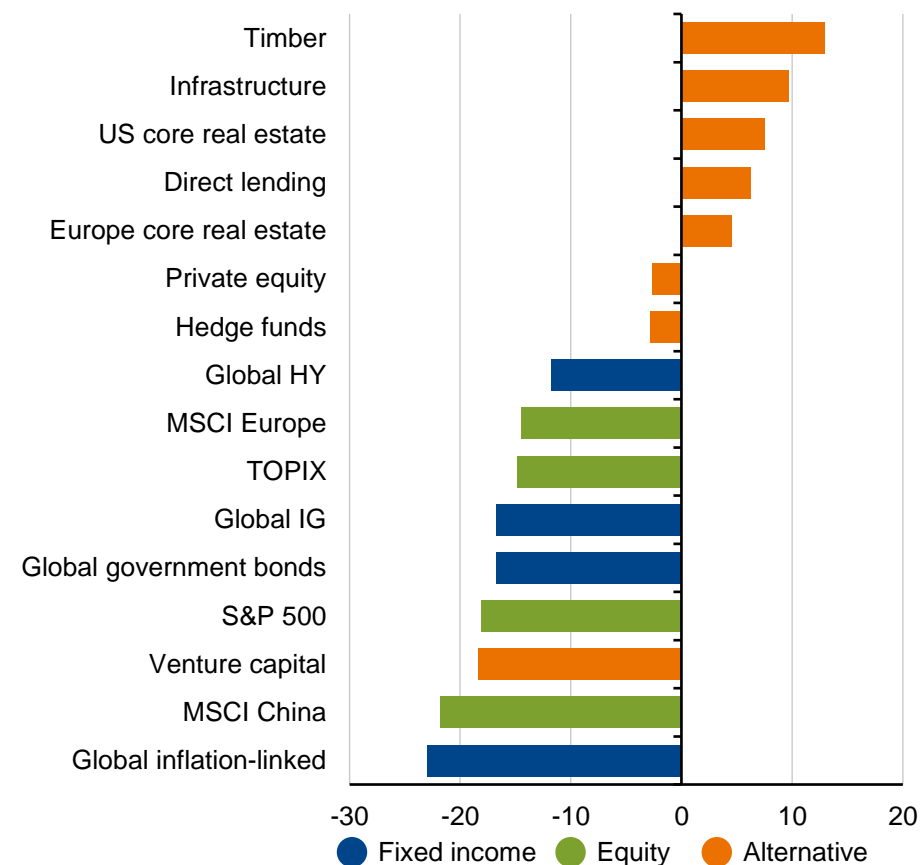
Global core infrastructure returns

%, rolling 4-quarter returns from income and capital appreciation



Selected public and private market returns in 2022

%, total return in USD



Source: (Left) MSCI, J.P. Morgan Asset Management. Infrastructure returns represented by the MSCI Global Quarterly Infrastructure Asset Index "low risk" category. Rolling one-year returns from income and capital appreciation. (Right) Bloomberg, Burgiss, Cliffwater, FactSet, HRFI, MSCI, NCREIF, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. Global government bonds: Bloomberg Global Aggregate – Government; Global inflation-linked: Bloomberg Global Inflation-Linked; Global IG: Bloomberg Barclays Global Aggregate – Corporate; Global HY: ICE BofA Global High Yield Index; Hedge funds: HRFI Fund Weighted Composite; US core real estate: NCREIF Property Index – Open End Diversified Core Equity; Europe core real estate: MSCI Global Property Fund Index – Continental Europe; Direct lending: Cliffwater Direct Lending Index; Global infrastructure: MSCI Global Quarterly Infrastructure Asset Index (equal-weighted blend); Timber: NCREIF Timberland Total Return Index. Private equity and venture capital are time-weighted returns from Burgiss. Past performance is not a reliable indicator of current and future results. *Guide to the Markets* - UK. Data as of 30 June 2023.

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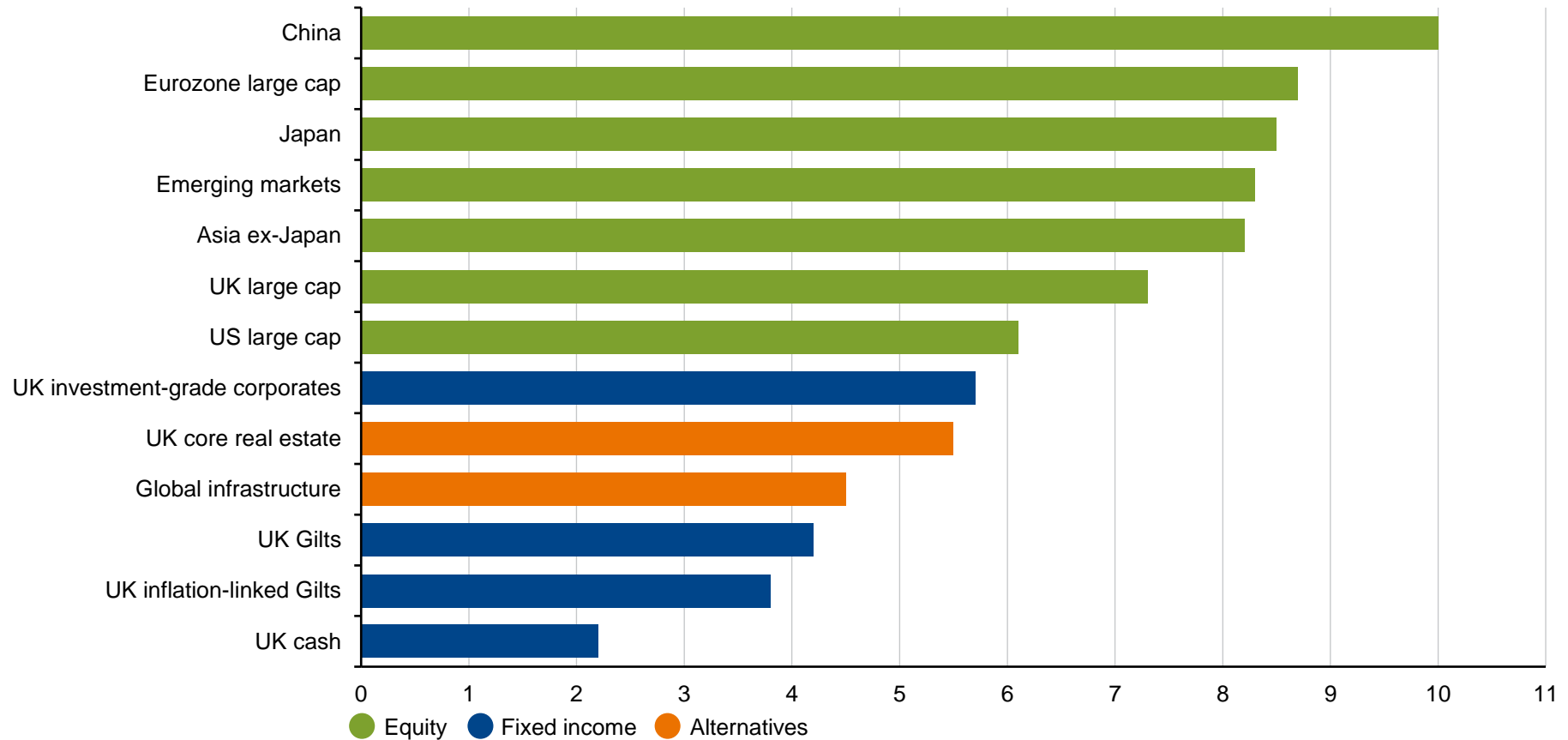


Asset return expectations

GTM UK 81

2023 Long-Term Capital Market Assumptions expected returns in coming 10-15 years

%, annualised return in GBP



Other assets

Source: 2023 Long-Term Capital Market Assumptions, J.P. Morgan Asset Management. Returns are nominal and in GBP. The projections in the chart above are based on J.P. Morgan Asset Management's proprietary long-term capital market assumptions (10-15 years) for returns of major asset classes. The resulting projections include only the benchmark return associated with the portfolio and do not include alpha from the underlying product strategies within each asset class. The assumptions are presented for illustrative purposes only. Past performance and forecasts are not reliable indicators of current and future results. Guide to the Markets - UK. Data as of 30 June 2023.

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Emissions targets and consumer concerns

