

Guide to the Markets

Europe | 2Q 2019 | As of 31 March 2019

J.P. Morgan

Global Market Insights Strategy Team

Dr. David Kelly, CFA
New York

David Lebovitz
New York

Dr. Cecelia Mundt
New York

Gabriela Santos
New York

Samantha Azzarello
New York

Alex Dryden, CFA
New York

John Manley
New York

Jordan Jackson
New York

Jennie Li
New York

Meera Pandit
New York

Tyler Voigt
New York

Karen Ward
London

Michael Bell, CFA
London

Ambrose Crofton
London

Jai Malhi
London

Manuel Arroyo Ozores, CFA
Madrid

Lucia Gutierrez Mellado
Madrid

Tilman Galler, CFA
Frankfurt

Maria Paola Toschi
Milan

Vincent Juvyns
Luxembourg

Tai Hui
Hong Kong

Marcella Chow
Hong Kong

Ian Hui
Hong Kong

Hannah Anderson
Hong Kong

Dr. Jasslyn Yeo, CFA
Singapore

Chaoping Zhu, CFA
Shanghai

Yoshinori Shigemi
Tokyo

Shogo Maekawa
Tokyo

Agnes Lin
Taiwan

Kerry Craig, CFA
Melbourne

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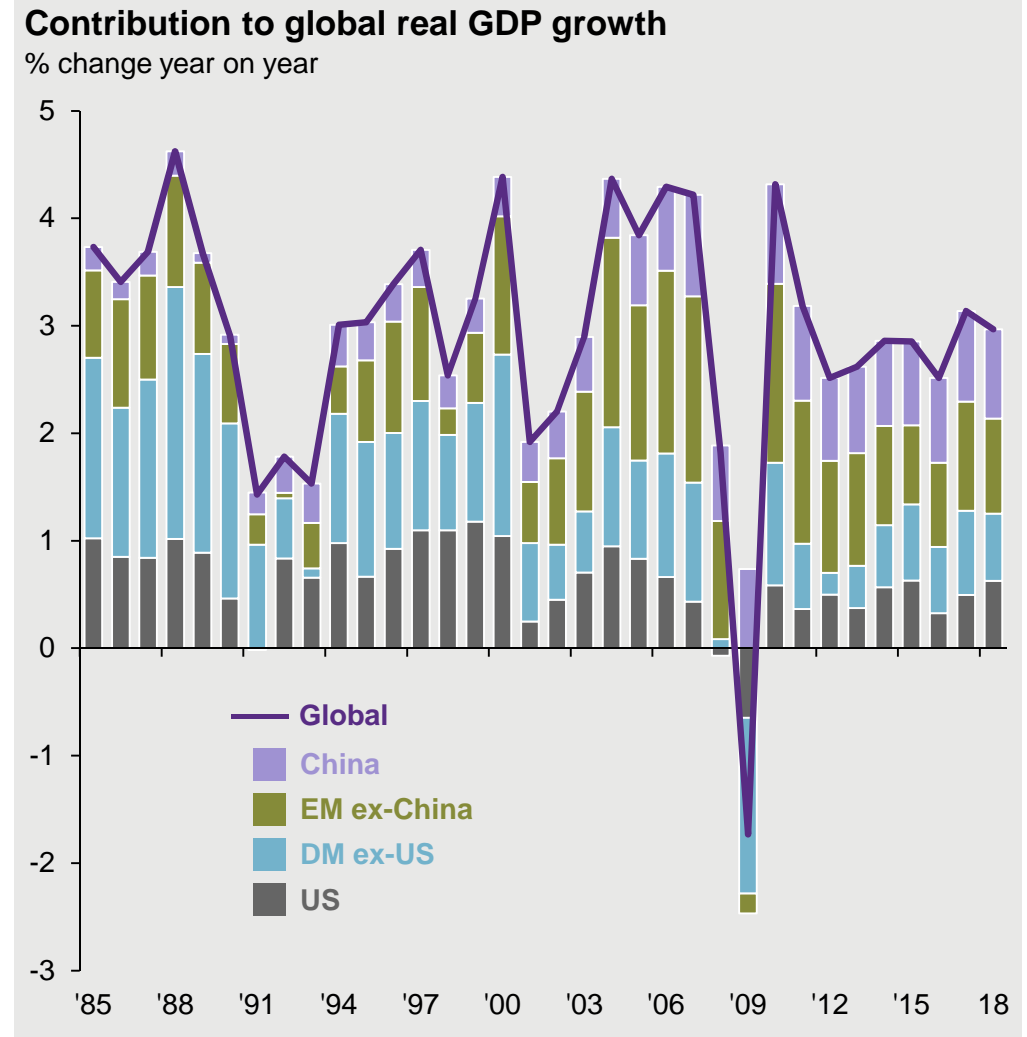
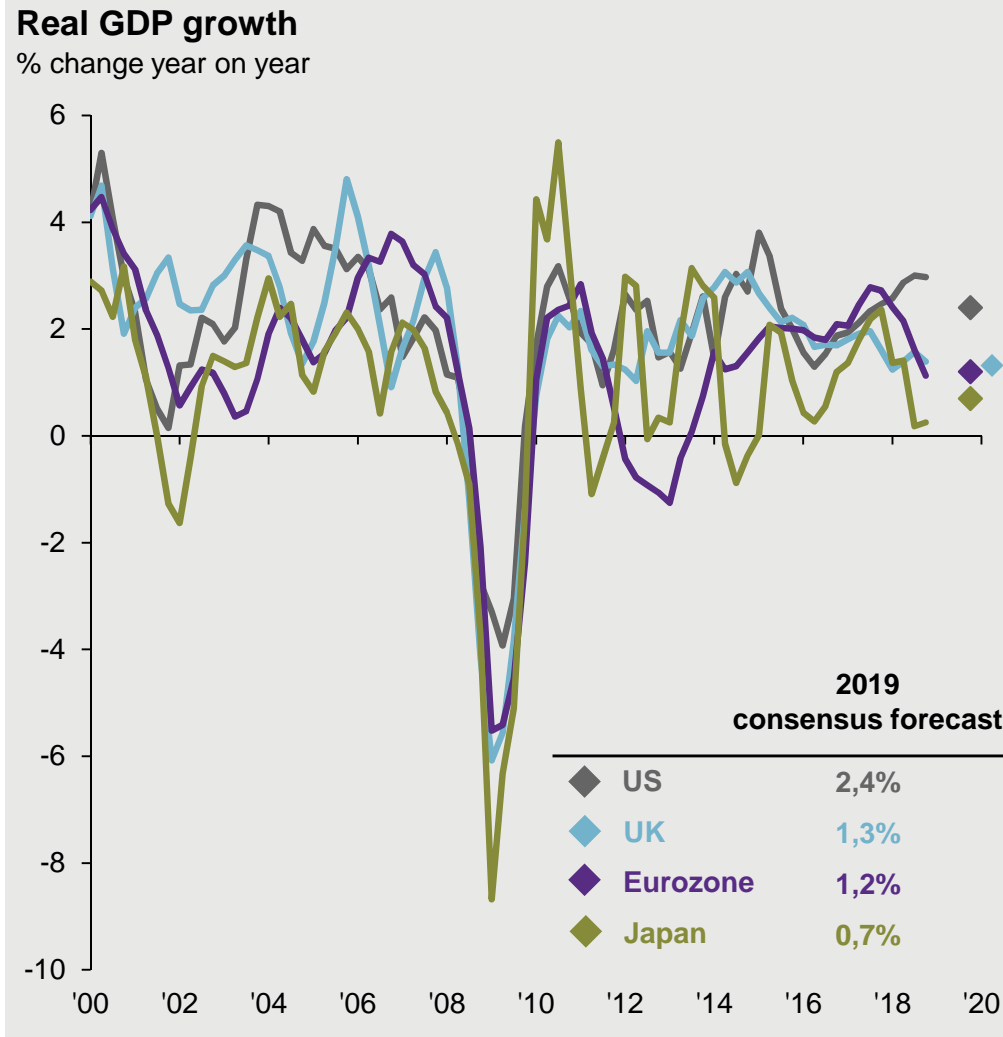
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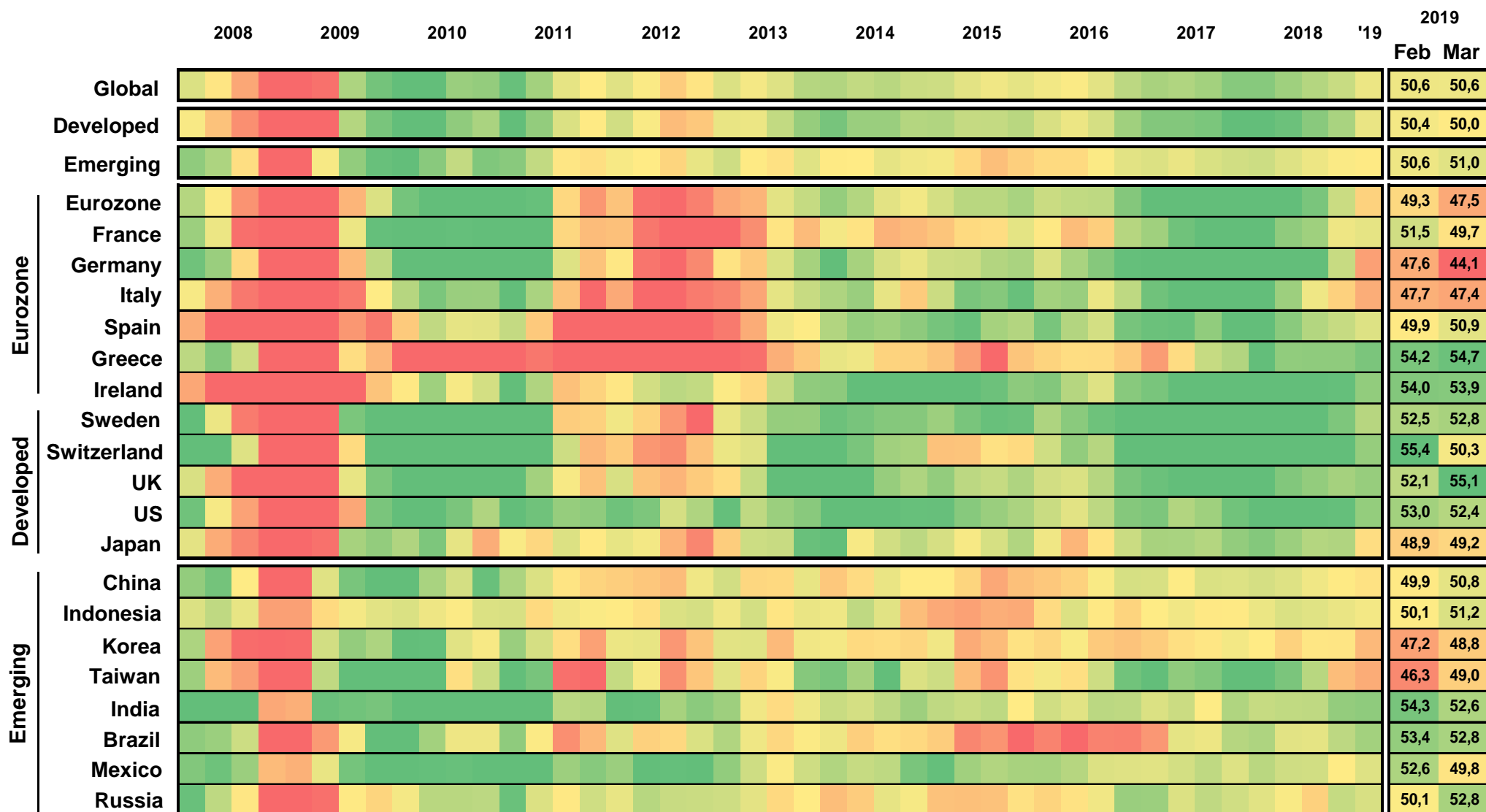


Source: (Left) BEA, Bloomberg, Eurostat, Japan Cabinet Office, ONS, Refinitiv Datastream, J.P. Morgan Asset Management. Forecasts are from Bloomberg contributor composite. (Right) Refinitiv Datastream, World Bank, J.P. Morgan Asset Management. EM is emerging markets. DM is developed markets. 2018 data are estimated from OECD data. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Global Purchasing Managers' Index (PMI) for manufacturing

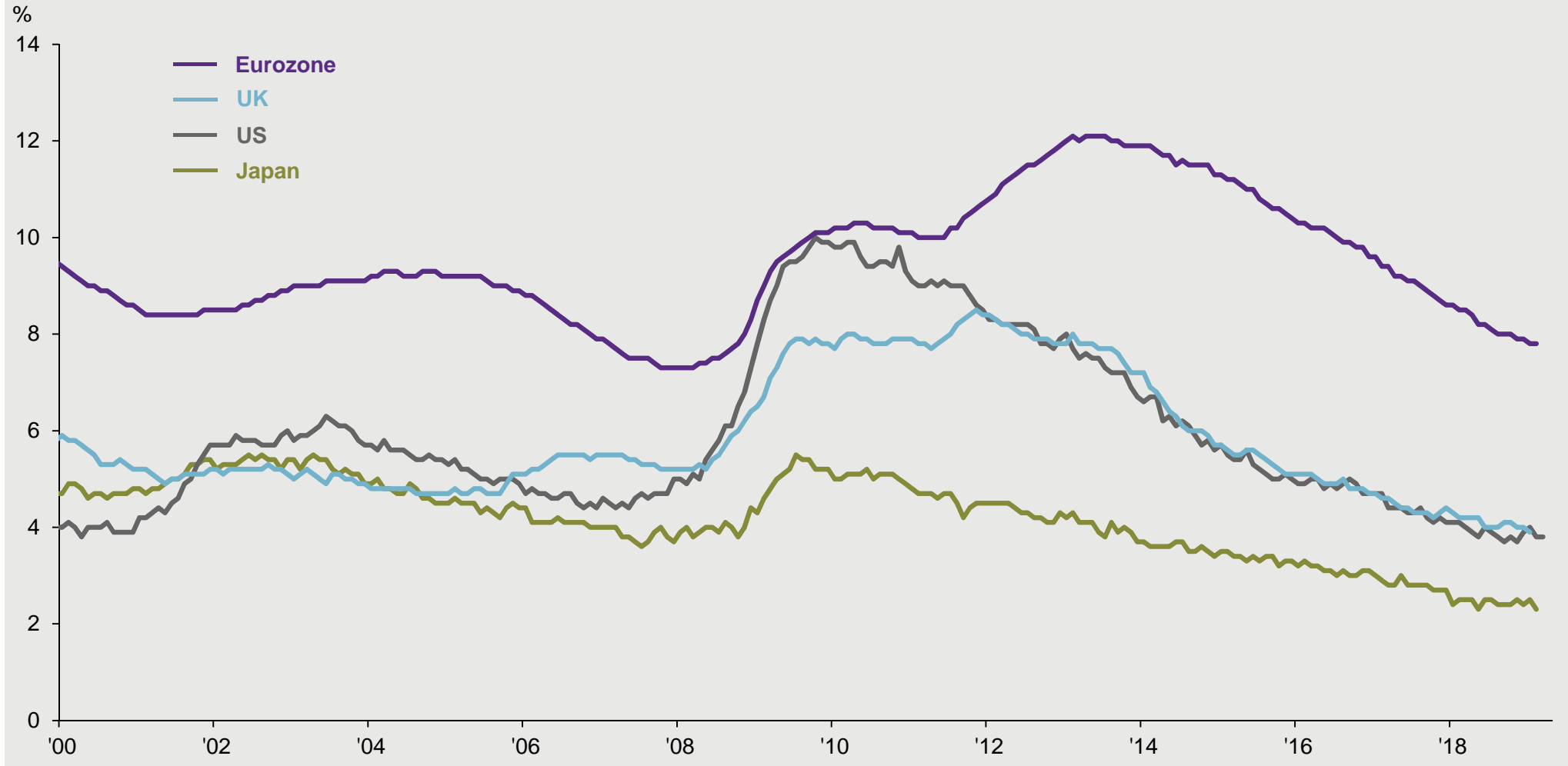
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Global economy



Source: Markit, J.P. Morgan Asset Management. The Global Purchasing Managers' Index (PMI) assesses the economic health of the manufacturing sector by surveying output and employment intentions. 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. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Unemployment rates



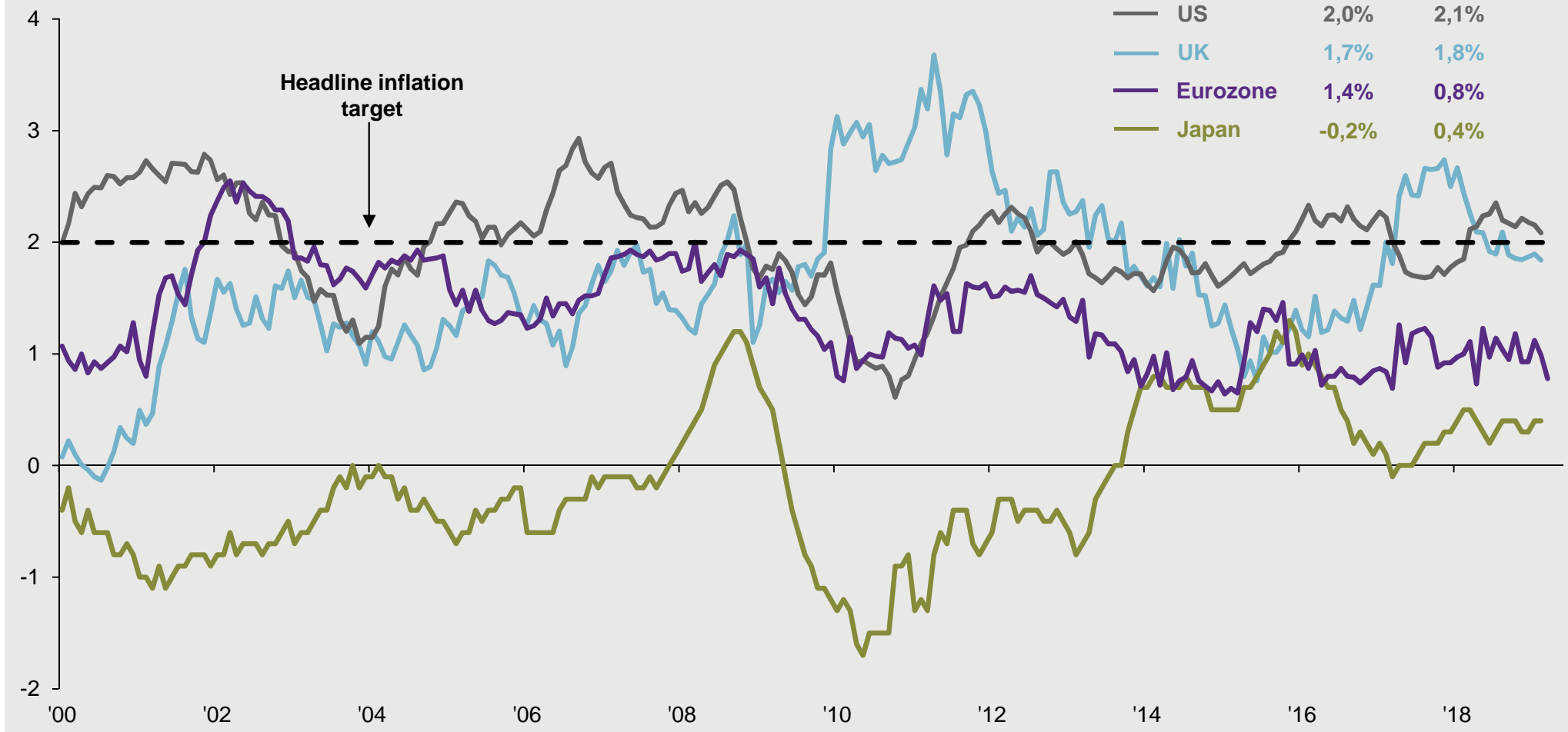
Source: BLS, Eurostat, Japan Ministry of Internal Affairs & Communications, ONS, Refinitiv Datastream, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

		2017										2018												2019	
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Global		2,1	2,1	2,0	1,8	1,8	2,1	2,1	2,1	2,2	2,2	2,1	2,3	2,2	2,2	2,4	2,6	2,7	2,7	2,7	2,8	2,4	2,1	1,9	1,9
Developed		1,8	1,9	1,6	1,4	1,5	1,7	1,9	1,6	1,8	1,8	1,8	1,8	1,9	1,8	2,2	2,3	2,4	2,3	2,1	2,3	1,9	1,6	1,4	1,4
Emerging		2,5	2,6	2,6	2,5	2,4	2,7	2,6	2,7	2,8	2,9	2,5	3,1	2,7	2,7	2,7	3,0	3,1	3,2	3,5	3,5	3,1	2,9	2,7	2,6
Eurozone	Eurozone	1,5	1,9	1,4	1,3	1,3	1,5	1,6	1,4	1,5	1,3	1,3	1,1	1,4	1,2	2,0	2,0	2,2	2,1	2,1	2,3	1,9	1,5	1,4	1,5
	France	1,4	1,4	0,9	0,8	0,8	1,0	1,1	1,2	1,2	1,2	1,5	1,3	1,7	1,8	2,3	2,3	2,6	2,6	2,5	2,5	2,2	1,9	1,4	1,6
	Germany	1,5	2,0	1,3	1,7	1,7	1,9	1,9	1,5	1,7	1,5	1,5	1,2	1,7	1,3	2,5	2,1	2,2	2,1	2,2	2,6	2,2	1,7	1,7	1,7
	Italy	1,4	2,0	1,6	1,2	1,2	1,4	1,3	1,1	1,1	1,0	1,2	0,5	0,9	0,6	1,0	1,4	1,9	1,6	1,5	1,7	1,6	1,2	0,9	1,1
	Spain	2,1	2,6	2,0	1,6	1,7	2,0	1,8	1,7	1,8	1,2	0,7	1,2	1,3	1,1	2,1	2,3	2,3	2,2	2,3	2,3	1,7	1,2	1,0	1,1
	Greece	1,7	1,7	1,5	0,9	0,9	0,6	1,0	0,5	1,1	1,0	0,2	0,4	0,2	0,5	0,8	1,0	0,8	0,9	1,1	1,8	1,1	0,6	0,5	0,8
	Ireland	0,6	0,7	0,0	-0,6	-0,2	0,4	0,2	0,5	0,5	0,5	0,3	0,7	0,5	-0,1	0,7	0,7	1,0	0,9	1,2	1,1	0,8	0,8	0,8	0,7
	Sweden	1,4	2,0	1,8	1,8	2,3	2,2	2,2	1,7	1,9	1,7	1,6	1,6	2,0	1,8	2,0	2,1	2,2	2,1	2,5	2,4	2,1	2,2	2,0	1,9
	Switzerland	0,5	0,7	0,4	0,4	0,6	0,5	0,8	0,8	0,8	1,1	0,8	0,5	0,7	0,4	1,0	0,9	1,2	1,3	1,1	1,1	1,0	0,8	0,7	0,7
	UK	2,3	2,7	2,9	2,6	2,6	2,9	3,0	3,0	3,1	3,0	3,0	2,7	2,5	2,4	2,4	2,4	2,5	2,7	2,4	2,4	2,3	2,1	1,8	1,9
Developed	US	2,4	2,2	1,9	1,6	1,7	1,9	2,2	2,0	2,2	2,1	2,1	2,2	2,4	2,5	2,8	2,9	2,9	2,7	2,3	2,5	2,2	1,9	1,6	1,5
	Japan	0,2	0,4	0,4	0,4	0,4	0,7	0,7	0,2	0,6	1,0	1,4	1,5	1,1	0,6	0,7	0,7	0,9	1,3	1,2	1,4	0,8	0,3	0,2	0,2
	China	0,9	1,2	1,5	1,5	1,4	1,8	1,6	1,9	1,7	1,8	1,5	2,9	2,1	1,8	1,8	1,9	2,1	2,3	2,5	2,5	2,2	1,9	1,7	1,5
	Indonesia	3,6	4,2	4,3	4,4	3,9	3,8	3,7	3,6	3,3	3,6	3,3	3,2	3,4	3,4	3,2	3,1	3,2	3,2	2,9	3,2	3,2	3,1	2,8	2,6
	Korea	2,3	2,0	2,0	1,8	2,2	2,5	2,0	1,8	1,2	1,4	0,8	1,3	1,2	1,5	1,5	1,5	1,1	1,4	2,1	2,0	2,0	1,3	0,8	0,5
	Taiwan	0,2	0,1	0,6	1,0	0,8	1,0	0,5	-0,3	0,3	1,2	0,9	2,2	1,6	2,0	1,8	1,4	1,8	1,5	1,7	1,2	0,3	-0,1	0,2	0,2
	India	3,9	3,0	2,2	1,5	2,4	3,3	3,3	3,6	4,9	5,2	5,1	4,4	4,3	4,6	4,9	4,9	4,2	3,7	3,7	3,4	2,3	2,1	2,0	2,6
	Brazil	4,6	4,1	3,6	3,0	2,7	2,5	2,5	2,7	2,8	2,9	2,9	2,8	2,7	2,8	2,9	4,4	4,5	4,2	4,5	4,6	4,0	3,7	3,8	3,9
	Mexico	5,4	5,8	6,2	6,3	6,4	6,7	6,4	6,4	6,6	6,8	5,6	5,3	5,0	4,6	4,5	4,7	4,8	4,9	5,0	4,9	4,7	4,8	4,4	3,9
	Russia	4,3	4,1	4,1	4,4	3,8	3,3	3,0	2,7	2,5	2,5	2,2	2,2	2,3	2,4	2,4	2,3	2,5	3,1	3,4	3,5	3,8	4,3	5,0	5,2

Source: Bank of Mexico, DGBAS, ECB, Federal Reserve, Goskomstat of Russia, IBGE, India Ministry of Statistics & Programme Implementation, Japan Ministry of Internal Affairs & Communication, Korean National Statistical Office, National Bureau of Statistics China, Refinitiv Datastream, Riksbank, Statistics Indonesia, Swiss National Bank, UK Office for National Statistics (ONS), J.P. Morgan Asset Management. Figures shown are for headline inflation and are % change year on year. 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. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

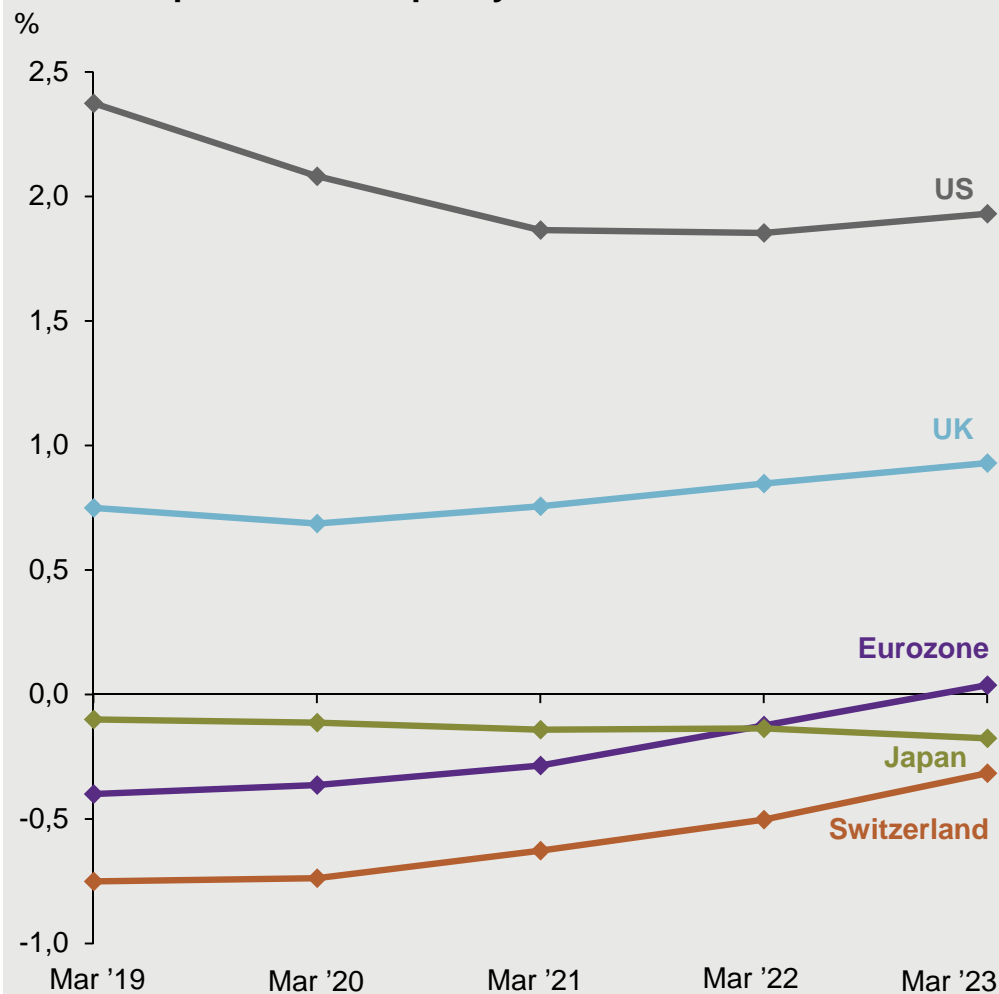
Core inflation

% change year on year

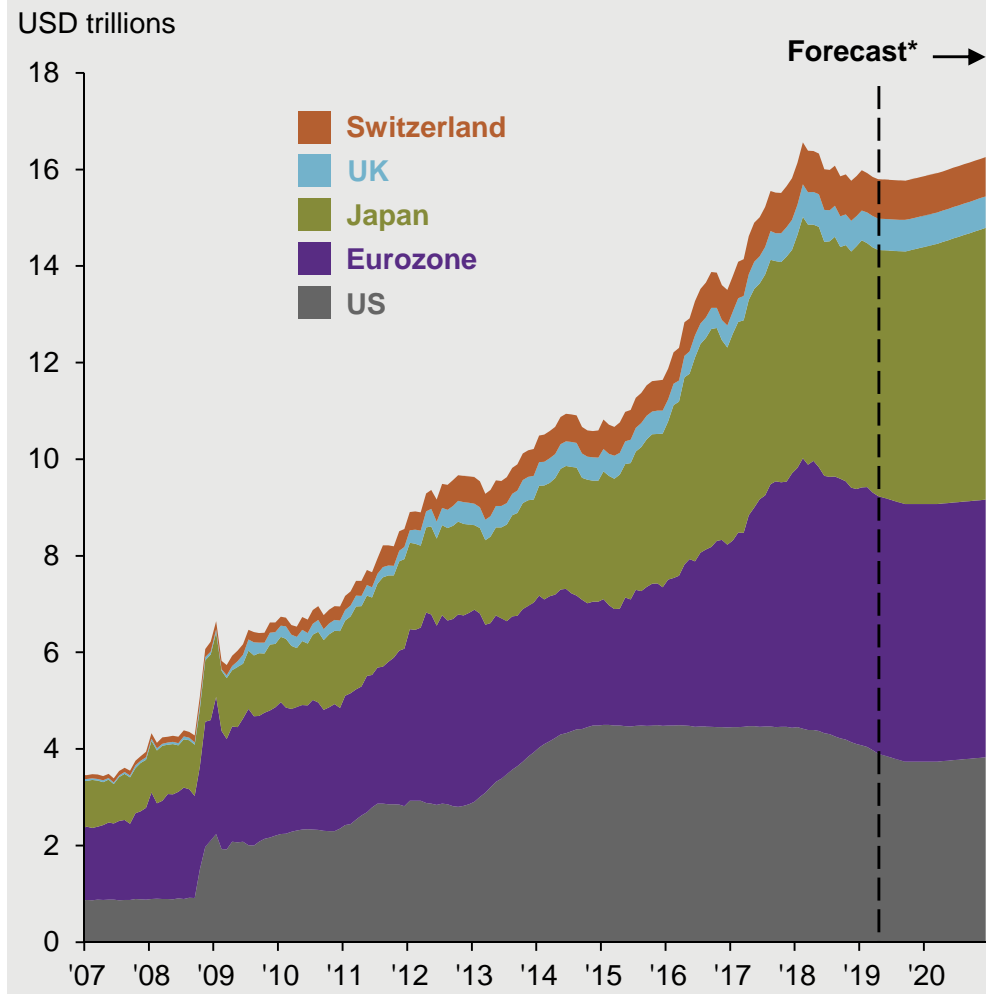


Source: Bank of Japan, BLS, Eurostat, ONS, Refinitiv Datastream, J.P. Morgan Asset Management. CPI is the Consumer Price Index. Core inflation for the US is defined as CPI excluding food and energy. Core inflation for Japan is defined as CPI excluding fresh food and energy. Core inflation for the UK and the eurozone is defined as CPI less energy, food, alcohol and tobacco. Japan core CPI has been adjusted down by 2% from April 2014 to March 2015 to remove the estimated impact of the consumption tax hike over this period. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Market expectations for policy rate



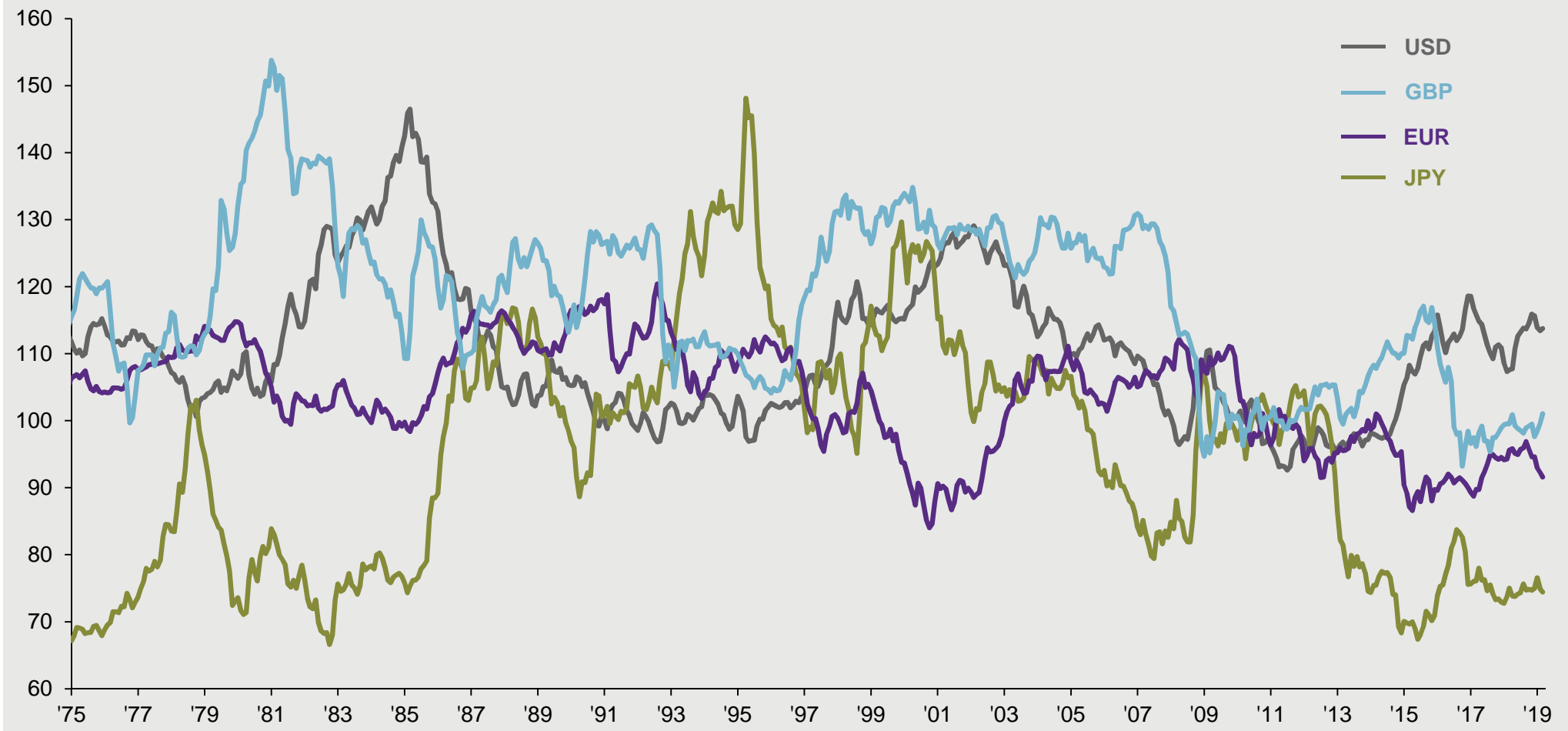
Central bank balance sheets



Source: (Left) Bloomberg, J.P. Morgan Asset Management. Expectations are calculated using OIS forwards. (Right) Bank of England (BoE), Bank of Japan (BoJ), European Central Bank (ECB), Refinitiv Datastream, Swiss National Bank (SNB), US Federal Reserve (Fed), J.P. Morgan Asset Management. *Balance sheet forecast assumptions: BoE to have zero net asset purchases until the end of 2020; BoJ to have an annualised net asset purchase pace of 35tn yen until the end of 2020; ECB to have zero net asset purchases until the end of 2020; SNB to have zero net asset purchases until the end of 2020; Fed to reduce its balance sheet until the end of September 2019, in line with its announced plans. Assets then remain constant until reserves reach USD 1.2 trillion, at which point net asset purchases increase. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Real effective exchange rates

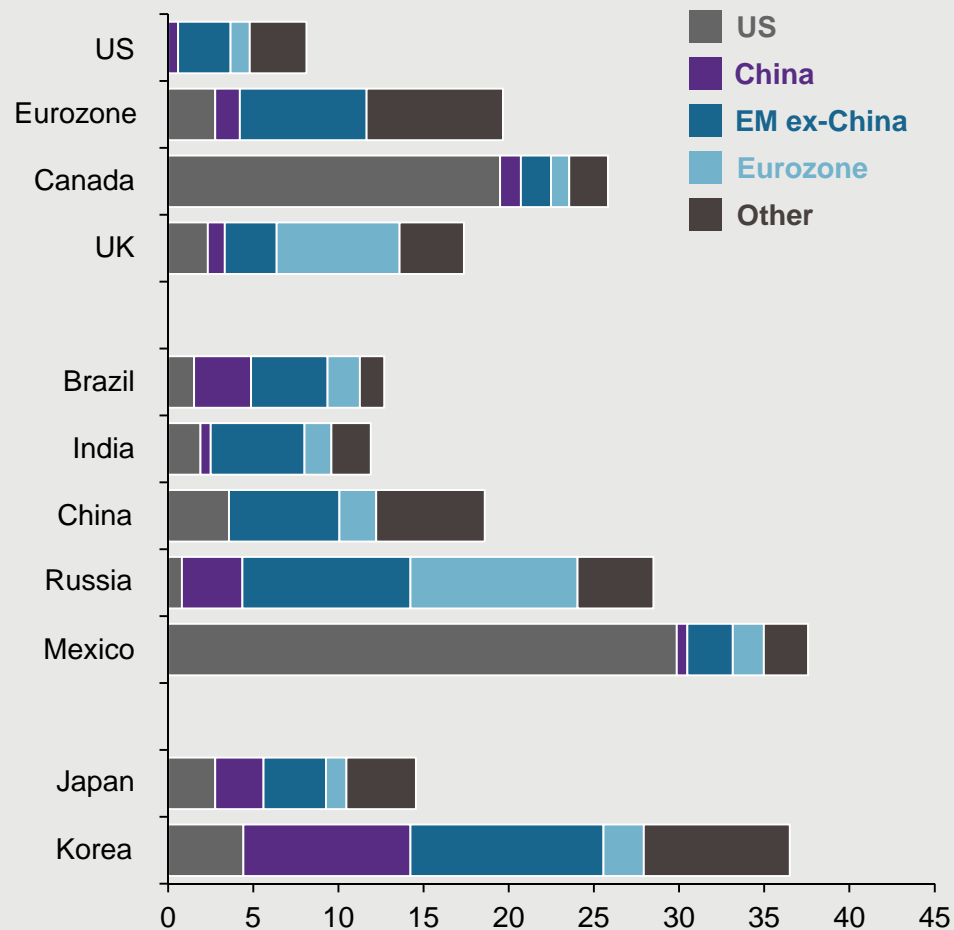
Index level rebased to 100 in 2010, broad real effective exchange rate (REER)



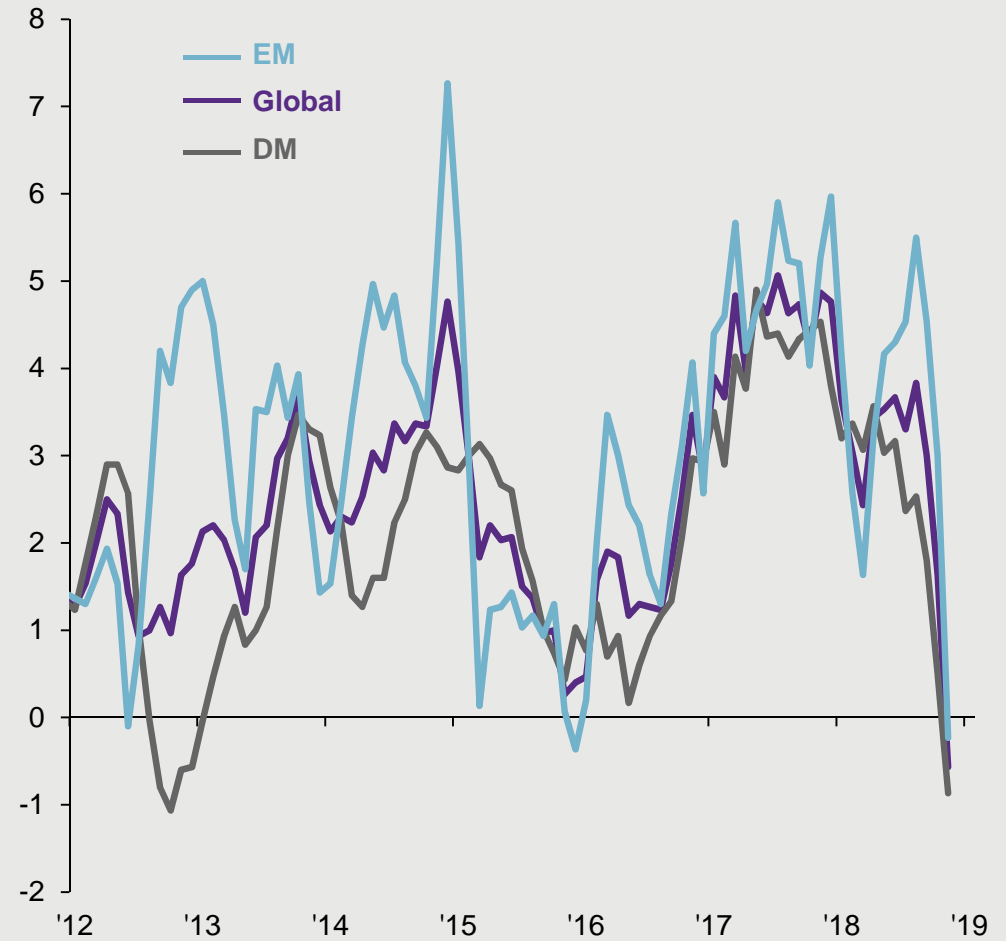
Source: J.P. Morgan Securities Research, Refinitiv Datastream, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Exports of goods

% of nominal GDP, 2018

**Global export volumes**

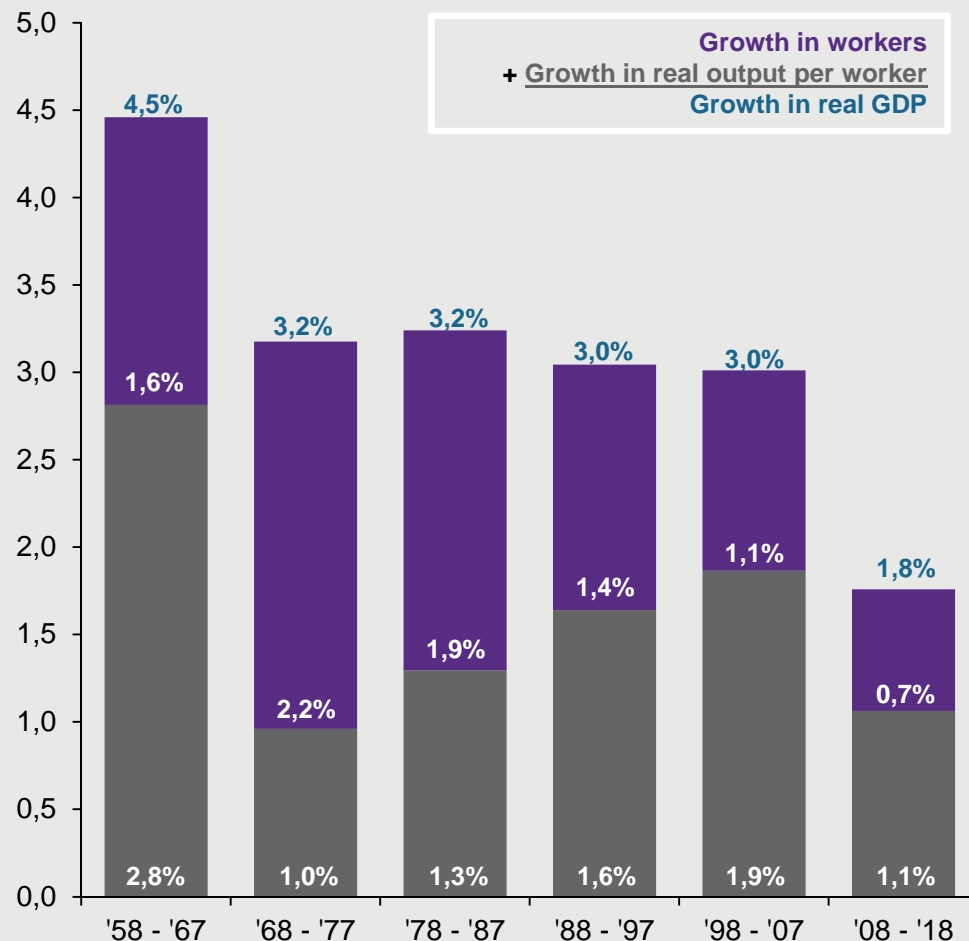
% change year on year, three-month moving average



Source: (Left) IMF Direction of Trade, IMF World Economic Outlook, J.P. Morgan Asset Management. (Right) CPB Netherlands, 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 March 2019.

