



# Guide to the Markets

Europe | 1Q 2023  
As of 31 December 2022

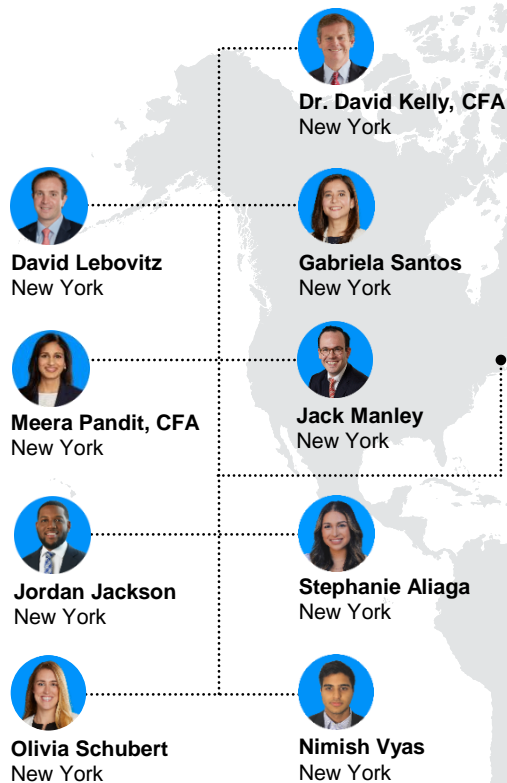




# Global Market Insights Strategy Team

GTM Europe 2

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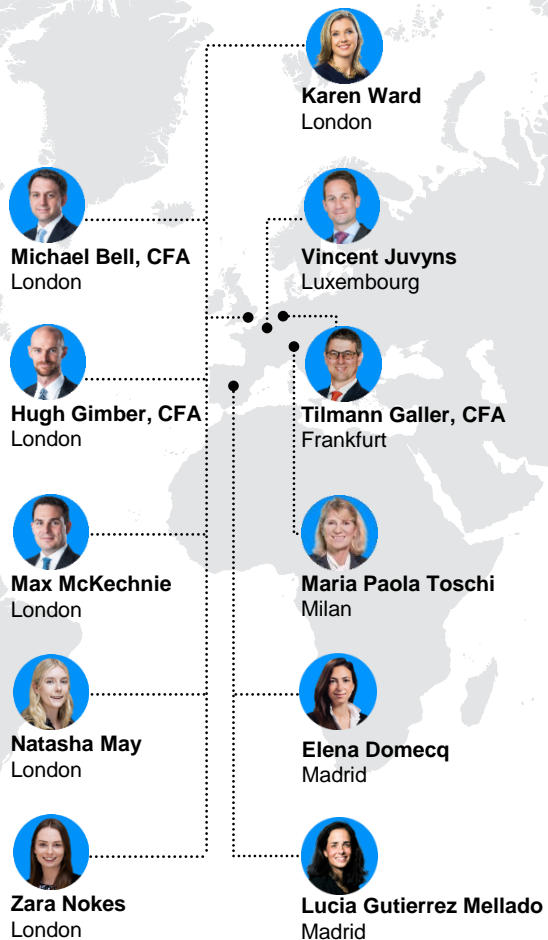
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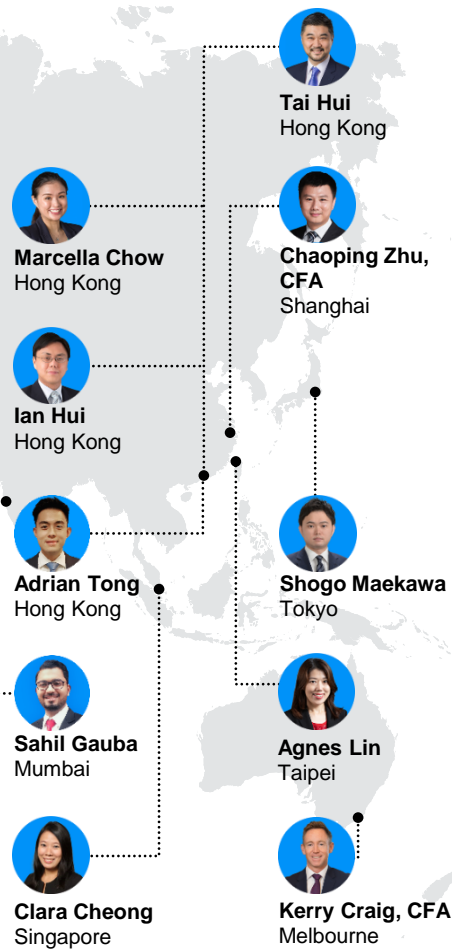
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## Page reference

GTM Europe 3

### Global economy

4. Global growth
5. Global Purchasing Managers' Index (PMI) for manufacturing
6. Global inflation
7. Global inflation expectations
8. Global inflationary pressures
9. Global monetary policy
10. Global housing markets
11. Credit quality and capital ratios
12. Global currencies
13. US GDP
14. US Economic Monitor
15. US business and residential investment
16. US consumer
17. US labour market
18. US debt
19. US inflation
20. US Federal Reserve policy
21. US mortgage costs and sensitivity
22. US housing activity and inventories
23. US focus: Probability of recession
24. Eurozone GDP
25. Eurozone Economic Monitor
26. Eurozone business investment
27. Eurozone consumer
28. Eurozone labour market
29. Eurozone unemployment
30. Eurozone inflation
31. European Central Bank policy
32. Eurozone debt
33. Eurozone focus: Natural gas storage and consumption
34. UK GDP
35. UK consumer and labour market
36. UK inflation
37. UK focus: Wage pressures and labour shortages
38. Japan GDP
39. China GDP and business surveys
40. China inflation and credit dynamics
41. China real estate
42. Emerging market structural dynamics
43. Emerging market growth
44. EM focus: China consumer confidence and global trade

### Equities

45. World equity valuations
46. Regional earnings expectations and equity valuations
47. Global equity market correlations with Treasury yields
48. Global equity sector weights
49. Global equity income
50. Profit margins
51. Equity market factors
52. US earnings
53. US equity valuations and performance
54. US valuations and subsequent returns
55. US bull and bear markets
56. Europe earnings
57. Europe equity valuations and performance
58. Europe large, mid and small capitalisation equities
59. UK earnings
60. Japan equity market and currency
61. Emerging market equity valuations
62. China equity price-to-book ratio and drawdowns
63. Equity focus: Earnings and stock price interaction
64. World stock market returns

### Fixed income

65. Fixed income yields
66. Global government bond yields
67. US yield curve
68. Investment-grade bonds
69. High yield bonds
70. Emerging market bonds
71. Fixed income focus: Income and diversification potential
72. Global fixed income spreads and returns

### Other assets

73. Oil
74. Commodities
75. Alternative sources of diversification
76. Alternative investments: Real assets
77. Asset return expectations

### ESG

78. Emissions targets and consumer concerns
79. Carbon pricing
80. Global CO<sub>2</sub> emissions by country
81. Global energy mix and greenhouse gas emissions by sector
82. Global energy investment
83. Global energy consumption and renewable capacity
84. Droughts and food prices
85. ESG and capital markets

### Investing principles

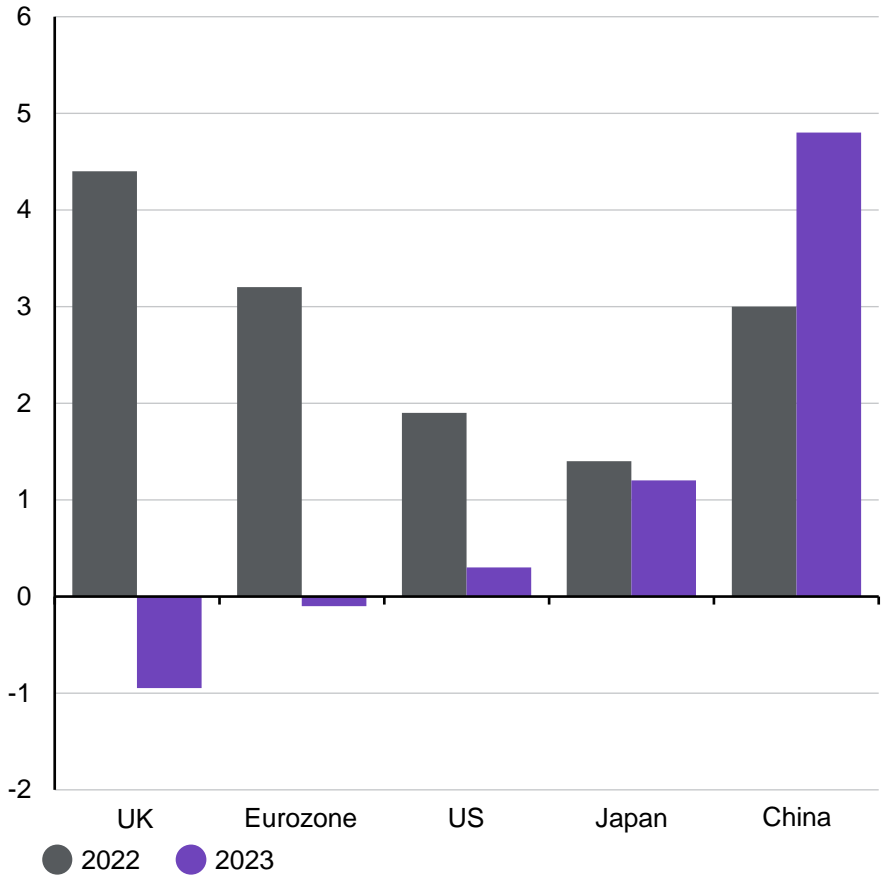
86. Life expectancy
87. The effect of compounding
88. Cash investments
89. Long-term asset returns
90. Annual returns and intra-year declines
91. Asset class risk-return trade-off
92. S&P 500 and fund flows
93. 25% drawdowns and subsequent returns
94. US asset returns by holding period
95. Asset class returns (EUR)



# Global growth

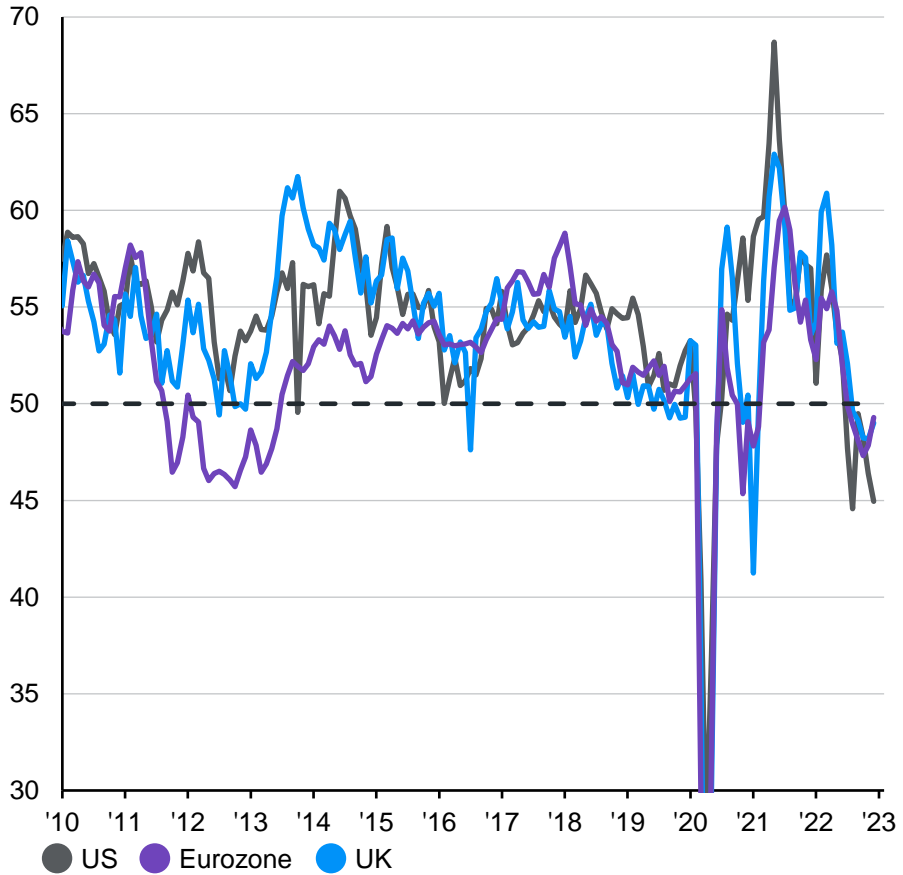
## Consensus forecasts for 2022 and 2023 real GDP growth

% 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 - Europe*. Data as of 31 December 2022.



# Global Purchasing Managers' Index (PMI) for manufacturing

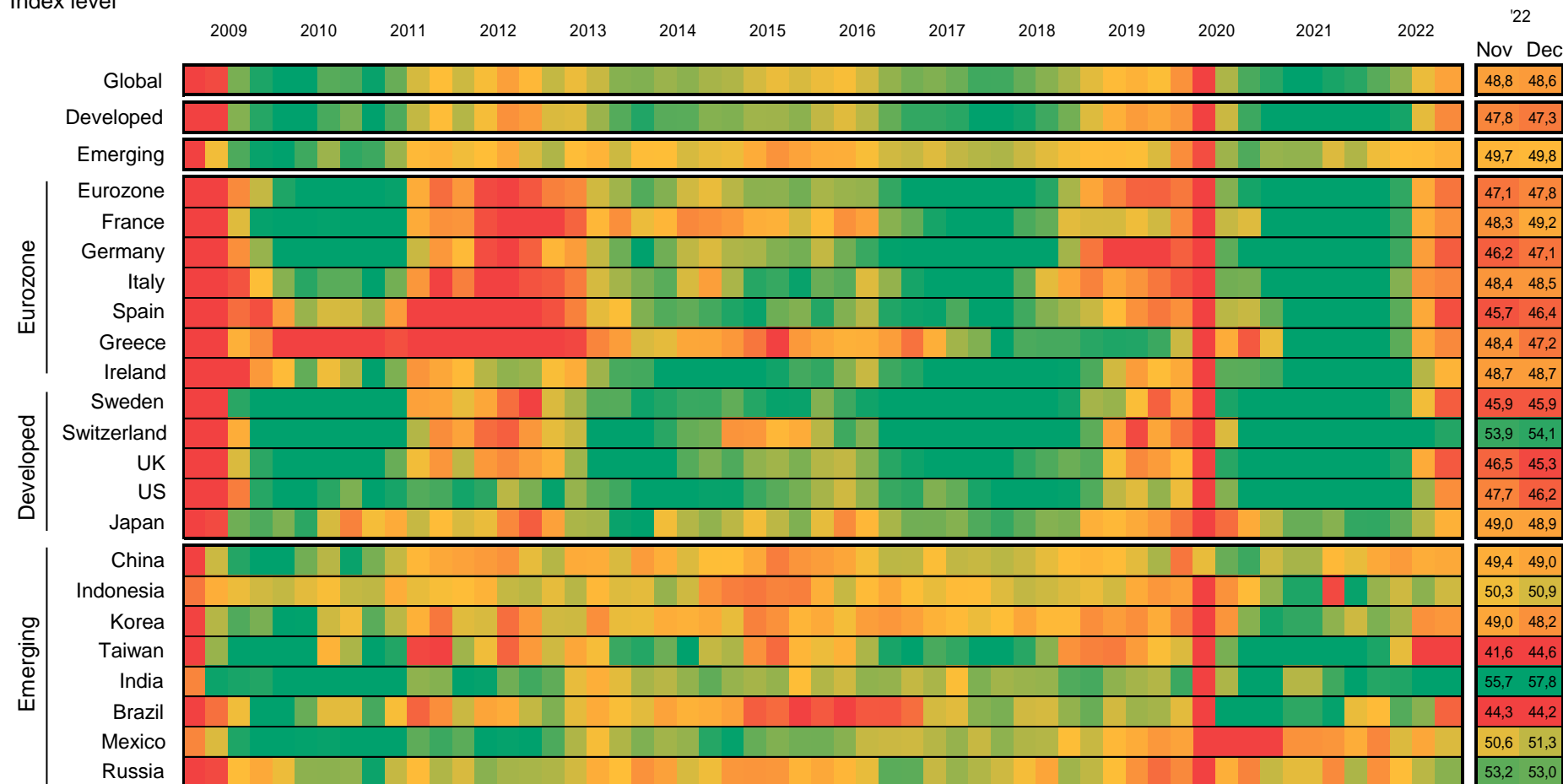
GTM

Europe

5

## Global manufacturing PMI

Index level



Source: S&P Global, J.P. Morgan Asset Management. The Global Purchasing Managers' Index (PMI) for manufacturing assesses the economic health of the sector by surveying manufacturing businesses regarding output, new orders, stocks of purchases, supplier delivery times and employment. A score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. The 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 - Europe*. Data as of 31 December 2022.



# Global inflation

GTM

Europe

6

## Headline inflation

% change year on year

		2020												2021												2022											
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov												
Global		1,0	1,2	1,4	2,0	2,6	3,1	3,2	3,3	3,4	3,6	4,2	4,8	4,8	5,0	5,3	6,3	6,7	7,0	7,4	7,4	7,3	7,5	7,4	6,9												
Developed		0,5	0,9	1,1	1,7	2,6	3,1	3,3	3,4	3,7	3,9	4,6	5,3	5,5	5,7	6,2	7,1	7,2	7,6	8,1	7,9	7,9	8,1	8,3	7,8												
Emerging		1,7	1,5	1,8	2,3	2,7	3,2	3,1	3,1	3,0	3,0	3,6	4,3	3,9	3,9	4,1	5,2	6,0	6,1	6,5	6,5	6,4	6,7	6,1	5,7												
Eurozone	Eurozone	-0,3	0,9	0,9	1,3	1,6	2,0	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												
	France	0,0	0,8	0,8	1,4	1,6	1,8	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												
	Germany	-0,3	1,0	1,3	1,7	2,0	2,5	2,3	3,8	3,9	4,1	4,5	5,2	5,3	4,9	5,1	7,3	7,4	7,9	7,6	7,5	7,9	10,0	10,4	10,0												
	Italy	-0,3	0,7	1,0	0,6	1,0	1,2	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												
	Spain	-0,6	0,4	-0,1	1,2	2,0	2,4	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												
	Greece	-2,4	-2,4	-1,9	-2,0	-1,1	-1,2	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												
	Ireland	-1,0	-0,1	-0,4	0,1	1,1	1,9	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												
Developed	Sweden	0,6	1,9	1,8	2,1	2,8	2,4	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												
	Switzerland	-1,0	-0,6	-0,4	-0,2	-0,1	0,3	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												
	UK	0,6	0,7	0,4	0,7	1,5	2,1	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												
	US	1,4	1,4	1,7	2,6	4,2	5,0	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												
	Japan	-1,2	-0,7	-0,5	-0,4	-1,1	-0,8	-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												
Emerging	China	0,2	-0,3	-0,2	0,4	0,9	1,3	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												
	Indonesia	1,7	1,6	1,4	1,4	1,4	1,7	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												
	Korea	0,6	0,9	1,4	1,9	2,5	2,6	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												
	Taiwan	0,0	-0,2	1,4	1,2	2,1	2,4	1,8	1,9	2,3	2,6	2,5	2,9	2,6	2,8	2,3	3,3	3,4	3,4	3,6	3,4	2,7	2,8	2,7	2,3												
	India	4,6	4,1	5,0	5,5	4,2	6,3	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												
	Brazil	4,5	4,6	5,2	6,1	6,8	8,1	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												
	Mexico	3,2	3,5	3,8	4,7	6,1	5,9	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												
	Russia	4,9	5,2	5,7	5,8	5,5	6,0	6,5	6,5	6,7	7,4	8,1	8,4	8,4	8,7	9,2	16,7	17,9	17,1	15,9	15,1	14,3	13,7	12,7	12,0												

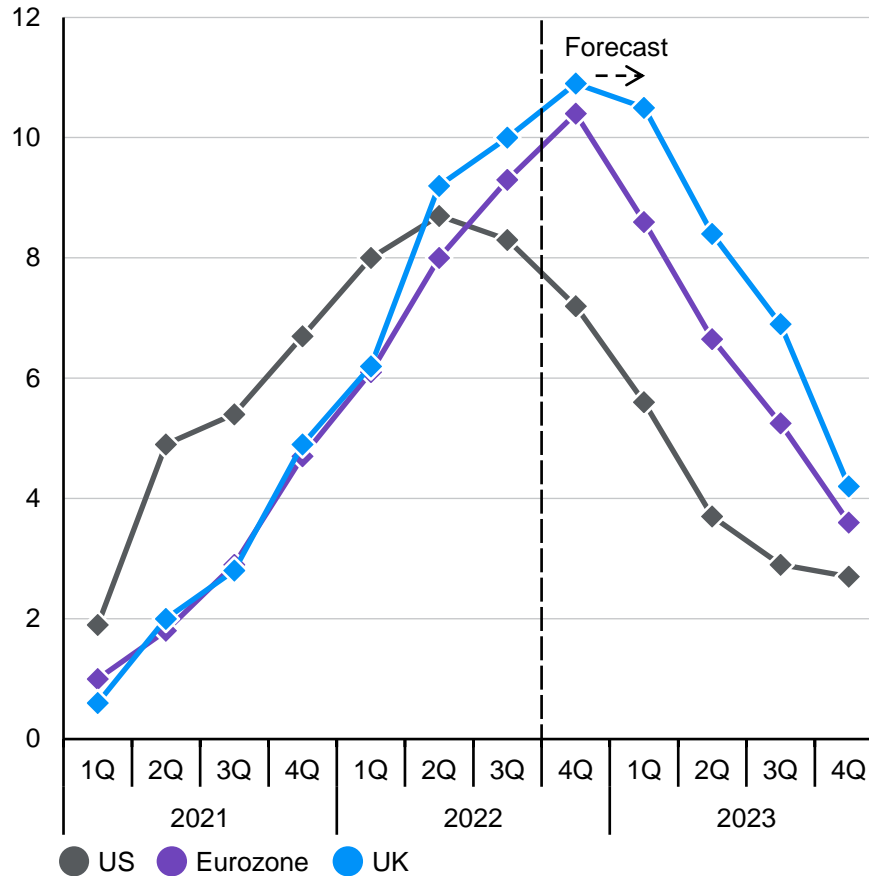
Source: Bank of Mexico, DGBAS, ECB, Goskomstat of Russia, IBGE, India Ministry of Statistics & Programme Implementation, Japan Ministry of Internal Affairs & Communication, Korean National Statistical Office, National Bureau of Statistics of China, ONS, Refinitiv Datastream, Riksbank, Statistics Indonesia, Swiss National Bank, US Federal Reserve, J.P. Morgan Asset Management. 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 - Europe*. Data as of 31 December 2022.



# Global inflation expectations

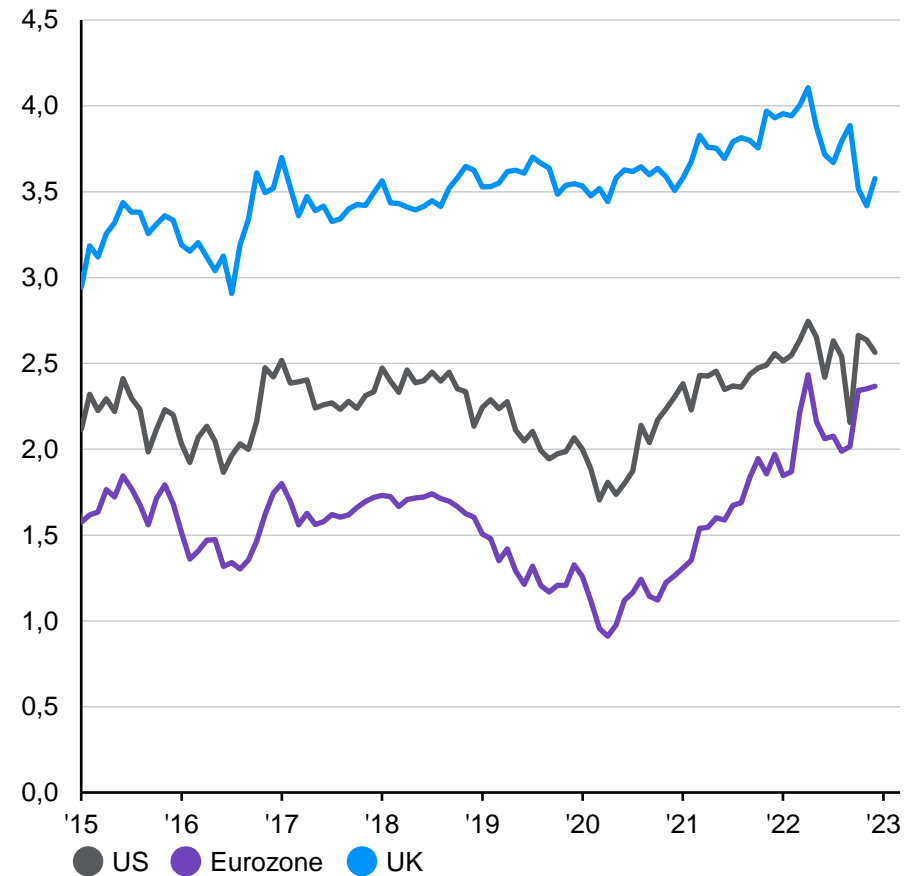
## Median of economists' forecasts for headline CPI

% 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 - Europe*. Data as of 31 December 2022.

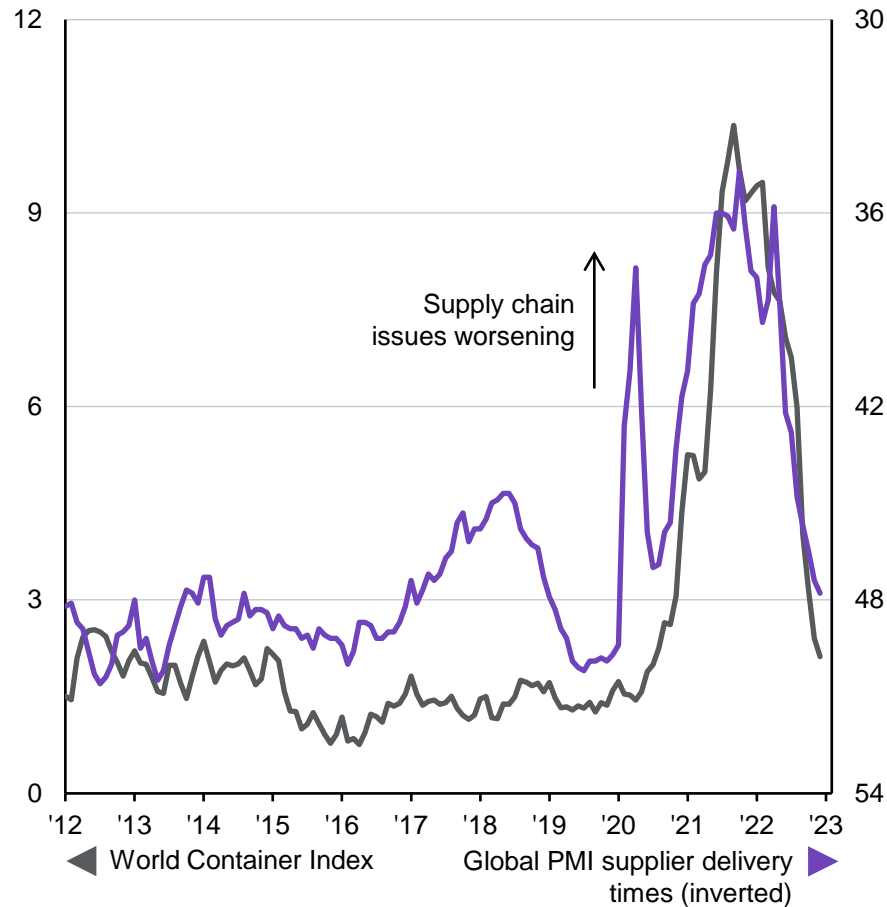


# Global inflationary pressures

GTM Europe 8

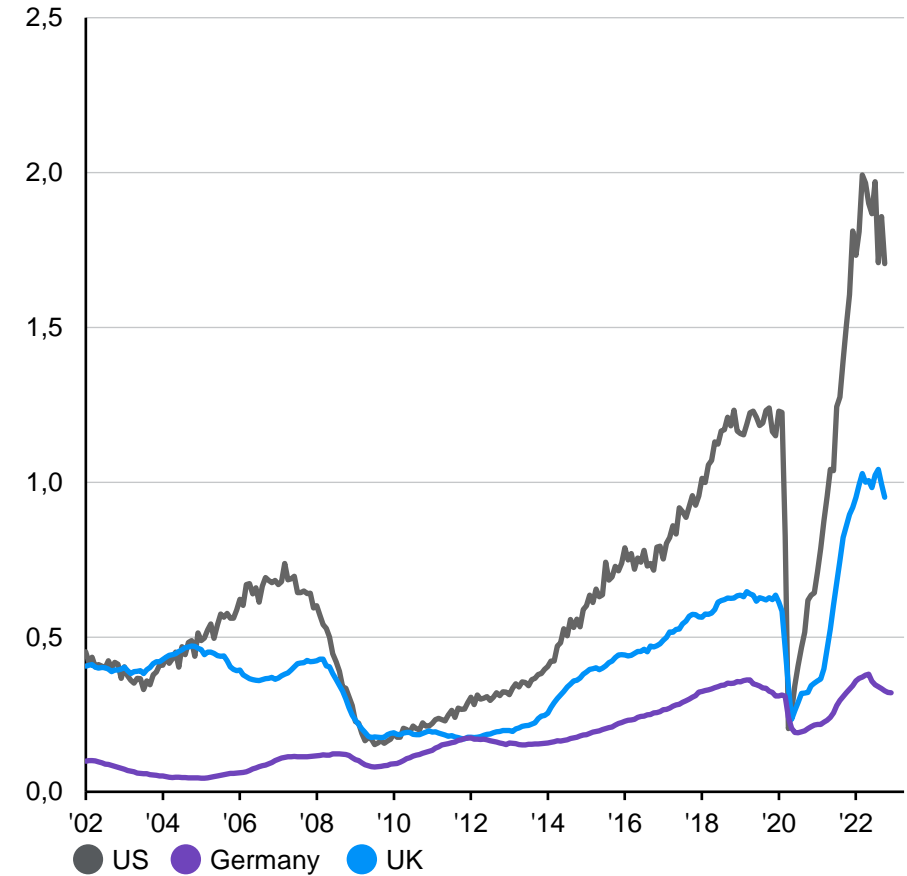
## World Container Index and global supplier delivery times

USD thousands per 40-foot container (LHS); index level (RHS)



## Job vacancies relative to unemployed

x, multiple



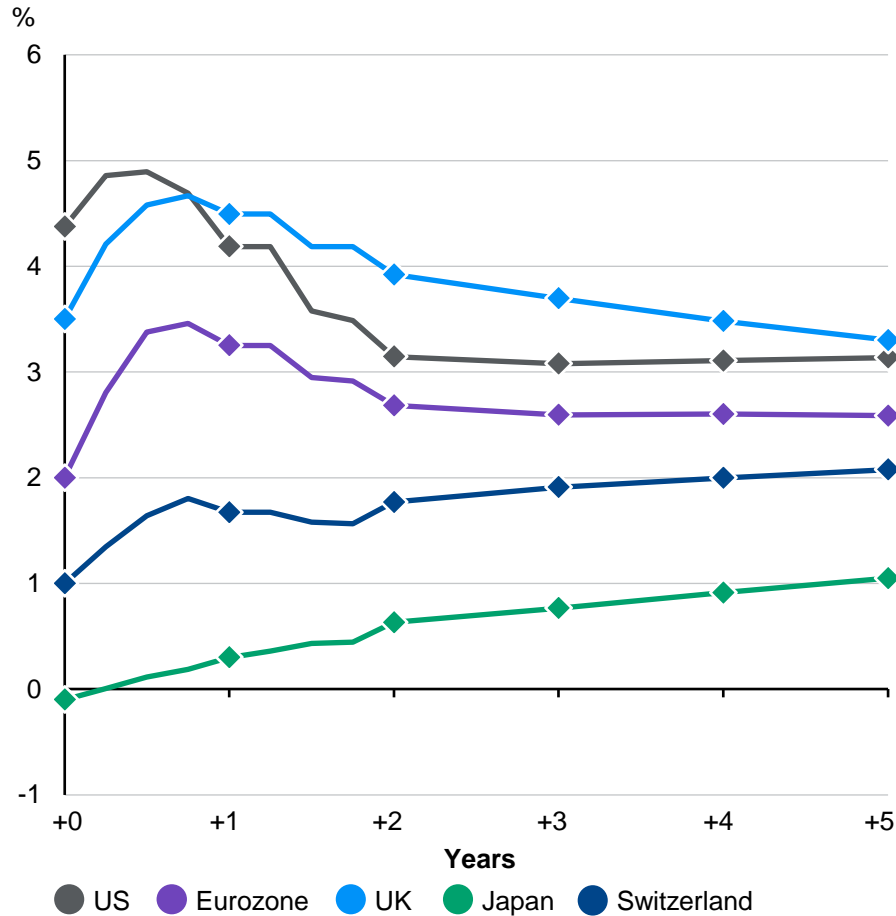
Source: (Left) Bloomberg, Drewry, S&P Global, J.P. Morgan Asset Management. The World Container Index shows a composite freight rate. (Right) BLS, Deutsche Bundesbank, ONS, Refinitiv Datastream, J.P. Morgan Asset Management. UK data is a three-month average as published. Guide to the Markets - Europe. Data as of 31 December 2022.



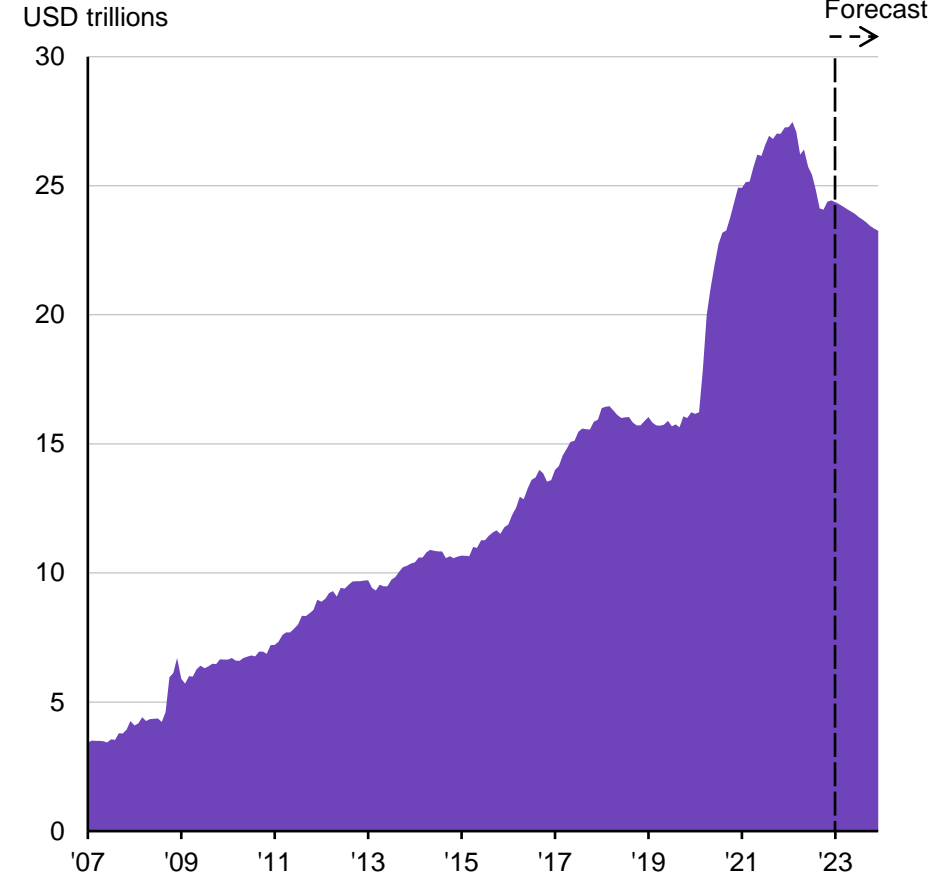


# Global monetary policy

## 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, Swiss National Bank (SNB), J.P. Morgan Asset Management. Global central bank balance sheet is the sum of the balance sheets of the BoE, BoJ, ECB, Fed and SNB. Forecast from J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



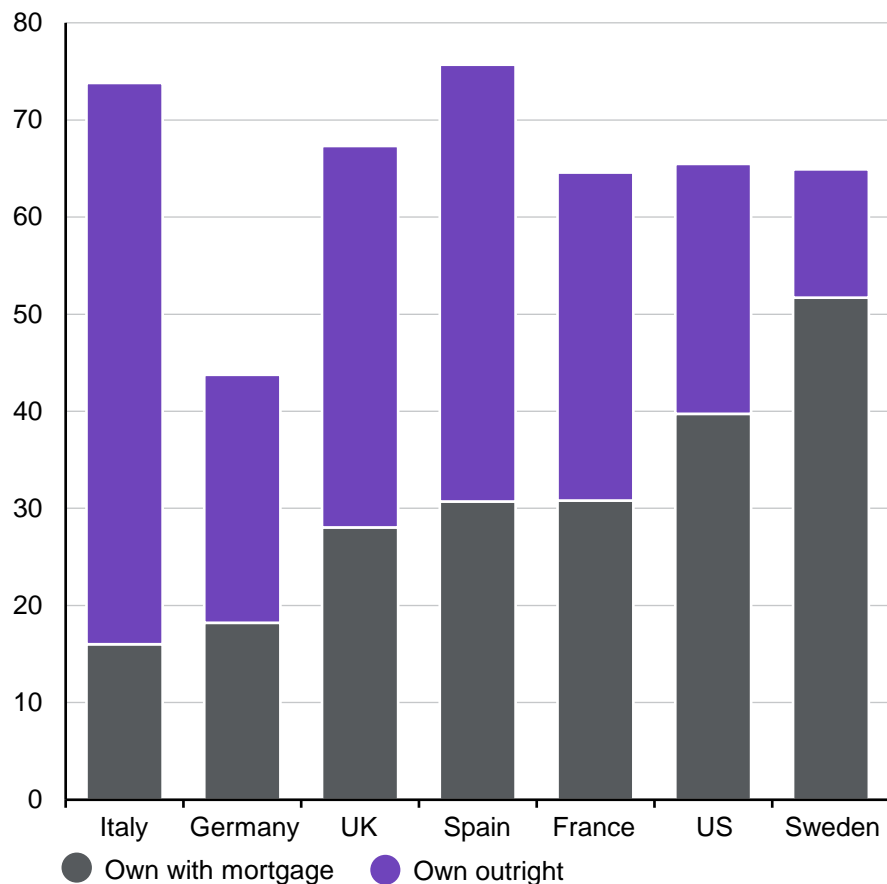
# Global housing markets

GTM Europe 10

Global economy

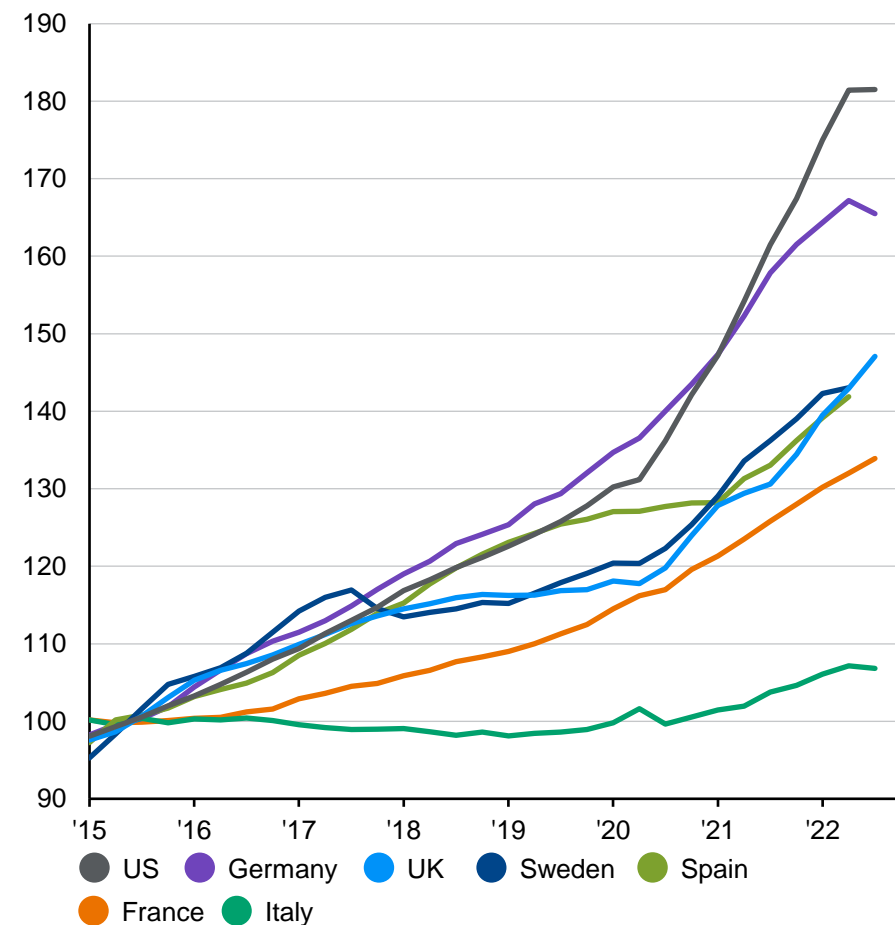
## Home ownership by mortgage status

% of households



## Nominal house prices

Index level, rebased to 100 in 2015



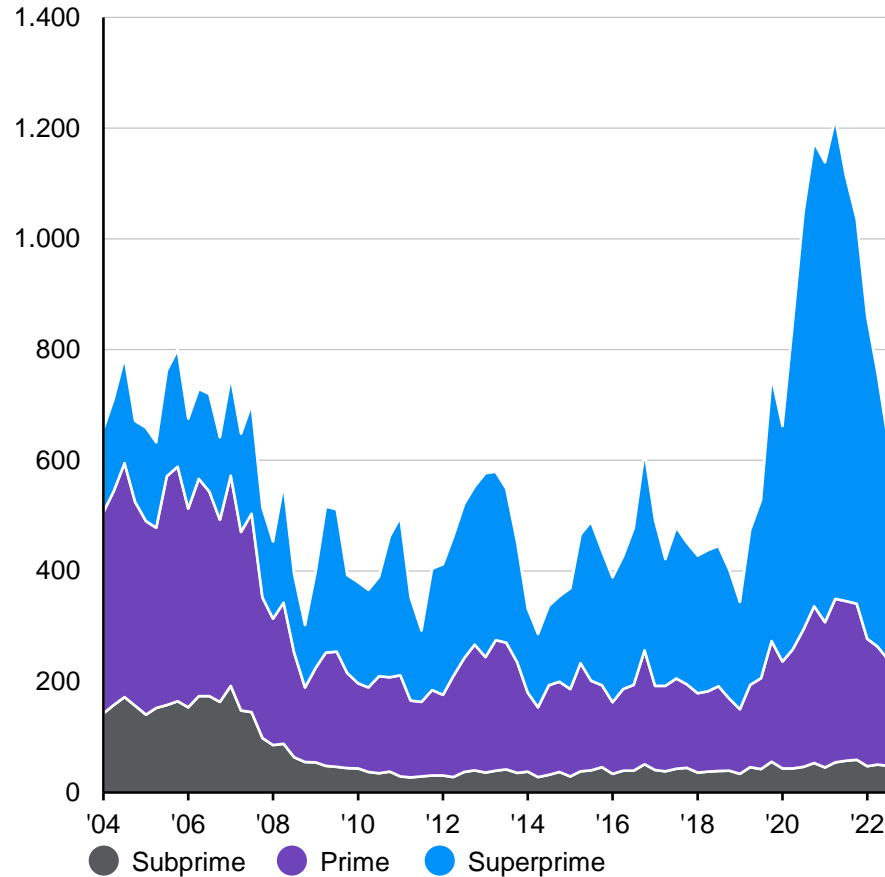


## Credit quality and capital ratios

GTM Europe 11

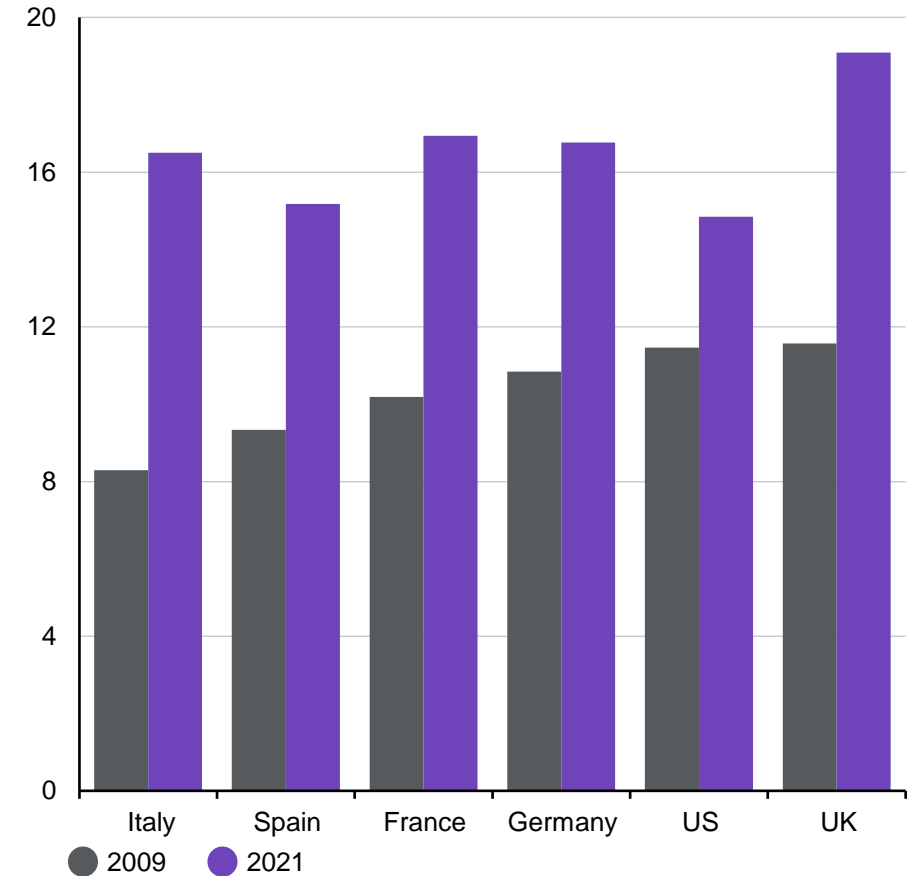
### US mortgage origination by credit score

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) 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. *Guide to the Markets – Europe*. Data as of 31 December 2022.

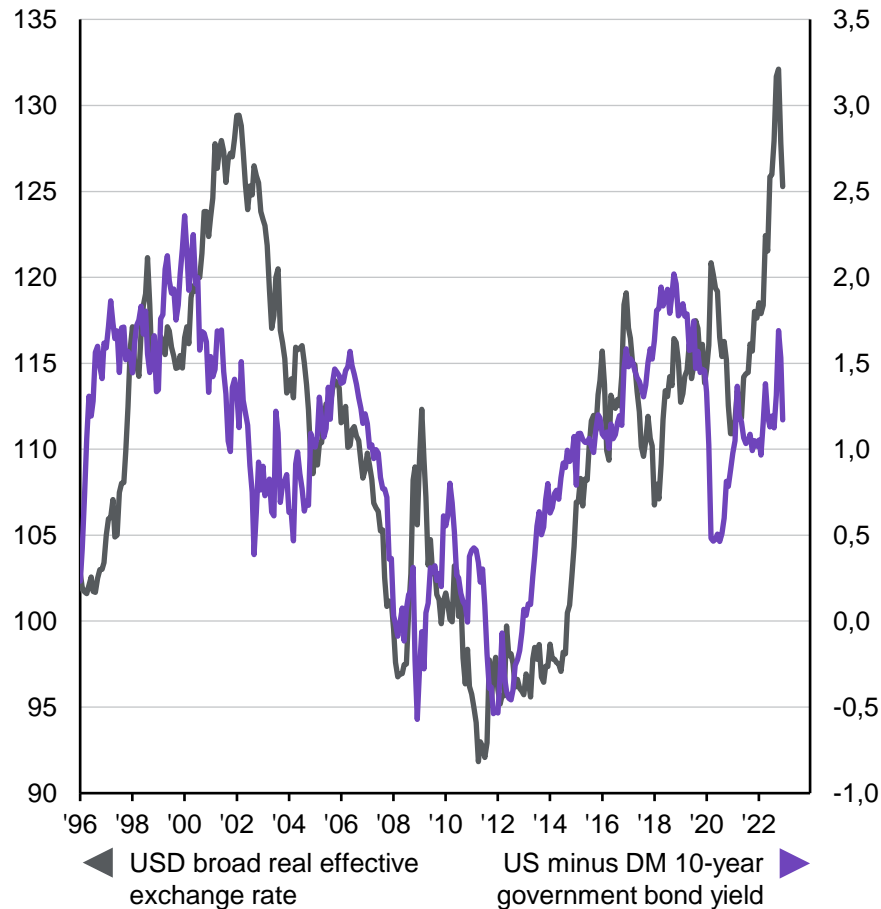


# Global currencies

GTM Europe 12

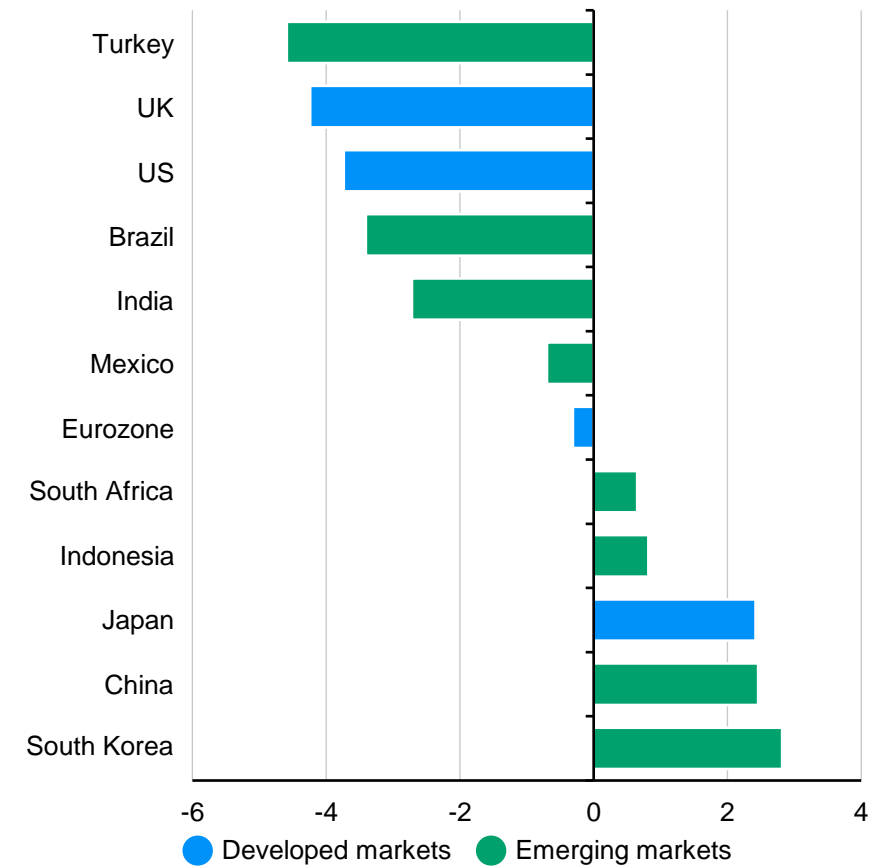
## USD real effective exchange rate and interest rate differential

Index level (LHS); % point (RHS)



## Global current account balances

% of nominal GDP



Source: (Left) J.P. Morgan Securities Research, Refinitiv Datastream, J.P. Morgan Asset Management. DM is developed markets and the yield is calculated as a GDP-weighted average of the 10-year government bond yields of Australia, Canada, France, Germany, Italy, Japan, Switzerland and the UK. (Right) Bloomberg, J.P. Morgan Asset Management. Current account data is for 3Q 2022. Past performance is not a reliable indicator of current and future results.  
Guide to the Markets - Europe. Data as of 31 December 2022.