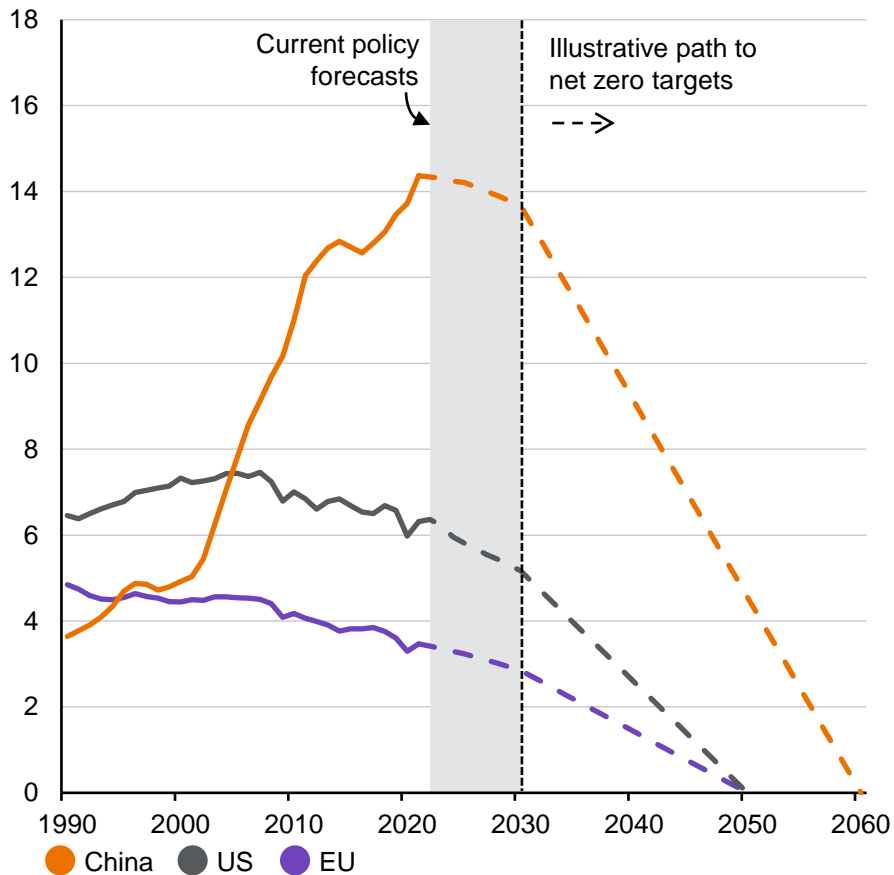
GTM

UK

82

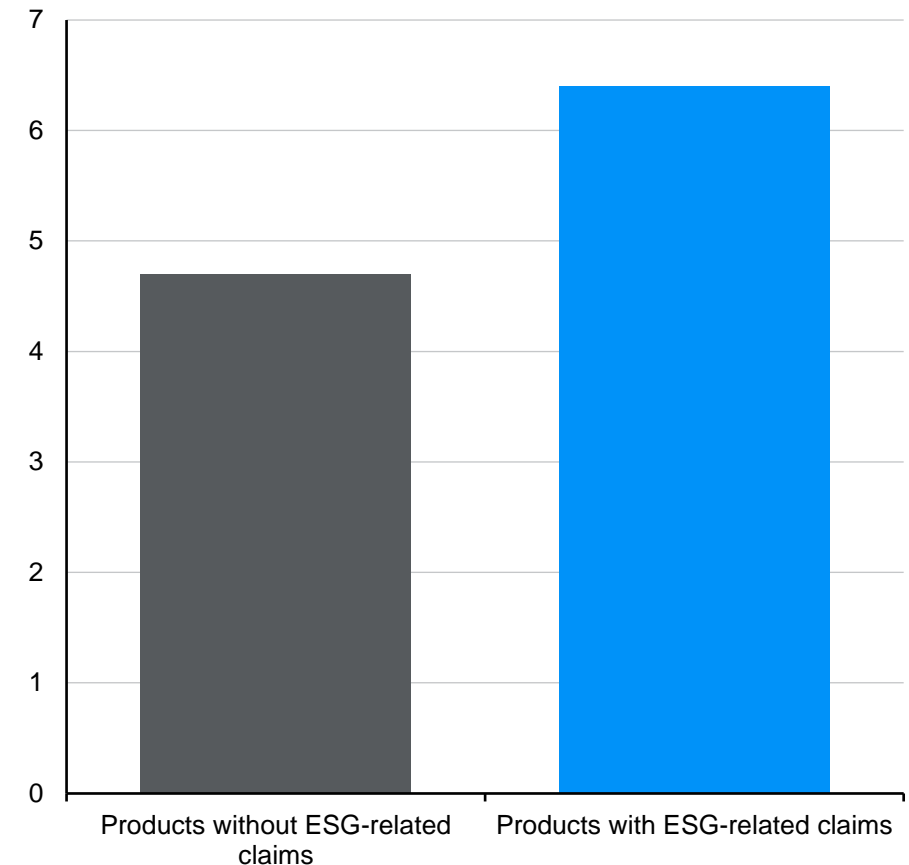
Greenhouse gas emission targets

Billion tonnes per year, CO₂ equivalent



US sales growth

%, annualised growth rate from 2018 - 2022



Source: (Left) Climate Action Tracker, J.P. Morgan Asset Management. Current policy forecast is the November 2022 forecast provided by Climate Action Tracker for China and the EU, and the August 2022 forecast for the US. CO₂ equivalent tonnes standardise emissions to allow for comparison between gases. One equivalent tonne has the same warming effect as one tonne of CO₂ over 100 years. (Right) McKinsey & Company, NielsenIQ, J.P. Morgan Asset Management. The study covered 600,000 products representing USD 400 billion in annual retail revenues. *Guide to the Markets - UK*. Data as of 30 June 2023.

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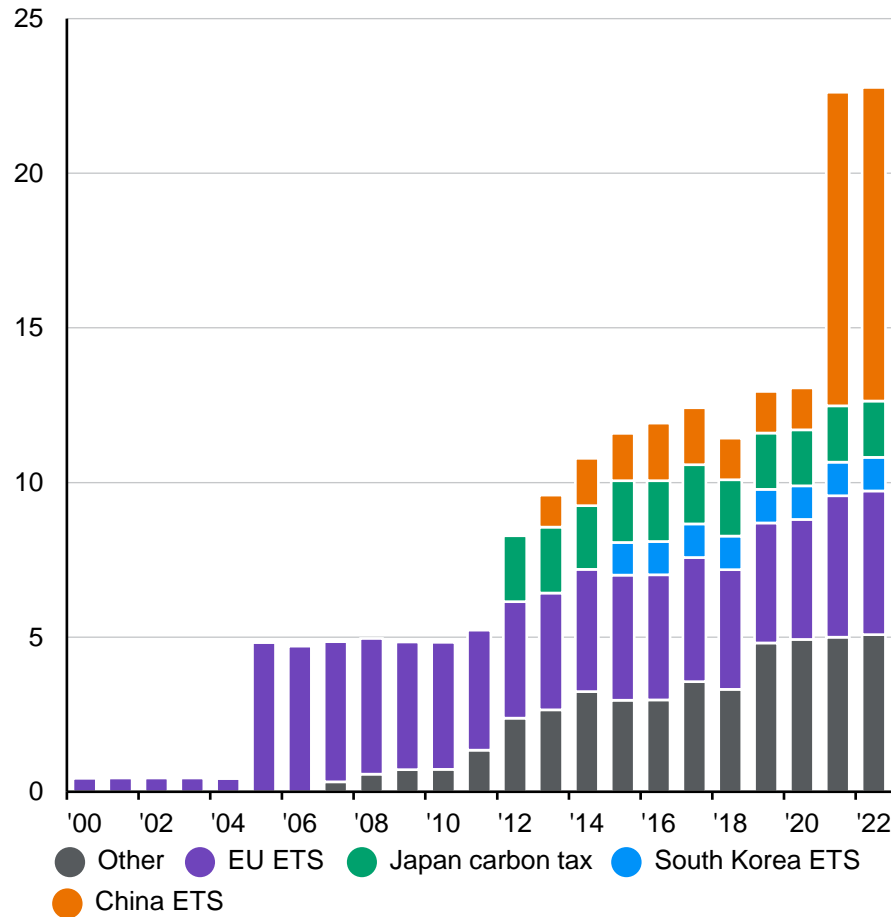
Carbon pricing

GTM UK 83

ESG

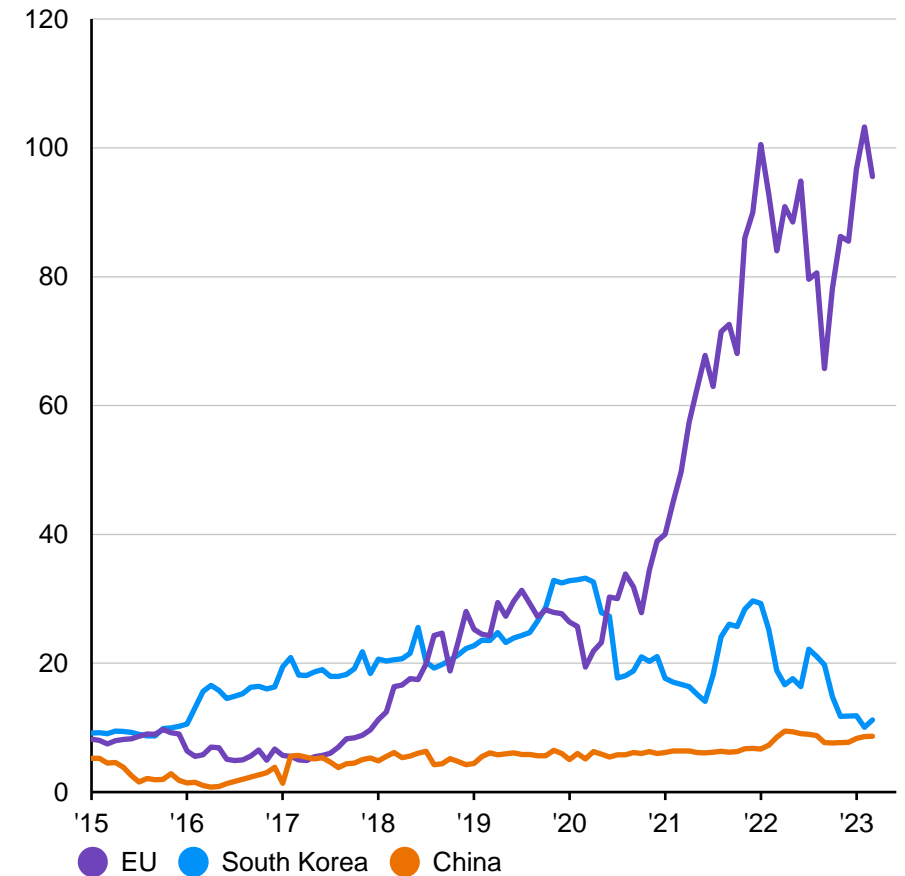
Global emissions covered by carbon pricing initiatives

% of global greenhouse gas emissions



Emissions trading system prices

USD per tonne of CO₂ equivalent



Source: (Left) World Bank, J.P. Morgan Asset Management. ETS is emissions trading system. (Right) International Carbon Action Partnership, J.P. Morgan Asset Management. China ETS price is the Shanghai ETS price up to July 2021, and the mainland price thereafter. CO₂ equivalent tonnes standardise emissions to allow for comparison between gases. One equivalent tonne has the same warming effect as one tonne of CO₂ over 100 years. *Guide to the Markets - UK*. Data as of 30 June 2023.

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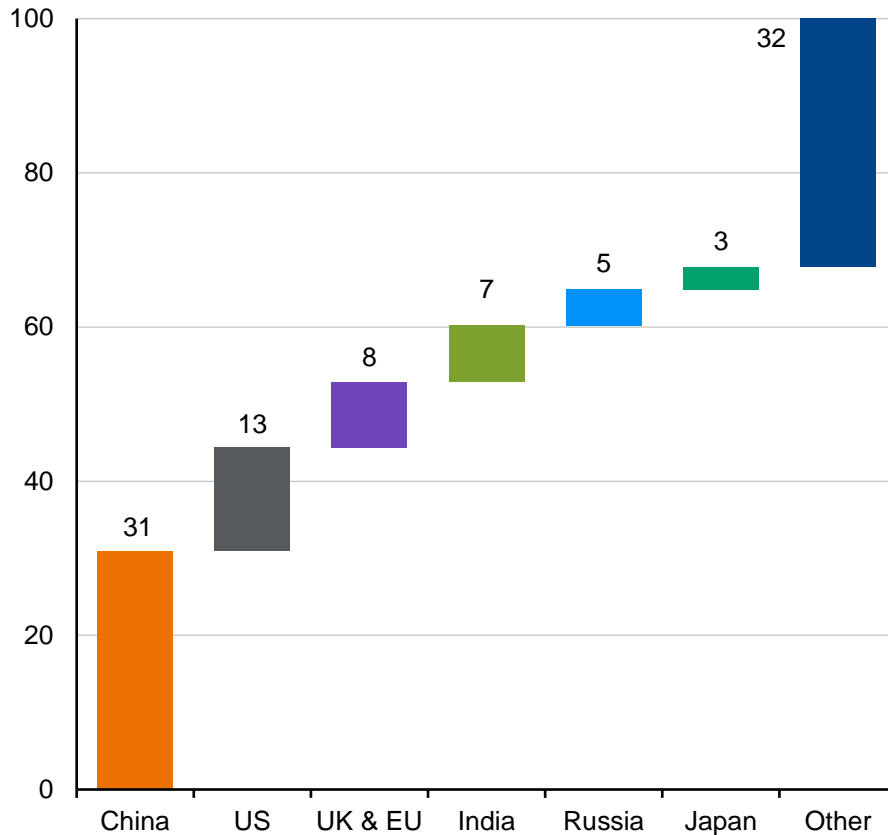