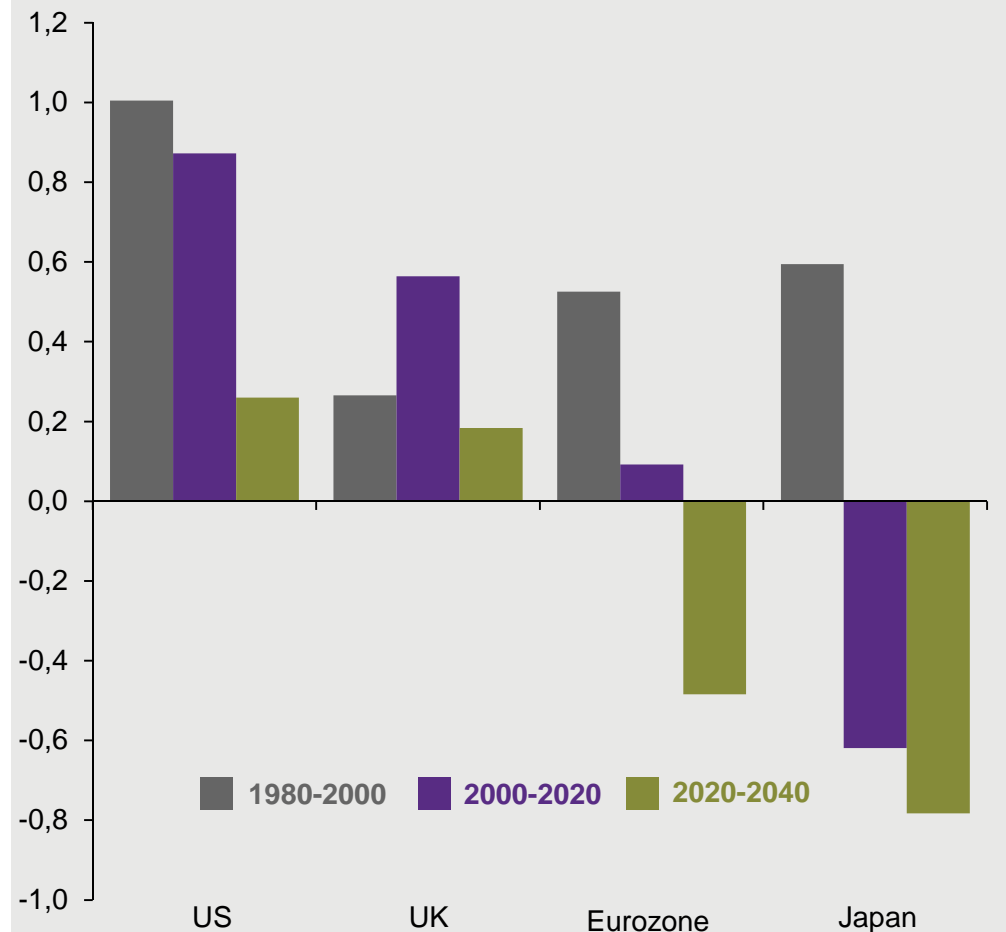
Drivers of US GDP growth

Average % change year on year



Global working-age population growth

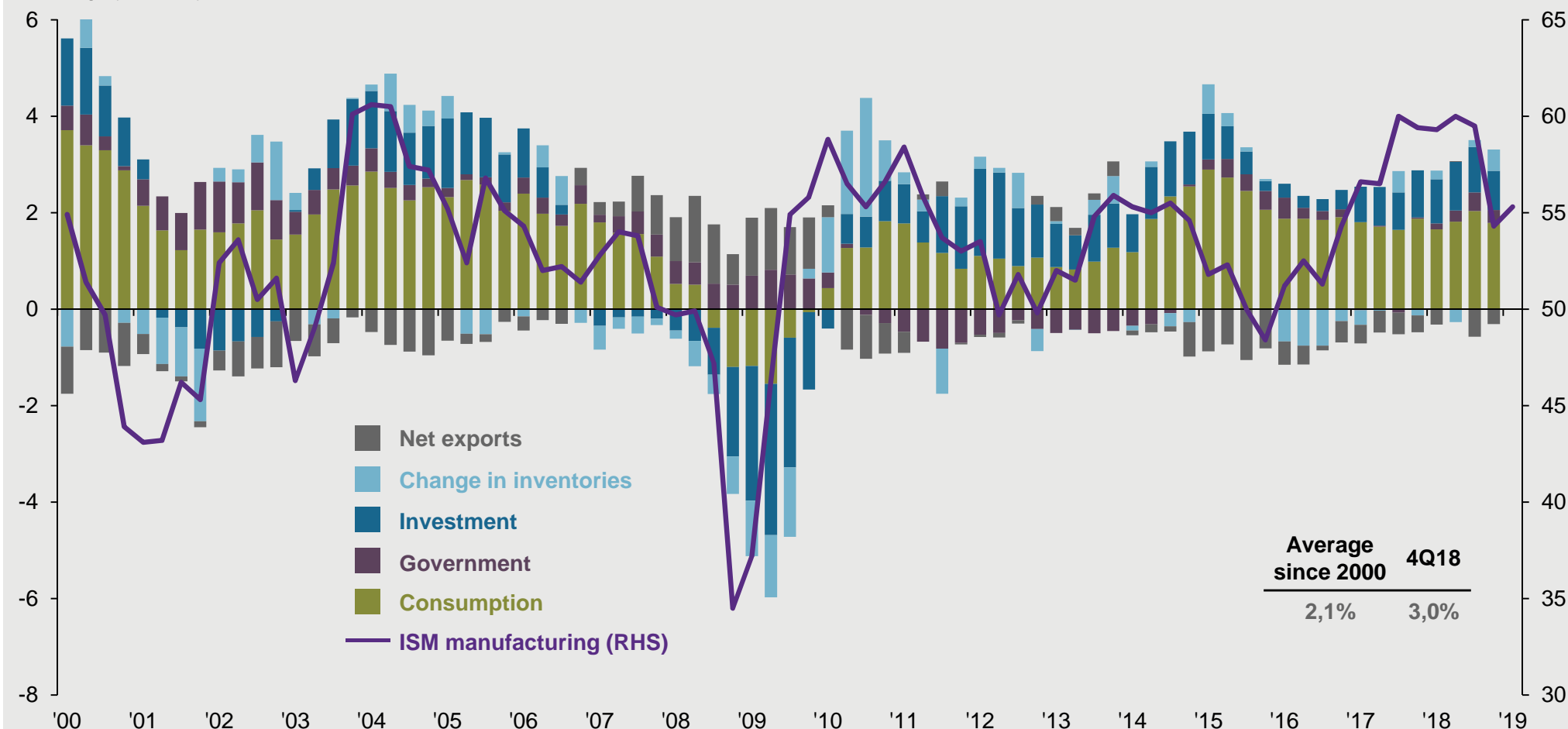
Annualised % change



Source: (Left) BEA, BLS, J.P. Morgan Asset Management. GDP drivers are calculated as the average annualised growth between 4Q of the first and last year. (Right) United Nations (UN) Department of Economic and Social Affairs, J.P. Morgan Asset Management. Working-age population is defined as aged 15-69. Data from 2020 onwards are UN forecasts. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Contribution to US real GDP growth and ISM manufacturing

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

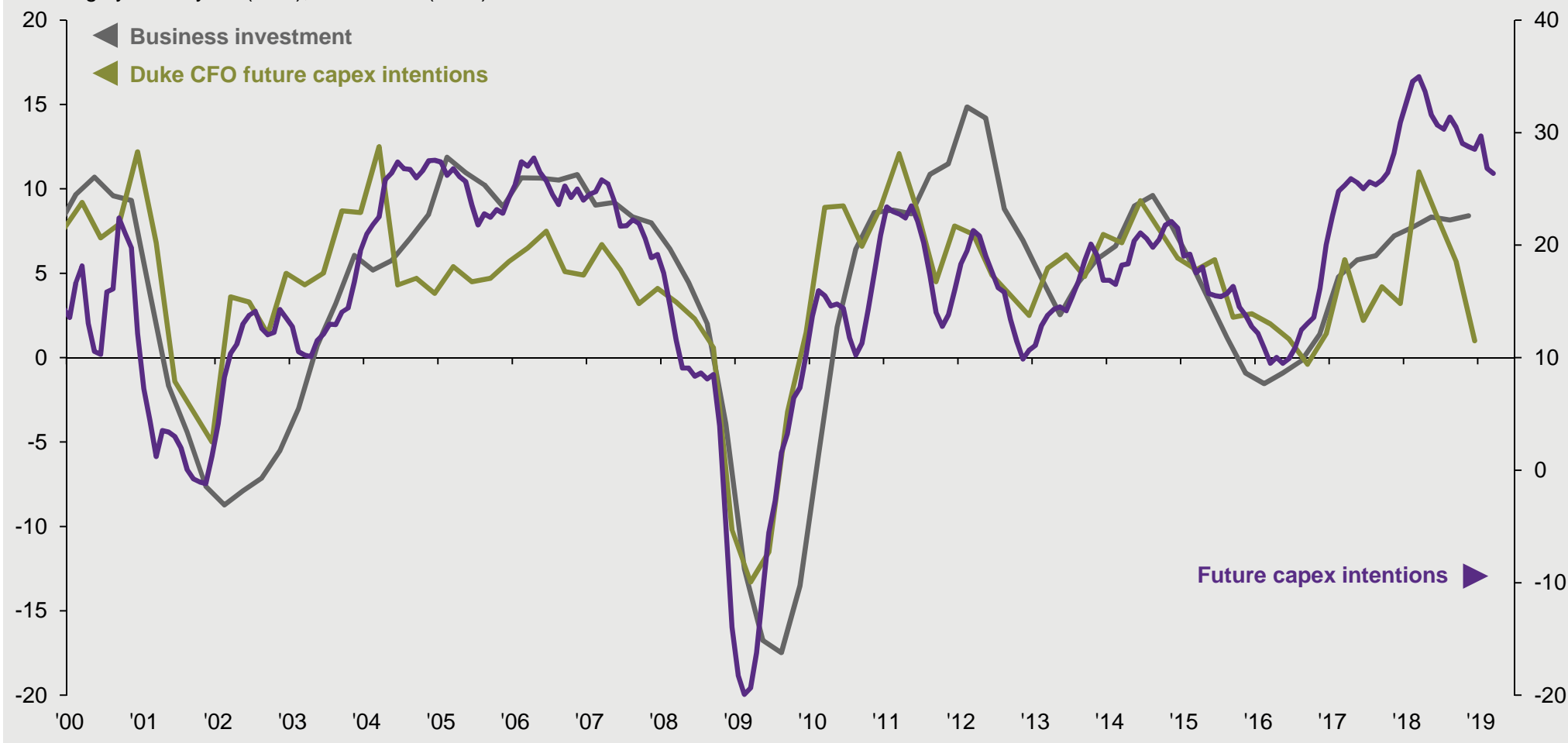


Source: BEA, ISM, Refinitiv Datastream, J.P. Morgan Asset Management. The Institute for Supply Management (ISM) survey assesses the economic health of the manufacturing sector by surveying output and employment intentions. A score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. ISM data is shown with quarterly frequency. Past performance is not a reliable indicator of current and future results.

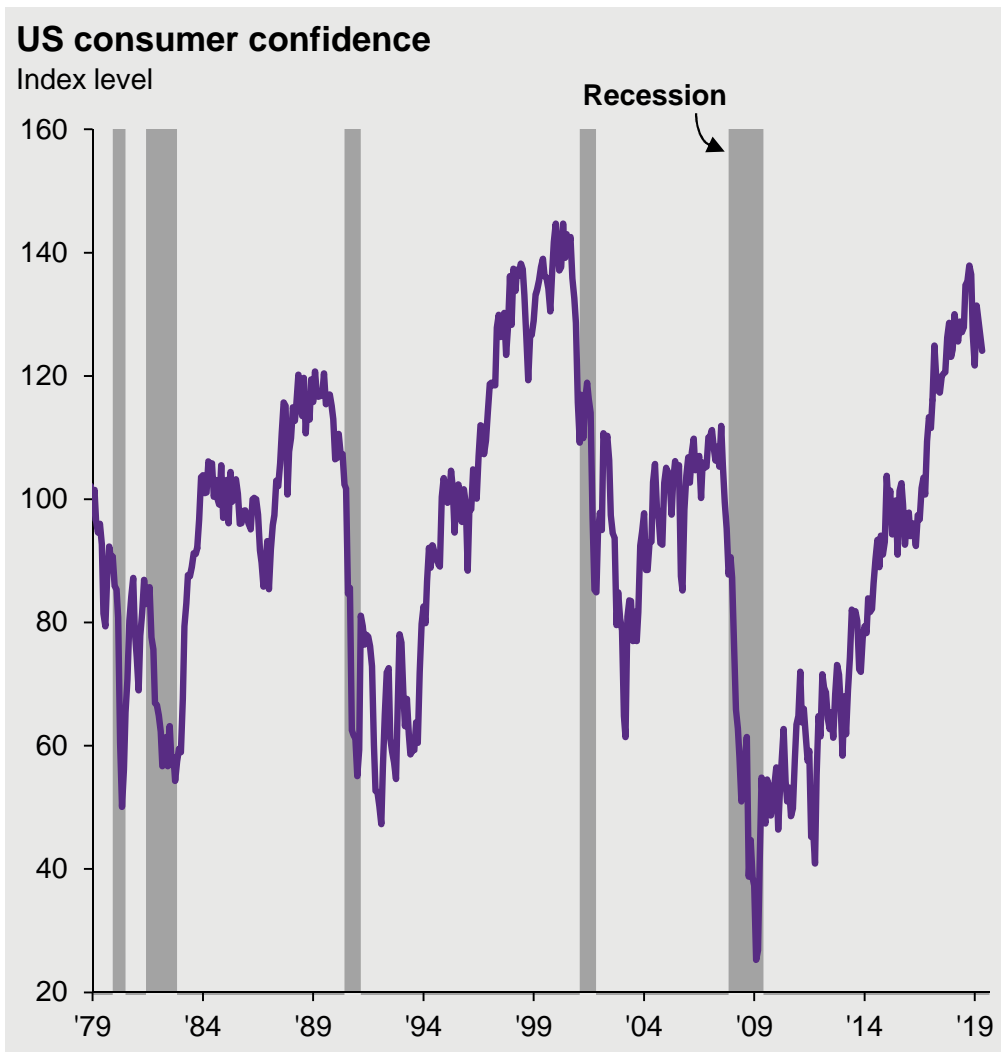
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US future capex intentions and business investment

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



Source: BEA, Dallas Fed, Duke CFO Global Business Outlook, Haver Analytics, Kansas City Fed, New York Fed, Philadelphia Fed, Richmond Fed, Refinitiv Datastream, J.P. Morgan Asset Management. Future capex intentions is an average index level of the five aforementioned fed districts equally weighted, displayed using a three-month moving average. Duke CFO future capex intentions is expected growth in next 12 months. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.



Source: (Left) Conference Board, Refinitiv Datastream, J.P. Morgan Asset Management. (Right) OECD, Refinitiv Datastream, J.P. Morgan Asset Management. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

US unemployment rate and wage growth

%, wage growth is year on year

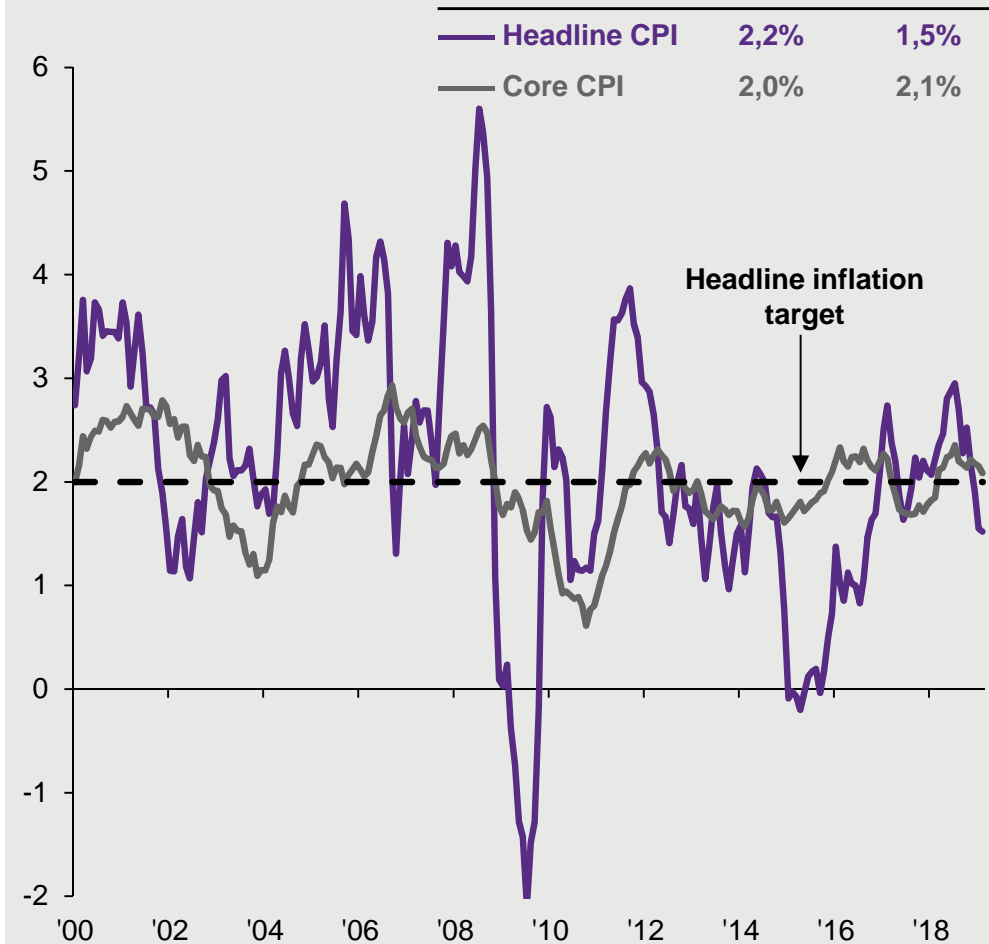


Source: BEA, Refinitiv Datastream, J.P. Morgan Asset Management. Wage growth is average hourly earnings of total private production and non-supervisory employees. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

US headline and core inflation

% change year on year

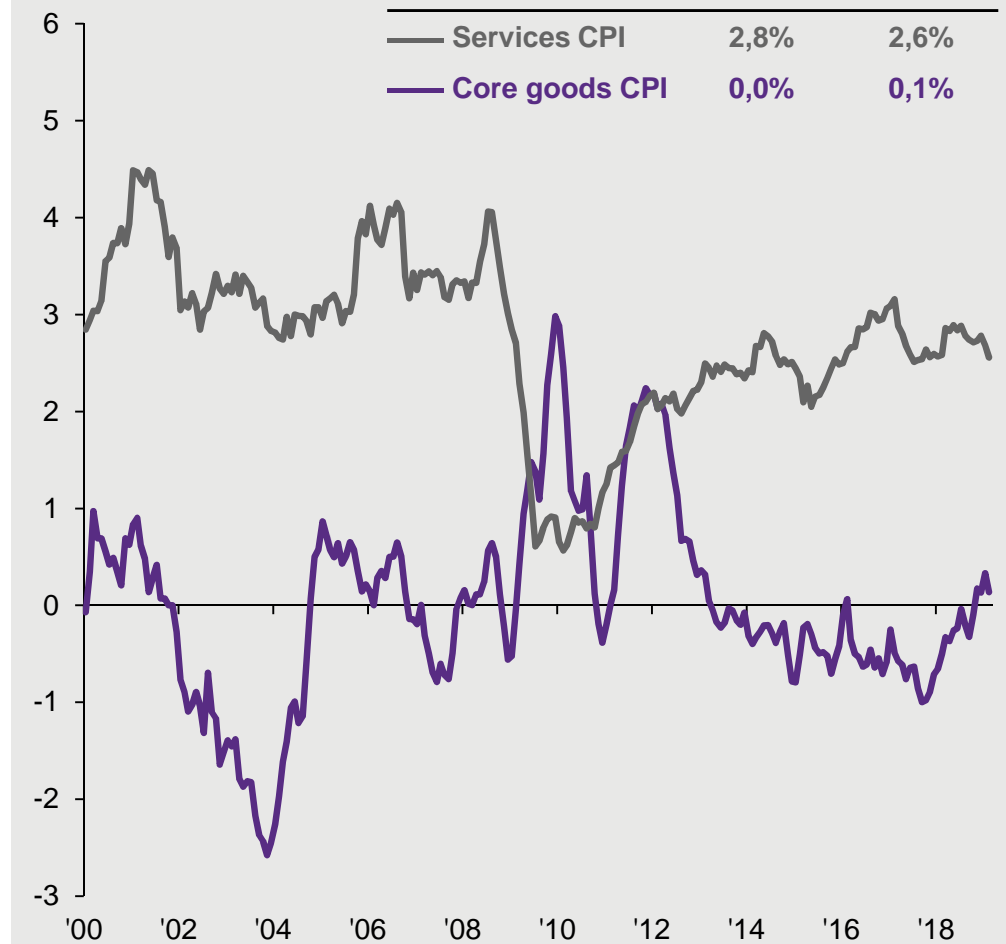
	Average since 2000	February 2019
Headline CPI	2,2%	1,5%
Core CPI	2,0%	2,1%



US core goods and services inflation

% change year on year

	Average since 2000	February 2019
Services CPI	2,8%	2,6%
Core goods CPI	0,0%	0,1%

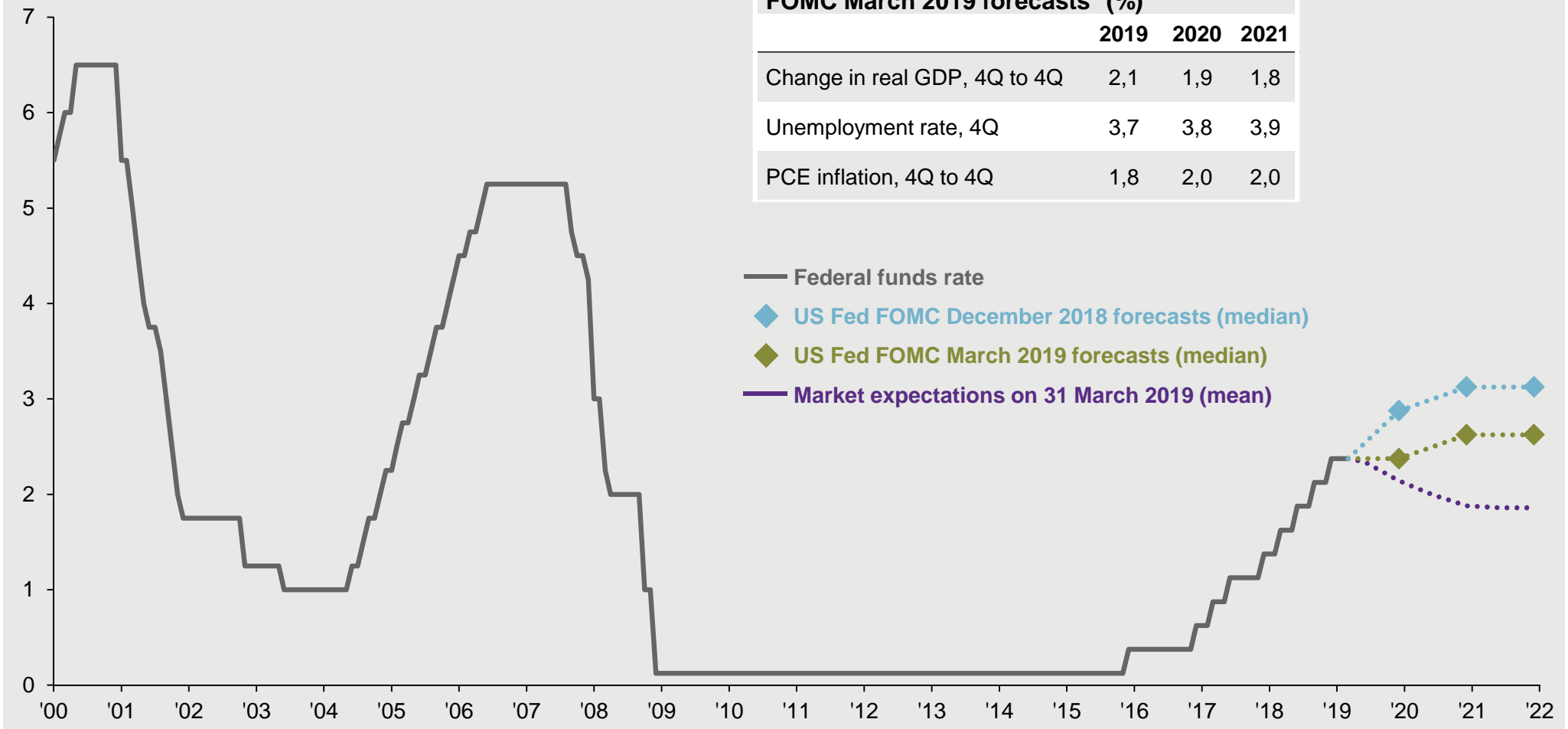


Source: (All charts) BLS, Refinitiv Datastream, J.P. Morgan Asset Management. CPI is the Consumer Price Index. Core CPI is defined as CPI excluding food and energy. Core goods CPI is defined as goods CPI excluding food and energy. Past performance is not a reliable indicator of current and future results.

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Federal funds policy rate expectations

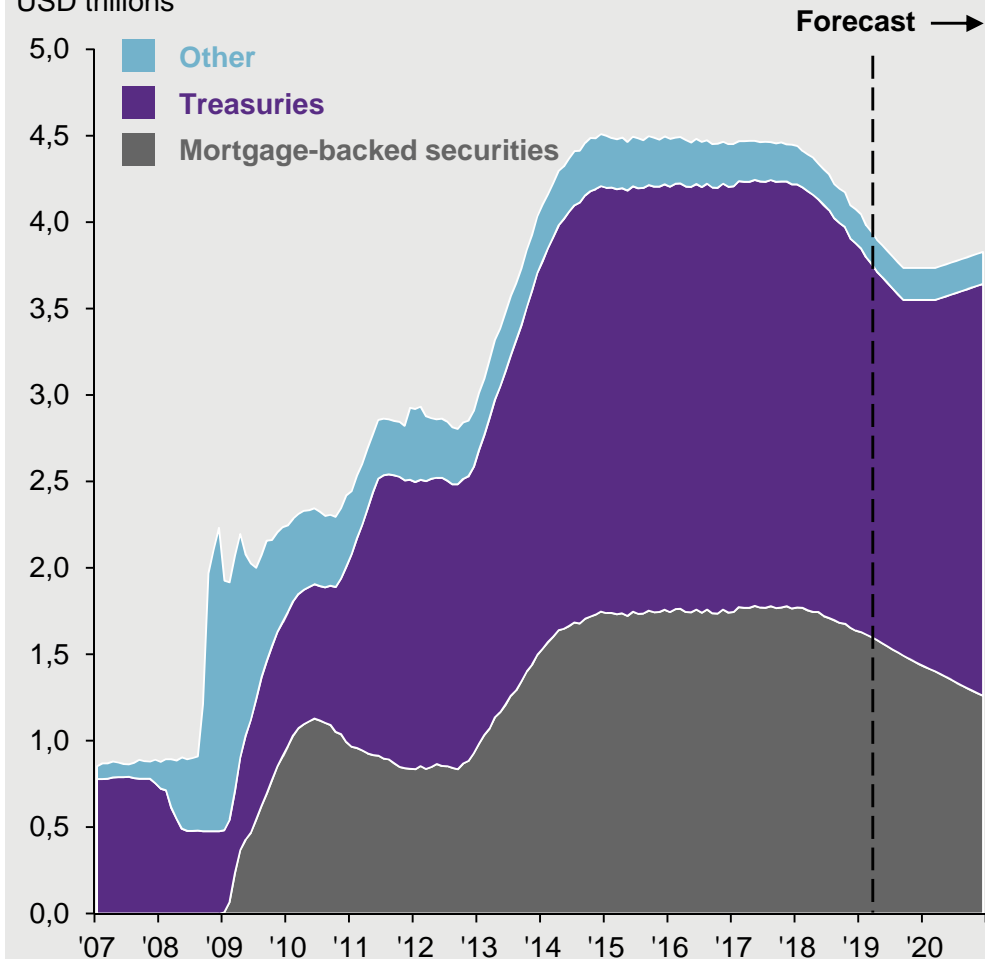
% Fed funds rate, FOMC and market expectations



Source: Bloomberg, US Federal Reserve, J.P. Morgan Asset Management. *Forecasts are median estimates of Federal Open Market Committee (FOMC) participants. PCE is personal consumption expenditure. Market expectations are calculated using OIS forwards. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

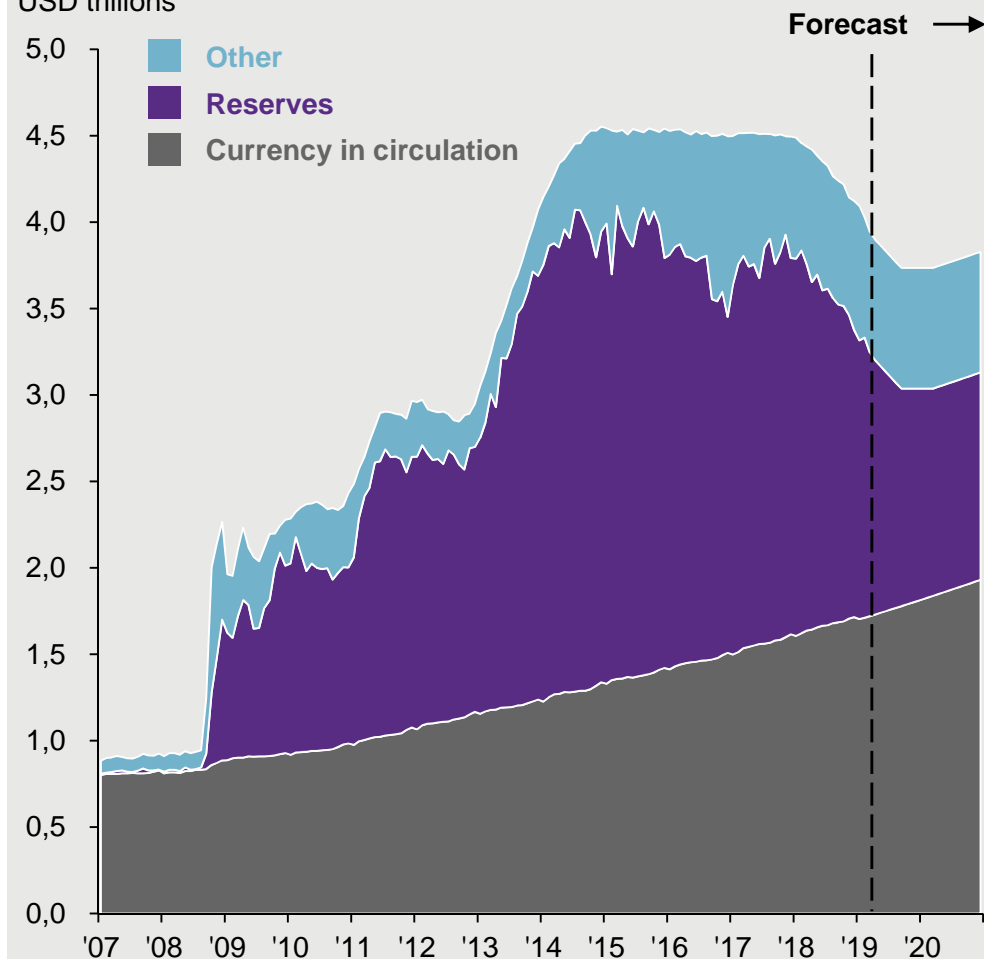
US Federal Reserve: Balance sheet assets

USD trillions



US Federal Reserve: Balance sheet liabilities

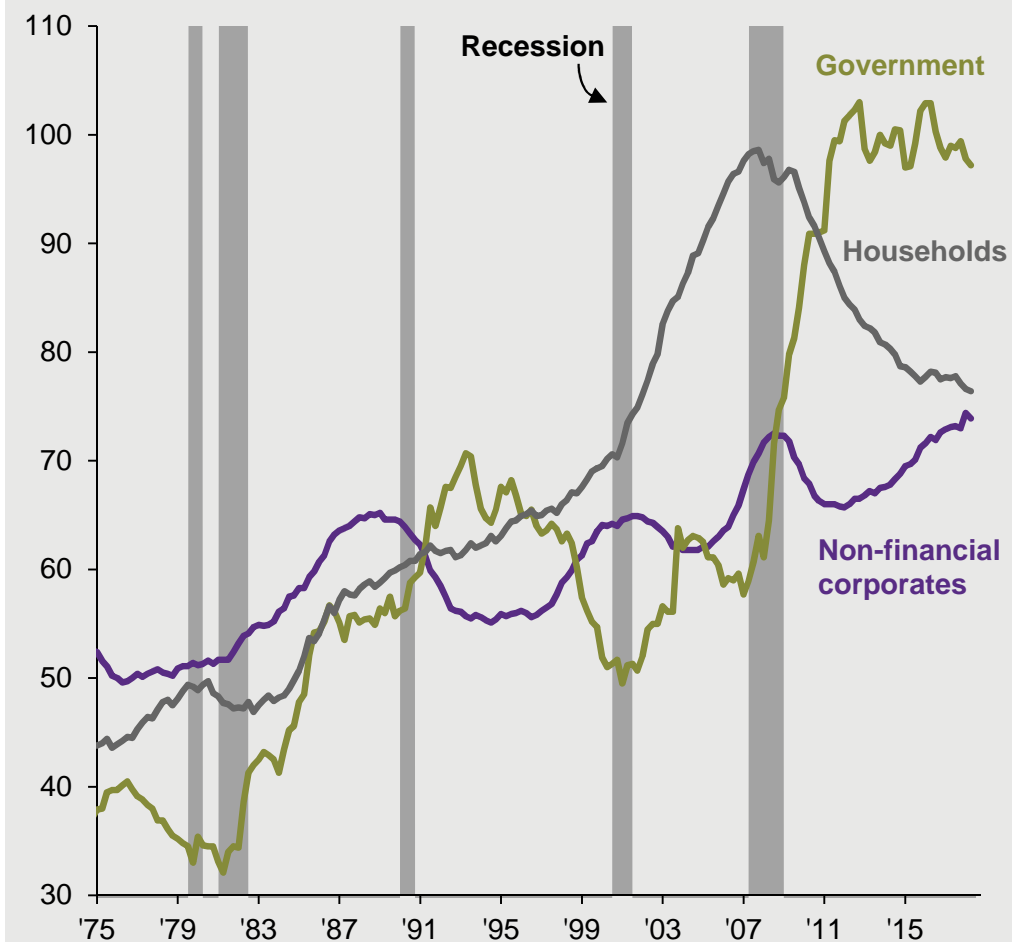
USD trillions



Source: (All charts) Refinitiv Datastream, US Federal Reserve, J.P. Morgan Asset Management. Forecast: US Federal Reserve (Fed) balance sheet assets are projected to decrease until the end of September 2019, in line with the Fed's announced plans. Reserves are subsequently expected to decline to a level of USD 1.2 trillion and then expected to be held constant, with overall liabilities growing in line with currency in circulation, which is expected to be 6.8% per annum (in line with the historical average). The asset side of the balance sheet will match in overall terms, but is expected to be progressively shifted from mortgage-backed securities to US Treasuries. Other assets and other liabilities are held constant over the forecast period. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

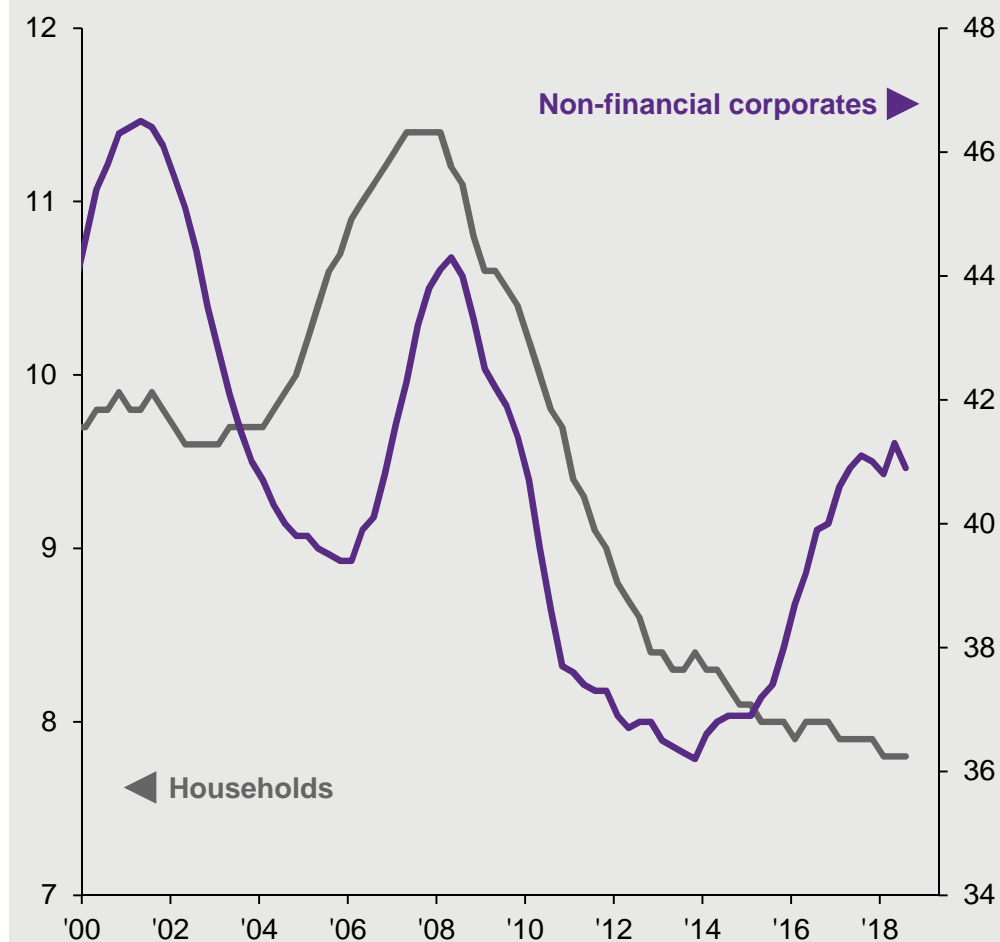
US debt to GDP ratios

% of nominal GDP



US debt service ratios

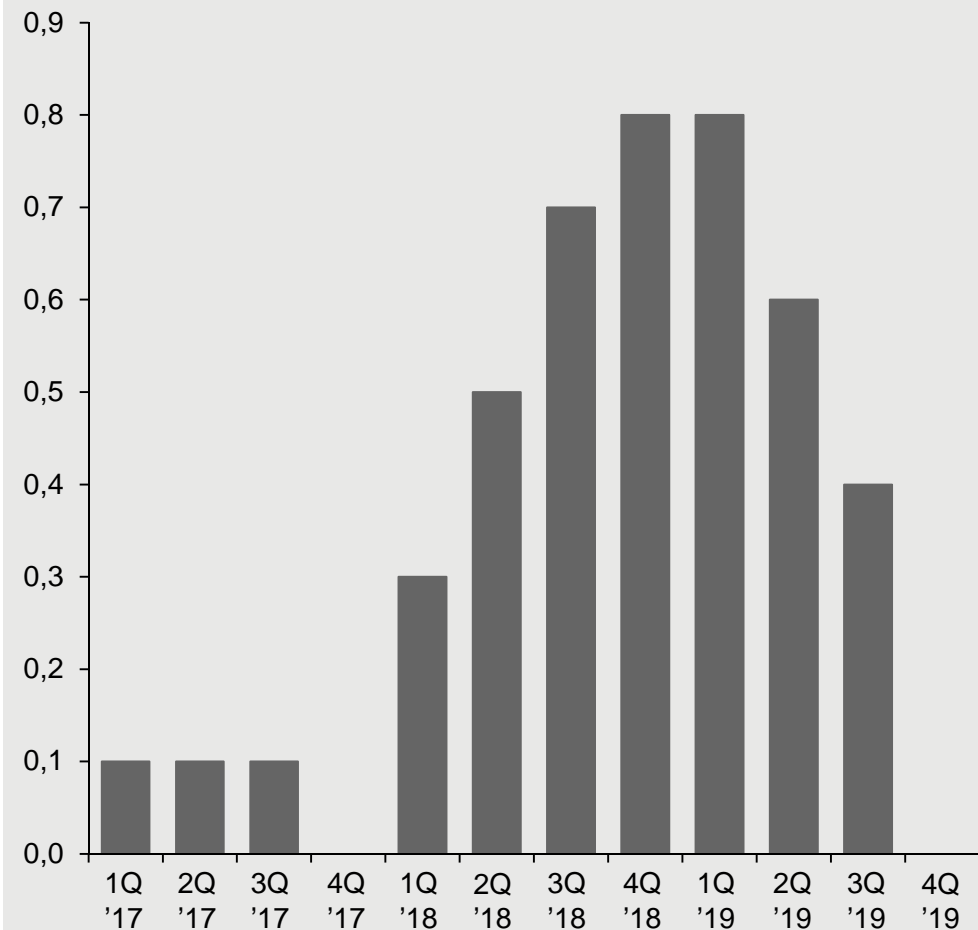
% of disposable income



Source: (All charts) Bank for International Settlements, Refinitiv Datastream, J.P. Morgan Asset Management. Debt refers to gross debt. For the household sector, gross disposable income is the amount of money that all of the 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. 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 March 2019.

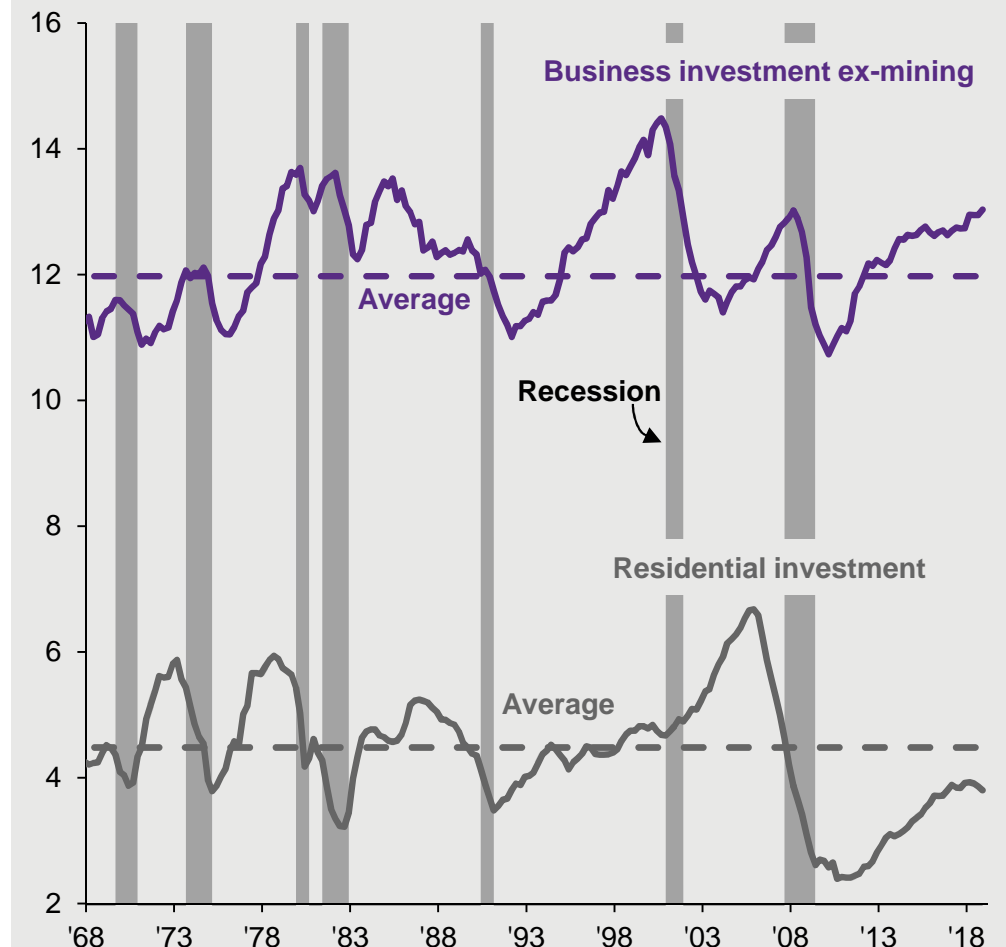
Contribution of fiscal spending to US real GDP growth

% points contribution to real GDP, quarter on quarter annualised



US residential and business ex-mining investment

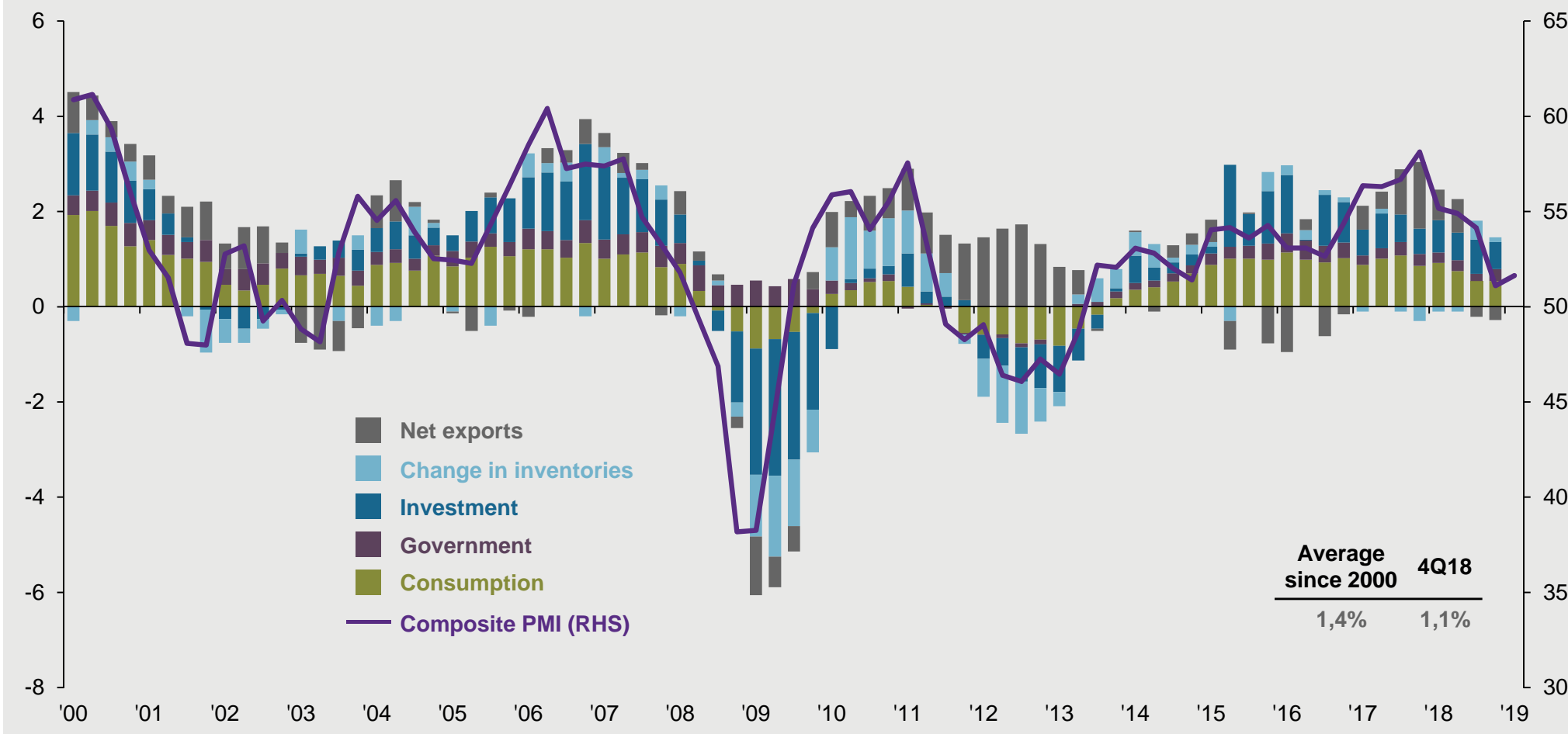
% of nominal GDP



Source: (Left) Congressional Budget Office, J.P. Morgan Asset Management Multi-Asset Solutions, J.P. Morgan Asset Management. J.P. Morgan Asset Management Multi-Asset Solutions estimates as of 30 November 2018. (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. Past performance is not a reliable indicator of current and future results.
 Guide to the Markets - Europe. Data as of 31 March 2019.