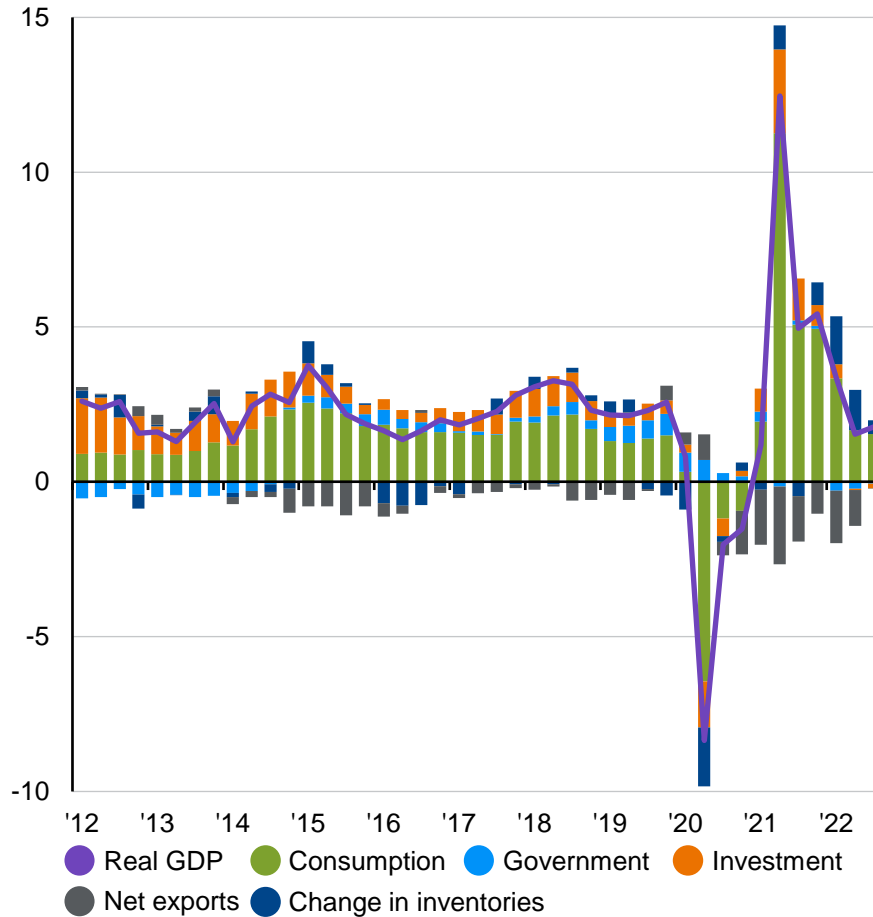


# US GDP

GTM Europe 13

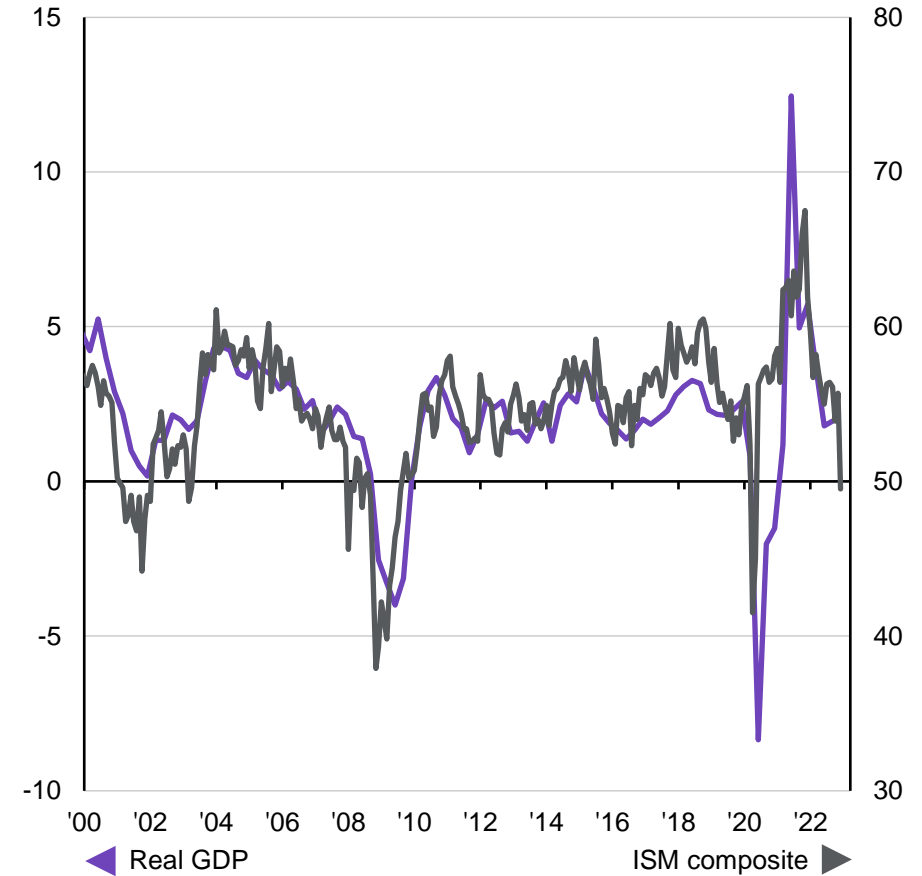
## Contribution to US real GDP growth

% change year on year



## US real GDP growth and ISM composite

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



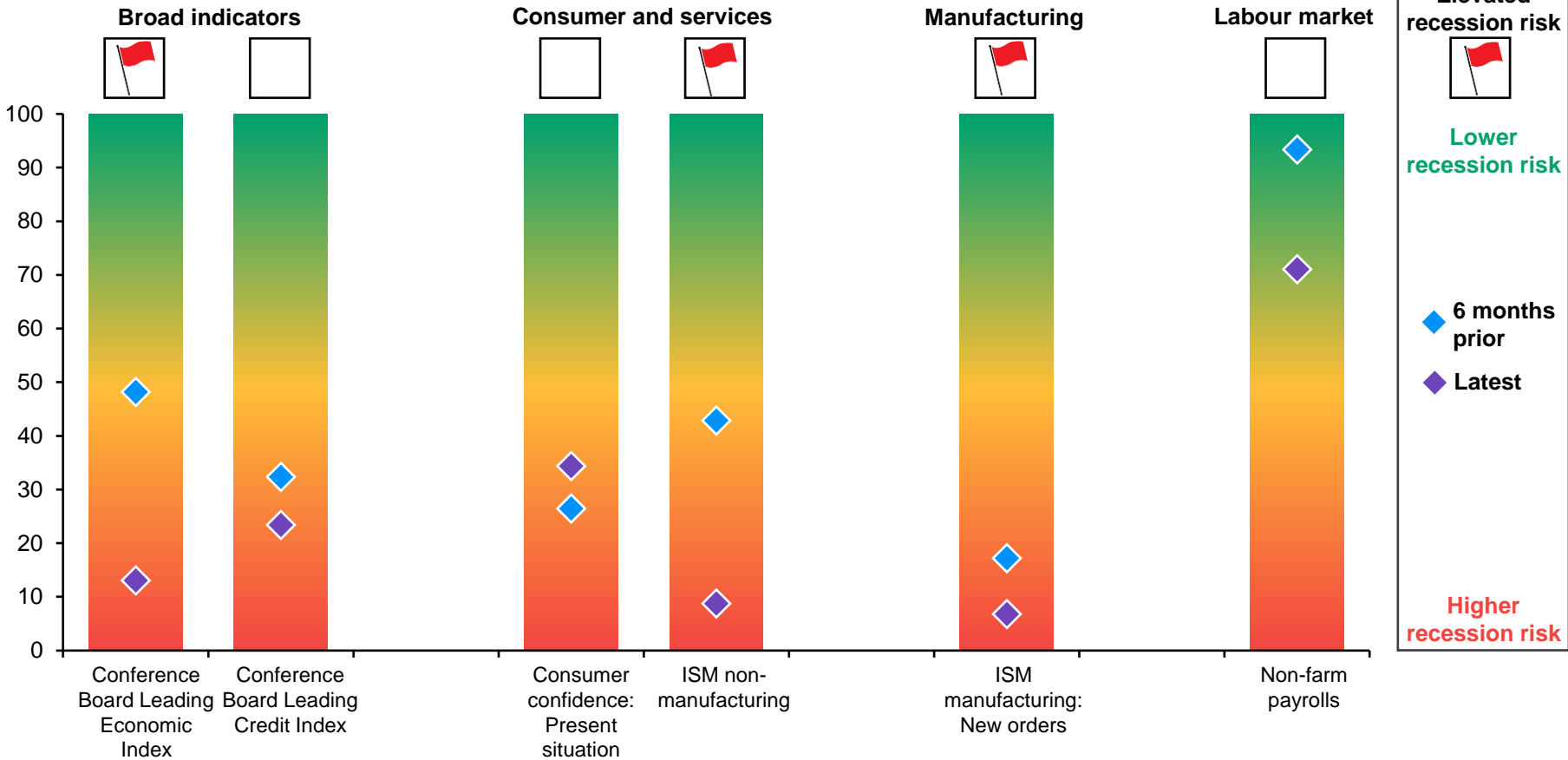
Source: (All charts) BEA, Bloomberg, ISM, Refinitiv Datastream, J.P. Morgan Asset Management. The Institute for Supply Management (ISM) composite is an economy-weighted average of the manufacturing and non-manufacturing surveys. A score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# 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 - Europe*. Data as of 31 December 2022.

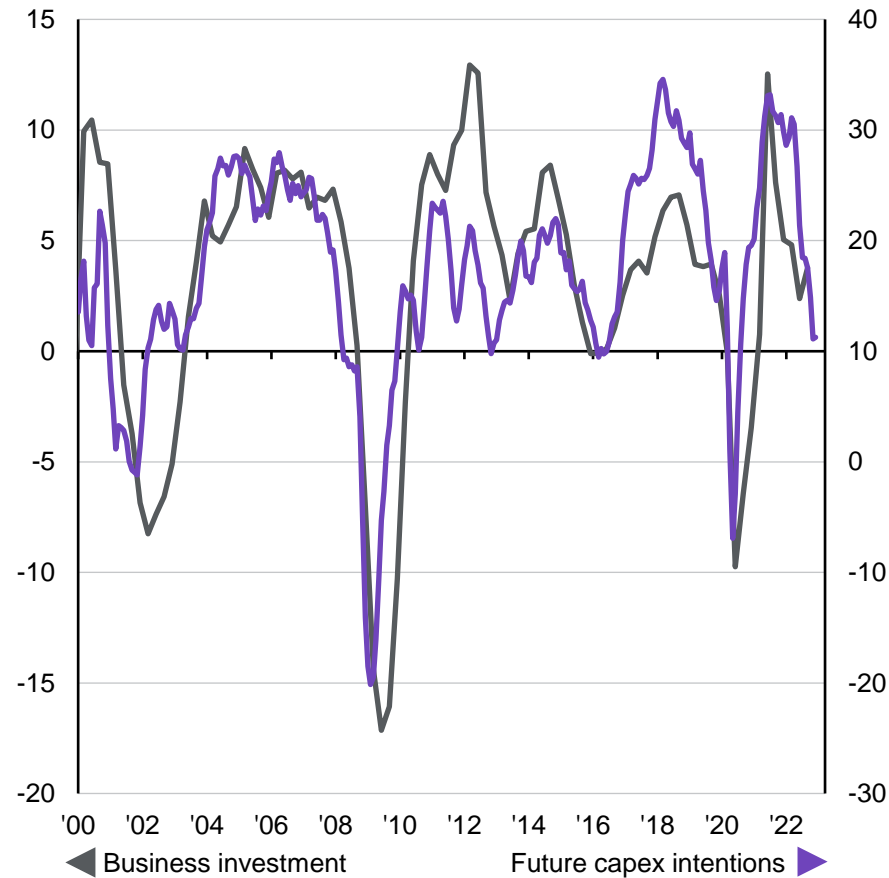


# US business and residential investment

GTM Europe 15

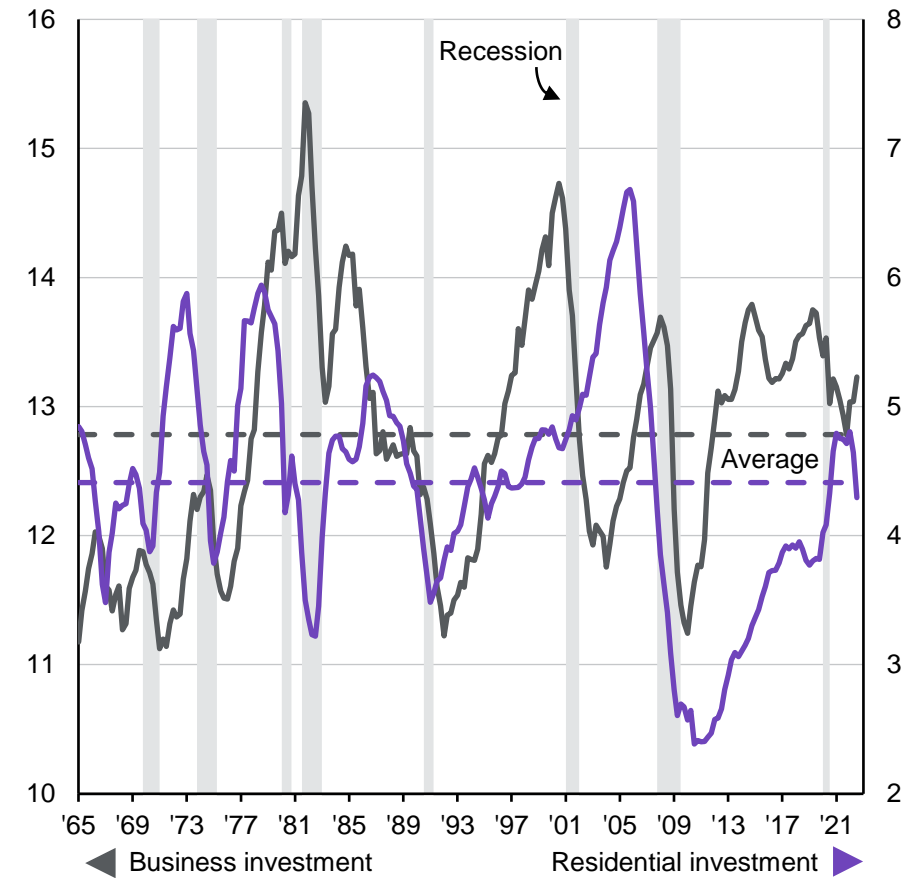
## US real business investment and future capex intentions

% 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 - Europe*. Data as of 31 December 2022.

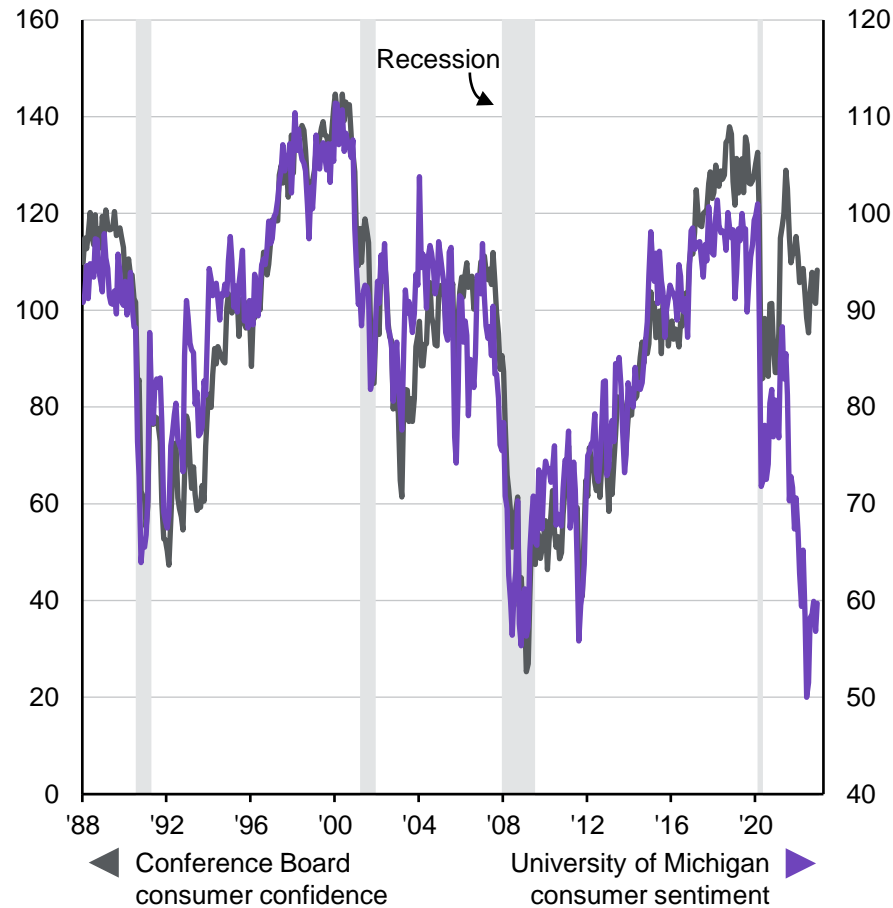


# US consumer

GTM | Europe | 16

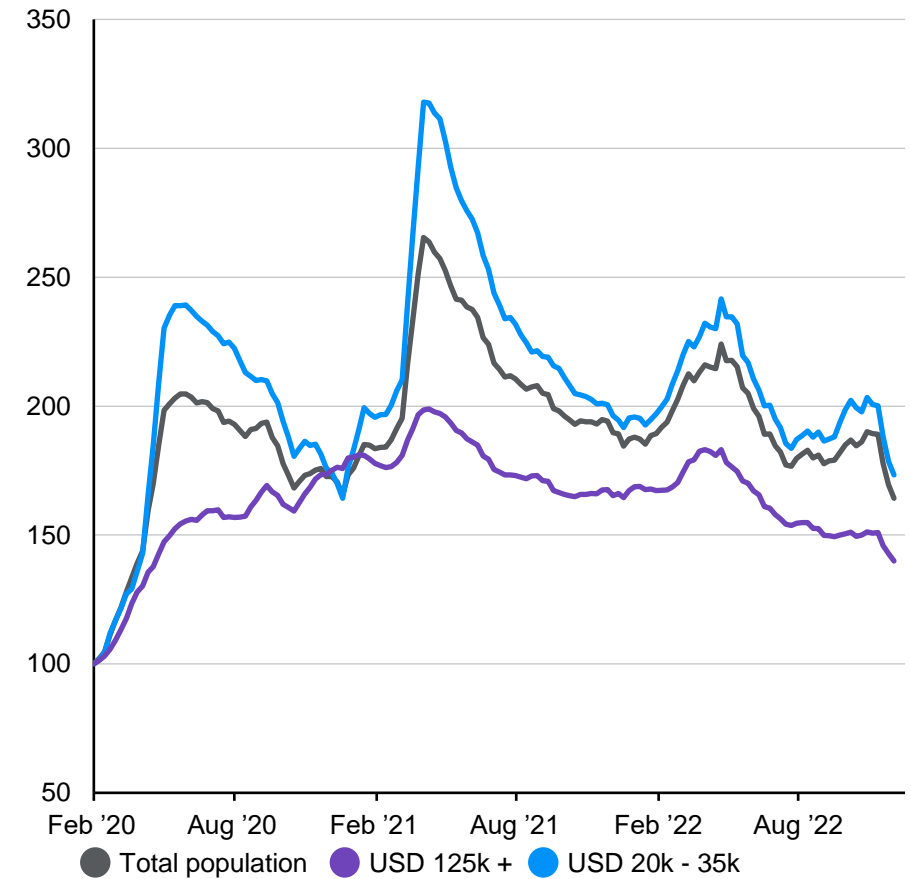
## US consumer confidence

Index level



## US median consumer deposits by income group

4-week moving average, rebased to 100 in Feb 2020



Source: (Left) Conference Board, Refinitiv Datastream, University of Michigan, J.P. Morgan Asset Management. The consumer confidence indices can diverge due to different emphases in the surveys. The University of Michigan survey places a stronger weight on personal finances and buying conditions while the Conference Board index emphasises employment. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. (Right) J.P. Morgan Asset Management. Based on select internal Chase data. *Guide to the Markets - Europe*. Data as of 31 December 2022.



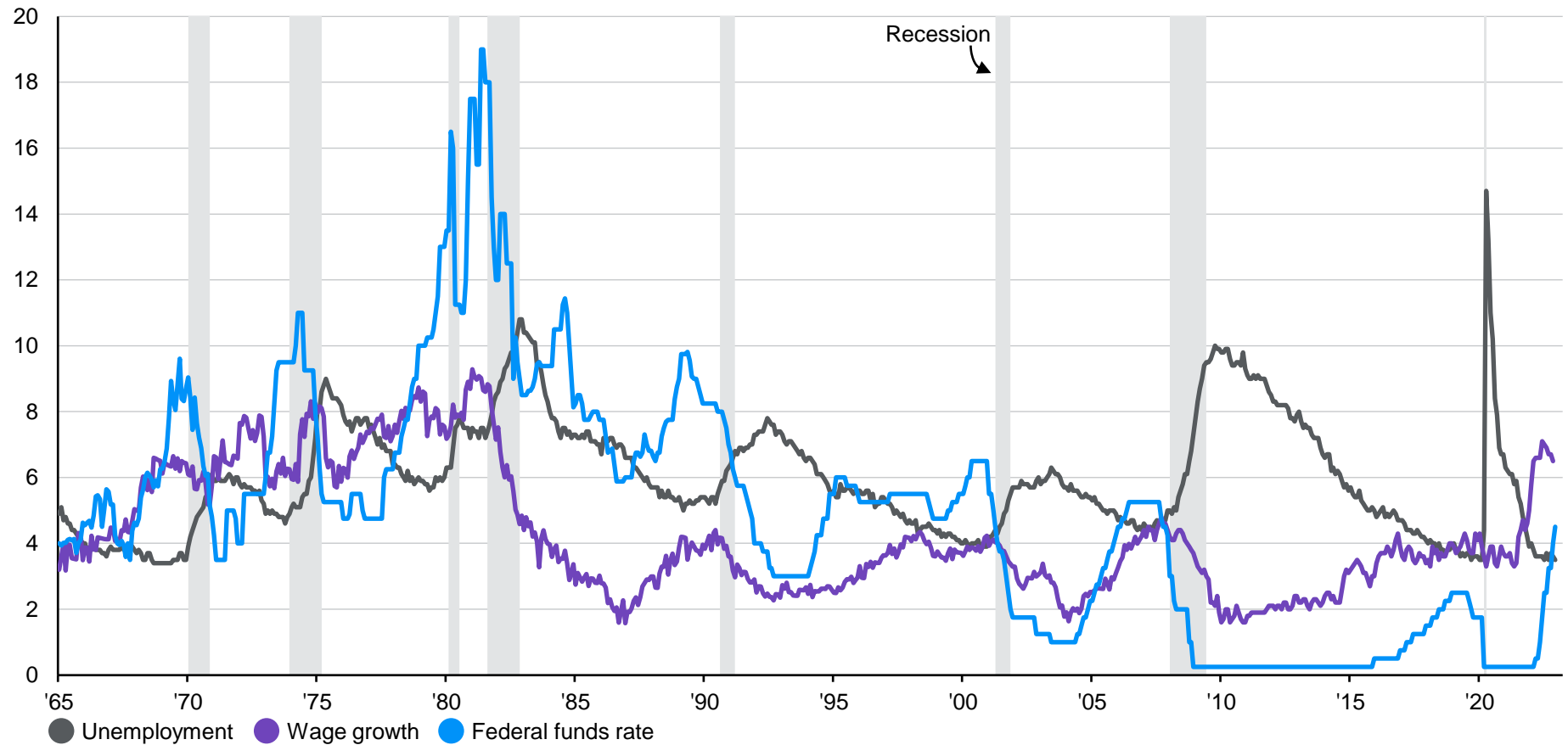


# US labour market

GTM Europe 17

## US unemployment, wage growth and interest rates

%, wage growth is % change year on year



Source: BLS, Federal Reserve Bank of Atlanta, Refinitiv Datastream, US Federal Reserve, J.P. Morgan Asset Management. Wage growth is average hourly earnings until 2007 and thereafter it 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 - Europe*. Data as of 31 December 2022.

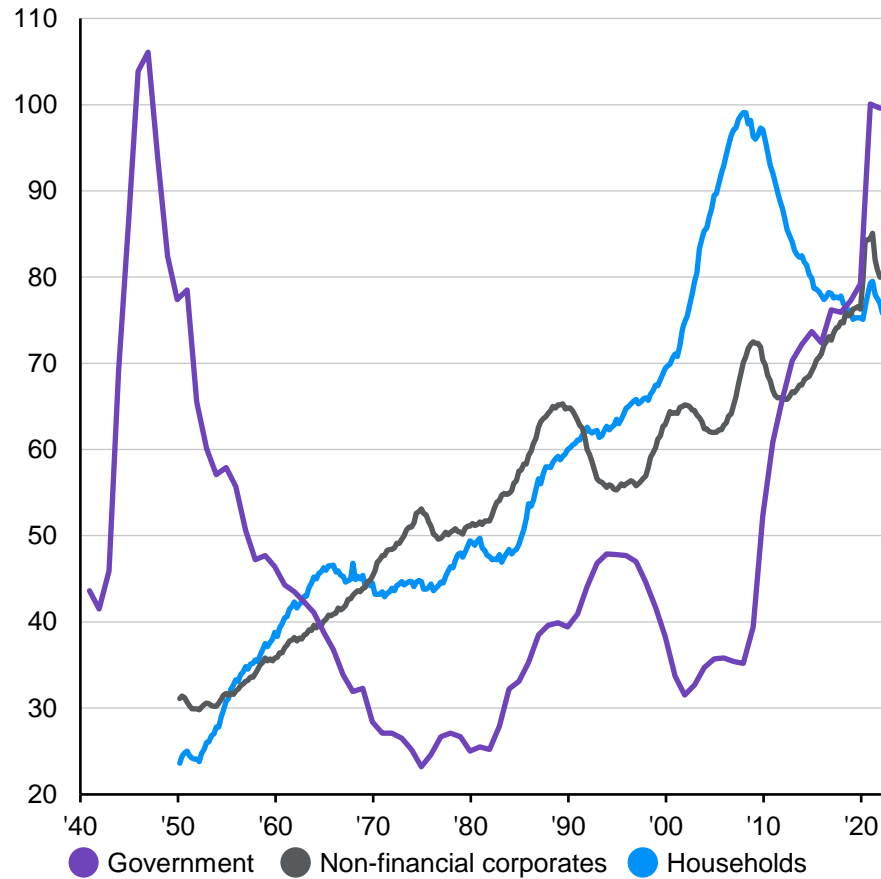


# US debt

GTM Europe 18

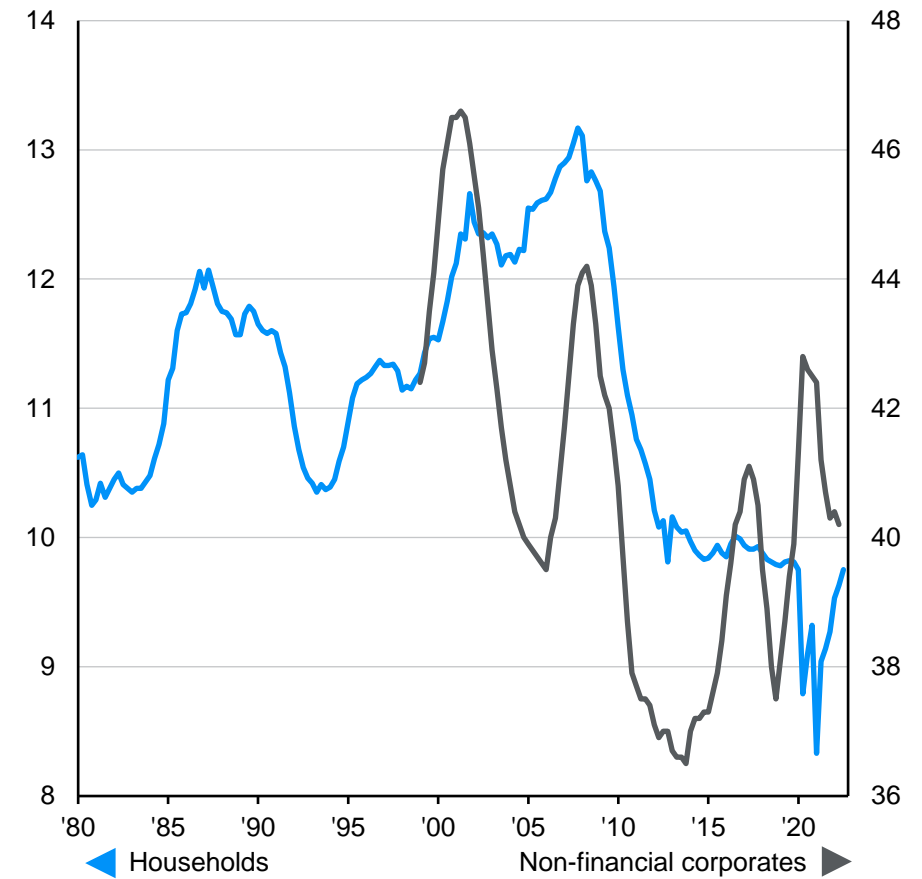
## US debt to GDP ratios

% of nominal GDP



## US debt service ratios

% of disposable income



Source: (All charts) Bank for International Settlements, BEA, Congressional Budget Office (CBO), Refinitiv Datastream, US Federal Reserve, J.P. Morgan Asset Management. For the household sector, gross disposable income is the amount of money that all individuals in the household sector have available for spending or saving after income distribution measures (for example, taxes, social contributions and benefits) have taken effect. For the non-financial corporate sector gross disposable income is essentially akin to gross operating surplus before dividends or interest is paid. *Guide to the Markets - Europe*. Data as of 31 December 2022.

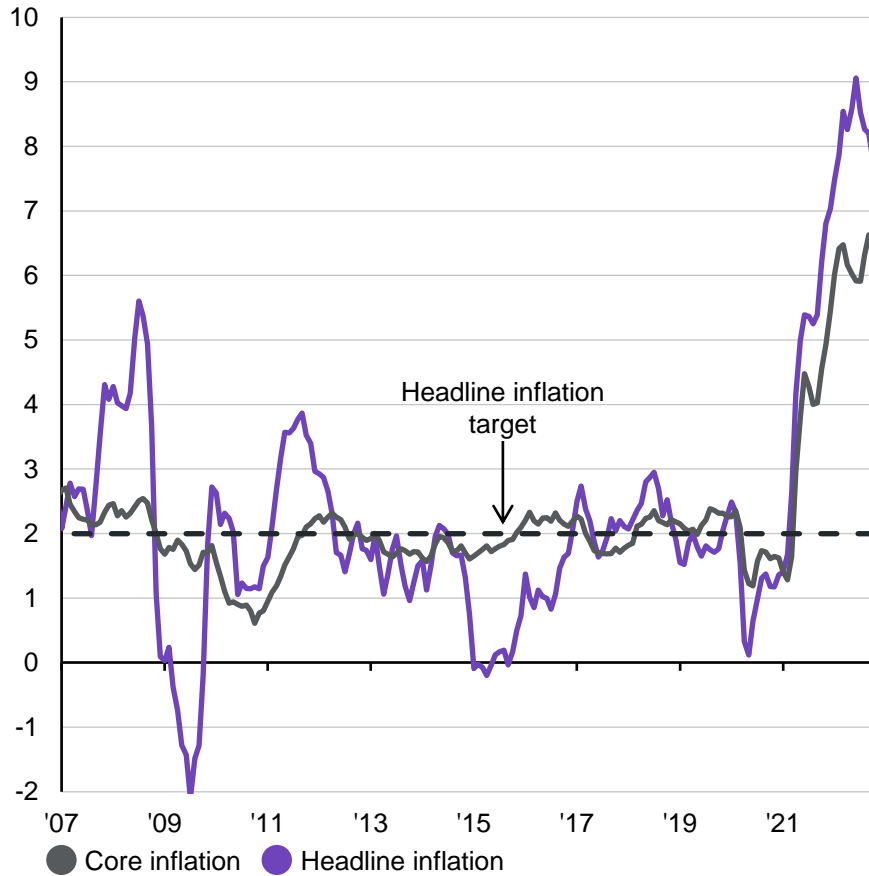


# US inflation

GTM Europe 19

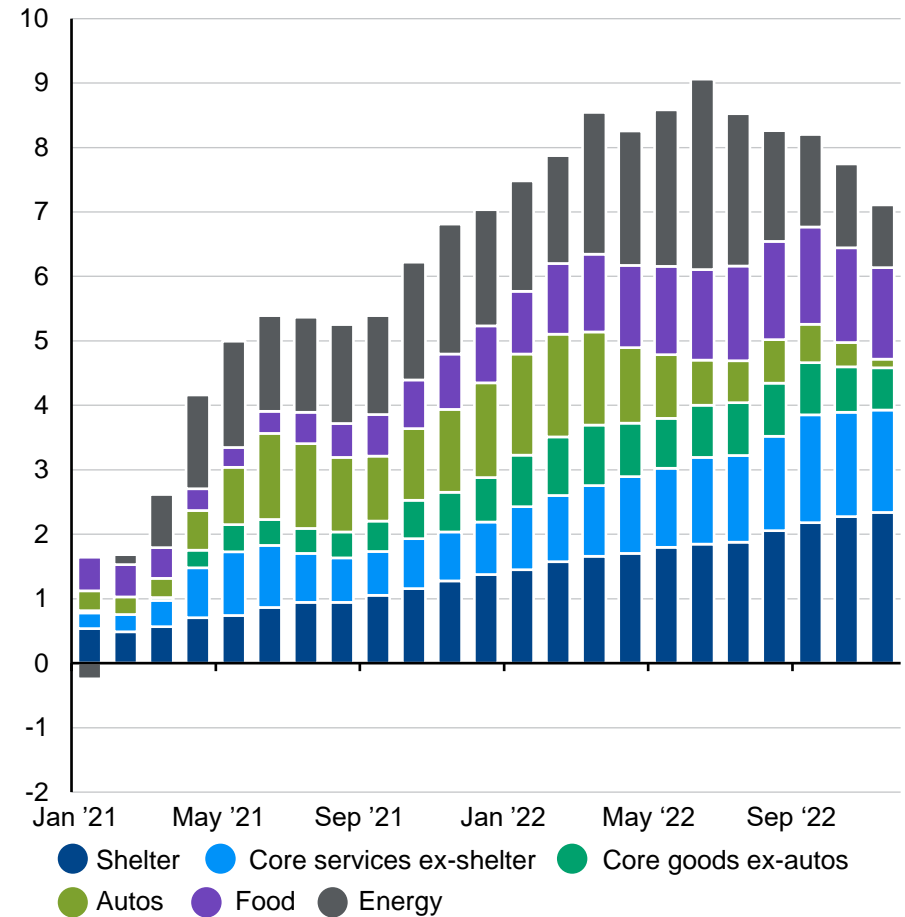
## US headline and core inflation

% change year on year



## US headline inflation breakdown

% change year on year

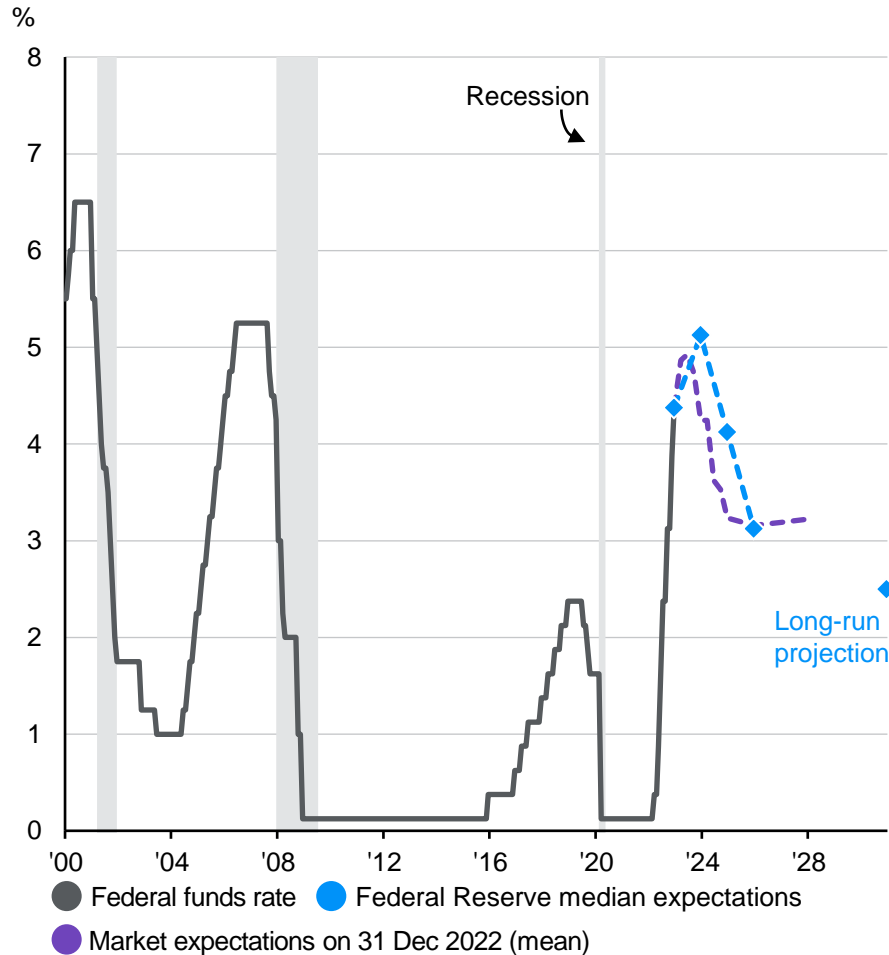




# US Federal Reserve policy

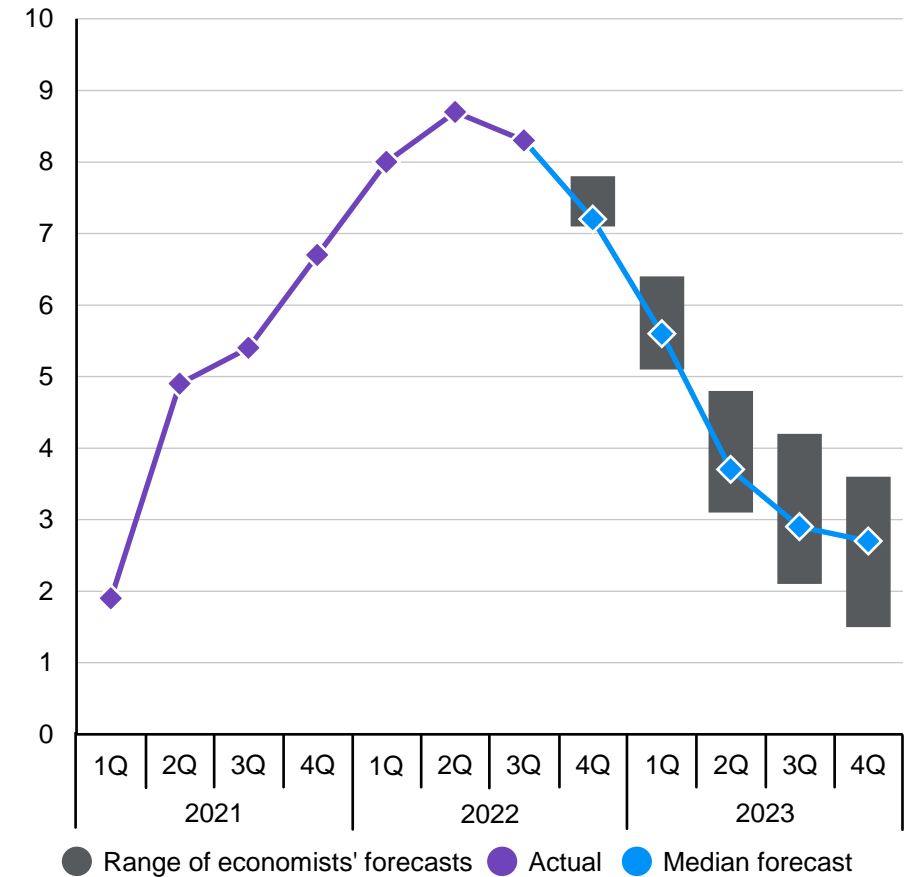
GTM Europe 20

## US Federal Reserve policy rate expectations



## US headline CPI forecasts

% change year on year, quarterly average



Source: (Left) Bloomberg, BLS, US 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) Bloomberg, BLS, J.P. Morgan Asset Management. CPI is Consumer Price Index. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



## US mortgage costs and sensitivity

GTM Europe 21

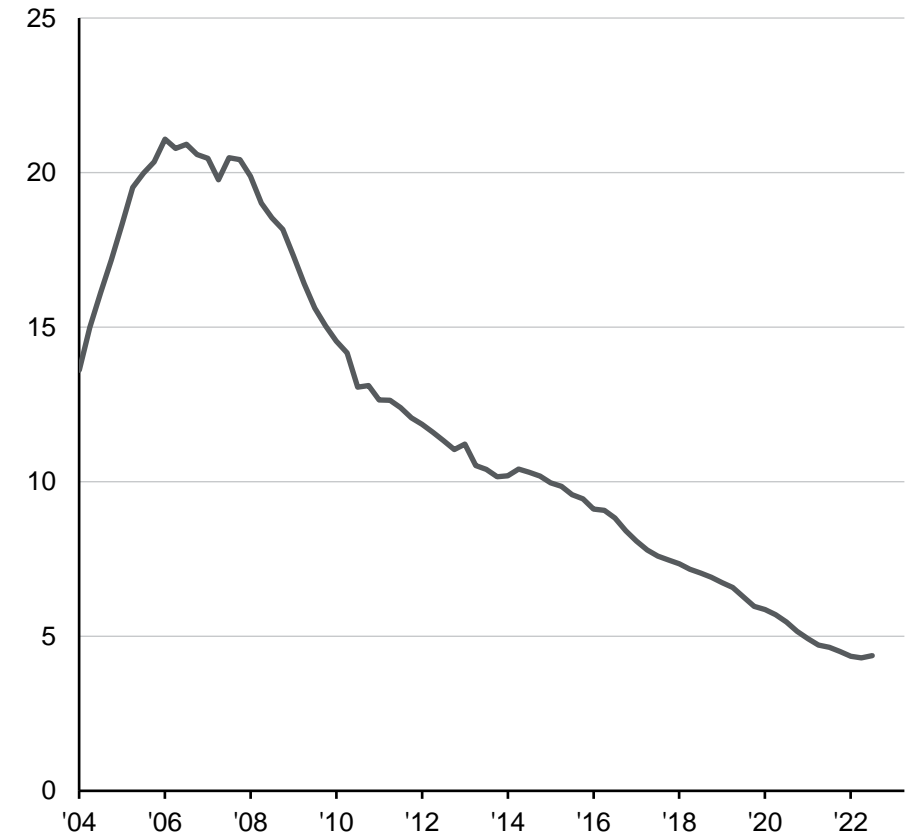
### US mortgage cost

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 - Europe*. Data as of 31 December 2022.

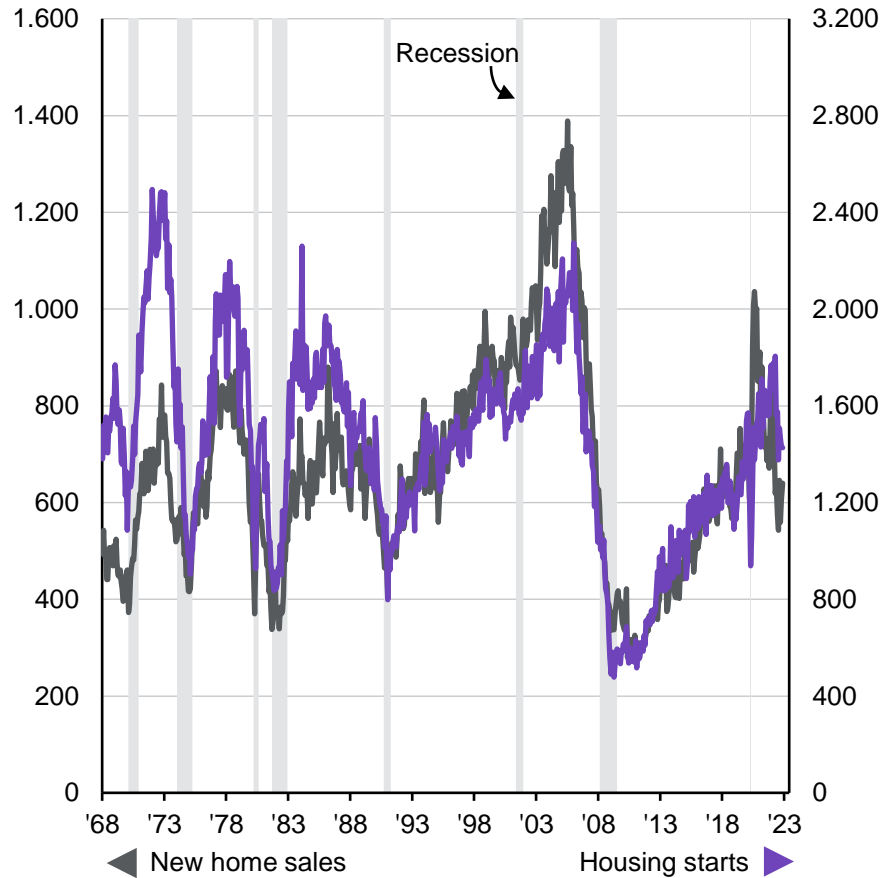


# US housing activity and inventories

GTM Europe 22

## Single-family home sales and housing starts

Millions, 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 - Europe*. Data as of 31 December 2022.

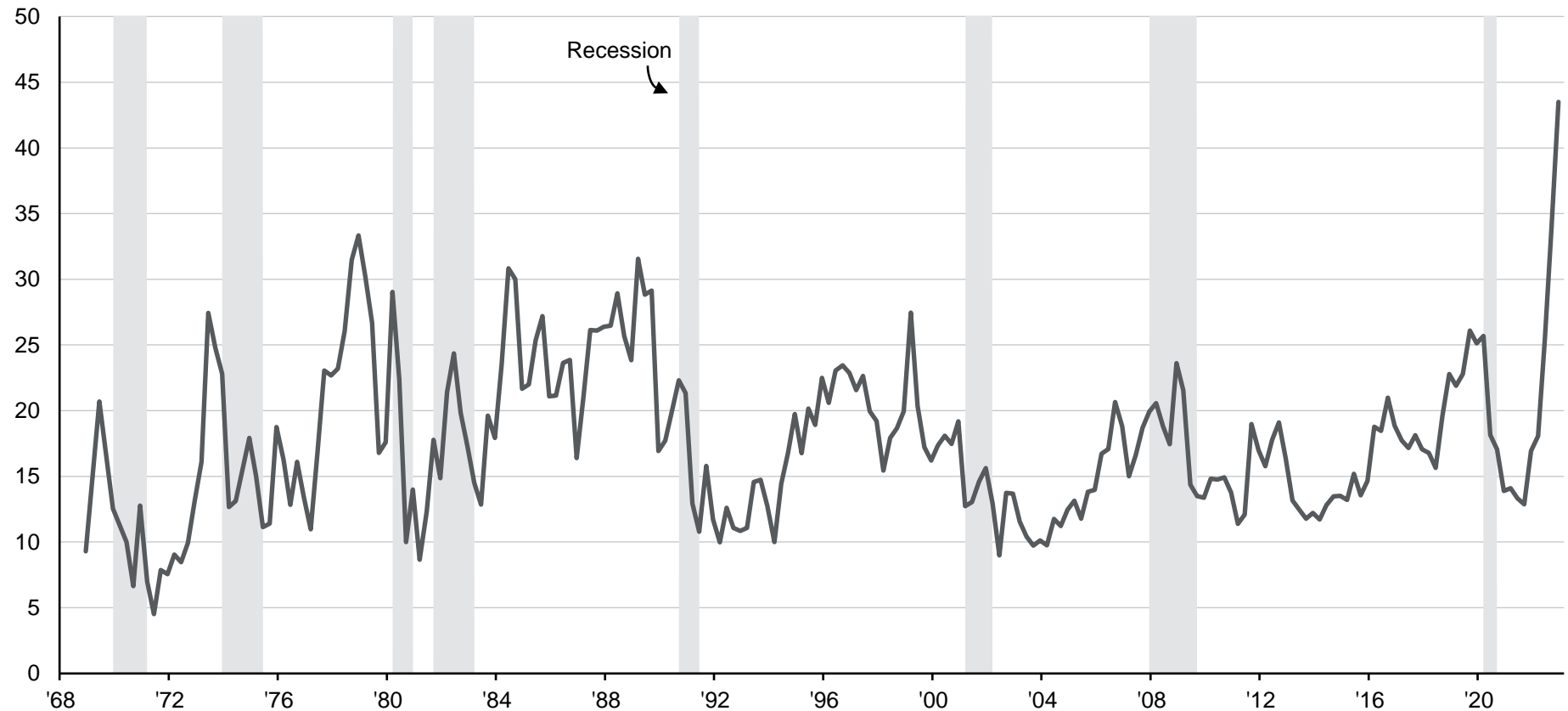


## US focus: Probability of recession

GTM Europe 23

### Probability of a recession in the next 12 months

%, Federal Reserve Survey of Professional Forecasters



Source: Philadelphia Fed, Refinitiv Datastream, J.P. Morgan Asset Management. Chart shows the Survey of Professional Forecasters' probability that real GNP or GDP will decline in the quarter the survey was conducted or following four quarters. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. *Guide to the Markets - Europe*. Data as of 31 December 2022.

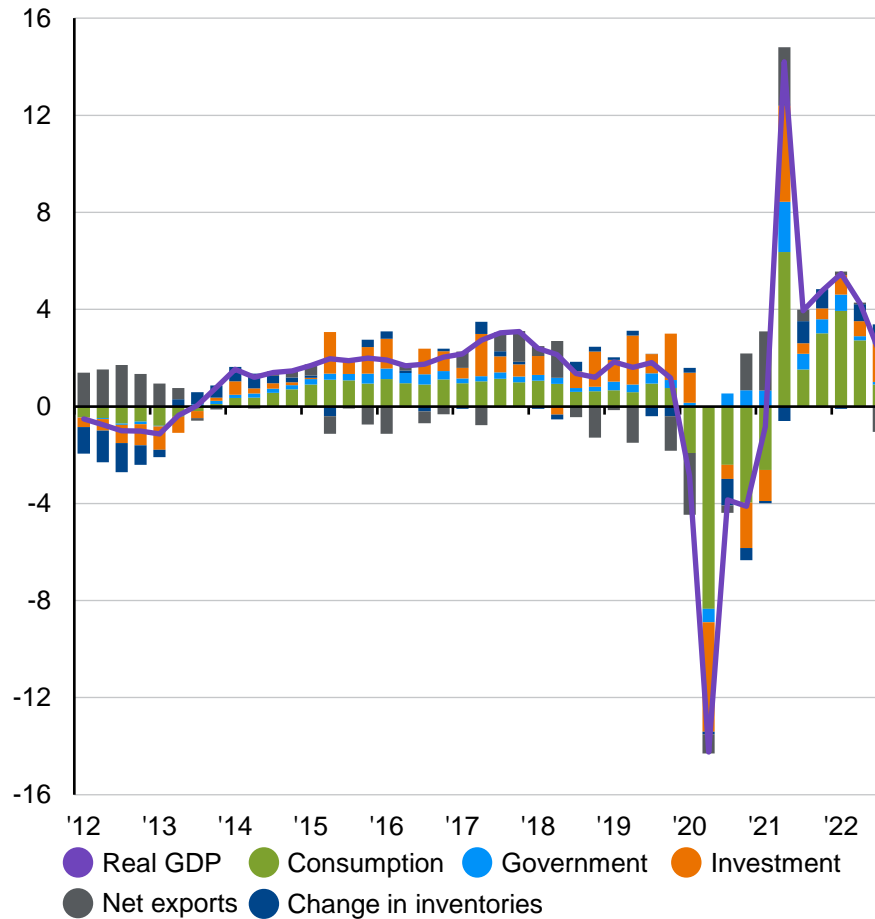


# Eurozone GDP

GTM | Europe | 24

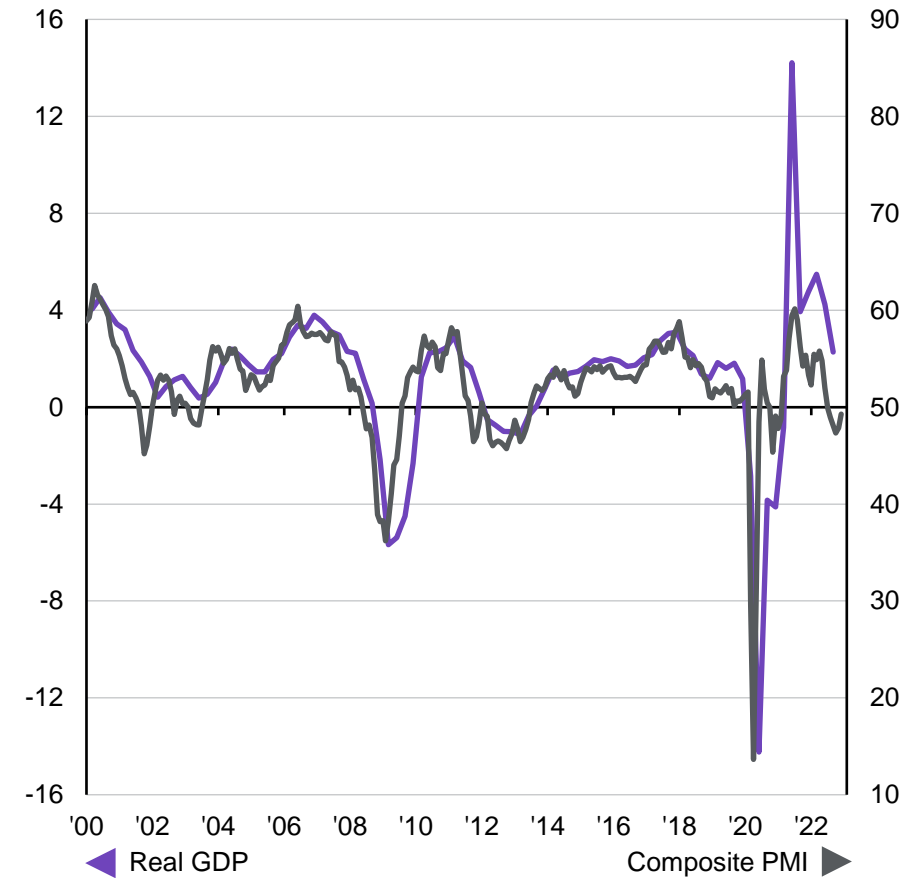
## Contribution to eurozone real GDP growth

% change year on year



## Eurozone real GDP and composite PMI

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



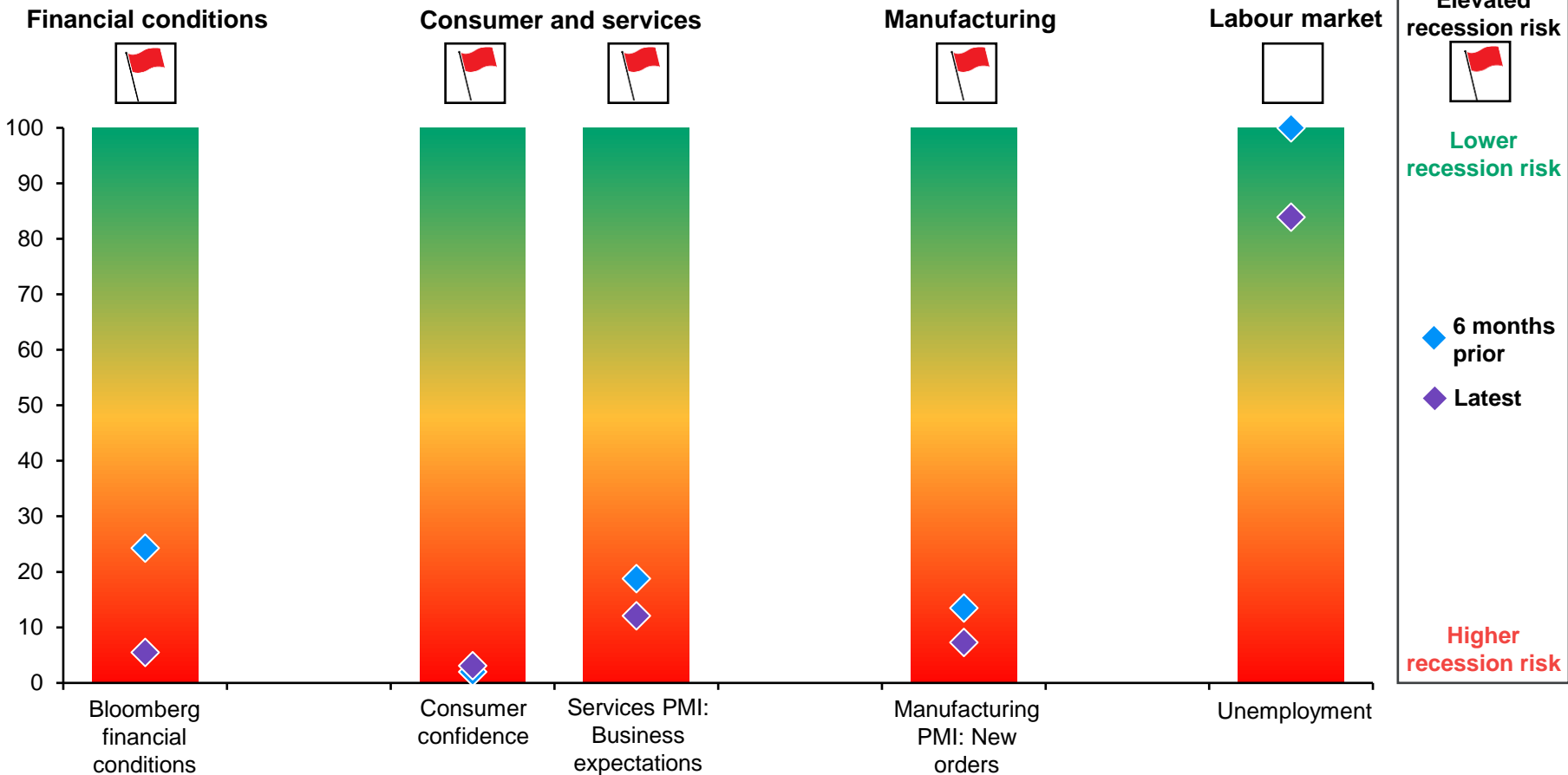




# Eurozone Economic Monitor

## 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 - Europe*. Data as of 31 December 2022.

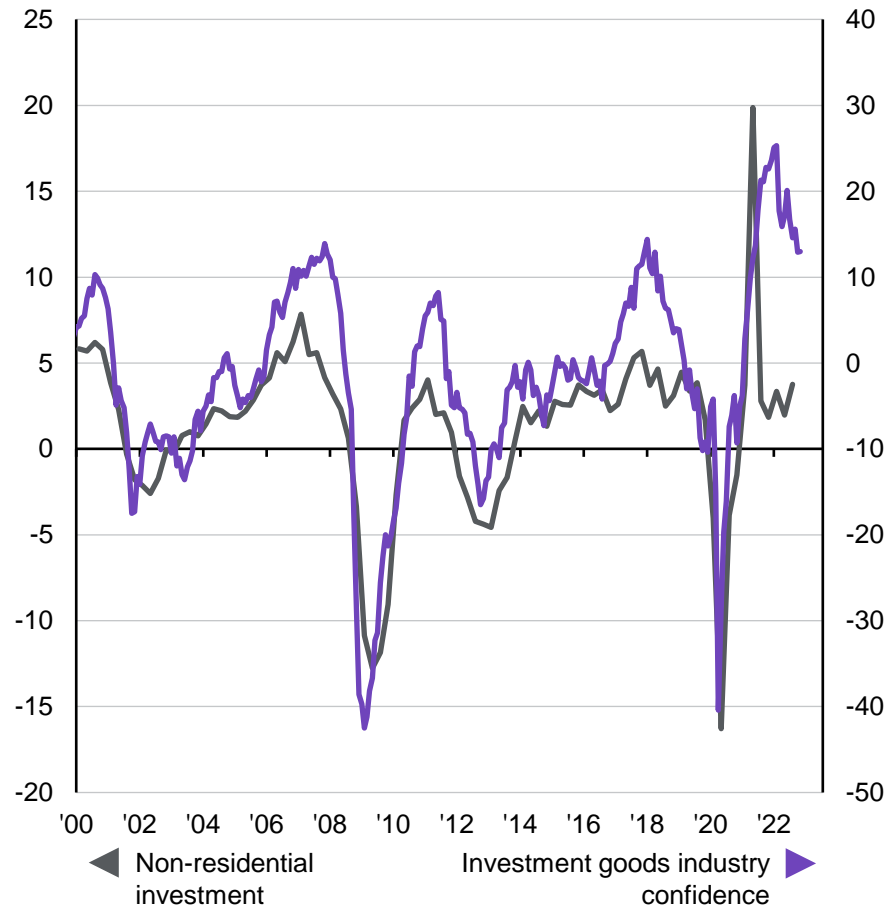


# Eurozone business investment

GTM Europe 26

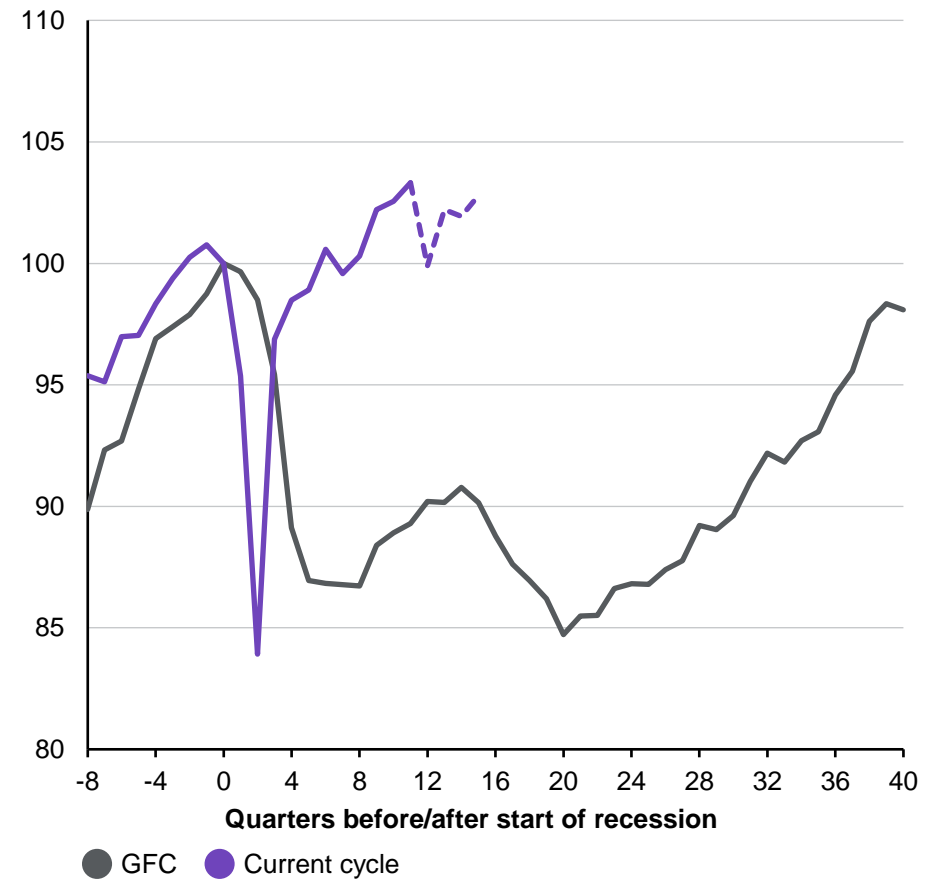
## Eurozone real investment and investment confidence

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



## Eurozone real non-residential investment

Index level, rebased to 100 at start of eurozone recession



Source: (All charts) Eurostat, Refinitiv Datastream, J.P. Morgan Asset Management. Dotted line represents forecasts from Bloomberg contributor composite. Both non-residential measures shown are in real terms and include both public and private investment. GFC is Global Financial Crisis. *Guide to the Markets - Europe*. Data as of 31 December 2022.