Global CO₂ emissions by country

GTM UK 84

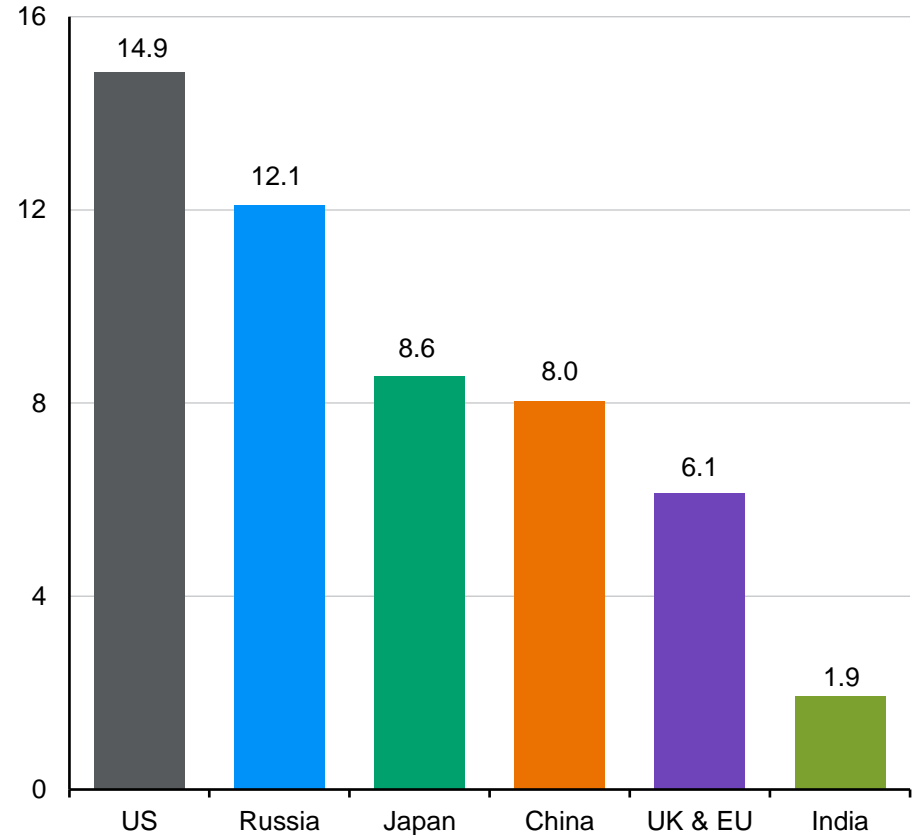
Share of global CO₂ emissions by country

%, 2021



Global CO₂ emissions per capita

Tonnes, 2021



ESG

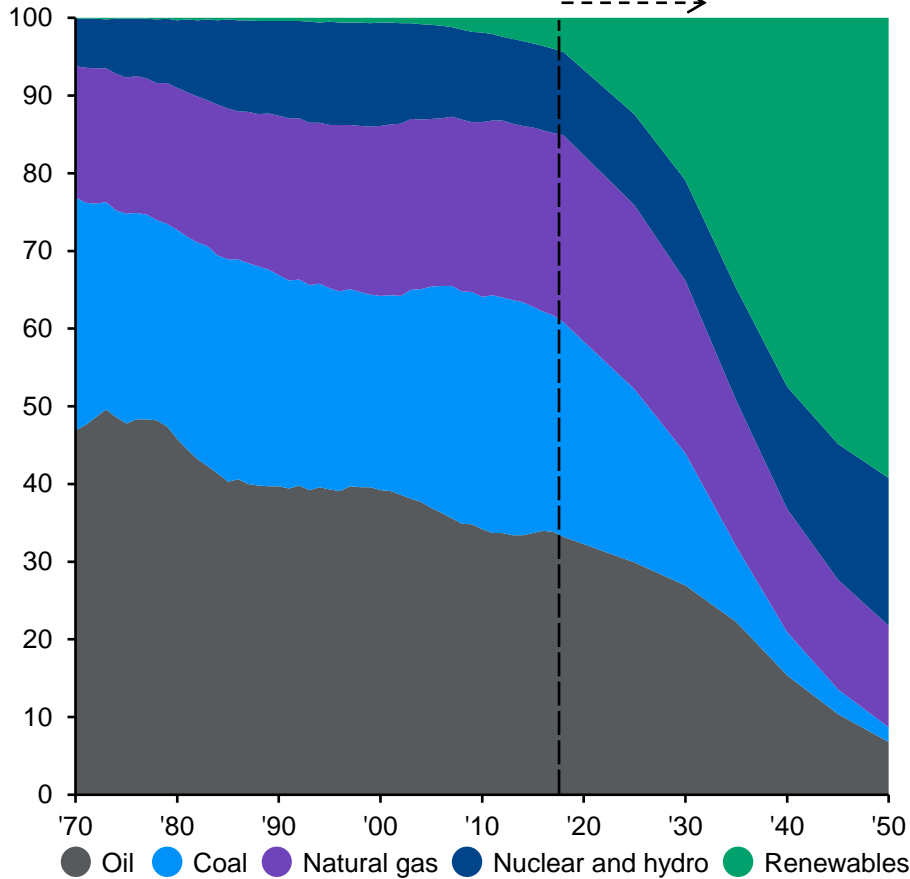


Global energy mix and greenhouse gas emissions by sector

GTM UK 85

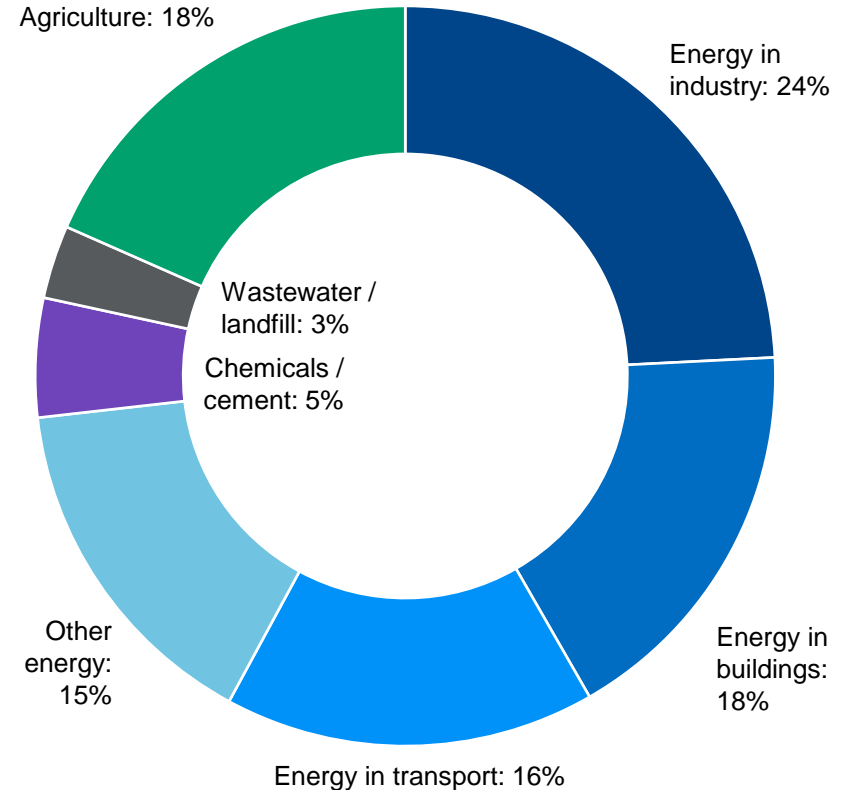
Global energy mix

% primary energy consumption



Share of global greenhouse gas emissions by sector

% of global greenhouse gas emissions (2016), CO₂ equivalent tonnes



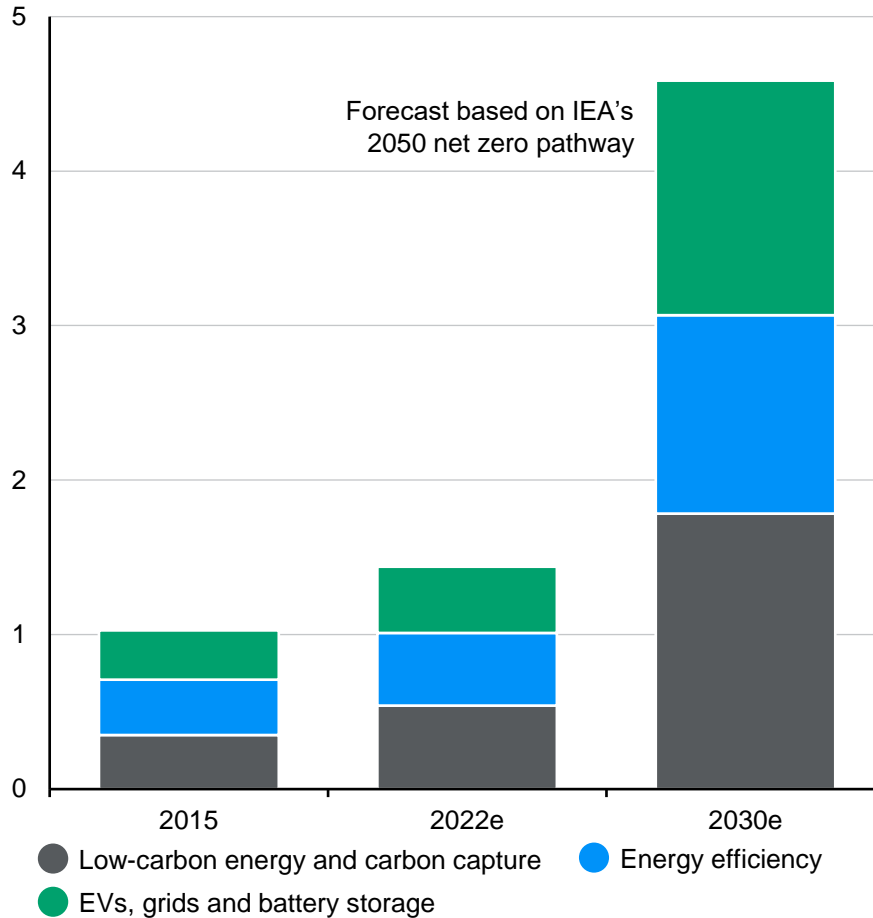
Source: (Left) BP Energy Outlook 2020, J.P. Morgan Asset Management. Forecast is based on BP's scenario for global net zero emissions by 2050. (Right) Climate Watch, Our World in Data, World Resource Institute, J.P. Morgan Asset Management. Greenhouse gas emissions include CO₂, methane, nitrous oxide and fluorinated greenhouse gases. CO₂ equivalent tonnes standardise emissions to allow for comparison between gases. One equivalent tonne has the same warming effect as one tonne of CO₂ over 100 years. *Guide to the Markets - UK*. Data as of 30 June 2023.



Global energy transition

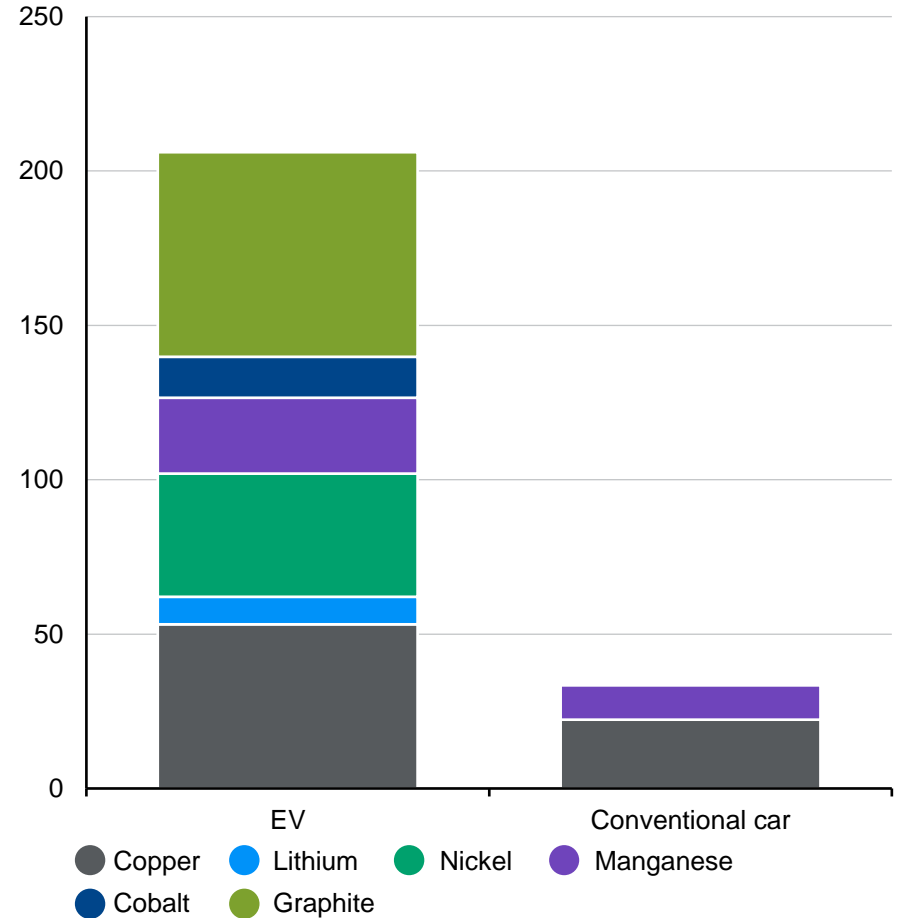
Global investment in clean energy and energy efficiency

USD trillions



Mineral content of electric vehicles and conventional cars

Kilograms per vehicle



Source: (Left) IEA, J.P. Morgan Asset Management. Data is from the IEA's World Energy Investment 2022 report. 2030e is based on the IEA's net zero by 2050 scenario. (Right) IEA, J.P. Morgan Asset Management. Data is from the IEA's "The Role of Critical Minerals in Clean Energy Transitions" report. Guide to the Markets - UK. Data as of 30 June 2023.