Contribution to eurozone real GDP growth and composite PMI

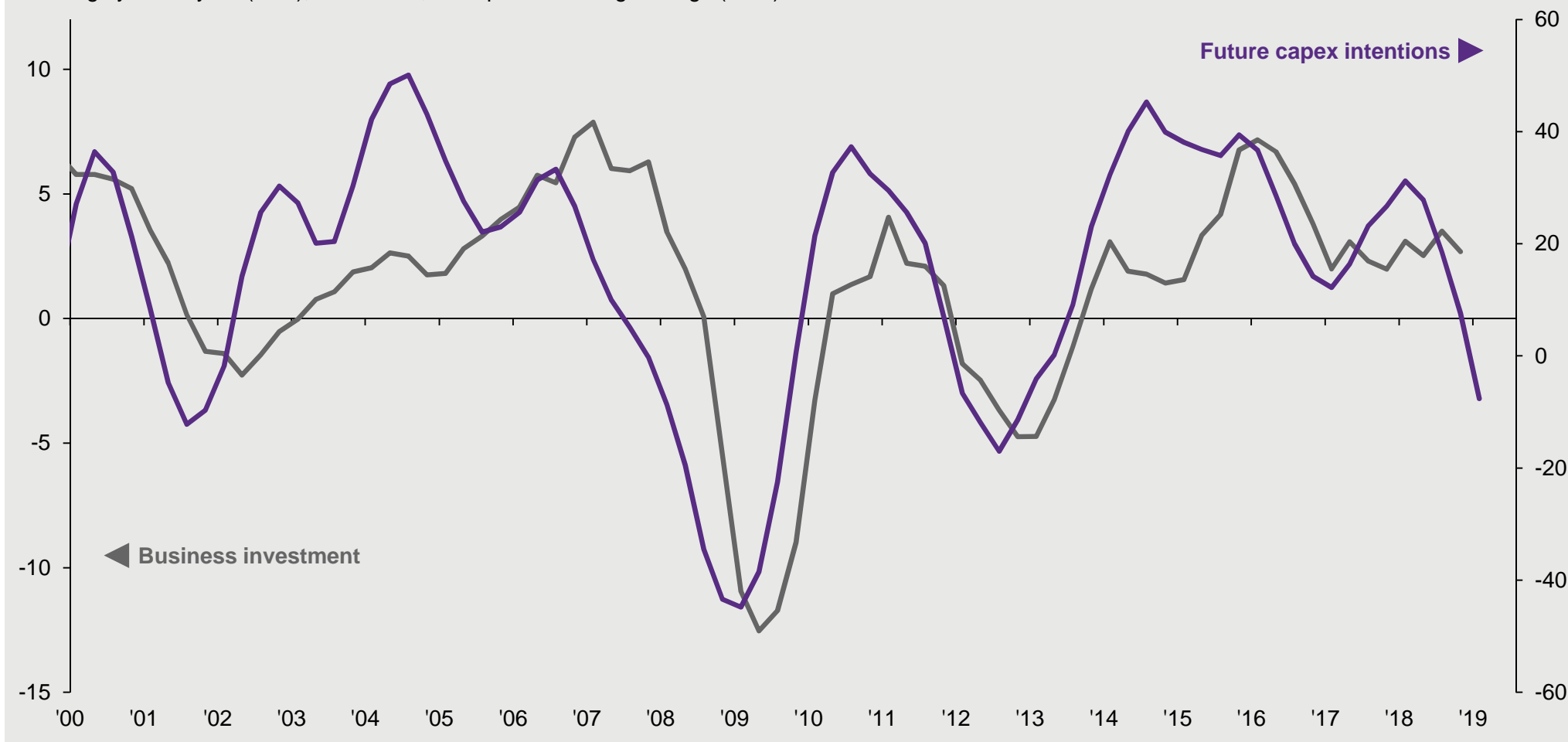
% change year on year (LHS); index level (RHS)



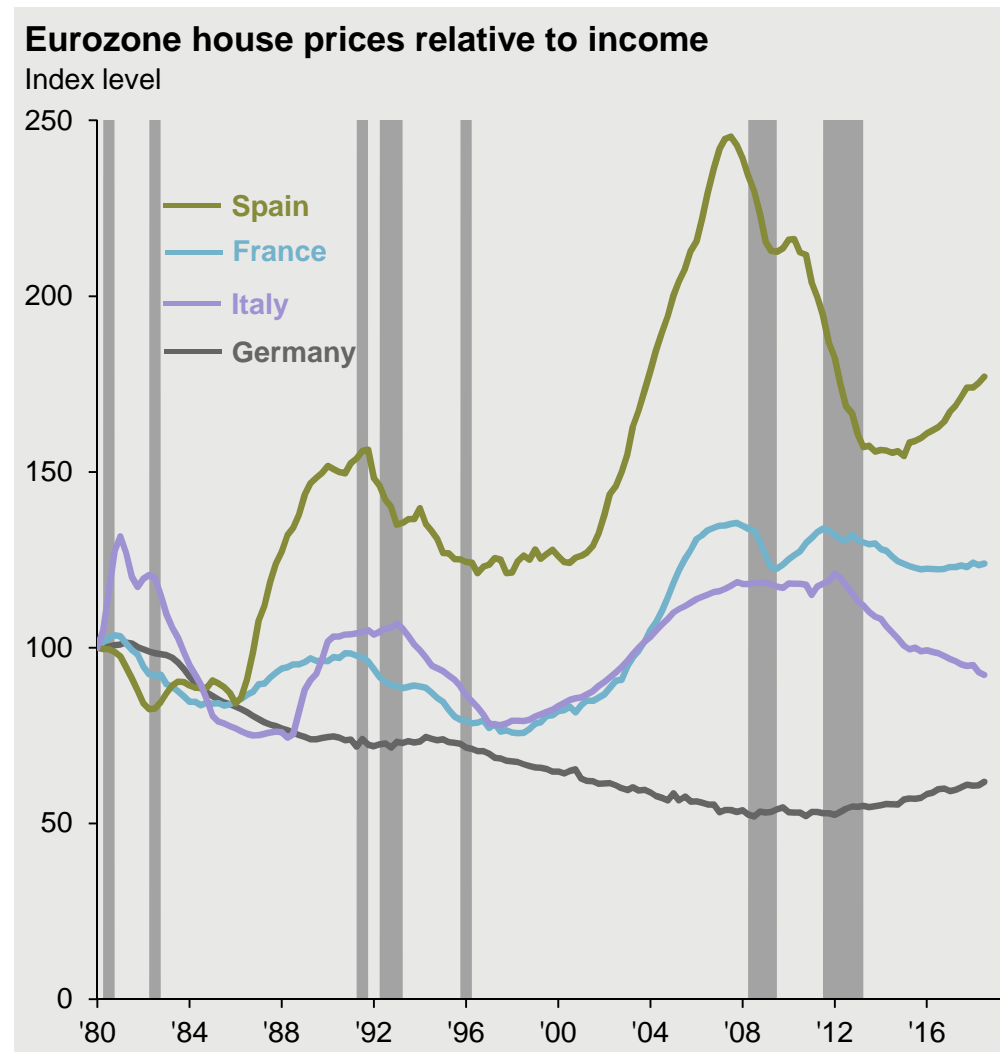
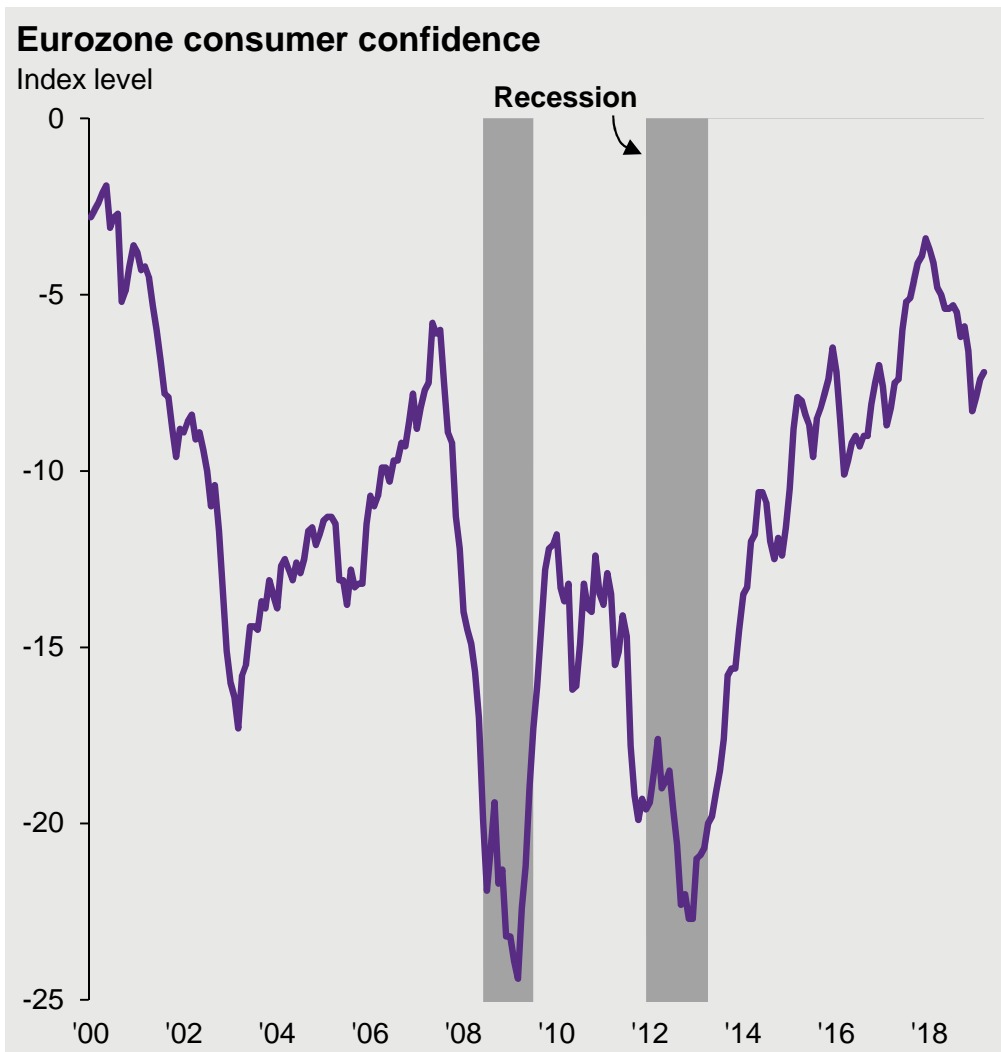
Source: Eurostat, Markit, Refinitiv Datastream, J.P. Morgan Asset Management. PMI is Purchasing Managers' Index where a score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. PMI data is shown with quarterly frequency. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Eurozone future capex intentions and business investment

% change year on year (LHS); index level, four-quarter moving average (RHS)



Source: Eurostat, IFO, 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 March 2019.



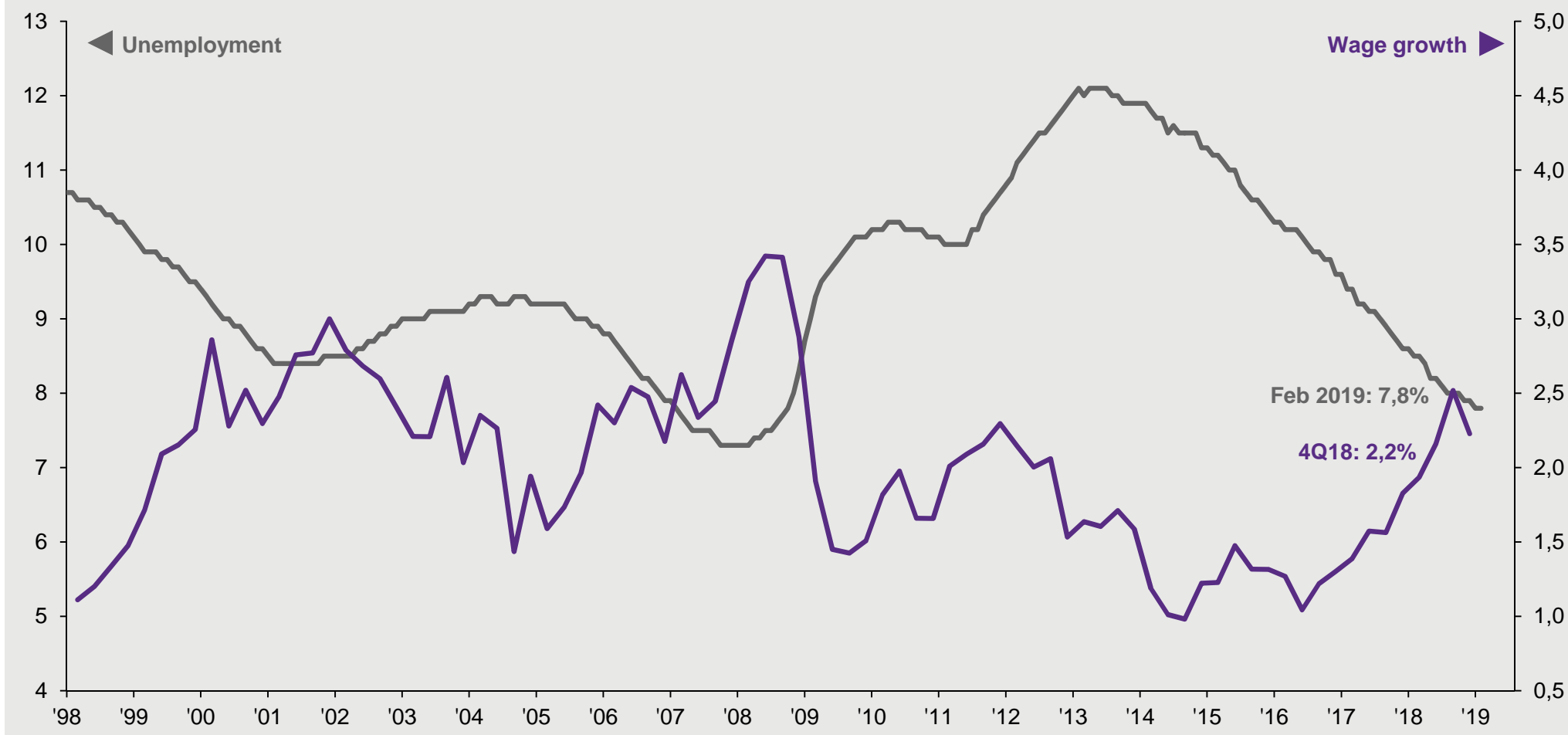
Source: (Left) European Commission, Refinitiv Datastream, J.P. Morgan Asset Management. (Right) OECD, Refinitiv Datastream, J.P. Morgan Asset Management.

Light grey columns indicate recession in the eurozone. Pre-2000, recessions are determined by a recession occurring in either Germany or the EU-15.

Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

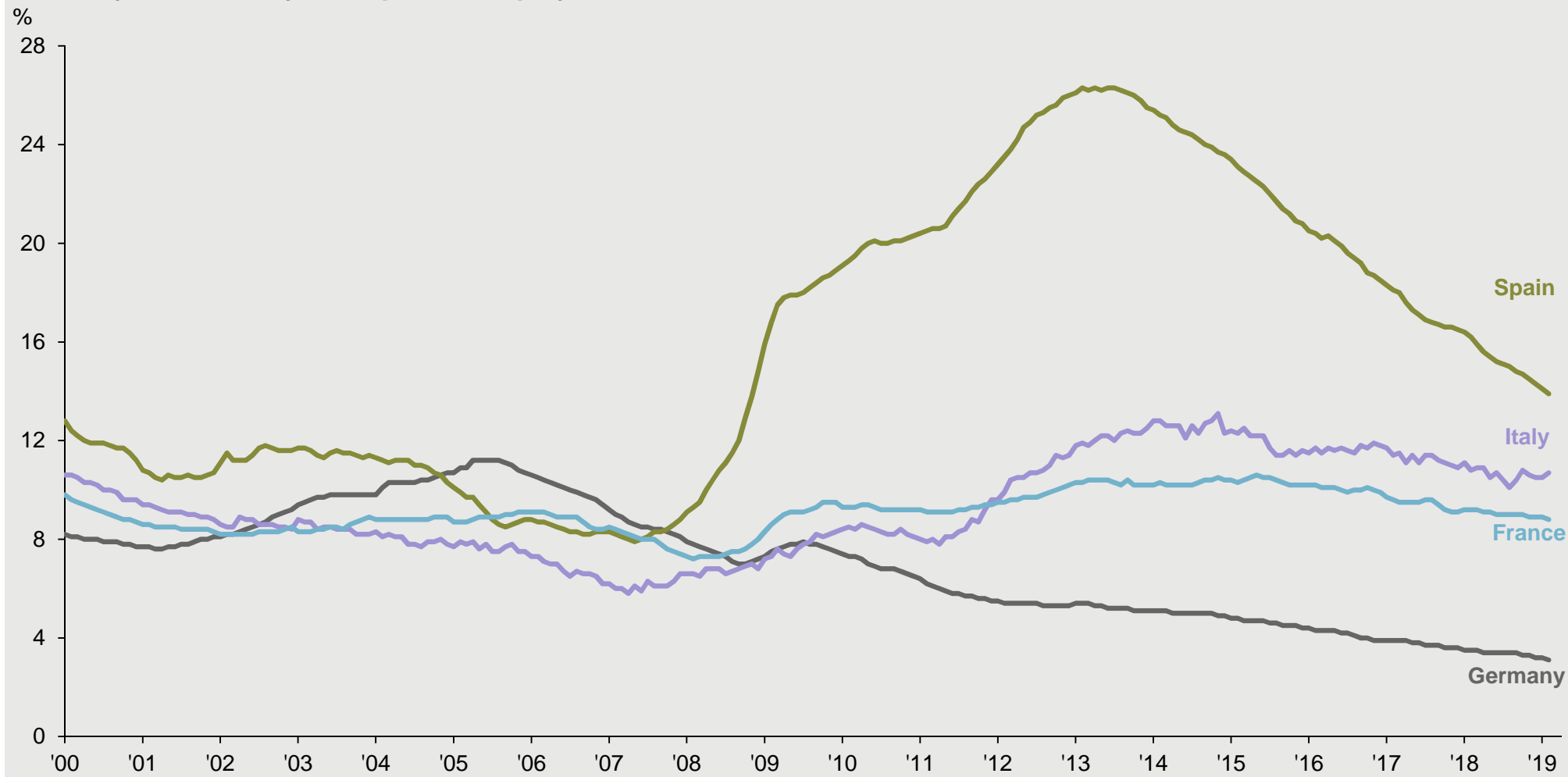
Eurozone unemployment rate and wage growth

%, wage growth is year on year



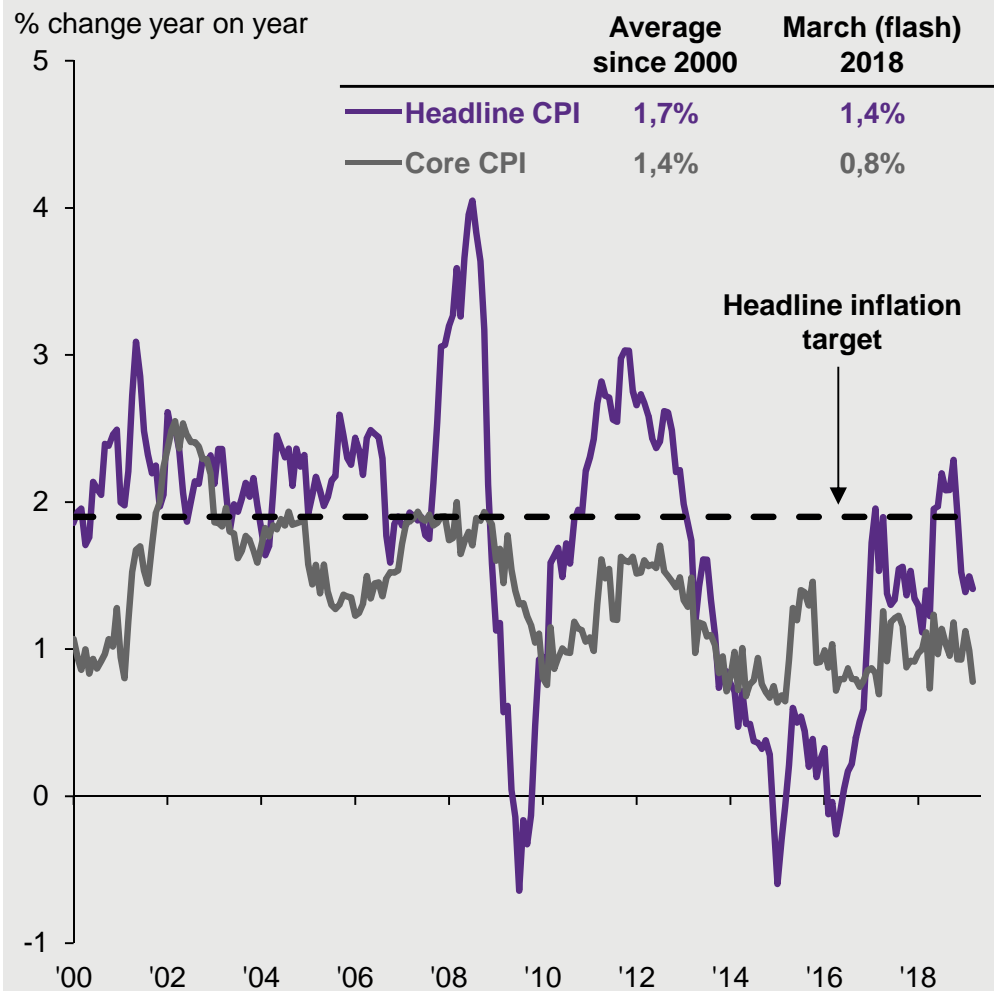
Source: ECB, Refinitiv Datastream, J.P. Morgan Asset Management. Wage growth is compensation per employee. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Germany, France, Italy and Spain unemployment rates

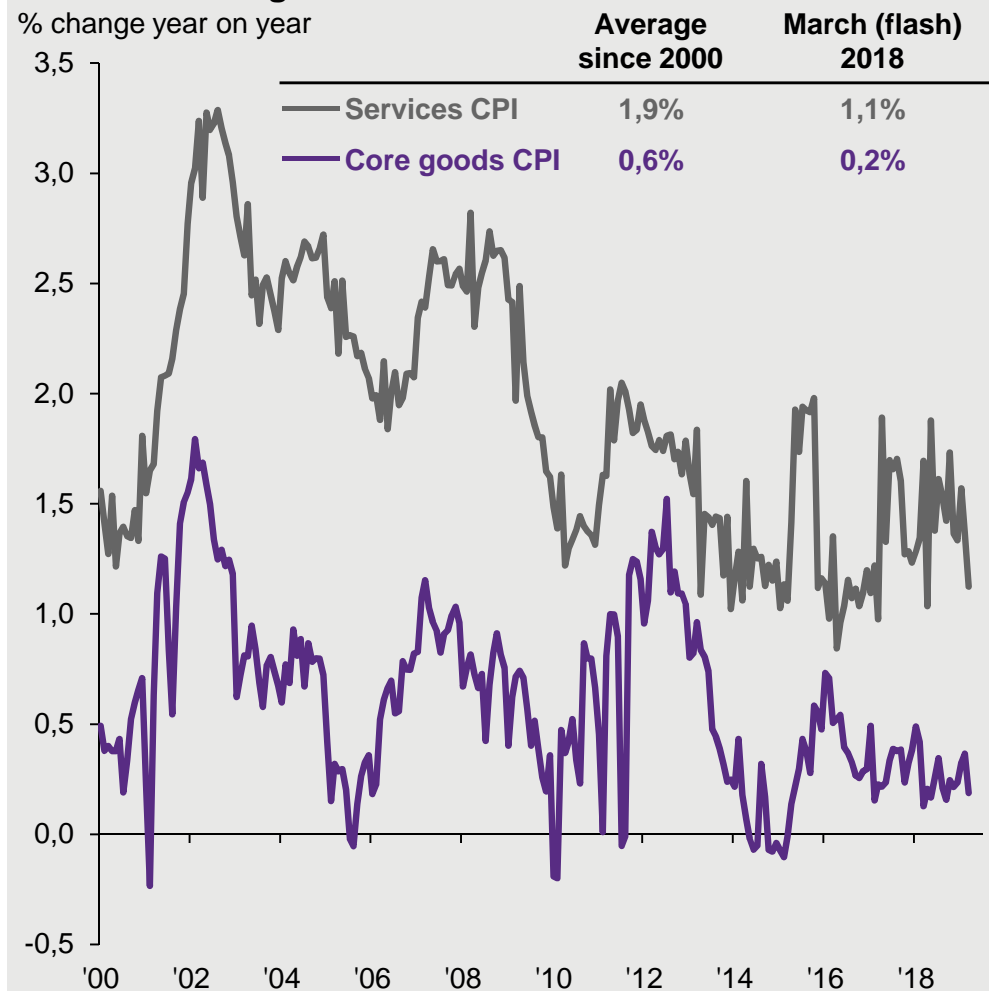


Source: Eurostat, Refinitiv Datastream, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results.
Guide to the Markets - Europe. Data as of 31 March 2019.

Eurozone headline and core inflation



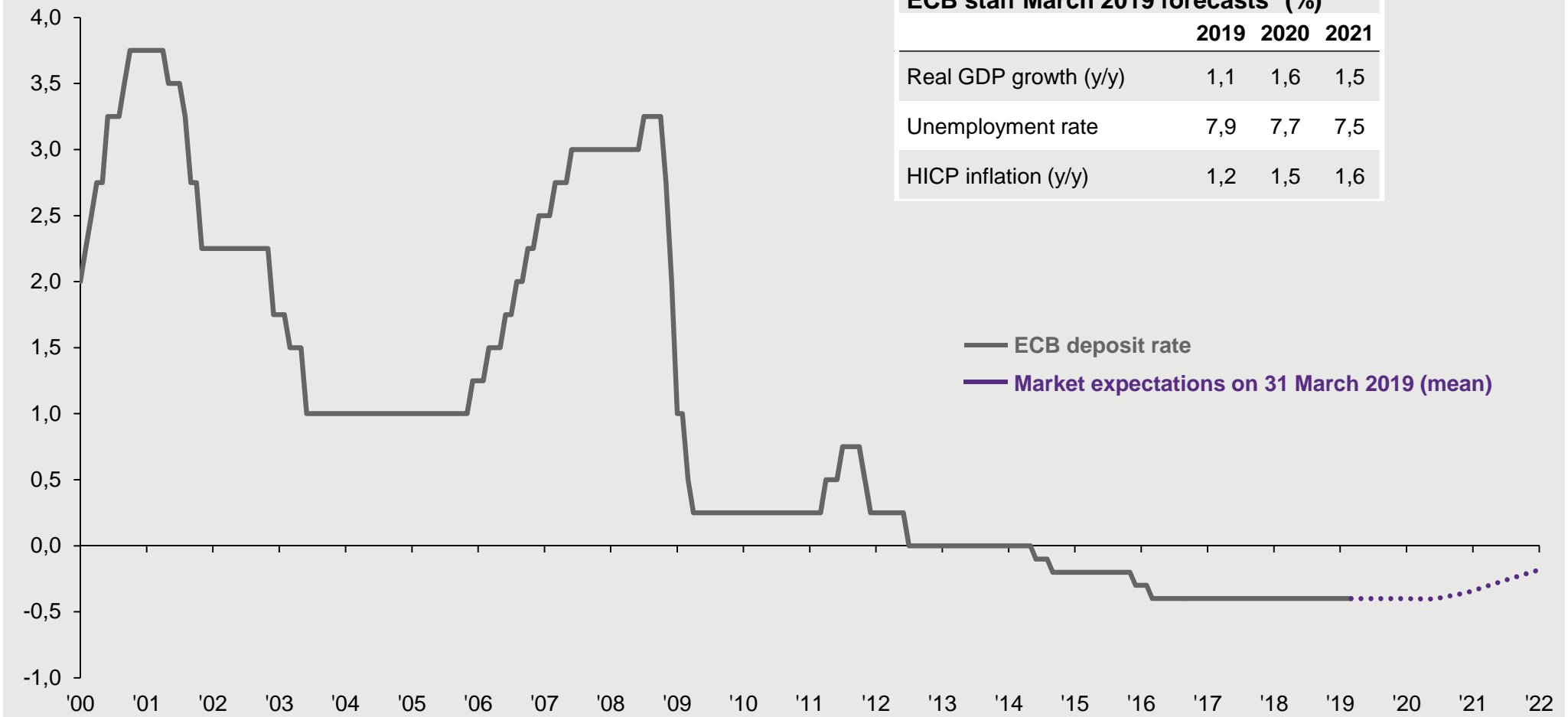
Eurozone core goods and services inflation



Source: (All charts) Eurostat, Refinitiv Datastream, J.P. Morgan Asset Management. CPI is the Consumer Price Index. Core CPI is defined as CPI less energy, food, alcohol and tobacco. Core goods CPI is defined as goods CPI less energy, alcohol and tobacco. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

European Central Bank policy rate expectations

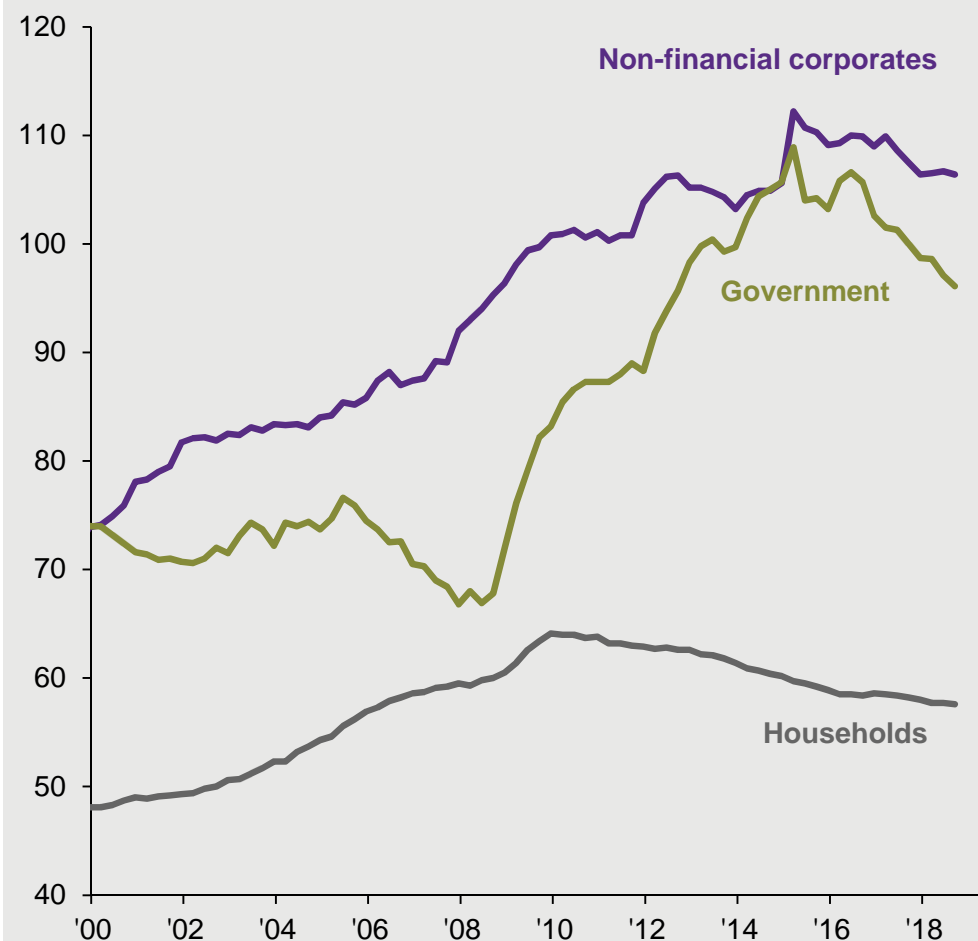
% deposit rate, market expectations



Source: Bloomberg, European Central Bank, J.P. Morgan Asset Management. *Forecasts are made by ECB staff. HICP is the Harmonised Index of Consumer Prices. Market expectations are calculated using OIS forwards. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

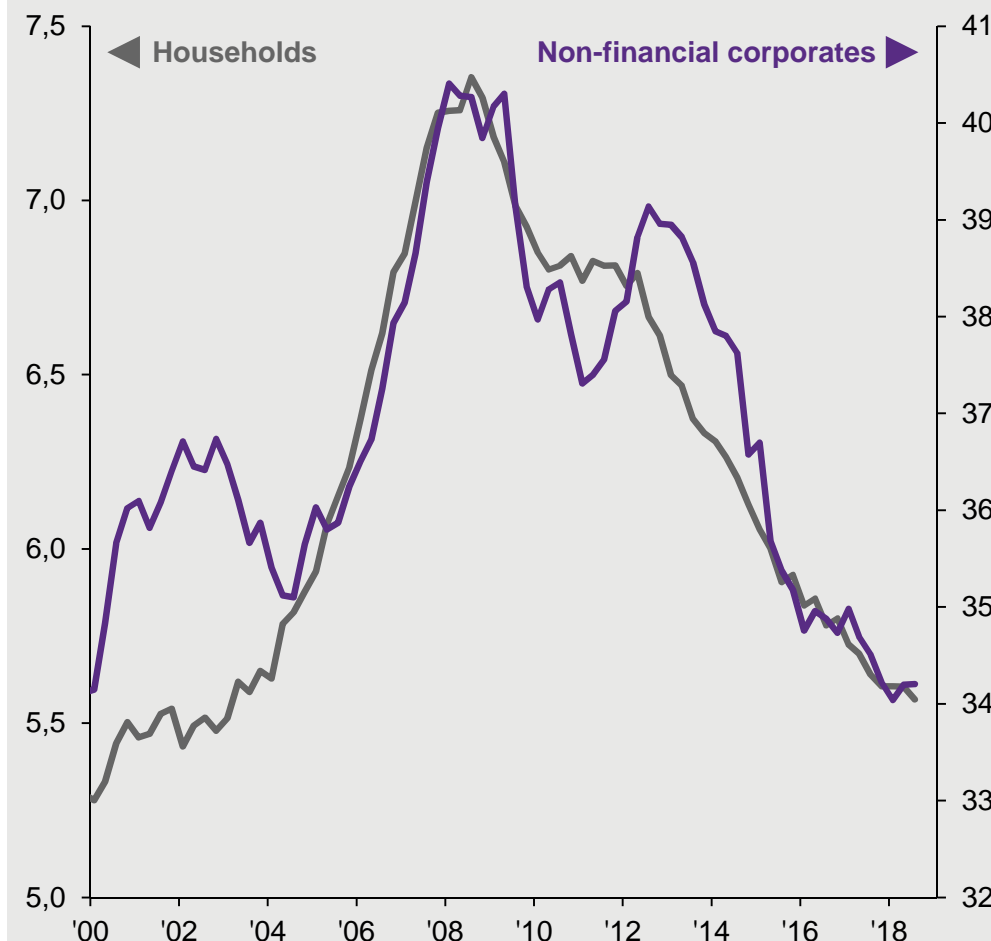
Eurozone debt to GDP ratios

% of nominal GDP



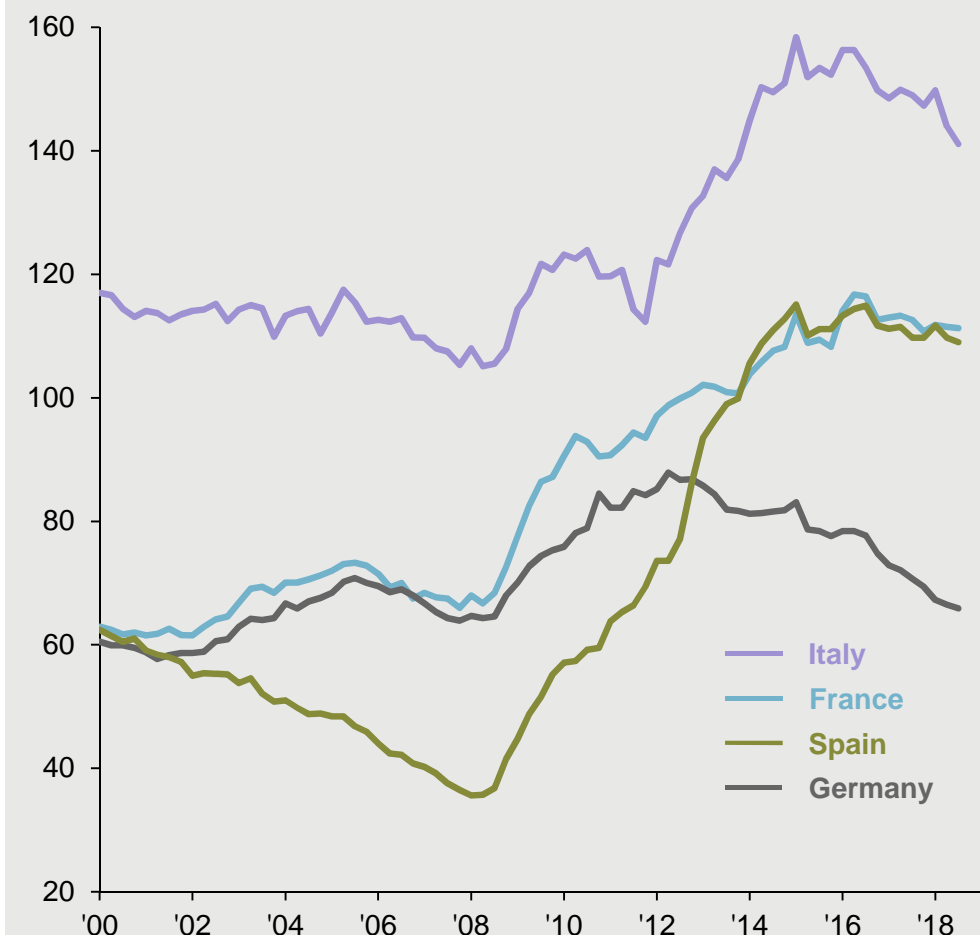
Eurozone debt service ratios

% of disposable income

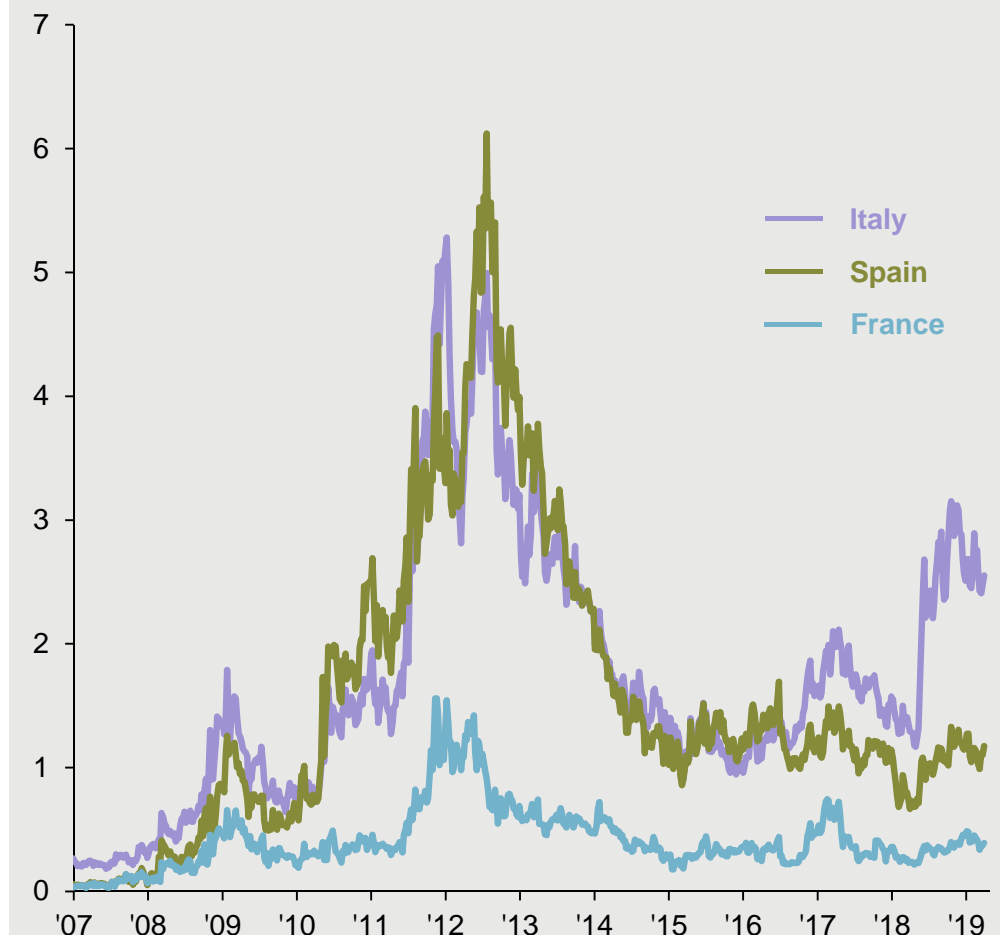


Source: (All charts) Bank for International Settlements, Refinitiv Datastream, J.P. Morgan Asset Management. Debt refers to gross debt. Debt service ratios are a GDP-weighted average of France, Germany, Italy and Spain. For the household sector, gross disposable income is the amount of money that all of the 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. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

France, Germany, Italy and Spain government debt to GDP
% of nominal GDP



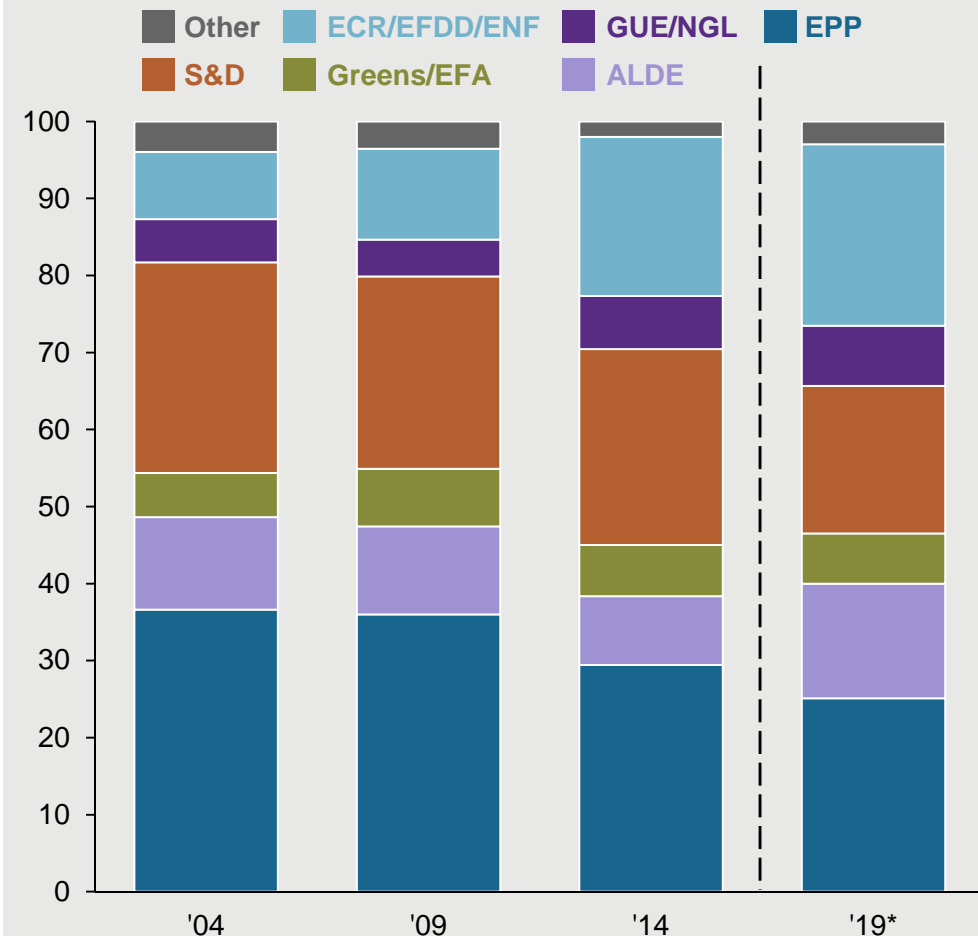
European 10-year government bond spreads over Germany
% spread



Source: (Left) Bank for International Settlements, Refinitiv Datastream, J.P. Morgan Asset Management. Debt refers to gross debt. (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 March 2019.