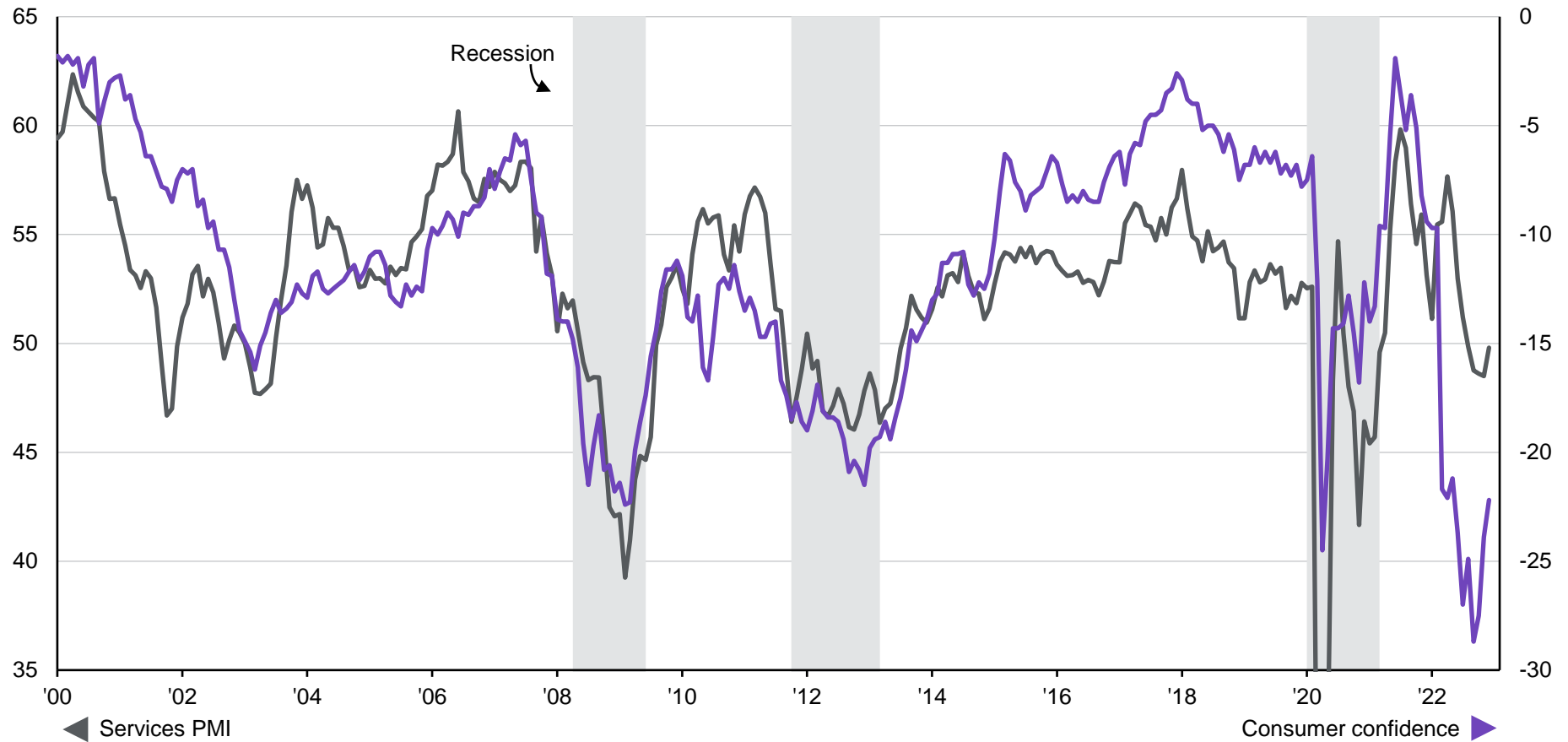


# Eurozone consumer

GTM	Europe	27
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## Eurozone consumer confidence and services sector

Index level



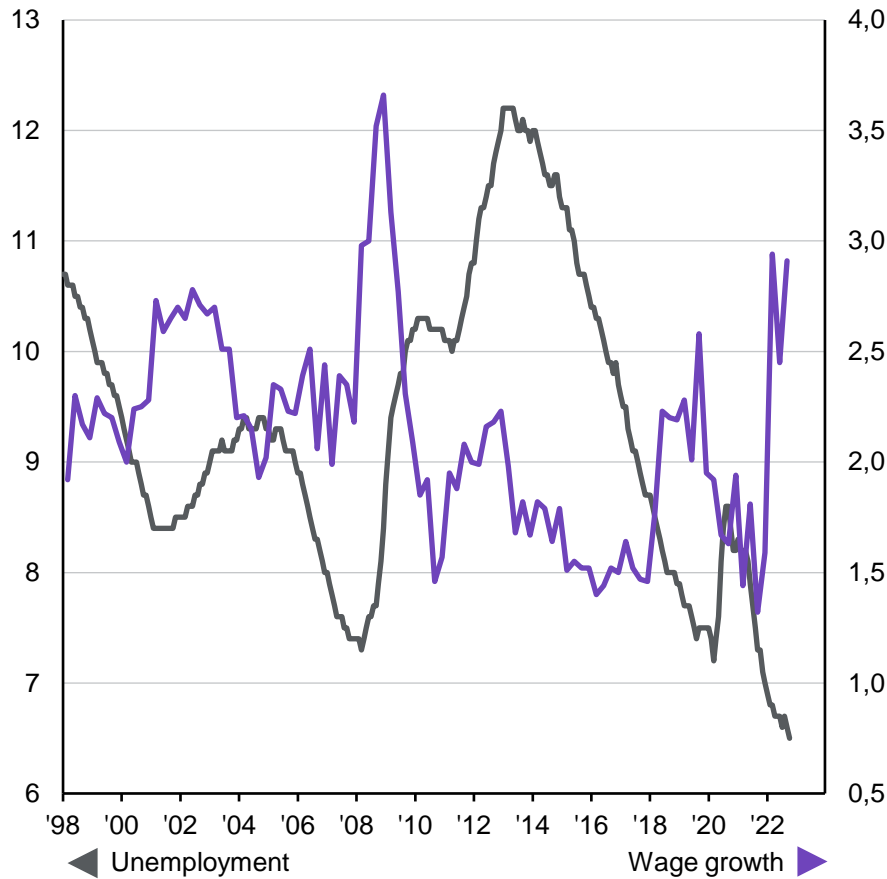


## Eurozone labour market

GTM | Europe | 28

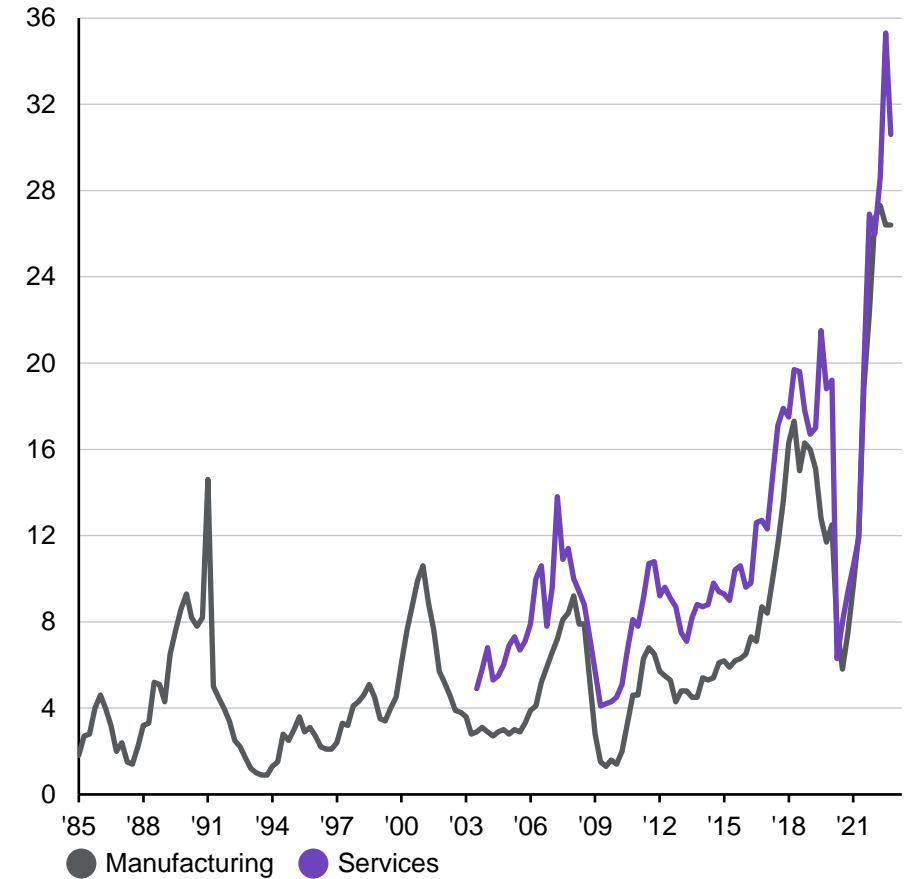
### Eurozone unemployment rate and wage growth

%, wage growth is year on year



### Eurozone business surveys: Labour limiting production

% of respondents





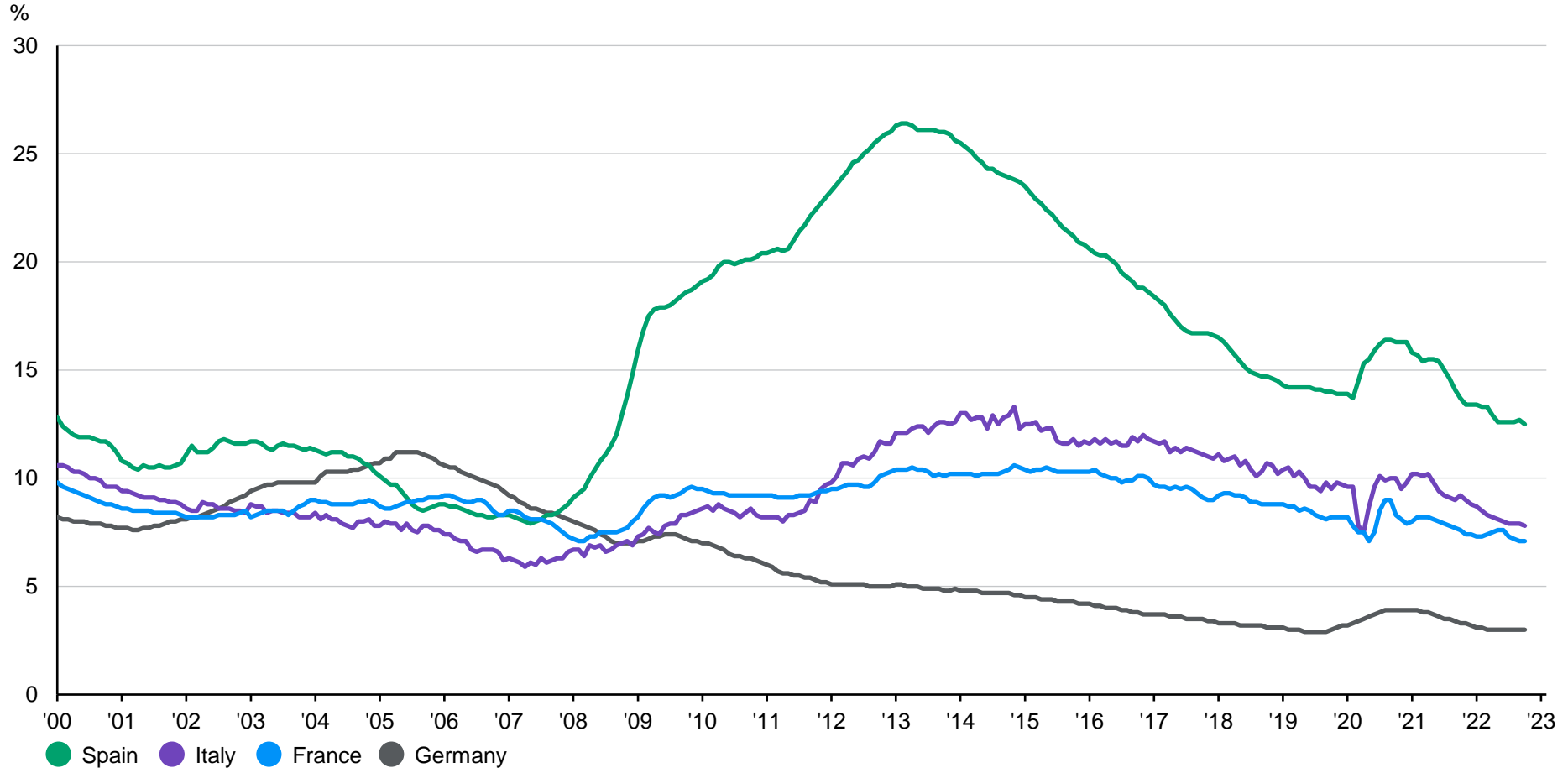
# Eurozone unemployment

GTM

Europe

29

## Germany, France, Italy and Spain unemployment rates

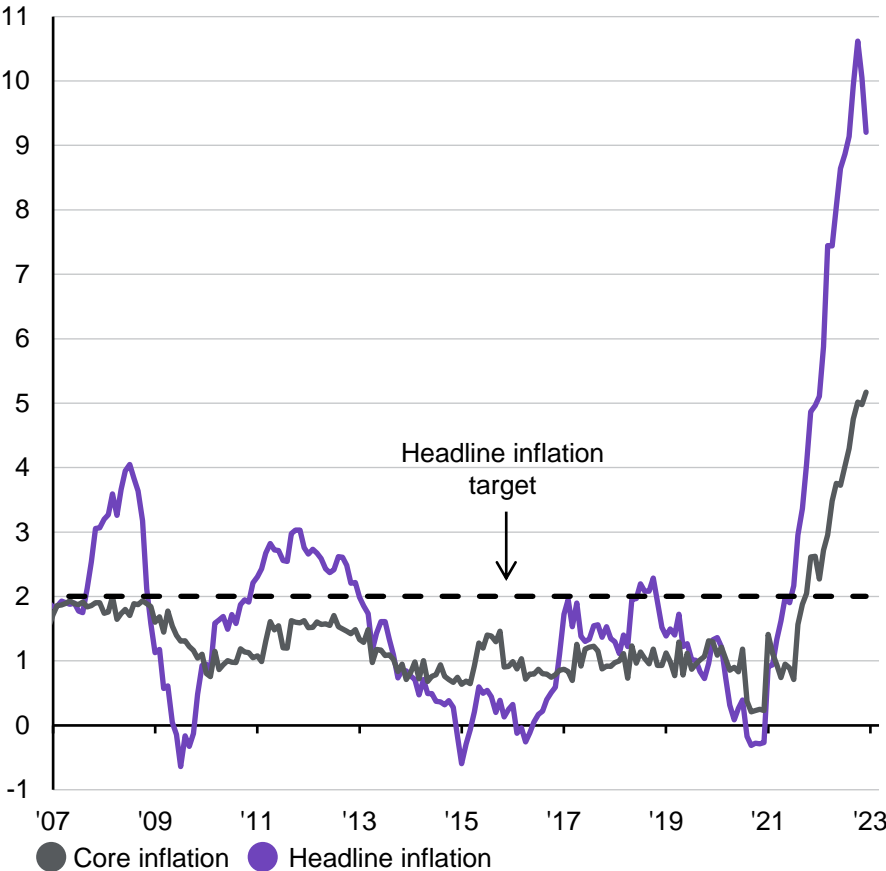




# Eurozone inflation

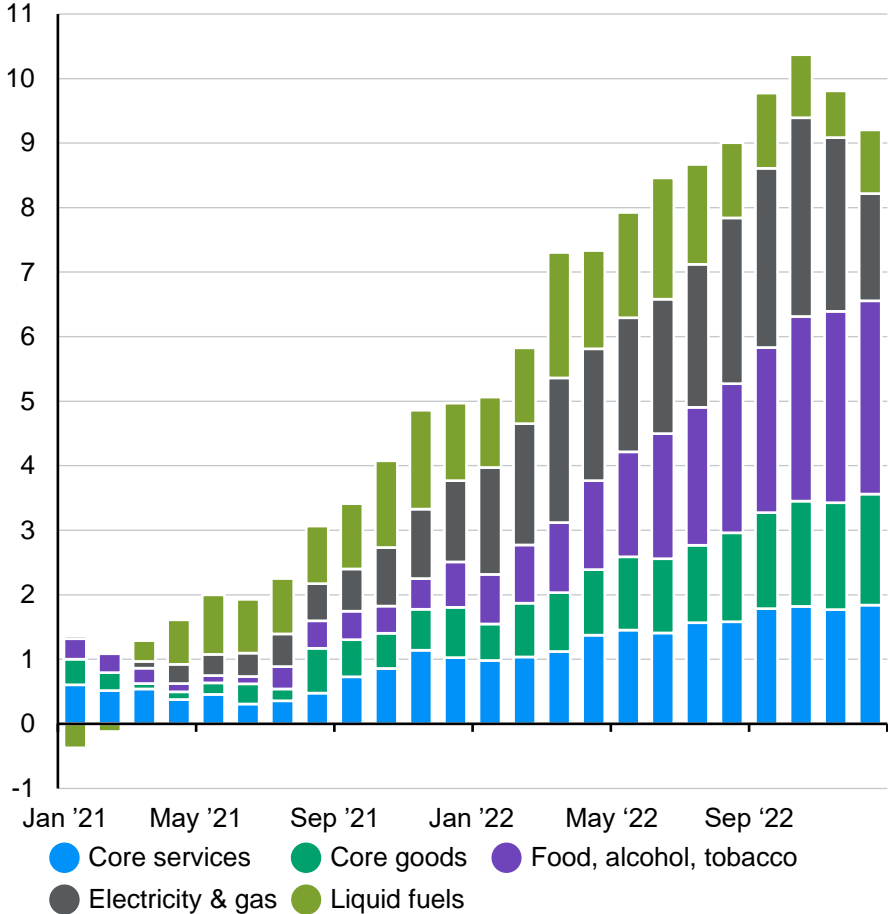
## Eurozone headline and core inflation

% change year on year



## Eurozone headline inflation breakdown

% change year on year

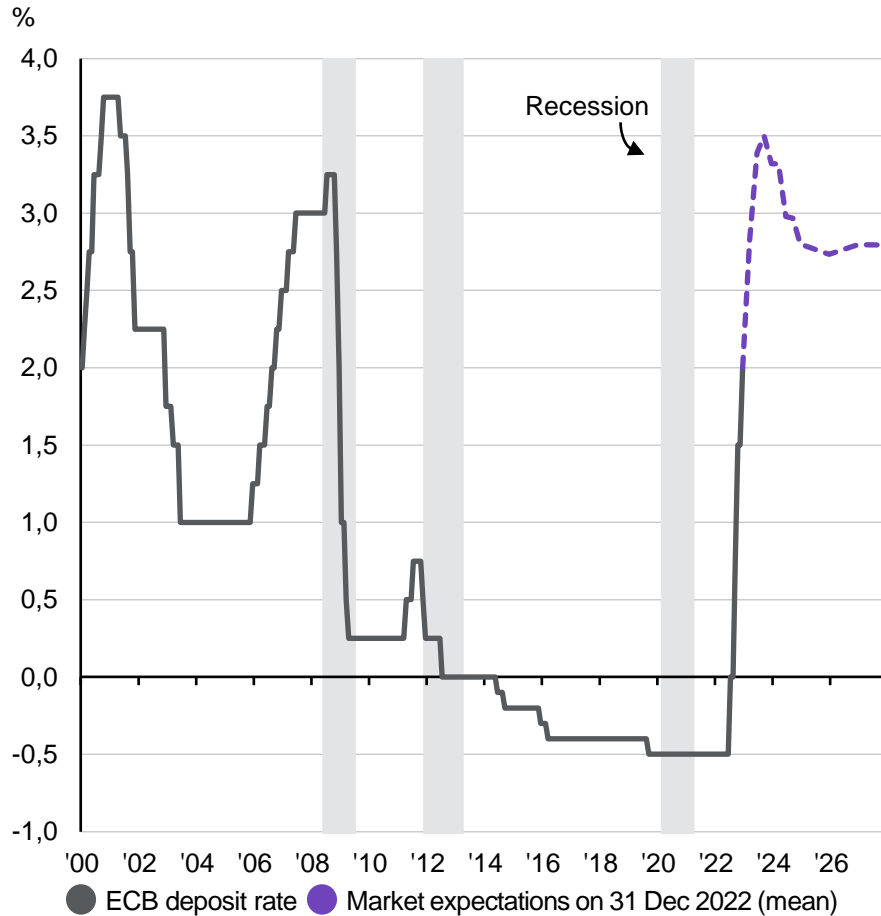


Source: (All charts) Eurostat, Refinitiv Datastream, J.P. Morgan Asset Management. Core inflation is defined as headline inflation less energy, food, alcohol and tobacco. *Guide to the Markets - Europe*. Data as of 31 December 2022.

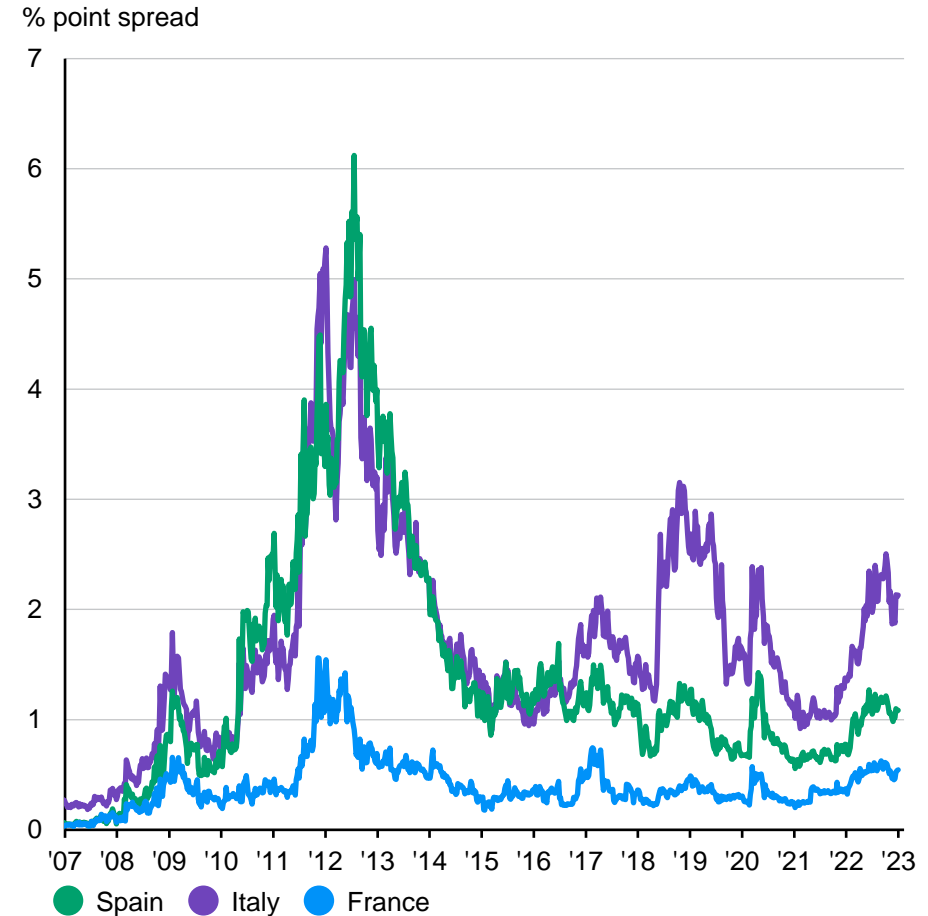


## European Central Bank policy

### 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 - Europe*. Data as of 31 December 2022.

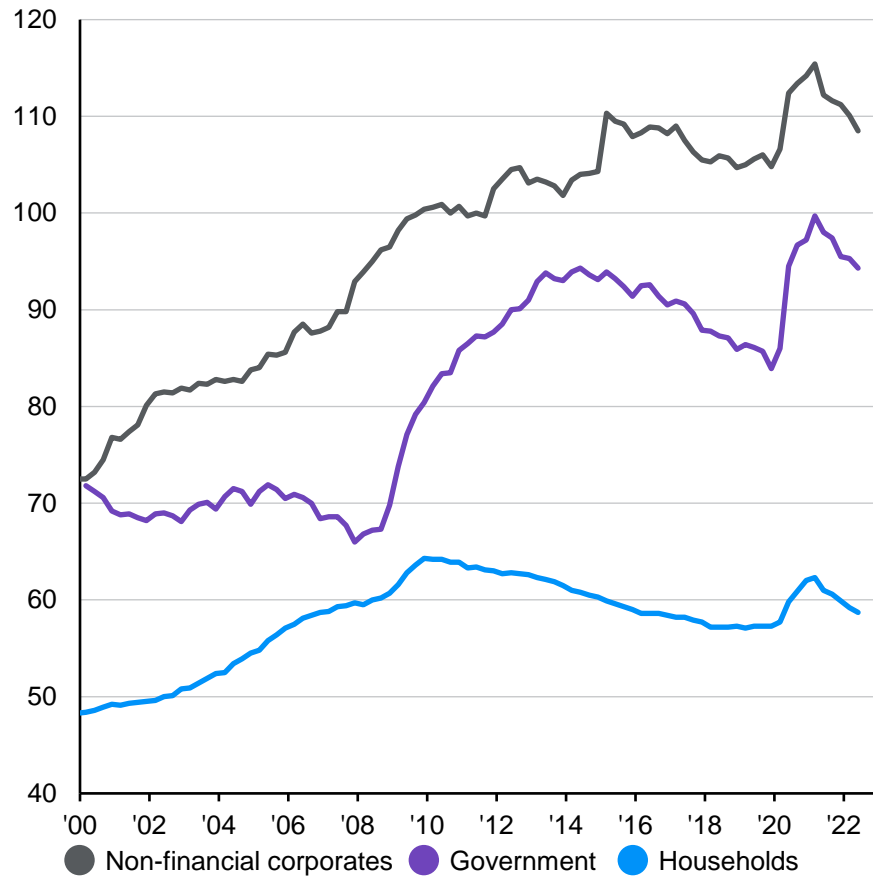


## Eurozone debt

GTM Europe 32

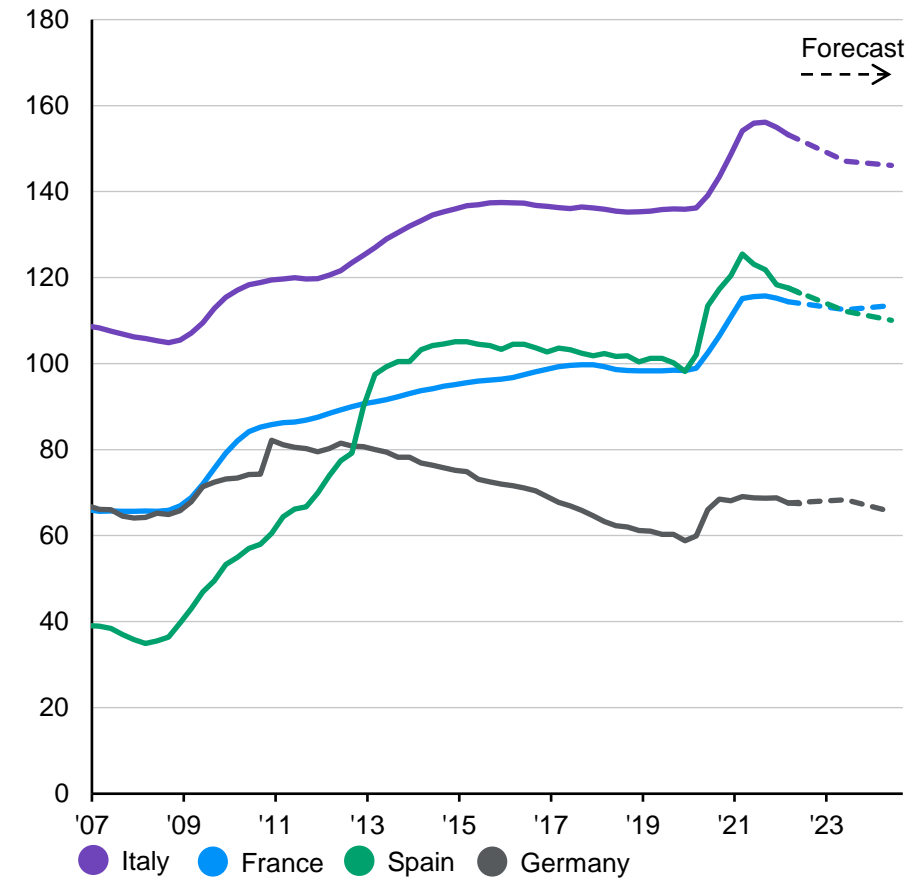
### Eurozone debt to GDP ratios

% of nominal GDP



### France, Germany, Italy and Spain government debt to GDP

% of nominal GDP



Source: (Left) Bank for International Settlements, Refinitiv Datastream, J.P. Morgan Asset Management. Debt refers to gross debt. (Right) Bank for International Settlements, IMF, Refinitiv Datastream, J.P. Morgan Asset Management. Debt refers to gross debt. Italy and France data are four-quarter moving averages. Dotted lines represent the IMF forecasts for government debt to GDP in 2021 and 2022. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



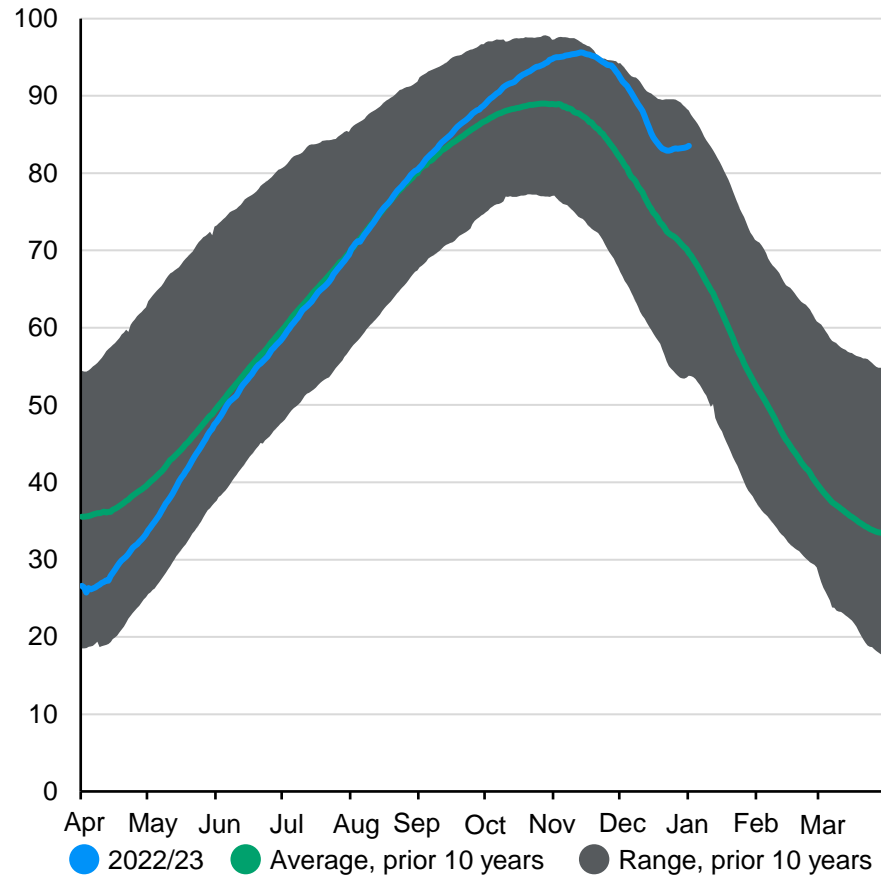


## Eurozone focus: Natural gas storage and consumption

GTM Europe 33

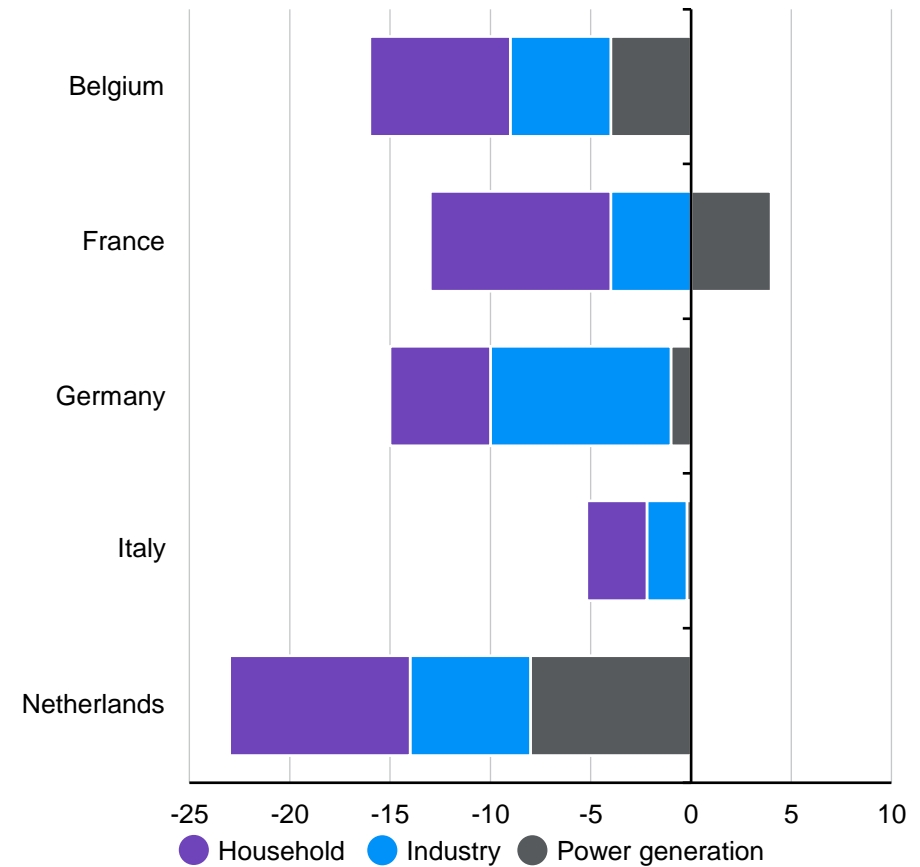
### EU natural gas inventories

% of capacity



### Natural gas consumption by sector

% change in 2022 relative to 2019-2021 average

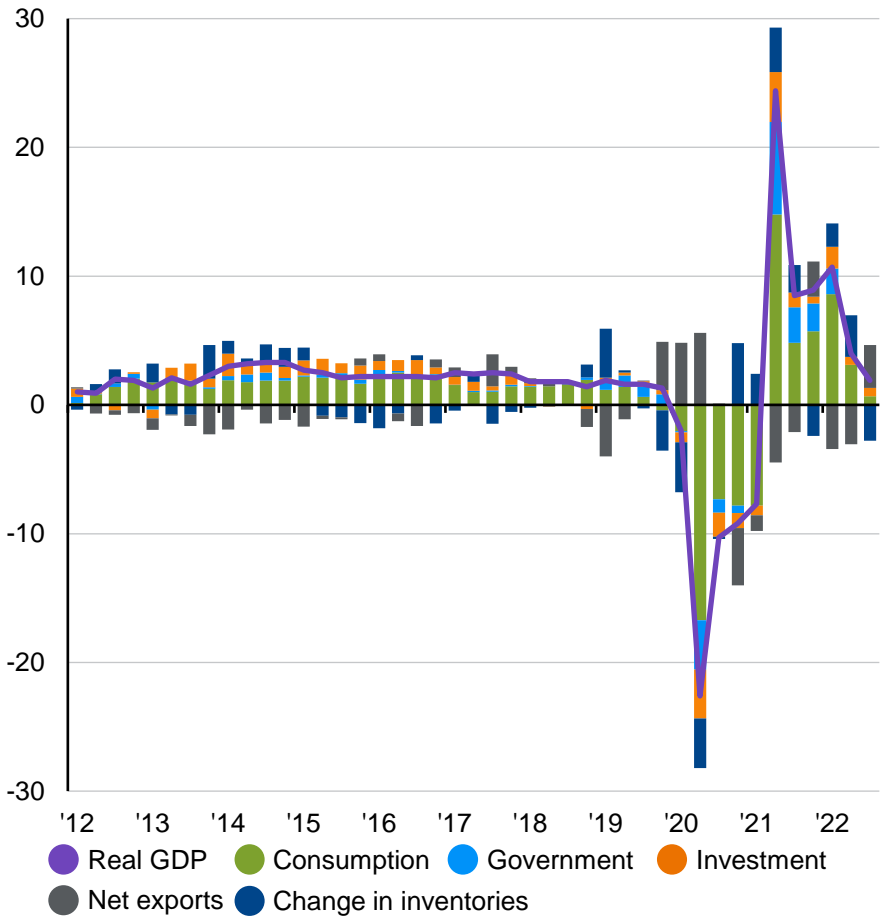




# UK GDP

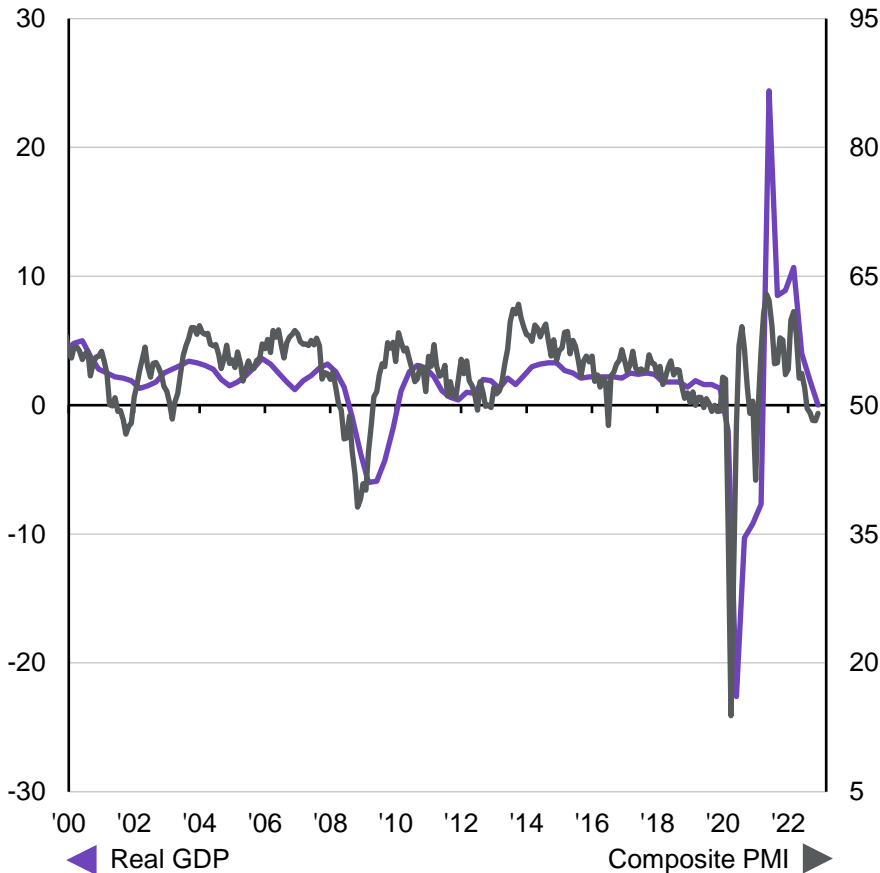
## Contribution to UK real GDP growth

% change year on year



## UK real GDP and composite PMI

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



Source: (All charts) ONS, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. PMI data is shown with quarterly frequency. A score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. *Guide to the Markets - Europe*. Data as of 31 December 2022.

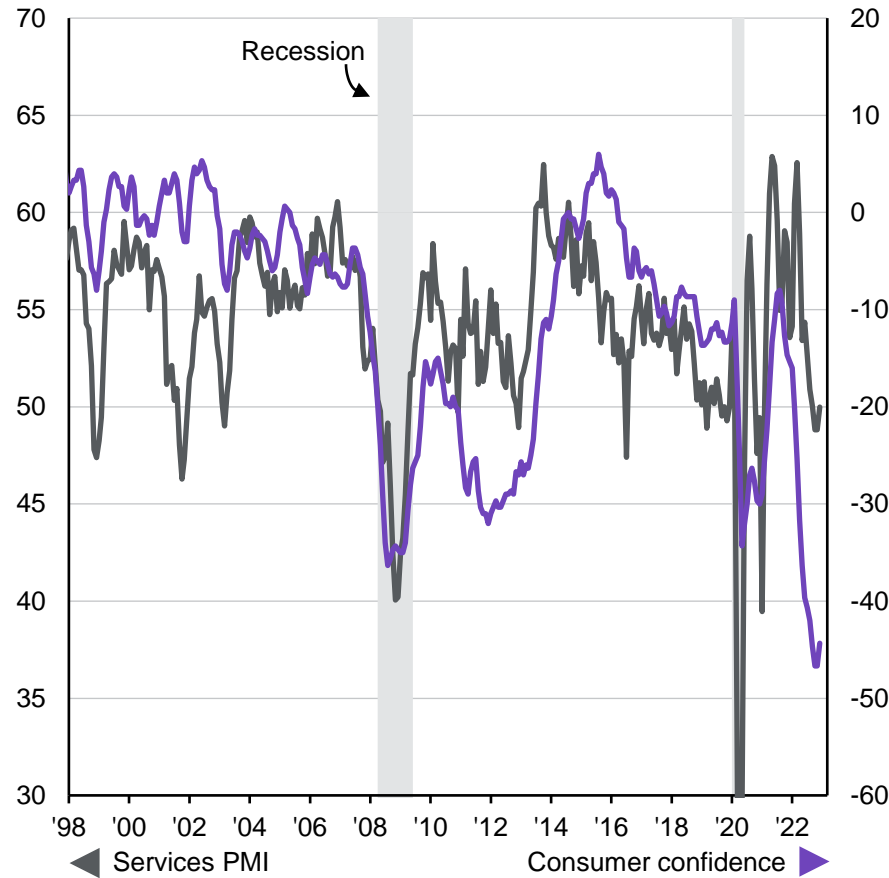


## UK consumer and labour market

GTM Europe 35

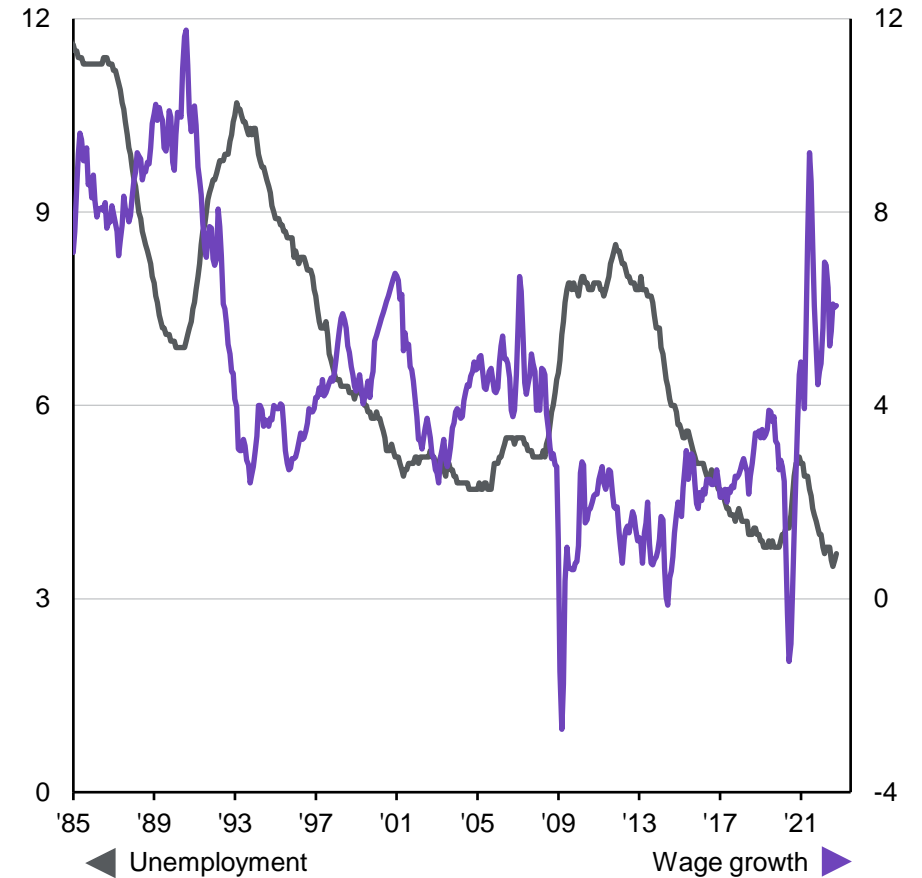
### UK consumer confidence and services sector

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



### UK unemployment rate and wage growth

%, wage growth is % change 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 - Europe*. Data as of 31 December 2022.