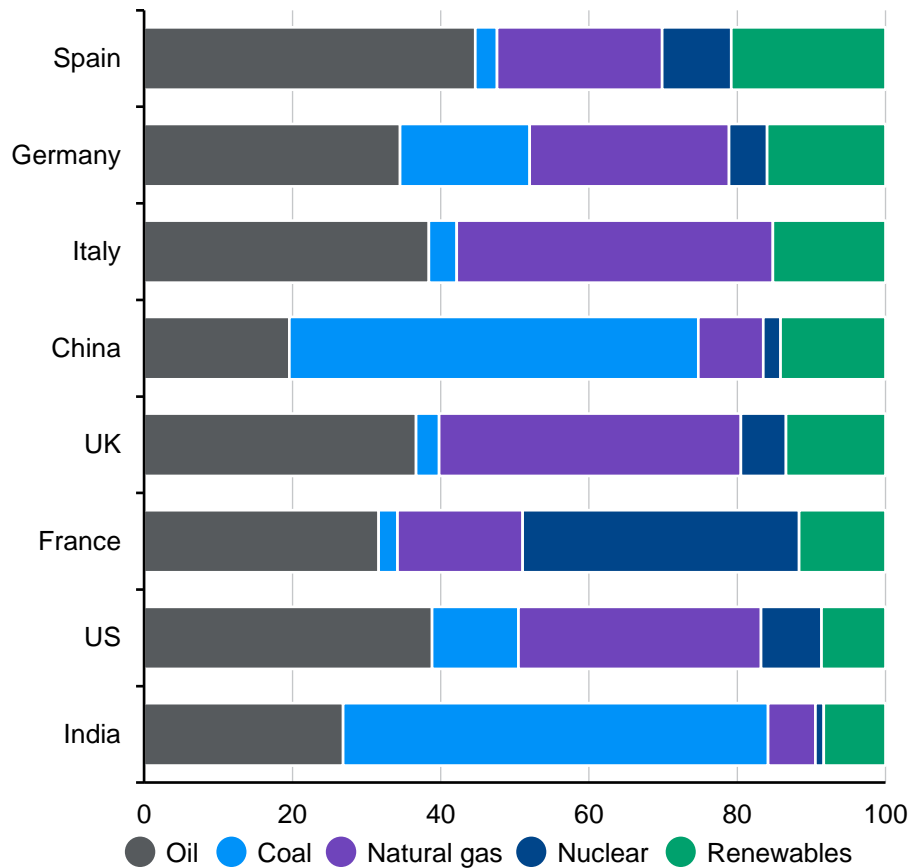


Global energy consumption and renewable capacity

GTM UK 87

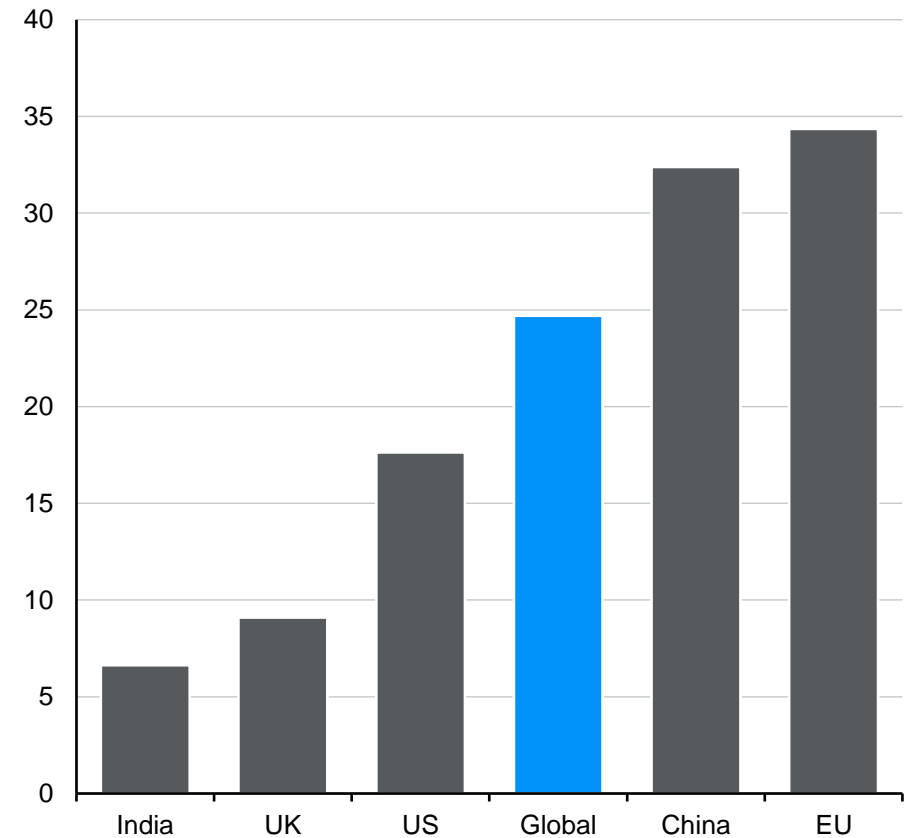
Global energy mix

% of primary energy consumption (2021)



Change in renewable capacity forecasts, 2022 vs. 2021

% increase in forecasted expansion over next five years





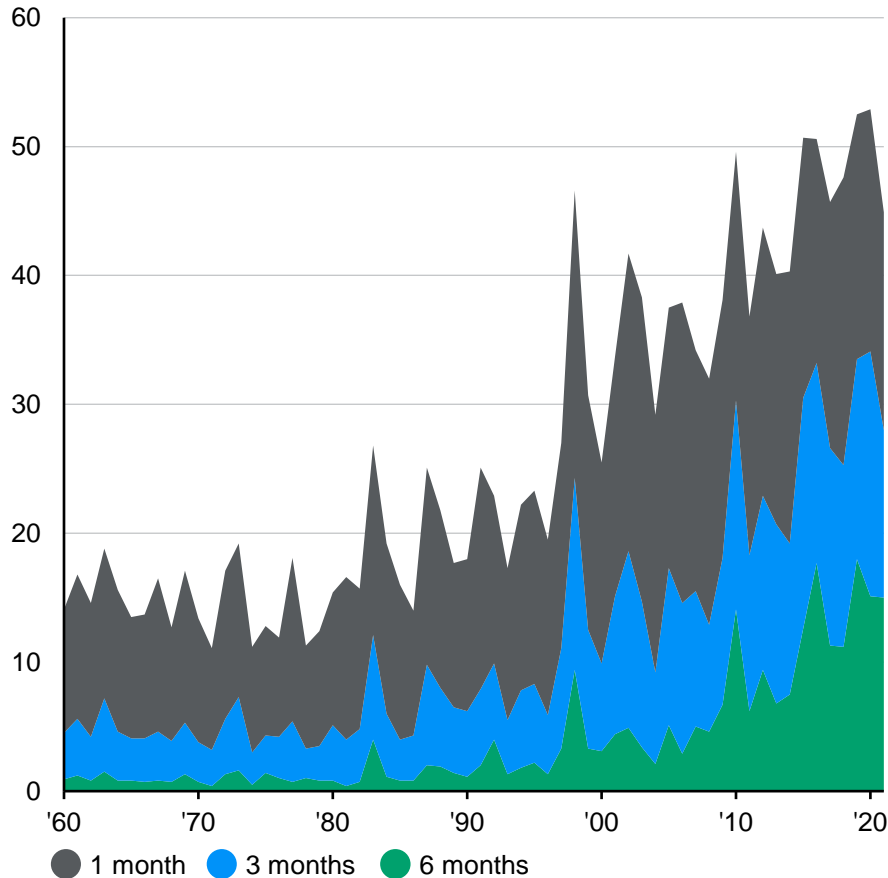
Droughts and food prices

GTM UK 88

ESG

Land affected by droughts

% of global land affected by droughts per year



Food prices

Index level



Source: (Left) Global Standardised Precipitation-Evapotranspiration Index Database, 2021. Beguería, S et al., The Lancet Countdown on Health and Climate Change: 2022 Report, J.P. Morgan Asset Management. (Right) Food and Agriculture Organization of the United Nations, J.P. Morgan Asset Management. Guide to the Markets - UK. Data as of 30 June 2023.