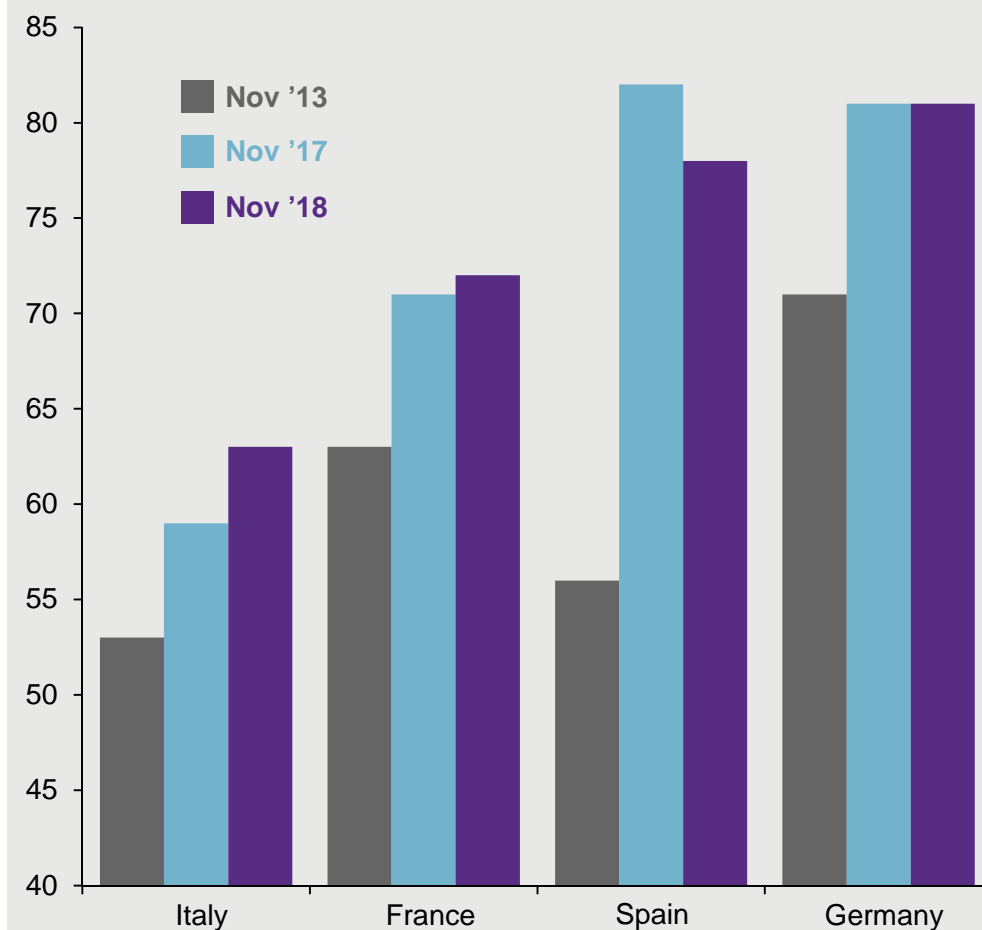
European parliament seat breakdown

% of seats



Survey results: Do you support the euro?

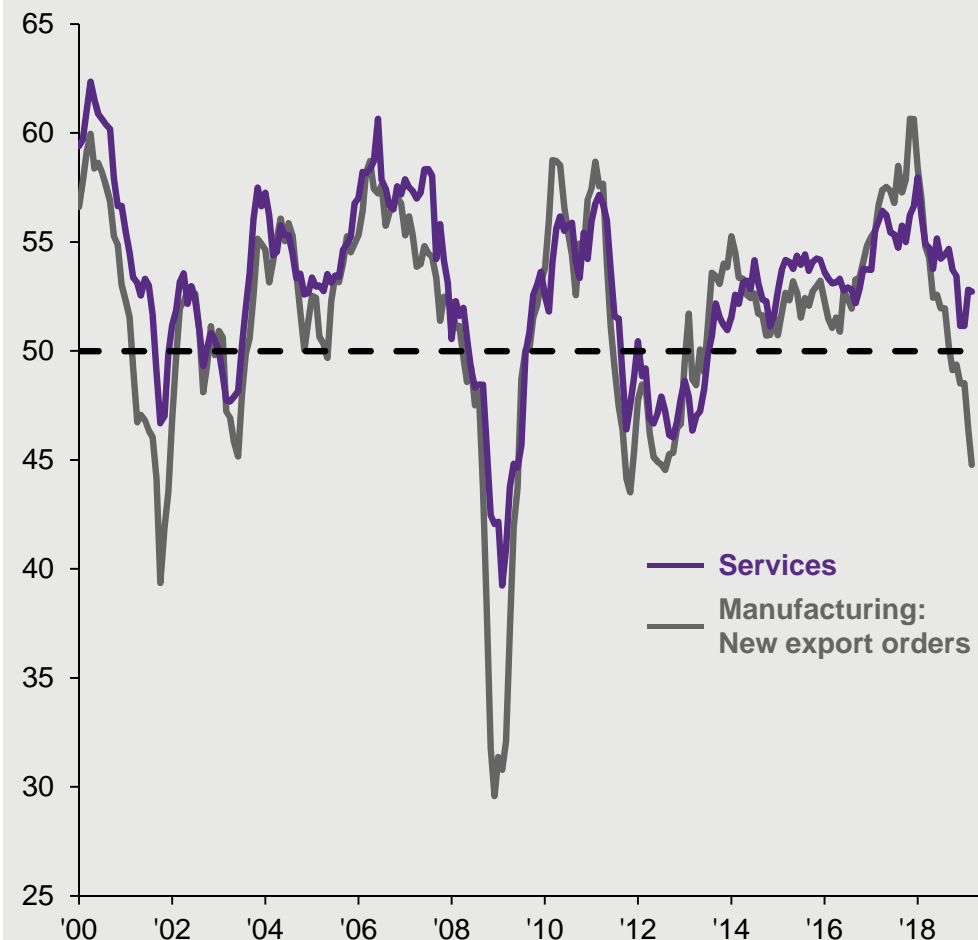
% answering "yes"



Source: (Left) Europe Elects, European Parliament, J.P. Morgan Asset Management. EPP: European People's Party; ALDE: Alliance of Liberals and Democrats for Europe; Greens/EFA: The Greens/European Free Alliance; S&D: Group of the Progressive Alliance of Socialists and Democrats in the European Parliament; GUE/NGL: European United Left-Nordic Green Left; ECR/EFDD/ENF: European Conservatives and Reformists/Europe of Freedom and Direct Democracy Group/Europe of Nations and Freedom. 2004-2014 are confirmed seat allocations. 2019* is based on polling data compiled by Europe Elects. (Right) Eurobarometer survey, 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 March 2019.

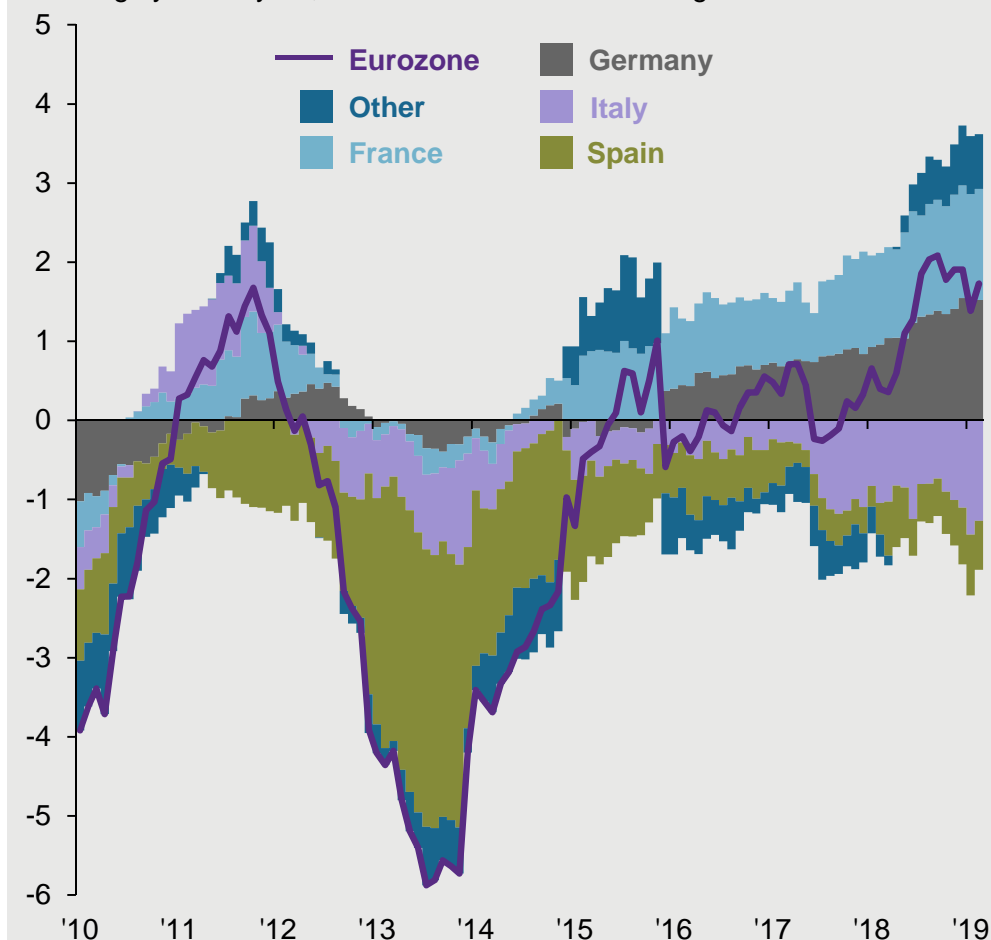
Eurozone PMIs

Index level



Eurozone loan growth to non-financial corporates

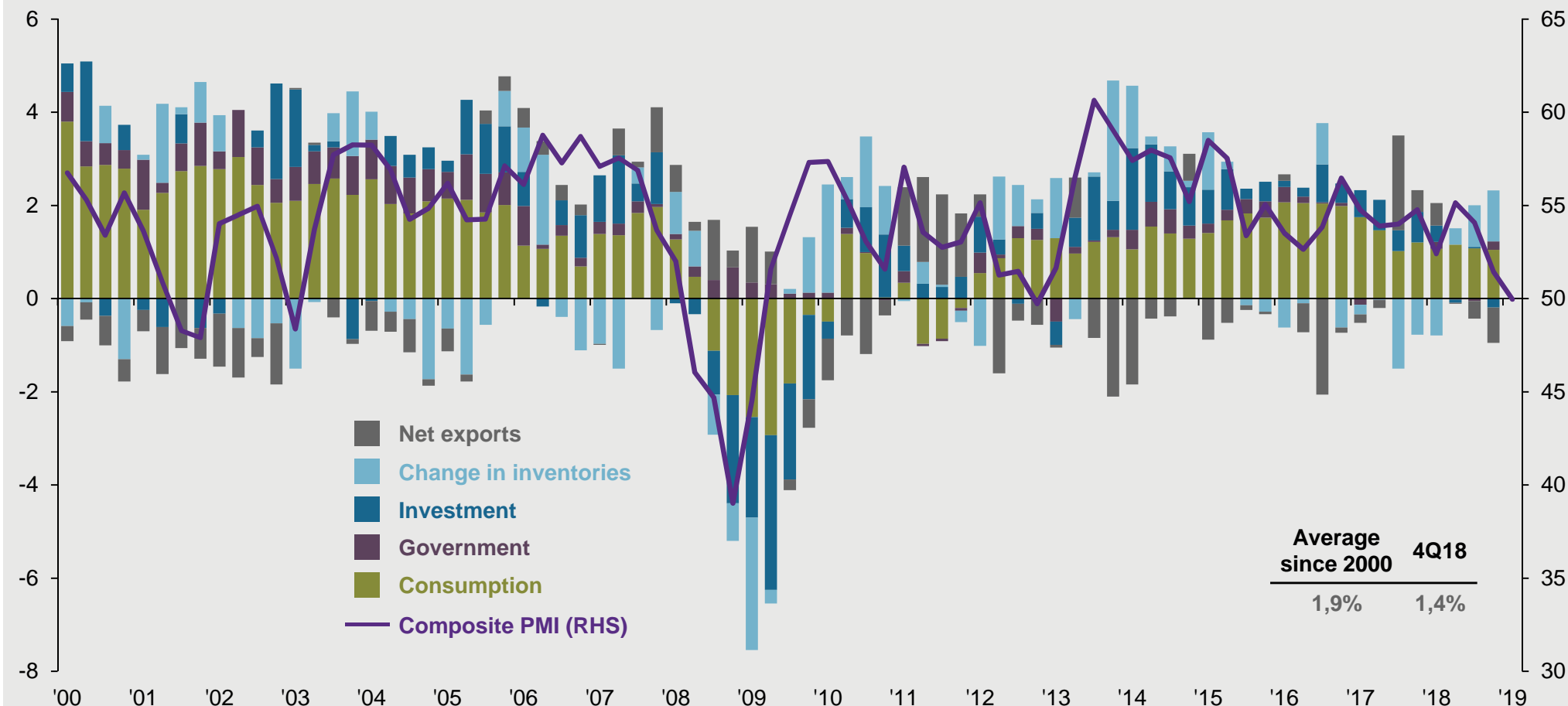
% change year on year, breakdown is contribution to growth



Source: (Left) Markit, J.P. Morgan Asset Management. PMI is Purchasing Managers' Index where a score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. (Right) ECB, 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 March 2019.

Contribution to UK real GDP growth and composite PMI

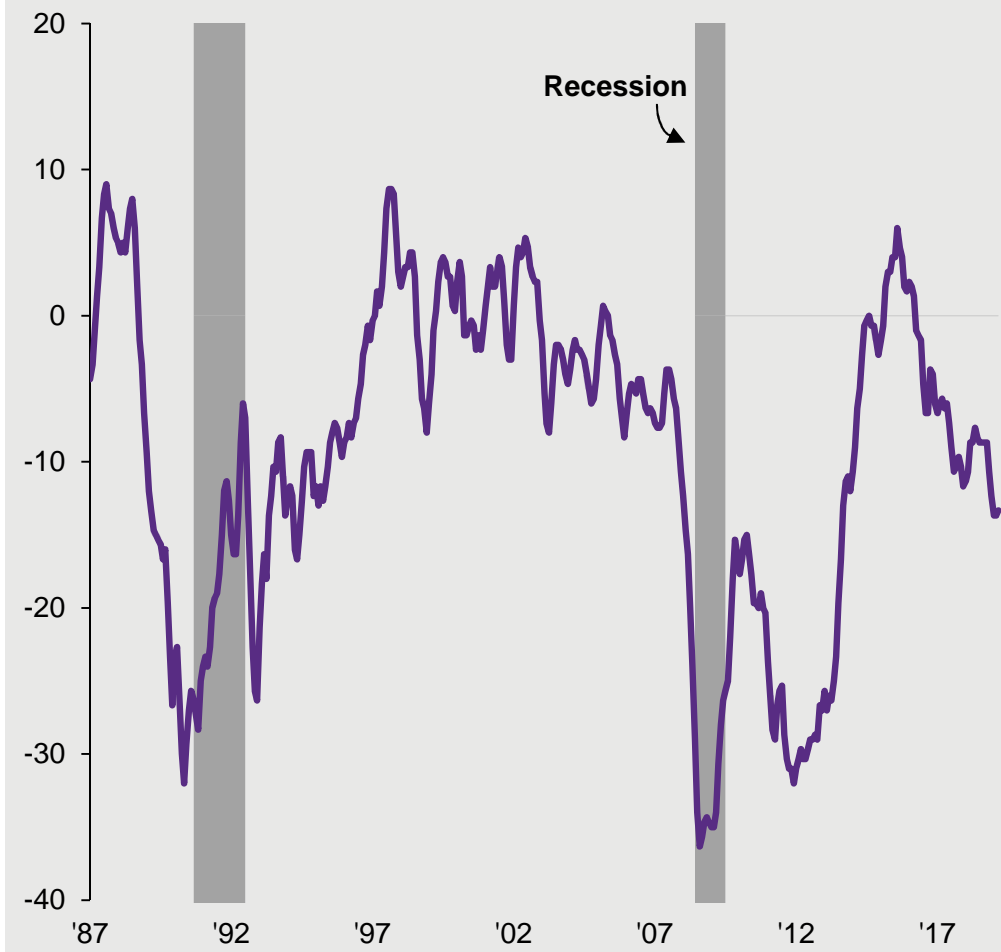
% change year on year (LHS); index level (RHS)



Source: Markit, ONS, Refinitiv Datastream, J.P. Morgan Asset Management. PMI is Purchasing Managers' Index where a score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. PMI data is shown with quarterly frequency. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

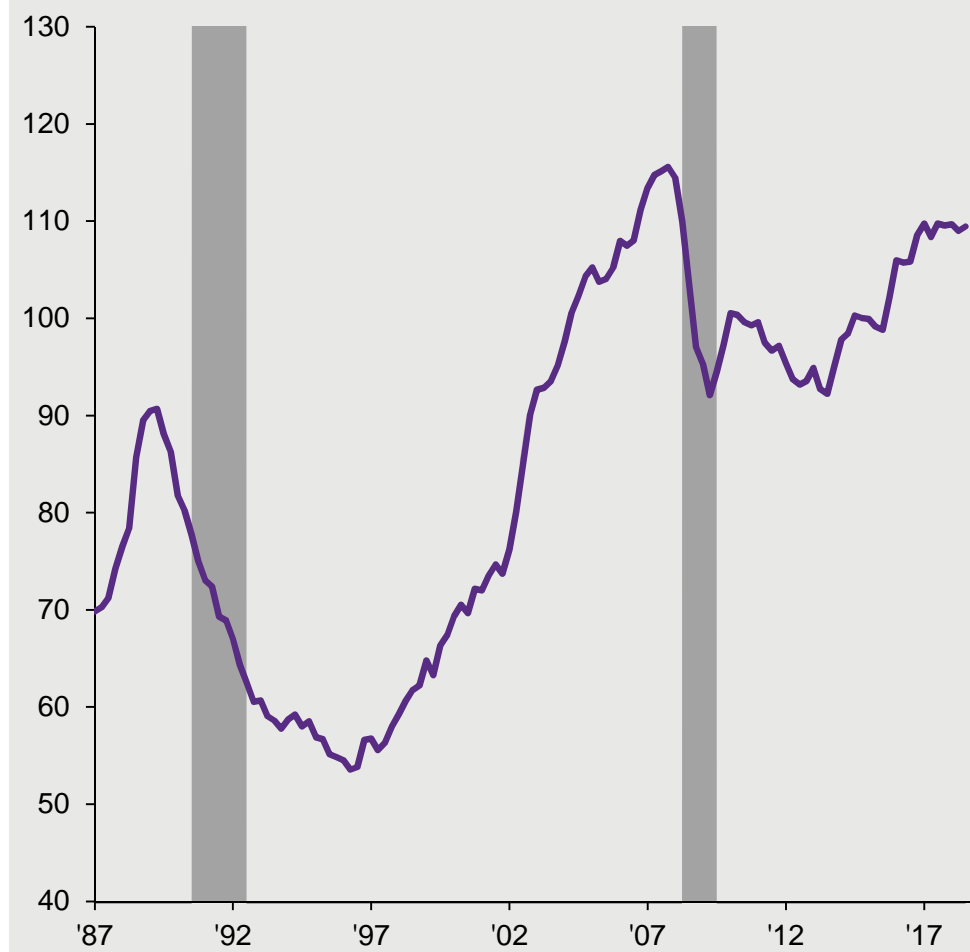
UK consumer confidence

Index level, three-month moving average



UK house prices relative to income

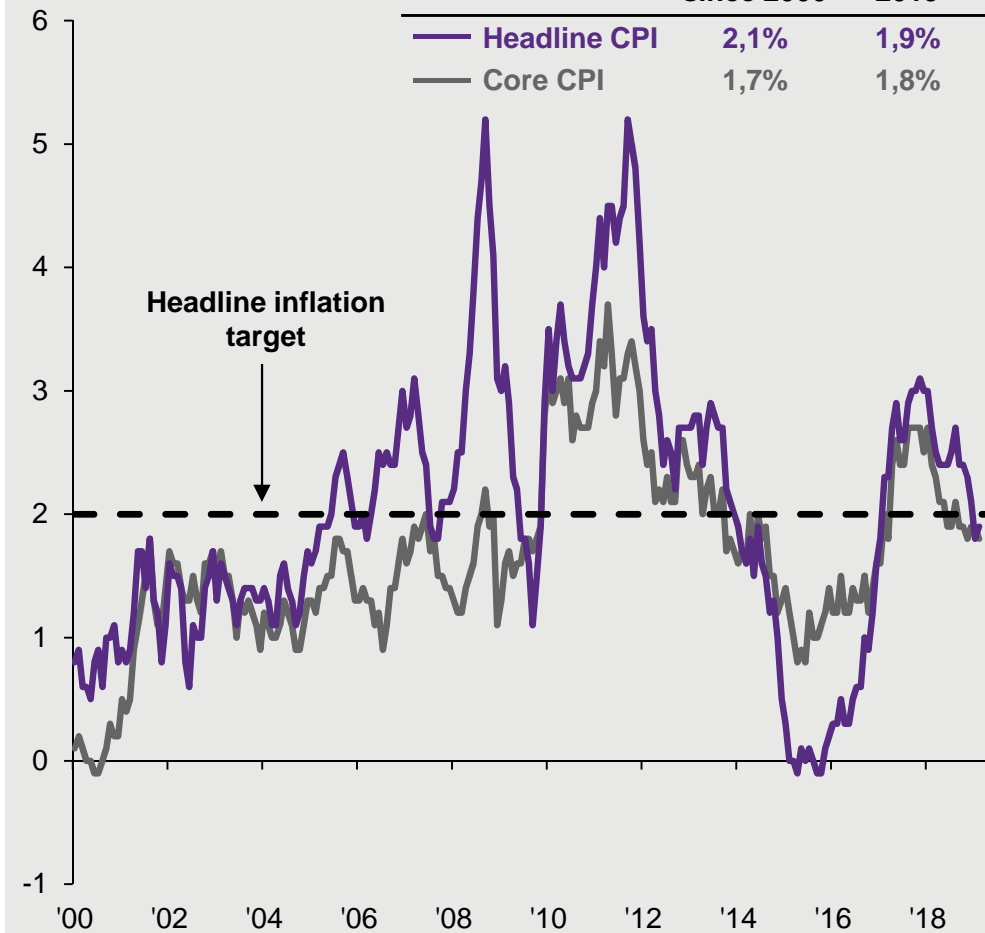
Index level



Source: (Left) GfK, Refinitiv Datastream, J.P. Morgan Asset Management. (Right) OECD, Refinitiv Datastream, J.P. Morgan Asset Management. Light grey columns indicate recession. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

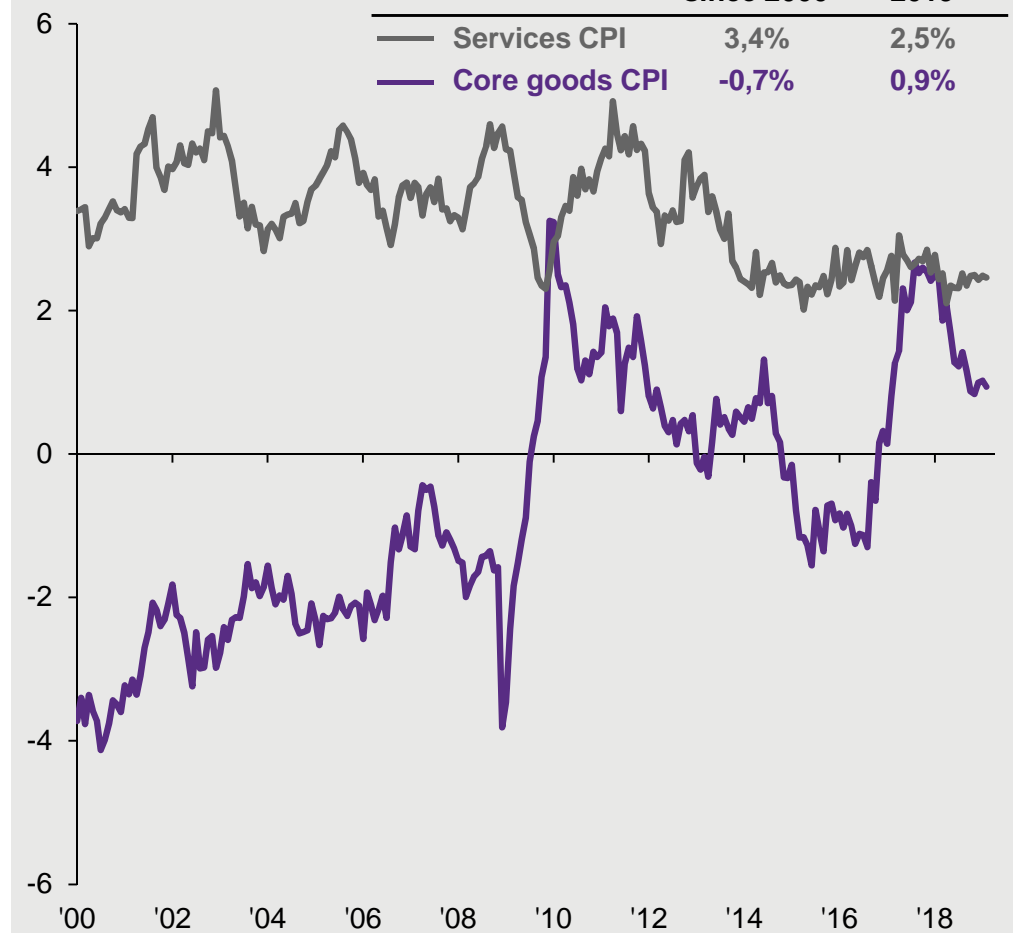
UK headline and core inflation

% change year on year



UK core goods and services inflation

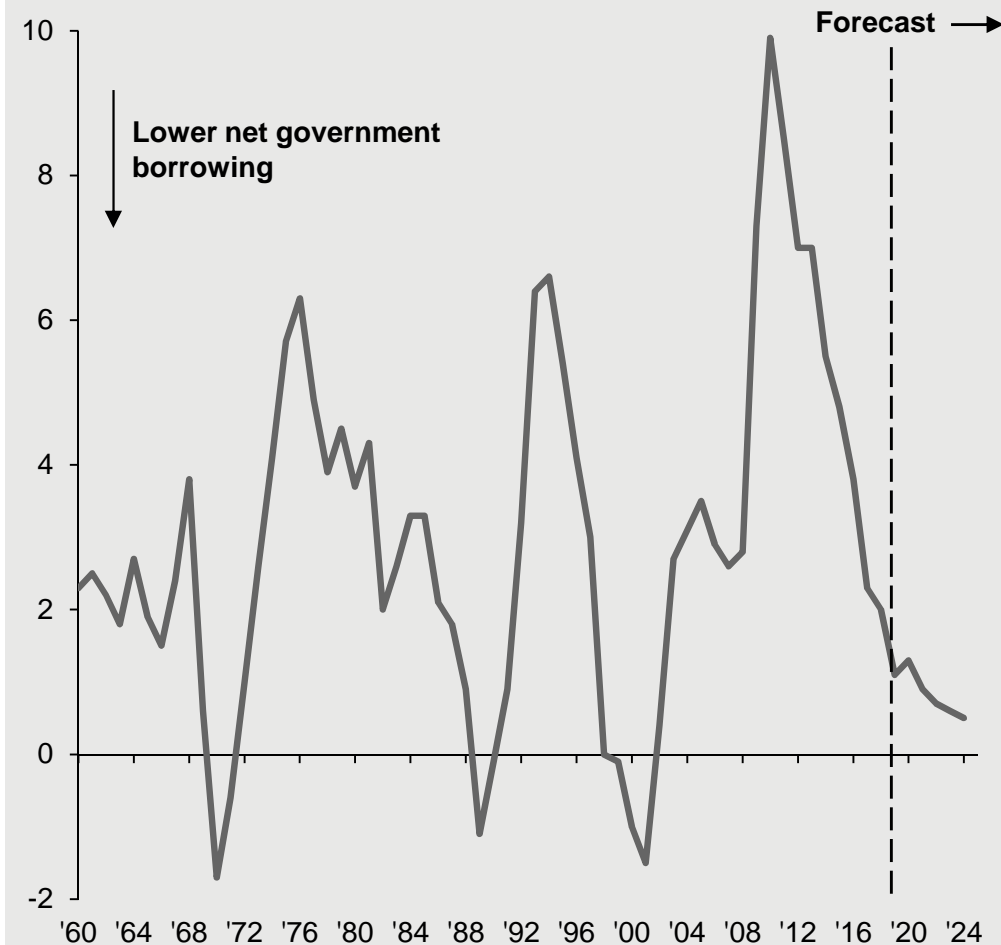
% change year on year



Source: (All charts) ONS, Refinitiv Datastream, J.P. Morgan Asset Management. CPI is the Consumer Price Index. Core CPI is defined as CPI less energy, food, alcohol and tobacco. Core goods CPI is defined as goods CPI less energy, food, alcohol and tobacco. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

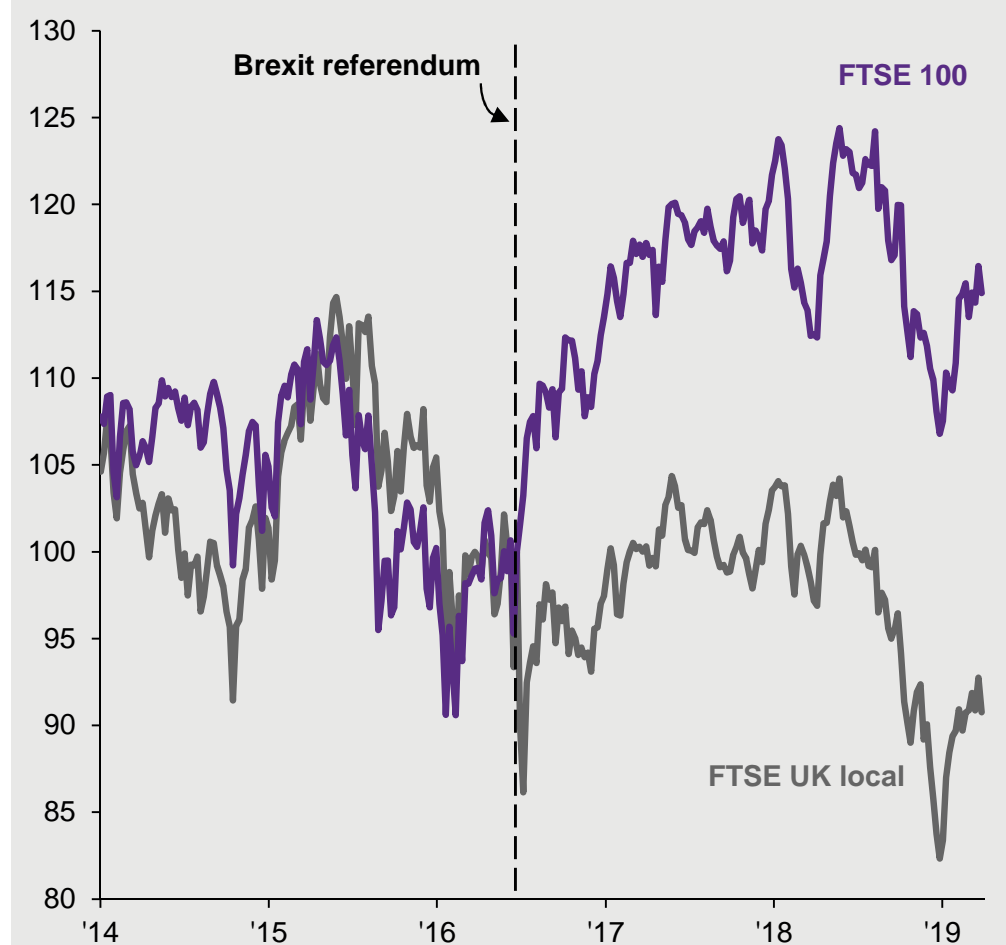
UK public sector net borrowing

% of nominal GDP



UK equity market performance

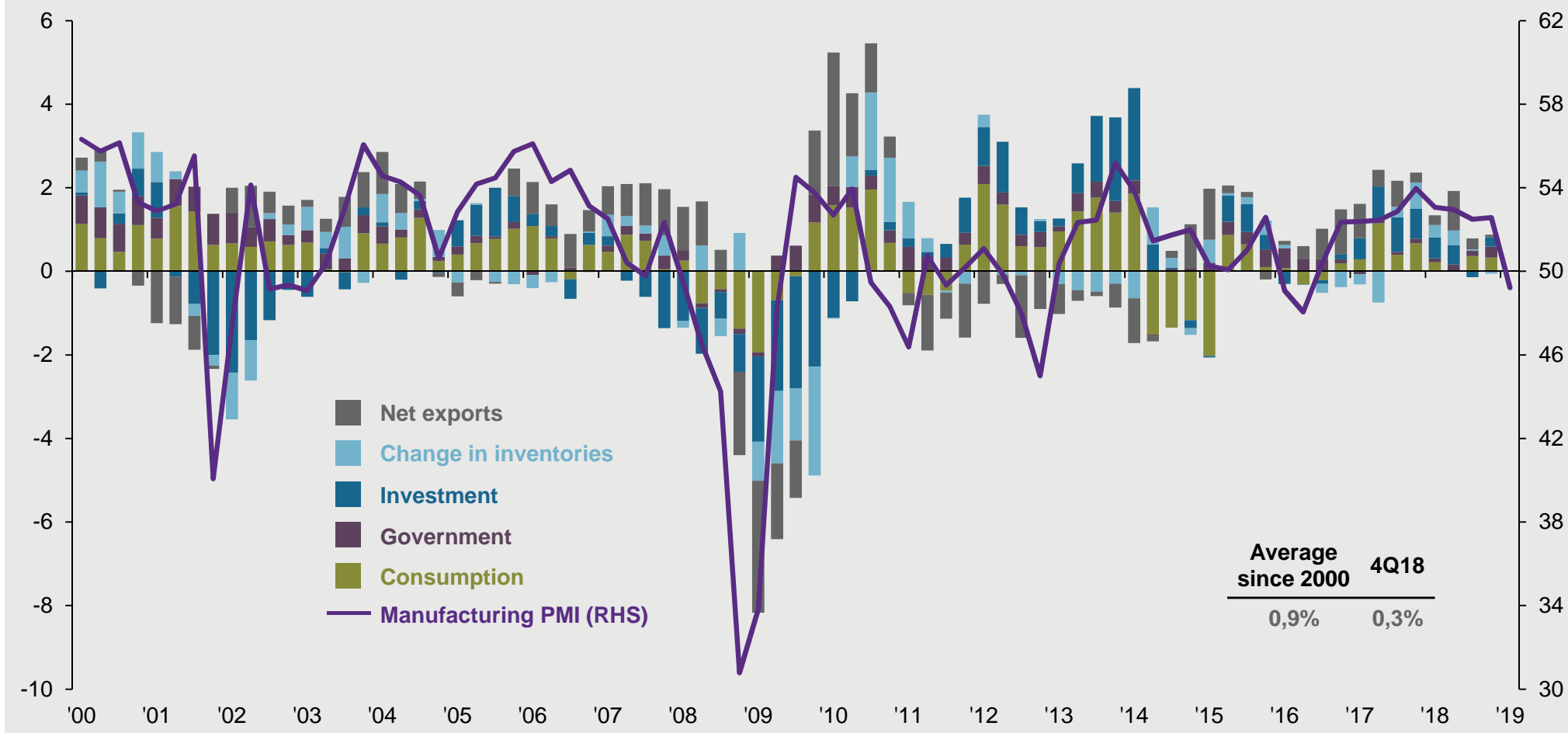
Index level rebased to 100 at the Brexit referendum*



Source: (Left) Office for Budget Responsibility (OBR), ONS, Refinitiv Datastream, J.P. Morgan Asset Management. Data and forecasts are from the March 2019 OBR Economic and fiscal outlook. (Right) FTSE, Refinitiv Datastream, J.P. Morgan Asset Management. *Brexit referendum was on 23 June 2016. Companies are classified as local if 70% or more of their sales are considered to be in the UK. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Contribution to Japan real GDP growth and composite PMI

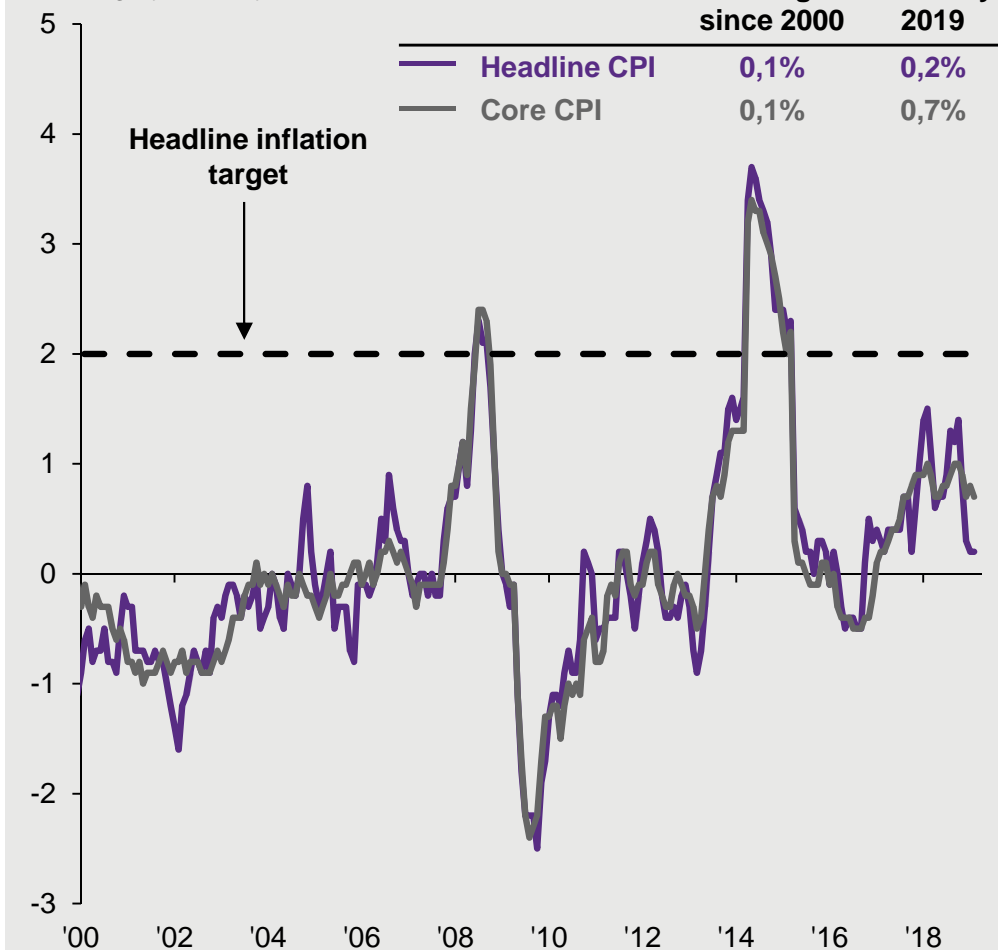
% change year on year (LHS); index level (RHS)



Source: Japan Cabinet Office, Markit, Refinitiv Datastream, J.P. Morgan Asset Management. PMI is Purchasing Managers' Index where a score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. PMI data is shown with quarterly frequency. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

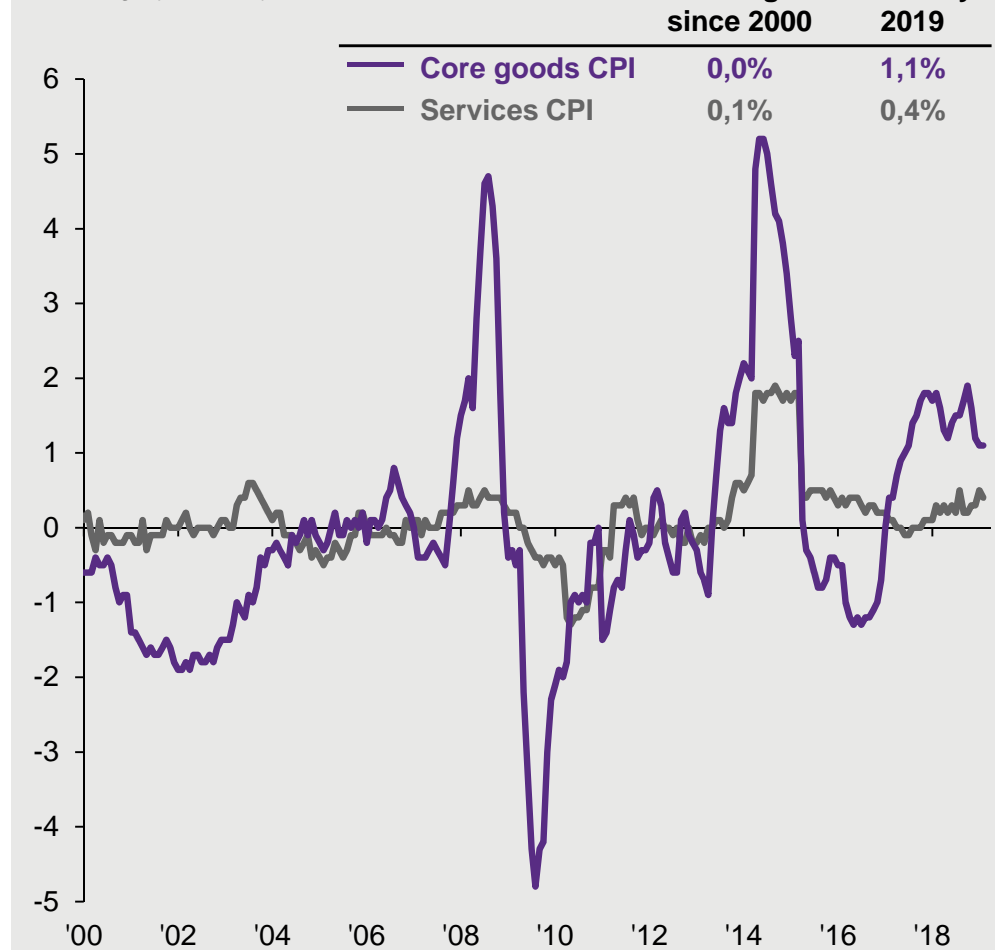
Japan headline and core inflation

% change year on year

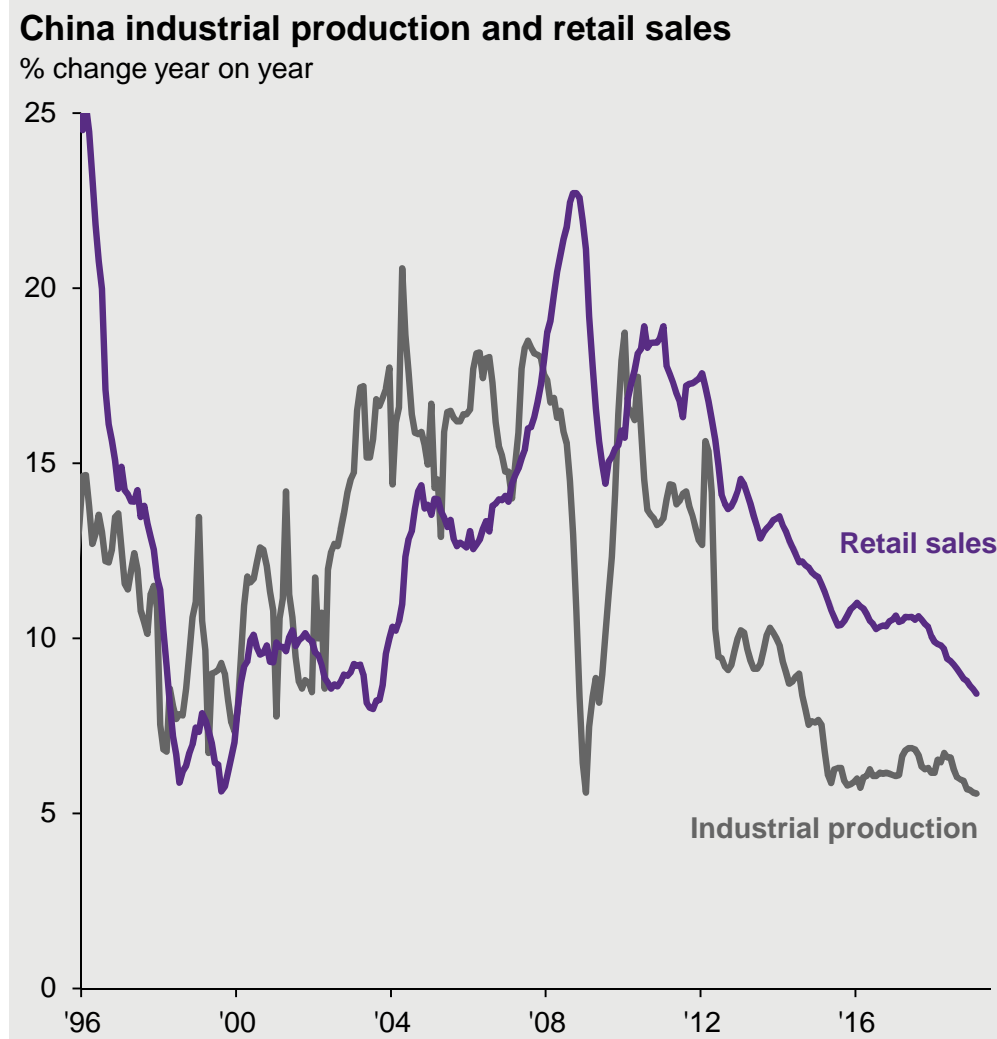


Japan core goods and services inflation

% change year on year



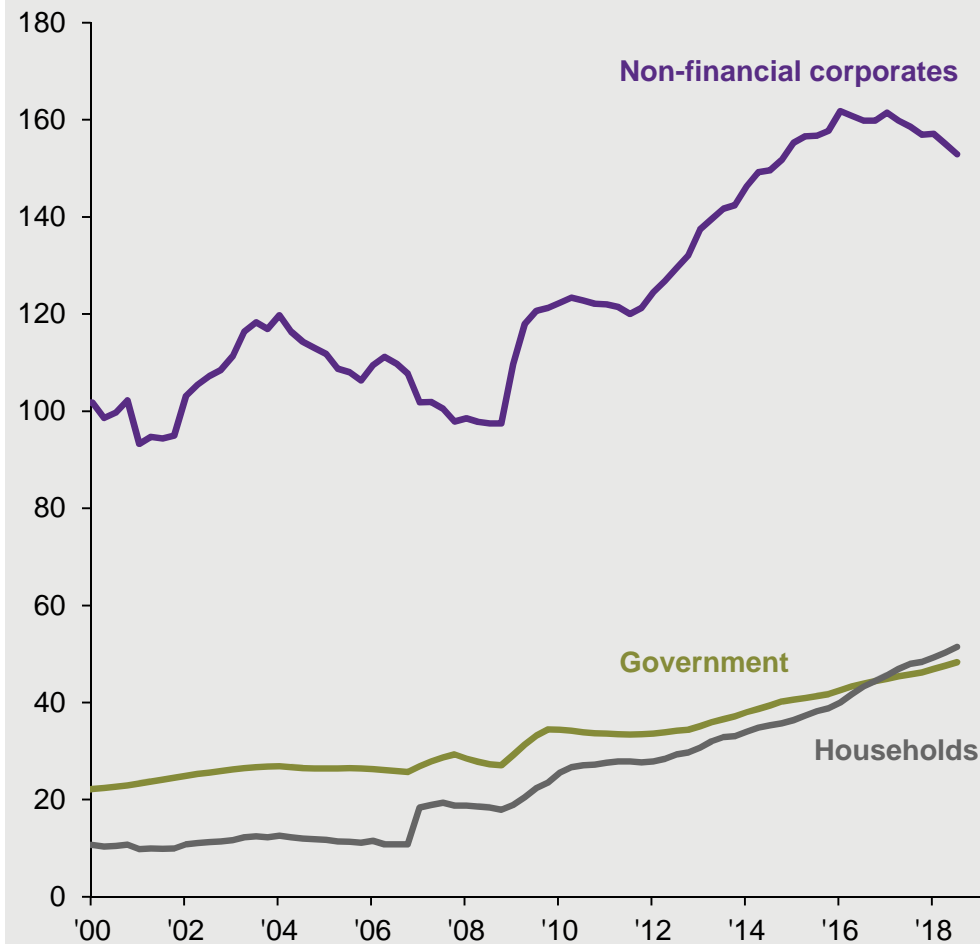
Source: (All charts) Japan Ministry of Internal Affairs & Communications, Refinitiv Datastream, J.P. Morgan Asset Management. CPI is the Consumer Price Index. Core CPI is defined as CPI excluding fresh food. Core goods CPI is defined as goods CPI excluding fresh food. Increase in Japan inflation measures between 2014 and 2016 can be attributed to the impact of the consumption tax hike over this period. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.