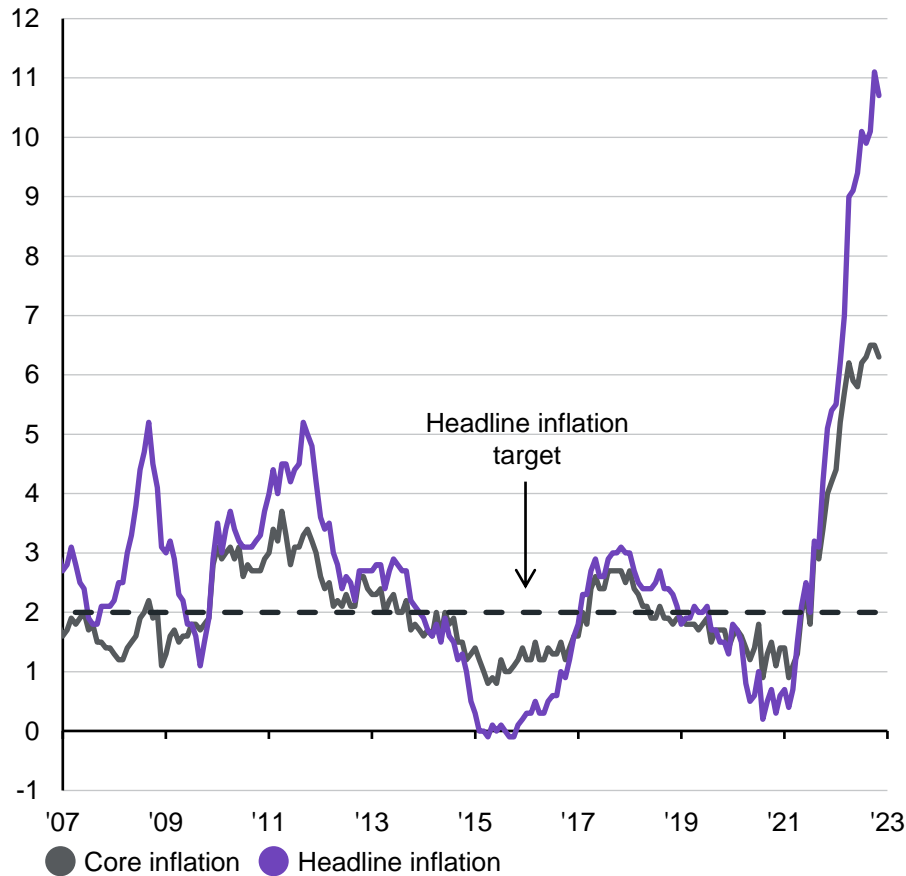


# UK inflation

GTM Europe 36

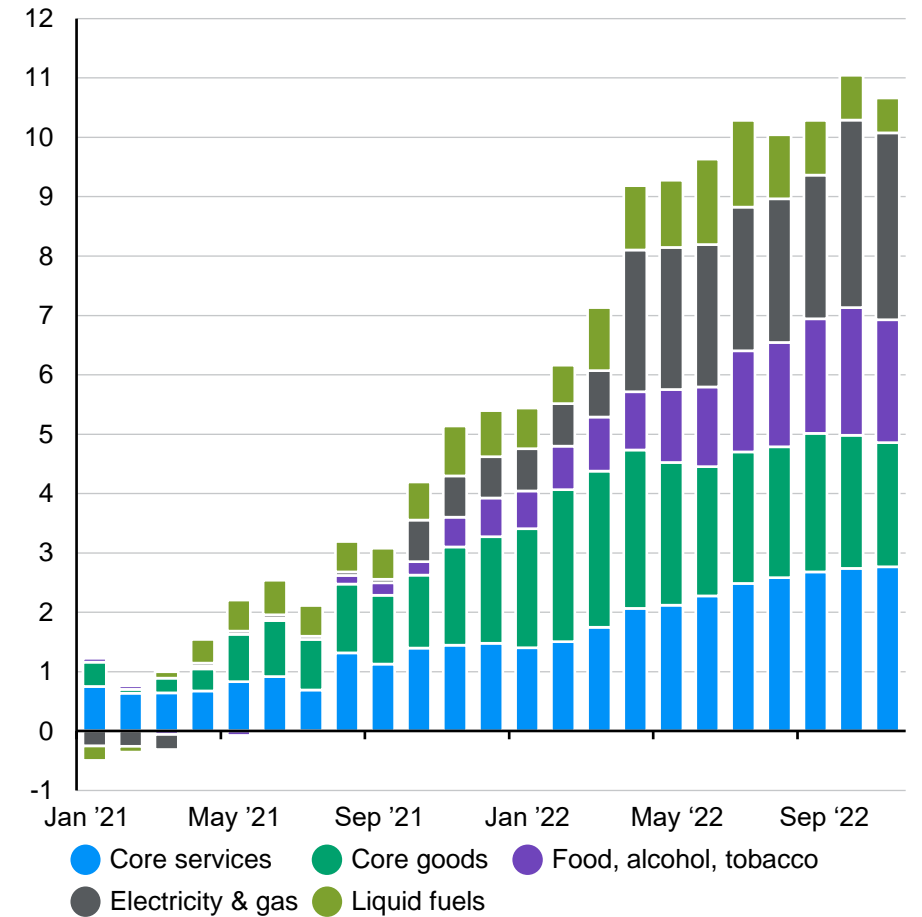
## UK headline and core inflation

% change year on year



## UK headline inflation breakdown

% change year on year



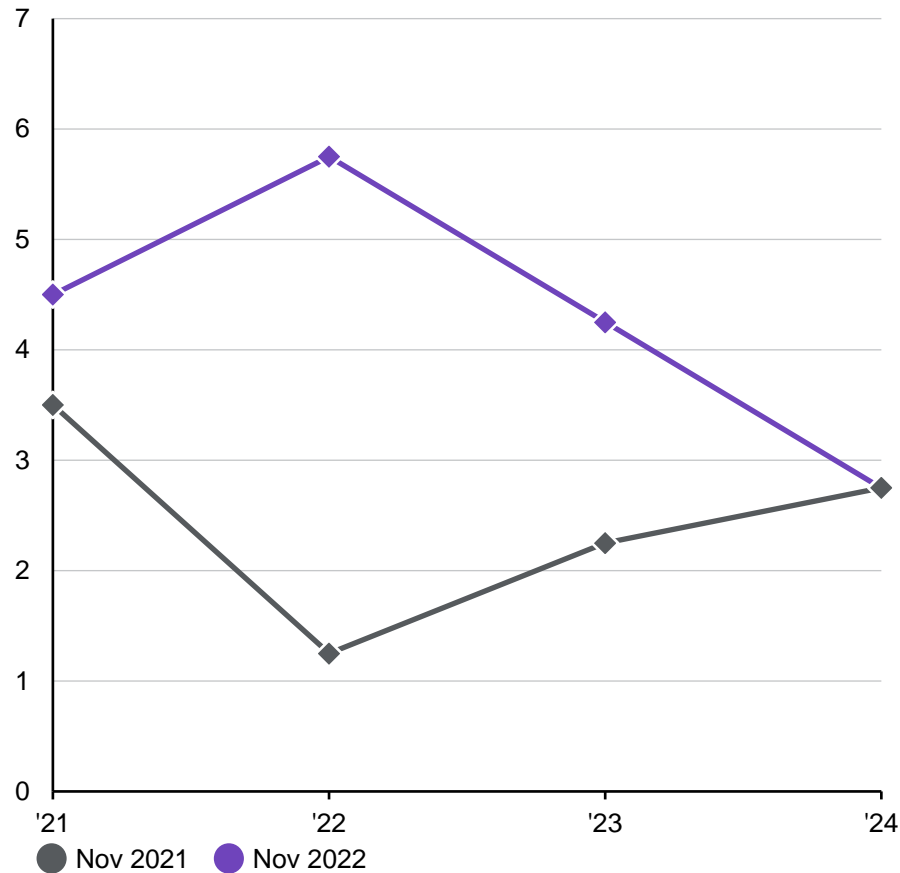


## UK focus: Wage pressures and labour shortages

GTM Europe 37

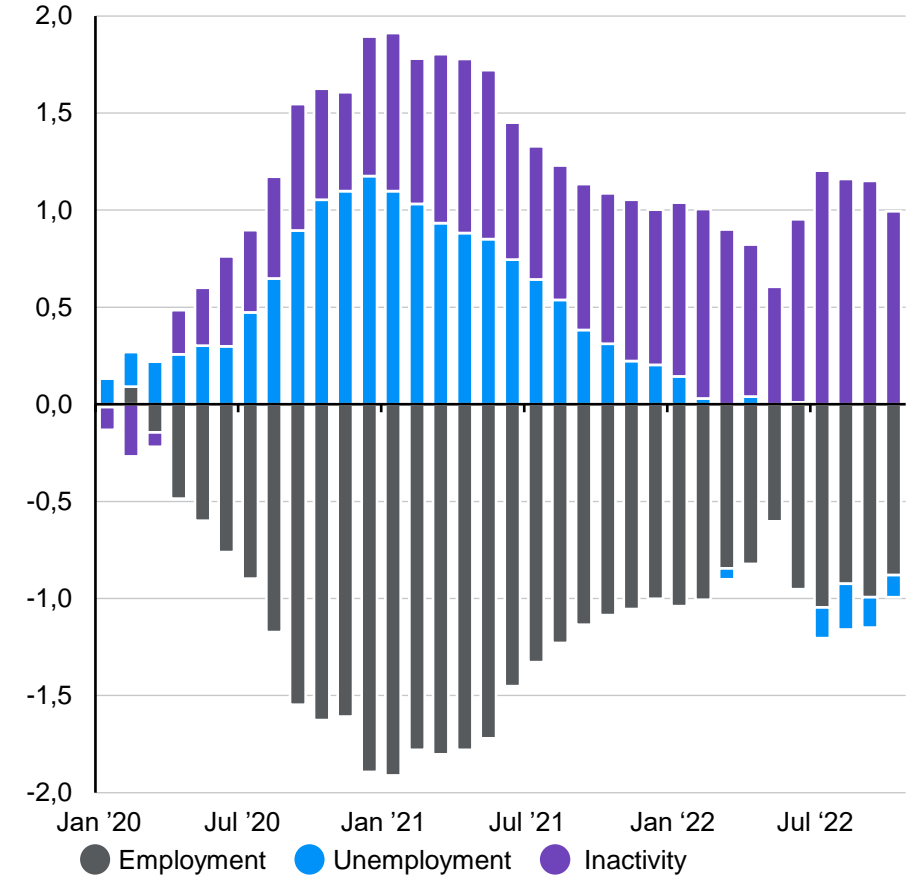
### Bank of England average weekly earnings forecasts

% change year on year



### Change in UK employment status relative to 4Q 2019

% point change as share of the working-age population



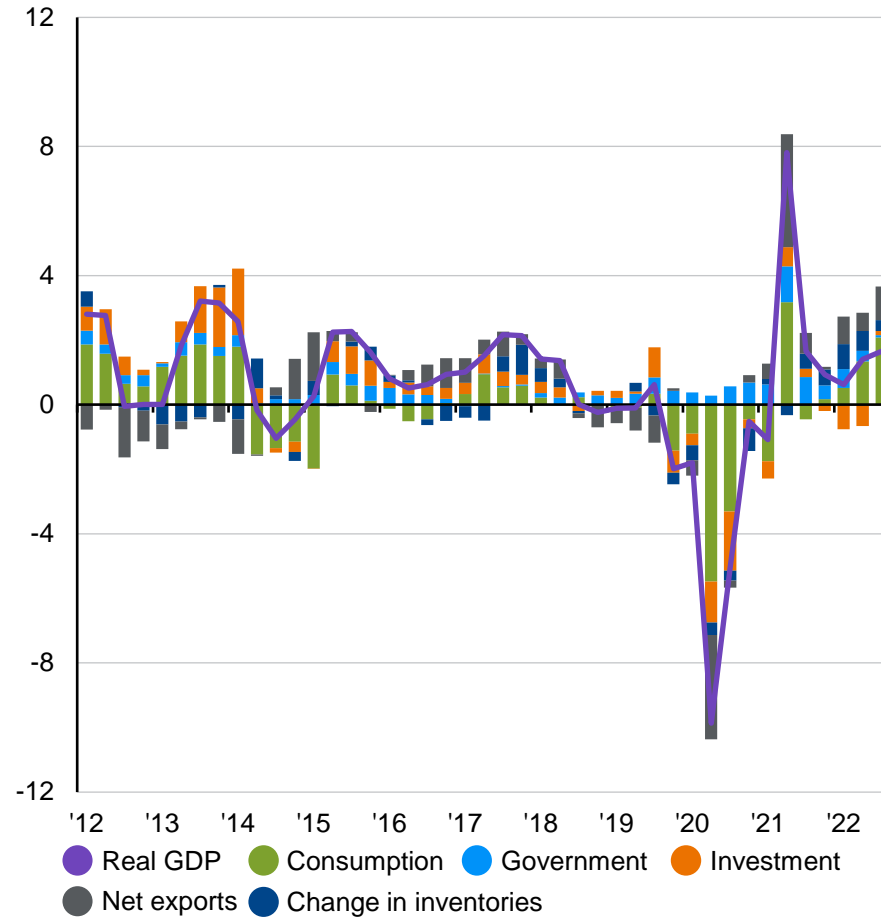


# Japan GDP

GTM | Europe | 38

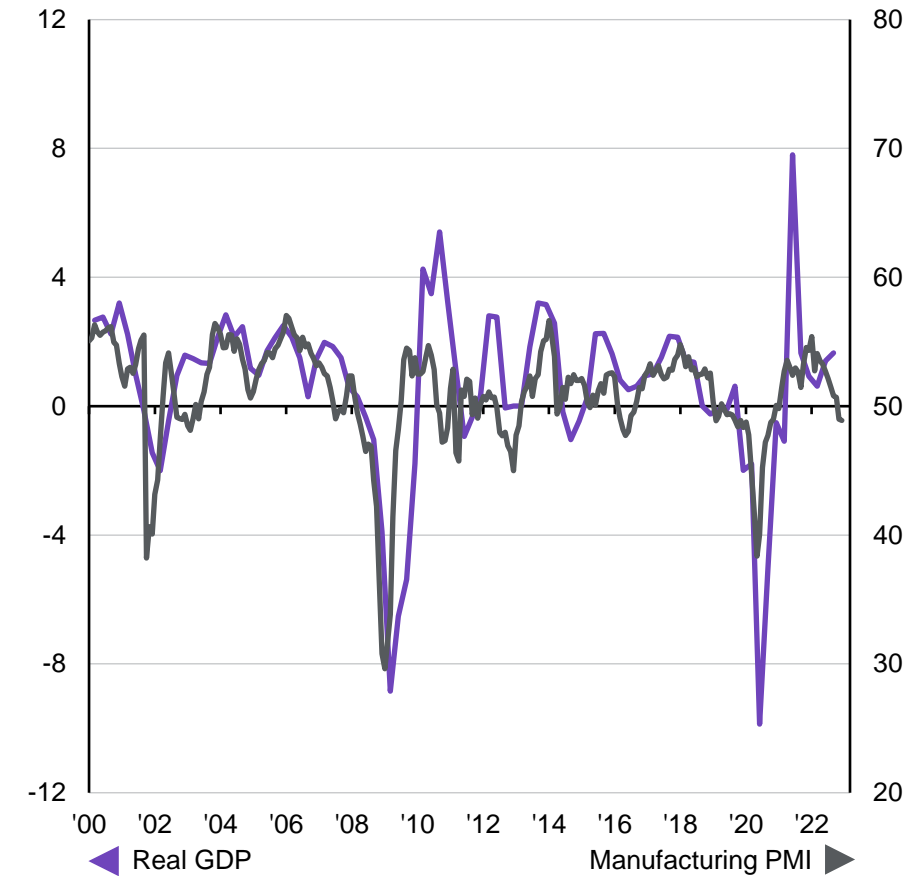
## Contribution to Japan real GDP growth

% change year on year



## Japan real GDP and manufacturing PMI

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



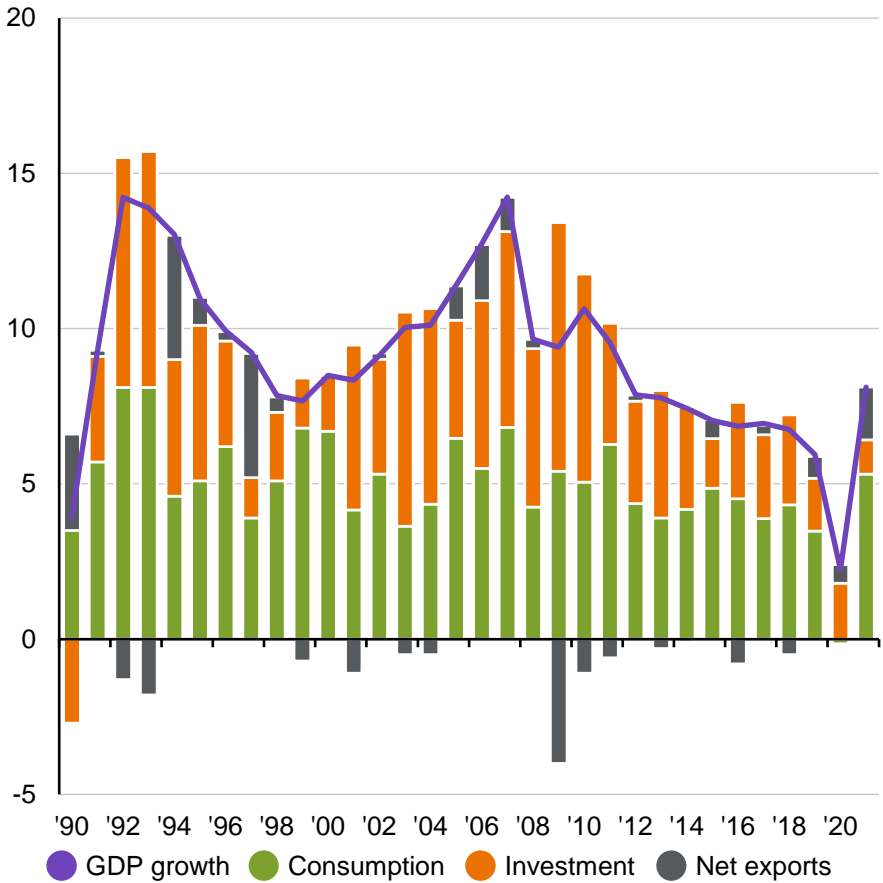
Source: (All charts) Japan Cabinet Office, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. PMI data is shown with quarterly frequency. A score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# China GDP and business surveys

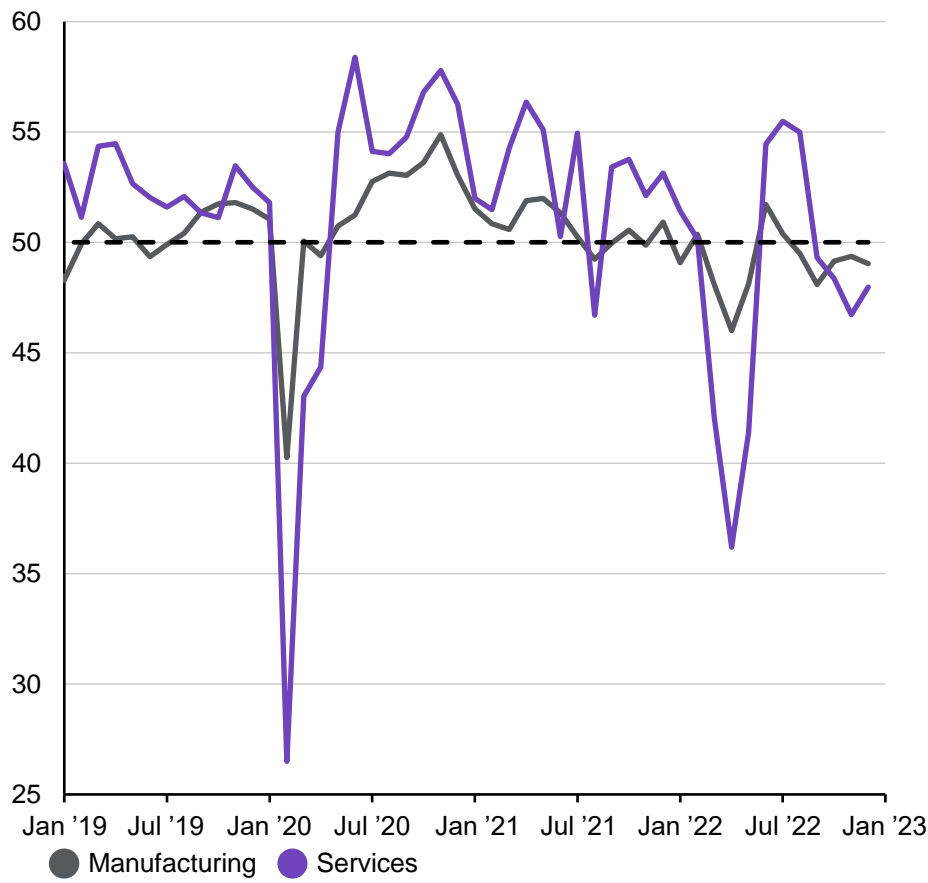
## Contribution to China real GDP growth

% change year on year



## China manufacturing and services PMIs

Index level



Source: (Left) Bloomberg, National Bureau of Statistics of China, Refinitiv Datastream, J.P. Morgan Asset Management. (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 - Europe*. Data as of 31 December 2022.

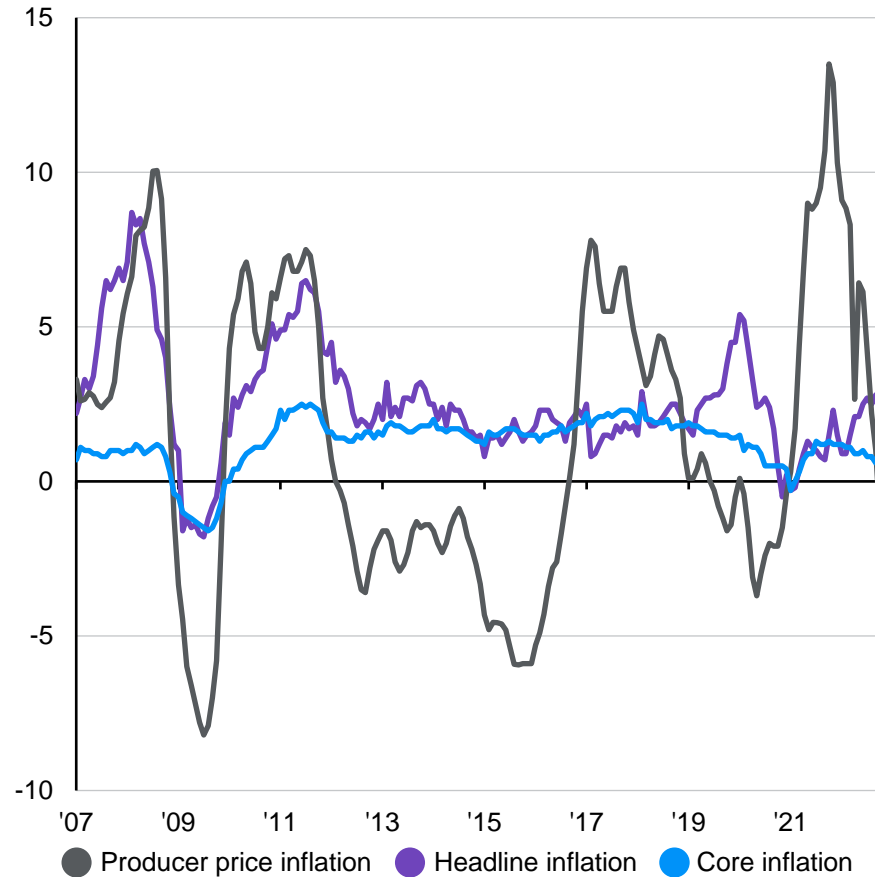


# China inflation and credit dynamics

GTM Europe 40

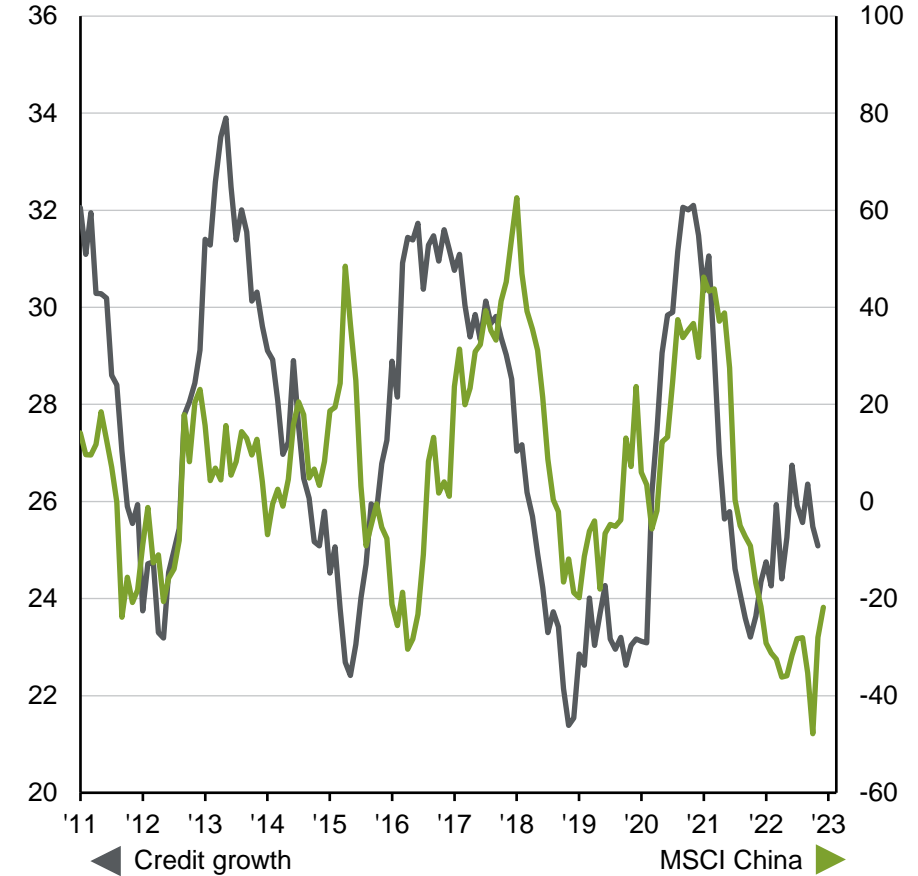
## China inflation

% 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 - Europe*. Data as of 31 December 2022.



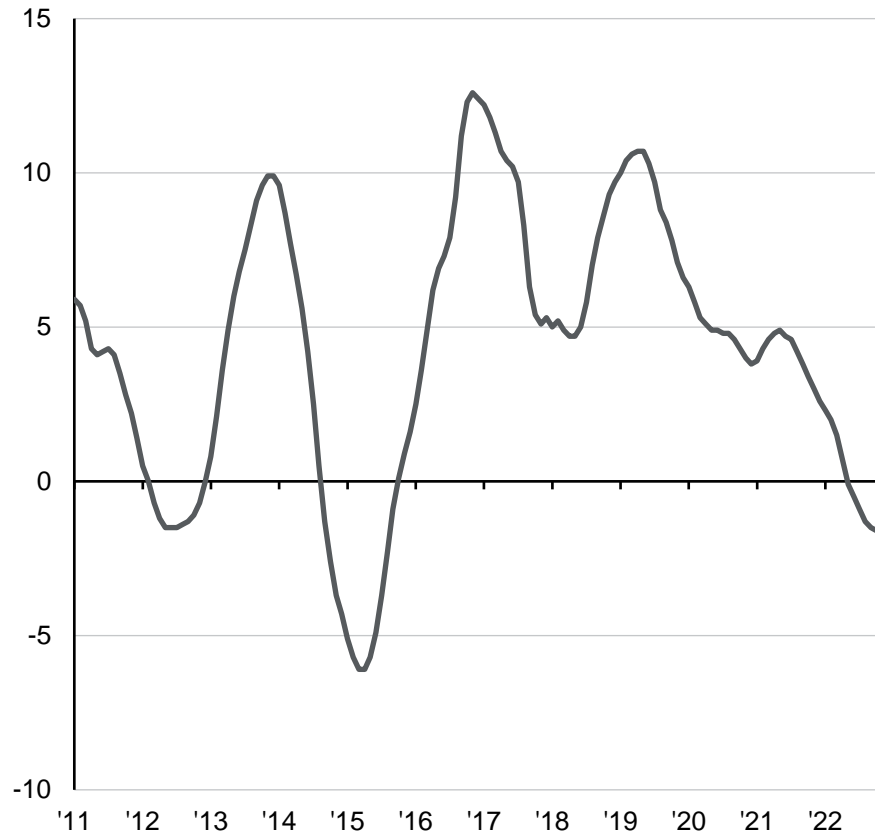


## China real estate

GTM Europe 41

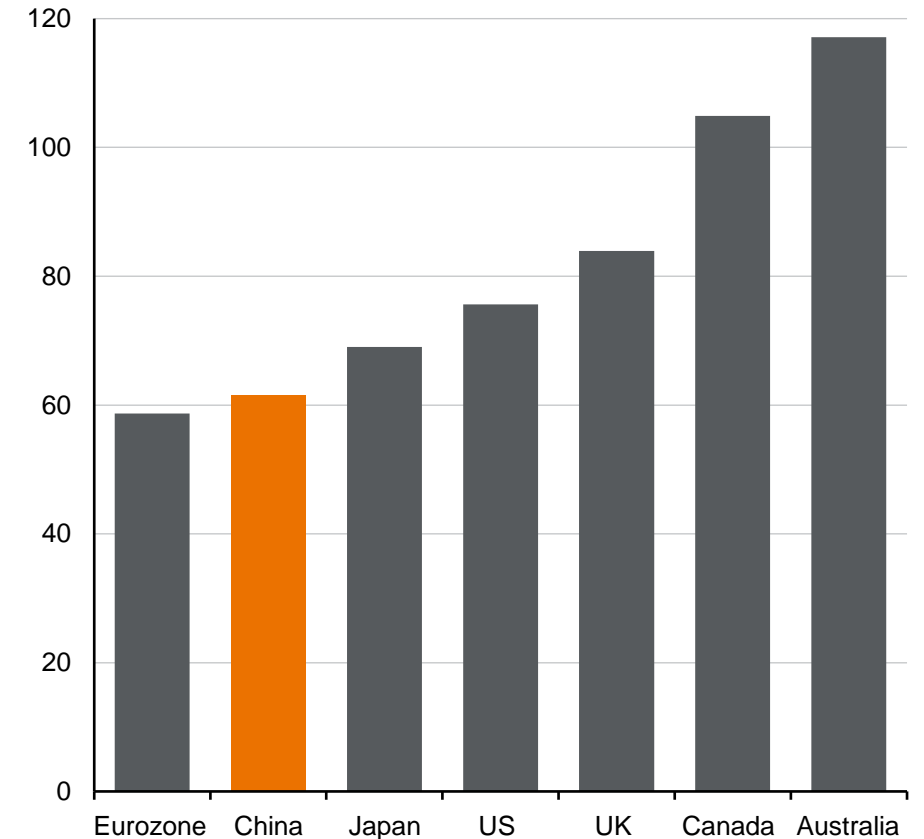
### New residential property prices

% 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. Data is 2Q 2022. *Guide to the Markets - Europe*. Data as of 31 December 2022.

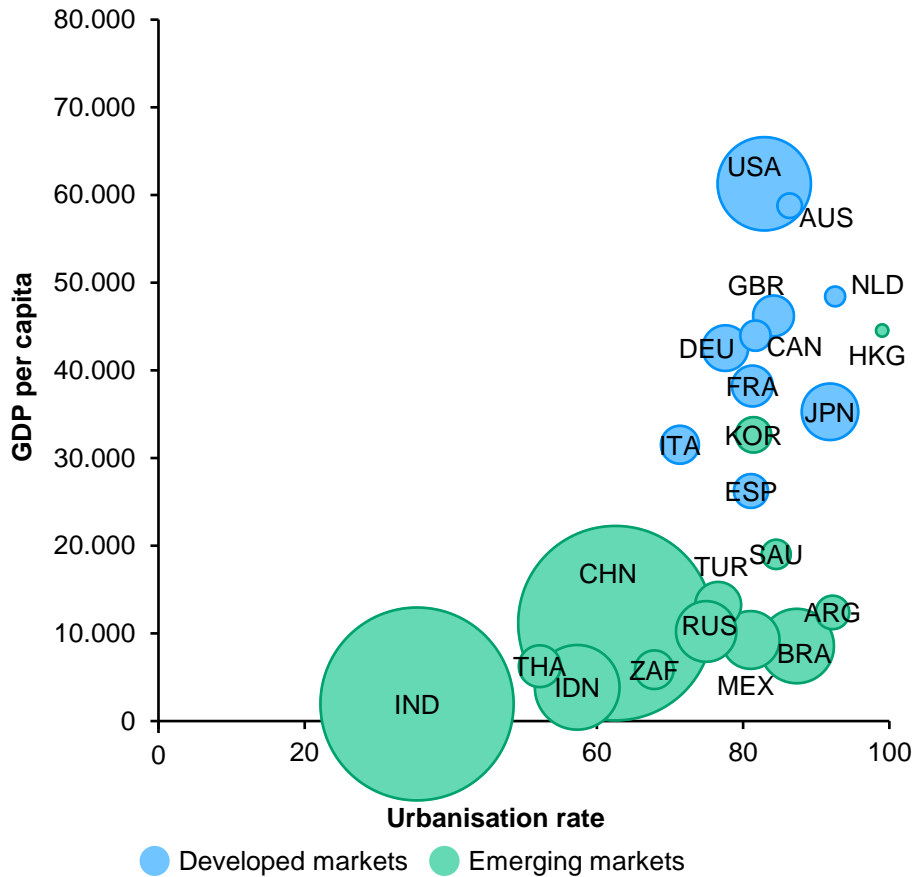


# Emerging market structural dynamics

GTM Europe 42

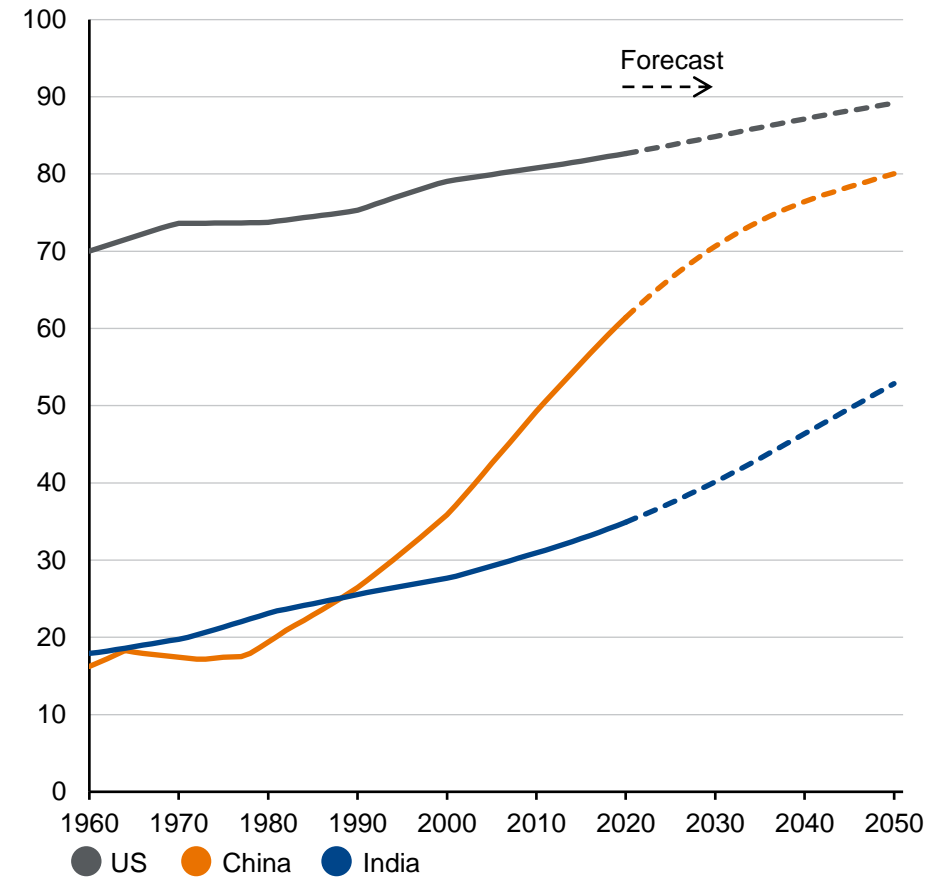
## Urbanisation, real GDP per capita and population size

% of population and USD, bubble size is population



## Urbanisation rates

% of population



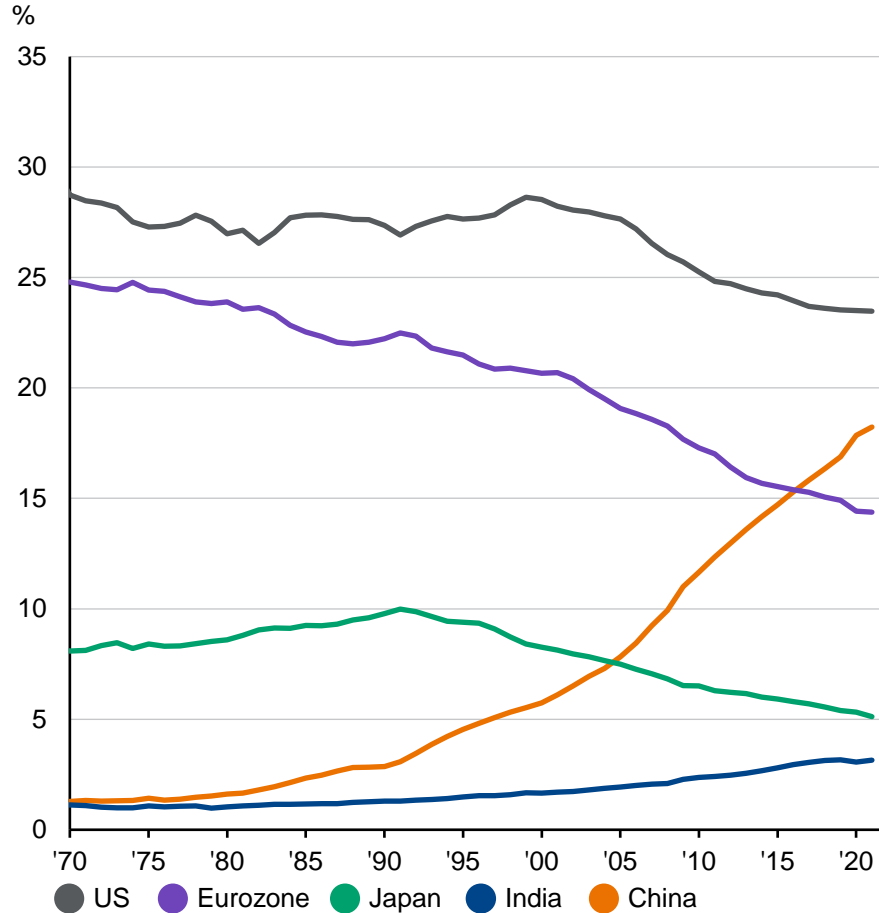
Source: (All charts) World Bank, J.P. Morgan Asset Management. Urbanisation rate refers to the proportion of the total population living within an urban area defined by national statistical offices. Countries are labelled using three-letter International Organisation of Standardisation country codes. Forecasts are from World Bank for 2020 onwards. *Guide to the Markets - Europe*. Data as of 31 December 2022.



## Emerging market growth

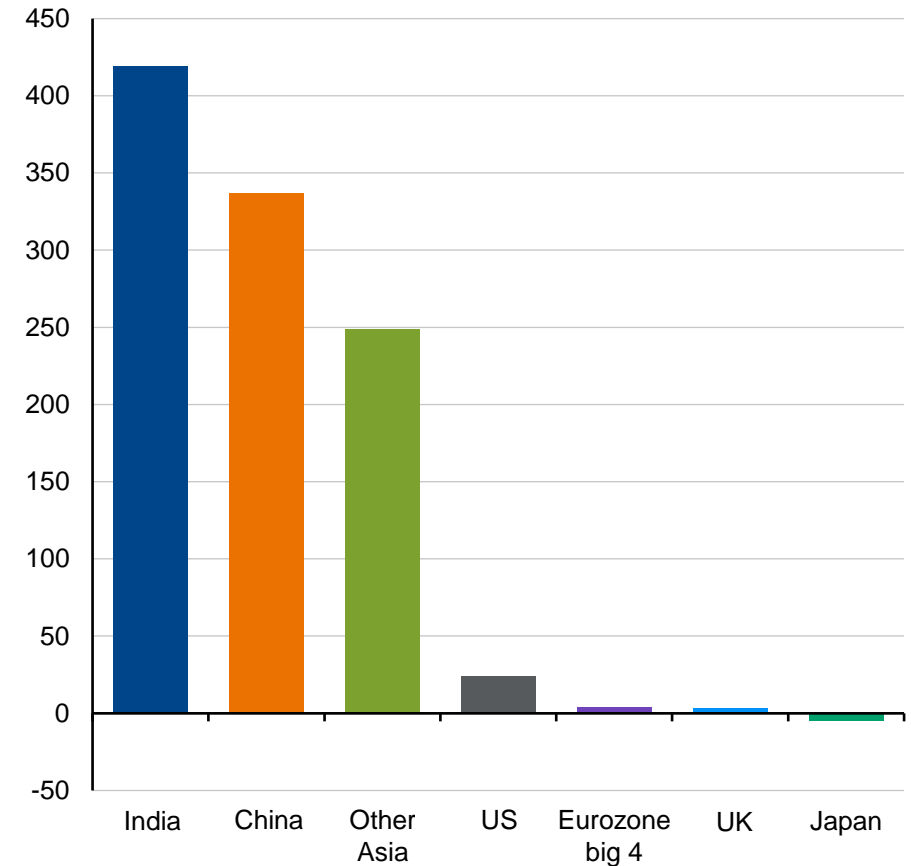
GTM Europe 43

### 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 big 4 includes France, Germany, Italy and Spain. *Guide to the Markets - Europe*. Data as of 31 December 2022.

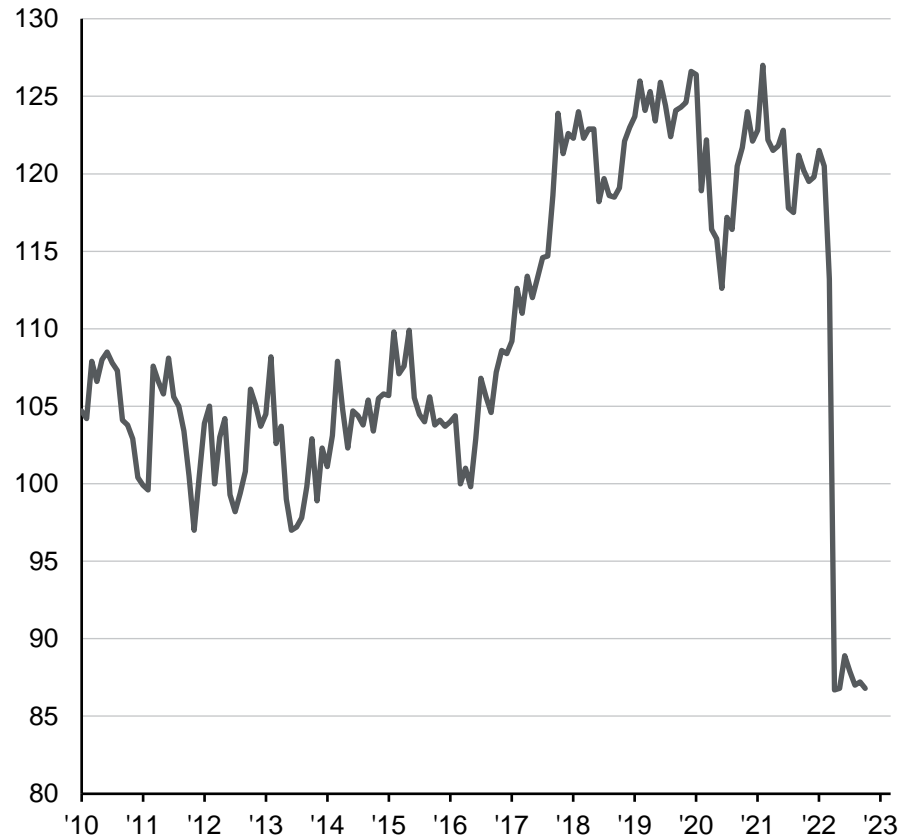


## EM focus: China consumer confidence and global trade

GTM Europe 44

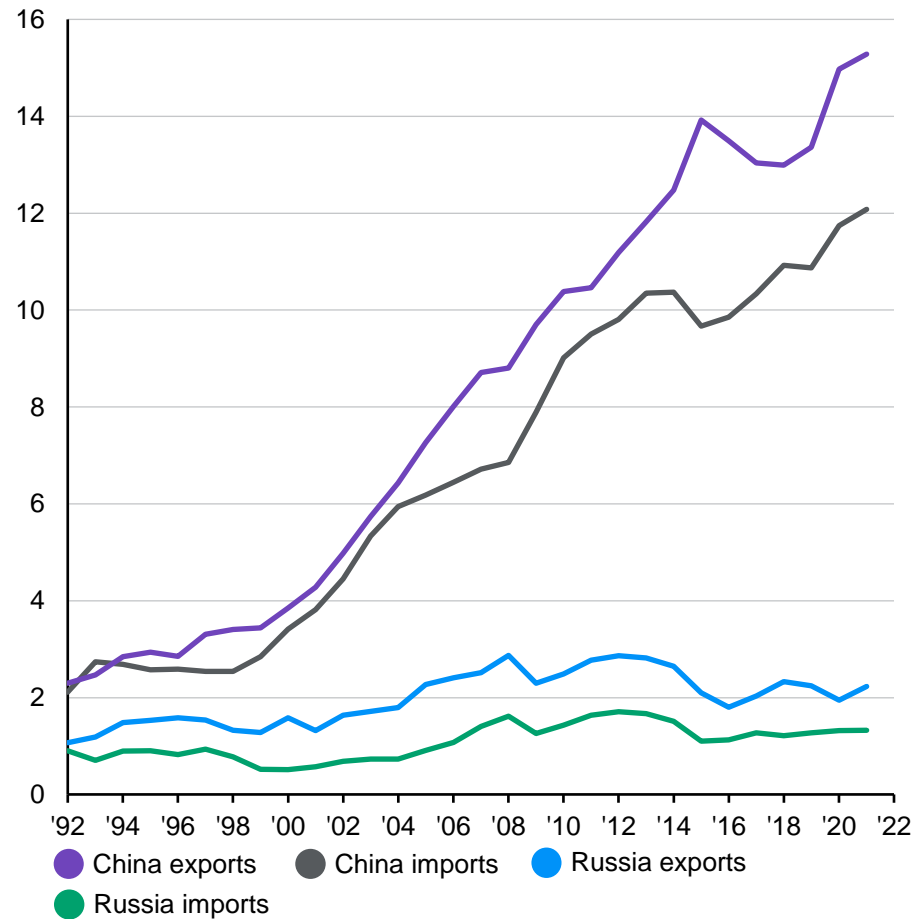
### China consumer confidence

Index level



### China and Russia's share of world trade

Exports and imports as a % of world total, goods only





# World equity valuations

GTM Europe 45

Equities

## MSCI World forward P/E ratio

x, multiple





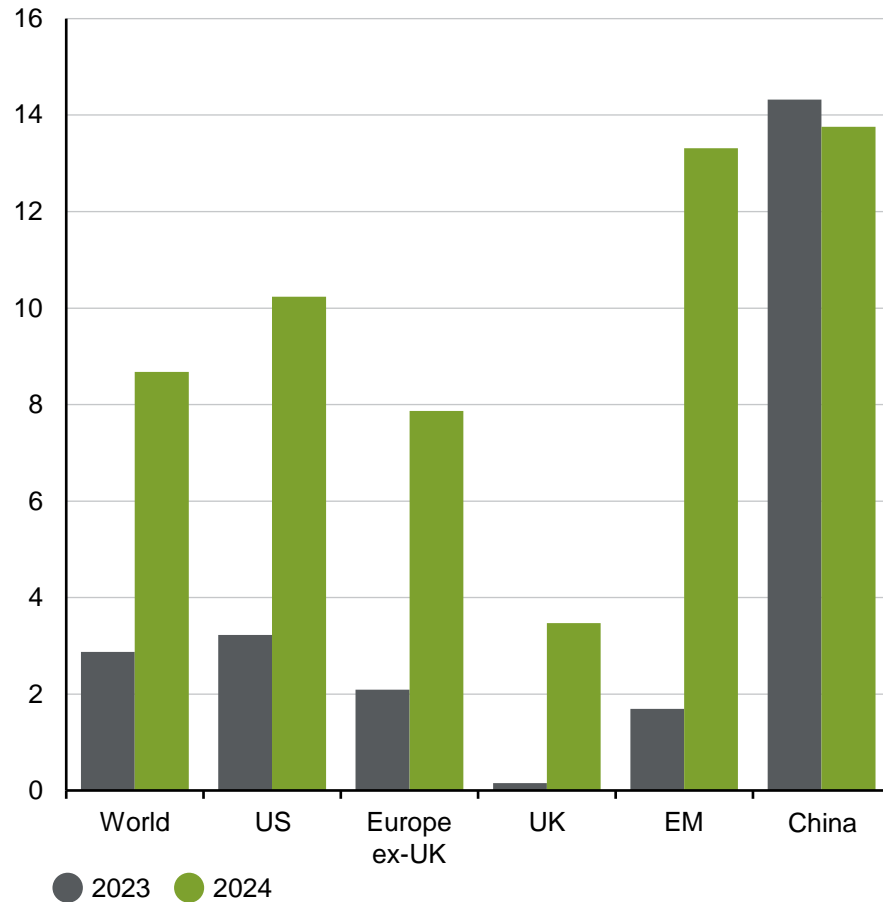
## Regional earnings expectations and equity valuations

GTM Europe 46

Equities

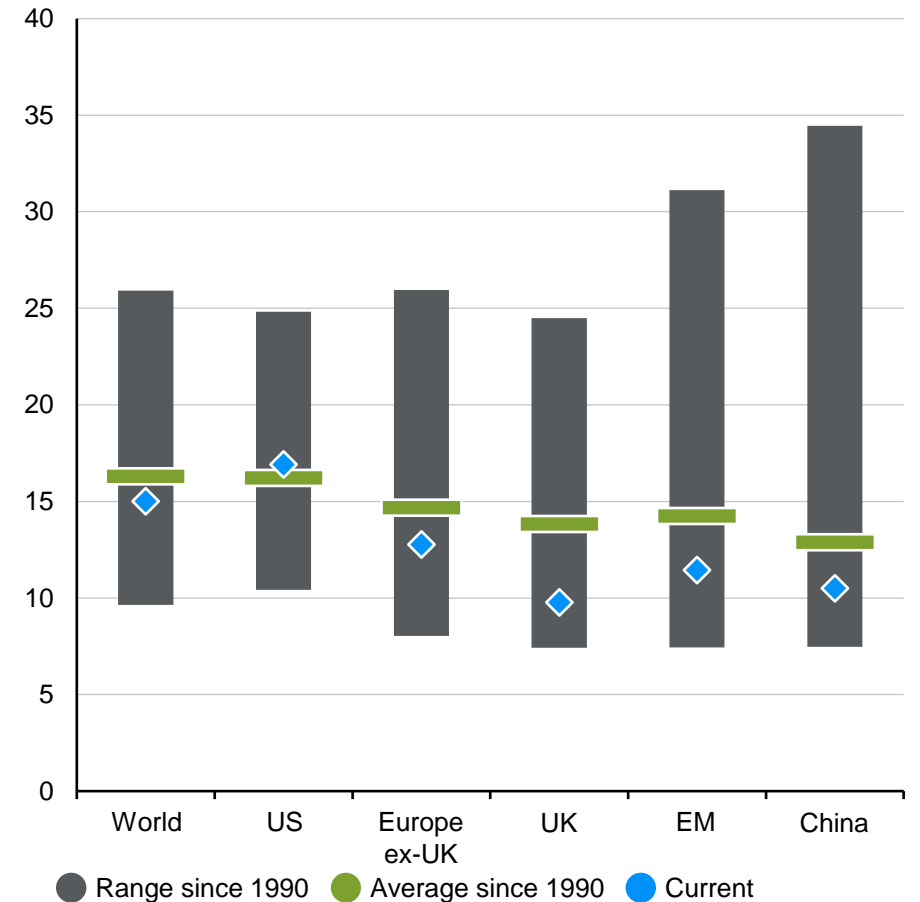
### Consensus estimates for global earnings per share growth

% 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 - Europe*. Data as of 31 December 2022.

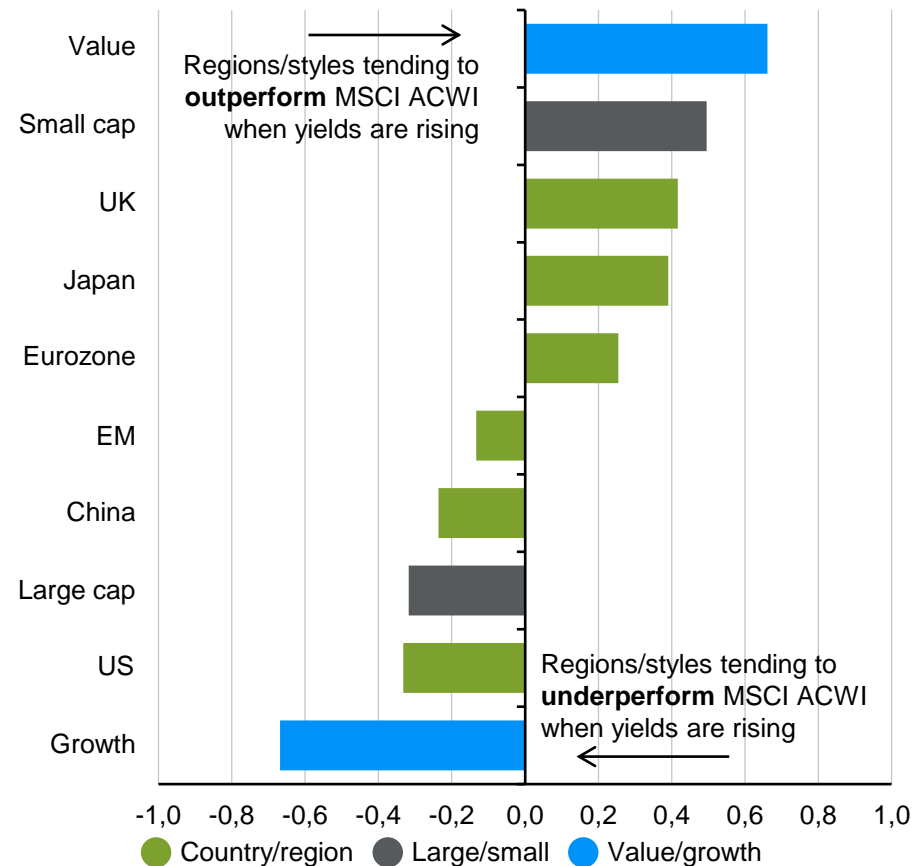
**J.P.Morgan**  
ASSET MANAGEMENT



# Global equity market correlations with Treasury yields

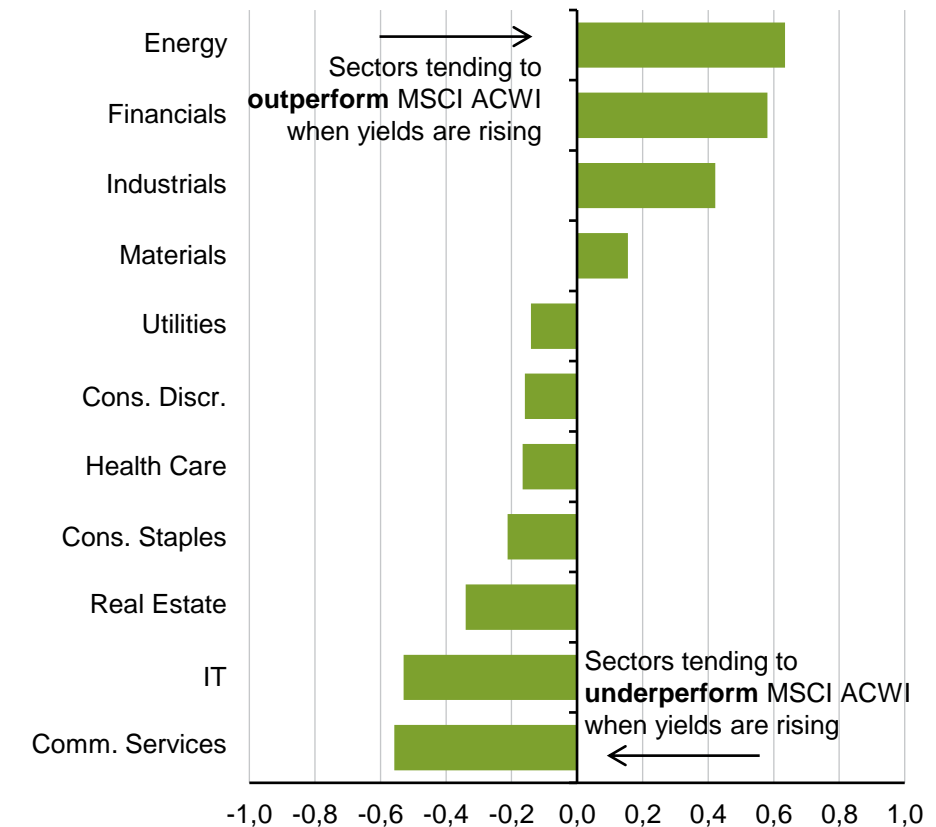
## Correlation of regions and styles to US 10y Treasury yield

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



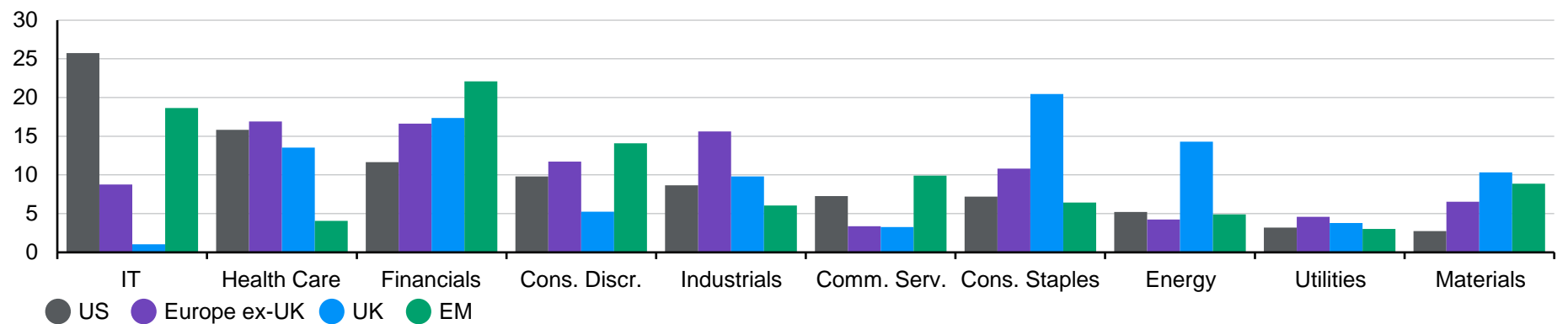
Source: (All charts) MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Correlation of regions and styles is calculated between the six-month change in US 10-year Treasury yields and the six-month relative performance of each region and style to MSCI All-Country World Index. Correlation of sectors 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 - Europe*. Data as of 31 December 2022.