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ESG and capital markets

GTM

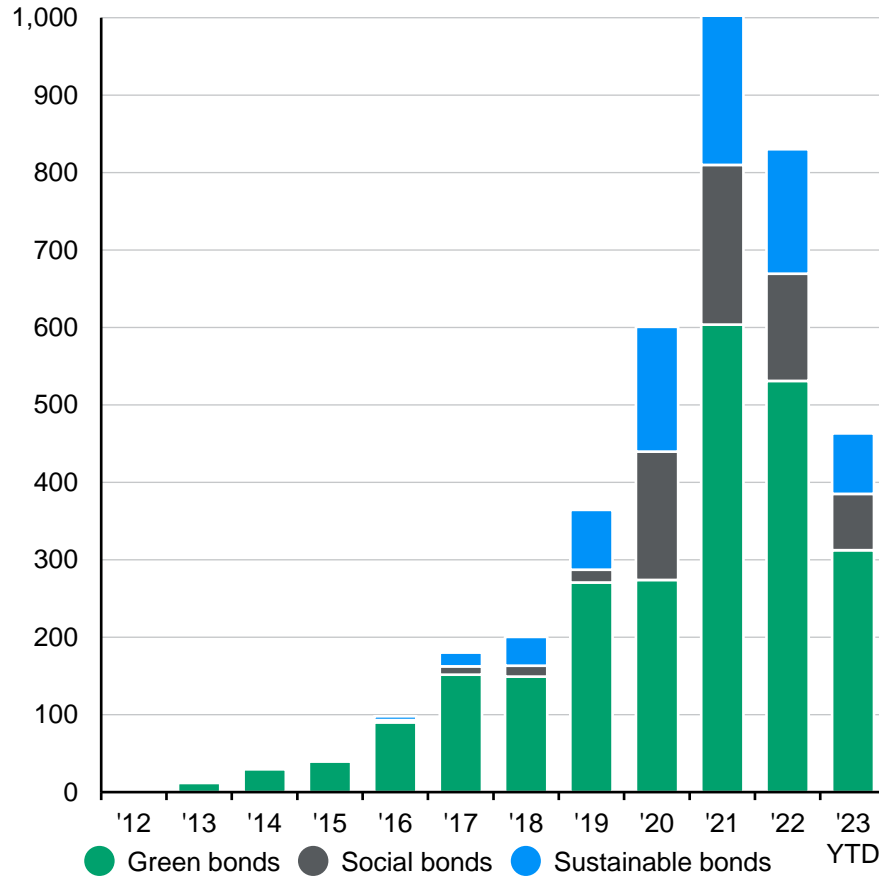
UK

89

ESG

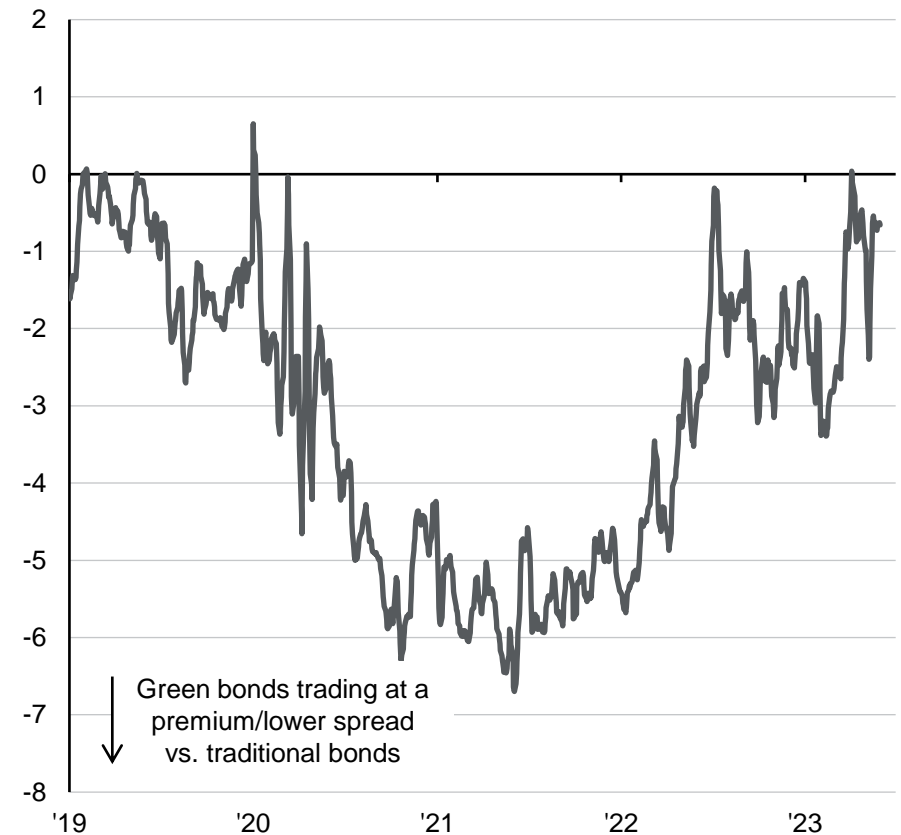
Global green, social and sustainable bond issuance

USD billions



Spread between green and traditional corporate bonds

Basis points



Source: (Left) Refinitiv Eikon, J.P. Morgan Asset Management. Green bonds have 100% of the net bond proceeds allocated to green projects. Social bond proceeds have a focus on delivering positive social outcomes. Sustainable bond proceeds are directed to a mix of both green and social projects or if the bond coupon/characteristics can vary based on achieving predefined sustainability targets. 2023 year-to-date is up to 30 June. (Right) Barclays Research, J.P. Morgan Asset Management. Data shown is latest available for a Barclays Research custom universe of green and non-green, USD and EUR denominated investment-grade credits, matched by issuer, currency, seniority and maturity. Spread difference is measured using the option-adjusted spread. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

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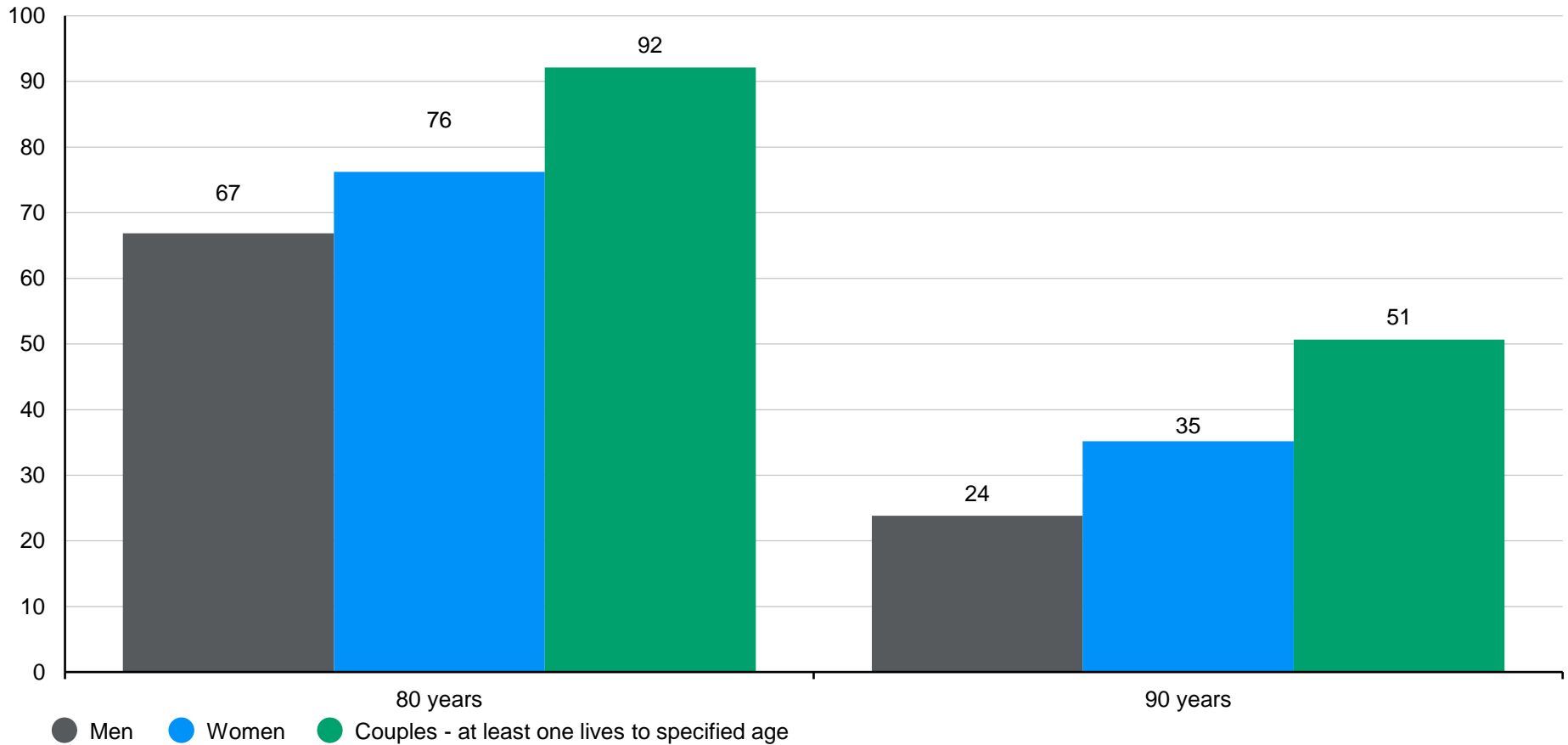


Life expectancy

GTM UK 90

Probability of reaching ages 80 and 90

% probability, persons aged 65, by gender and combined couple





The effect of compounding

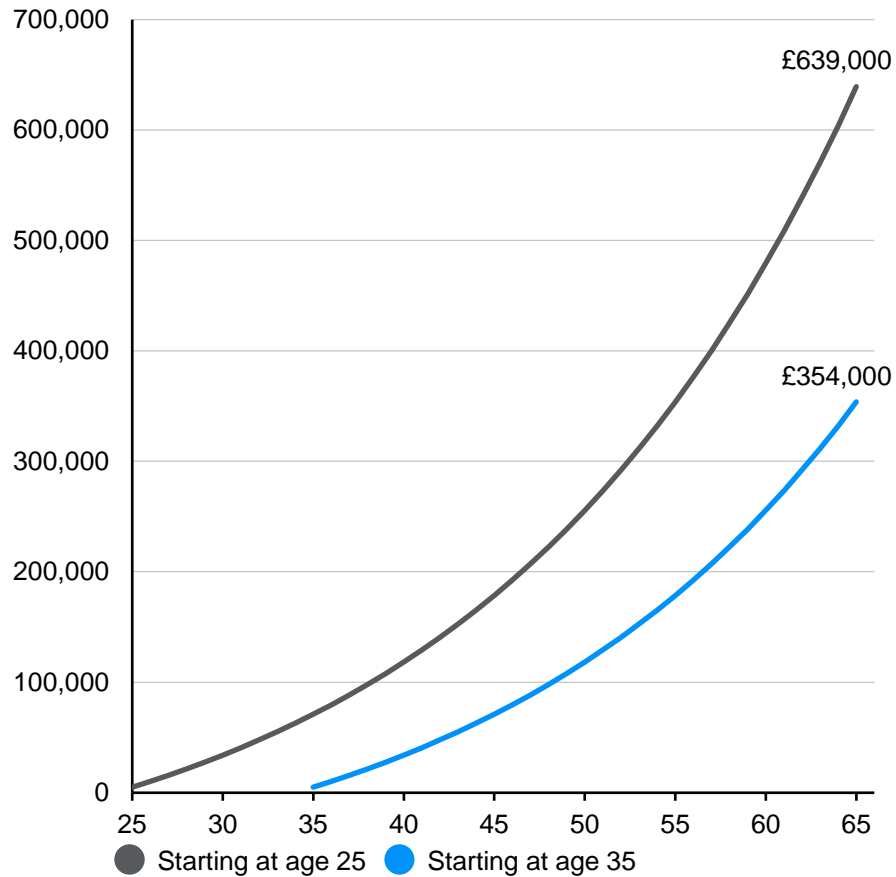
GTM

UK

91

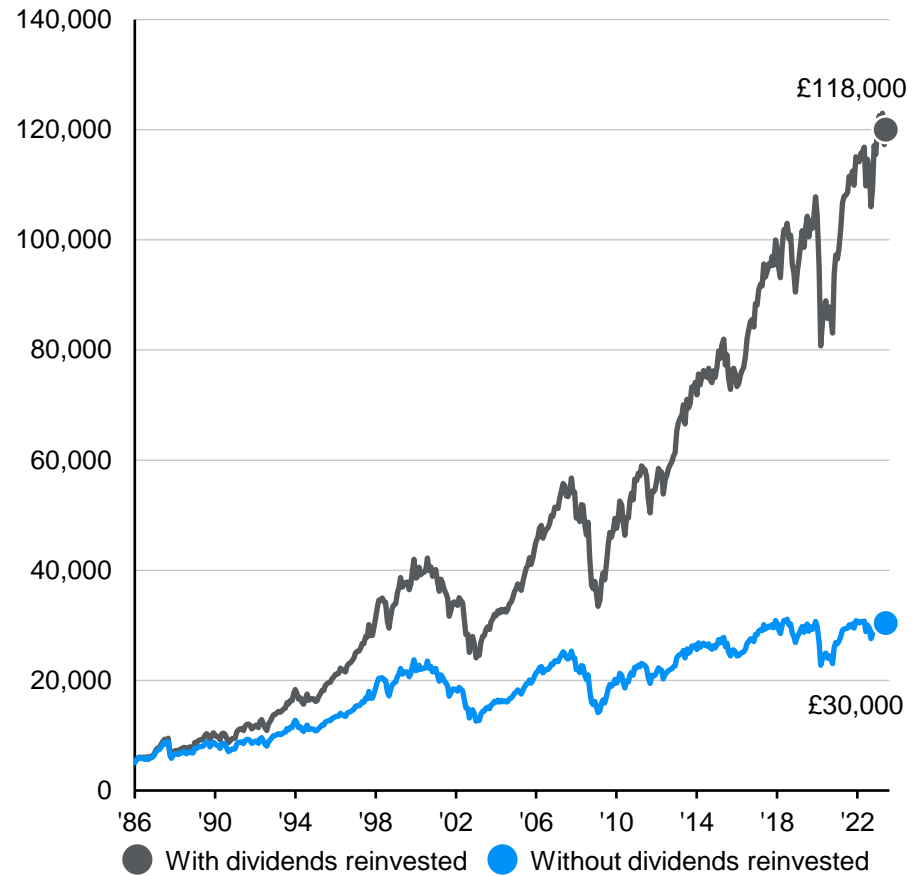
£5,000 invested annually with 5% growth per year