Source: (Left) Bloomberg, National Bureau of Statistics of China, Refinitiv Datastream, J.P. Morgan Asset Management. Forecast is from Bloomberg contributor composite. (Right) National Bureau of Statistics of China, Refinitiv Datastream, J.P. Morgan Asset Management. Industrial production is a three-month moving average and retail sales is a six-month moving average. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

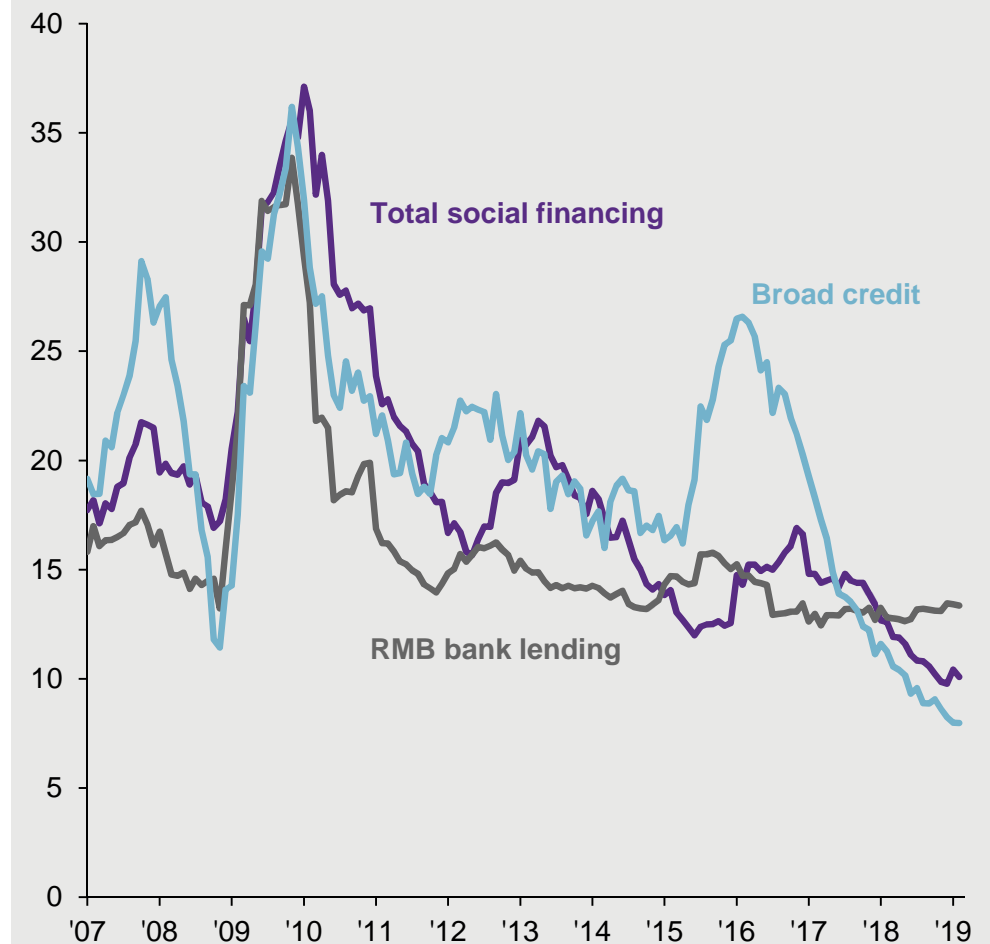
China debt to GDP ratios

% of nominal GDP

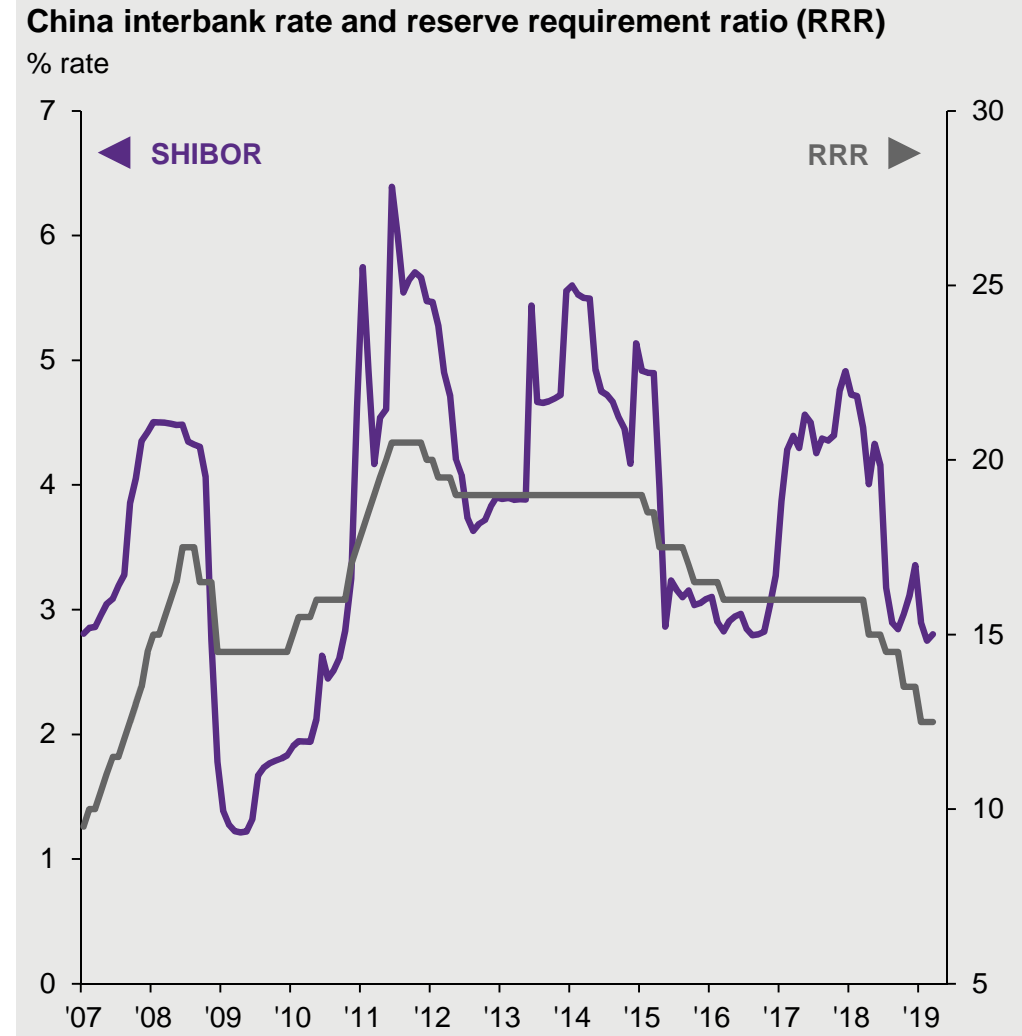
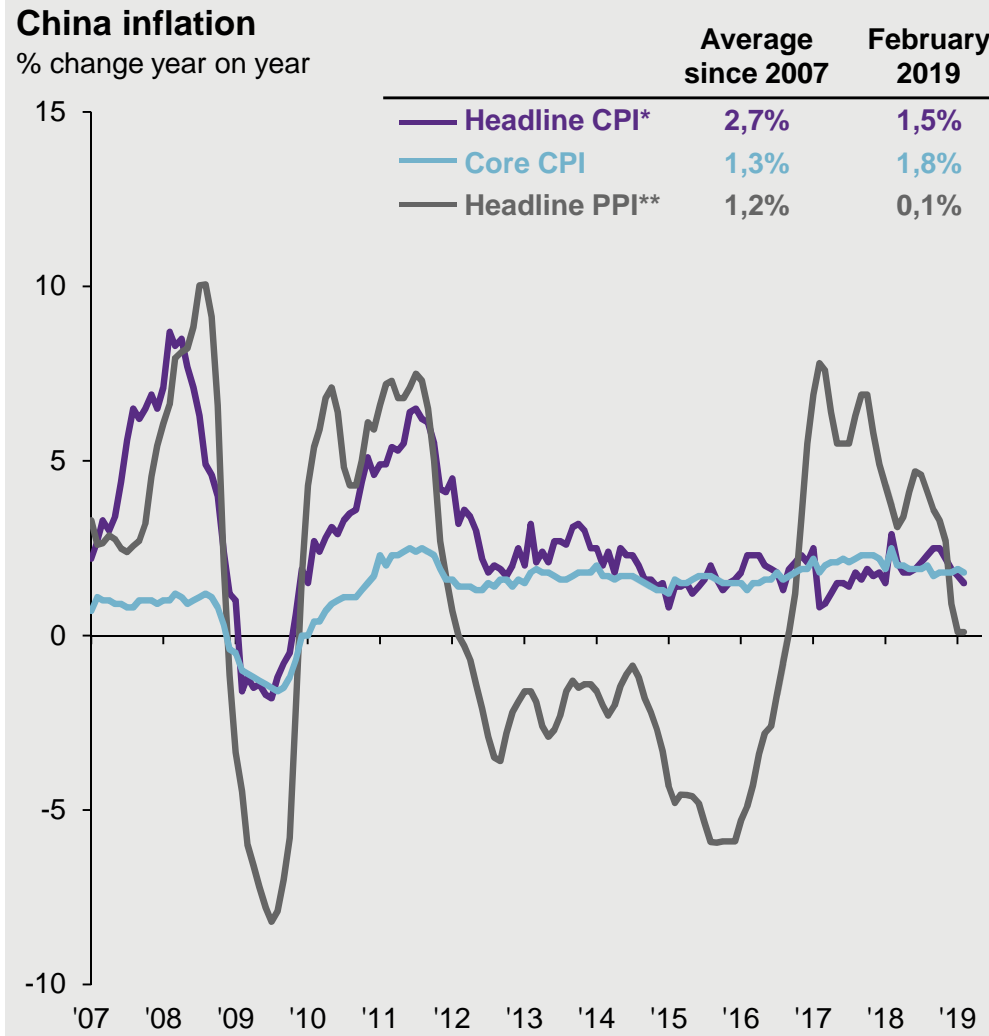


China credit growth

% change year on year



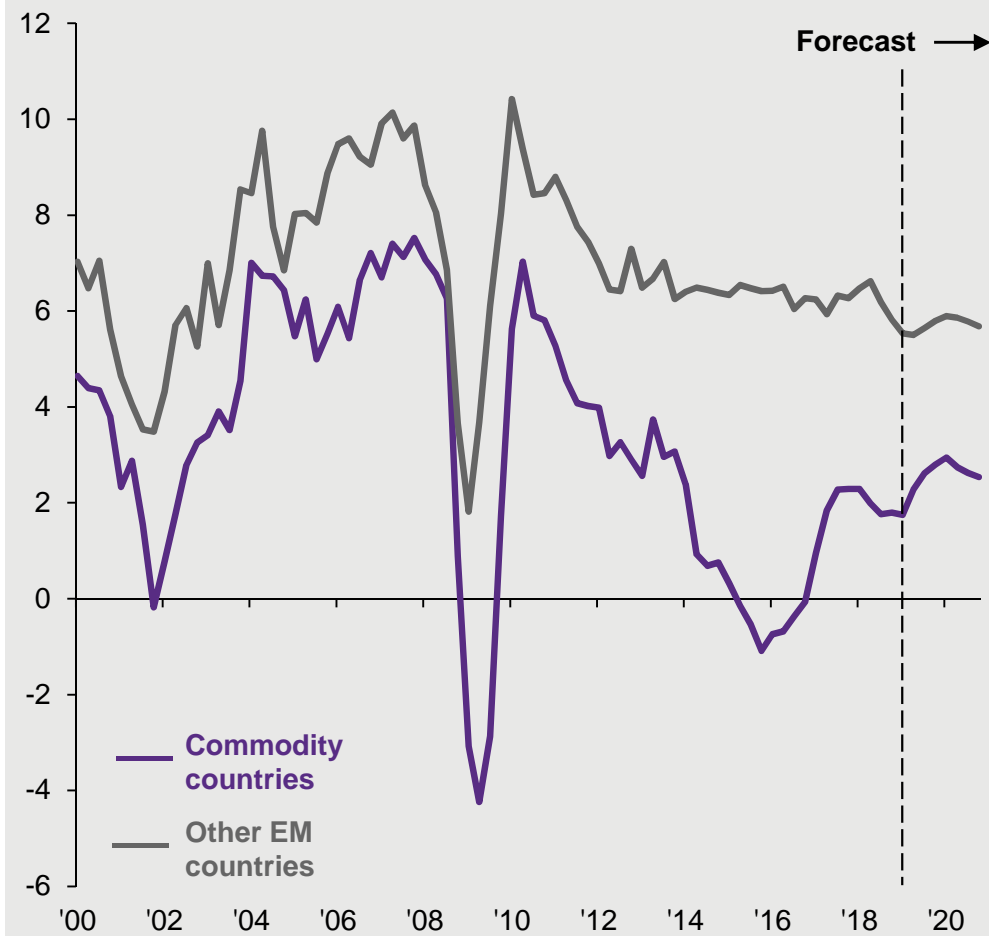
Source: (Left) Bank for International Settlements, Refinitiv Datastream, J.P. Morgan Asset Management. Debt refers to gross debt. (Right) People's Bank of China (PBoC), J.P. Morgan Asset Management. The broad credit measure consists of all reported bank claims on the domestic economy, plus bankers' acceptances, entrusted loans, trust loans, new net corporate bond and non-financial equity financing, issuance of asset-backed securities and interbank loans. Total social financing is a measure of total funds provided to the economy, tabulated from bank loans to individuals and corporations, as well as equity and bond financing to non-financial corporations. RMB bank lending is the sum of all bank-reported claims on domestic borrowers. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.



Source: (Left) Bloomberg, Refinitiv Datastream, J.P. Morgan Asset Management. *CPI is the Consumer Price Index. Core CPI is defined as CPI excluding food and energy. **PPI is the Producer Price Index. (Right) People's Bank of China, Refinitiv Datastream, J.P. Morgan Asset Management. Average RRR for large and small banks. SHIBOR is the 3-month interbank rate. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

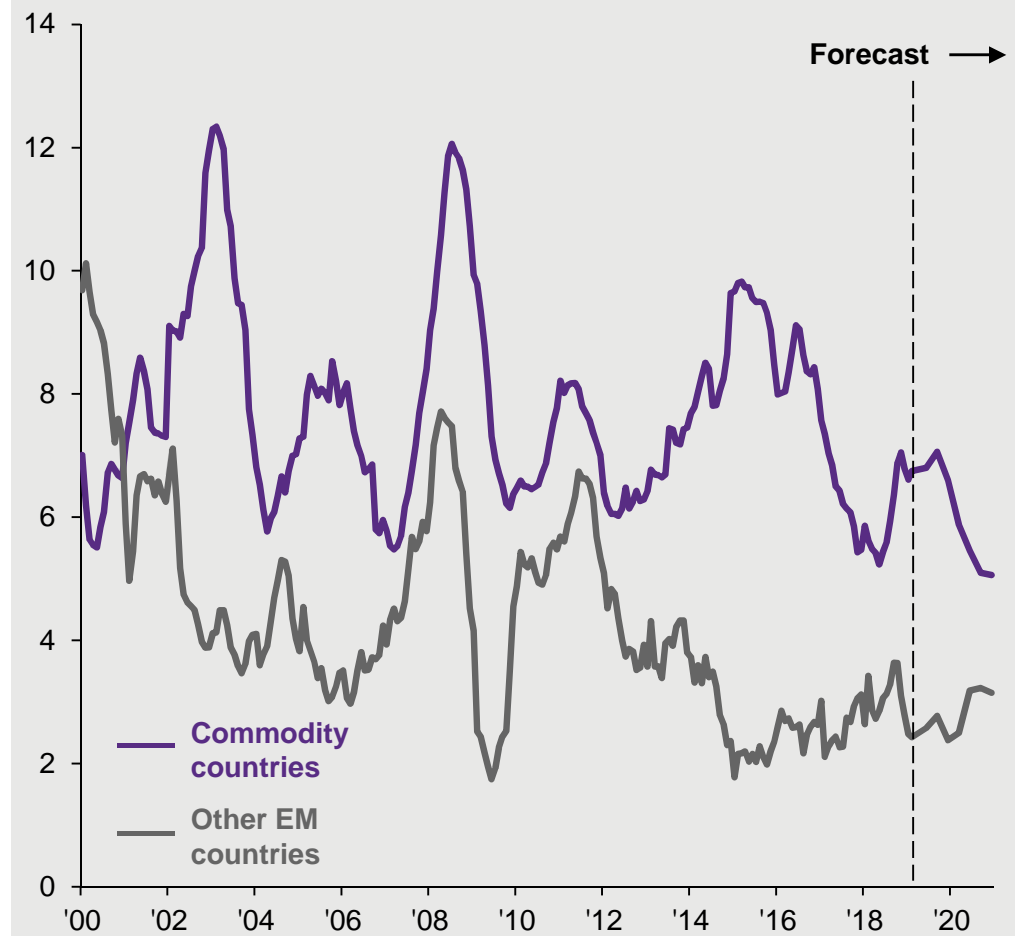
EM GDP growth

% change year on year



EM inflation

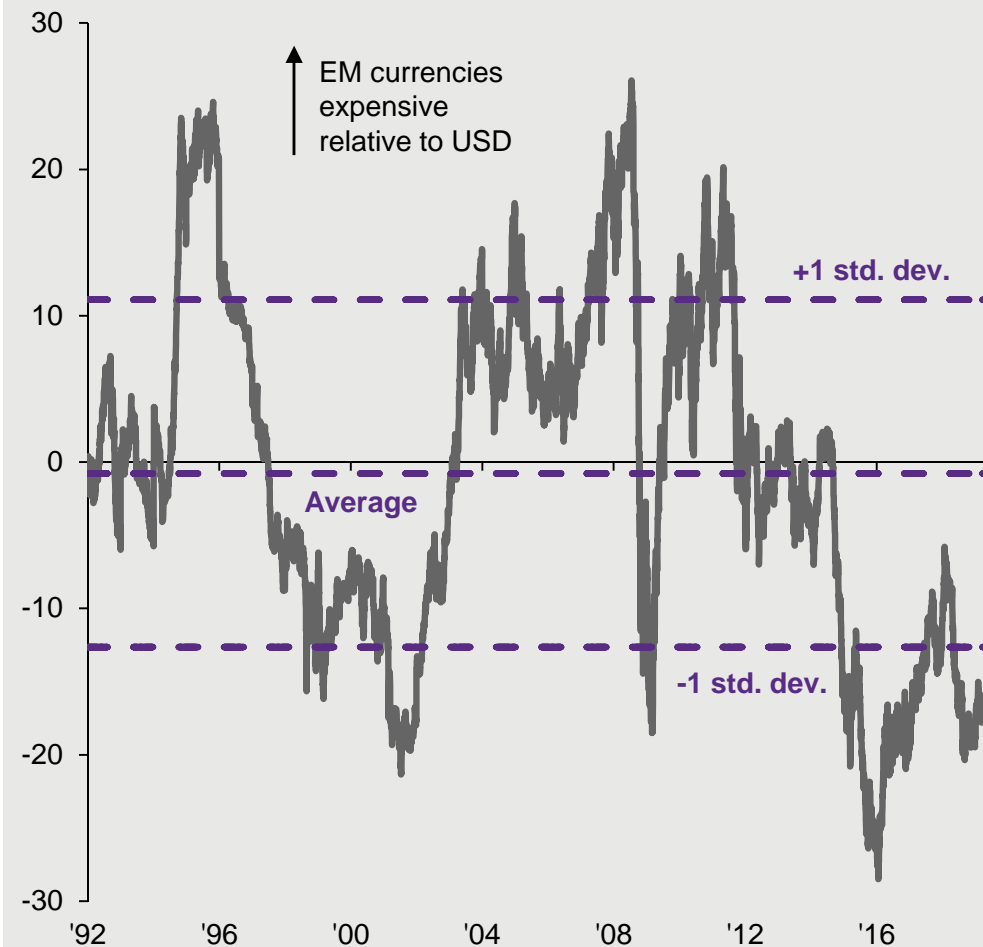
% change year on year



Source: (All charts) IMF, national statistics agencies, J.P. Morgan Securities Research, J.P. Morgan Asset Management. Other EM countries are China, India, Malaysia, Mexico, Philippines, Poland, Romania, Thailand, Turkey, Vietnam. Commodity countries are Argentina, Brazil, Chile, Colombia, Indonesia, Kazakhstan, Peru, Russia, South Africa, Venezuela. GDP and inflation aggregates are calculated using a GDP-weighted average. Forecasts are from J.P. Morgan Securities Research. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

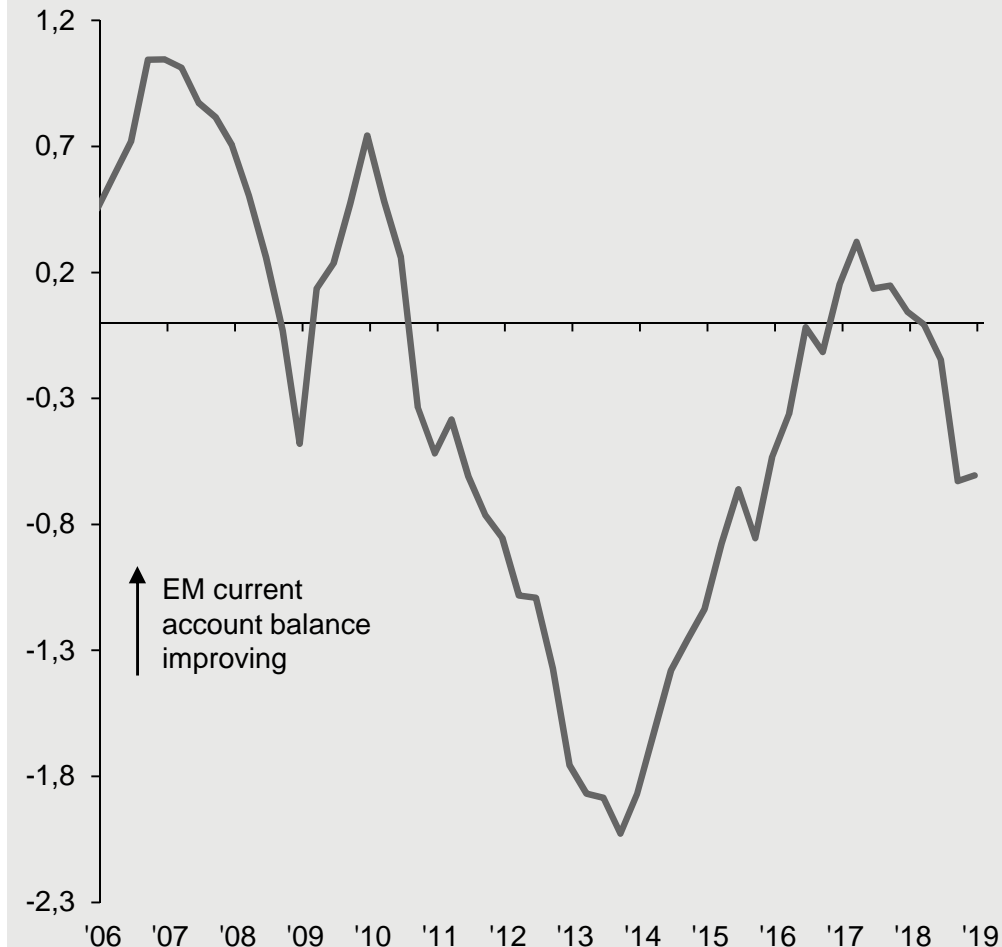
EM currencies vs. US dollar

% from fair value, relative to US dollar



EM current account balance

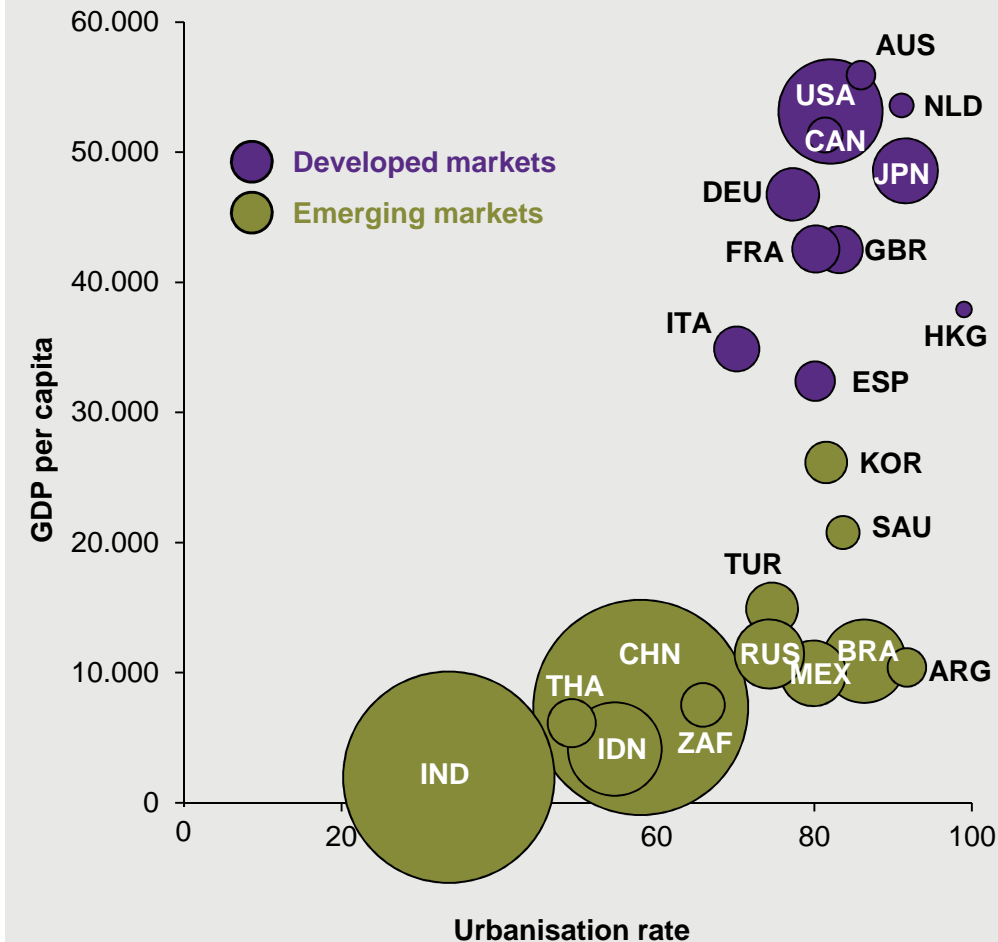
% of GDP



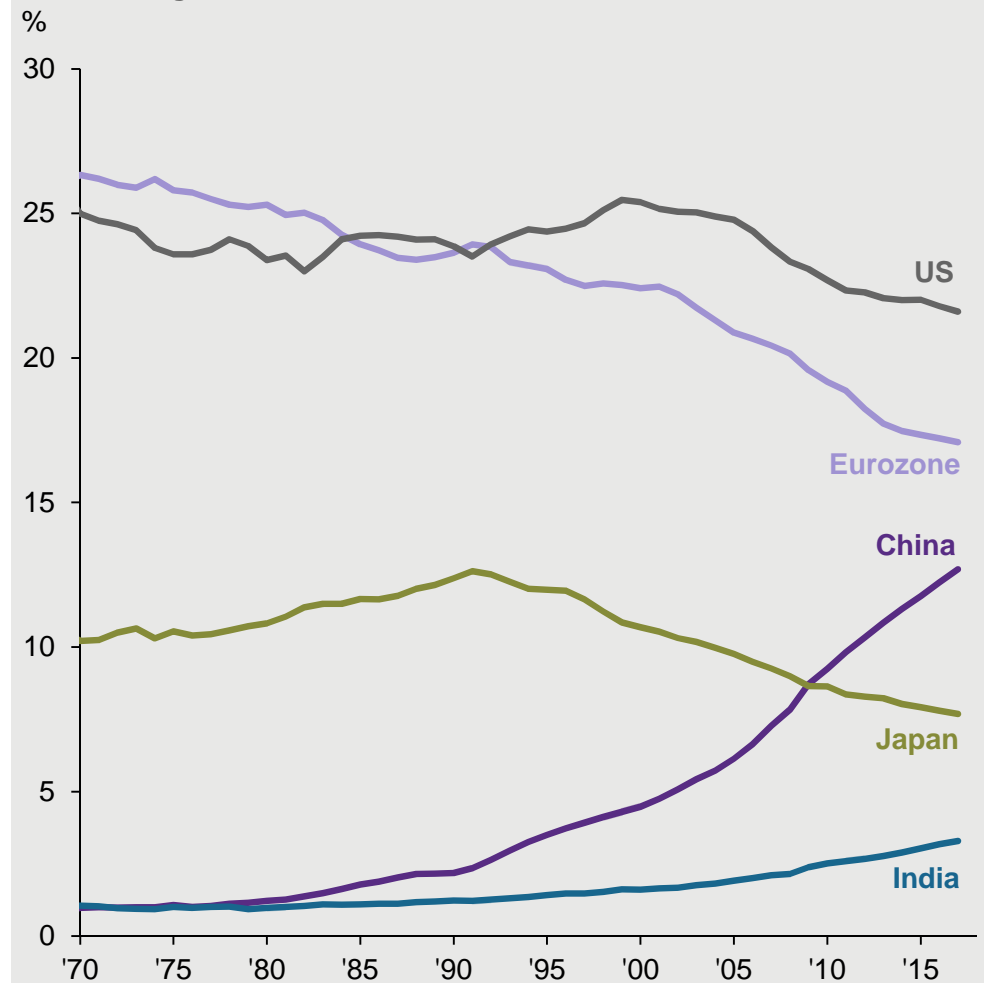
Source: (Left) J.P. Morgan Asset Management. Fair value is based on nominal exchange rates relative to PPP exchange rates and adjusted for GDP per capita. (Right) Bloomberg, J.P. Morgan Asset Management. EM currencies and current account balances are created using the current weighted average of JPM GBI-EM Global Diversified Index countries. Current account balance is the balance of a country's net trade in goods and services, its net earnings on cross-border investments and its net transfer payments. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Urbanisation, real GDP per capita and population size

Urbanisation rates, %, and GDP per capita, USD, bubble size is population



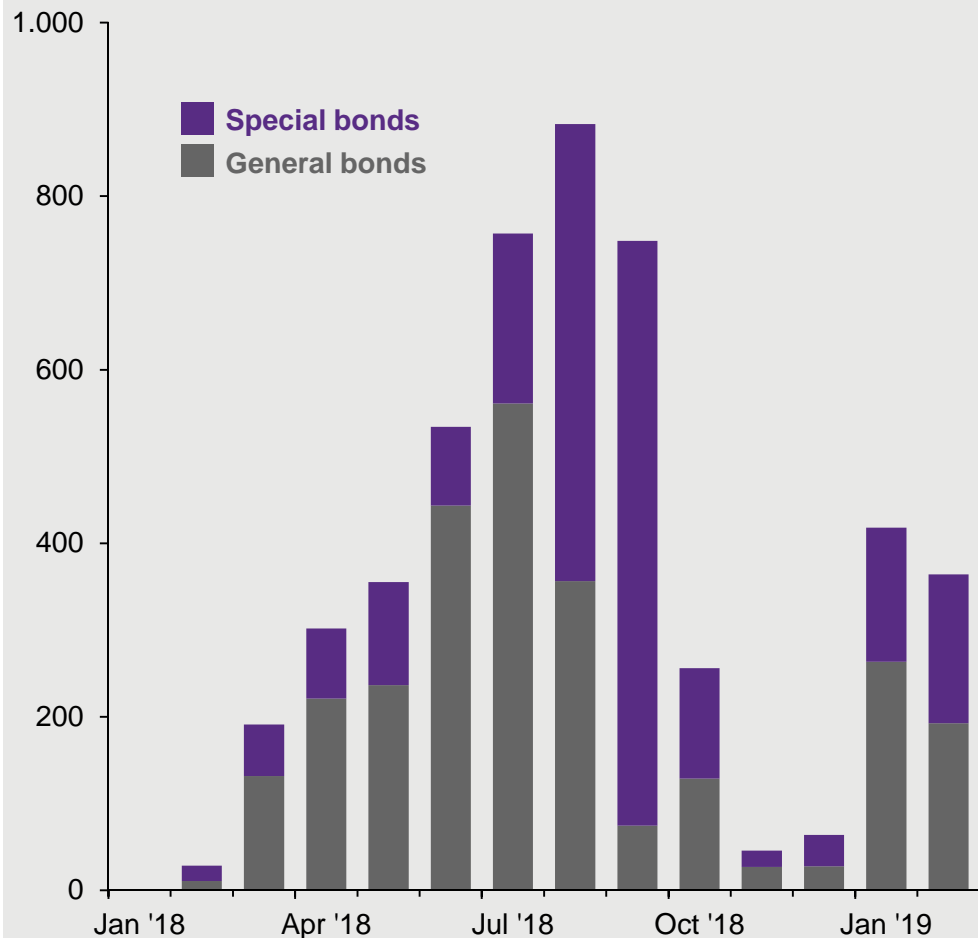
Share of global real GDP



Source: (Left) 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. (Right) Refinitiv Datastream, World Bank, 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 March 2019.

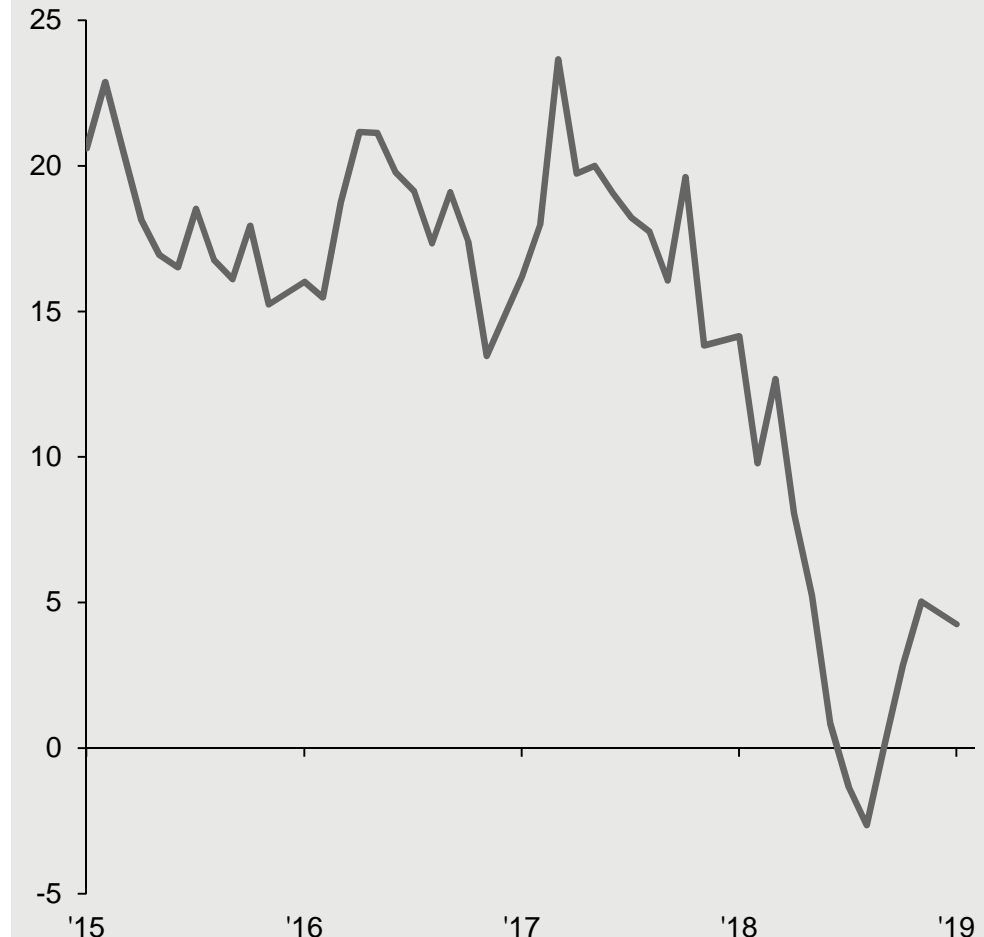
China local government bond issuance

RMB billions, monthly new issuance



China fixed asset investment: Infrastructure

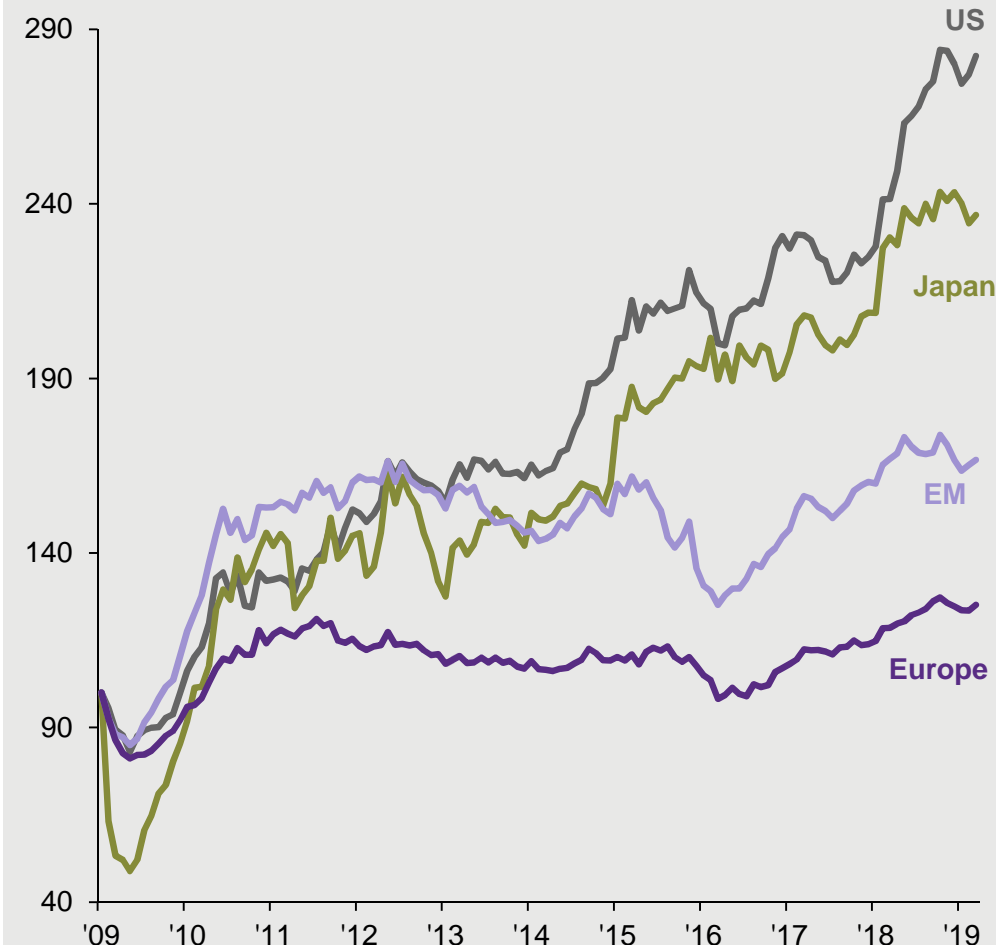
% change year on year, three-month moving average



Source: (Left) CEIC, China Central Depository & Clearing Co., Ltd, J.P. Morgan Asset Management. A general local government bond is issued to raise funds and offset any fiscal deficit so as to maintain the ordinary operations of local governments. It is funded by the future tax revenue of the local government. A special local government bond is issued to support the investment in a specific infrastructure or public project. It is funded by the future revenue from the project. (Right) Bloomberg, National Bureau of Statistics of China, 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 March 2019.