# Global equity sector weights

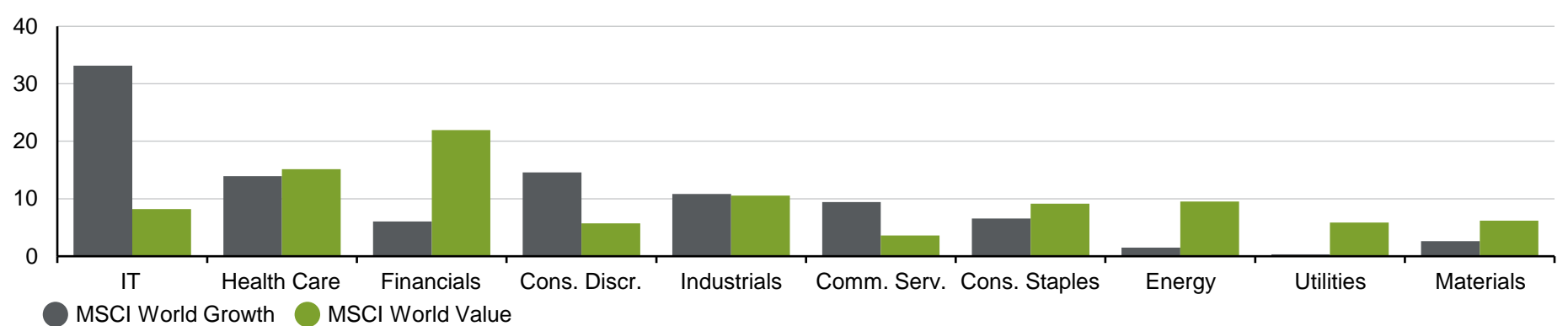
## Global equity sector weights

% of total market cap



## MSCI World Growth and Value sector weights

% of total market cap



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 - Europe*. Data as of 31 December 2022.



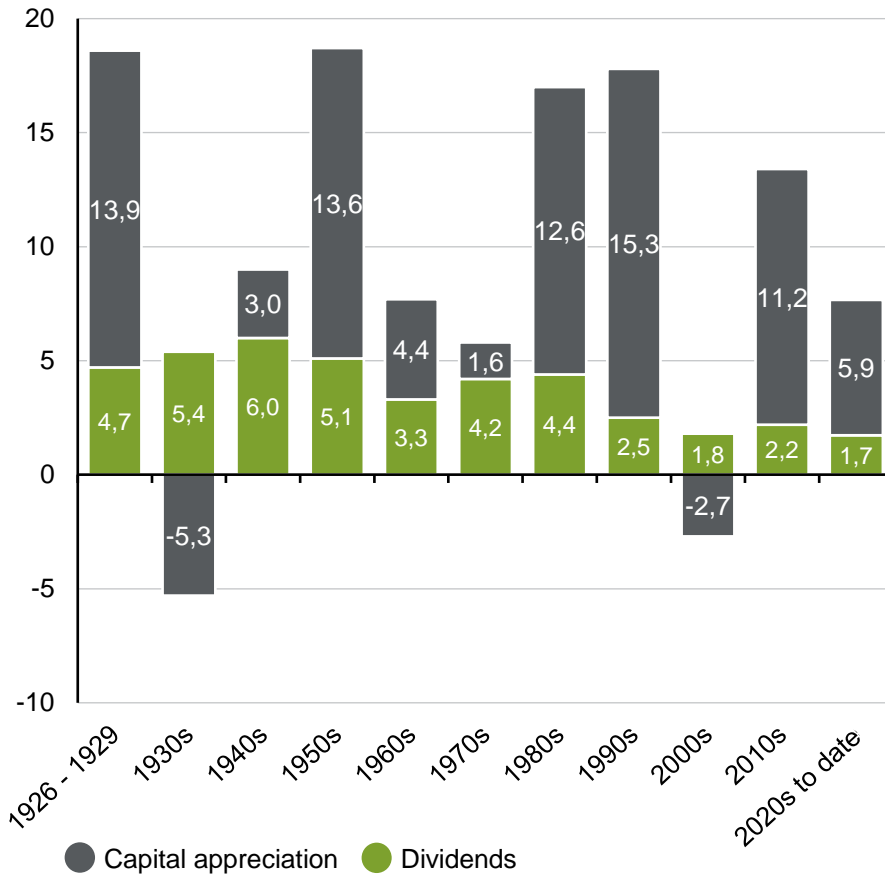


# Global equity income

Equities

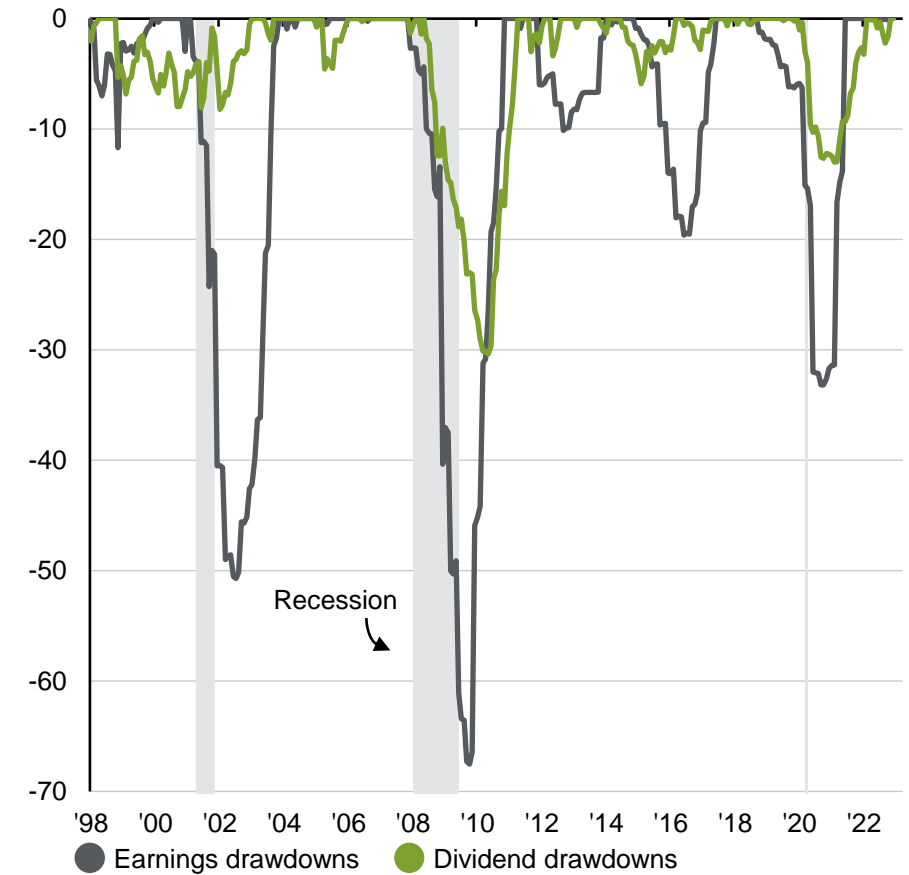
## S&P 500 returns: Capital appreciation and dividends

%, annualised returns



## MSCI World earnings and dividend drawdowns

% drawdown from rolling 2-year high



Source: (Left) Ibbotson, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. (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 - Europe. Data as of 31 December 2022.

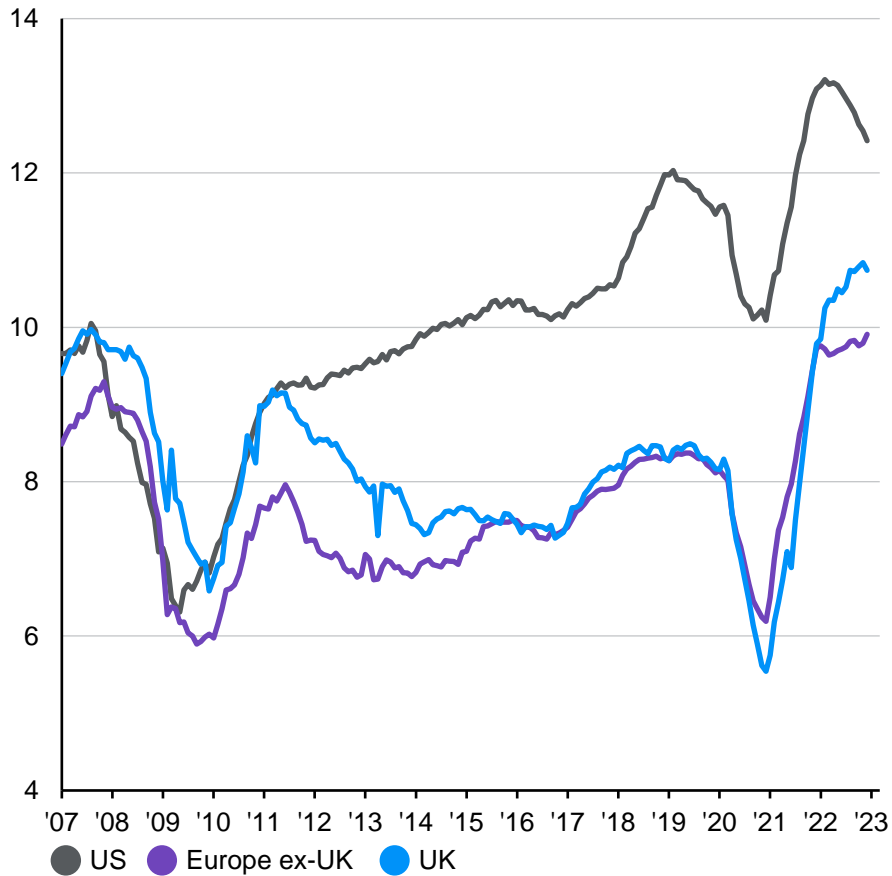


# Profit margins

GTM Europe 50

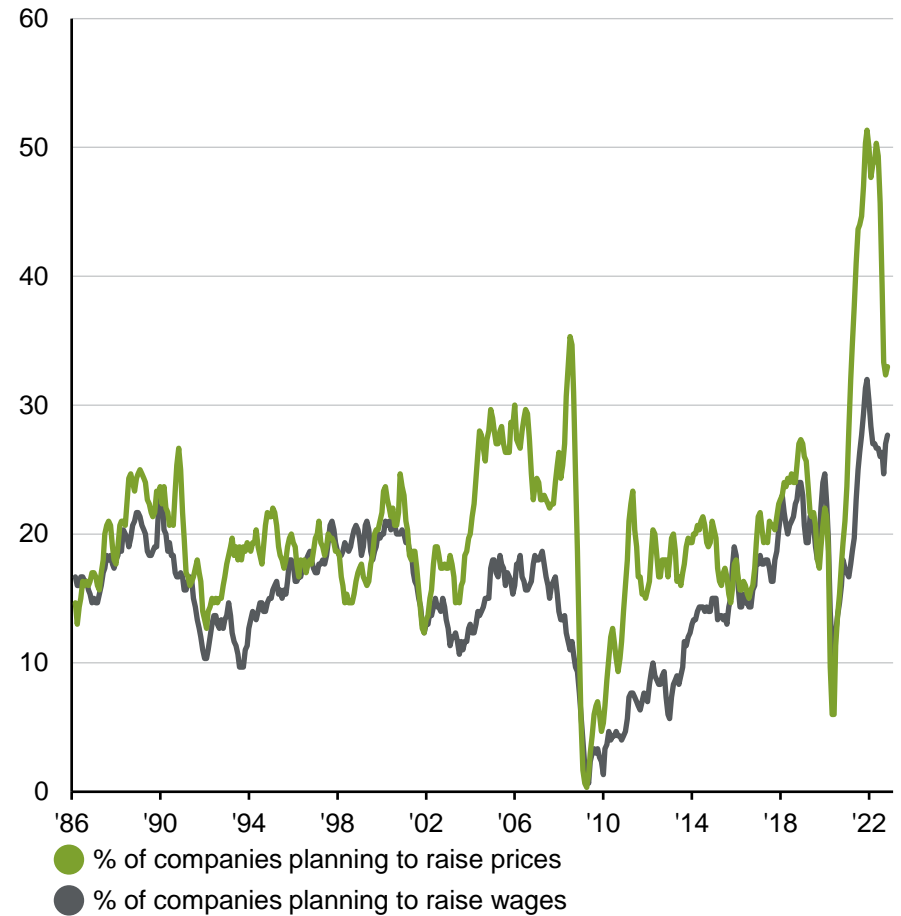
## Profit margins

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



## US NFIB survey: Prices and wages

% of respondents, three-month moving average



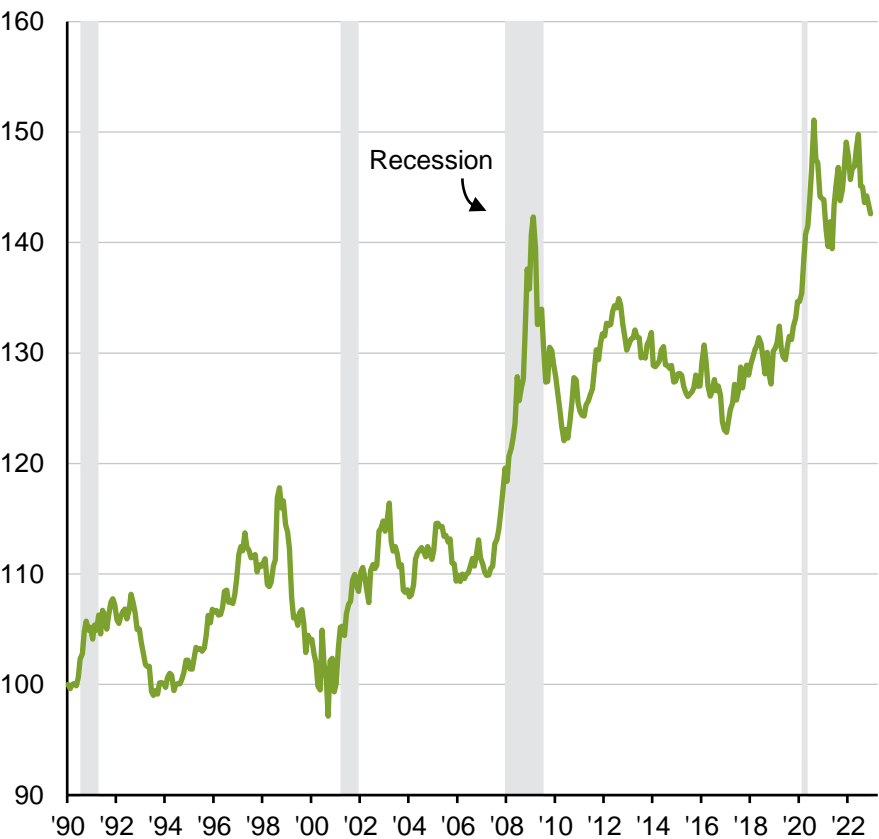
Source: (Left) FTSE, MSCI, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. US: S&P 500, Europe ex-UK: MSCI Europe ex-UK, UK: FTSE All-Share. (Right) National Federation of Independent Business, Refinitiv Datastream, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# Equity market factors

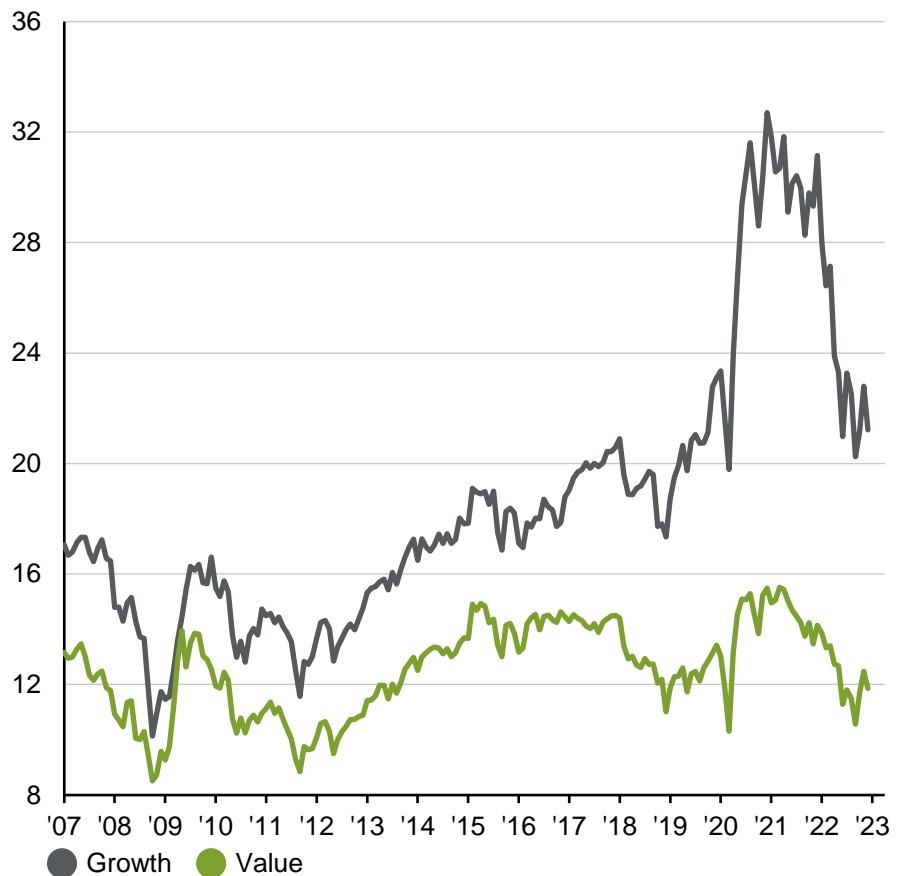
## S&P 500 Quality/S&P 500 relative performance

Relative total return index level, rebased to 100 in 1990



## MSCI World Growth and Value forward P/E ratios

x, multiple



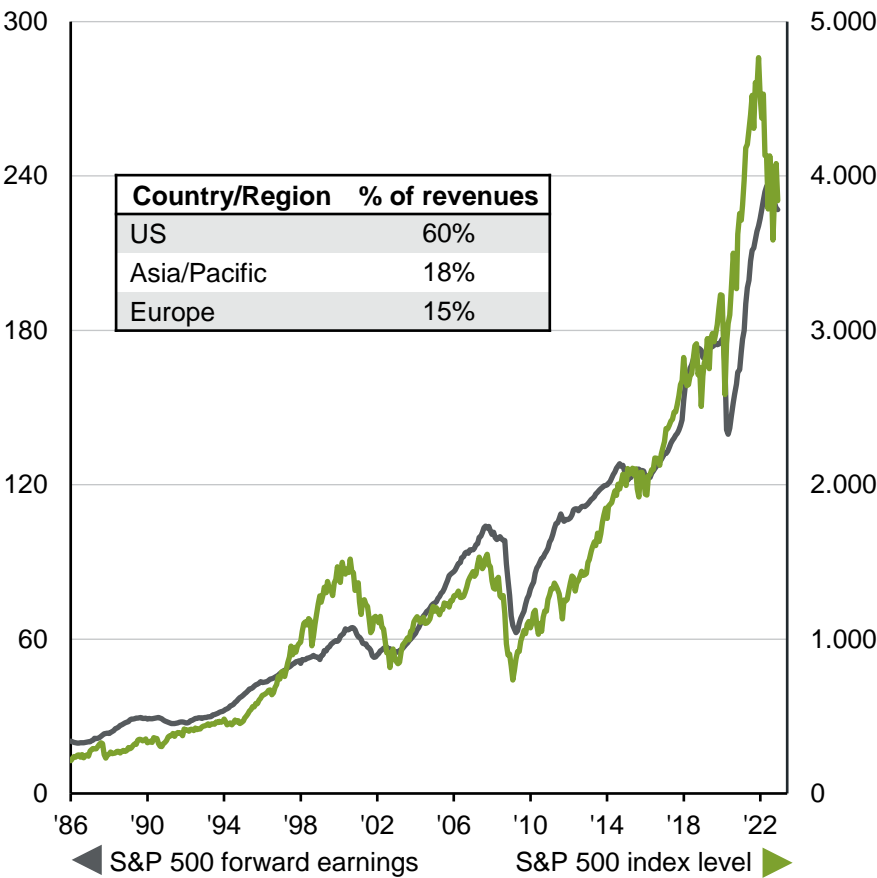
Source: (Left) J.P. Morgan Asset Management Quantitative Beta Solutions, S&P Global, J.P. Morgan Asset Management. S&P 500 Quality index is the top quartile quality stocks in the S&P 500 determined by JPMAM Quantitative Beta Strategies based on measures of profitability, financial risk and earnings quality. 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 - Europe*. Data as of 31 December 2022.



# US earnings

## S&P 500 earnings and performance

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



## US inflation and earnings growth

% change year on year



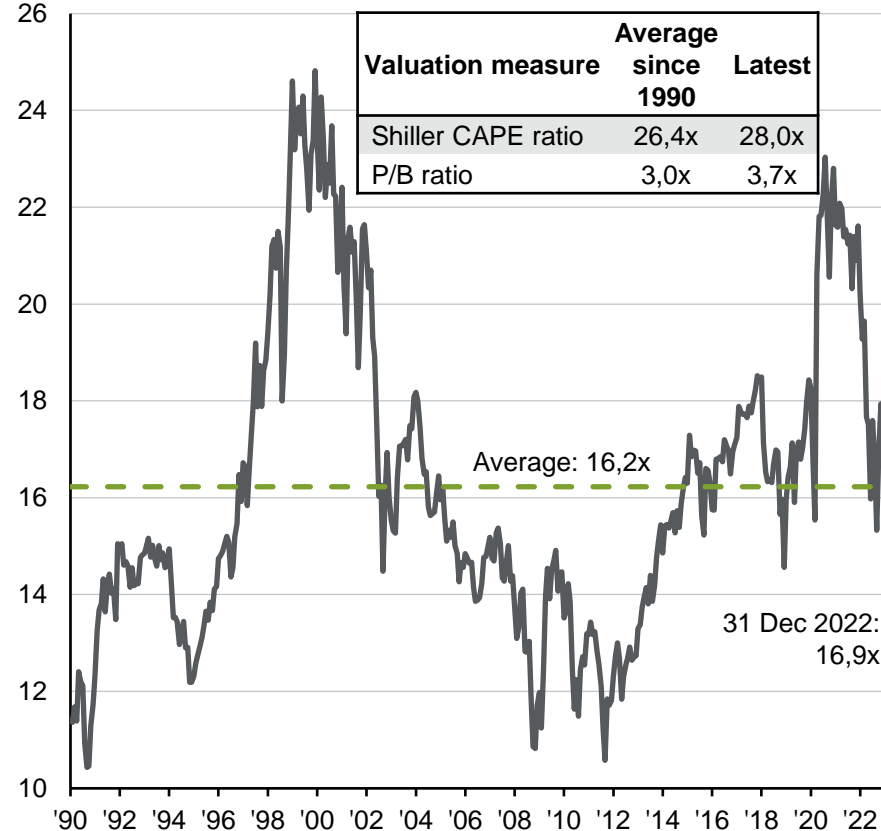
Source: (Left) FactSet, IBES, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. Earnings data is based on 12-month forward estimates. (Right) BLS, IBES, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. Earnings data is last 12 months' earnings per share. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# US equity valuations and performance

## S&P 500 forward P/E ratio

x, multiple

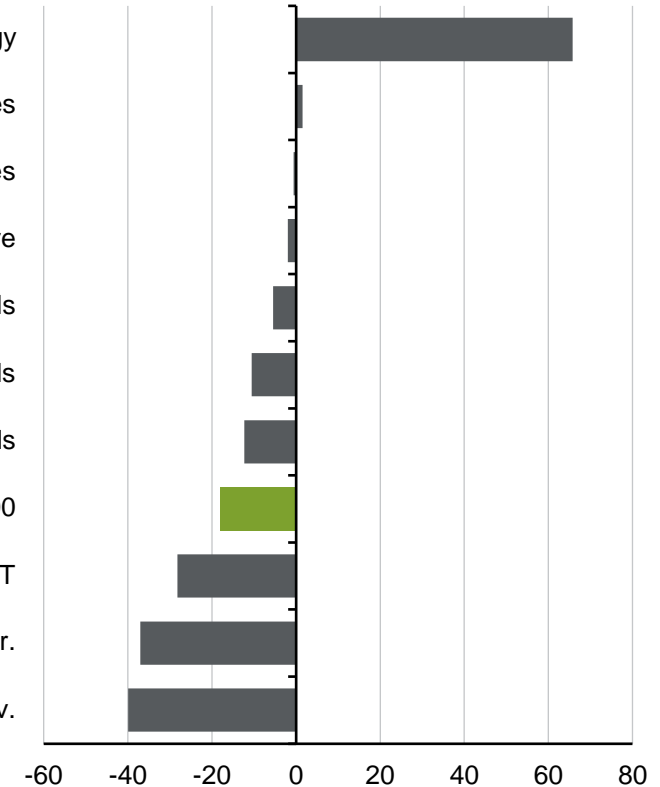


## S&P 500 sector performance in 2022

%, total return in USD

Current P/E ratio

9,7	Energy
18,8	Utilities
20,9	Cons. Staples
17,3	Health Care
18,1	Industrials
12,2	Financials
15,7	Materials
16,9	S&P 500
20,1	IT
21,1	Cons. Discr.
14,2	Comm. Serv.



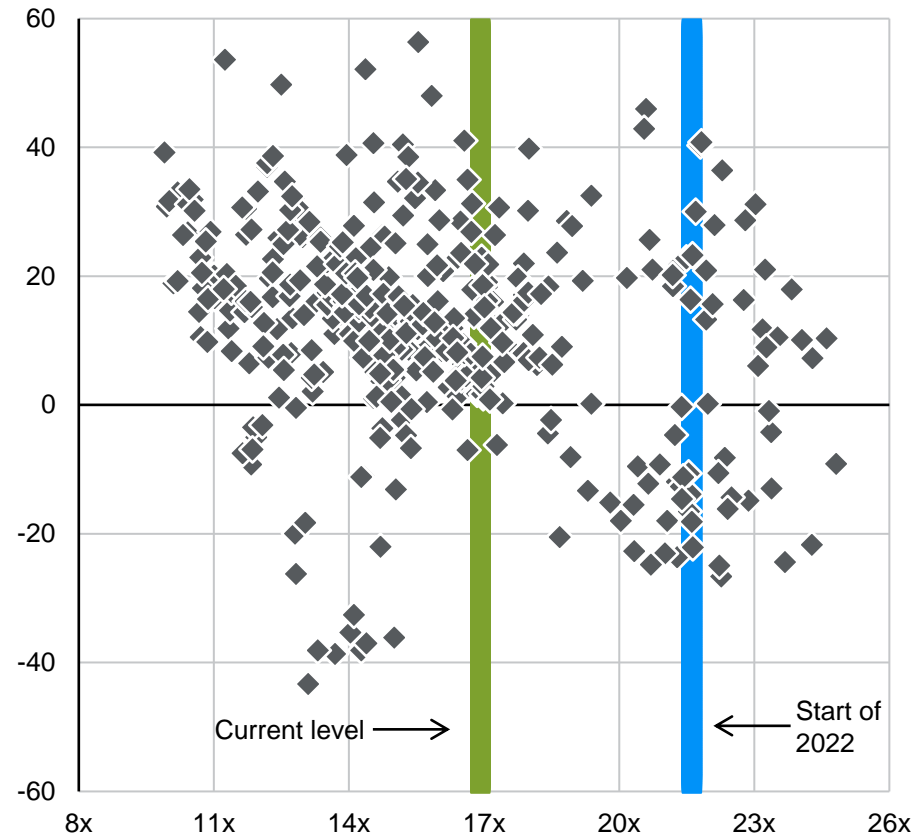
Source: (Left) IBES, Refinitiv Datastream, Robert Shiller, S&P Global, J.P. Morgan Asset Management. Forward P/E ratio is price to 12-month forward earnings, calculated using IBES earnings estimates. P/E data may differ from *Guide to the Markets - US*, which uses FactSet earnings estimates. Shiller 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. (Right) IBES, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. Current P/E ratio is price to 12-month forward earnings. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# US valuations and subsequent returns

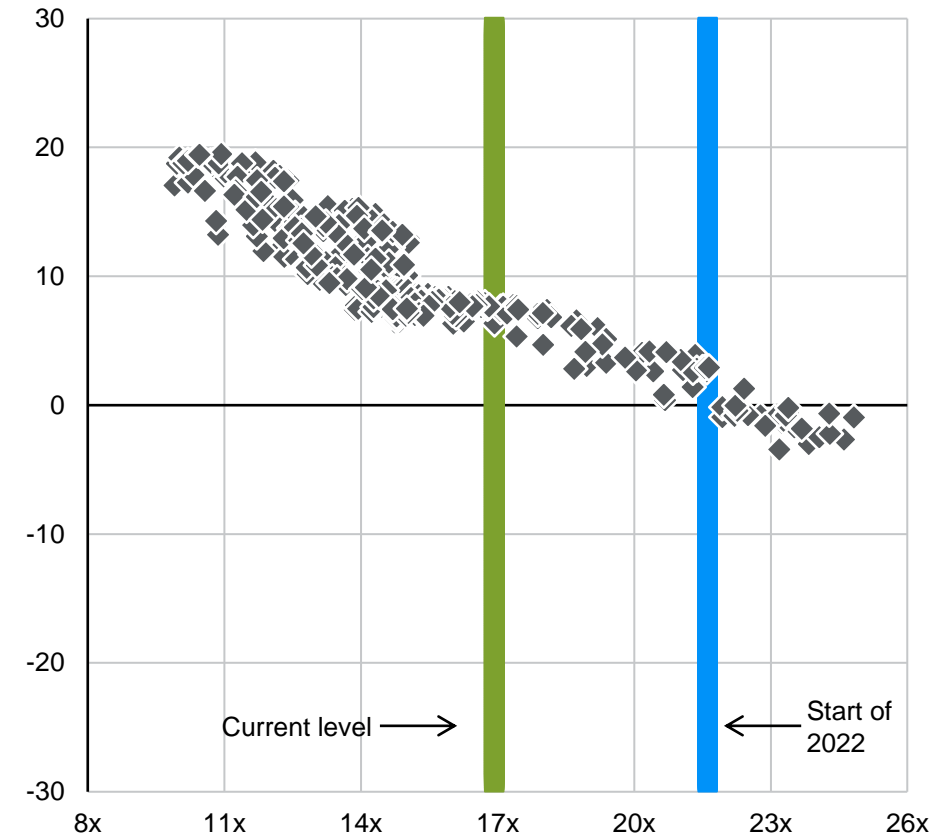
## S&P 500 forward P/E ratios and subsequent 1-year returns

%, annualised total return\*



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

%, annualised total return\*

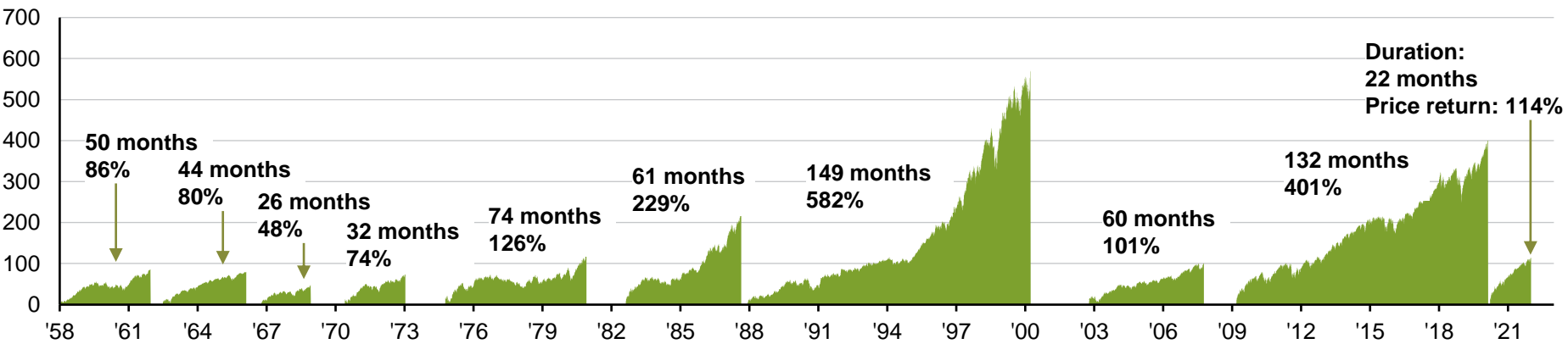


Source: (All charts) IBES, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. \*Dots represent monthly data points since 1988, which is earliest available. Forward P/E ratio is price to 12-month forward earnings, calculated using IBES earnings estimates. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.

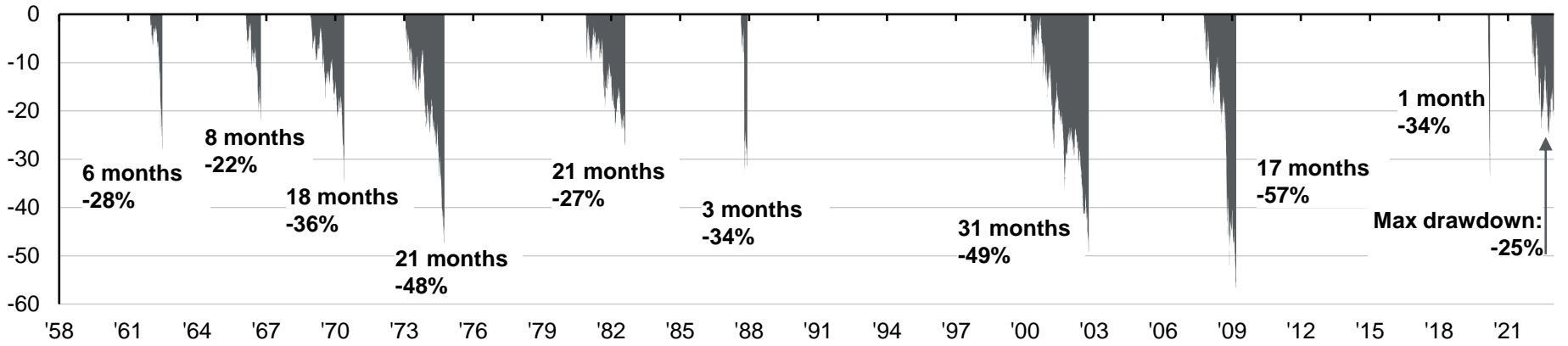


# US bull and bear markets

S&P 500 bull markets, %



S&P 500 bear markets, %



Source: (All charts) Bloomberg, Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. A bear market represents a 20% or more decline from the previous market high; a bull market represents a 20% increase from a market trough. Charts and labels refer to price return. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.

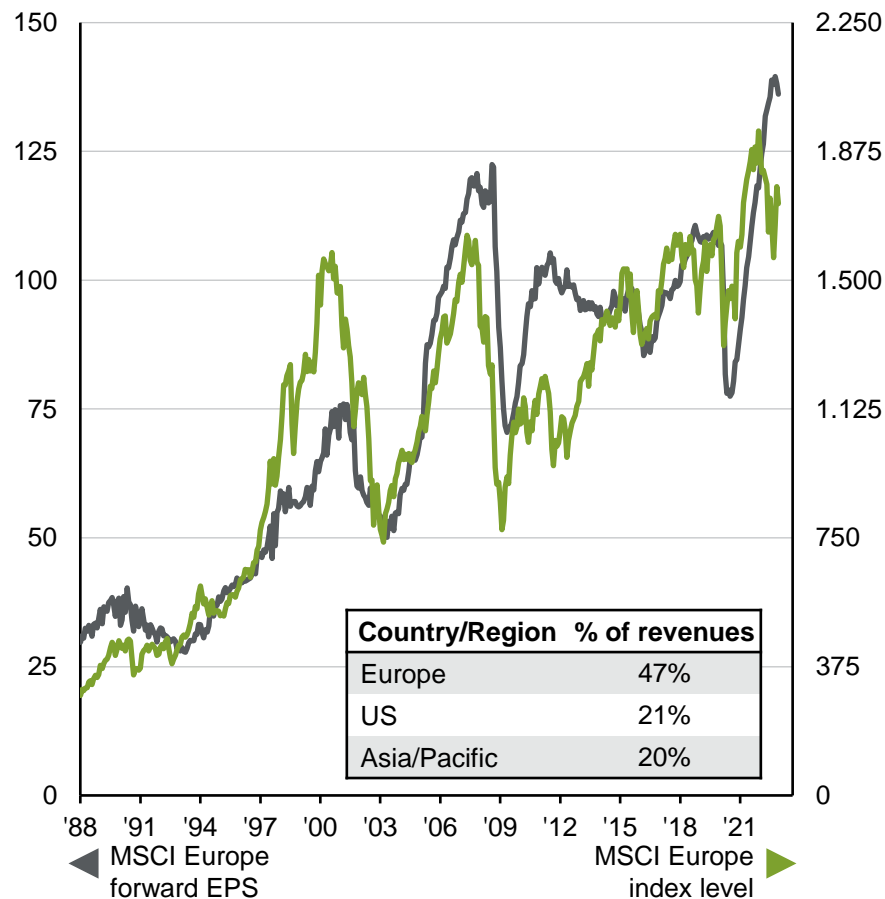


## Europe earnings

GTM Europe 56

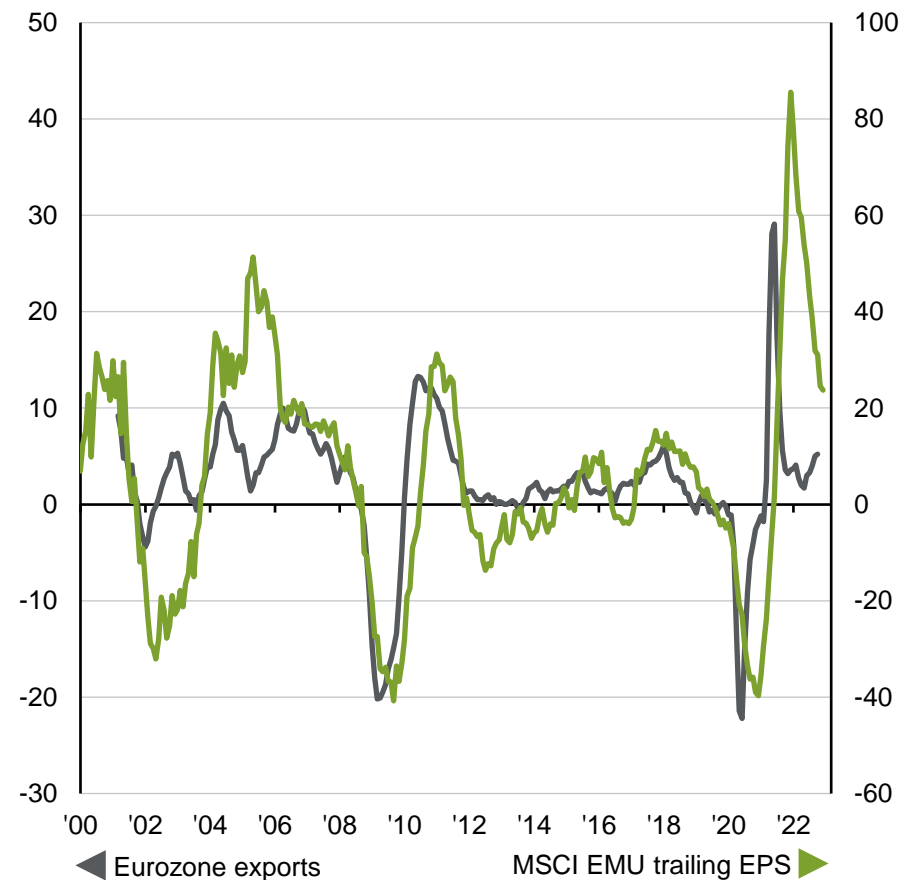
### MSCI Europe earnings and performance

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



### Eurozone exports and earnings growth

% change year on year, eurozone exports is a three-month moving average



Source: (Left) FactSet, IBES, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Earnings data is based on 12-month forward estimates. (Right) CPB Netherlands, IBES, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Earnings data is last 12 months' earnings per share. MSCI EMU is MSCI European Monetary Union and represents eurozone equities. Past performance is not a reliable indicator of current and future results.  
Guide to the Markets - Europe. Data as of 31 December 2022.

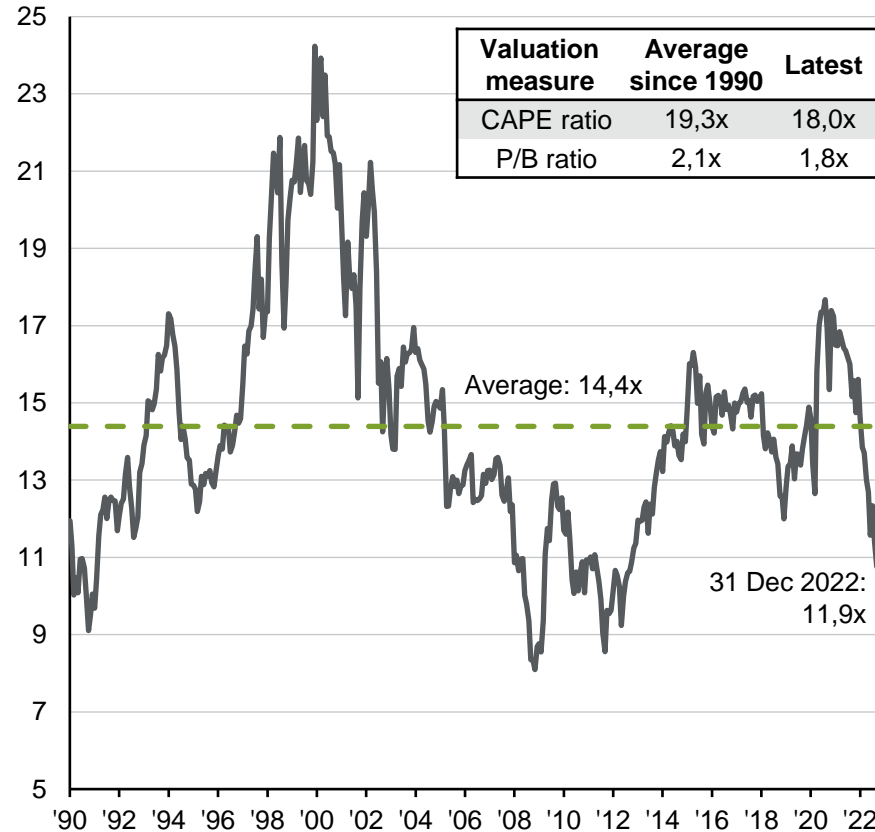




# Europe equity valuations and performance

## MSCI Europe forward P/E ratio

x, multiple

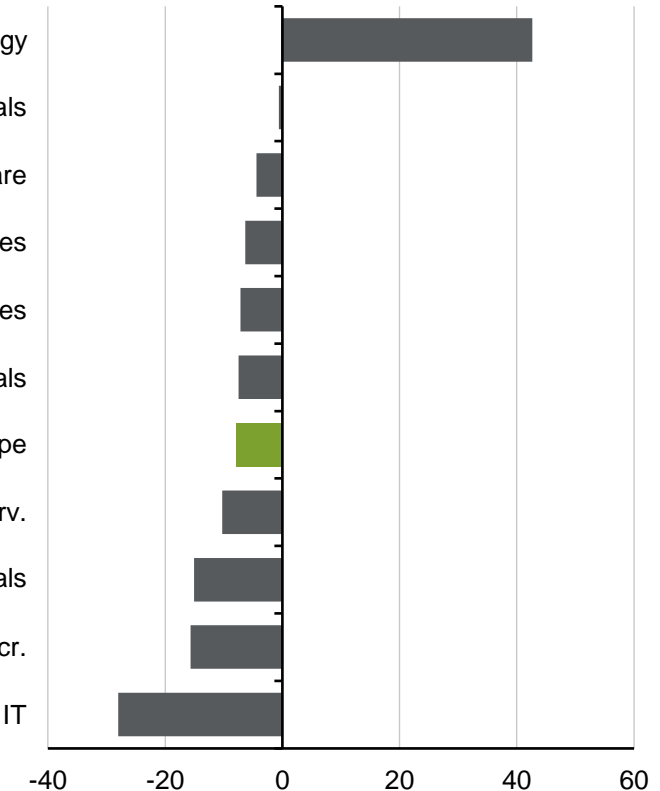


## MSCI Europe sector performance in 2022

%, total return in local currency

Current P/E ratio

5,5	Energy
8,1	Financials
16,0	Health Care
13,0	Utilities
17,2	Cons. Staples
11,8	Materials
11,9	MSCI Europe
12,8	Comm. Serv.
15,9	Industrials
12,2	Cons. Discr.
18,7	IT



Source: (Left) 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. (Right) IBES, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Current P/E ratio is price to 12-month forward earnings. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.

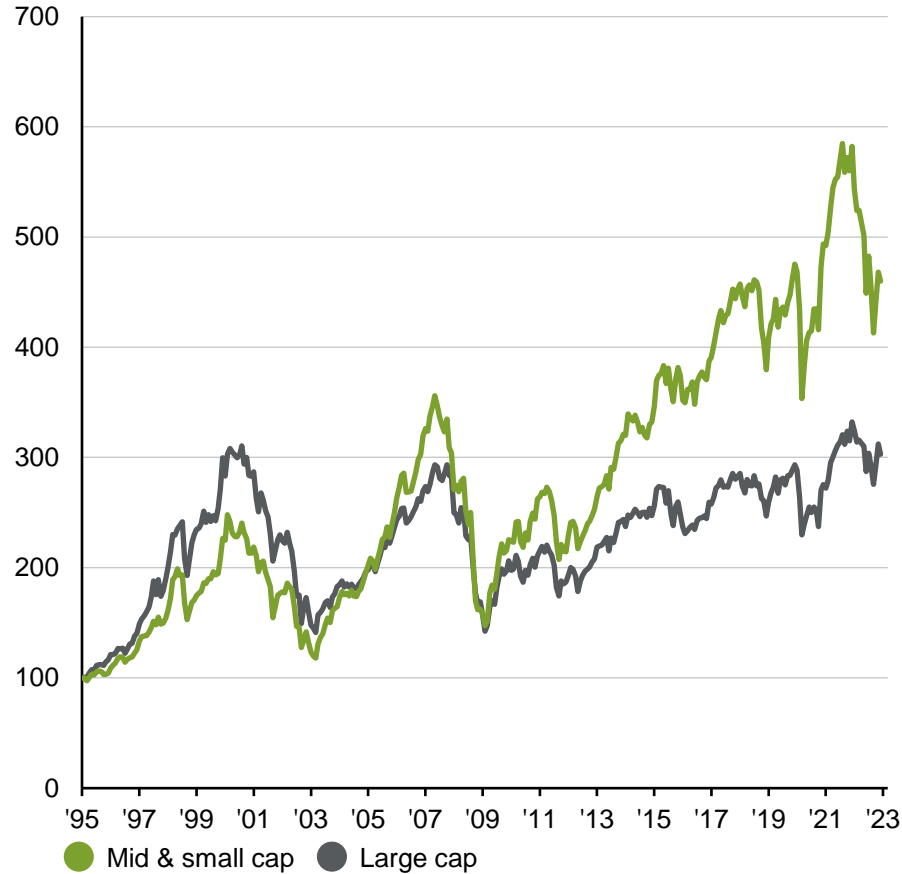


## Europe large, mid and small capitalisation equities

GTM | Europe | 58

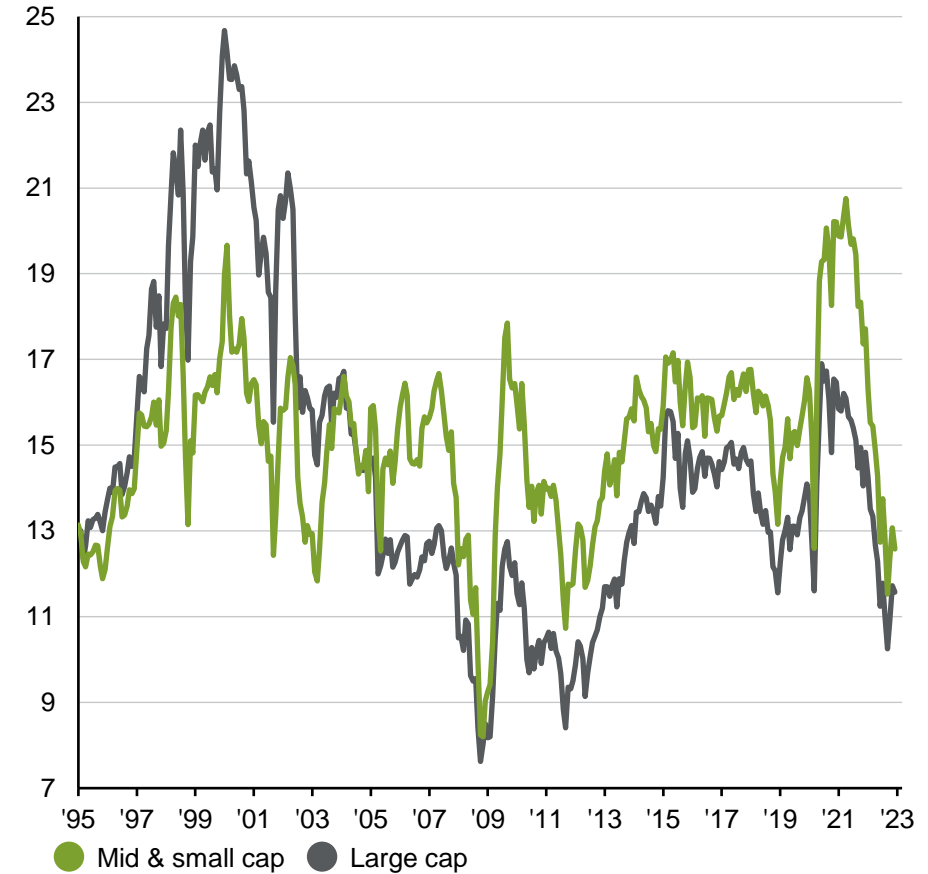
### MSCI Europe large, mid & small cap performance

Index level, rebased to 100 in Jan 1995



### MSCI Europe large, mid & small cap valuations

x, forward P/E ratio



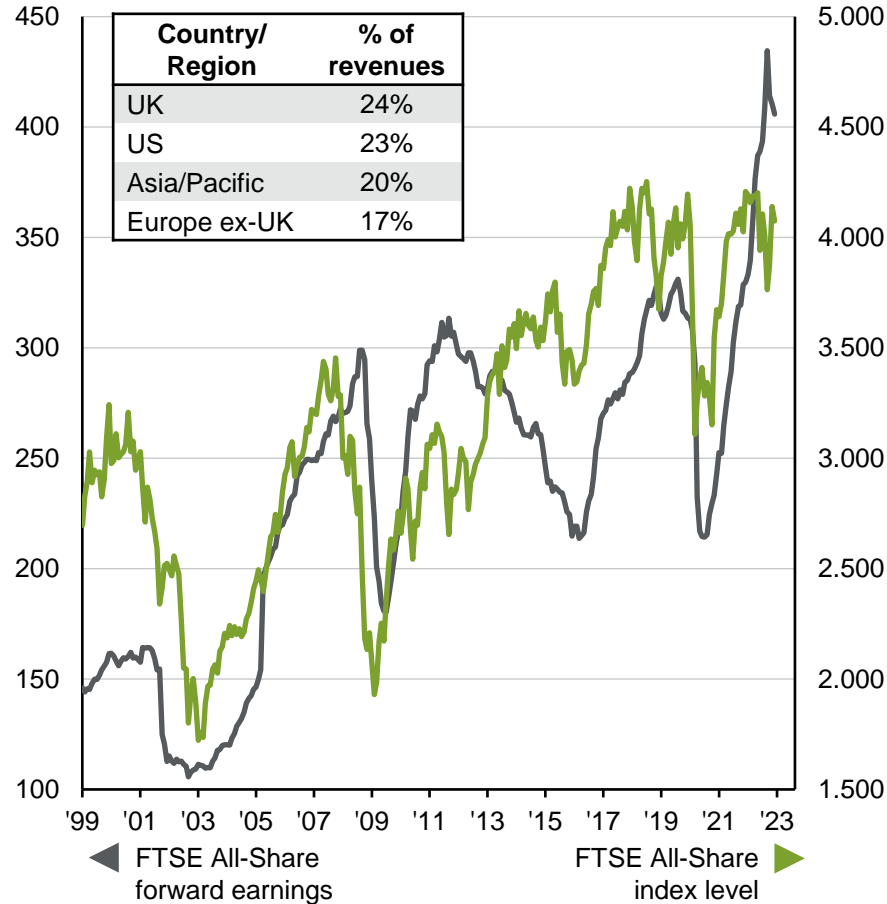


## UK earnings

GTM Europe 59

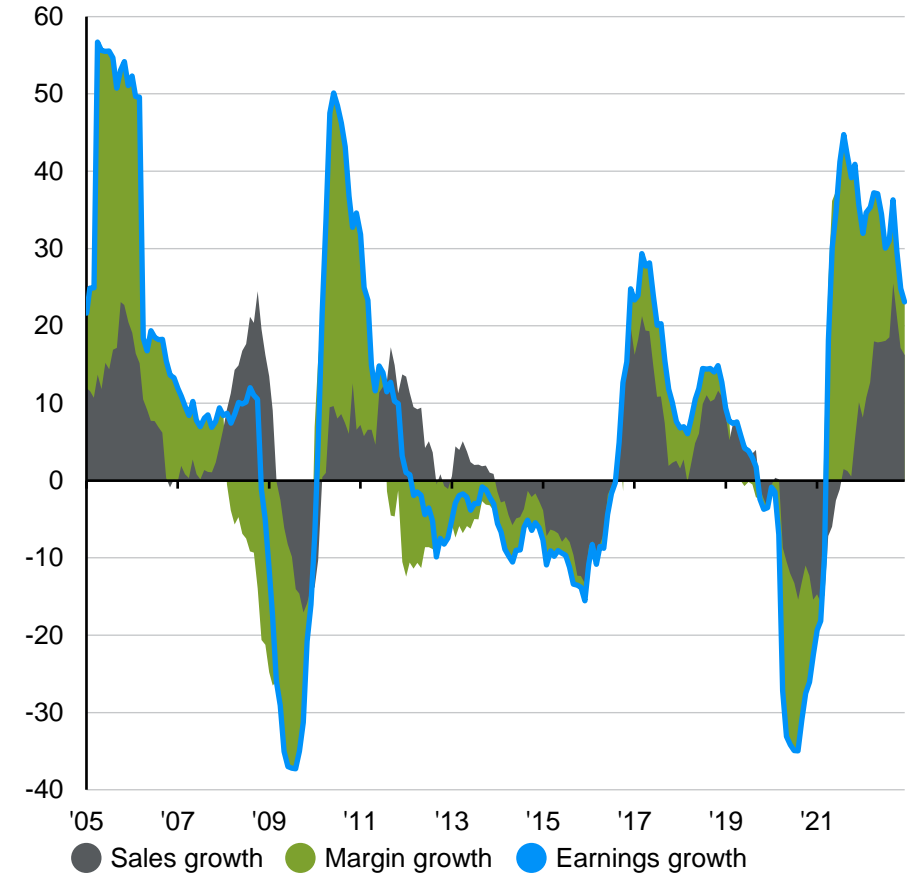
### FTSE All-Share earnings and performance

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



### FTSE All-Share earnings per share growth

% change year on year



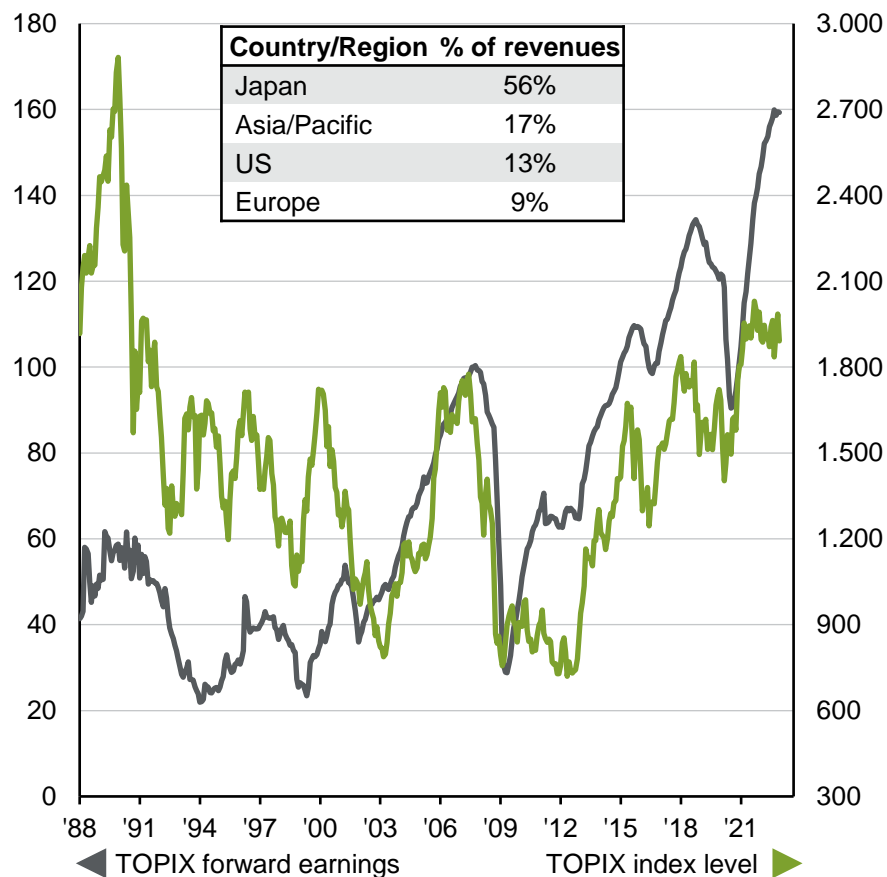
Source: (All charts) FactSet, FTSE, IBES, Refinitiv Datastream, J.P. Morgan Asset Management. Earnings data are based on 12-month forward estimates. Margin growth is the growth rate of earnings per share divided by sales per share. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# Japan equity market and currency

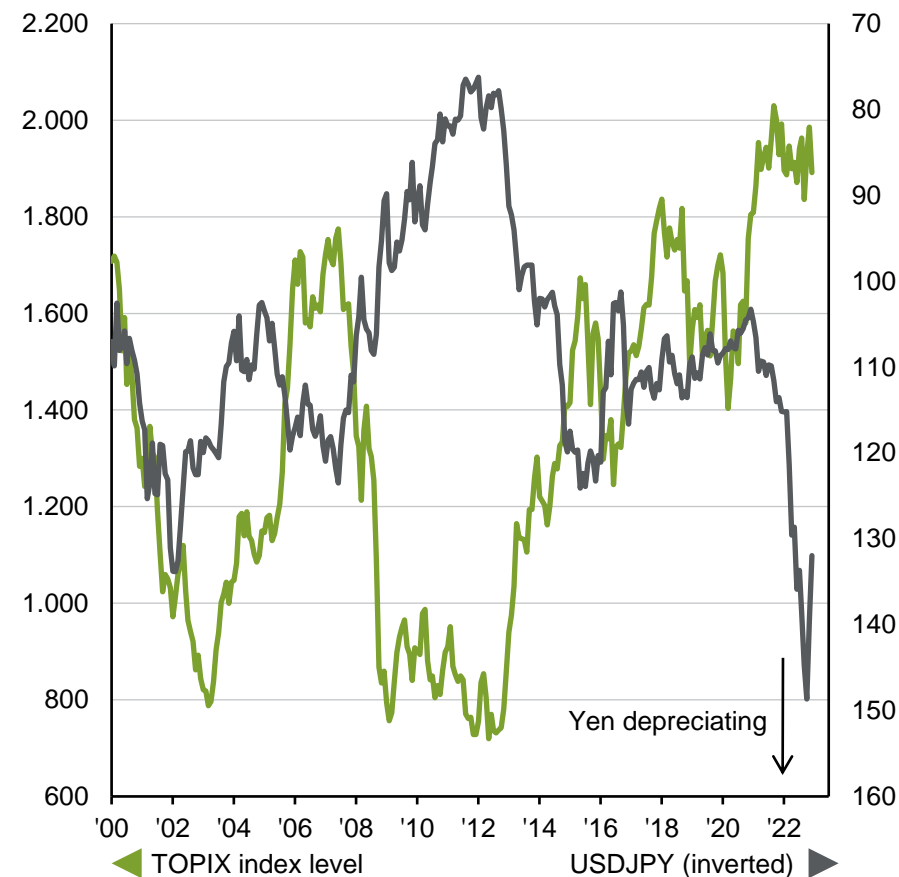
## TOPIX earnings and performance

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)

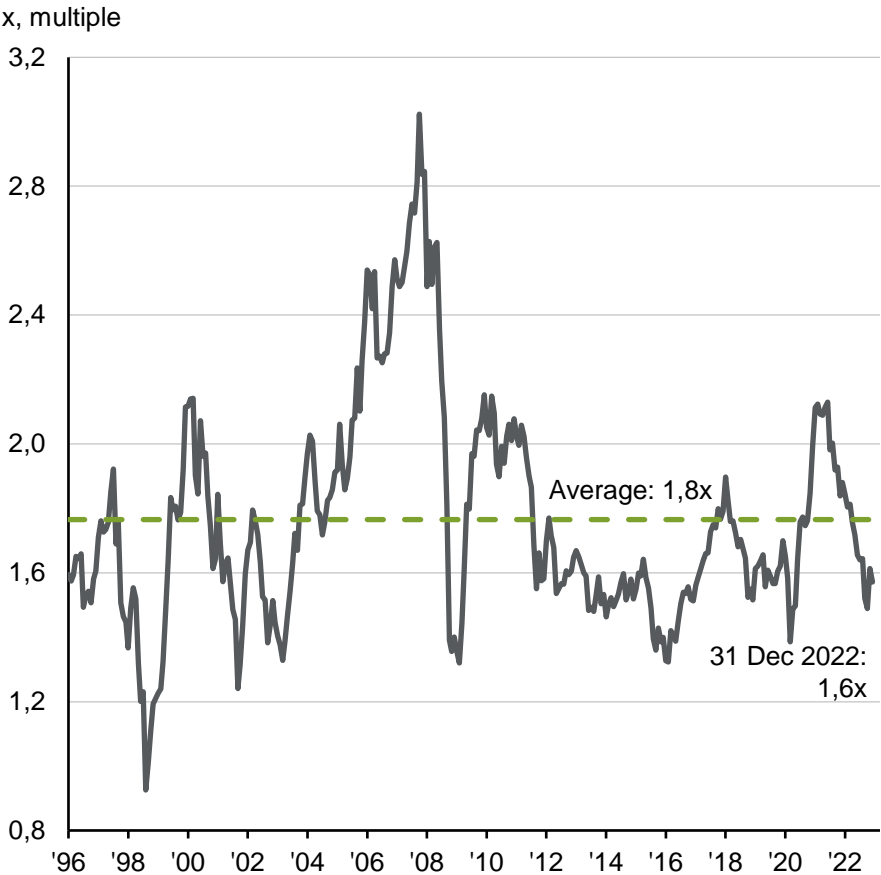


Source: (Left) FactSet, IBES, Refinitiv Datastream, TOPIX, J.P. Morgan Asset Management. Earnings data are based on 12-month forward estimates. (Right) Refinitiv Datastream, TOPIX, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. Guide to the Markets - Europe. Data as of 31 December 2022.