GBP



£5,000 investment with/without income reinvested

GBP, FTSE All-Share returns



Source: (Left) J.P. Morgan Asset Management. For illustrative purposes only, assumes all income reinvested, actual investments may incur higher or lower growth rates and charges. (Right) Bloomberg, FTSE, J.P. Morgan Asset Management. Based on FTSE All-Share Index and assumes no charges. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

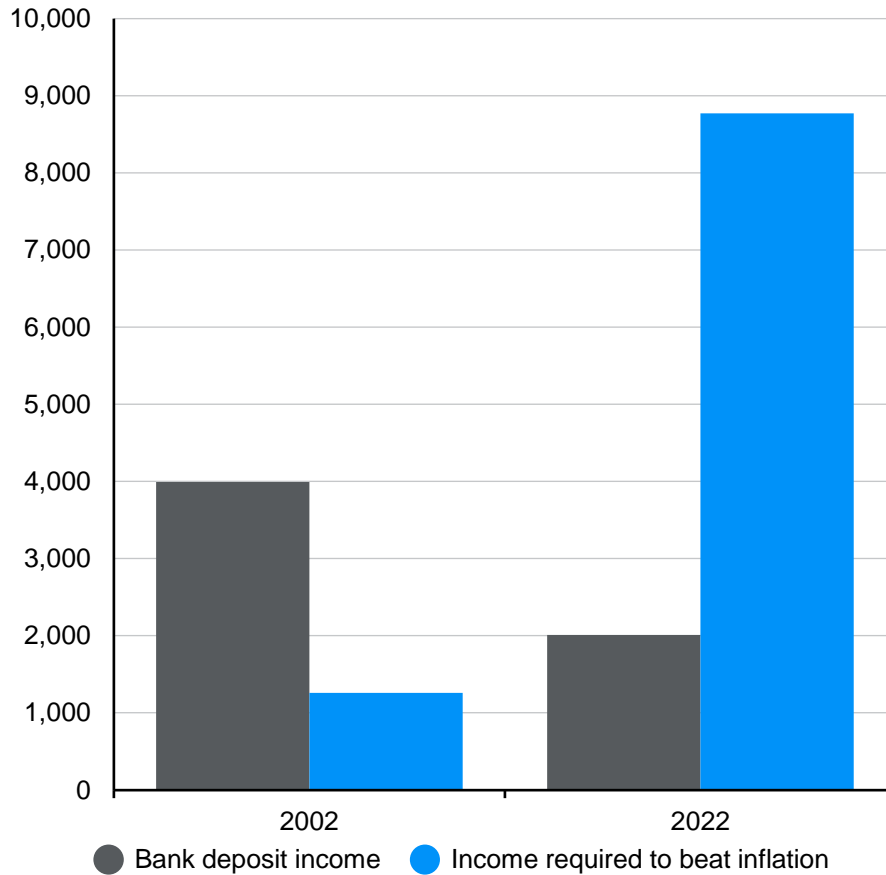


Cash investments

GTM UK 92

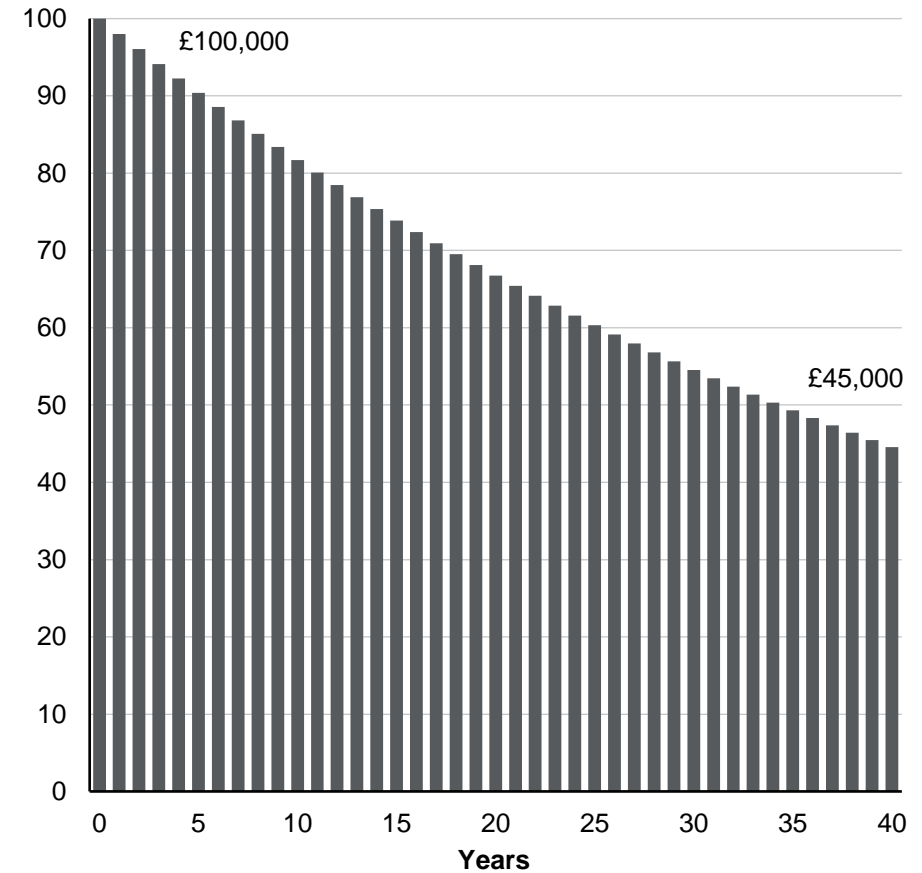
Income generated by £100,000 in a three-month bank deposit