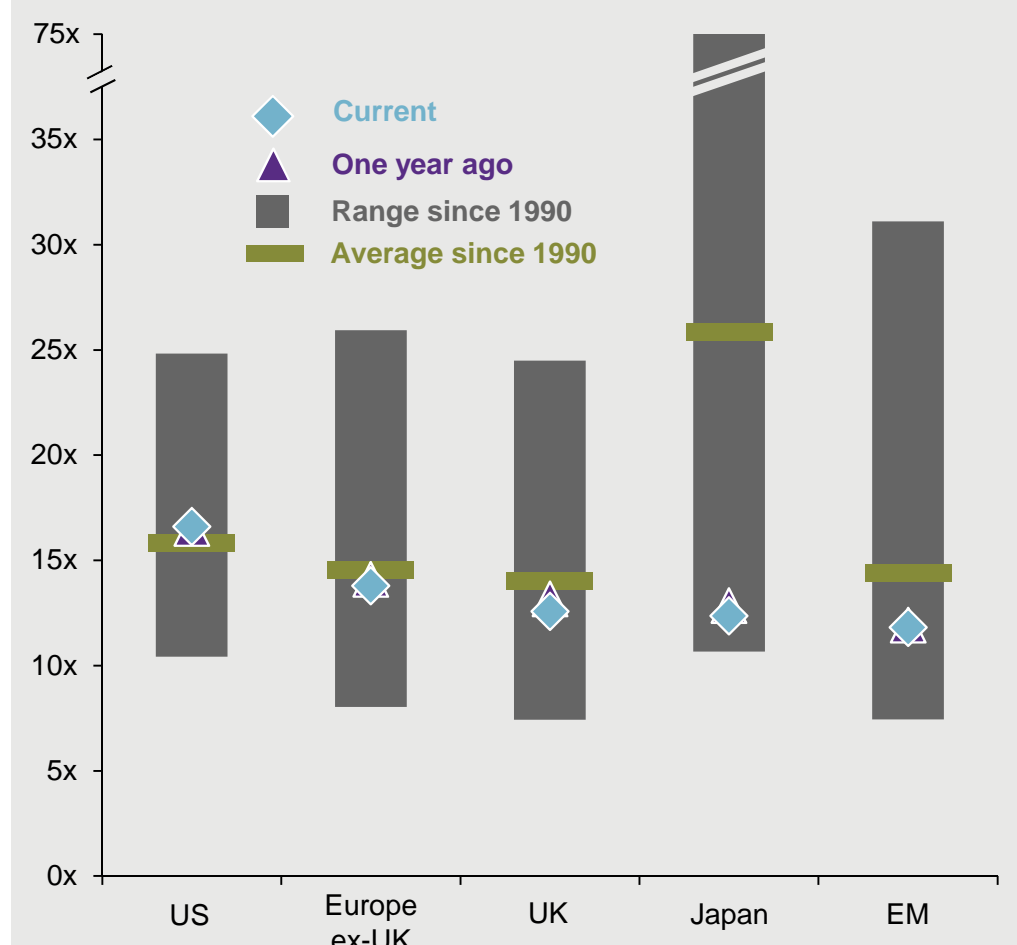
Global earnings per share

NTM EUR earnings per share estimates, rebased to 100 in Jan 2009



Global forward price-to-earnings ratios

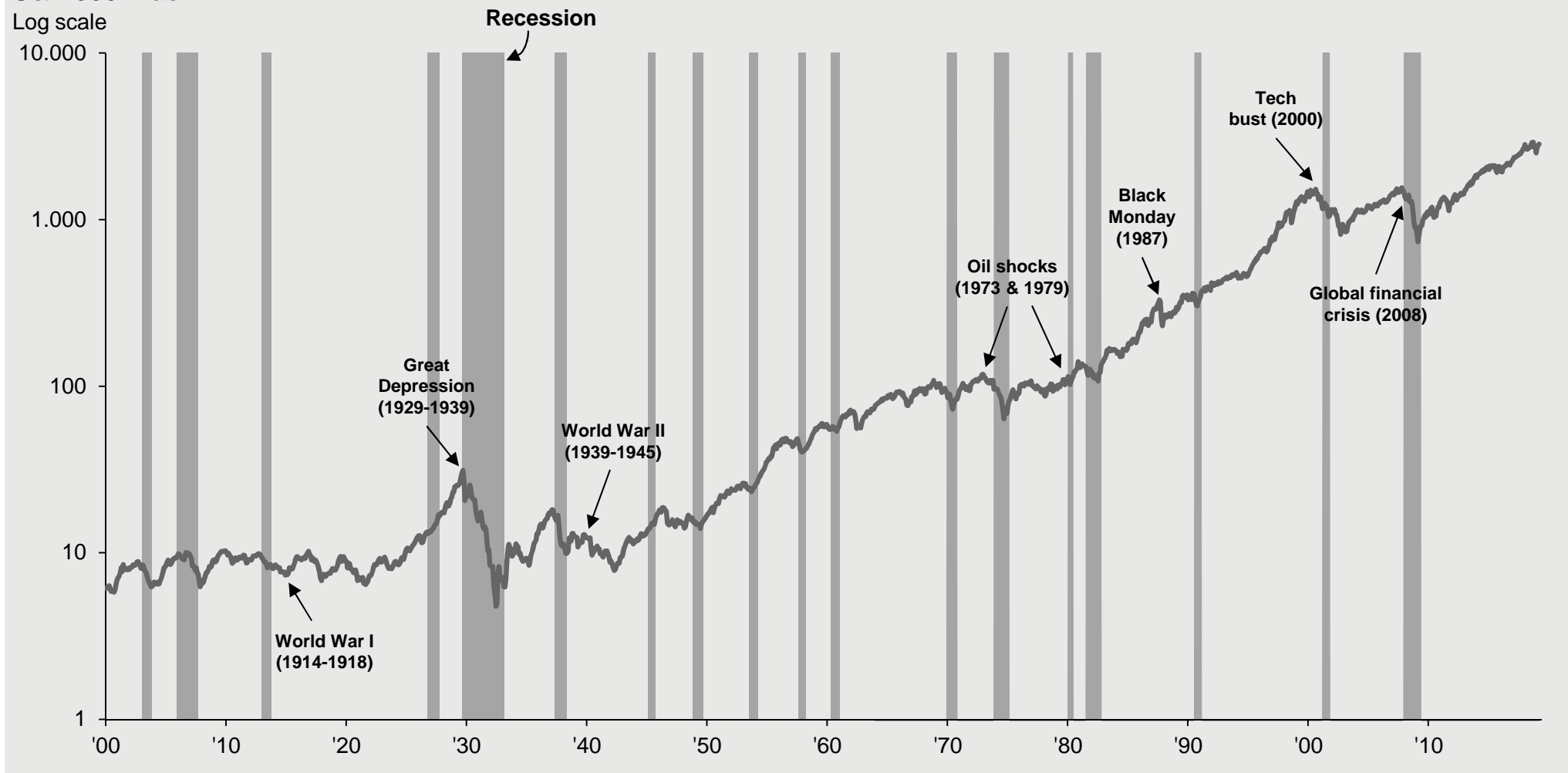
x, multiple



Source: (Left) IBES, MSCI, Refinitiv Datastream, Standard & Poor's, J.P. Morgan Asset Management. NTM is next 12 months. (Right) IBES, MSCI, Refinitiv Datastream, Standard & Poor's, J.P. Morgan Asset Management. Earnings and valuation charts use MSCI indices for all regions/countries, except for the US, which is the S&P 500. EM is emerging markets. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

S&P 500 Index

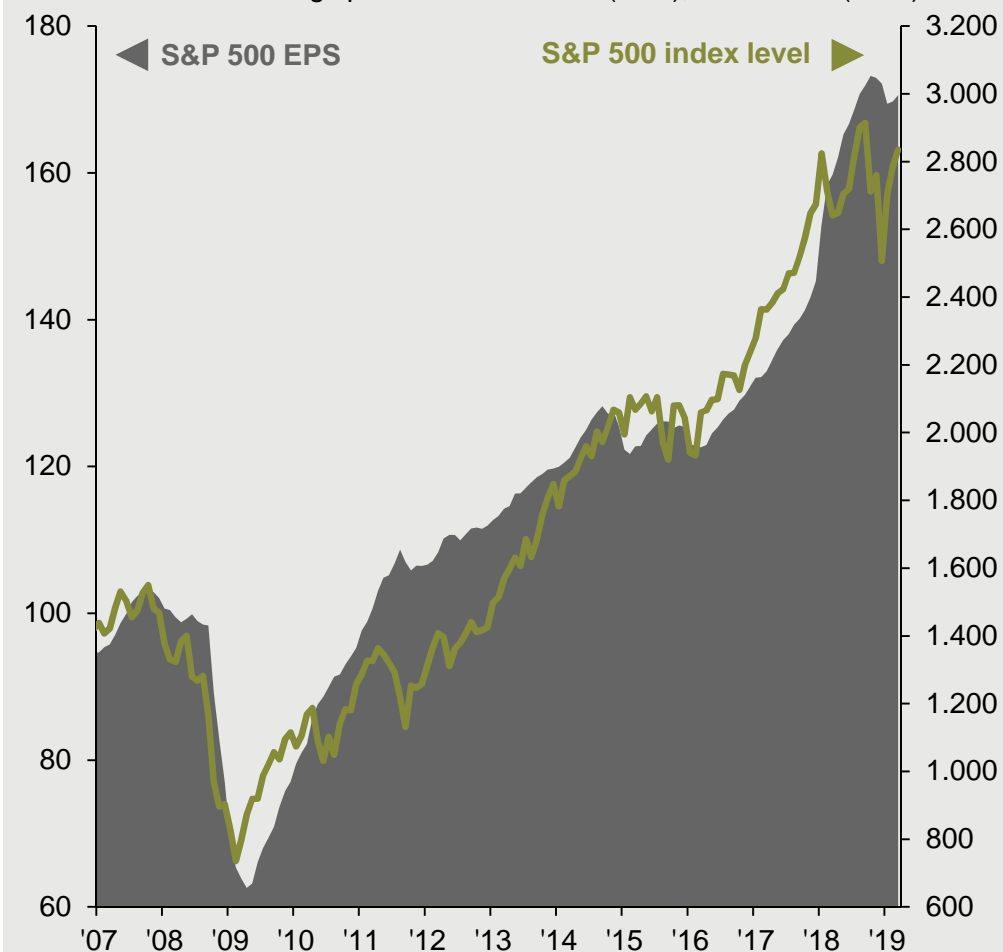
Log scale



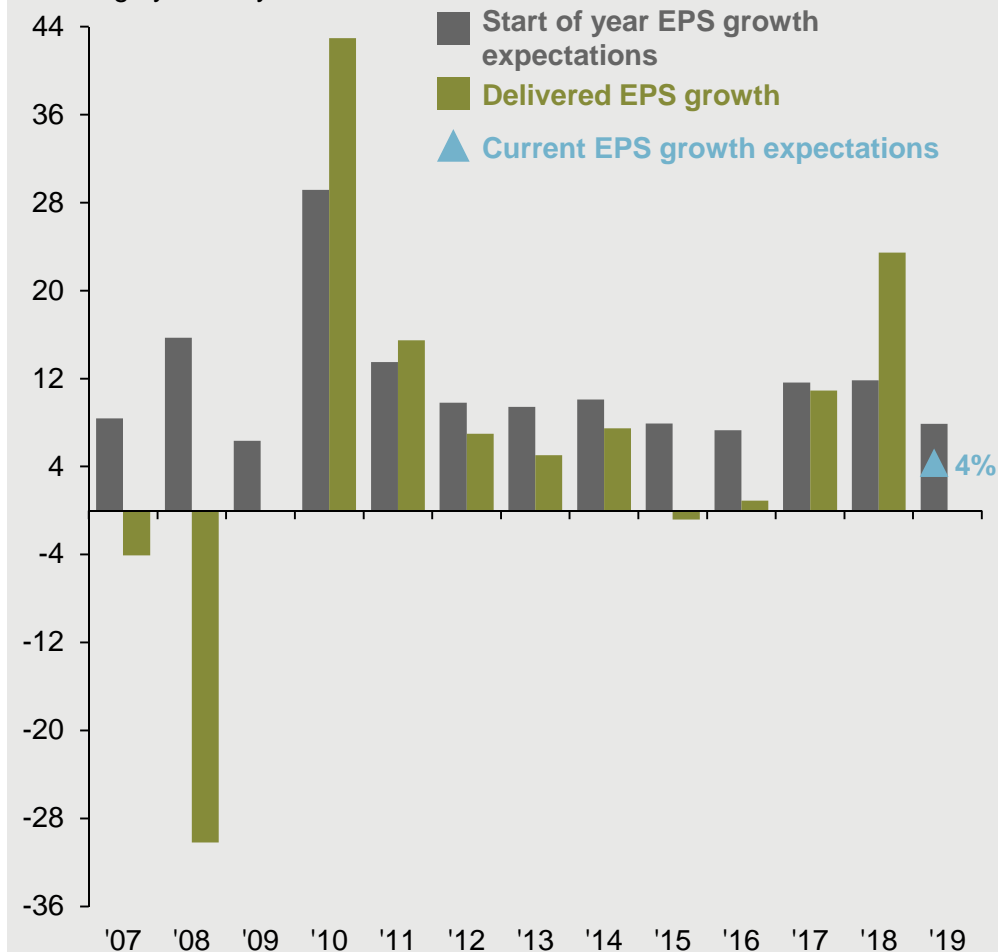
Source: Refinitiv Datastream, Robert Shiller, Standard & Poor's, J.P. Morgan Asset Management. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

S&P 500 earnings and performance

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

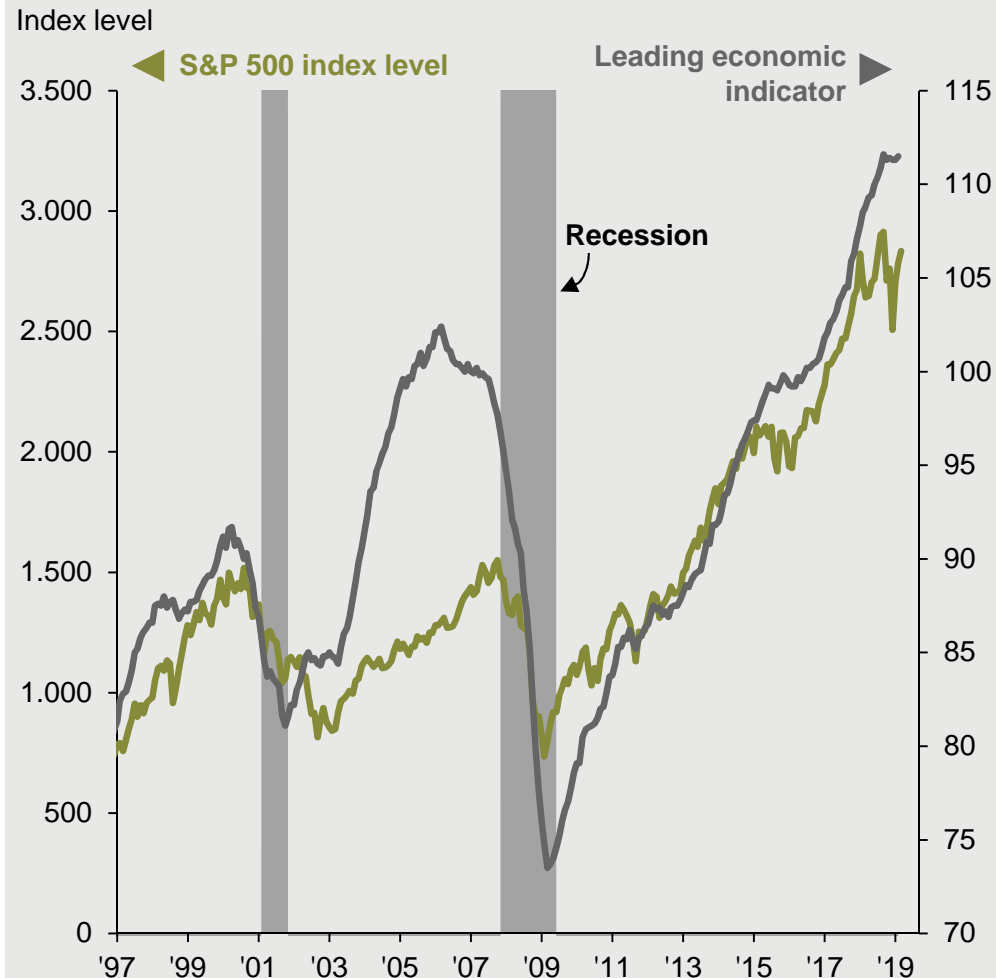
**S&P 500 earnings per share growth**

% change year on year



Source: (All charts) IBES, Refinitiv Datastream, Standard & Poor's, J.P. Morgan Asset Management. EPS is earnings per share. Expected earnings growth and delivered earnings growth are calculated using IBES consensus estimates for next 12 months' EPS and last 12 months' EPS, respectively. Year on year growth rates are calculated using year-end data. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Leading economic indicator vs. S&P 500 performance



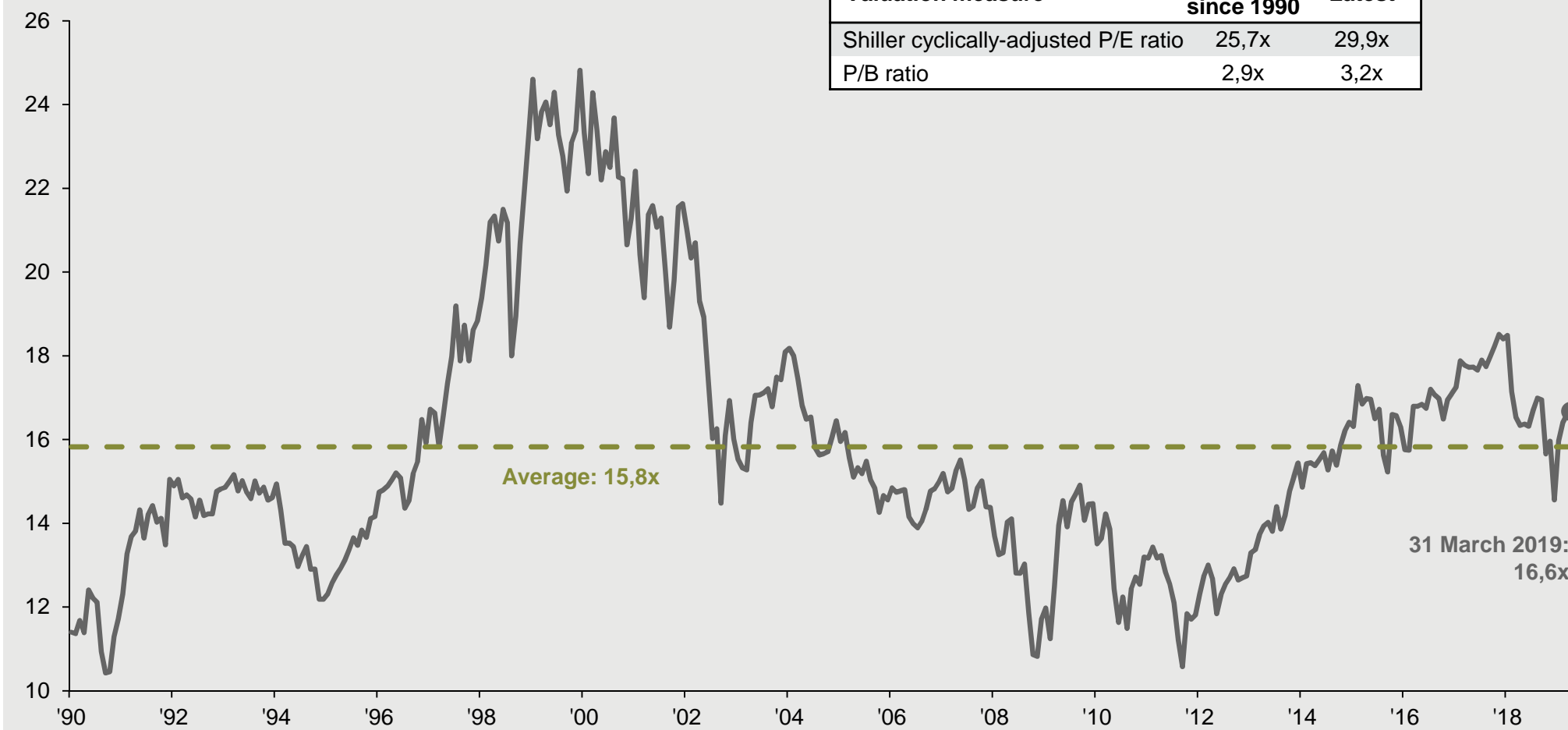
Initial jobless claims vs. S&P 500 performance



Source: (Left) Conference Board, Refinitiv Datastream, Standard & Poor's, J.P. Morgan Asset Management. (Right) BLS, Refinitiv Datastream, Standard & Poor's, 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 March 2019.

S&P 500 forward P/E ratio

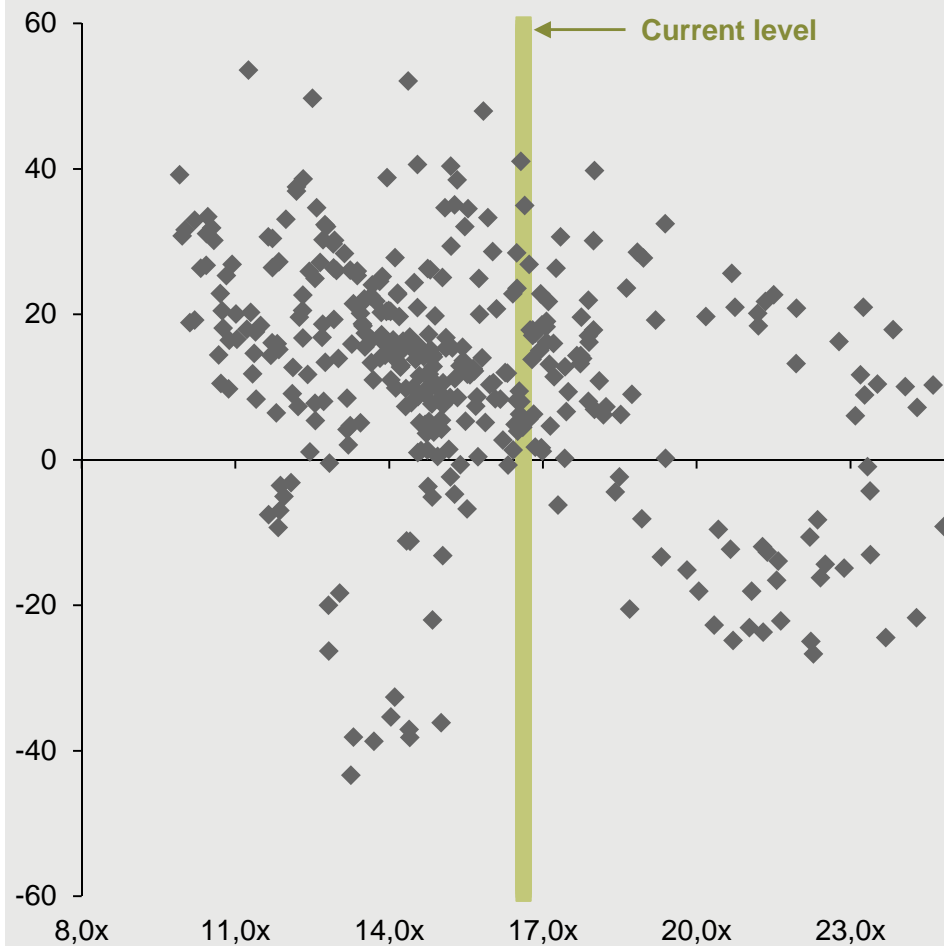
x, multiple



Source: FactSet, IBES, Refinitiv Datastream, Robert Shiller, Standard & Poor's, J.P. Morgan Asset Management. P/E ratio calculated using IBES earnings estimates for next 12 months. P/E data may differ from *Guide to the Markets – US*, which uses FactSet earnings estimates. Shiller cyclically-adjusted P/E is price-to-earnings ratio adjusted using trailing 10-year average inflation-adjusted earnings. P/B ratio is trailing price-to-book ratio. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

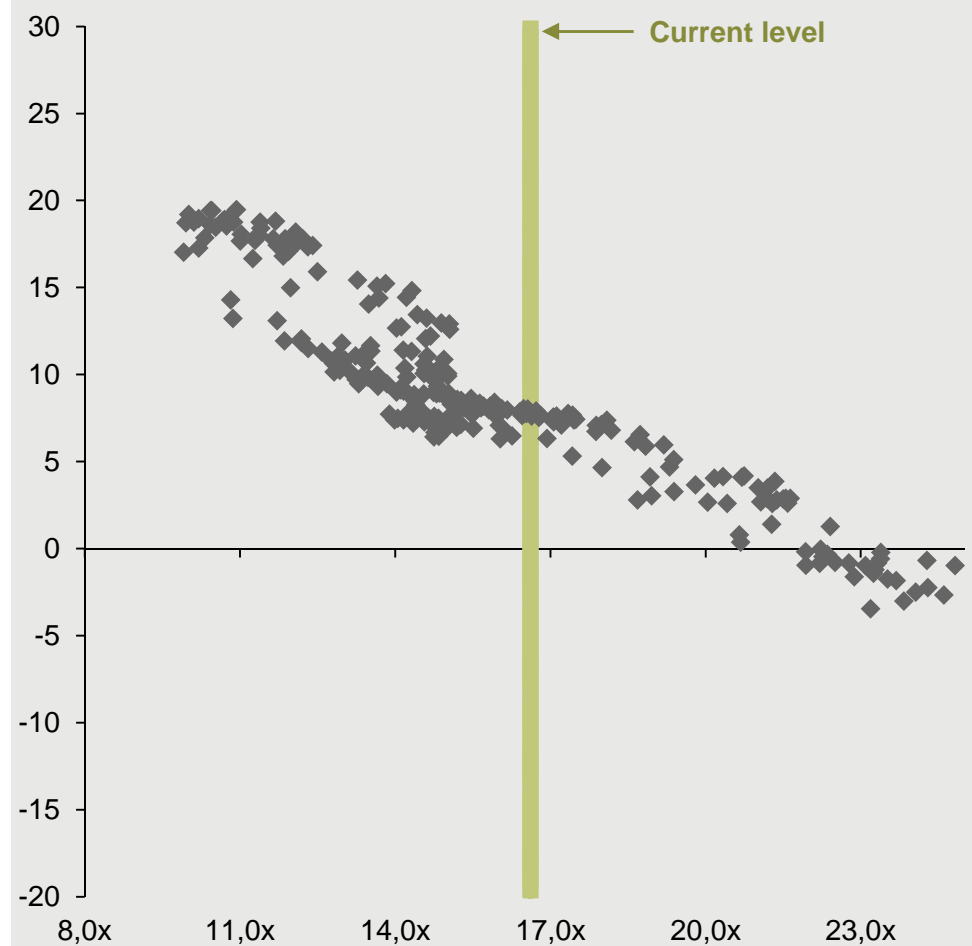
Forward P/E ratios and subsequent 1-year returns

%, annualised total return*



Forward P/E ratios and subsequent 10-year returns

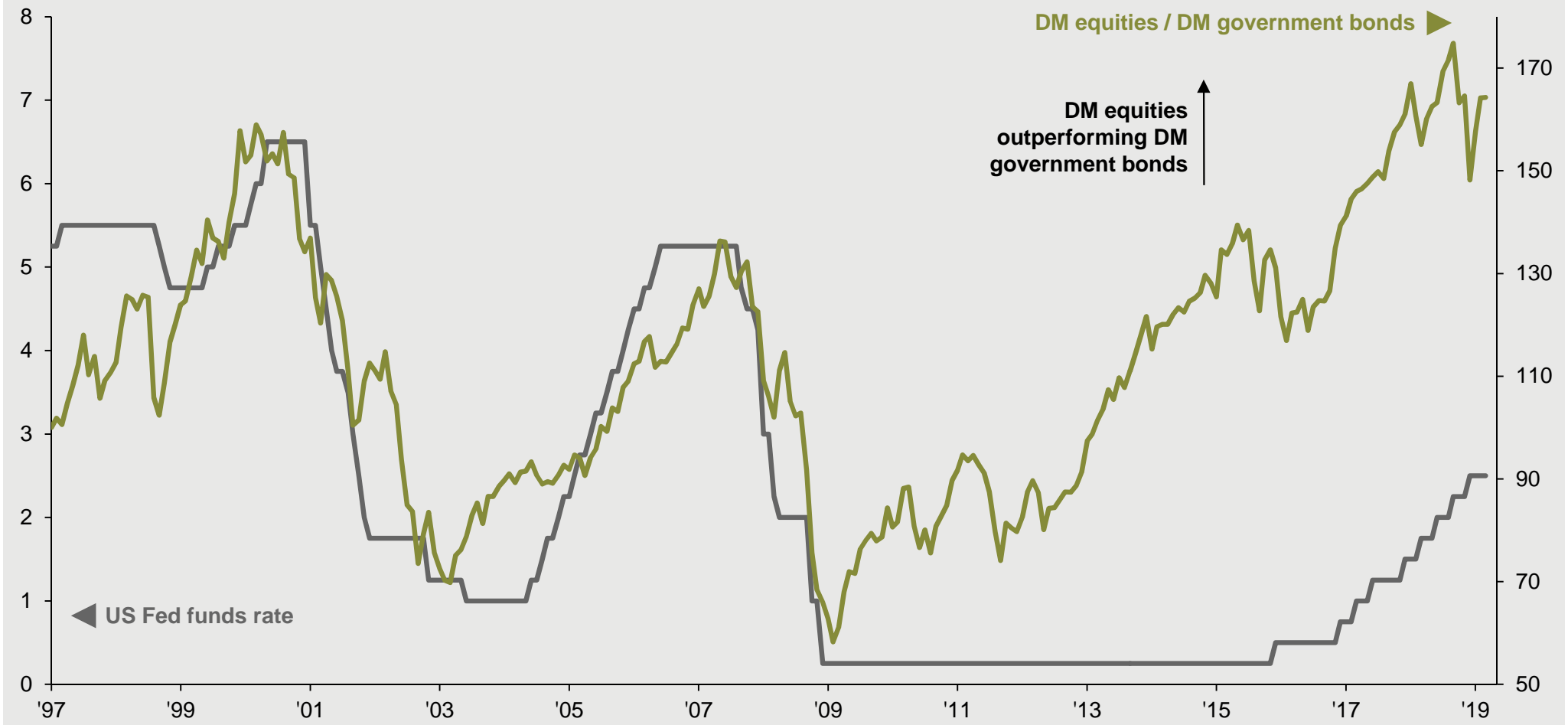
%, annualised total return*



Source: (All charts) IBES, Standard & Poor's, Refinitiv Datastream, J.P. Morgan Asset Management. *Dots represent monthly data points since 1988, which is earliest available. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

US Fed funds rate and equities/government bonds relative performance

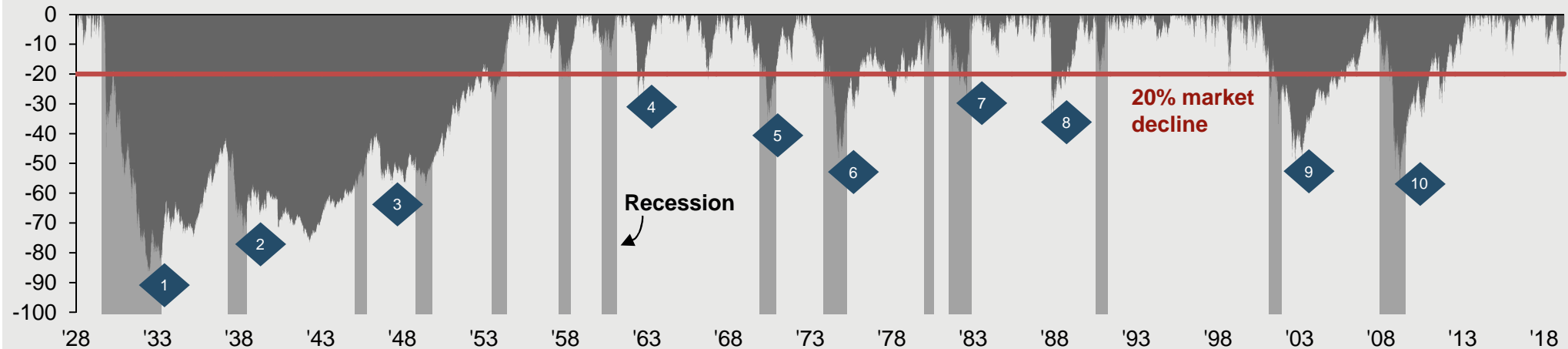
% (LHS); relative total return index level, rebased to 100 in 1997 (RHS)



Source: MSCI, Refinitiv Datastream, US Federal Reserve, J.P. Morgan Asset Management. Developed market (DM) equities: MSCI World and DM government bonds: BofAML/Merril Lynch Global Government Index. Index levels are total return in US dollars. Past performance is not a reliable indicator of current and future results.

Guide to the Markets - Europe. Data as of 31 March 2019.

S&P 500 declines from all-time highs, %



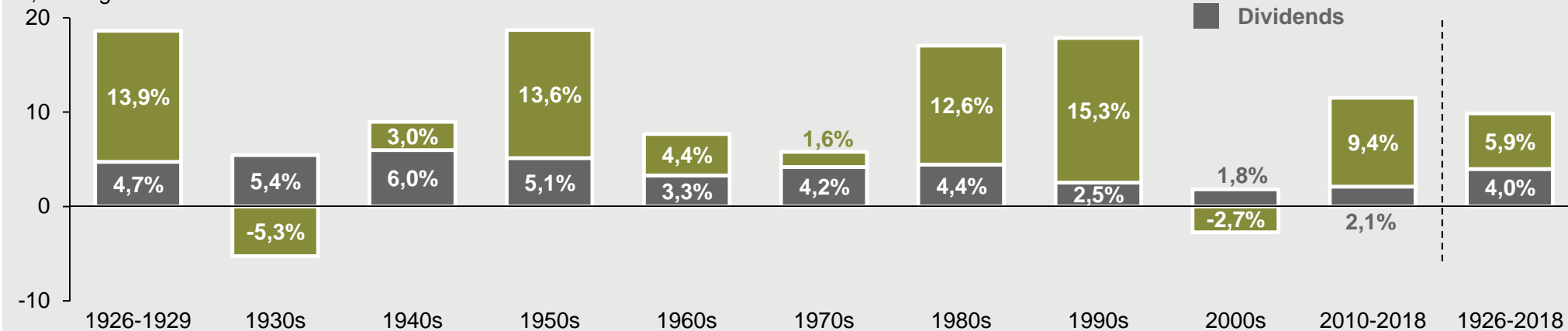
Characteristics of past bear and bull markets*

Market corrections	Bear markets			Macro environment	Bull markets			Return before peak	
	Market peak	Bear return	Duration (months)		Bull start date	Bull return	Duration (months)	12 months	24 months
1 Crash of 1929 – excessive leverage, irrational exuberance	Sep 1929	-86%	33	◆	-	-	-	-	-
2 1937 Fed Tightening – premature policy tightening	Mar 1937	-60%	63	◆	Jun 1932	324%	58	27%	119%
3 Post WWII crash – post-war demobilisation, recession fears	May 1946	-30%	37	◆	Apr 1942	158%	50	27%	57%
4 Flash crash of 1962 – flash crash, Cuban Missile Crisis	Dec 1961	-28%	7	◆	Jun 1949	436%	152	28%	23%
5 Tech crash of 1970 – economic overheating, civil unrest	Nov 1968	-36%	18	◆	Jun 1962	107%	78	15%	35%
6 Stagflation – OPEC oil embargo	Jan 1973	-48%	21	◆	May 1970	74%	32	16%	31%
7 Volcker Tightening – campaign against inflation	Nov 1980	-27%	21	◆	Oct 1974	126%	75	32%	48%
8 1987 crash – programme trading, overheating markets	Aug 1987	-34%	3	◆	Aug 1982	229%	61	36%	80%
9 Tech bubble – extreme valuations, “dot com” boom/bust	Mar 2000	-49%	31	◆	Dec 1987	582%	150	19%	39%
10 Global Financial Crisis – leverage/housing, Lehman collapse	Oct 2007	-57%	17	◆	Oct 2002	101%	61	16%	31%
Current cycle	-	-	-	-	Mar 2009	319%	120	-	-
MEDIAN	-	- 42%	21	-	-	158%	61	27%	39%

Source: Bloomberg, NBER, Robert Shiller, Standard & Poor's, J.P. Morgan Asset Management. *A bear market represents a 20% or more decline from the previous market high using a monthly frequency; a bull market represents a 20% increase from a market trough. Periods of “recession” are defined using US National Bureau of Economic Research (NBER) business cycle dates. Chart and table show price return. Median values are calculated excluding data from current cycle. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

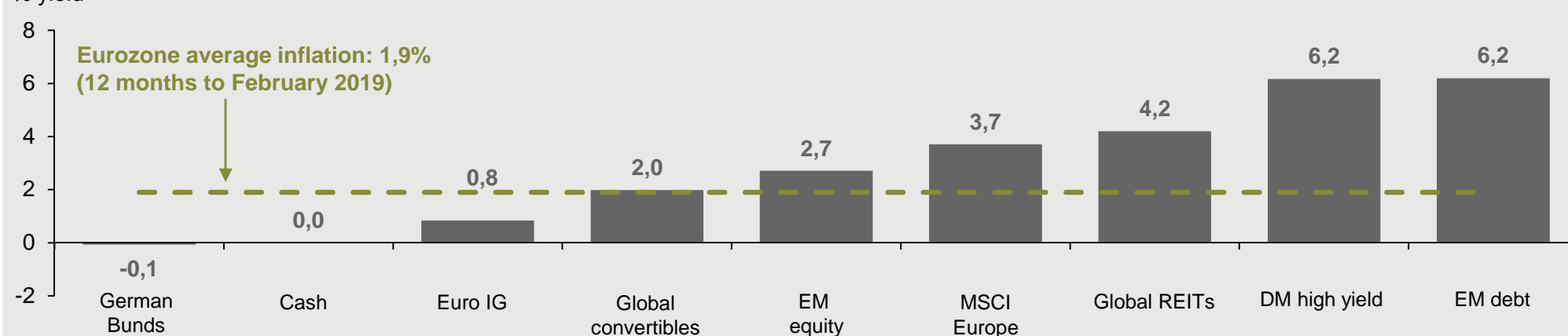
S&P 500 total return index: Dividends and capital appreciation

%, average annualised returns



Sources of income

% yield



Source: (Top) Ibbotson, Refinitiv Datastream, Standard & Poor's, J.P. Morgan Asset Management. (Bottom) Barclays, BofA/Merrill Lynch, FTSE, Refinitiv Datastream, J.P. Morgan Asset Management. Euro IG: Bloomberg Barclays Euro Aggregate Credit - Corporate; Global convertibles: Bloomberg Barclays Global Convertibles; EM equity: MSCI EM; Global REITs: FTSE NAREIT Index; DM high yield: BofA/Merrill Lynch Developed Markets High Yield Constrained; EM debt: J.P. Morgan EMBI Global. Yields for the bond indices are yield to maturity and dividend yields for the equity indices. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

S&P 500 Index

	Financials	Materials	Industrials	Cons. Discr.	Tech	Energy	Real Estate	Comm. Services*	Health Care	Cons. Staples	Utilities	S&P 500	
S&P 500 weight	12,7%	2,6%	9,5%	10,1%	21,2%	5,4%	3,1%	10,1%	14,6%	7,3%	3,3%	100%	Weights
Russell Growth weight	4,3%	1,8%	11,8%	15,1%	33,0%	0,7%	2,4%	12,1%	13,2%	5,7%	0,0%	100%	
Russell Value weight	21,7%	4,0%	7,8%	5,3%	9,8%	9,7%	5,2%	6,9%	15,3%	7,9%	6,4%	100%	
1Q 2019	8,6	10,3	17,2	15,7	19,9	16,4	17,5	14,0	6,6	12,0	10,8	13,6	Return
2018	-13,0	-14,7	-13,3	0,8	-0,3	-18,1	-2,2	-12,5	6,5	-8,4	4,1	-4,4	
Since market peak**	12,1	66,2	117,2	261,5	257,4	10,9	92,4	53,9	215,2	177,7	120,4	131,5	
Since market low***	512,0	296,0	496,9	736,8	648,8	103,0	613,3	194,1	408,1	289,4	285,7	417,3	β
Beta to S&P 500	1,30	1,31	1,22	1,14	1,10	1,12	0,99	0,96*	0,76	0,58	0,29	1,00	
Forward P/E ratio	11,3x	15,6x	15,6x	20,8x	18,5x	18,0x	19,3x	17,4x	15,7x	18,8x	18,5x	16,6x	P/E
Average since 1996	12,8x	13,9x	16,2x	17,8x	20,4x	17,5x	15,3x	18,2x*	17,6x	17,3x	14,1x	16,0x	
Trailing P/E ratio	12,5x	15,7x	17,2x	22,0x	18,6x	17,0x	19,2x	18,1x	16,6x	18,9x	18,8x	17,1x	
Average since 1996	15,4x	16,6x	18,0x	20,3x	23,8x	21,1x	16,4x	20,0x*	19,5x	18,7x	14,7x	17,8x	Div
Dividend yield	2,4%	2,3%	2,1%	1,4%	1,6%	3,5%	3,3%	1,5%	1,8%	3,1%	3,4%	2,1%	
Average since 1996	2,3%	2,6%	2,1%	1,5%	0,9%	2,4%	4,4%	1,7%*	1,8%	2,6%	4,1%	2,0%	

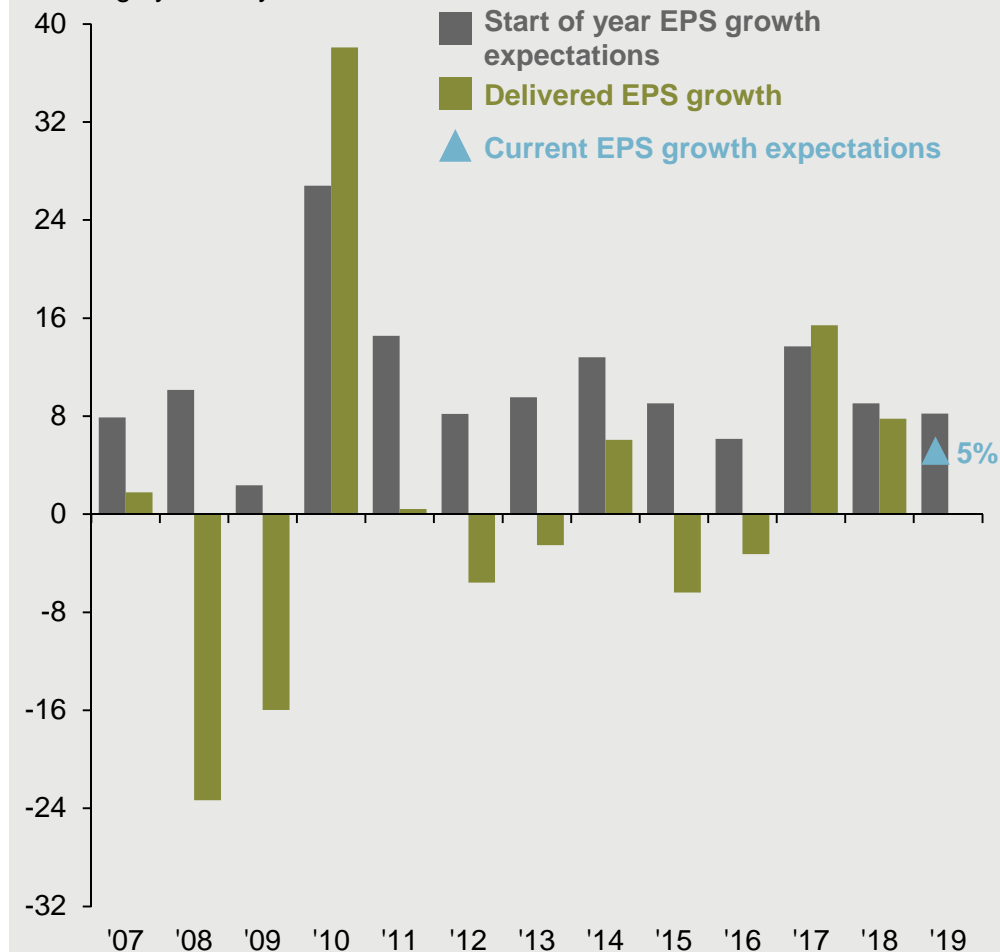
Source: FactSet, Russell Investment Group, Standard & Poor's, J.P. Morgan Asset Management. All calculations are cumulative total return in USD, not annualised, including dividends for the stated period. *Communication Services (formerly Telecom) averages are based on five years of backtested data by JPMAM. ***"Since market peak" represents period 9 October 2007 to end of last quarter. ****"Since market low" represents period 9 March 2009 to end of last quarter. Forward P/E ratio is a bottom-up calculation based on the most recent S&P 500 Index price, divided by consensus estimates for earnings in the next 12 months (NTM), and is provided by FactSet Market Aggregates. Trailing P/E ratios are bottom-up values defined as month-end price divided by the last 12 months of available reported earnings from brokers. Dividend yield is calculated as the next 12-month consensus dividend divided by most recent price. Averages are 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 March 2019.

MSCI Europe earnings and performance

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

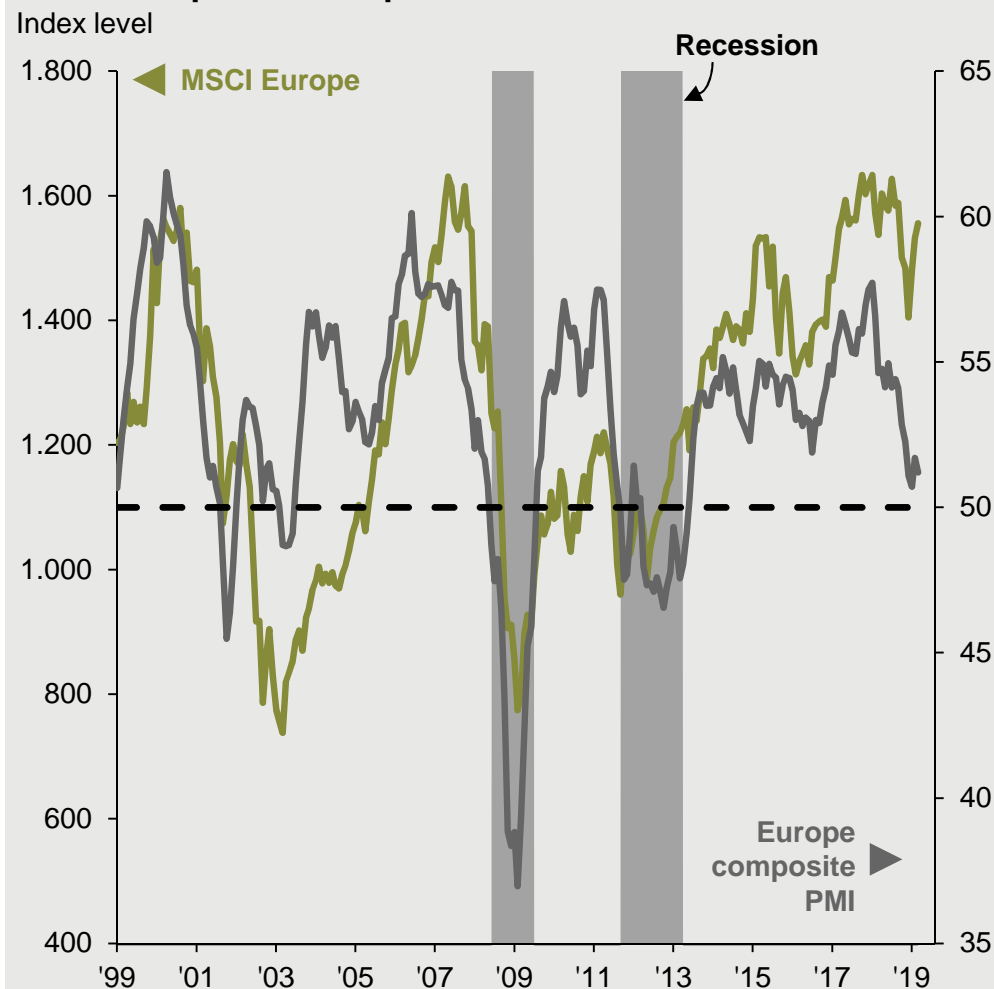
**MSCI Europe earnings per share growth**

% change year on year



Source: (All charts) IBES, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. EPS is earnings per share. Expected earnings growth and delivered earnings growth are calculated using IBES consensus estimates for next 12 months' EPS and last 12 months' EPS, respectively. Year on year growth rates are calculated using year-end data. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

MSCI Europe and composite PMI



MSCI Europe and consumer confidence



Source: (Left) Markit, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. The composite Purchasing Managers' Index (PMI) assesses the economic health of the manufacturing and services sectors by surveying output and employment intentions. Dashed line at 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. (Right) European Commission, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Light grey columns indicate recession. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

MSCI Europe vs. the euro

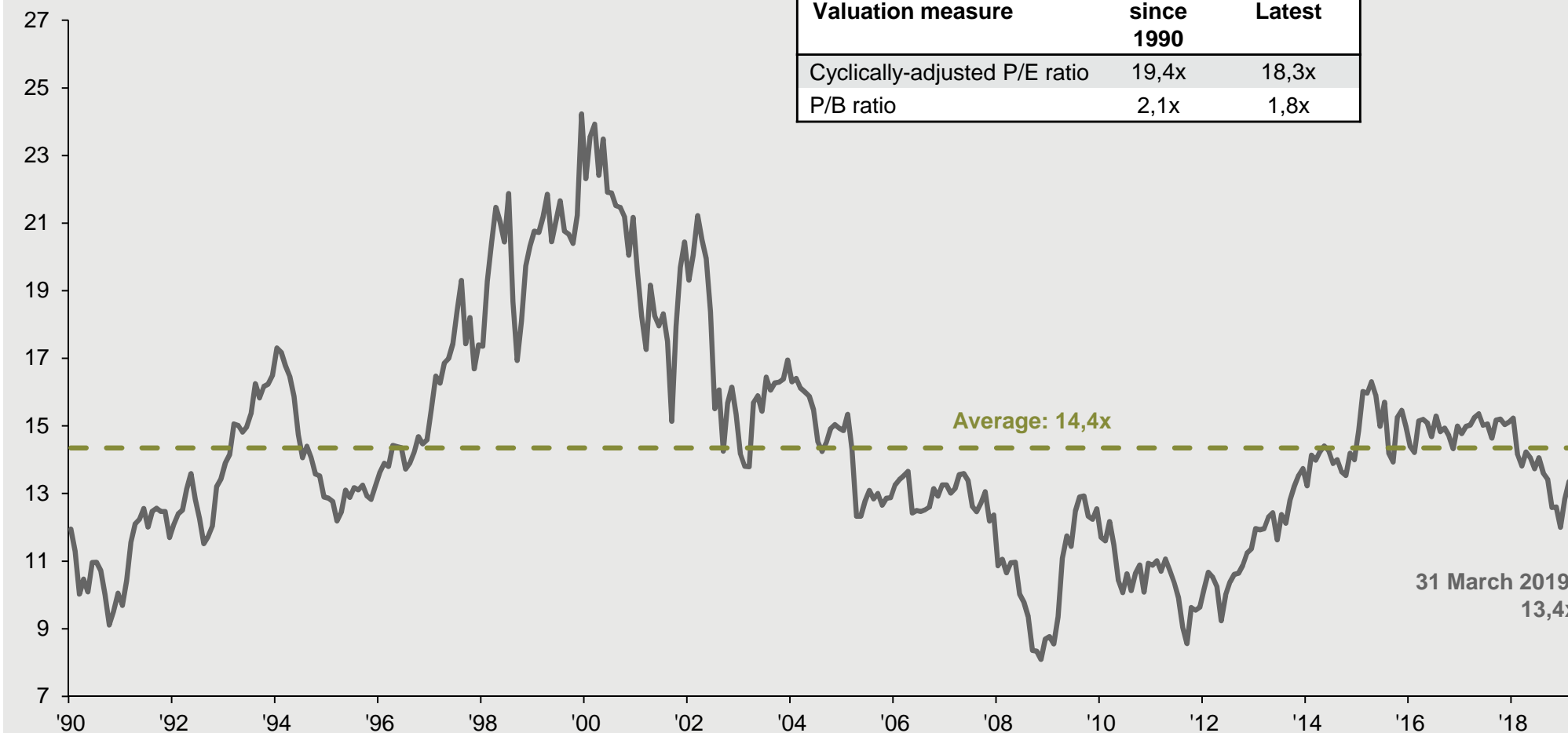
Index level (LHS); US dollars per euro (RHS)



Source: MSCI, 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 March 2019.