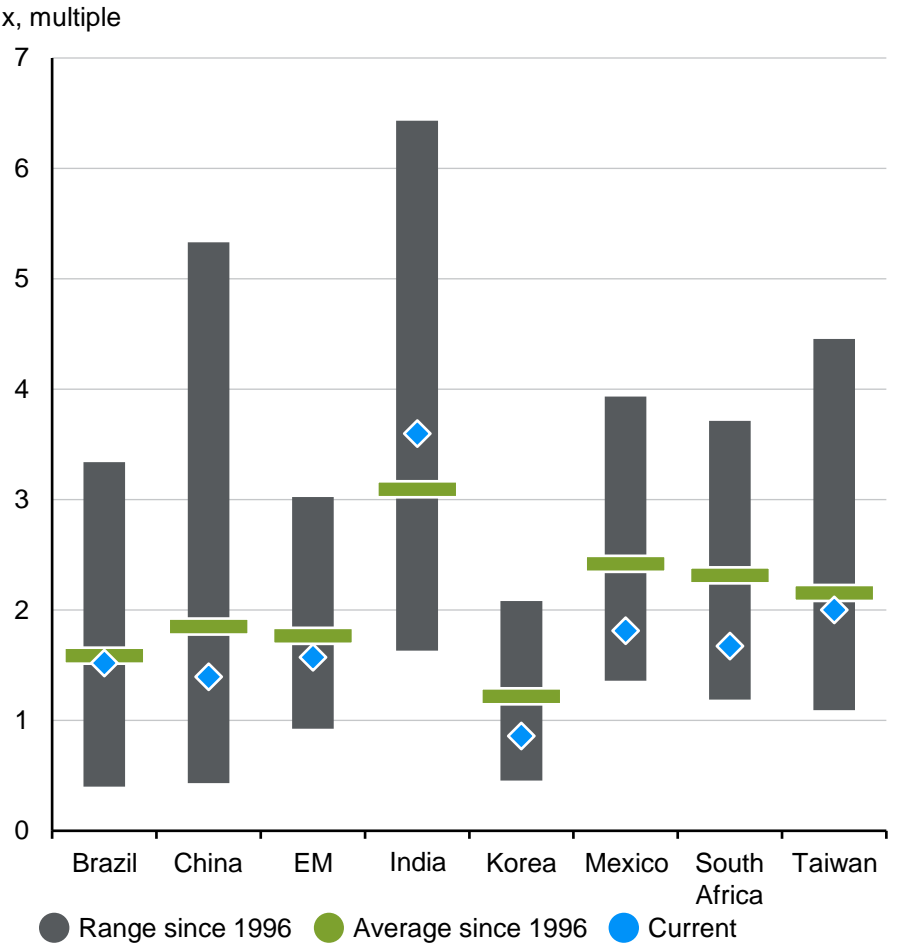


# Emerging market equity valuations

## MSCI EM price-to-book ratio



## EM price-to-book ratios by country



Source: (All charts) IBES, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. All indices are MSCI. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# China equity price-to-book ratio and drawdowns

GTM	Europe	62
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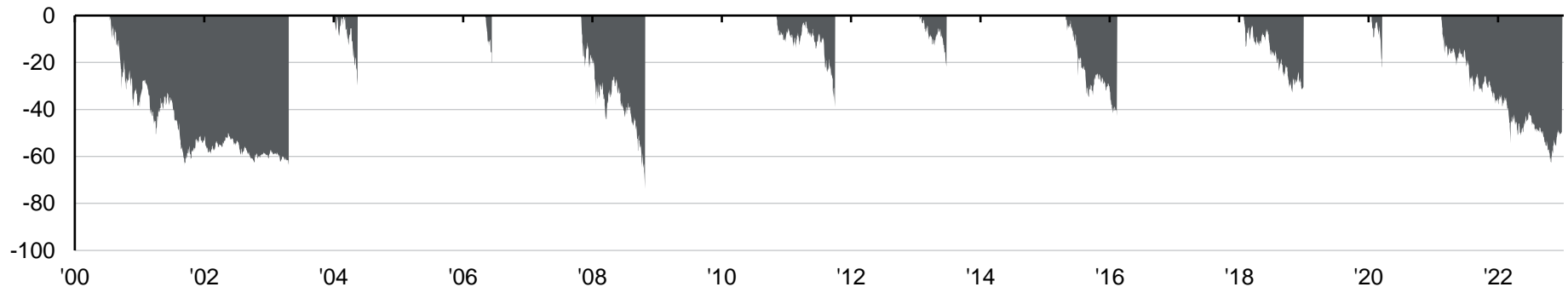
## MSCI China price-to-book ratio

x, multiple



## MSCI China historical drawdowns

% drawdown from local peak, price return in local currency



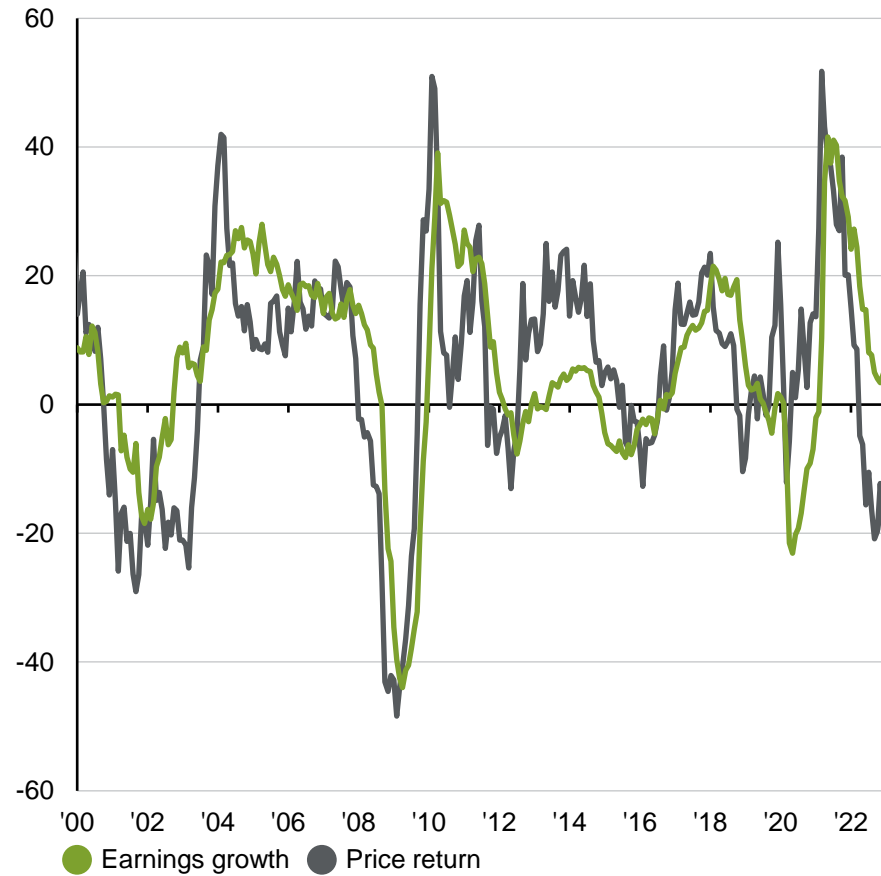


## Equity focus: Earnings and stock price interaction

GTM Europe 63

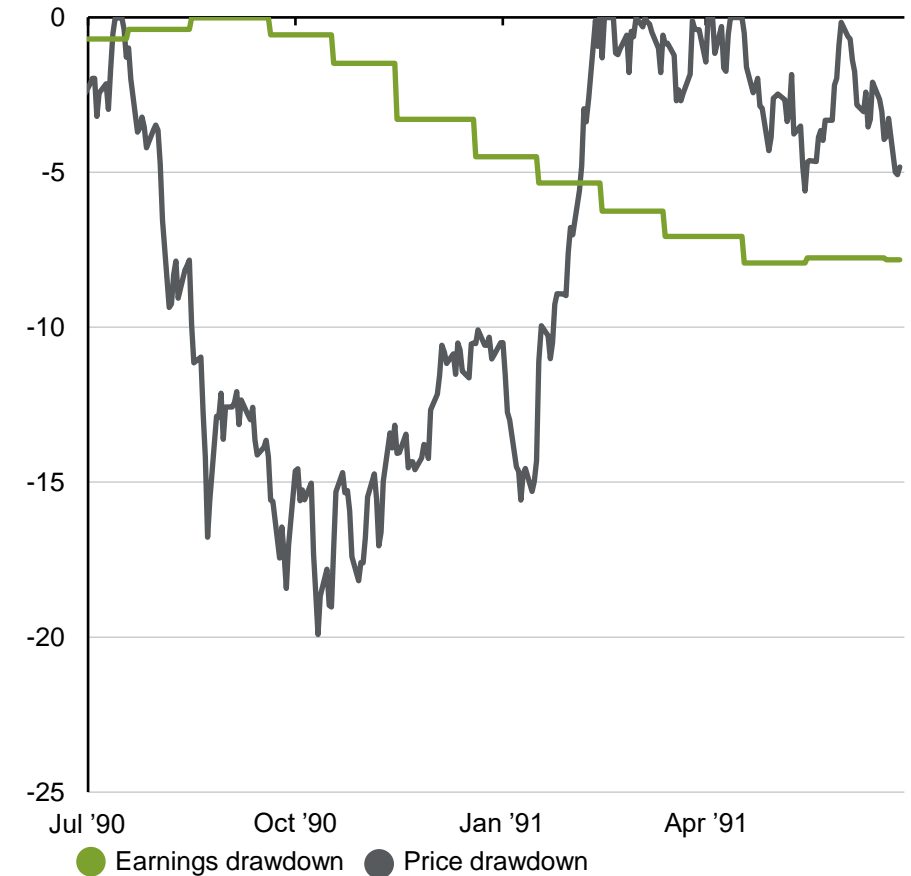
### MSCI World earnings growth and price return

% change year on year



### S&P 500 price and earnings drawdown

% drawdown from peak



Source: (Left) MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. (Right) Refinitiv Datastream, S&P Global, J.P. Morgan Asset Management. Earnings data are based on 12-month forward estimates for both charts. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# World stock market returns

GTM Europe 64

Equities

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	4Q '22	10-year ann. return
EUR	26,7% S&P 500 32,4%	29,5% S&P 500 13,7%	24,4% TOPIX 12,1%	15,3% S&P 500 12,0%	24,8% Asia ex-Jp 35,9%	0,4% S&P 500 -4,4%	33,9% S&P 500 31,5%	15,0% Asia ex-Jp 22,7%	38,5% S&P 500 28,7%	-8,9% Europe -8,0%	9,6% Europe 10,5%	15,0% S&P 500 12,6%
Local	21,5% TOPIX 54,4%	19,7% Asia ex-Jp 7,7%	12,9% S&P 500 1,4%	14,9% MSCI EM 10,1%	21,0% MSCI EM 31,0%	-6,8% Portfolio -9,1%	26,9% Portfolio 24,5%	8,9% MSCI EM 19,5%	25,9% Europe 23,3%	-9,3% TOPIX -2,4%	4,0% TOPIX 3,3%	9,3% Portfolio 9,0%
	20,5% Europe 22,3%	16,2% Portfolio 8,6%	8,8% Portfolio 2,2%	9,5% Portfolio 8,5%	12,7% Portfolio 21,8%	-9,4% TOPIX -16,0%	26,9% Europe 24,6%	8,6% S&P 500 18,4%	22,5% Portfolio 17,8%	-11,5% Portfolio -12,2%	3,7% Portfolio 8,1%	8,3% TOPIX 10,6%
	16,2% Portfolio 24,1%	11,8% MSCI EM 5,6%	8,8% Europe 5,4%	8,9% Asia ex-Jp 6,4%	11,2% TOPIX 22,2%	-9,8% Asia ex-Jp -12,0%	21,4% TOPIX 18,1%	4,8% Portfolio 10,9%	8,8% TOPIX 12,7%	-12,8% S&P 500 -18,1%	2,3% Asia ex-Jp 8,3%	7,4% Europe 7,6%
	-1,1% Asia ex-Jp 6,2%	10,1% TOPIX 10,3%	1,5% Asia ex-Jp -5,3%	6,6% TOPIX 0,3%	10,9% Europe 13,7%	-9,9% MSCI EM -9,7%	21,1% MSCI EM 18,5%	3,7% TOPIX 7,4%	5,2% MSCI EM 0,1%	-14,1% Asia ex-Jp -15,1%	0,8% MSCI EM 6,7%	6,1% Asia ex-Jp 5,1%
	-6,5% MSCI EM 3,8%	7,4% Europe 5,2%	-4,9% MSCI EM -5,4%	3,2% Europe 7,9%	7,0% S&P 500 21,8%	-10,0% Europe -10,0%	20,7% Asia ex-Jp 18,2%	-2,8% Europe -1,7%	2,8% Asia ex-Jp -2,8%	-14,5% MSCI EM -15,2%	-1,3% S&P 500 7,6%	4,0% MSCI EM 5,0%

Source: MSCI, Refinitiv Datastream, Standard & Poor's, 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): 35% Europe; 30% S&P 500; 15% EM; 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 - Europe*. Data as of 31 December 2022.

**J.P.Morgan**  
ASSET MANAGEMENT



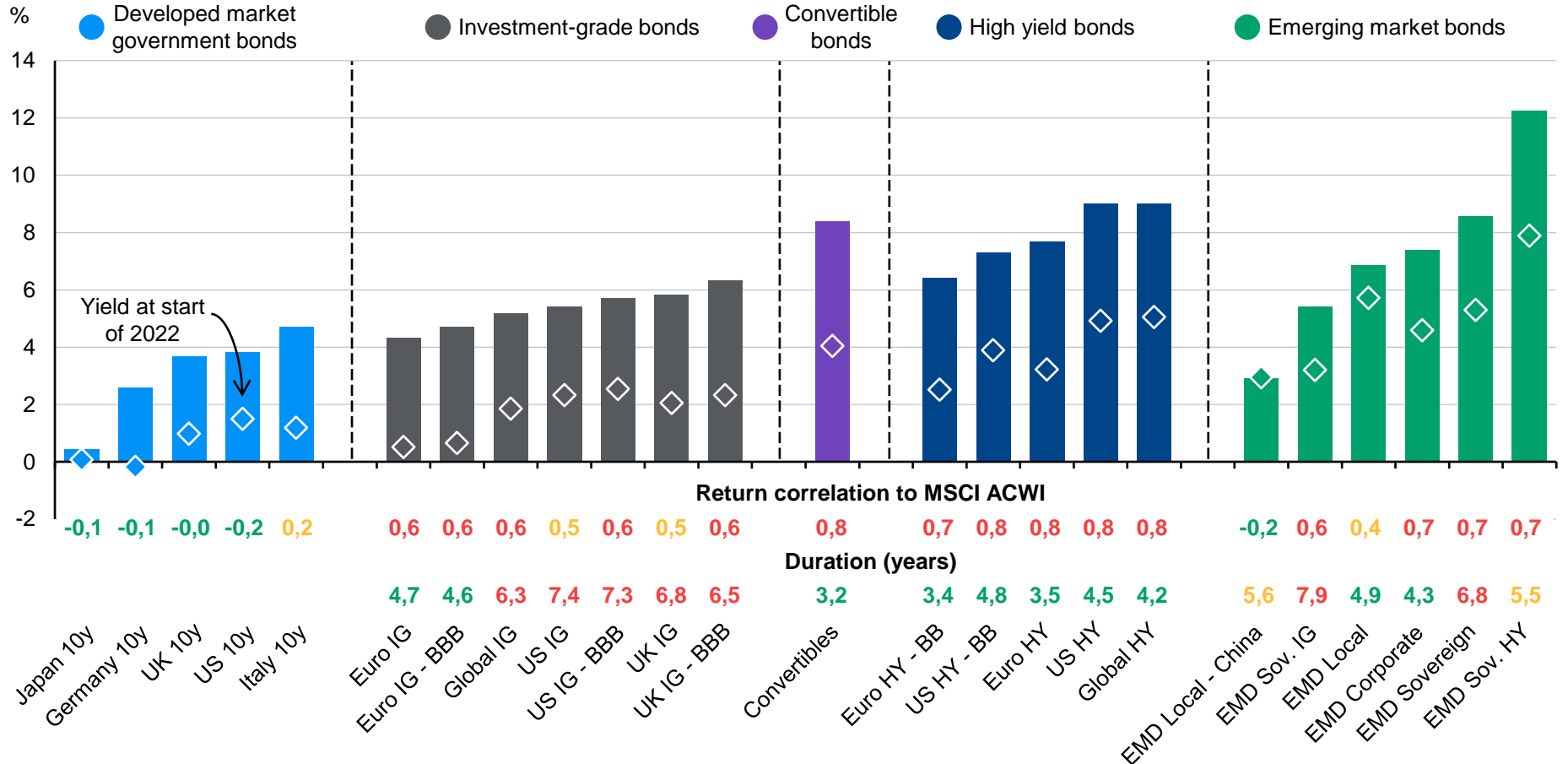


# Fixed income yields

GTM Europe 65

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 - Europe*. Data as of 31 December 2022.

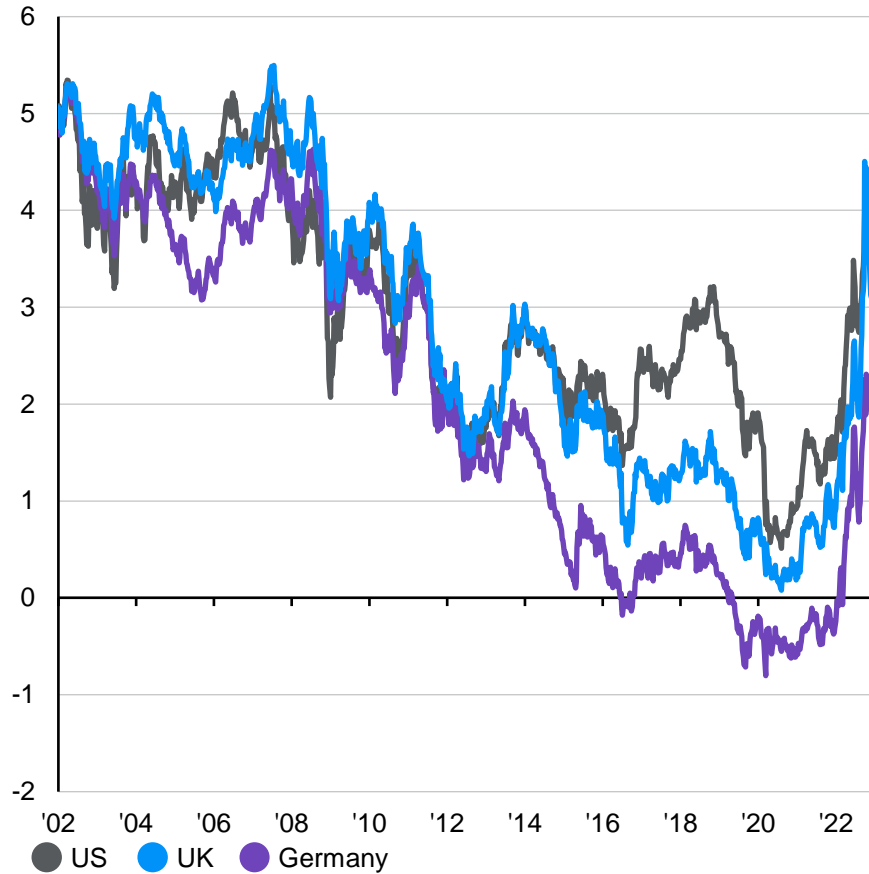
J.P.Morgan  
ASSET MANAGEMENT



# Global government bond yields

## Nominal 10-year government bond yields

% yield



## Real global government bond yield

% yield

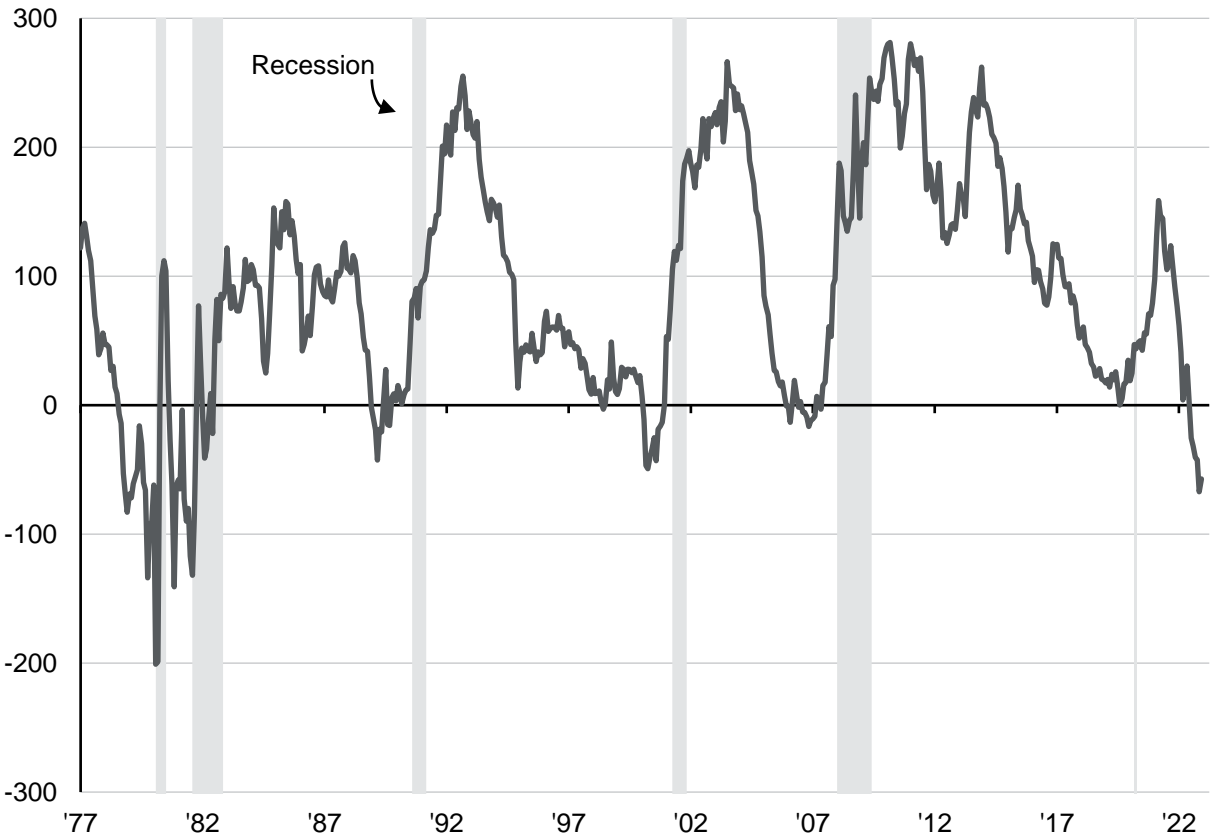


Source: (Left) Refinitiv Datastream, J.P. Morgan Asset Management. (Right) ICE BofA, Refinitiv Datastream, J.P. Morgan Asset Management. Index shown is the ICE BofA Global Inflation-Linked Government Bond index. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# US yield curve

**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 - Europe*. Data as of 31 December 2022.

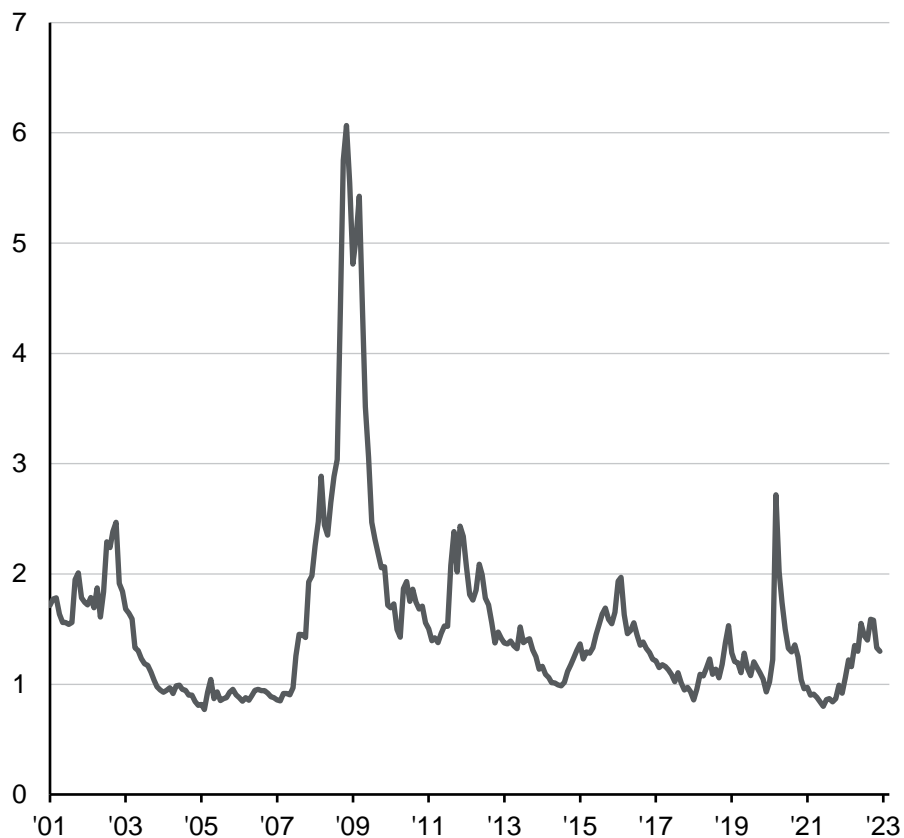


# Investment-grade bonds

GTM Europe 68

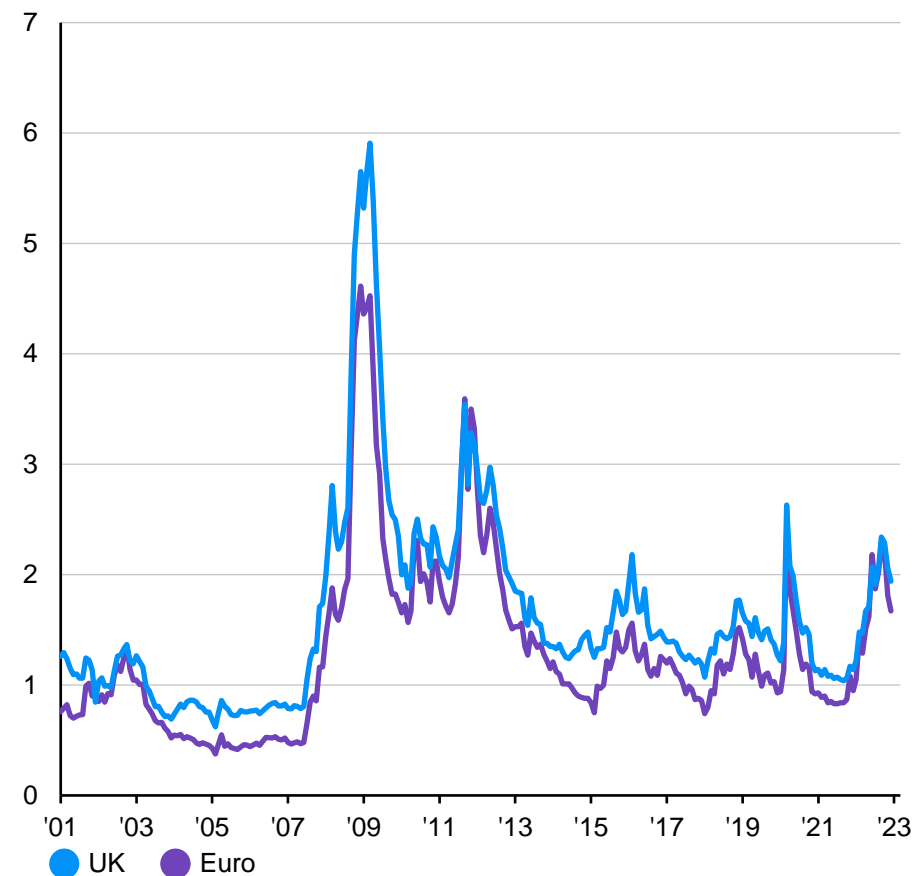
## US investment-grade spread

%, option-adjusted spread over US government bond yield



## Euro and UK investment-grade spreads

%, option-adjusted spread over local government bond yield



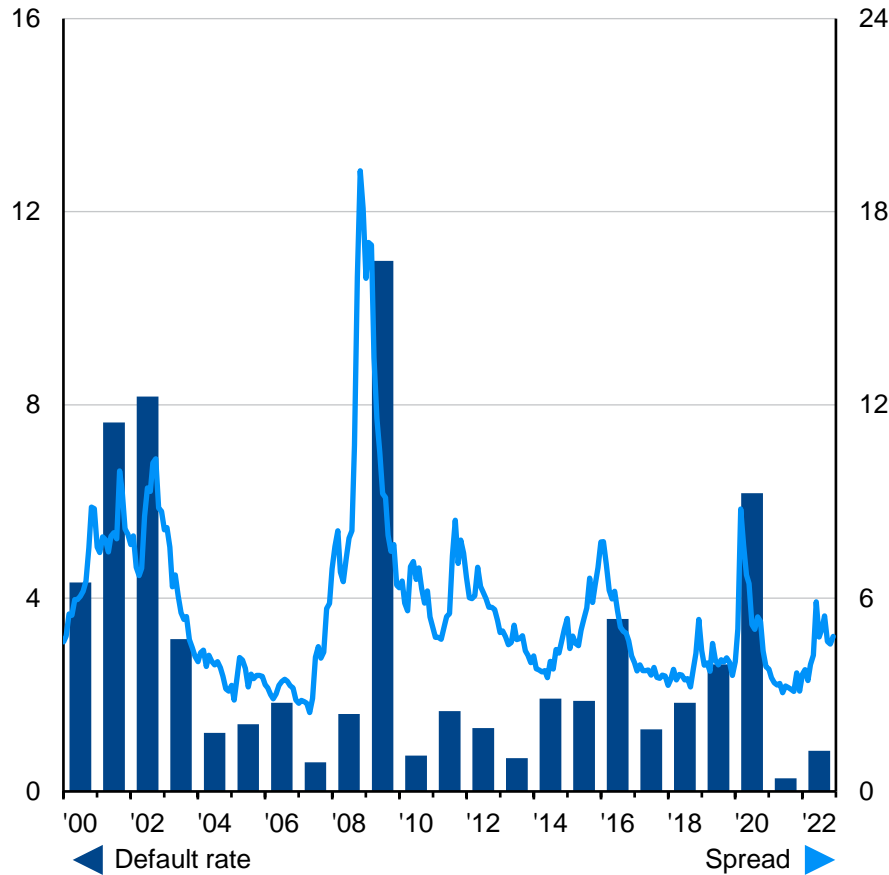
Source: (Left) Bloomberg Barclays, Refinitiv Datastream, J.P. Morgan Asset Management. Index is Bloomberg Barclays US Aggregate – Corporate. (Right) Bloomberg Barclays, Refinitiv Datastream, J.P. Morgan Asset Management. Indices are Euro inv. grade: Bloomberg Barclays Euro Aggregate – Corporate; UK inv. grade: Bloomberg Barclays Sterling Aggregate – Corporate. Past performance is not a reliable indicator of current and future results.  
Guide to the Markets - Europe. Data as of 31 December 2022.



# High yield bonds

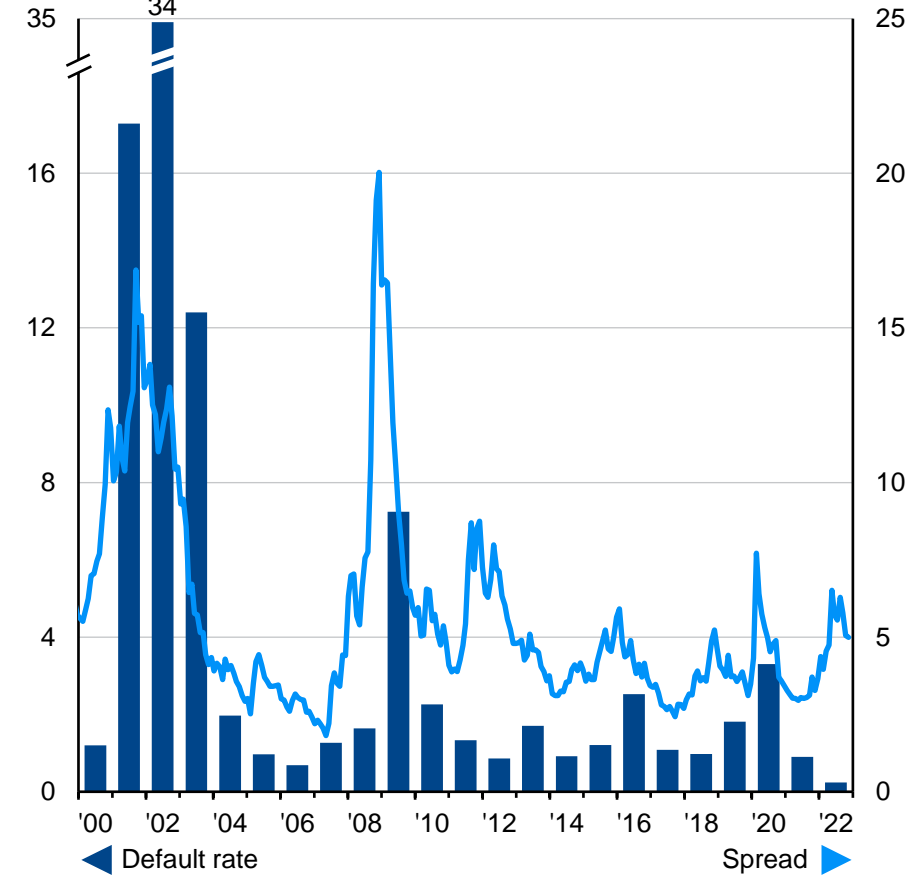
## US high yield spread and defaults

%, 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. 2022 default rate is the 12 months ending October 2022. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.

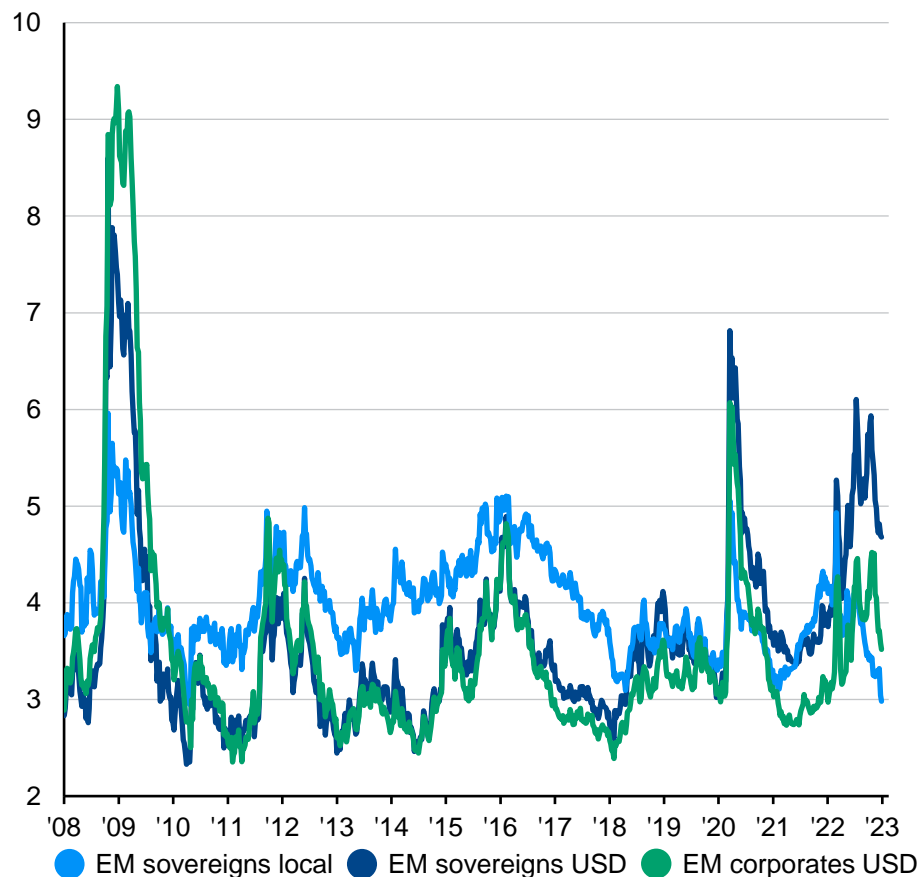


# Emerging market bonds

GTM Europe 70

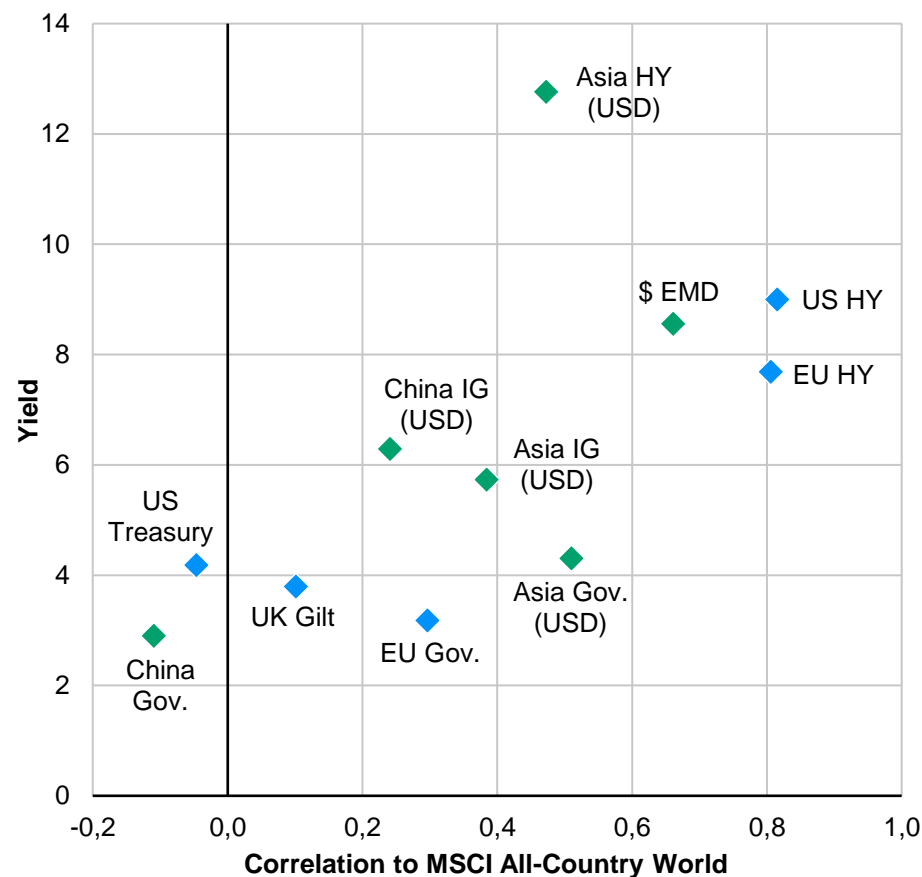
## Corporate and sovereign EMD spreads

%, spread over 10-year US Treasury



## Yields and correlations of fixed income returns to equities

% yield and 10-year correlation of monthly returns with MSCI ACWI



Source: (Left) Bloomberg, J.P. Morgan Asset Management. EM sovereigns local: J.P. Morgan GBI-EM Global Diversified; EM sovereigns USD: J.P. Morgan EMBIG Diversified; EM corporates USD: J.P. Morgan CEMBI Broad Diversified. (Right) Bloomberg Barclays, ICE BofA, J.P. Morgan Economic Research, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Indices used are as follows: US Treasury: Bloomberg Barclays US Agg. Gov. – Treasury; UK Gilts: Bloomberg Barclays Sterling Gilts; Euro Gov.: Bloomberg Barclays Euro Agg. Government; Euro HY: ICE BofA Euro Developed Markets Non-Financial High Yield Constrained; US HY: ICE BofA US High Yield Constrained; Asia HY: J.P. Morgan Asia Credit (JACI) Non-Investment Grade; Asia IG: JACI Investment Grade; Asia Gov.: J.P. Morgan JADE Broad - Asia Diversified Broad; China IG: J.P. Morgan CEMBI IG+ China; China Gov.: JPM GBI-EM Broad Diversified China; EMD: J.P. Morgan EMBIG Diversified (USD); Global HY: ICE BofA Global High Yield (USD); Global IG: Bloomberg Barclays Global Aggregate – Corporates (USD). Indices are in local currency unless specified otherwise. Correlations are based on 10 years of monthly total returns against the MSCI ACWI total return. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.

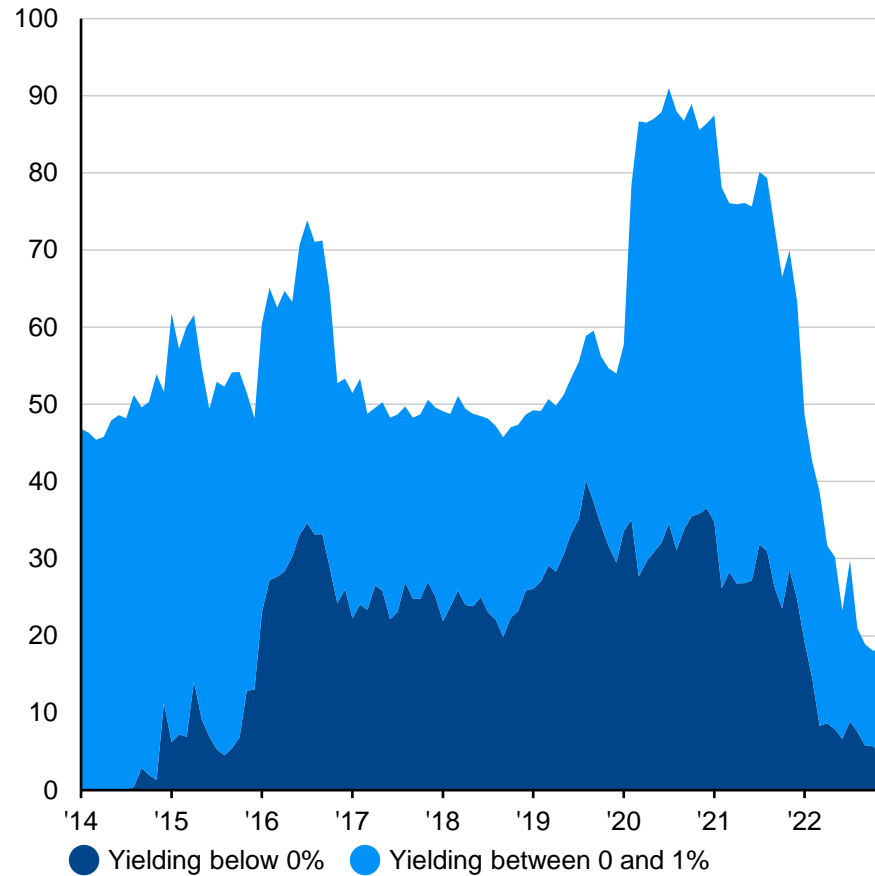


# Fixed income focus: Income and diversification potential

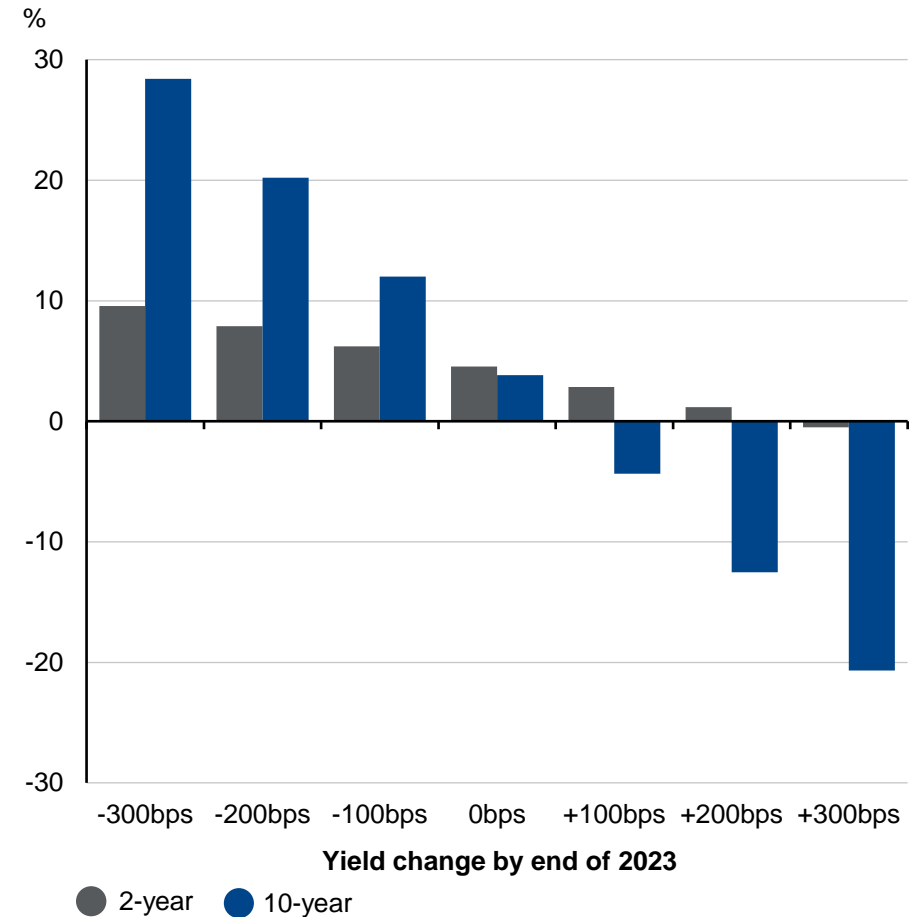
GTM | Europe | 71

## Global government bond yields

% of BofA/Merrill Lynch Global Government Bond Index



## Total return scenarios for US Treasuries



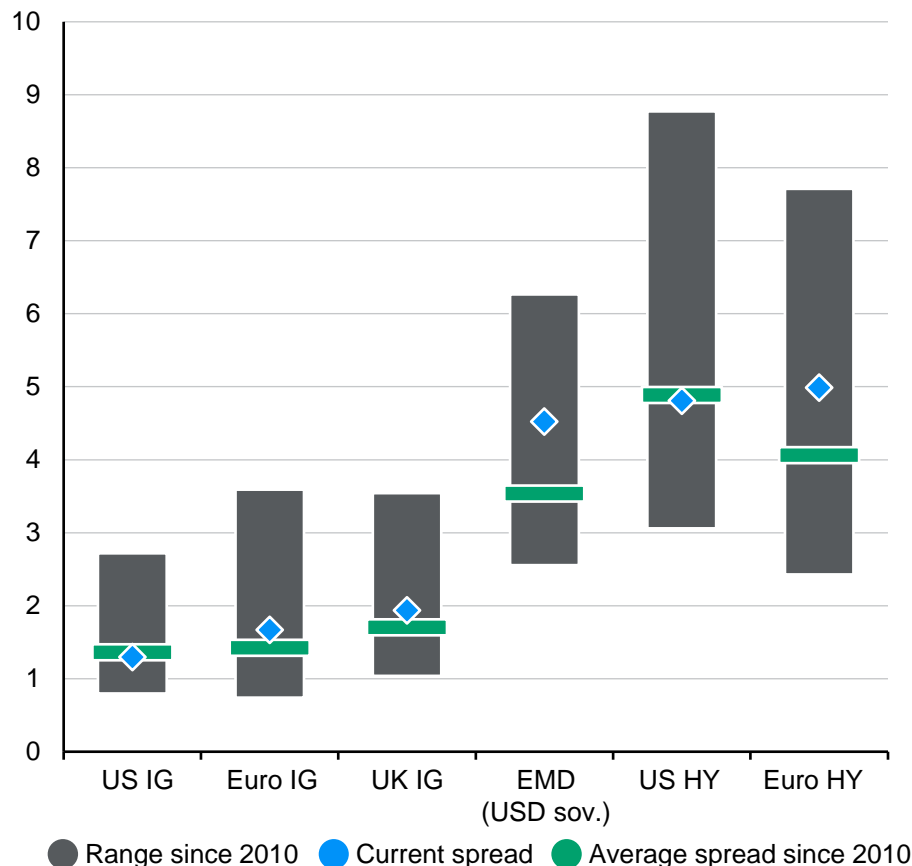
Source: (Left) Bloomberg, BofA/Merrill Lynch, J.P. Morgan Asset Management. Index shown is the BofA/Merrill Lynch Global Government Bond index. (Right) Bloomberg, J.P. Morgan Asset Management. Chart indicates the calculated total return achieved by purchasing US 10-year Treasuries at the current yield and selling at the end of 2023 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 - Europe*. Data as of 31 December 2022.