GBP



Effect of 2% inflation on purchasing power of £100,000

GBP, thousands



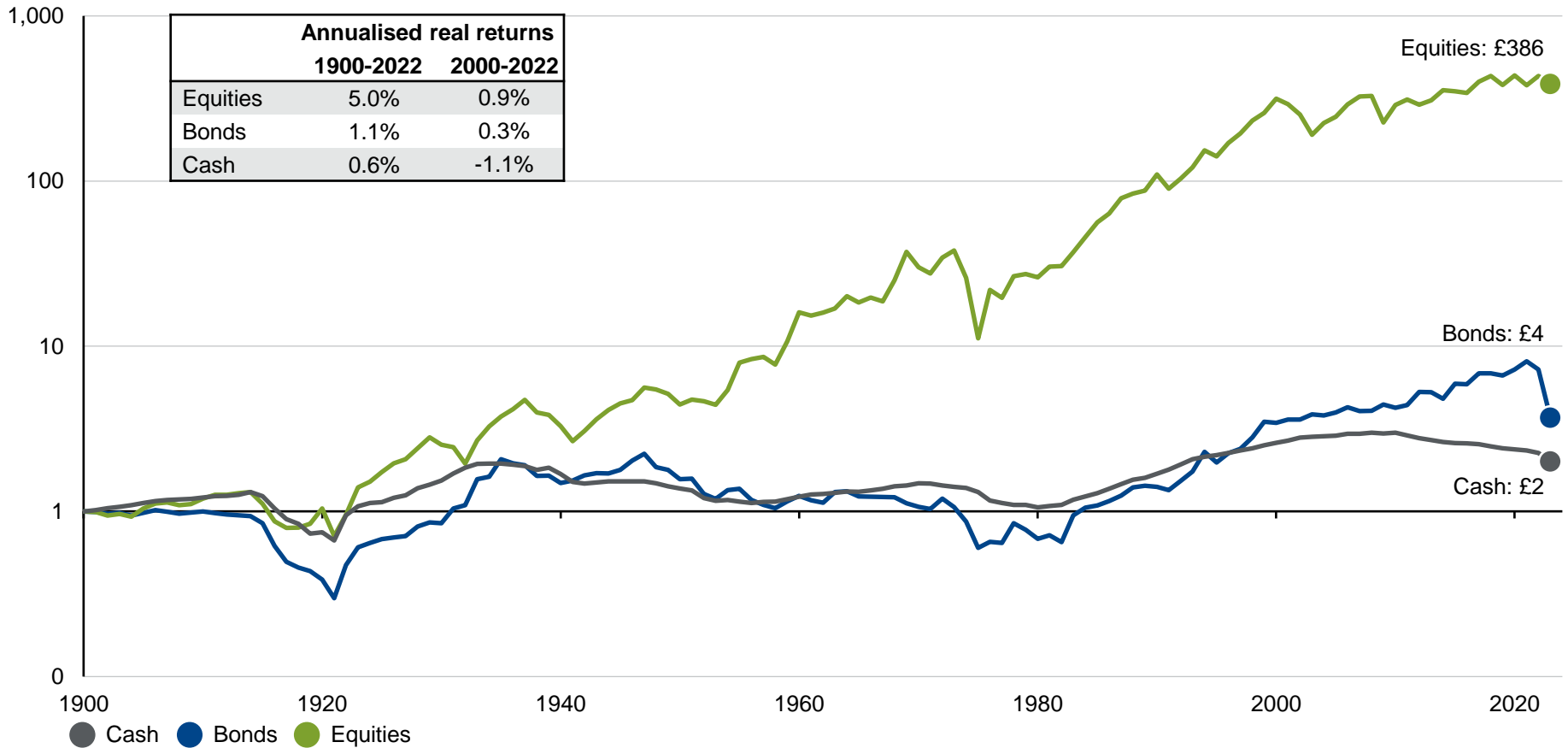


Long-term asset returns

GTM UK 93

Total return of £1 in real terms

GBP, log scale for total returns





Annual returns and intra-year declines

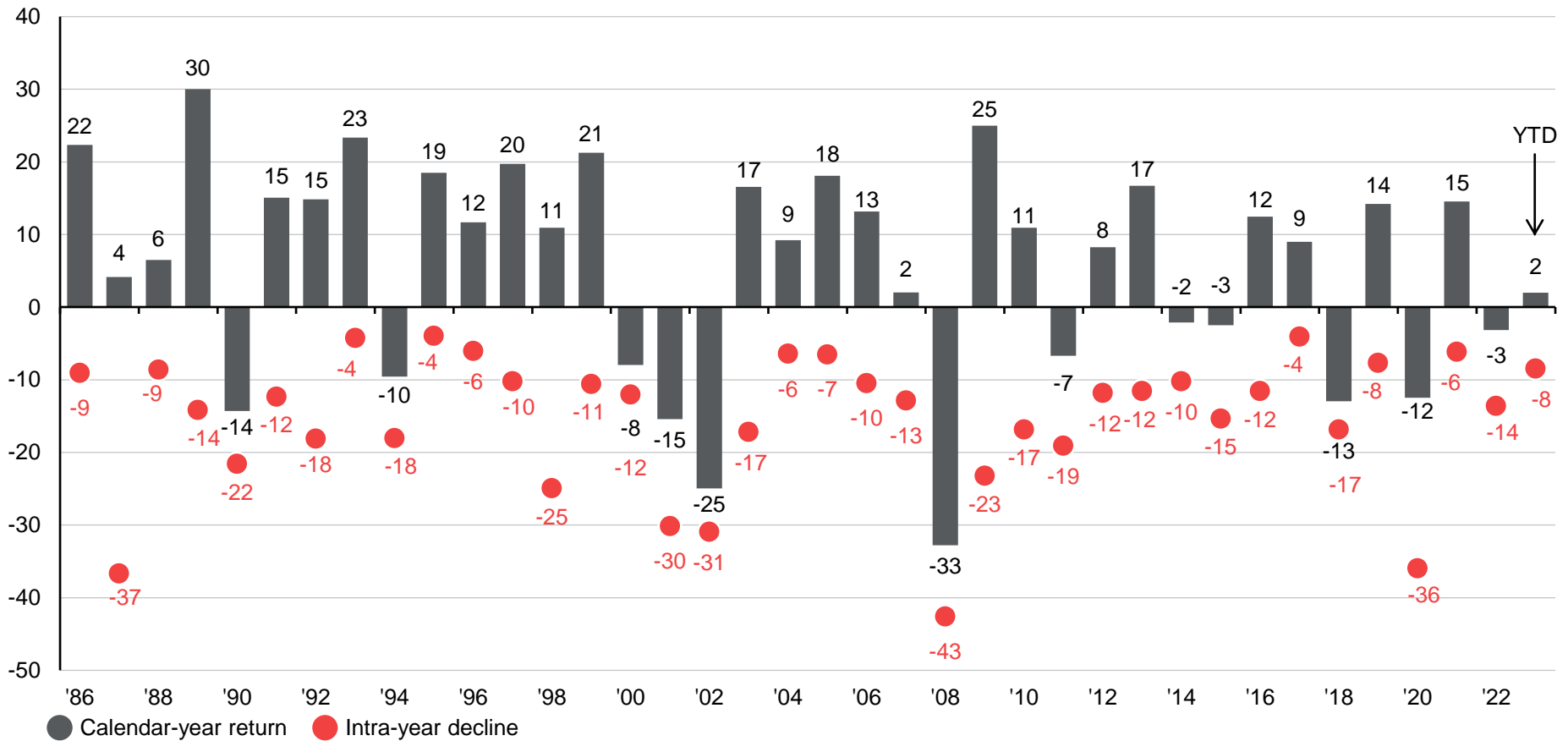
GTM

UK

94

FTSE All-Share intra-year declines vs. calendar-year returns

%; despite average intra-year drops of 15.4% (median 12.3%), annual returns are positive in 25 of 37 years





Asset class risk-return trade-off

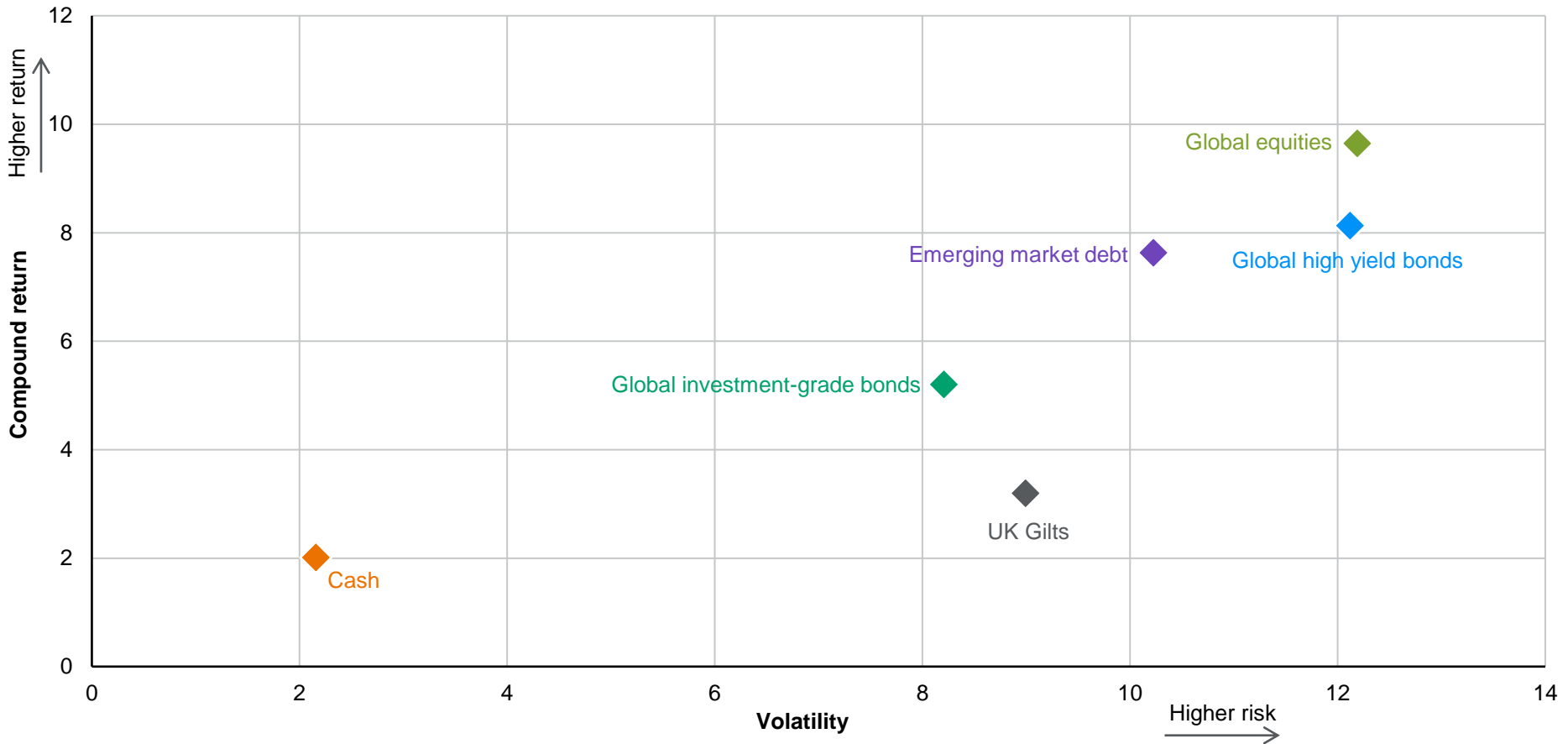
GTM

UK

95

Historic risk vs. return for selected asset classes

%, annualised return 2004 – 2022 in GBP



Source: Bloomberg Barclays, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Volatility is the standard deviation of annual returns since 2004. Cash: JP Morgan Cash United Kingdom (3M); UK Gilts: Bloomberg Barclays Sterling Gilts; Global investment-grade bonds: Bloomberg Barclays Global Aggregate – Corporate; Emerging market debt: J.P. Morgan EMBI Global Diversified; Global high yield bonds: ICE BofA Global High Yield; Global equities: MSCI All-Country World Index (includes developed and emerging markets). Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

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S&P 500 and fund flows

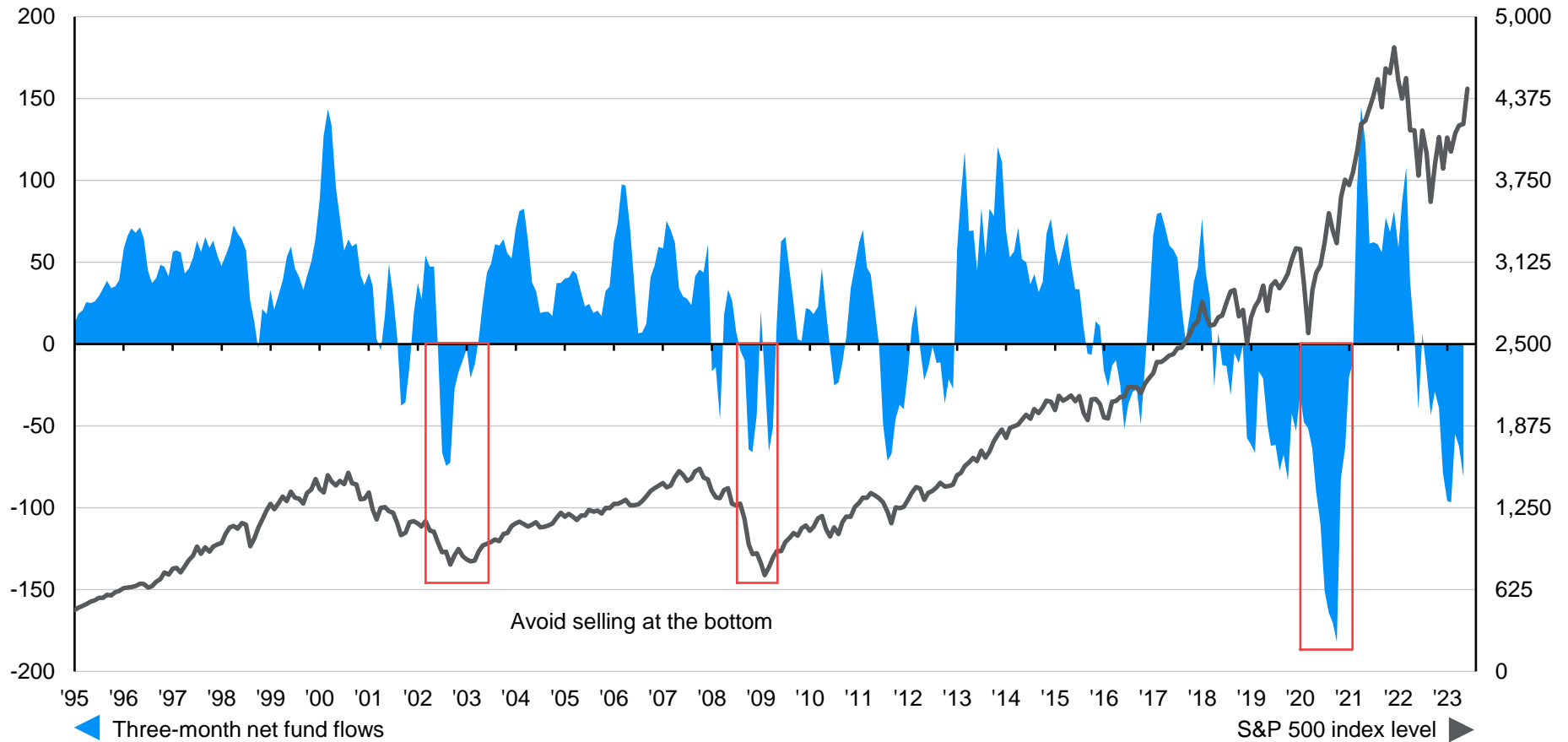
GTM

UK

96

US mutual fund and ETF flows and S&P 500

USD billions, three-month net flows (LHS); index level (RHS)