MSCI Europe forward P/E ratio

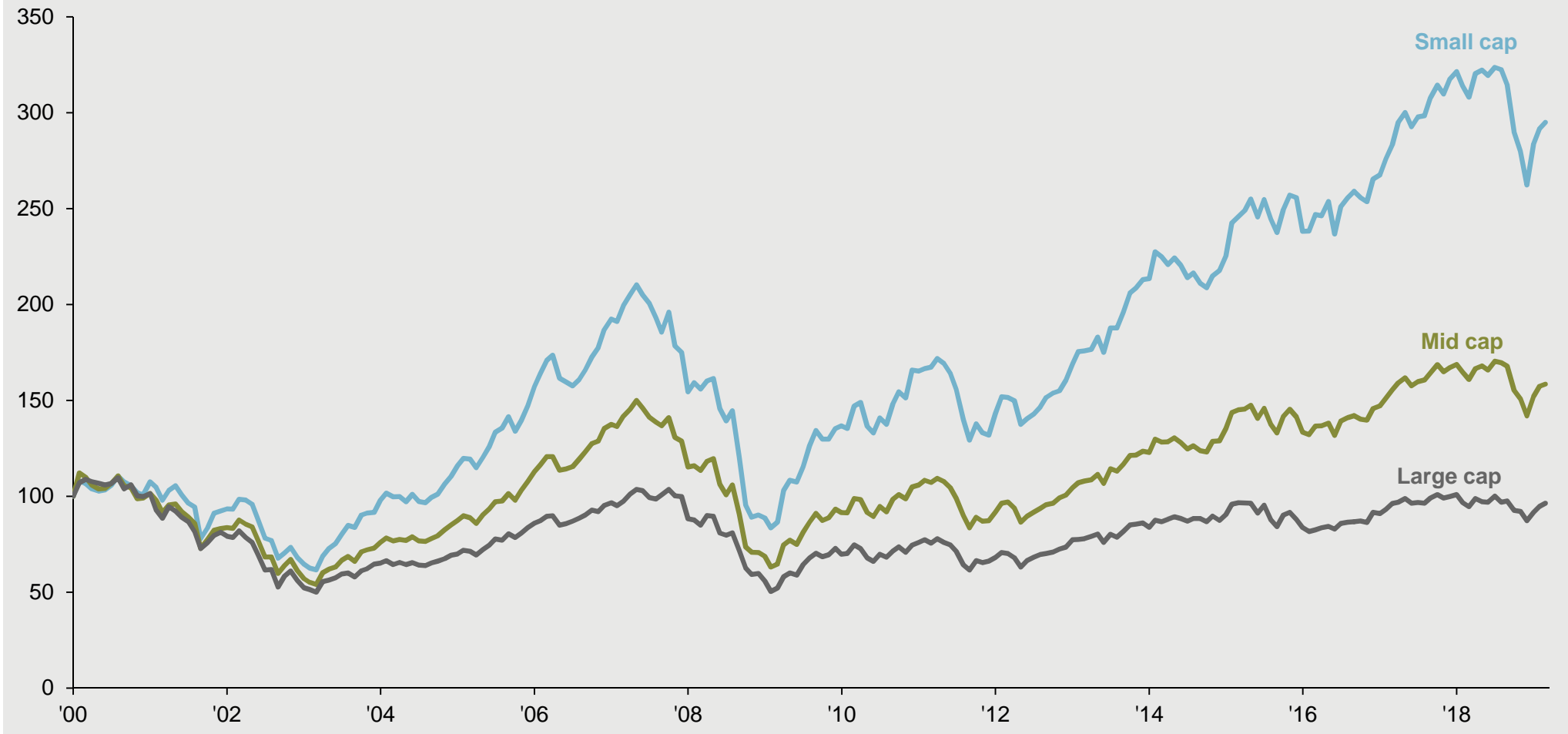
x, multiple



Source: FactSet, IBES, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. P/E ratio calculated using IBES earnings estimates for next 12 months. Cyclically-adjusted P/E is price-to-earnings ratio adjusted using trailing 10-year average inflation-adjusted earnings. P/B ratio is trailing price-to-book ratio. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

MSCI Europe large, mid and small cap performance

Index level, rebased to 100 in 2000



Source: MSCI, 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 March 2019.

MSCI Europe												
	Financials*	Health Care	Cons. Staples	Cons. Disc.	Industrials	Materials	Energy	Comm. Services**	Utilities	Tech	MSCI Europe	
MSCI Europe weight	18,4%	13,0%	14,7%	9,2%	12,9%	7,5%	8,2%	4,9%	4,3%	5,4%	100%	Weights
Growth weight	4,0%	16,0%	25,0%	12,0%	20,4%	6,8%	2,0%	2,6%	1,1%	9,6%	100%	
Value weight	33,4%	9,9%	3,8%	6,3%	5,0%	8,3%	14,8%	7,4%	7,6%	1,0%	100%	
1Q 2019	7,9	12,6	15,5	13,4	13,4	14,3	10,2	-0,1	10,9	16,1	11,7	Return
2018	-18,6	-0,7	-8,9	-13,7	-12,5	-13,4	0,8	-8,4	4,0	-6,6	-10,0	
Since market peak***	-29,4	138,2	162,3	91,6	53,2	34,8	59,7	41,5	25,0	56,5	43,1	
Since market low****	211,6	247,4	276,8	330,0	280,7	216,2	131,9	104,0	110,9	295,9	212,0	
Beta to Europe	1,32	0,71	0,64	1,07	1,10	1,25	0,98	0,82	0,84	0,99	1,00	β
Forward P/E ratio	9,5x	16,2x	18,5x	11,7x	15,3x	13,0x	11,5x	12,9x	14,4x	19,2x	13,4x	P/E
Average since 1995	12,0x	17,6x	17,1x	14,8x	14,8x	12,9x	13,3x	13,8x	13,9x	17,2x	14,6x	
Trailing P/E ratio	10,6x	17,0x	19,9x	12,9x	17,2x	13,2x	12,4x	14,3x	16,0x	22,2x	14,6x	
Average since 1995	13,7x	19,3x	18,5x	17,6x	17,2x	14,4x	14,3x	14,2x	14,5x	20,1x	16,5x	
Dividend yield	5,2%	3,0%	2,9%	3,1%	2,7%	3,5%	5,4%	5,6%	4,8%	1,5%	3,7%	Div
Average since 1995	3,6%	2,5%	2,6%	2,6%	2,7%	3,0%	4,0%	4,0%	4,5%	1,7%	3,1%	

Source: MSCI, Refinitiv Datastream, J.P Morgan Asset Management. All calculations are total return in local currency, not annualised. Technology and Communication Services have forward and trailing P/E averages since 2005 due to data availability. *Financials no longer includes real estate, which is now a separate section making up 2,5% of the MSCI Europe Value index and 0,6% of the MSCI Europe growth index. It is not included in the chart due to a lack of historical data for the sector. **Telecommunication Services was renamed as Communication Services in December 2018 and reconstituted along with Technology and Consumer Discretionary sectors. ***"Since market peak" represents period 9 October 2007 to end of latest quarter. ****"Since market low" represents period 9 March 2009 to end of latest quarter. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

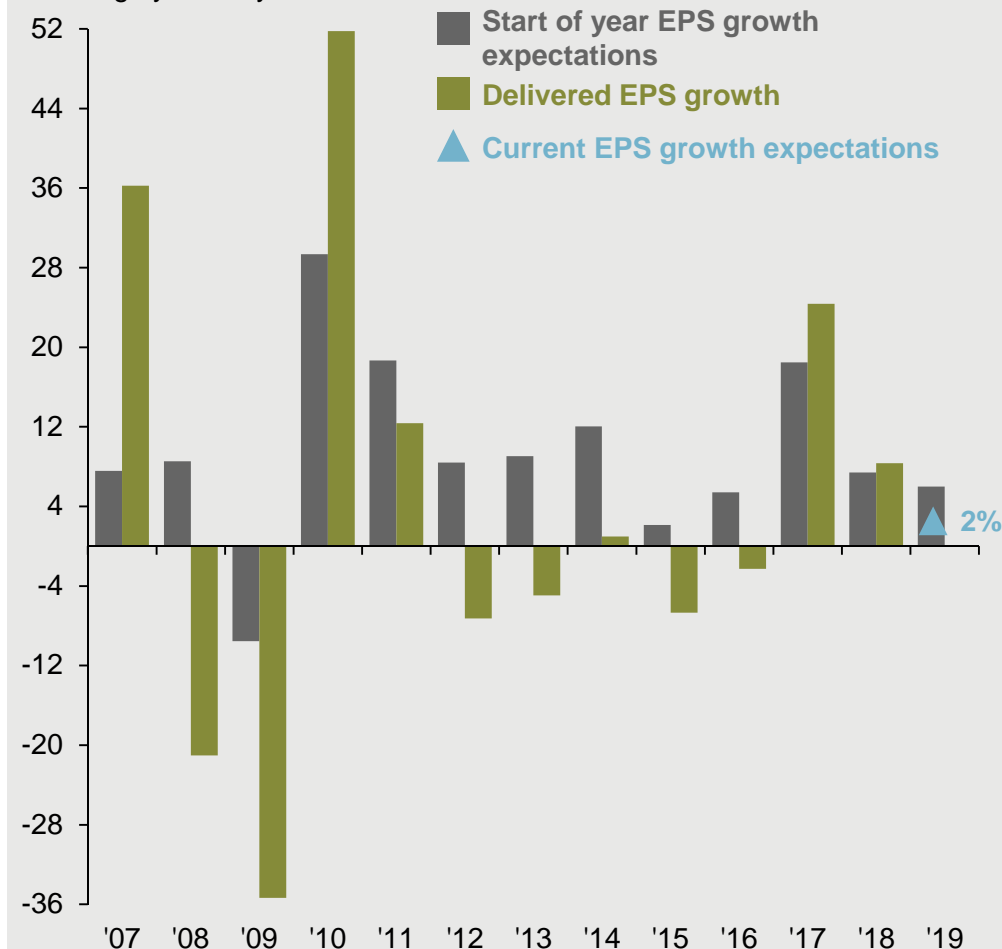
FTSE All-Share earnings and performance

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



FTSE All-Share earnings per share growth

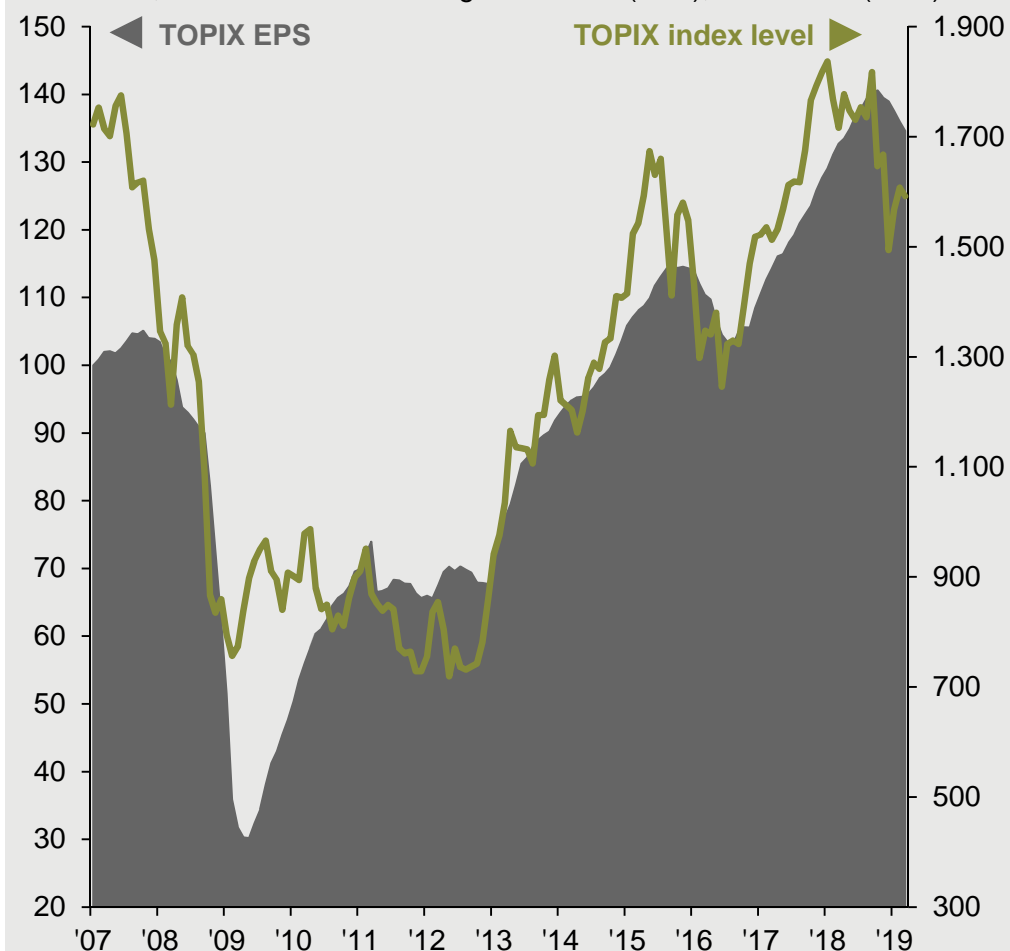
% change year on year



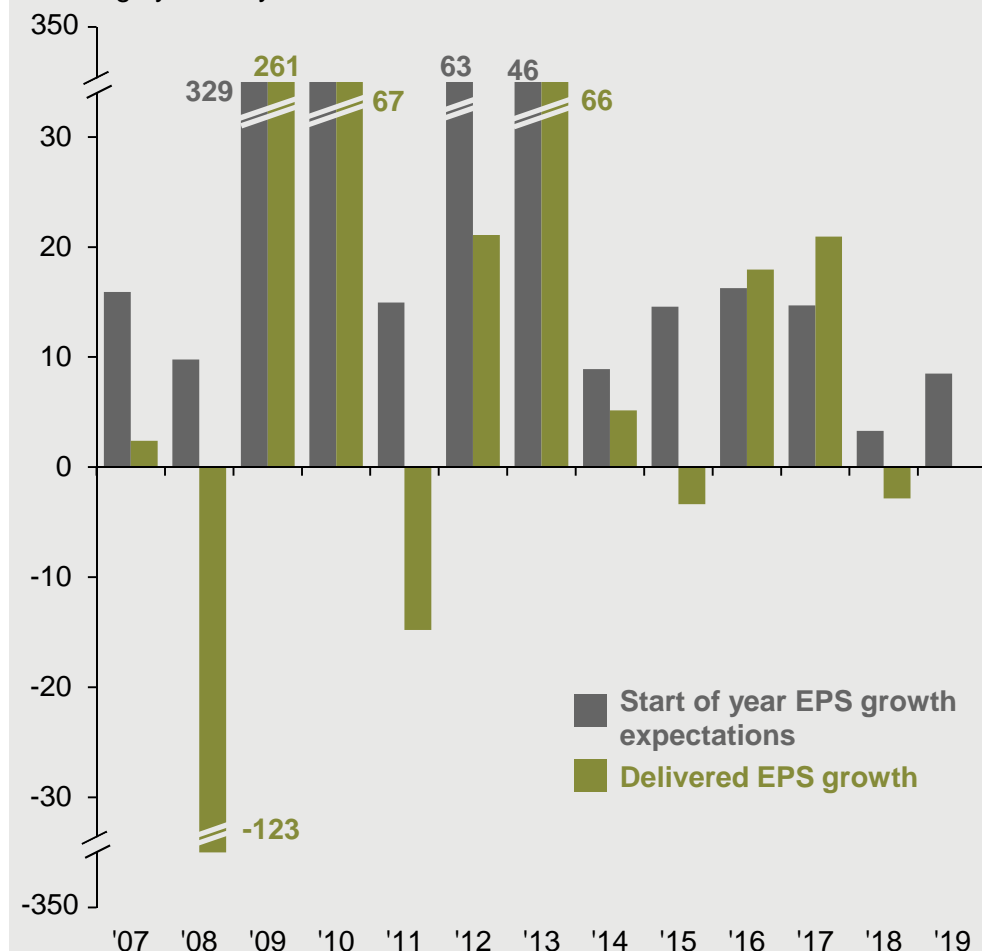
Source: (All charts) FTSE, IBES, Refinitiv Datastream, J.P. Morgan Asset Management. EPS is earnings per share. Expected earnings growth and delivered earnings growth are calculated using IBES consensus estimates for next 12 months' EPS and last 12 months' EPS, respectively. Year on year growth rates are calculated using year-end data. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

TOPIX earnings and performance

Index level, next 12 months' earnings estimates (LHS); index level (RHS)

**TOPIX earnings per share growth**

% change year on year



Source: (All charts) IBES, Refinitiv Datastream, TOPIX, J.P. Morgan Asset Management. EPS is earnings per share. Expected earnings growth and delivered earnings growth are calculated using IBES consensus estimates for next 12 months' EPS and last 12 months' EPS, respectively. Year on year growth rates are calculated using year-end data, which is on 31 March for Japan, with the calendar year continuing until 31 March of the following year. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

TOPIX vs. the yen

Index level (LHS); Japanese yen per US dollar (RHS)

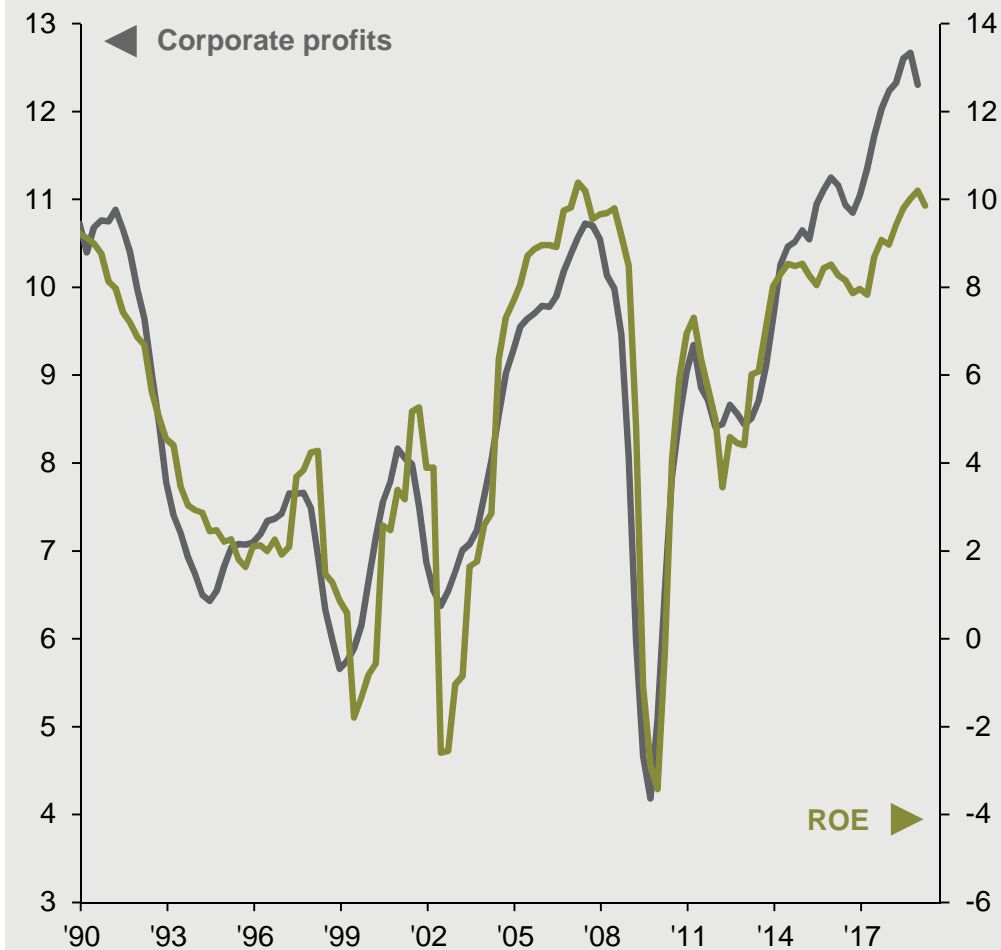


Source: Refinitiv Datastream, TOPIX, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results.

Guide to the Markets - Europe. Data as of 31 March 2019.

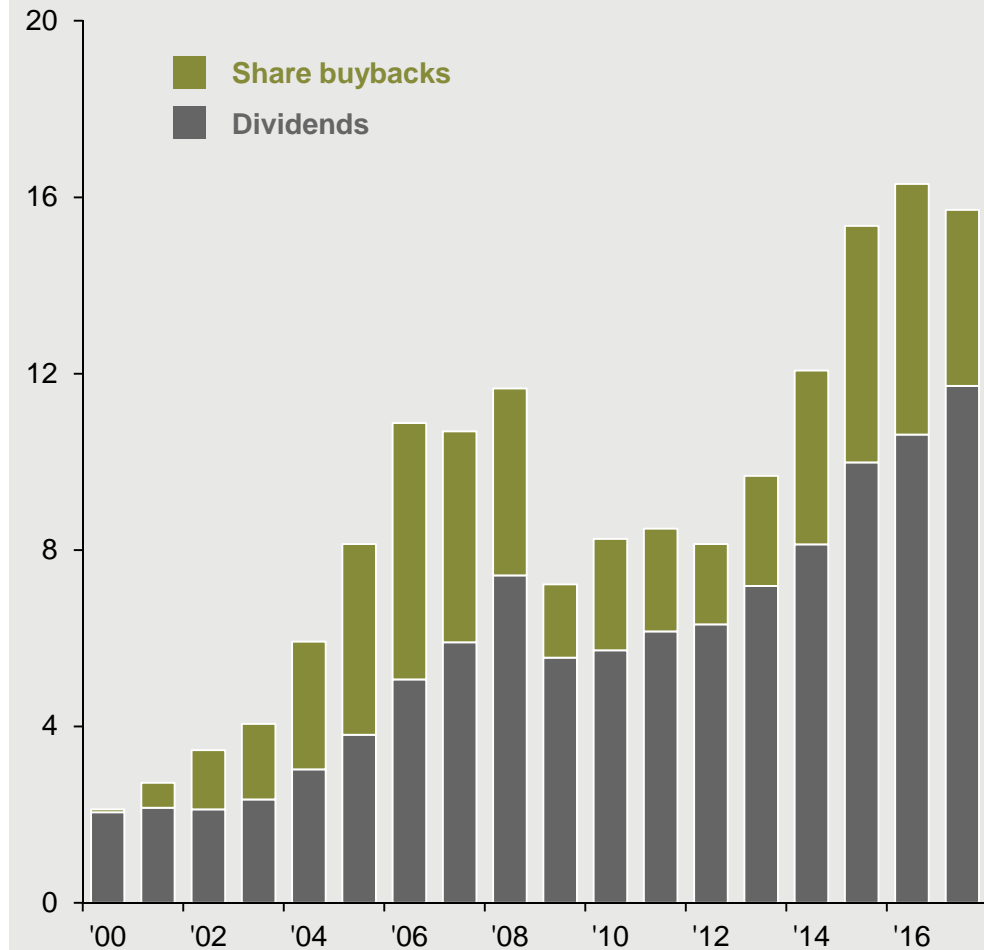
Japan corporate profits and return on equity

% of GDP (LHS); % (RHS)



TOPIX companies' dividend pay-out and share buybacks

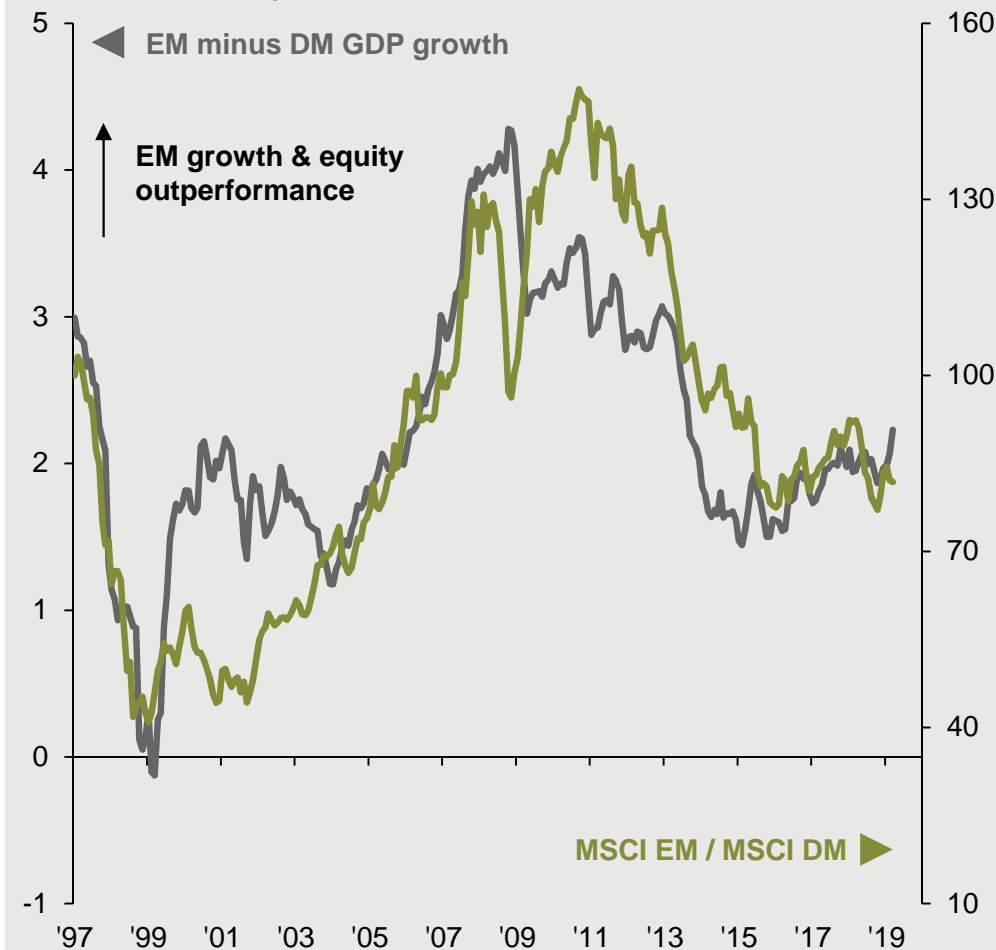
Yen trillions



Source: (Left) Bloomberg, Japan Ministry of Finance, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Corporate profits are operating profits taken from the Japan Ministry of Finance's financial statements and excludes financials and insurance companies. ROE is return on equity (net income as a percentage of shareholders' equity) for MSCI Japan. (Right) Bloomberg, 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 March 2019.

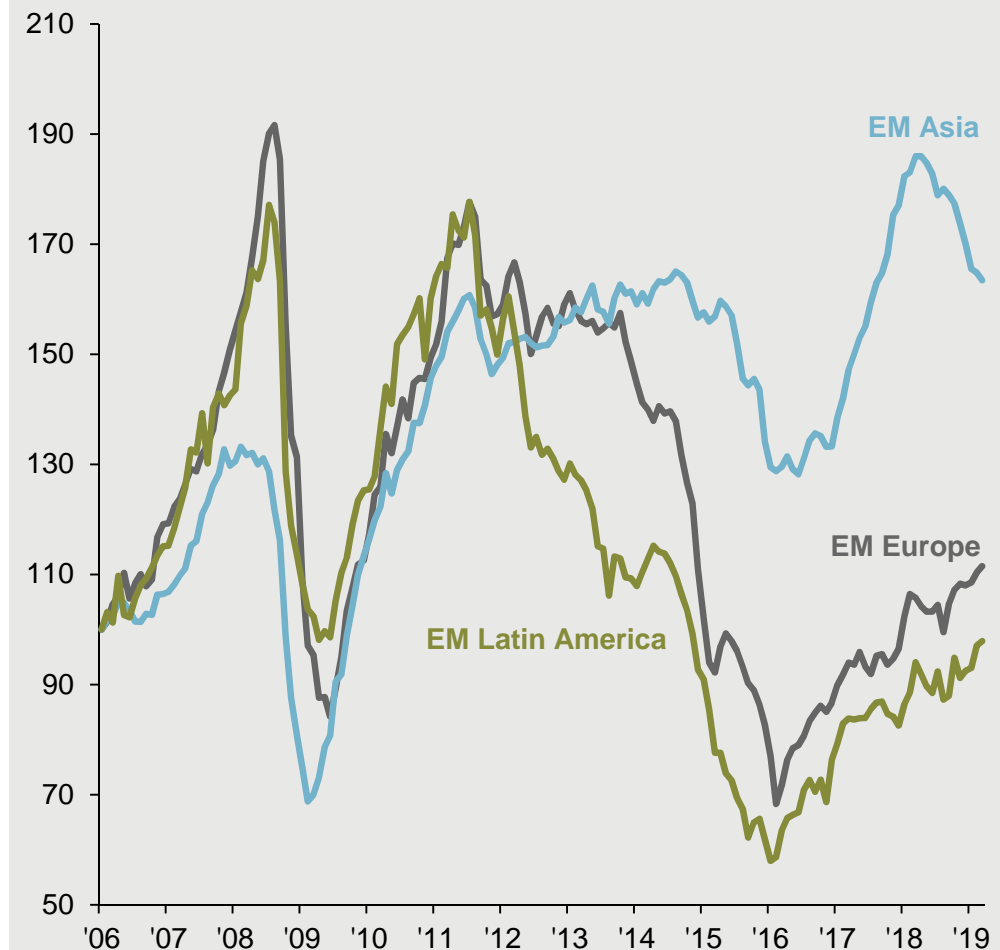
EM vs. DM growth and equity performance

%, next 12 months' growth estimates (LHS); index level (RHS)



EM earnings expectations by region

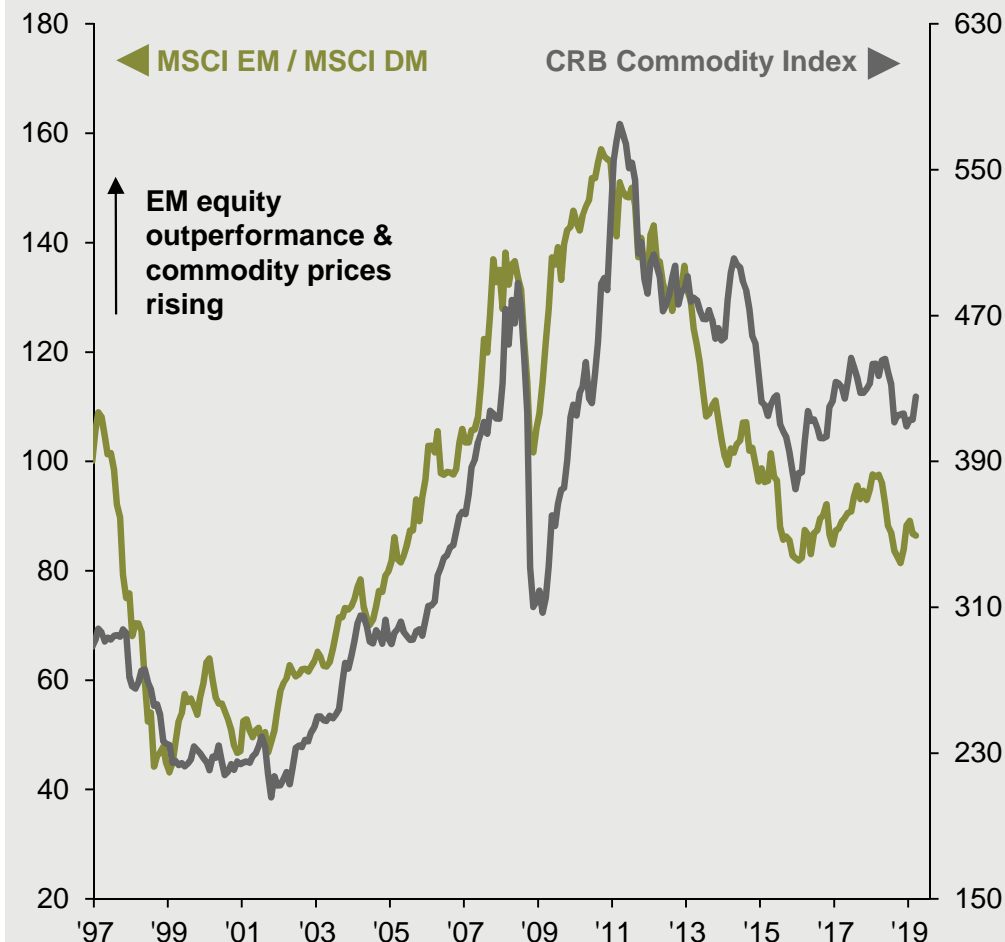
Consensus EPS for next 12 months, US dollar, rebased to 100 in 2006



Source: (Left) Consensus Economics, Refinitiv Datastream, J.P. Morgan Asset Management. "EM – DM GDP growth" is consensus estimates for emerging markets growth in the next 12 months minus consensus estimates for developed markets growth in the next 12 months, provided by Consensus Economics. Index level is a relative index level, in USD, rebased to 100 in 1997. (Right) IBES, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. EPS is earnings per share. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

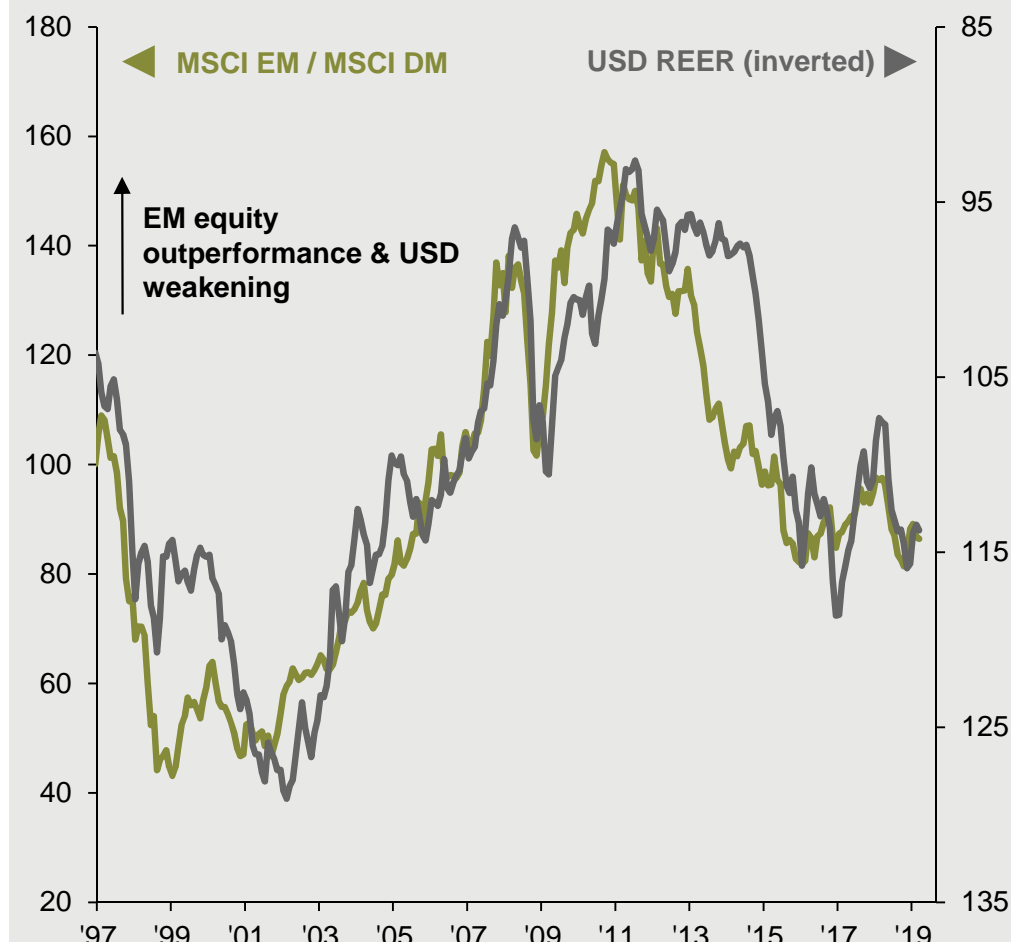
EM equity relative performance and commodities

Relative index level rebased to 100 in 1997 (LHS); index level (RHS)



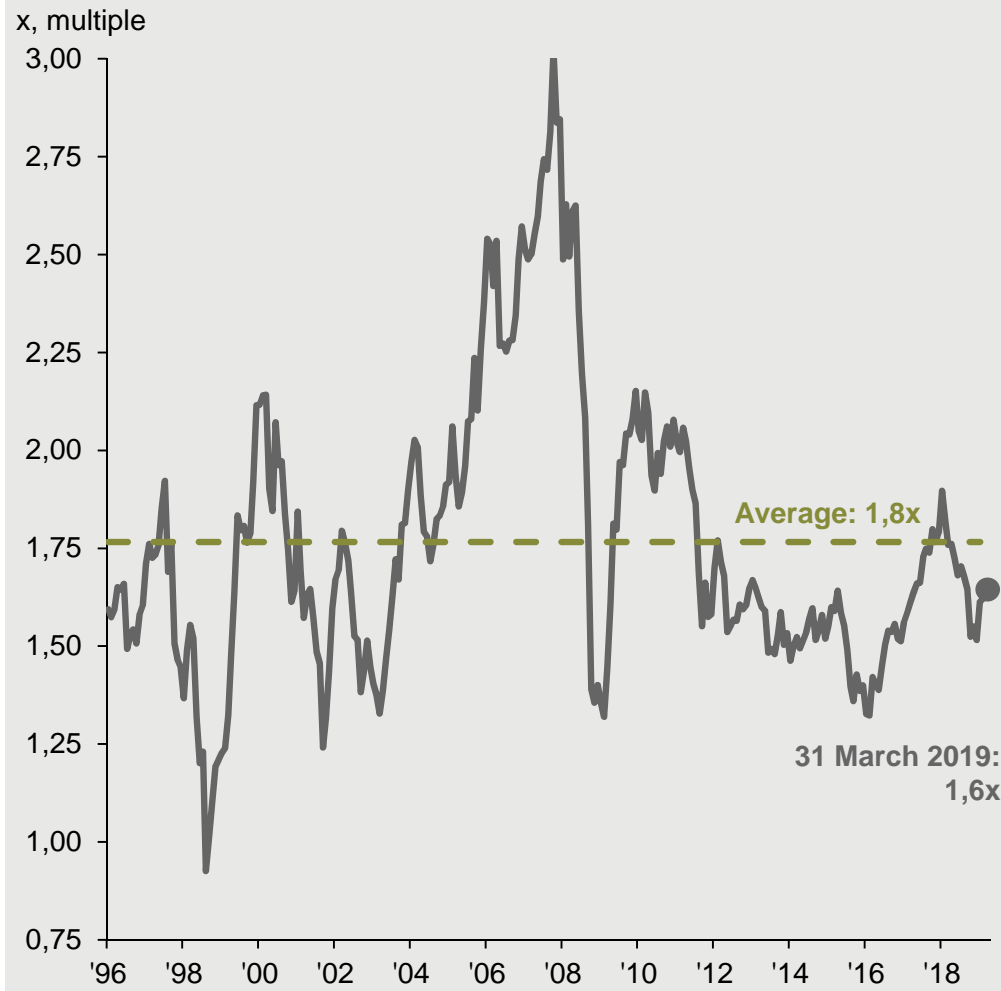
Relative EM / DM equity performance and USD REER

Relative index level rebased to 100 in 1997 (LHS); index level (RHS)



Source: (Left) Commodity Research Bureau, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. (Right) J.P. Morgan Securities Research, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. For all charts, MSCI EM and MSCI DM returns are in USD. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

MSCI EM price-to-book ratio



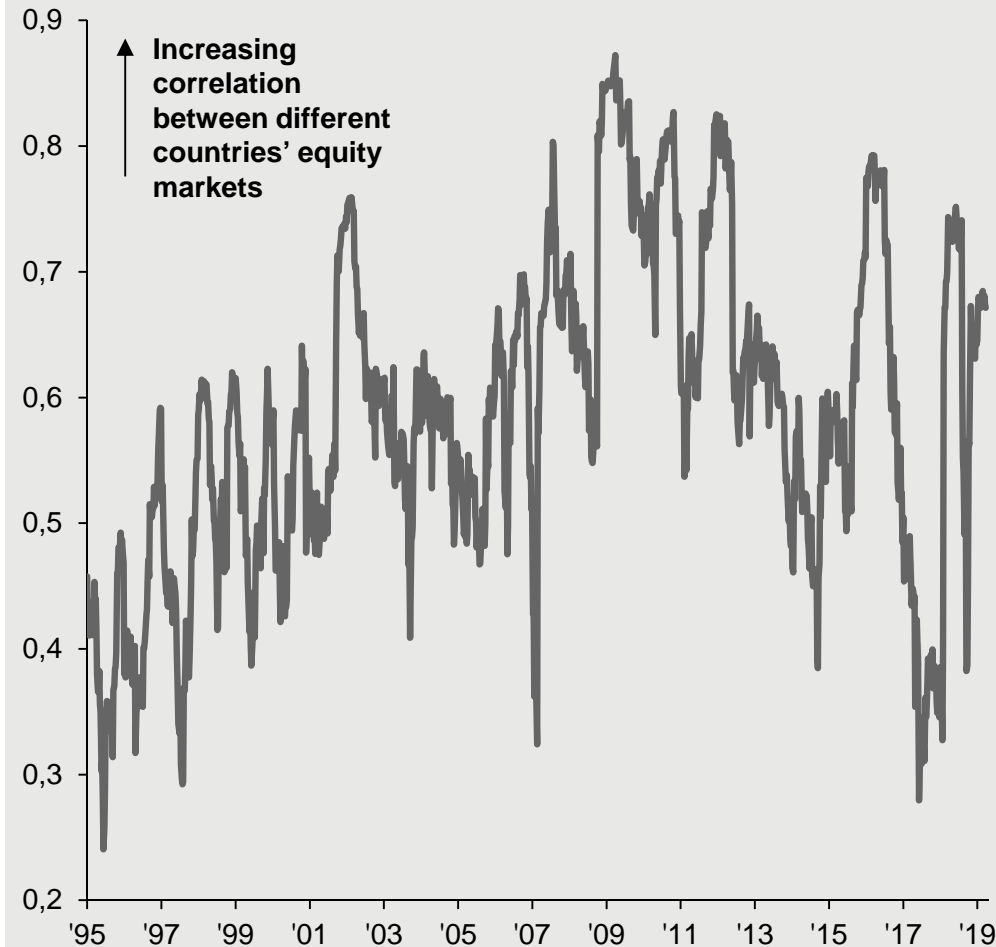
MSCI EM price-to-book ratio and subsequent 10-year returns



Source: (All charts) MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. *Dots represent monthly data points since 1996, which is earliest available. MSCI EM index returns are in USD. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