# Global fixed income spreads and returns

## Fixed income spreads

%, option-adjusted spread



## Fixed income returns

10-year ann. return

2018	2019	2020	2021	2022	4Q '22	10-year ann. return
€ 5,9% US Treas. LCL 0,9%	17,2% EM Debt 15,0%	5,0% Euro Gov 5,0%	13,3% US HY 5,3%	-5,4% US HY -11,2%	4,6% Euro HY 4,6%	6,2% US HY 3,9%
2,7% US HY -2,3%	16,6% US IG 14,5%	3,1% Infl Linked 3,1%	6,5% US IG -1,0%	-6,7% US Treas. -12,5%	1,3% Infl Linked 1,3%	4,1% US IG 2,0%
2,4% US IG -2,5%	16,5% US HY 14,4%	2,8% Euro IG 2,8%	6,4% Infl Linked 6,4%	-9,7% Infl Linked -9,7%	1,1% Euro IG 1,1%	3,8% EM Debt 1,6%
1,3% Portfolio -1,4%	11,2% Portfolio 10,1%	2,2% Euro HY 2,2%	5,7% EM Debt -1,8%	-10,2% US IG -15,8%	-0,8% EM Debt 8,1%	3,2% Euro HY 3,2%
1,0% Euro Gov 1,0%	10,9% Euro HY 10,9%	0,9% Portfolio 5,8%	5,1% US Treas. -2,3%	-11,3% Euro HY -11,3%	-2,1% Euro Gov -2,1%	2,8% Portfolio 1,6%
0,6% EM Debt -4,3%	8,8% US Treas. 6,9%	0,8% US IG 9,9%	3,9% Portfolio -0,2%	-11,5% Portfolio -14,6%	-2,4% Portfolio 2,3%	2,7% US Treas. 0,6%
-1,3% Euro IG -1,3%	6,8% Euro Gov 6,8%	-0,9% US Treas. 8,0%	3,4% Euro HY 3,4%	-12,4% EM Debt -17,8%	-4,6% US HY 4,0%	1,1% Infl Linked 1,1%
-1,5% Infl Linked -1,5%	6,6% Infl Linked 6,6%	-2,7% US HY 6,1%	-1,0% Euro IG -1,0%	-13,6% Euro IG -13,6%	-4,9% US IG 3,6%	0,9% Euro IG 0,9%
-4,0% Euro HY -4,0%	6,2% Euro IG 6,2%	-3,4% EM Debt 5,3%	-3,5% Euro Gov -3,5%	-18,5% Euro Gov -18,5%	-7,5% US Treas. 0,7%	0,8% Euro Gov 0,8%

Source: (All charts) Bloomberg, Bloomberg Barclays, ICE BofA, J.P. Morgan Economic Research, Refinitiv Datastream, J.P. Morgan Asset Management. UK IG: Bloomberg Barclays Sterling Agg. – Corporates; 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; US Treasuries: Bloomberg Barclays US Agg. Gov. – Treasury; Euro IG: Bloomberg Barclays Euro Agg. – Corporate; Euro Gov.: Bloomberg Barclays Euro Agg. Government; Infl Linked: Bloomberg Barclays Euro Gov. Inflation-Linked. Hypothetical portfolio (for illustrative purposes only and should not be taken as a recommendation): 20% Euro Gov.; 15% US Treasuries; 10% Linkers; 15% US IG; 10% Euro IG; 10% US HY; 5% Euro HY; 15% EM Debt. Annualised return covers period 2013 to 2022 inclusive. Returns are unhedged in euros and local currencies. Past performance is not a reliable indicator of current and future results.

Guide to the Markets - Europe. Data as of 31 December 2022.





# Oil

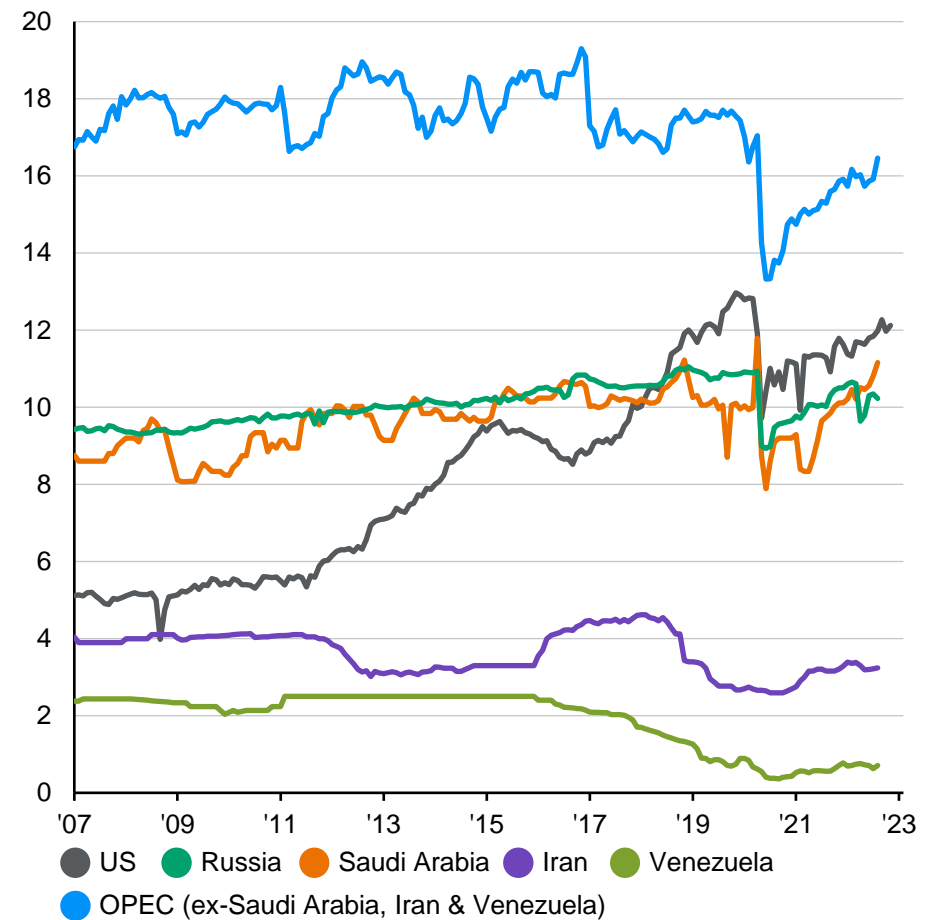
## WTI crude oil price and US rig count

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



## Crude oil production by country

Million barrels per day



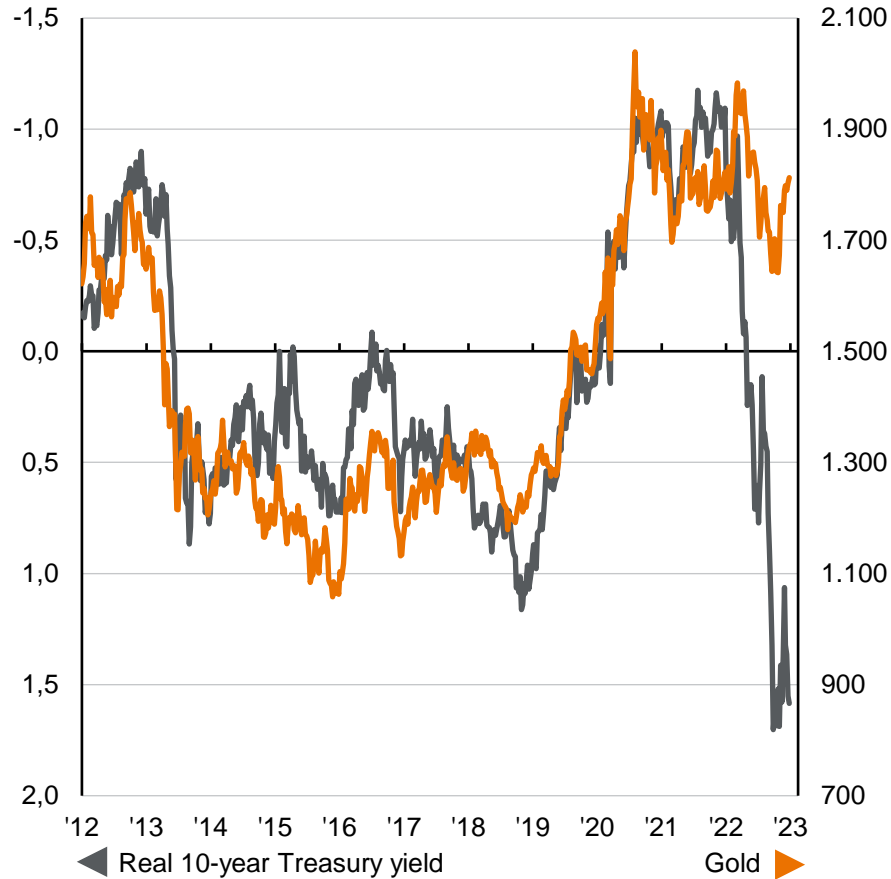
Source: (Left) Baker Hughes, Bloomberg, J.P. Morgan Asset Management. (Right) EIA, Refinitiv Datastream, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# Commodities

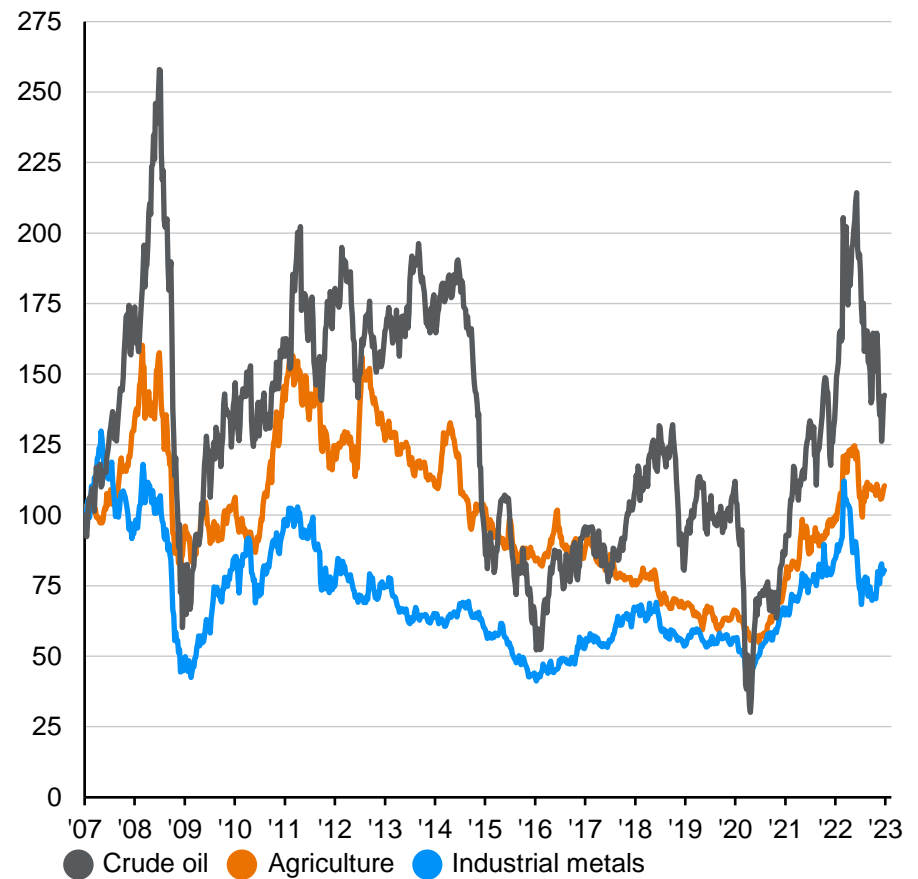
## Real US 10-year Treasury yield vs. gold

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



## Commodity prices

Index level, rebased to 100 in Jan 2007



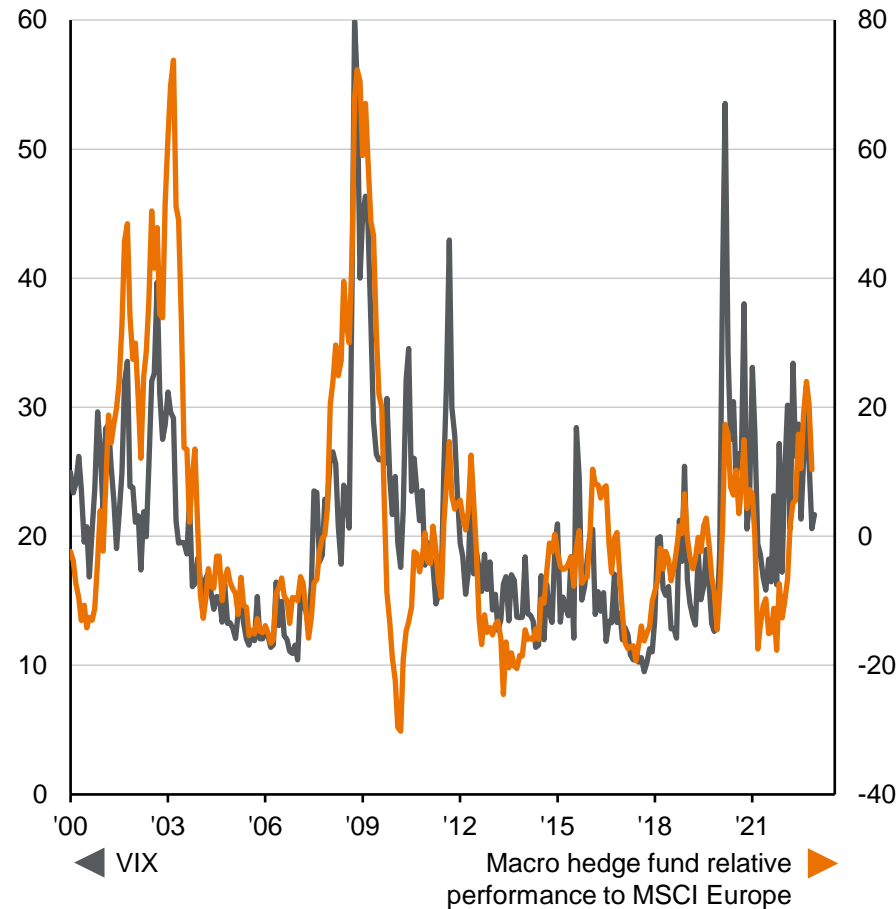
Source: (Left) Refinitiv Datastream, J.P. Morgan Asset Management. Real yield is the US 10-year Treasury inflation-protected security yield. (Right) Bloomberg, J.P. Morgan Asset Management. Industrial metals include aluminium, copper, nickel and zinc. Agriculture includes coffee, corn, soybeans, soybean oil, sugar and wheat. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# Alternative sources of diversification

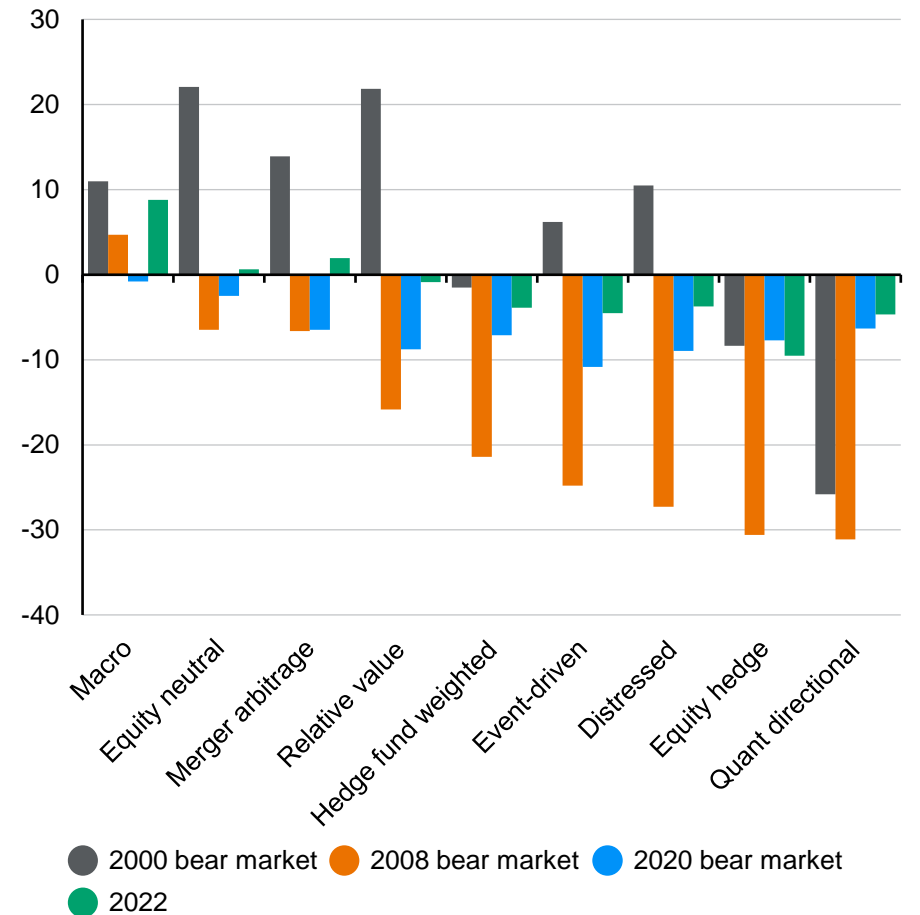
## Macro hedge fund relative performance & volatility

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



## Hedge fund style returns during bear markets

% total return



Source: (Left) CBOE, Hedge Fund Research Indices (HFRI), MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Macro hedge fund (total return in USD) relative performance is calculated relative to MSCI Europe (total return in local currency). 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. 2022 bear market is from 1 January 2022 to 30 November 2022 due to data availability. 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 - Europe*. Data as of 31 December 2022.

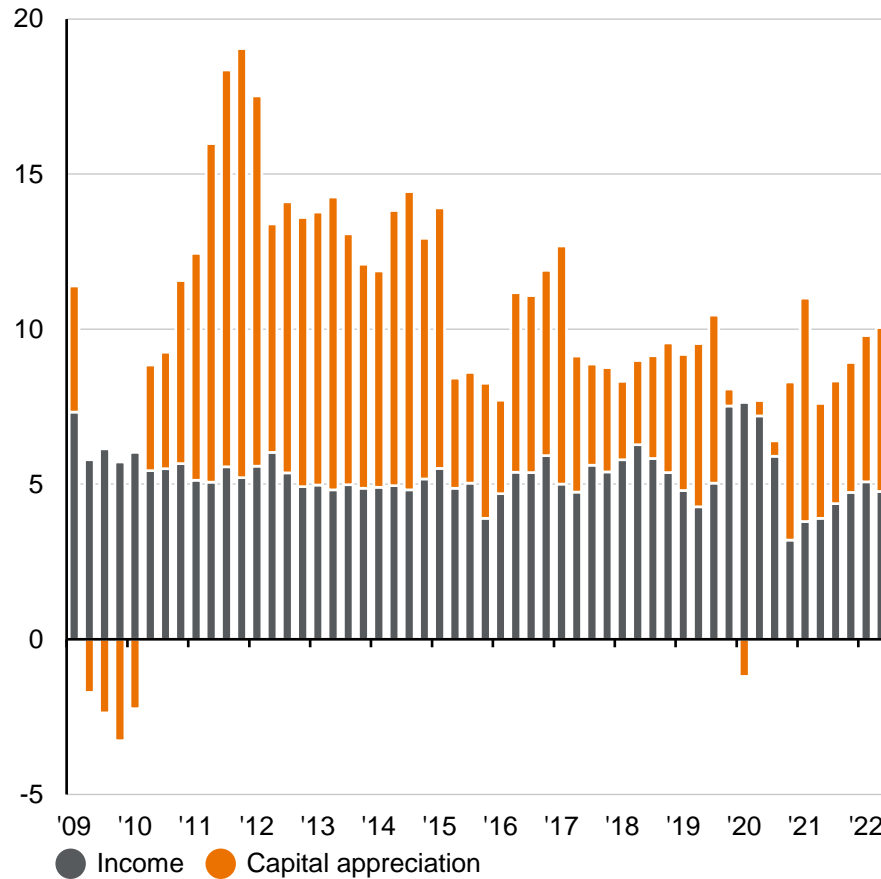


## Alternative investments: Real assets

GTM Europe 76

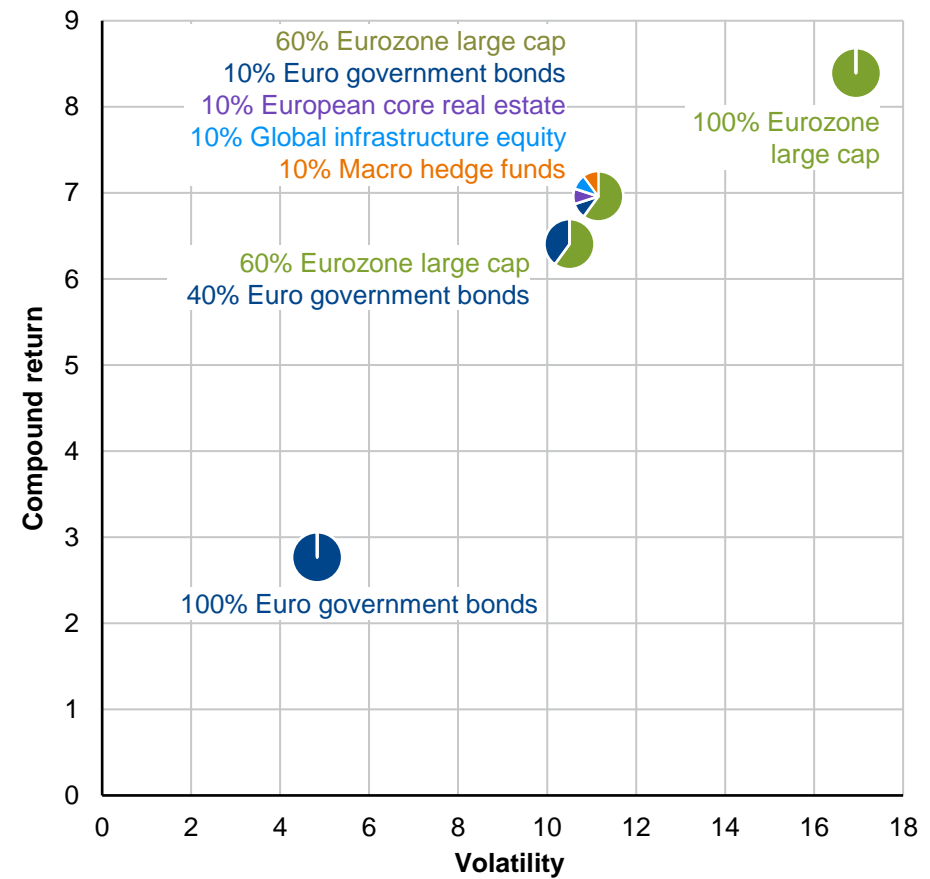
### Global core infrastructure returns

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



### Expected returns and volatility in coming 10-15 years

% annual compound return in EUR



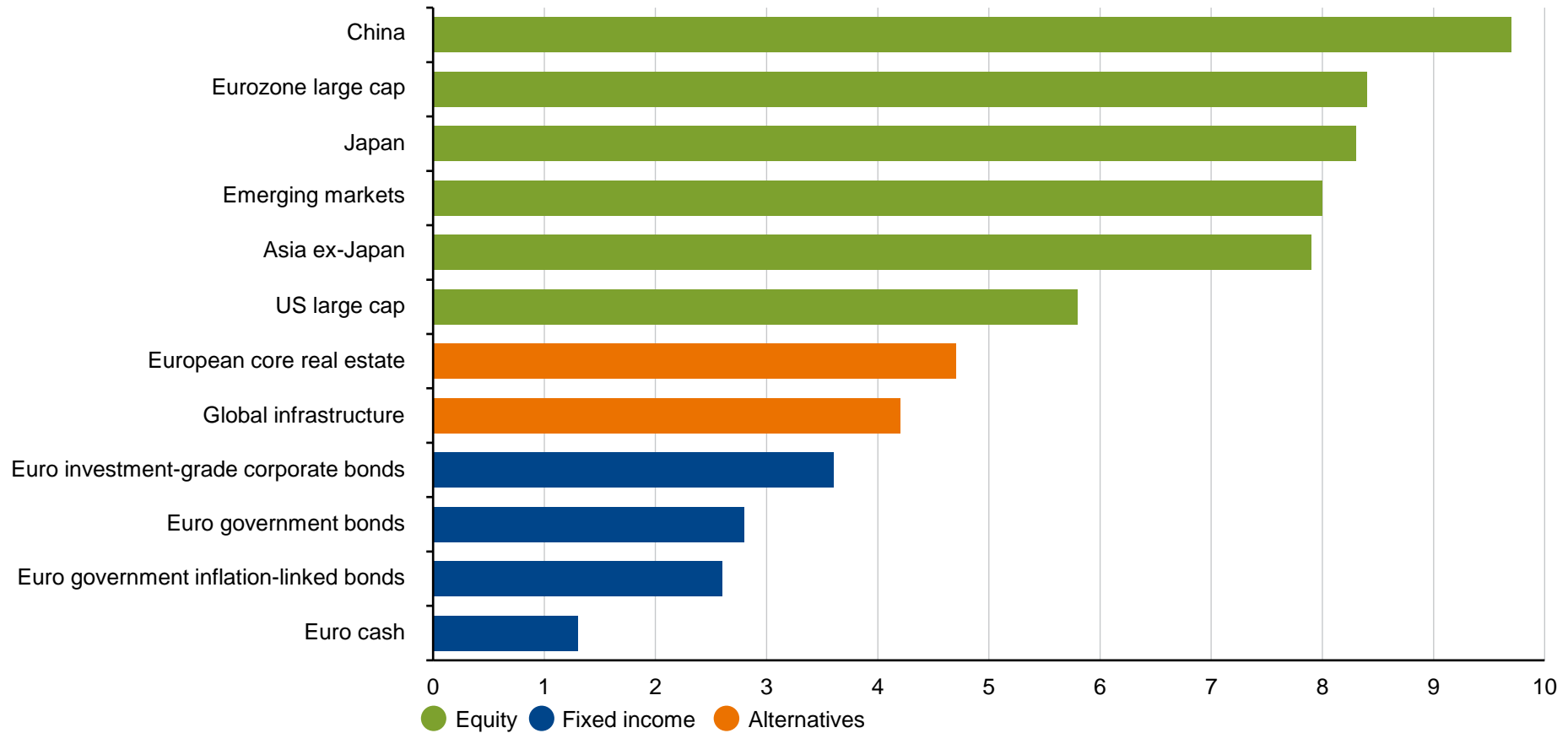
Source: (Left) MSCI, J.P. Morgan Asset Management. Infrastructure returns represented by the "low risk" category of the MSCI Global Quarterly Infrastructure Asset Index. Data show rolling one-year returns from income and capital appreciation. The chart shows the full index history, beginning in the first quarter of 2009. (Right) 2023 Long-Term Capital Market Assumptions, J.P. Morgan Asset Management. 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. Macro hedge fund return expectations are currency hedged. The assumptions are presented for illustrative purposes only. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# Asset return expectations

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

%, annualised return in EUR



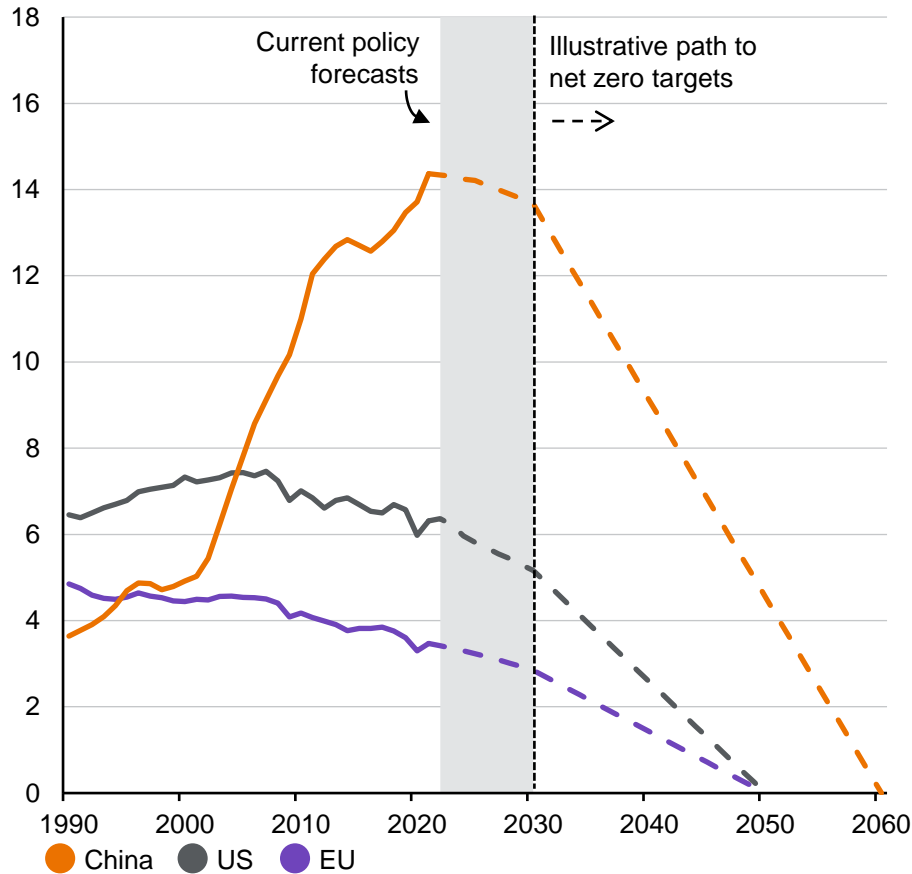
Source: 2023 Long-Term Capital Market Assumptions J.P. Morgan Asset Management. Returns are nominal and in EUR. The projections in the chart above are based on J.P. Morgan Asset Management's proprietary long-term capital market assumptions (10-15 years) for returns of major asset classes. The resulting 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 - Europe. Data as of 31 December 2022.



# Emissions targets and consumer concerns

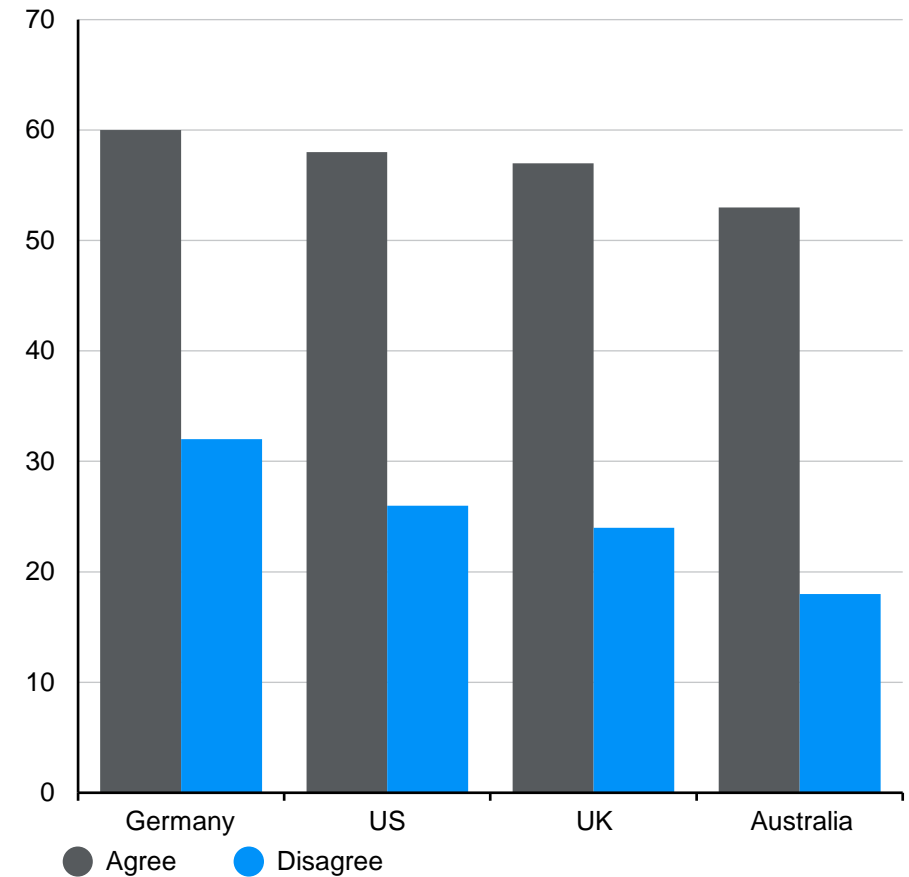
## Greenhouse gas emission targets

Billion tonnes per year, CO<sub>2</sub> equivalent



## Willingness to pay more for environmentally friendly products

% of survey respondents



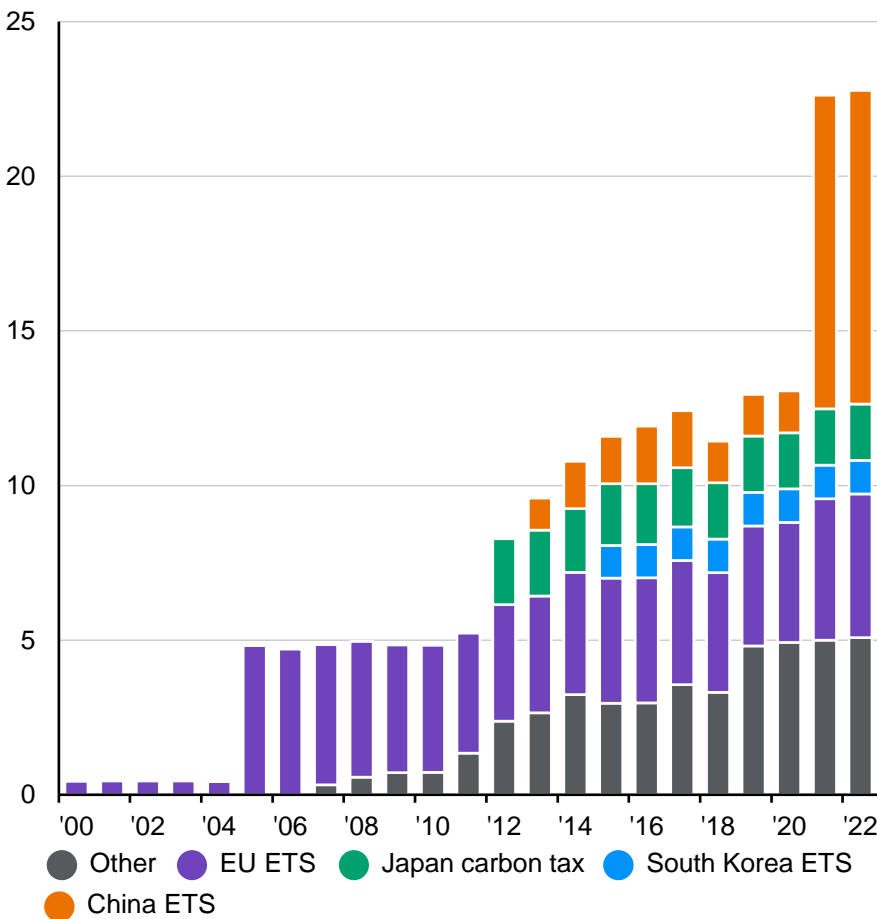
Source: (Left) Climate Action Tracker, J.P. Morgan Asset Management. Current policy forecast is the November 2022 forecast provided by Climate Action Tracker for China and the EU, and the August 2022 forecast for the US. CO<sub>2</sub> equivalent tonnes standardise emissions to allow for comparison between gases. One equivalent tonne has the same warming effect as one tonne of CO<sub>2</sub> over 100 years. (Right) YouGov, J.P. Morgan Asset Management. Respondents identified as being mainly or partly responsible for grocery shopping for their household and were responding to the statement "I don't mind paying more for products that are good for the environment." Survey conducted in April 2021. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# Carbon pricing

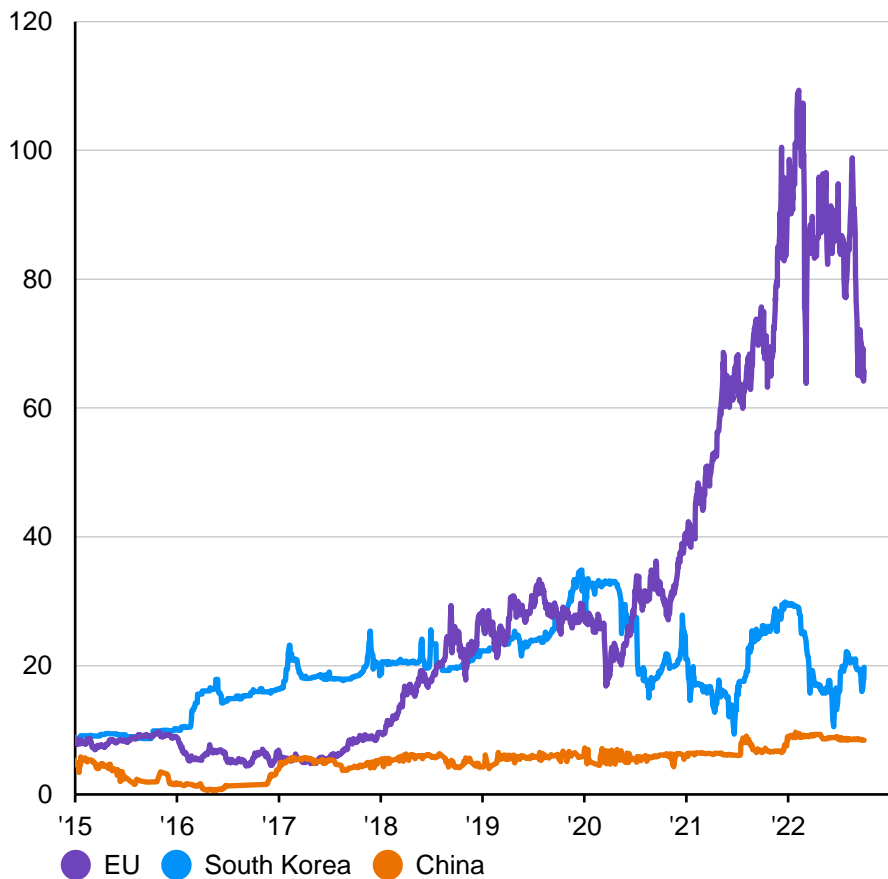
## Global emissions covered by carbon pricing initiatives

% of global greenhouse gas emissions



## Emissions trading system prices

USD per tonnes of CO<sub>2</sub> equivalent



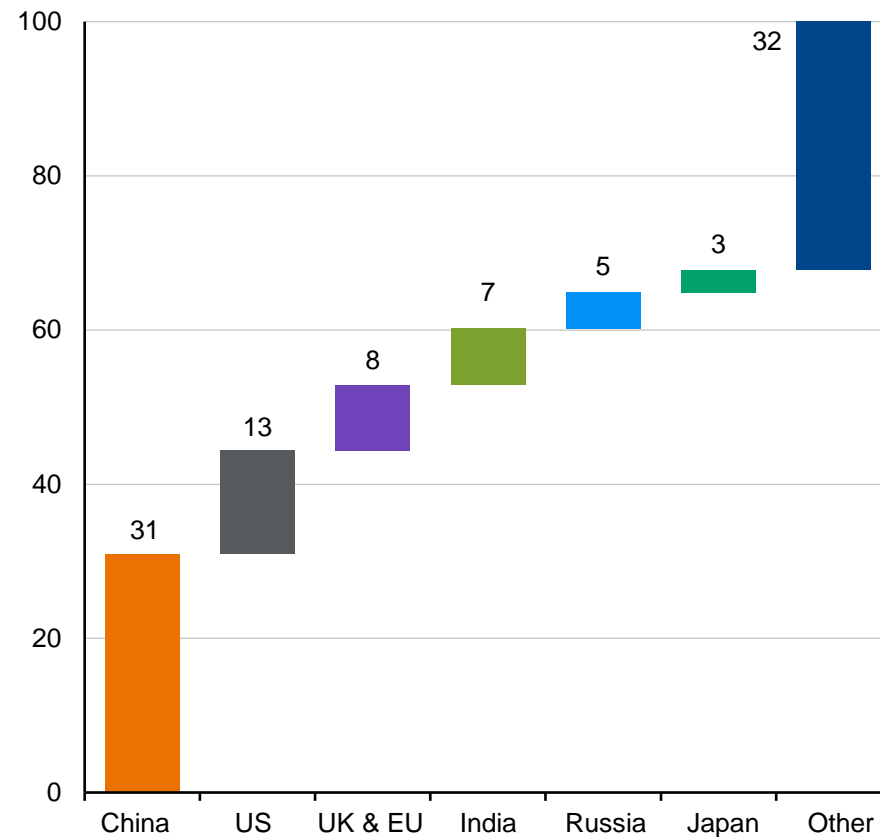
Source: (Left) World Bank, J.P. Morgan Asset Management. ETS is emissions trading system. (Right) International Carbon Action Partnership, J.P. Morgan Asset Management. China ETS price is the Shanghai ETS price up to July 2021, and the mainland price thereafter. CO<sub>2</sub> equivalent tonnes standardise emissions to allow for comparison between gases. One equivalent tonne has the same warming effect as one tonne of CO<sub>2</sub> over 100 years. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# Global CO<sub>2</sub> emissions by country

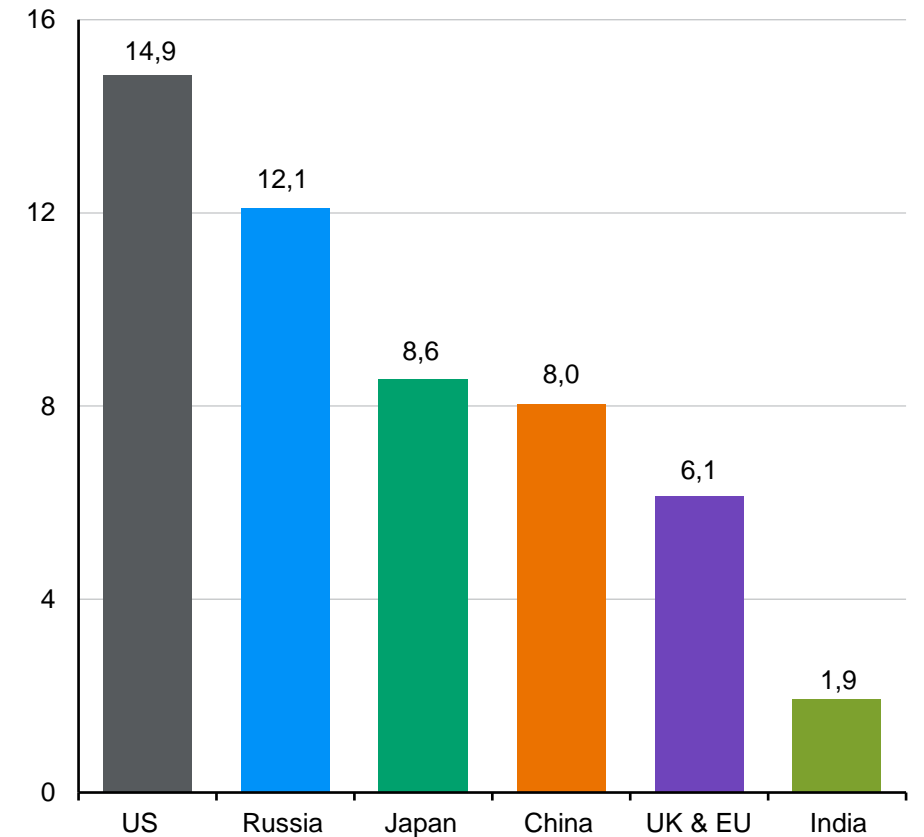
## Share of global CO<sub>2</sub> emissions by country

%, 2021



## Global CO<sub>2</sub> emissions per capita

Tonnes, 2021



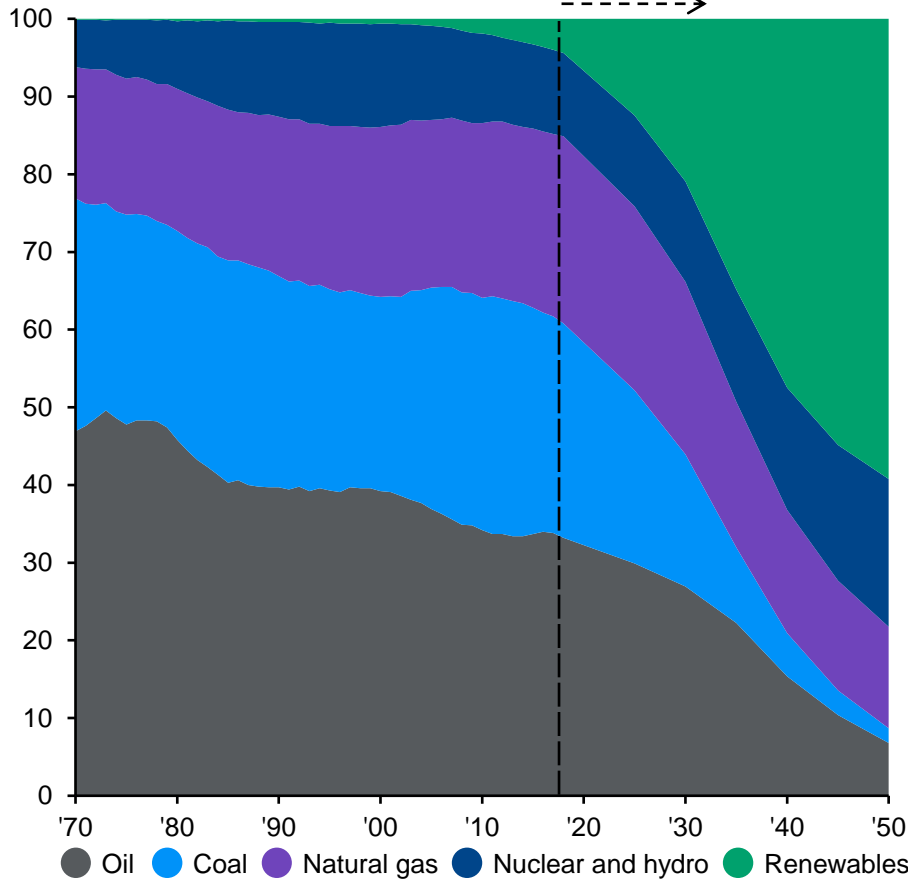




# Global energy mix and greenhouse gas emissions by sector

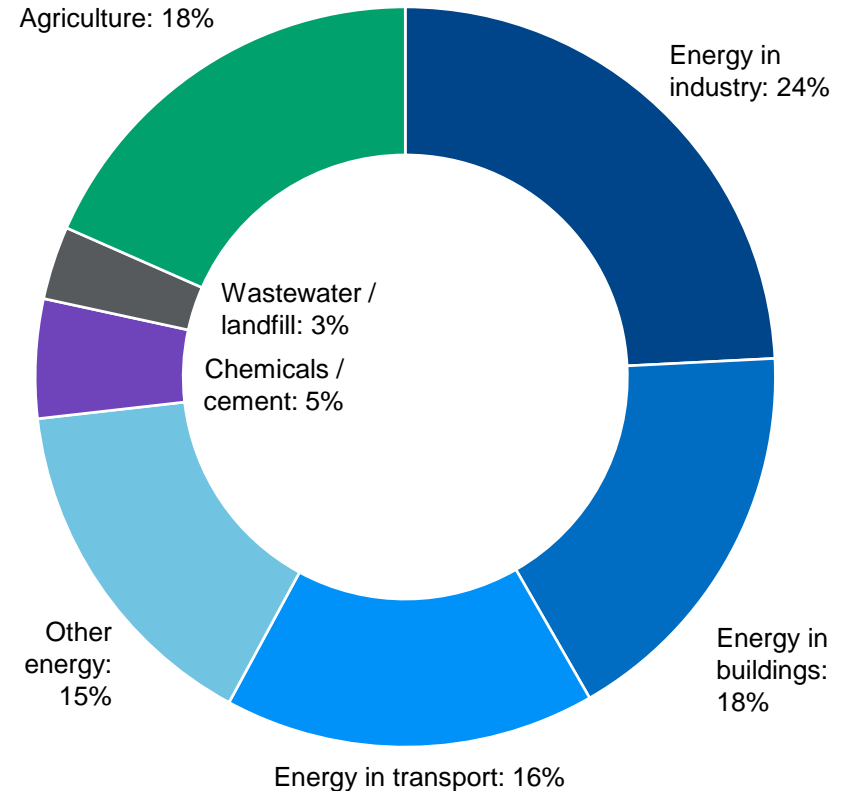
## Global energy mix

% primary energy consumption



## Share of global greenhouse gas emissions by sector

% of global greenhouse gas emissions (2016), CO<sub>2</sub> equivalent tonnes



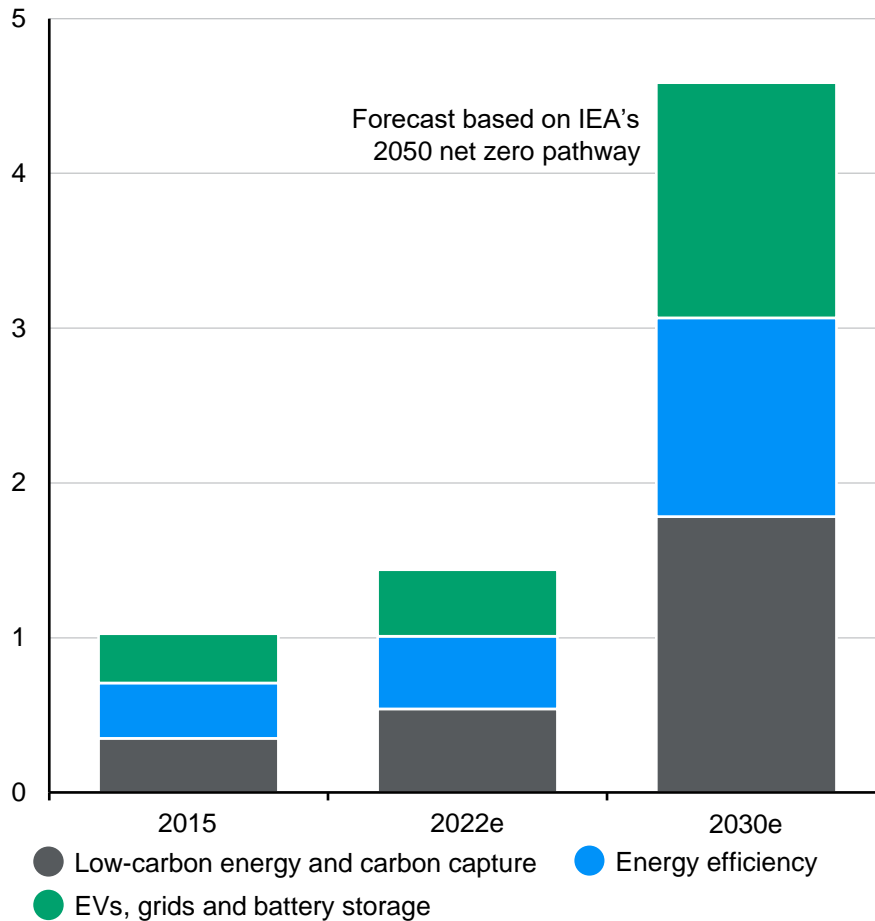
Source: (Left) BP Energy Outlook 2020, J.P. Morgan Asset Management. Forecast is based on BP's scenario for global net zero emissions by 2050. (Right) Climate Watch, Our World in Data, World Resource Institute, J.P. Morgan Asset Management. Greenhouse gas emissions include CO<sub>2</sub>, methane, nitrous oxide and fluorinated greenhouse gases. CO<sub>2</sub> equivalent tonnes standardise emissions to allow for comparison between gases. One equivalent tonne has the same warming effect as one tonne of CO<sub>2</sub> over 100 years. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# Global energy investment

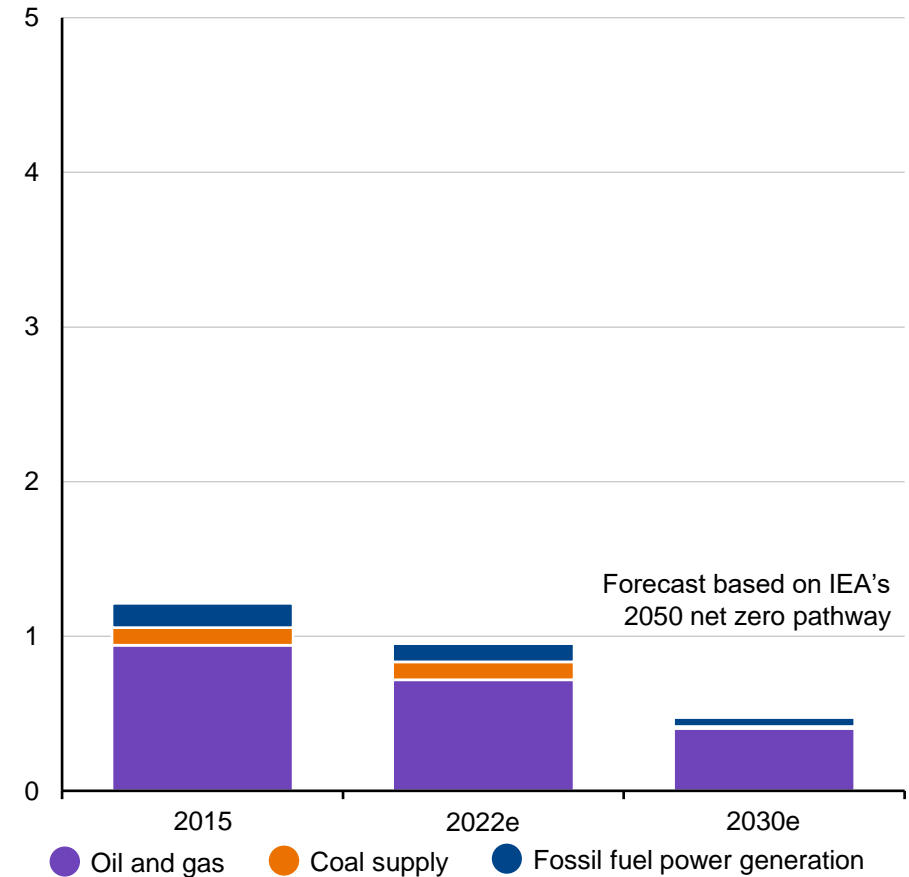
## Global investment in clean energy and energy efficiency

USD trillions



## Global investment in fossil fuel energy

USD trillions



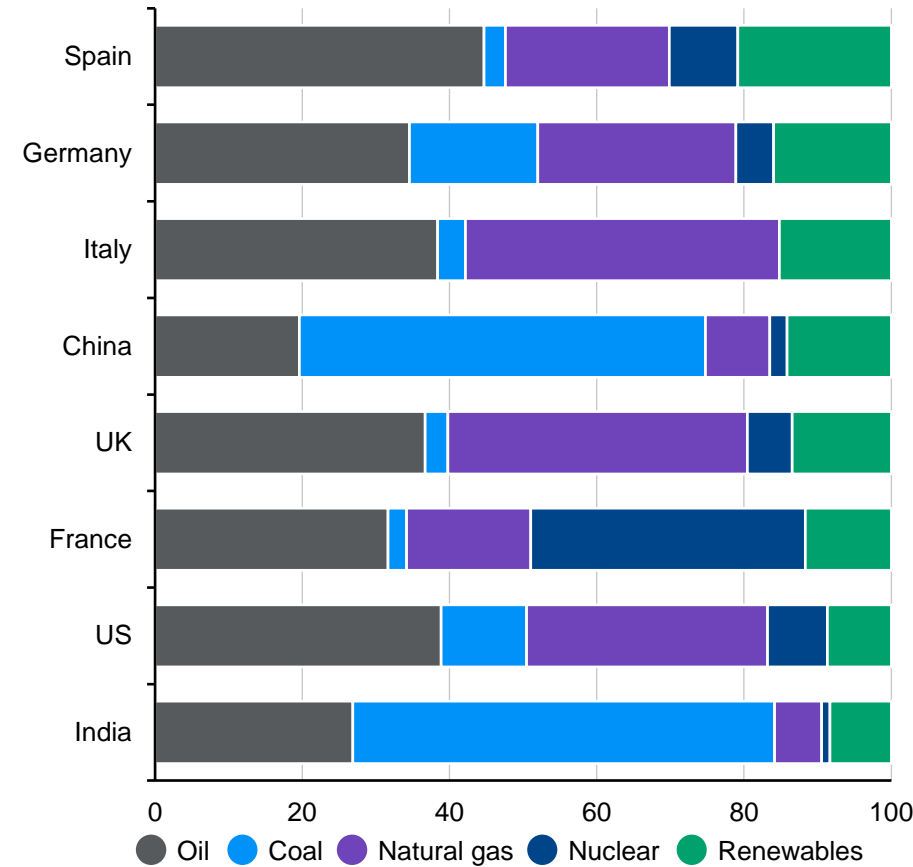
Source: (All charts) IEA, J.P. Morgan Asset Management. Data is from the IEA's World Energy Investment 2022 report. 2030e is based on the IEA's net zero by 2050 scenario. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# Global energy consumption and renewable capacity

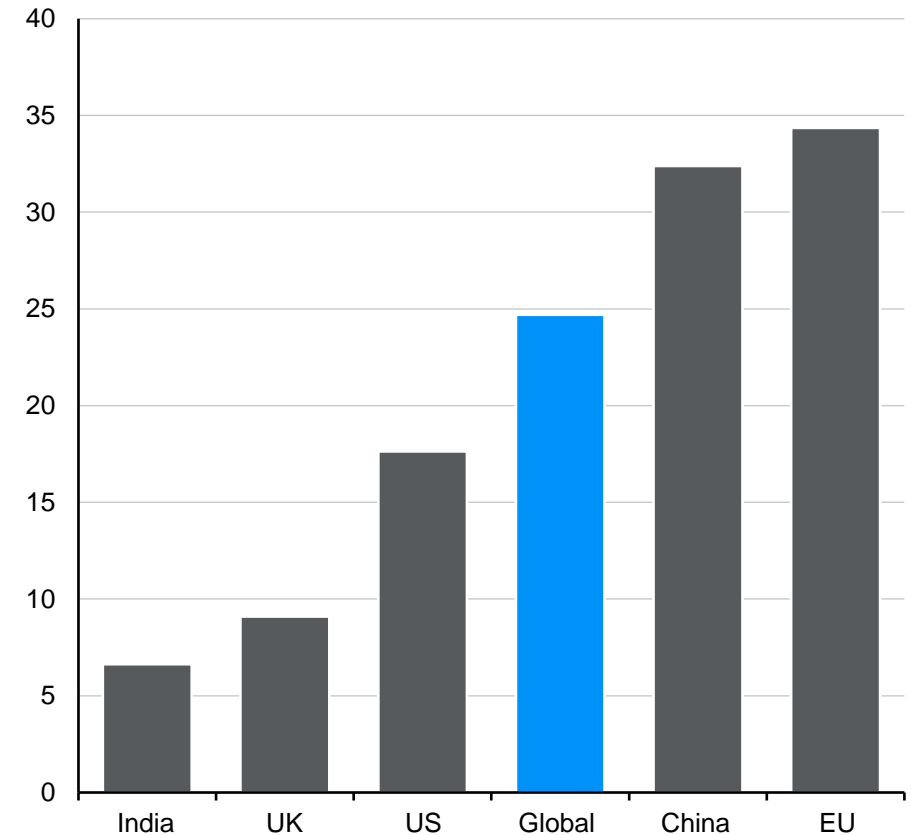
## Global energy mix

% of primary energy consumption



## Change in renewable capacity forecasts, 2022 vs. 2021

% change in forecasted capacity expansion between 2022-2026



Source: (Left) Our World in Data, J.P. Morgan Asset Management. Renewables include hydro, wind, solar and biomass fuels. (Right) IEA, J.P. Morgan Asset Management. Chart shows percentage increase in forecasted renewables capacity expansion from the IEA's 2021 Renewables report to the 2022 report. *Guide to the Markets - Europe*. Data as of 31 December 2022.