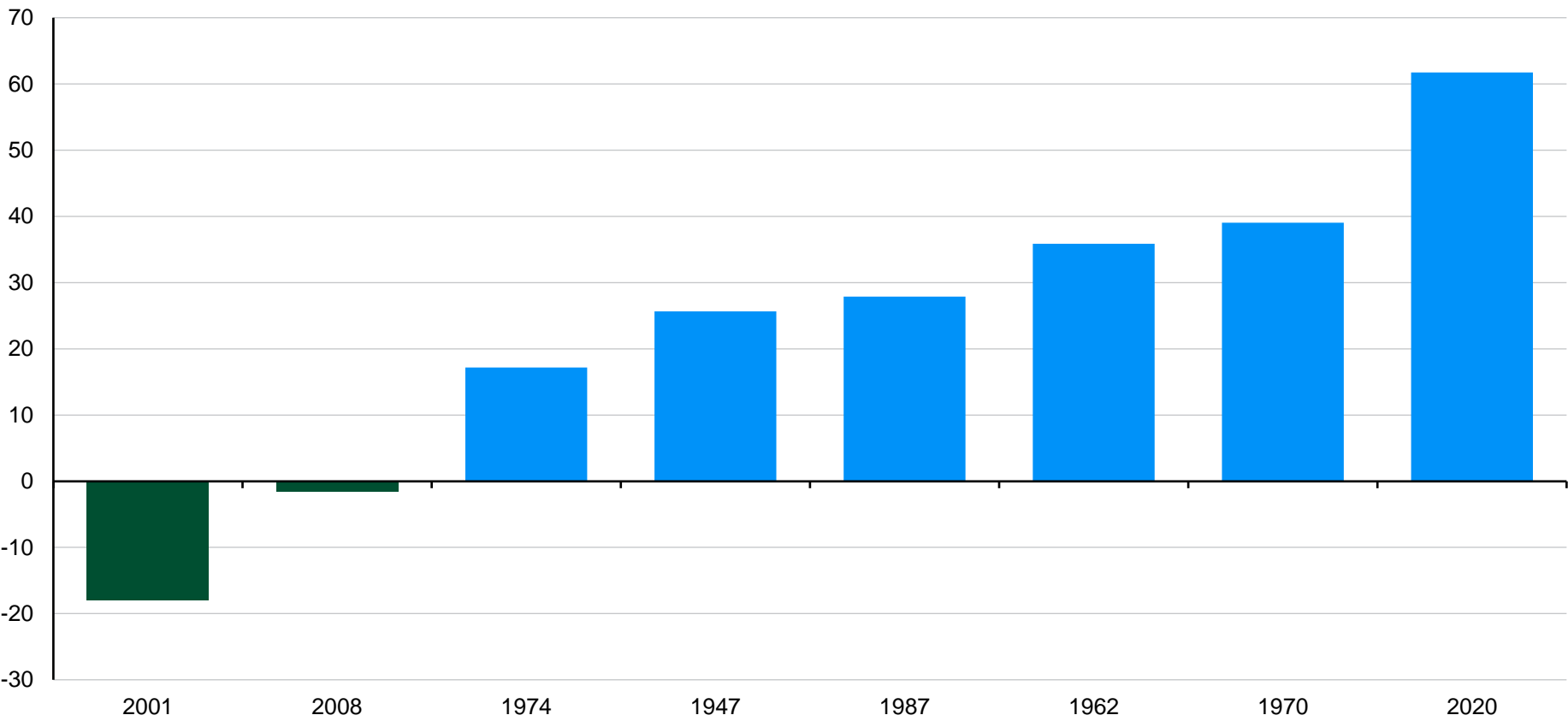




25% drawdowns and subsequent returns

Subsequent 12-month returns after 25% drawdowns

%, S&P 500 total return in USD



Source: Bloomberg, S&P Global, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results.
Guide to the Markets - UK. Data as of 30 June 2023.

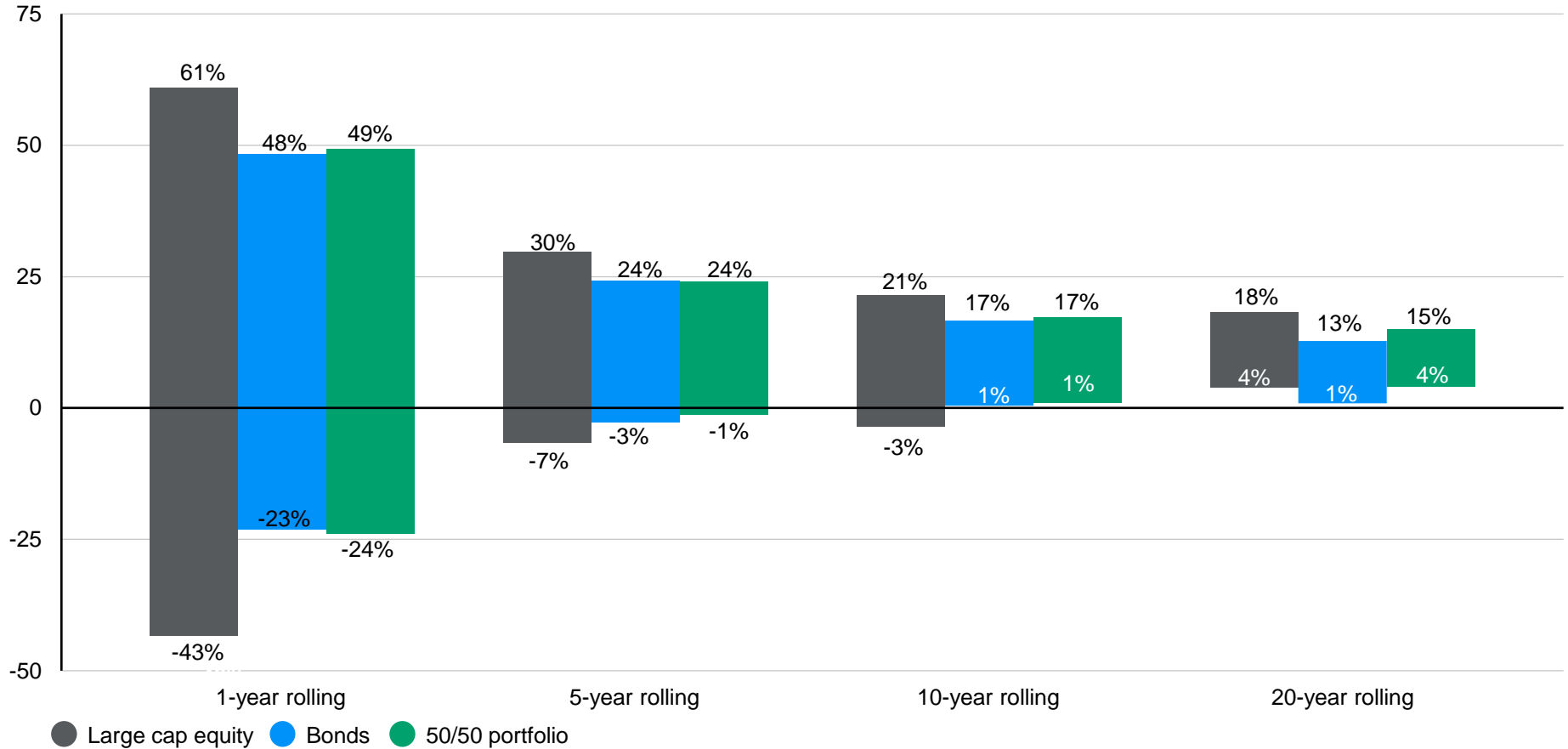


US asset returns by holding period

GTM UK 98

Range of equity and bond total returns

%, annualised total returns, 1950-present



Source: Bloomberg Barclays, Refinitiv Datastream, S&P Global, Strategas/Ibbotson, J.P. Morgan Asset Management. Large cap equity represents the S&P 500 Composite and Bonds represents the Strategas/Ibbotson US Government Bond Index, the US Long-term Corporate Bond Index until 2000 and the Bloomberg Barclays US Agg. Corporate – Investment Grade Index from 2000 onwards. Returns shown are per annum and are calculated based on monthly returns from 1950 to latest available and include dividends. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.

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Asset class returns (GBP)

GTM UK 99

2015	2016	2017	2018	2019	2020	2021	2022	Q2 '23	YTD	10-year ann. return	Vol.
REITs 8.2%	HY bonds 36.9%	EM equities 25.8%	Govt bonds 5.8%	DM equities 23.4%	EM equities 15.0%	REITs 41.2%	Cmdty 30.7%	DM equities 4.1%	DM equities 9.2%	DM equities 12.8%	Cmdty 18.8%
EMD 7.0%	Cmdty 33.3%	DM equities 12.4%	HY bonds 2.7%	REITs 23.1%	DM equities 12.9%	Cmdty 28.3%	Hedge funds 7.6%	Cash 0.8%	Cash 1.2%	REITs 10.1%	REITs 18.5%
DM equities 5.5%	EM equities 33.1%	Portfolio 5.6%	IG bonds 2.4%	EM equities 14.3%	Portfolio 7.1%	DM equities 23.5%	Cash 0.0%	Portfolio -0.5%	Portfolio 0.7%	Portfolio 7.0%	EM equities 14.7%
Govt bonds 2.3%	EMD 31.4%	EMD 0.7%	REITs 1.9%	Portfolio 12.6%	IG bonds 7.0%	Portfolio 9.7%	HY bonds -2.3%	EMD -0.6%	HY bonds -0.4%	HY bonds 6.3%	DM equities 11.5%
IG bonds 2.0%	REITs 30.4%	HY bonds 0.6%	EMD 1.7%	EMD 10.6%	Govt bonds 6.1%	Hedge funds 4.6%	Portfolio -4.4%	HY bonds -1.2%	EM equities -0.6%	EM equities 4.9%	EMD 10.9%
Hedge funds 1.9%	DM equities 29.0%	Cash 0.4%	Cash 0.9%	HY bonds 9.3%	HY bonds 4.7%	HY bonds 2.3%	IG bonds -6.2%	REITs -1.2%	EMD -1.5%	Hedge funds 4.9%	HY bonds 10.5%
HY bonds 1.4%	Portfolio 27.0%	REITs -0.2%	Portfolio -0.5%	IG bonds 7.2%	Hedge funds 3.5%	Cash 0.1%	Govt bonds -7.1%	EM equities -1.7%	IG bonds -2.0%	EMD 4.7%	Portfolio 8.1%
Portfolio 1.2%	IG bonds 24.4%	IG bonds -0.4%	Hedge funds -0.9%	Hedge funds 4.4%	EMD 2.0%	EMD -0.9%	DM equities -7.4%	Hedge funds -2.3%	REITs -2.4%	IG bonds 3.9%	IG bonds 8.1%
Cash 0.7%	Hedge funds 22.3%	Govt bonds -2.0%	DM equities -2.5%	Cmdty 3.5%	Cash 0.6%	EM equities -1.3%	EMD -7.4%	IG bonds -2.7%	Govt bonds -4.8%	Govt bonds 1.9%	Govt bonds 8.0%
EM equities -9.7%	Govt bonds 21.3%	Hedge funds -3.2%	Cmdty -5.7%	Govt bonds 1.5%	Cmdty -6.1%	IG bonds -2.0%	EM equities -9.6%	Govt bonds -5.1%	Hedge funds -4.9%	Cmdty 1.7%	Hedge funds 6.5%
Cmdty -20.3%	Cash 0.7%	Cmdty -7.1%	EM equities -8.9%	Cash 1.0%	REITs -8.8%	Govt bonds -5.7%	REITs -15.7%	Cmdty -5.2%	Cmdty -12.8%	Cash 0.5%	Cash 0.3%

Source: Bloomberg Barclays, FTSE, J.P. Morgan Economic Research, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Annualised return and volatility covers the period from 2013 to 2022. Vol. is the standard deviation of annual returns. Govt bonds: Bloomberg Barclays Global Aggregate Government Treasuries; HY bonds: ICE BofA Global High Yield; EMD: J.P. Morgan EMBI Global Diversified; IG bonds: Bloomberg Barclays Global Aggregate – Corporates; Cmdty: Bloomberg Commodity; REITs: FTSE NAREIT All REITs; DM equities: MSCI World; EM equities: MSCI EM; Hedge funds: HFRI Global Hedge Fund Index; Cash: JP Morgan Cash United Kingdom (3M). Hypothetical portfolio (for illustrative purposes only and should not be taken as a recommendation): 30% DM equities; 10% EM equities; 15% IG bonds; 12.5% government bonds; 7.5% HY bonds; 5% EMD; 5% commodities; 5% cash; 5% REITs and 5% hedge funds. All returns are total return, in GBP, and are unhedged. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - UK*. Data as of 30 June 2023.



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