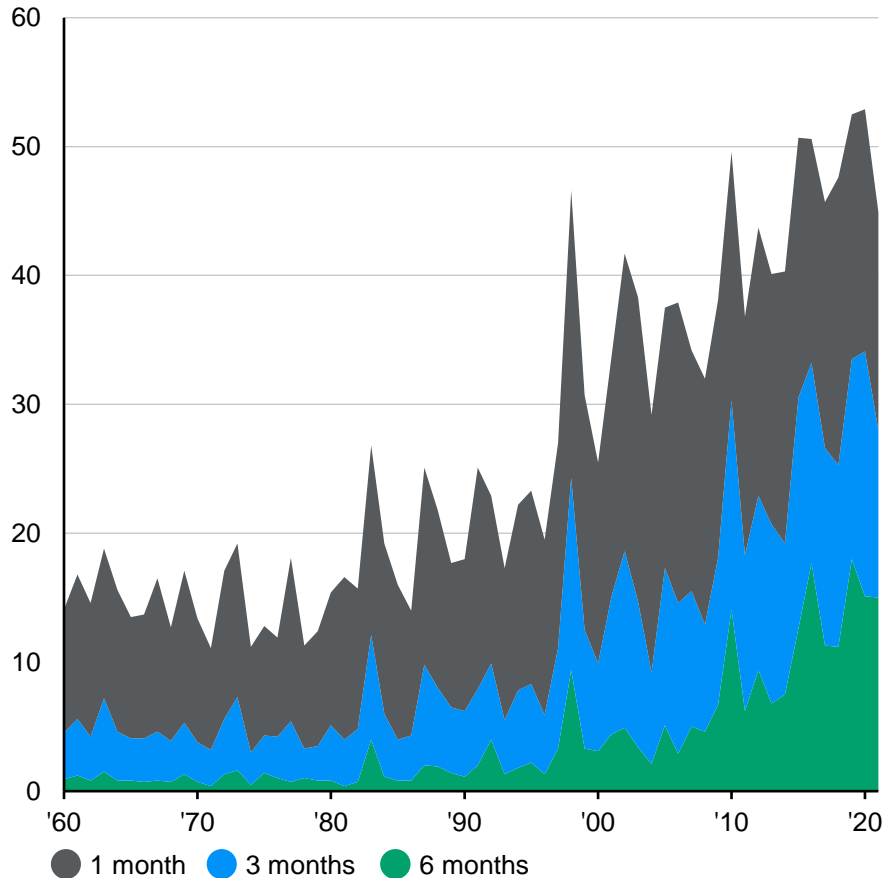


## Droughts and food prices

GTM Europe 84

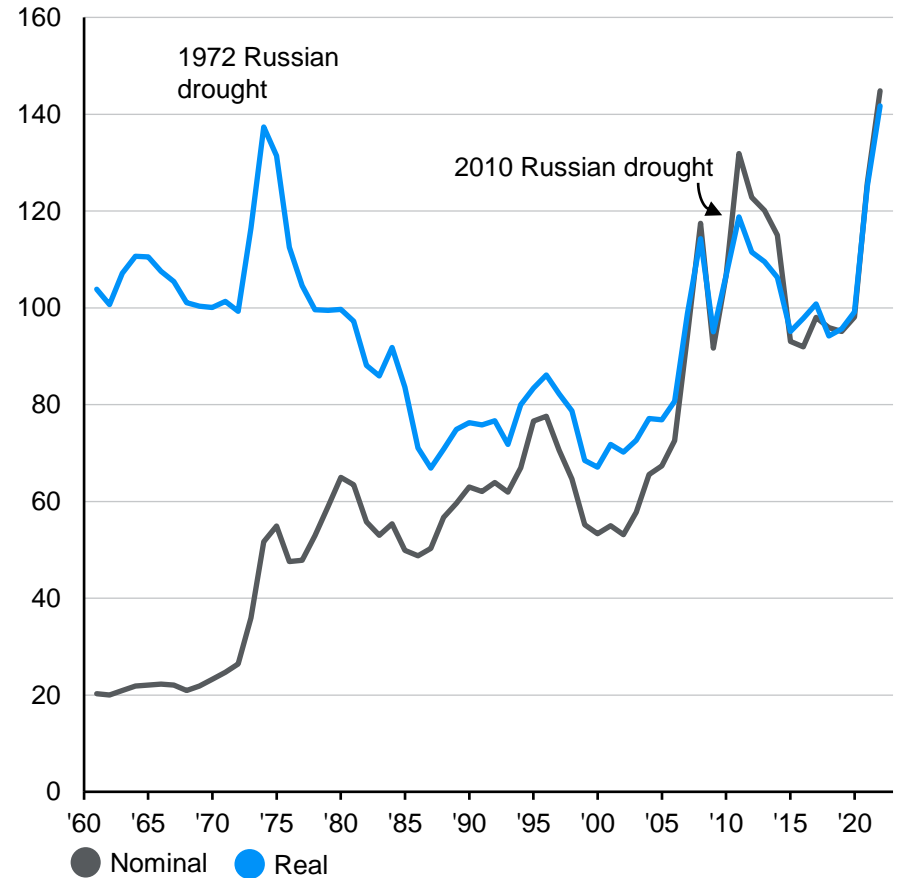
### Land affected by droughts

%, global land affected by droughts per year



### Food prices

Index level



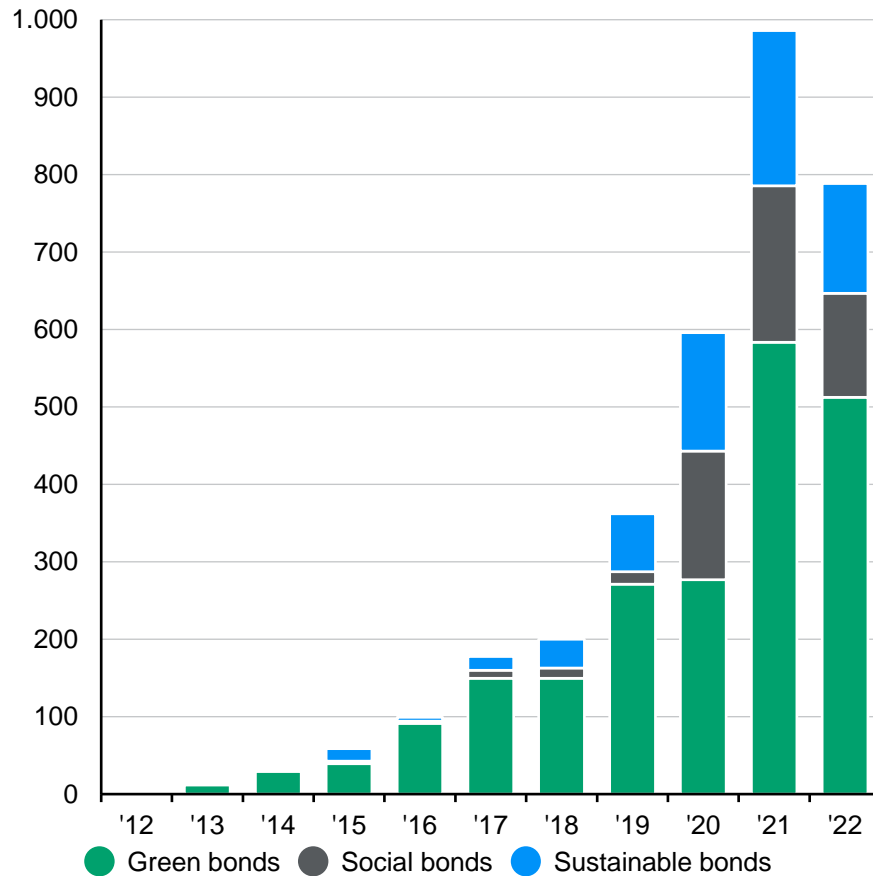


## ESG and capital markets

GTM Europe 85

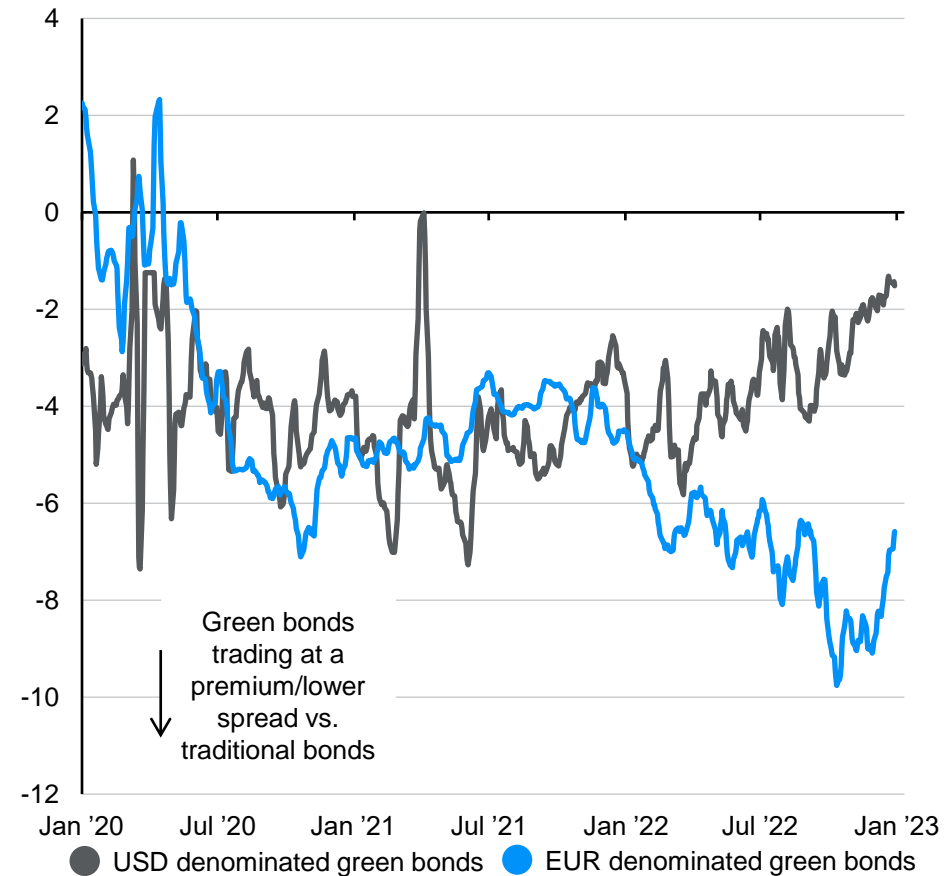
### Global sustainable, social and green bond issuance

USD billions



### Spread between green and traditional corporate bonds

Basis points



Source: (Left) Refinitiv Eikon, J.P. Morgan Asset Management. Green bonds are those where 100% of the net bond proceeds are allocated to green projects. Social bonds are those where the bond proceeds have a focus on delivering positive social outcomes. Sustainable bonds are those where the 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. (Right) Barclays Research, J.P. Morgan Asset Management. Data shown is for a Barclays Research custom universe of green and non-green investment-grade credits, matched by issuer, currency, seniority and maturity. The universe consists of 160 pairs, 99 EUR denominated and 61 USD denominated. 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 - Europe*. Data as of 31 December 2022.

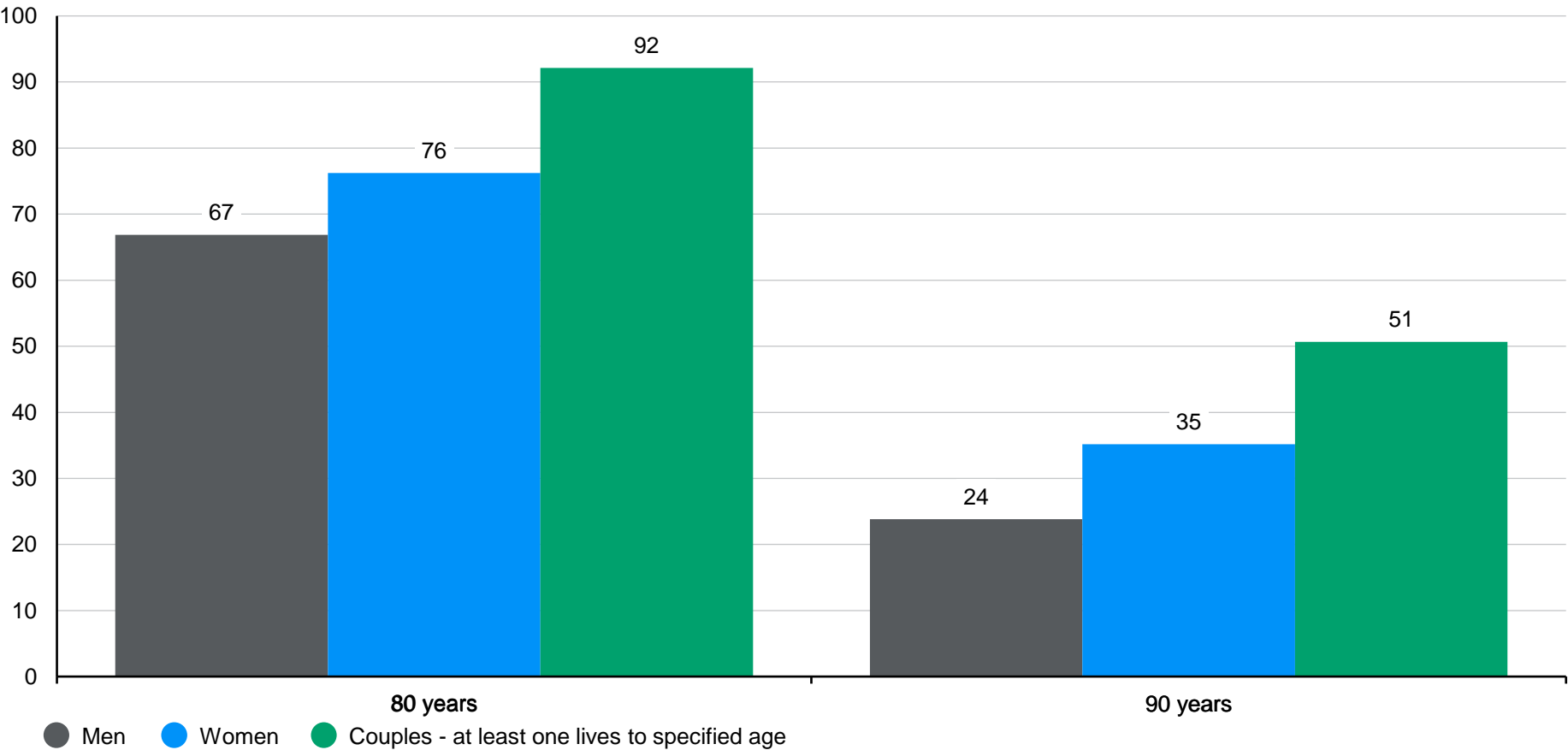
**J.P.Morgan**  
ASSET MANAGEMENT



# Life expectancy

## Probability of reaching ages 80 and 90

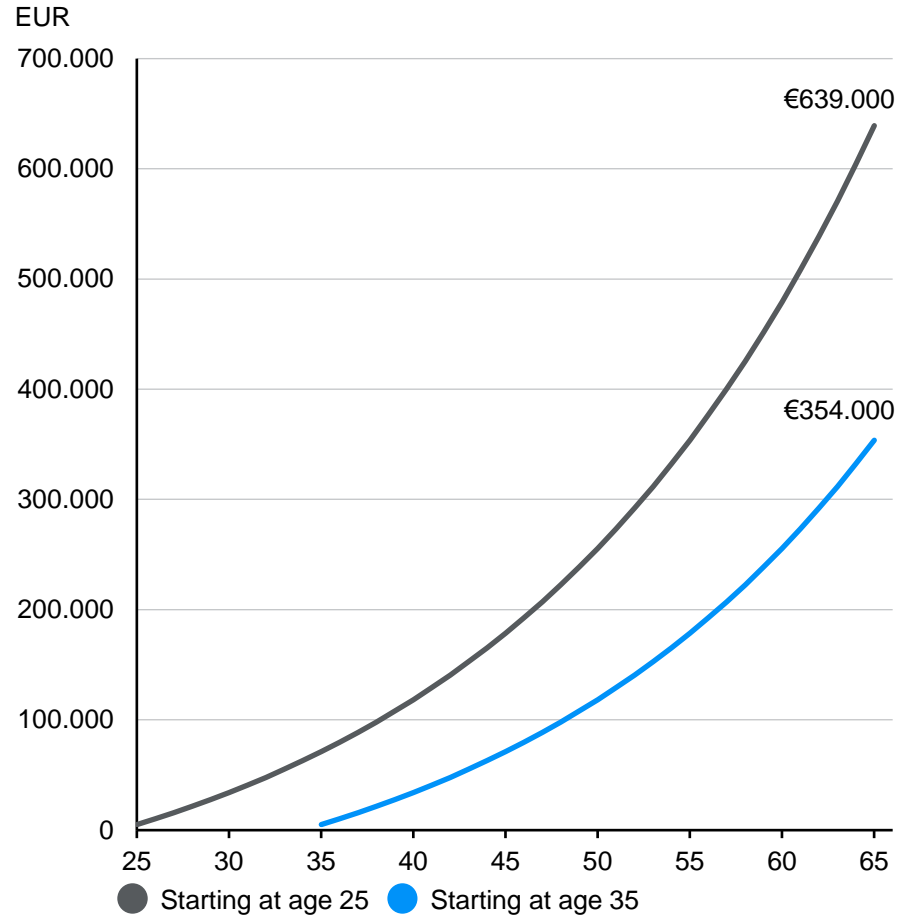
% probability, persons aged 65, by gender and combined couple





## The effect of compounding

### €5.000 invested annually with 5% growth per year



### €5.000 investment with/without income reinvested

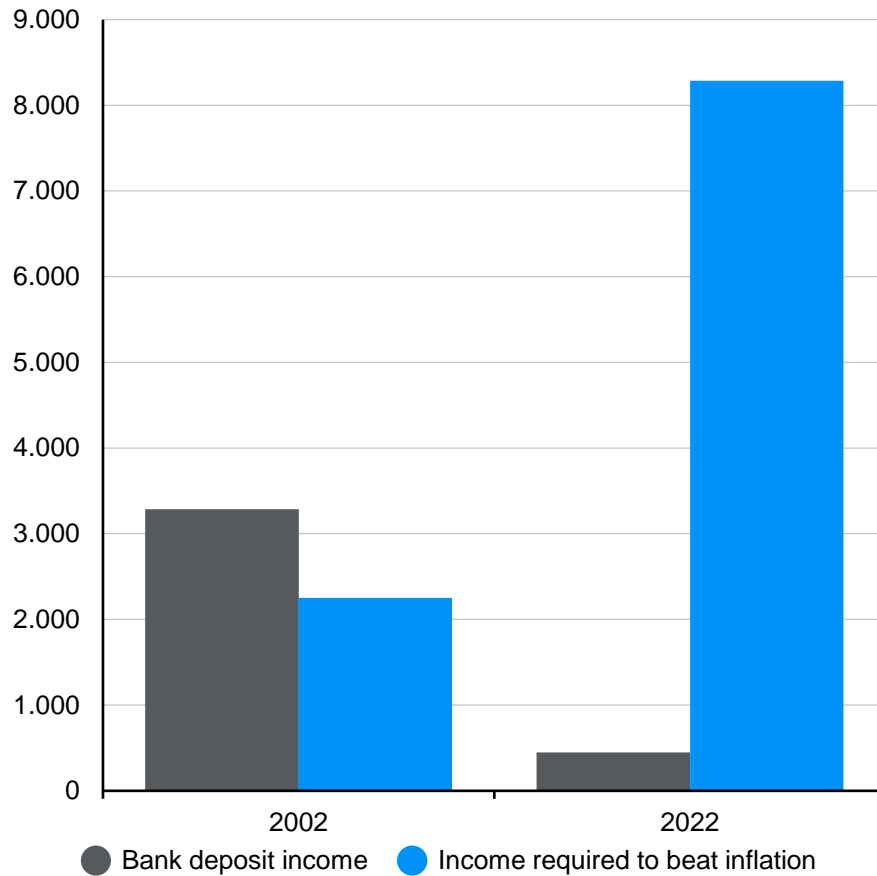




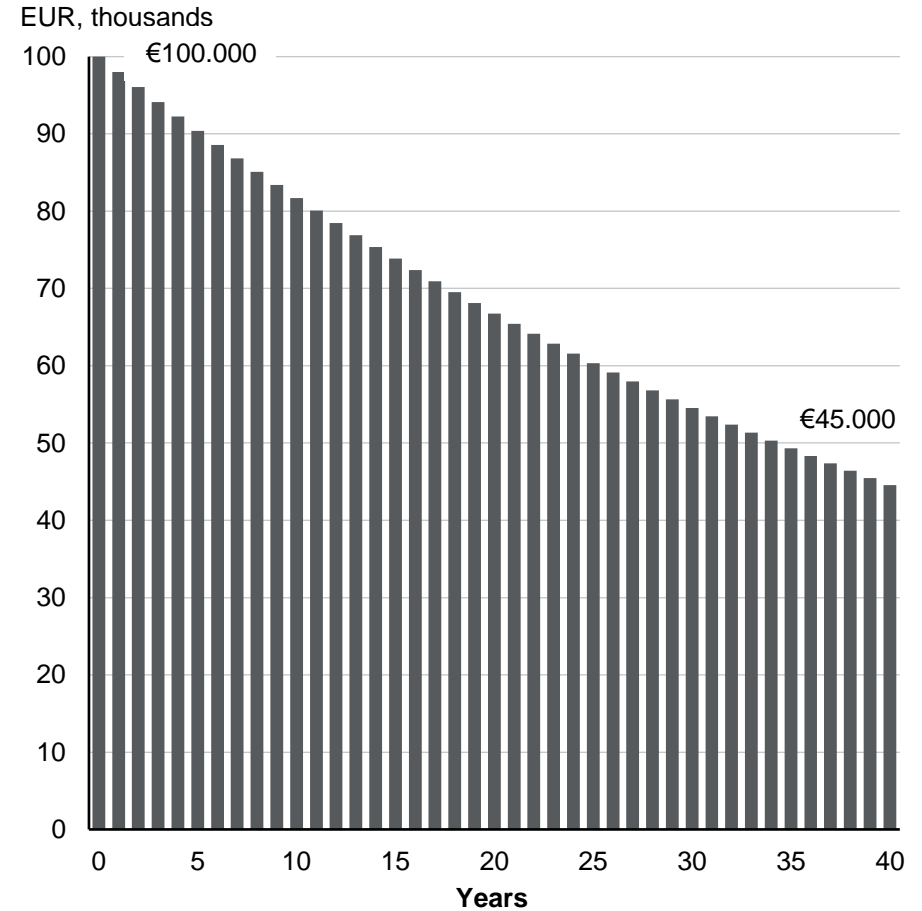
## Cash investments

GTM Europe 88

Income generated by €100.000 in a three-month bank deposit  
EUR



Effect of 2% inflation on purchasing power of €100.000



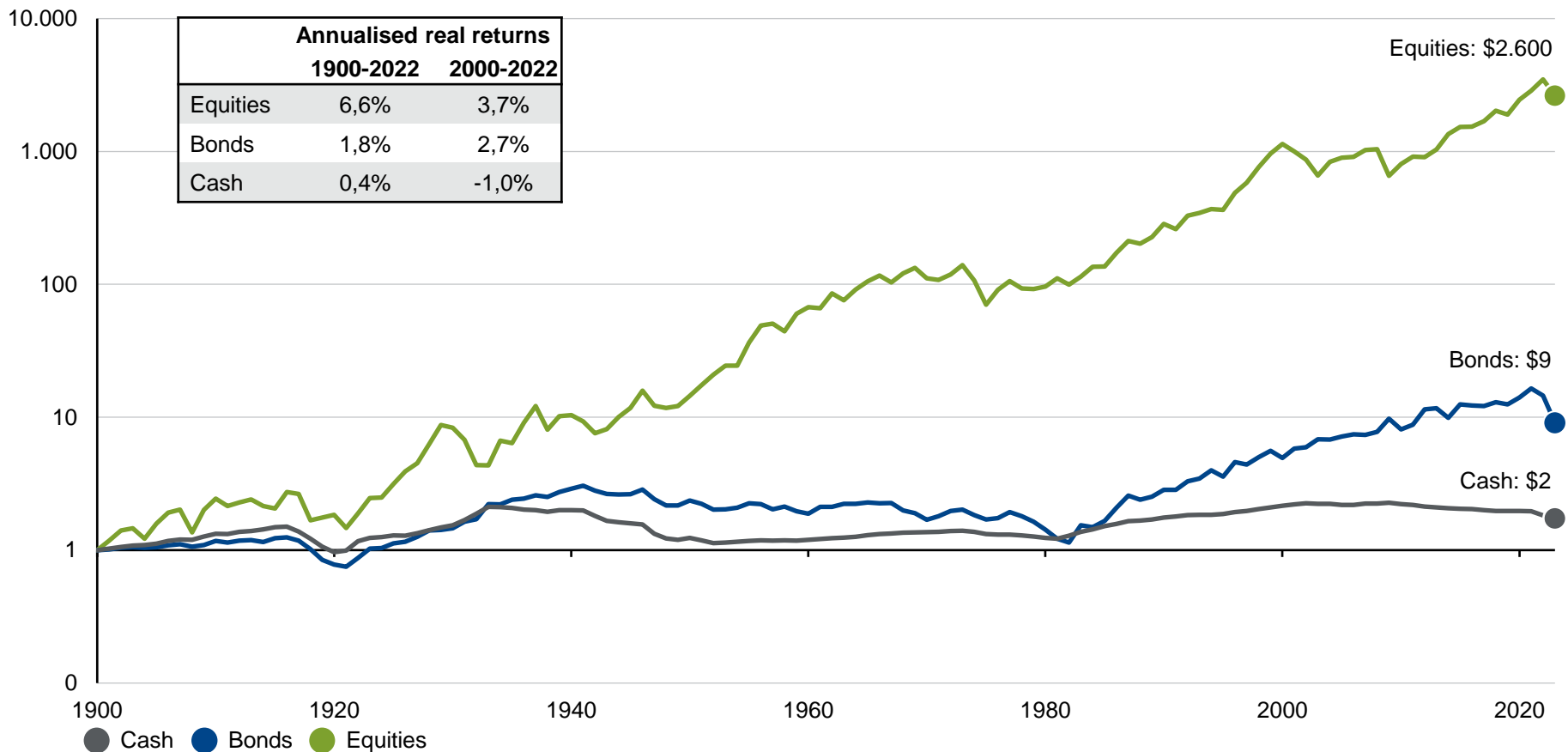




# Long-term asset returns

## Total return of \$1 in real terms

USD, log scale for total returns



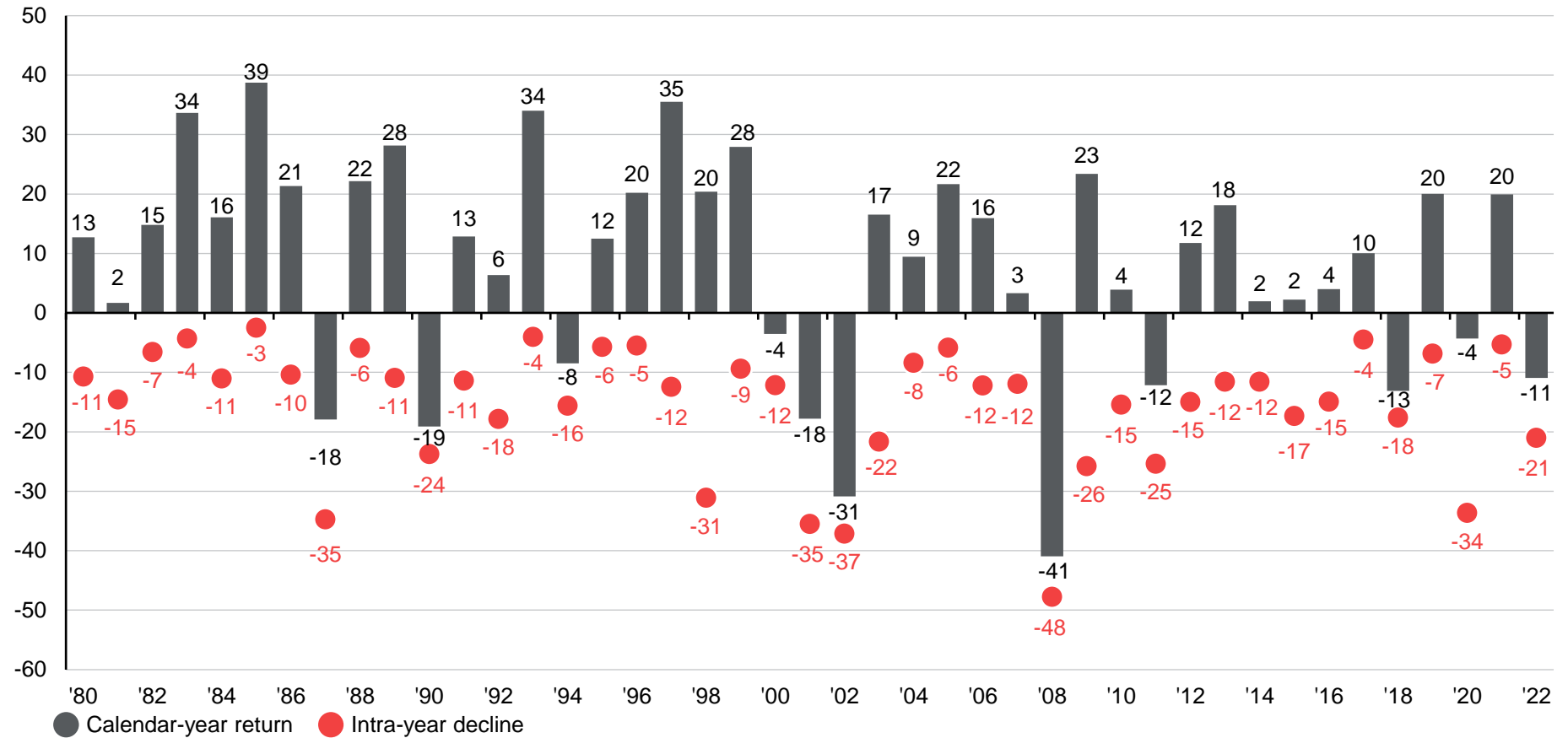
Source: Bloomberg, Bloomberg Barclays, FactSet, Shiller, Siegel, Standard & Poor's, J.P. Morgan Asset Management. Pre-2010 returns: Shiller, Siegel; from 2010: Equities: S&P 500; Bonds: Bloomberg Barclays US Treasury 20+ year Total Return Index; Cash: Bloomberg Barclays US Treasury Bills Total Return Index. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# Annual returns and intra-year declines

## MSCI Europe intra-year declines vs. calendar-year returns

%; despite average intra-year drops of 15,5% (median 12,1%), annual returns are positive in 32 of 43 years



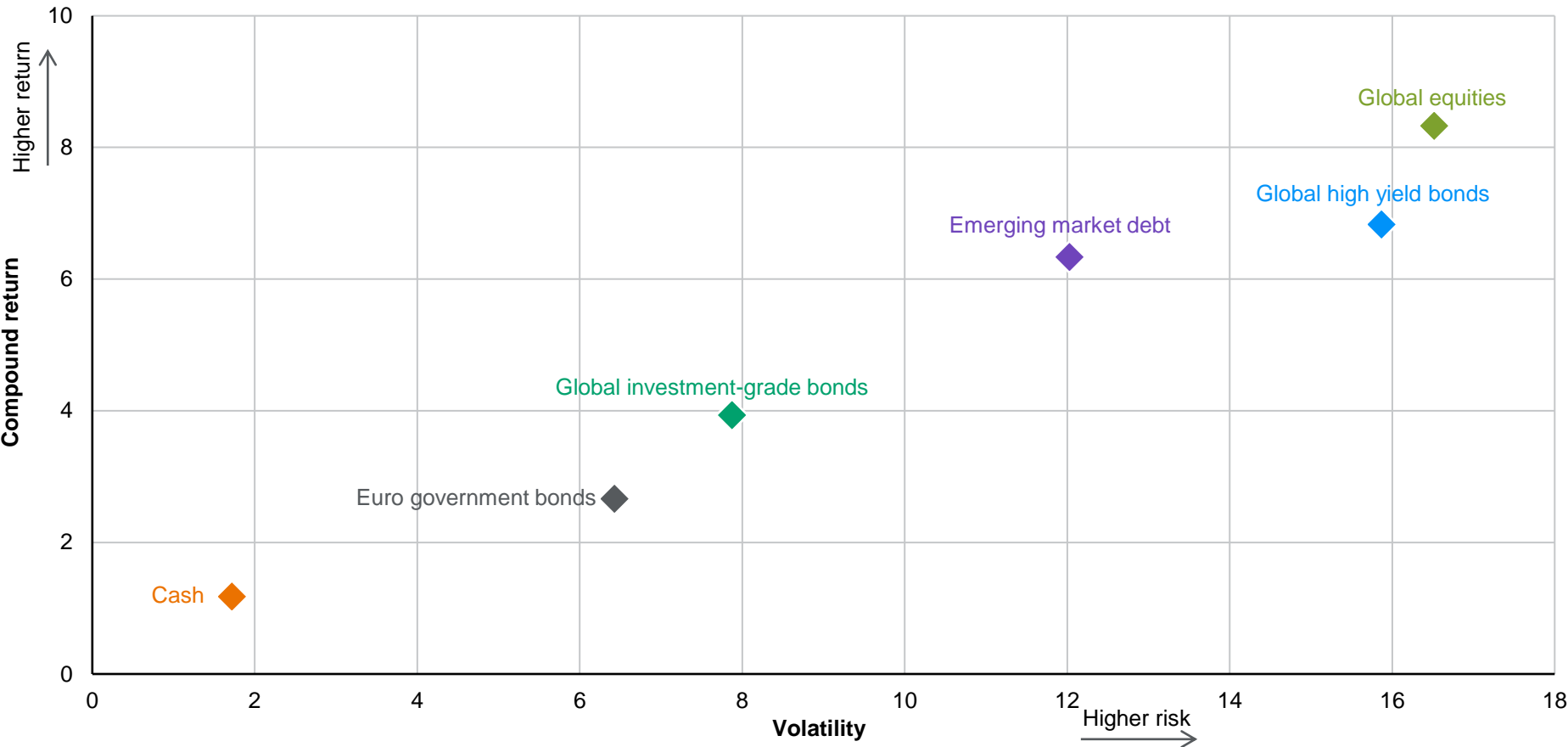
Source: MSCI, Refinitiv Datastream, J.P Morgan Asset Management. Returns are local currency price returns. Intra-year decline refers to the largest market fall from peak to trough within the calendar year. Returns shown are calendar years from 1980 to 2022. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



# Asset class risk-return trade-off

## Historic risk vs. return for selected asset classes

%, annualised return 2004 – 2022 in EUR



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 EUR (3M); Euro government bonds: Bloomberg Barclays Euro Aggregate - Treasury; 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 - Europe. Data as of 31 December 2022.

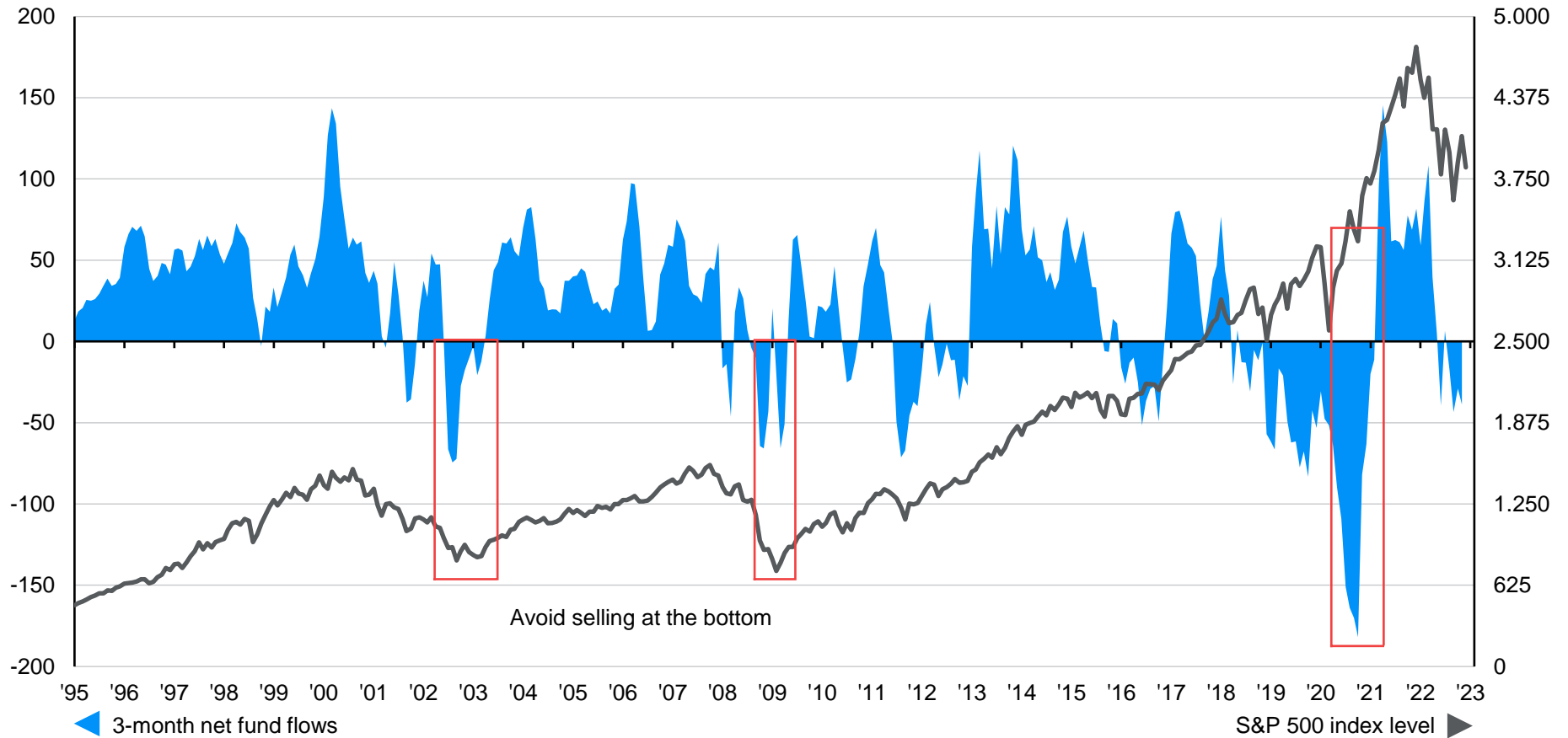


## S&P 500 and fund flows

GTM Europe 92

### US mutual fund and ETF flows and S&P 500

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

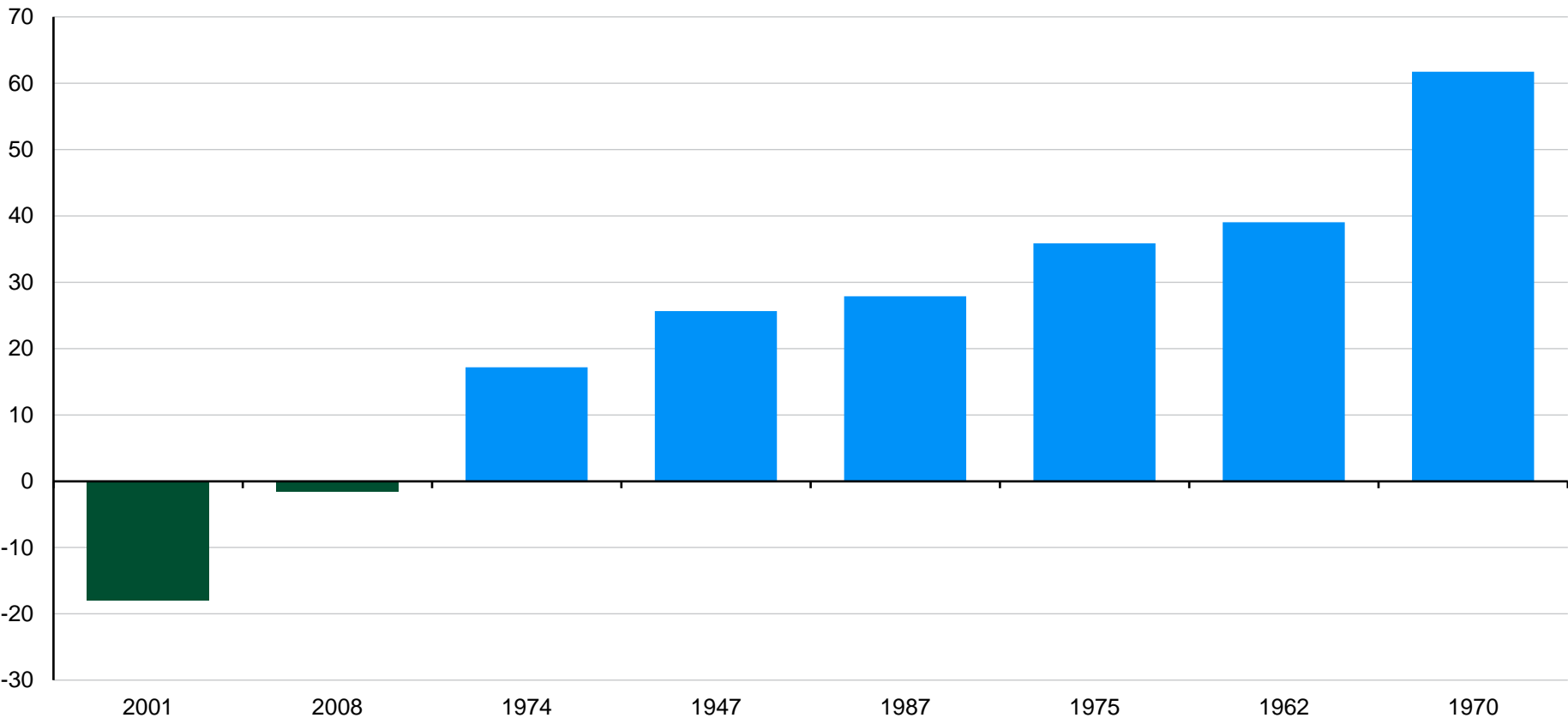




# 25% drawdowns and subsequent returns

## Subsequent 12-month returns after 25% drawdowns

%, S&P 500 total return in USD



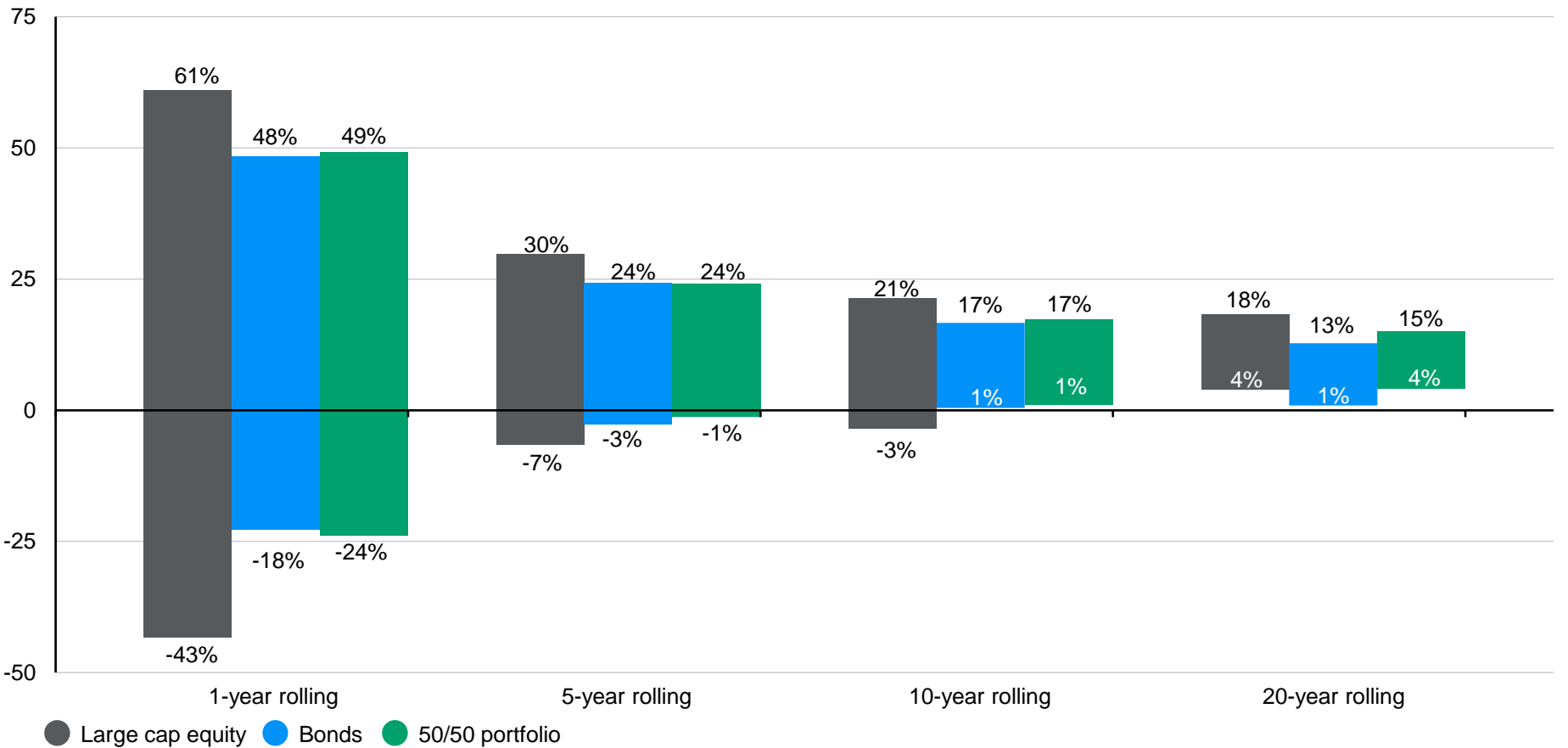
Source: Bloomberg, S&P Global, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results.  
Guide to the Markets - Europe. Data as of 31 December 2022.



# US asset returns by holding period

## 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 - Europe*. Data as of 31 December 2022.



# Asset class returns (EUR)

GTM Europe 95

2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	4Q '22	10-year ann. return	Vol.
DM equities 21,9%	REITs 44,8%	REITs 13,9%	HY bonds 18,2%	EM equities 21,0%	Govt bonds 4,6%	DM equities 30,8%	EM equities 8,9%	REITs 50,5%	Cmdty 23,7%	DM equities 0,9%	DM equities 11,8%	REITs 22,7%
Portfolio 3,4%	EMD 22,3%	EMD 12,7%	Cmdty 15,1%	DM equities 8,1%	HY bonds 1,5%	REITs 30,4%	DM equities 6,9%	Cmdty 36,8%	Hedge funds 1,9%	EM equities 0,8%	REITs 9,1%	Cmdty 17,1%
HY bonds 3,3%	DM equities 20,1%	DM equities 11,0%	EM equities 14,9%	Portfolio 1,7%	IG bonds 1,3%	EM equities 21,1%	Portfolio 1,6%	DM equities 31,6%	Cash 0,0%	Cash 0,4%	Portfolio 6,1%	DM equities 13,3%
Hedge funds 2,1%	IG bonds 17,5%	Govt bonds 7,7%	EMD 13,4%	Cash -0,3%	REITs 0,7%	Portfolio 18,9%	IG bonds 1,3%	Portfolio 16,6%	HY bonds -7,6%	EMD -0,8%	HY bonds 5,4%	EM equities 12,3%
Cash 0,2%	Portfolio 16,3%	IG bonds 7,4%	REITs 12,6%	EMD -3,2%	EMD 0,6%	EMD 17,2%	Govt bonds 0,5%	Hedge funds 11,5%	Portfolio -9,3%	Portfolio -1,7%	EM equities 4,0%	EMD 11,1%
REITs -1,3%	HY bonds 13,8%	Hedge funds 7,3%	DM equities 11,4%	HY bonds -3,2%	Cash -0,3%	HY bonds 15,8%	Cash -0,3%	HY bonds 9,1%	IG bonds -11,3%	HY bonds -1,8%	Hedge funds 3,9%	Portfolio 8,6%
IG bonds -4,0%	Hedge funds 13,2%	HY bonds 6,7%	Portfolio 10,3%	REITs -4,0%	Portfolio -1,6%	IG bonds 13,6%	HY bonds -0,9%	EMD 5,7%	Govt bonds -12,1%	IG bonds -3,3%	EMD 3,8%	IG bonds 8,2%
EM equities -6,5%	Govt bonds 13,0%	Portfolio 6,3%	IG bonds 7,4%	IG bonds -4,2%	Hedge funds -2,0%	Hedge funds 10,6%	Hedge funds -2,0%	EM equities 5,2%	DM equities -12,3%	Govt bonds -3,8%	IG bonds 3,0%	HY bonds 8,1%
Govt bonds -8,4%	EM equities 11,8%	Cash 0,1%	Hedge funds 5,6%	Govt bonds -5,8%	DM equities -3,6%	Cmdty 9,7%	EMD -3,4%	IG bonds 4,5%	EMD -12,4%	REITs -4,1%	Govt bonds 0,9%	Govt bonds 7,5%
EMD -9,3%	Cash 0,3%	EM equities -4,9%	Govt bonds 4,7%	Hedge funds -6,9%	Cmdty -6,8%	Govt bonds 7,5%	Cmdty -11,1%	Govt bonds 0,5%	EM equities -14,5%	Cmdty -6,2%	Cmdty 0,8%	Hedge funds 6,3%
Cmdty -13,4%	Cmdty -5,5%	Cmdty -16,1%	Cash -0,2%	Cmdty -10,7%	EM equities -9,9%	Cash -0,3%	REITs -13,6%	Cash -0,5%	REITs -20,2%	Hedge funds -8,1%	Cash -0,1%	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 2012 to 2021. 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 Index EUR (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 EUR, and are unhedged. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 December 2022.



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