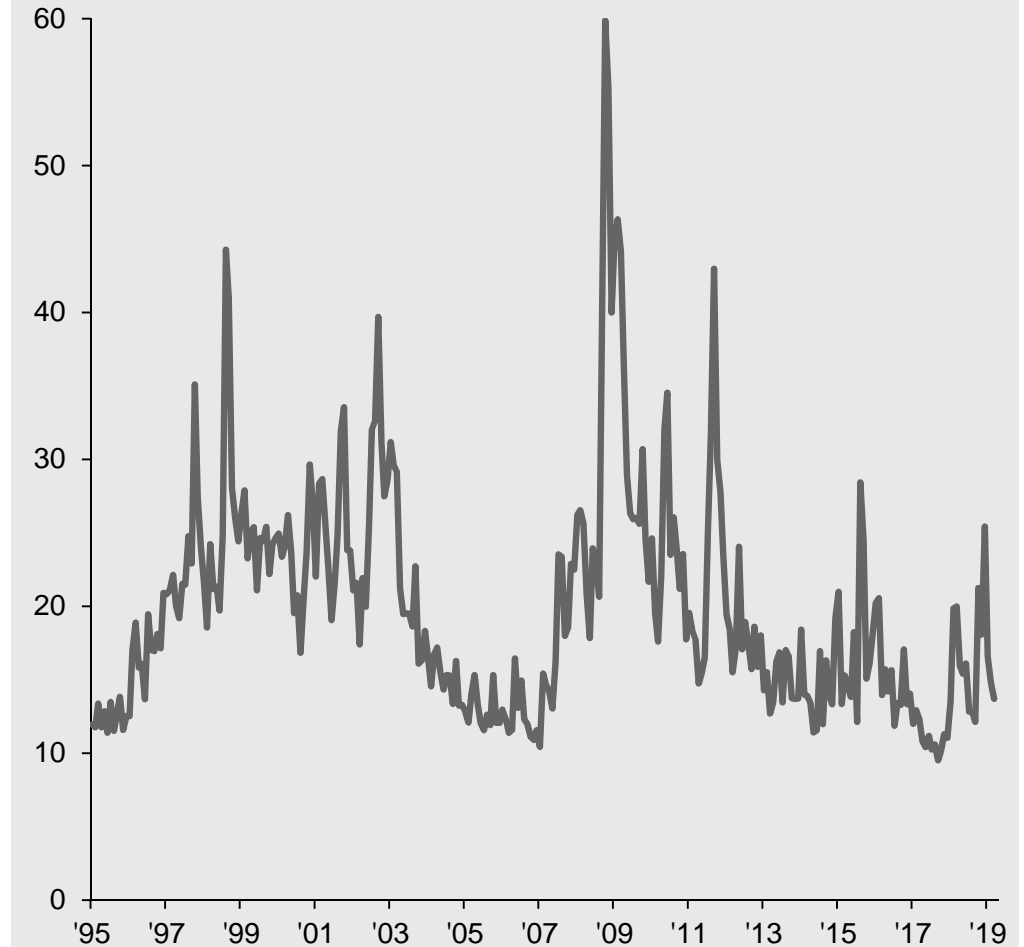
Cross country equity index correlation

%, rolling six-month average pairwise correlations



VIX volatility index

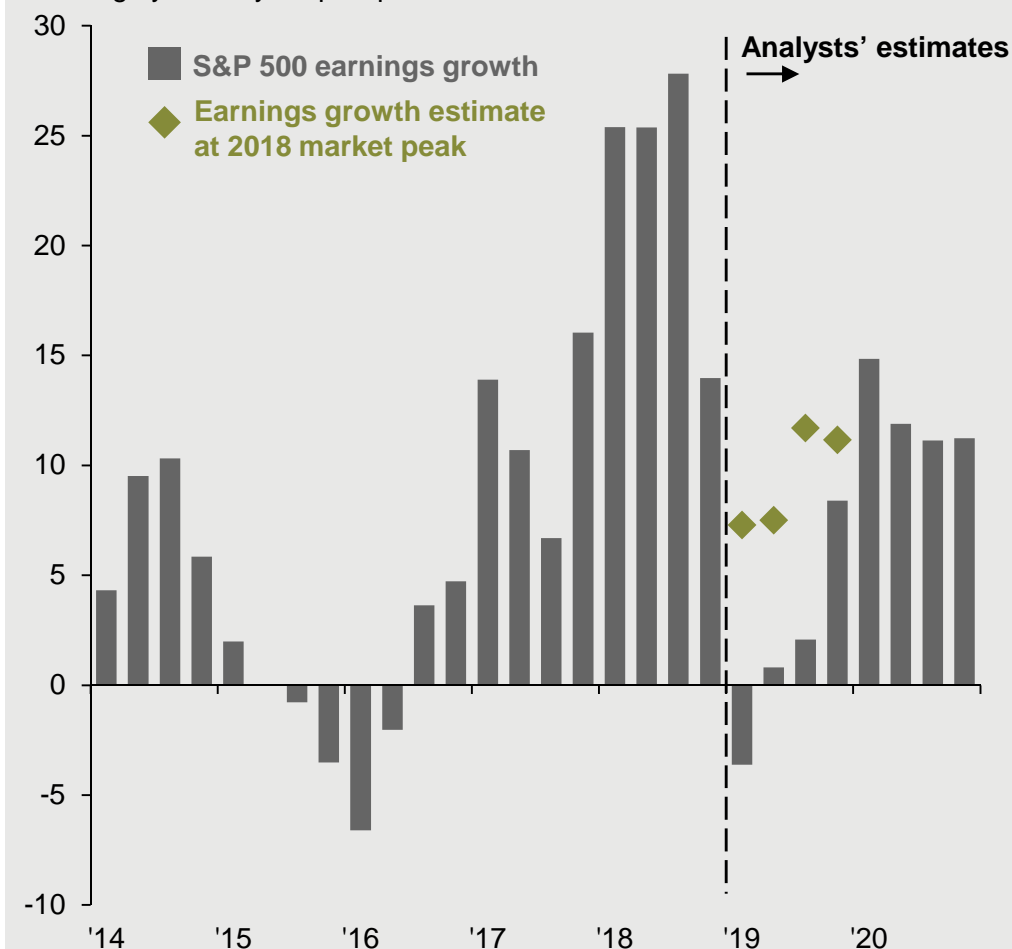
Index level, implied volatility of S&P 500 Index based on options pricing



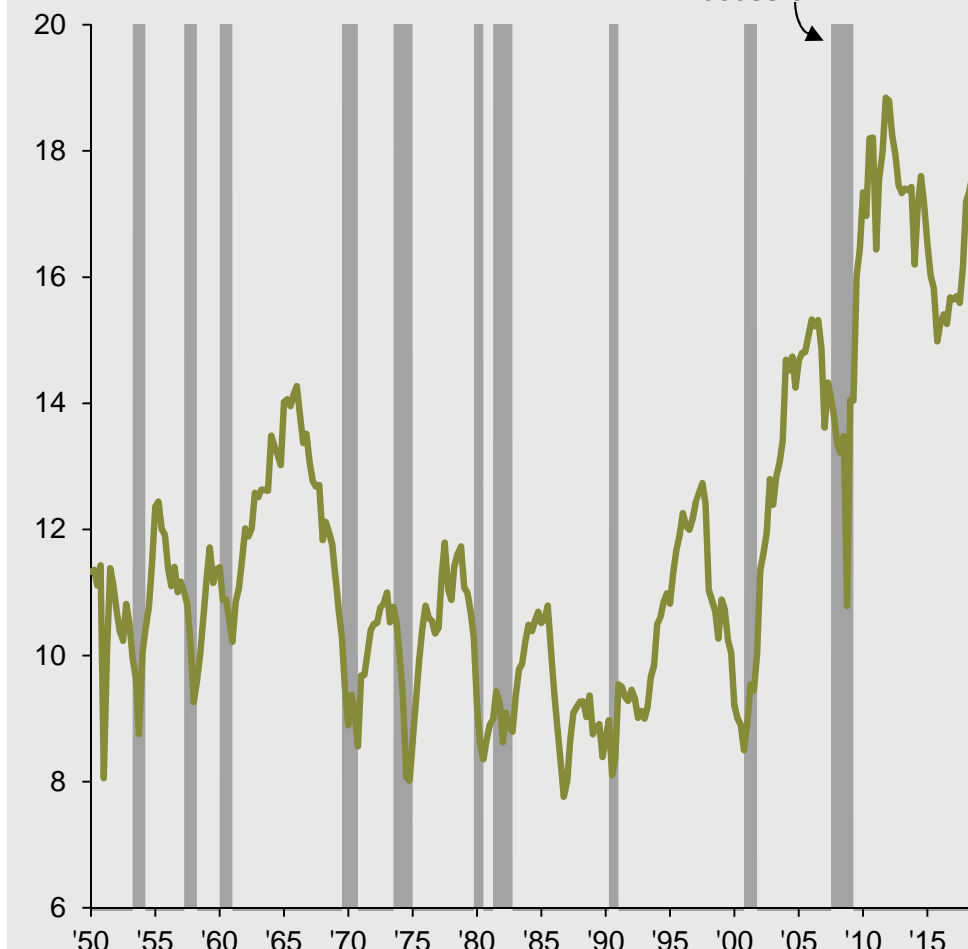
Source: (Left) Bloomberg, J.P. Morgan Asset Management. Correlation calculated from 10 market indices. (Right) CBOE, Refinitiv Datastream, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

S&P 500 earnings estimates

% change year on year per quarter

**US corporate after-tax profit margins**

%



Source: (Left) FactSet, J.P. Morgan Asset Management. 2018 S&P 500 market peak was on 20 September 2018. Earnings growth pre-2019 are delivered earnings growth per quarter. (Right) BEA, NBER, Refinitiv Datastream, J.P. Morgan Asset Management. Profit margins are calculated by taking corporate profits after tax as a percentage of gross value added of corporate business. 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 March 2019.

World stock market returns

GTM - Europe | 71

Equities

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	1Q19	10-yr ann.
EUR	73,5%	35,4%	5,5%	20,8%	27,2%	29,5%	24,4%	16,6%	24,8%	0,4%	15,9%	15,4%
Local	MSCI EM 62,8%	Small Cap 24,4%	US S&P 500 2,1%	Asia ex-Jp 19,7%	Small Cap 35,8%	US S&P 500 13,7%	TOPIX 12,1%	Small Cap 14,5%	Asia ex-Jp 35,9%	US S&P 500 -4,4%	Small Cap 13,9%	US S&P 500 13,1%
	67,2%	28,3%	3,5%	18,1%	26,7%	19,7%	12,9%	15,3%	21,0%	-1,5%	15,7%	14,7%
	Asia ex-Jp 67,2%	Asia ex-Jp 15,6%	HDY Equity 1,5%	Europe 16,4%	US S&P 500 32,4%	Asia ex-Jp 7,7%	US S&P 500 1,4%	US S&P 500 12,0%	MSCI EM 31,0%	HDY Equity -3,9%	US S&P 500 13,6%	Small Cap 13,0%
	40,2%	27,5%	-5,7%	16,8%	21,5%	16,5%	11,5%	14,9%	12,4%	-6,9%	13,5%	12,6%
	Small Cap 40,8%	MSCI EM 14,4%	Small Cap -8,7%	MSCI EM 17,4%	TOPIX 54,4%	Small Cap 6,8%	Small Cap 2,8%	MSCI EM 10,1%	Portfolio 21,4%	Portfolio -9,1%	Asia ex-Jp 11,6%	Asia ex-Jp 10,5%
	37,6%	23,9%	-5,8%	16,3%	20,5%	16,2%	8,8%	14,3%	11,2%	-9,1%	13,1%	11,8%
	Portfolio 35,8%	TOPIX 1,0%	Portfolio -7,5%	Small Cap 18,4%	Europe 22,3%	HDY Equity 8,7%	Europe 5,4%	HDY Equity 13,1%	TOPIX 22,2%	Small Cap -12,2%	Portfolio 11,4%	HDY Equity 10,3%
	34,0%	23,1%	-7,5%	15,6%	15,3%	15,3%	8,3%	10,1%	10,9%	-9,4%	13,0%	11,6%
	HDY Equity 30,2%	US S&P 500 15,1%	Europe -8,8%	Portfolio 17,1%	Portfolio 23,6%	Portfolio 8,2%	Portfolio 1,9%	Portfolio 9,0%	Europe 13,7%	TOPIX -16,0%	Europe 11,7%	Portfolio 10,3%
	32,6%	20,9%	-9,6%	14,2%	13,9%	11,8%	6,3%	8,9%	8,2%	-9,8%	12,1%	10,5%
	Europe 28,6%	Portfolio 11,1%	TOPIX -17,0%	US S&P 500 16,0%	HDY Equity 20,5%	MSCI EM 5,6%	HDY Equity 0,3%	Asia ex-Jp 6,4%	Small Cap 19,1%	Asia ex-Jp -12,0%	HDY Equity 10,2%	MSCI EM 10,0%
	22,5%	16,2%	-14,3%	13,6%	-1,1%	10,1%	1,5%	6,6%	7,0%	-9,9%	11,9%	8,9%
	US S&P 500 26,5%	HDY Equity 8,0%	Asia ex-Jp -14,6%	HDY Equity 14,0%	Asia ex-Jp 6,2%	TOPIX 10,3%	Asia ex-Jp -5,3%	TOPIX 0,3%	US S&P 500 21,8%	MSCI EM -9,7%	MSCI EM 9,9%	Europe 8,2%
	1,5%	11,7%	-15,4%	5,9%	-6,5%	7,4%	-4,9%	3,2%	5,3%	-10,0%	8,7%	8,0%
	TOPIX 7,6%	Europe 7,5%	MSCI EM -12,5%	TOPIX 20,9%	MSCI EM 3,8%	Europe 5,2%	MSCI EM -5,4%	Europe 7,9%	HDY Equity 14,7%	Europe -10,0%	TOPIX 7,7%	TOPIX 7,9%

Source: MSCI, Refinitiv Datastream, Standard & Poor's, TOPIX, J.P. Morgan Asset Management. Annualised return covers the period 2009 to 2018. HDY Equity: MSCI AC World High Dividend Yield Index; Small Cap: MSCI The World Small Cap Index. Hypothetical portfolio (for illustrative purposes only and should not be taken as a recommendation): 30% Europe; 20% S&P 500; 15% EM; 10% Asia ex-Japan; 10% TOPIX; 10% HDY equity and 5% small cap. 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 March 2019.

Current and historical yields for selected indices

% yield, fluctuations over the last 10 years*

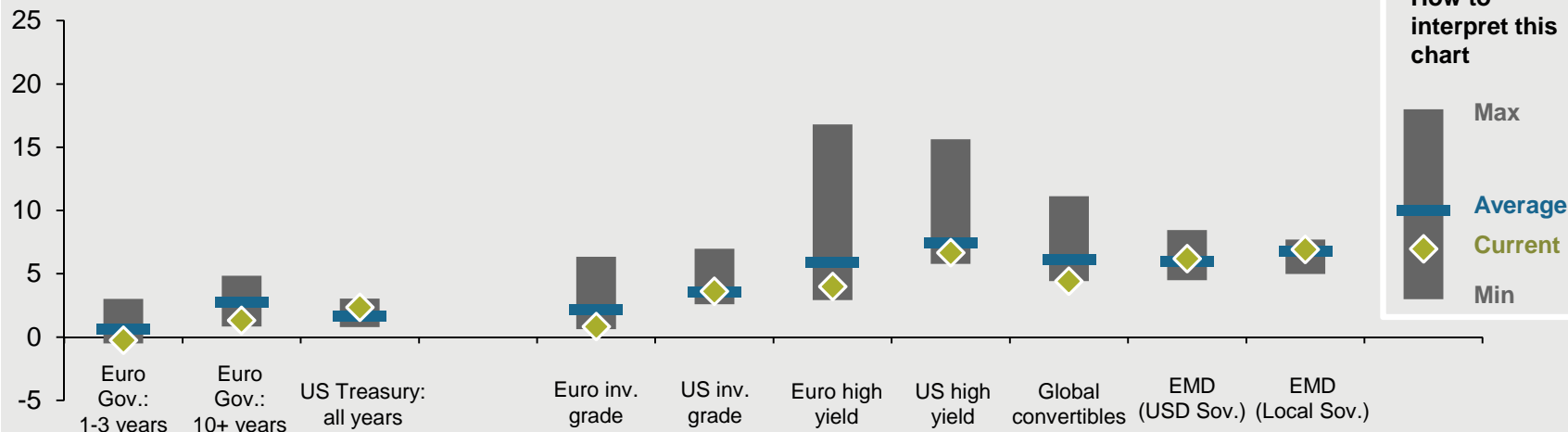
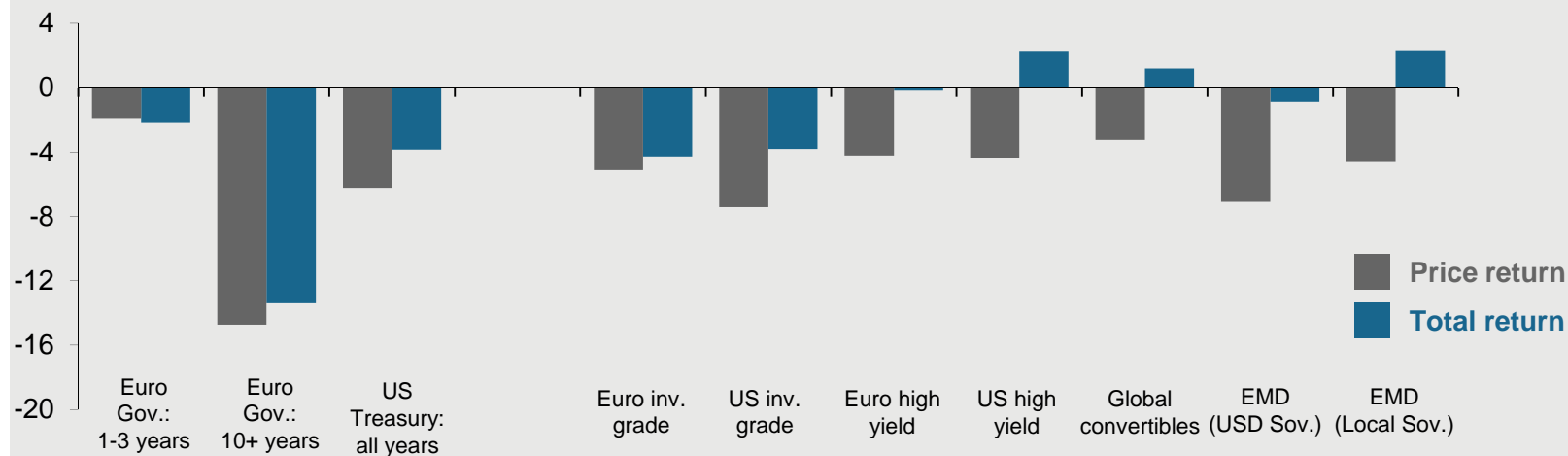


Illustration of the impact a 1% rise in local interest rates may have on selected indices

% change, assumes a parallel shift in the yield curve and spreads are maintained



Source: (All charts) Refinitiv Datastream, J.P. Morgan Asset Management.

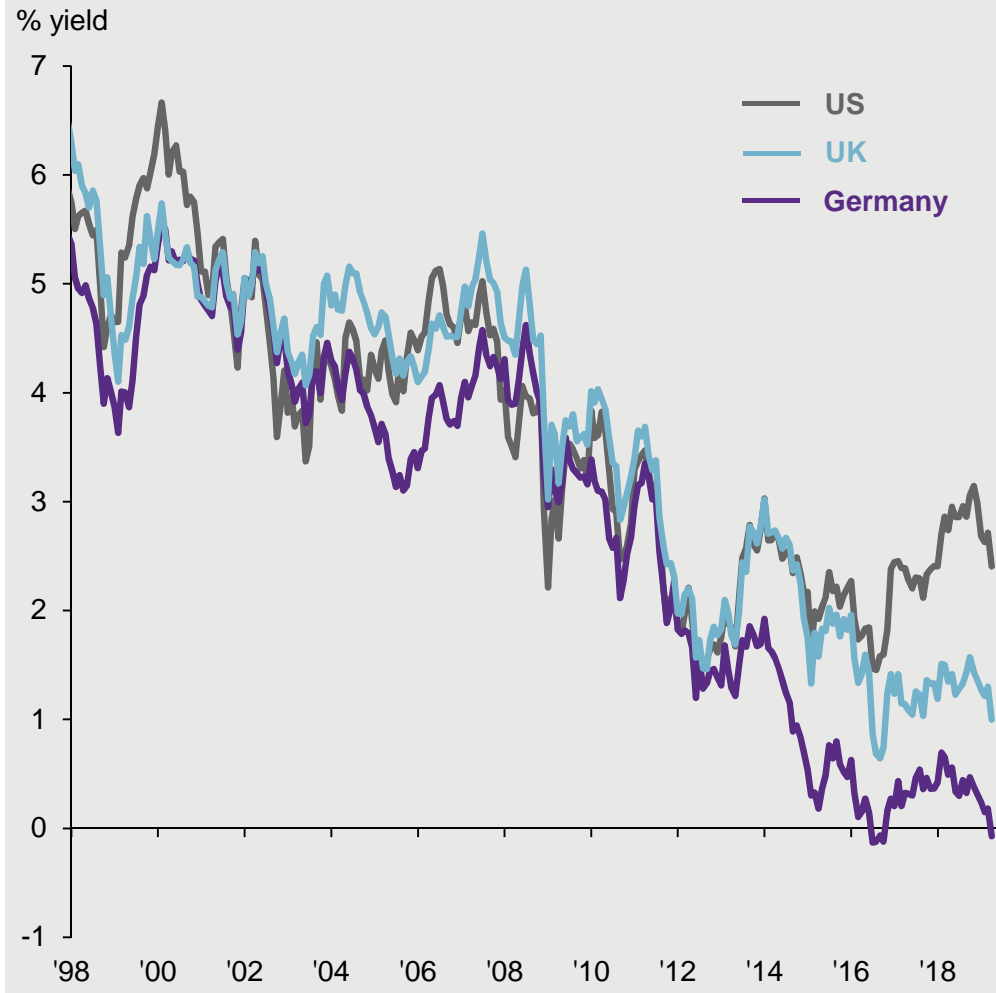
*Historical yield range is based on the last 10 years of data.

Fixed income sectors shown are Europe Gov. 1-3: Bloomberg Barclays Europe Government Agg. 1-3 Years; Europe Gov. 10+: Bloomberg Barclays Europe Government Agg. 10+ Years; US Treasury: Bloomberg Barclays US Treasury; Euro inv. grade: Bloomberg Barclays Euro Agg. - Corporates; US inv. grade: Bloomberg Barclays US Corporate Investment Grade; Euro high yield: BofA/Merrill Lynch Euro Non-Financial High Yield Constrained; US high yield: BofA/Merrill Lynch US High Yield Constrained; Global convertibles: Bloomberg Barclays Credit/Rate Sensitive; EMD USD Sov.: J.P. Morgan EMBI Global; EMD Local Sov.: JPM GBI-EM Composite.

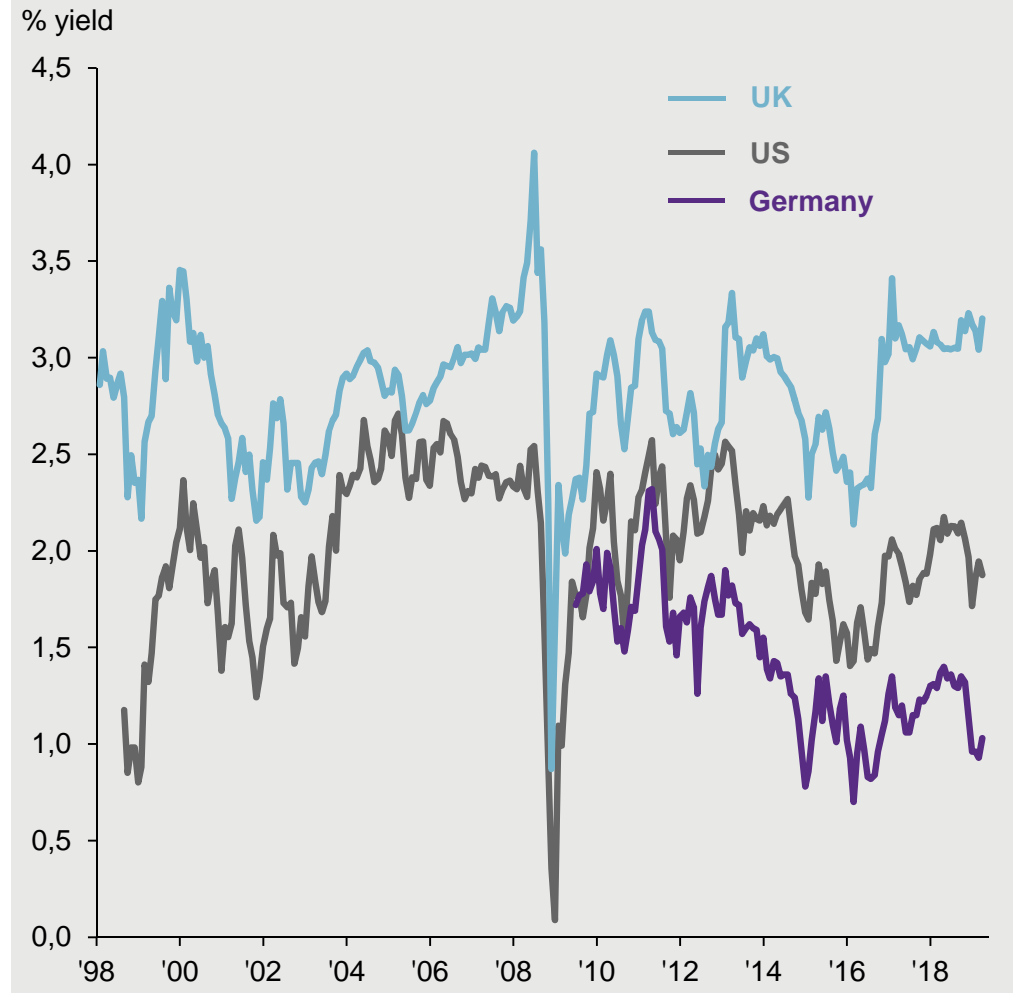
For illustrative purposes only. Change in bond price is calculated using both duration and convexity, with the exception of Convertibles, which is historical change. Past performance is not a reliable indicator of current and future results.

Guide to the Markets - Europe. Data as of 31 March 2019.

Nominal 10-year government bond yields



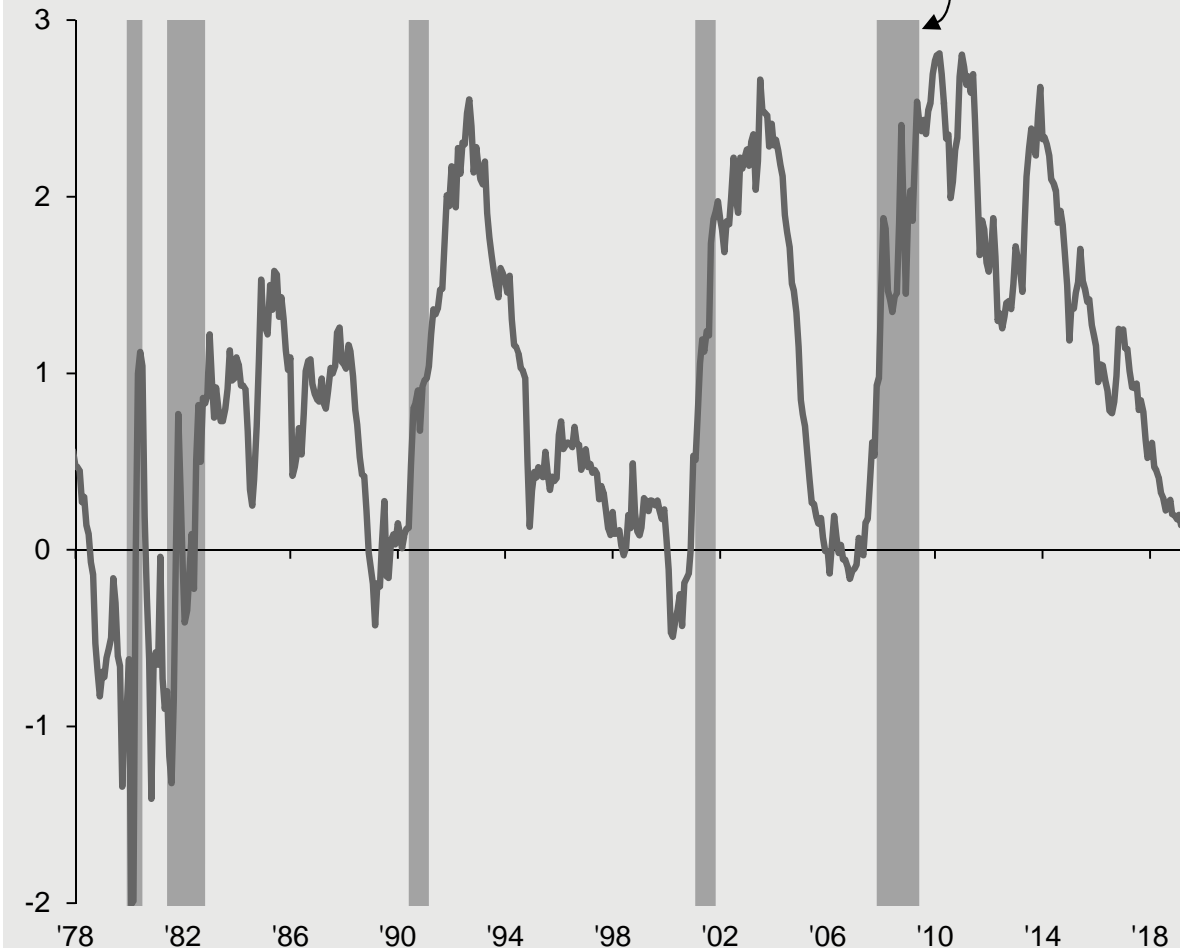
10-year government bond breakeven inflation rates



Source: (All charts) Bloomberg, J.P. Morgan Asset Management. Government bond breakeven inflation rates are the difference in yield between nominal and inflation-protected government bonds. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Yield curve

%, 10-year Treasury yield minus 2-year Treasury yield



Yield curve inversion and recession

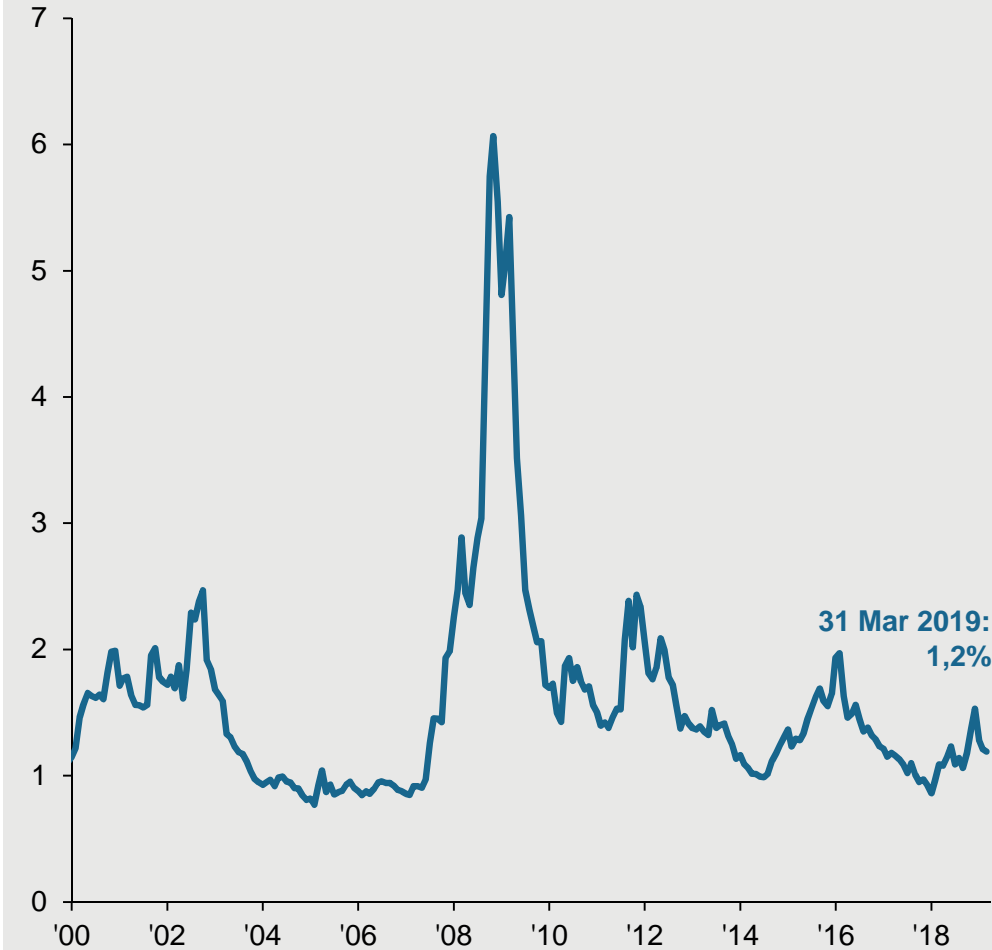
Number of months from

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: (All charts) Bloomberg, Federal Reserve, Refinitiv Datastream, J.P. Morgan Asset Management. Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

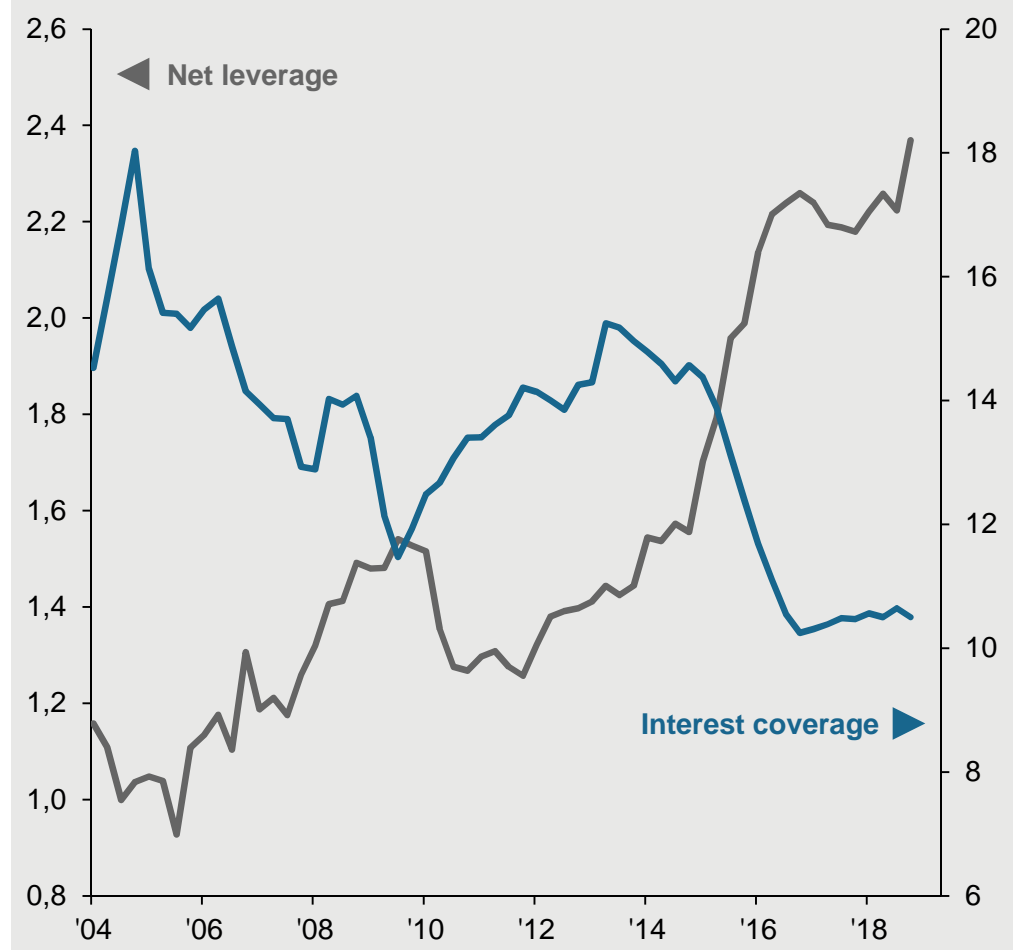
US investment-grade spread

%, option-adjusted spread over local government bond yield



US investment-grade leverage measures

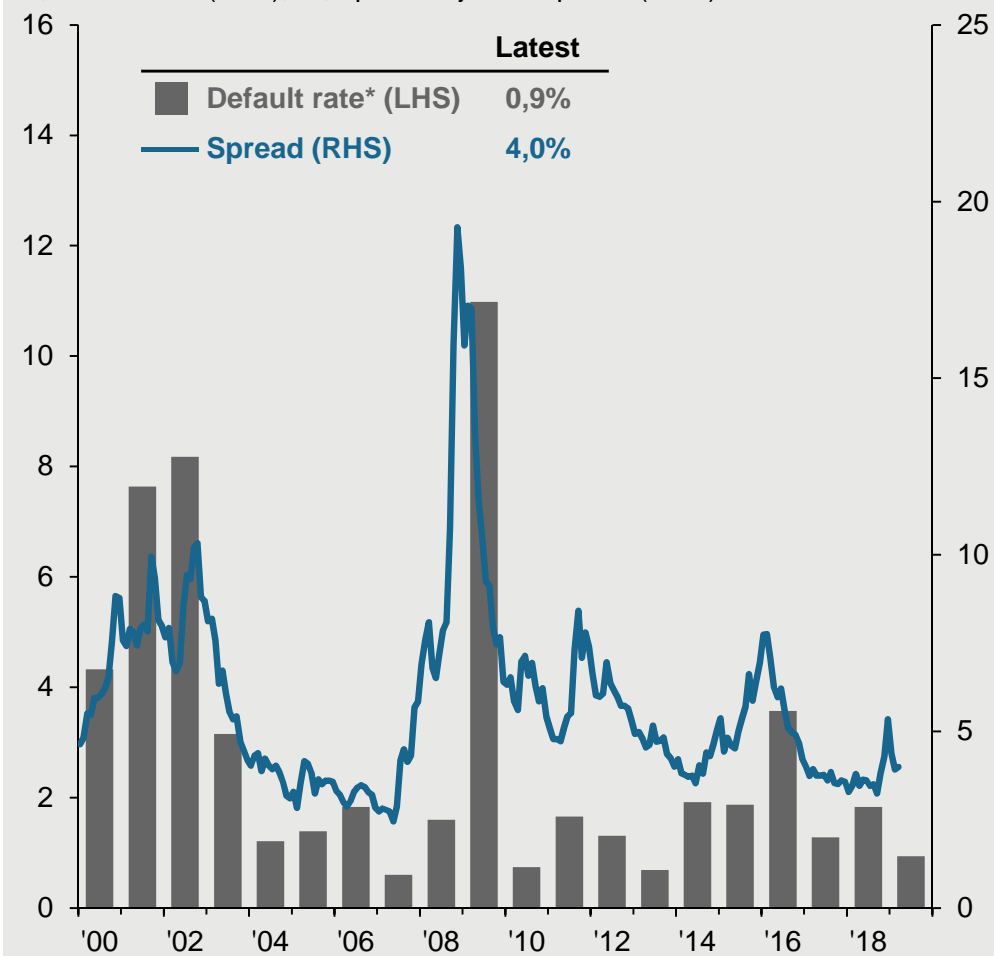
x, leverage (LHS); x, interest coverage ratio (RHS)



Source: (Left) Bloomberg Barclays, Refinitiv Datastream, J.P. Morgan Asset Management. Index is Bloomberg Barclays US Corporate Investment Grade. (Right) J.P. Morgan Securities, J.P. Morgan Asset Management. Net leverage is net debt divided by earnings before interest, tax, depreciation and amortisation (EBITDA). Interest coverage ratio is EBITDA divided by interest expense. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

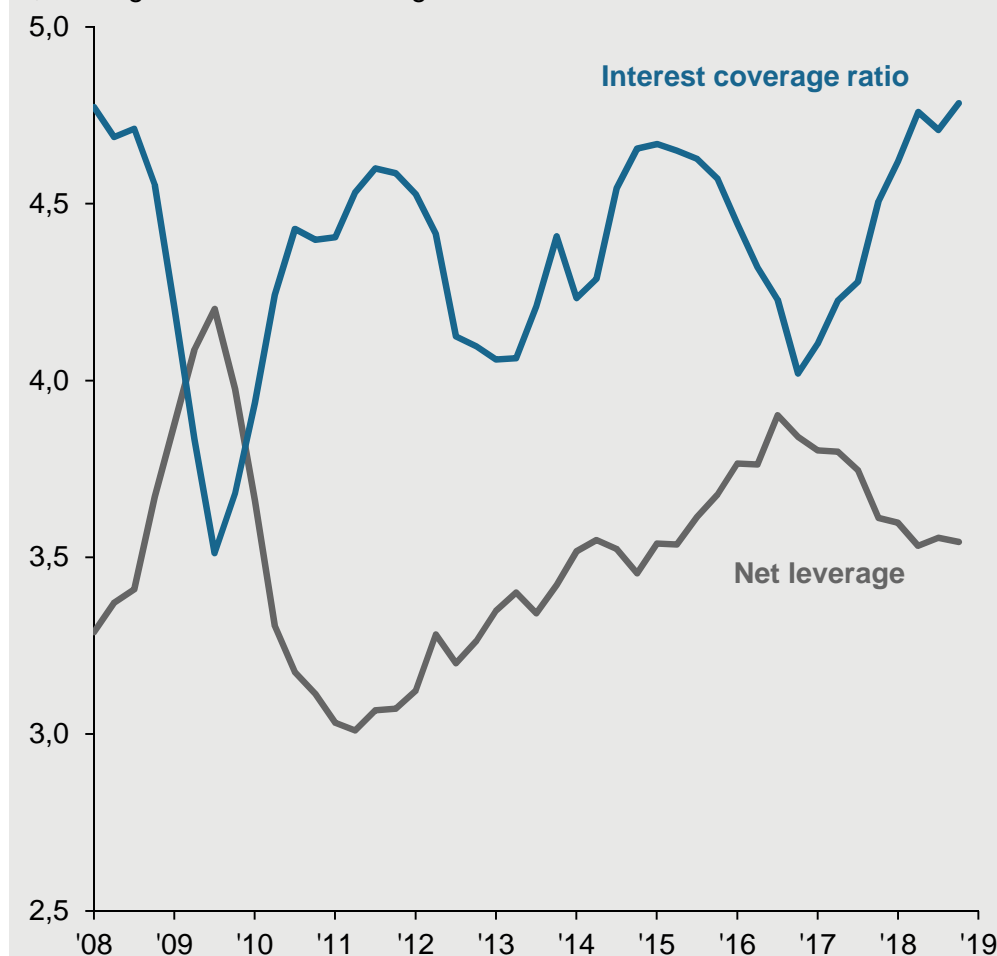
US high yield spread and defaults

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



US high yield leverage measures

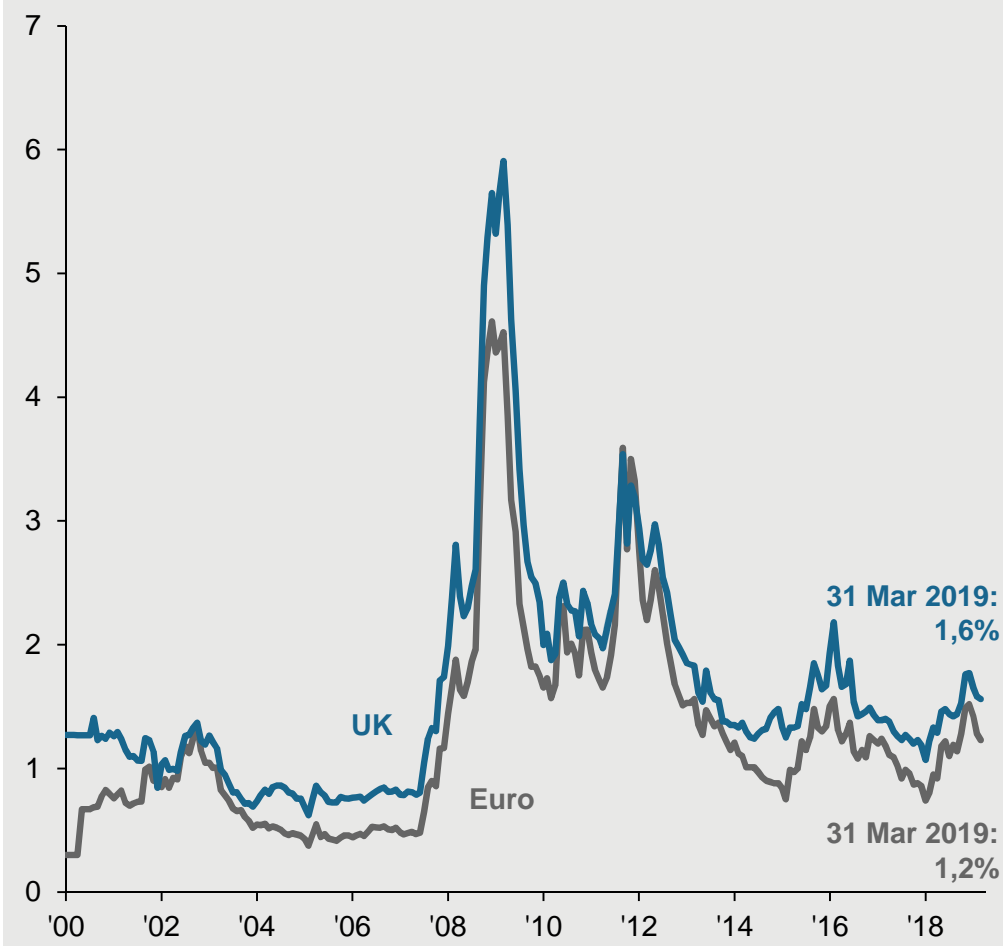
x, leverage and interest coverage ratio



Source: (Left) BofA/Merrill Lynch, J.P. Morgan Securities Research, J.P. Morgan Asset Management. HY spread is using the BofA/Merrill Lynch US High Yield Constrained index. Default rates are defined as the par value percentage of the total market trading at or below 50% of par value and include any Chapter 11 filing, prepackaged filing or missed interest payments. *2019 default rate is for the last 12 months. (Right) J.P. Morgan Economic Research, J.P. Morgan Asset Management. Net leverage is net debt divided by earnings before interest, tax, depreciation and amortisation (EBITDA). Interest coverage ratio is EBITDA divided by interest expense. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Euro and UK investment-grade spreads

%, option-adjusted spread over local government bond yield



Euro investment-grade leverage measures

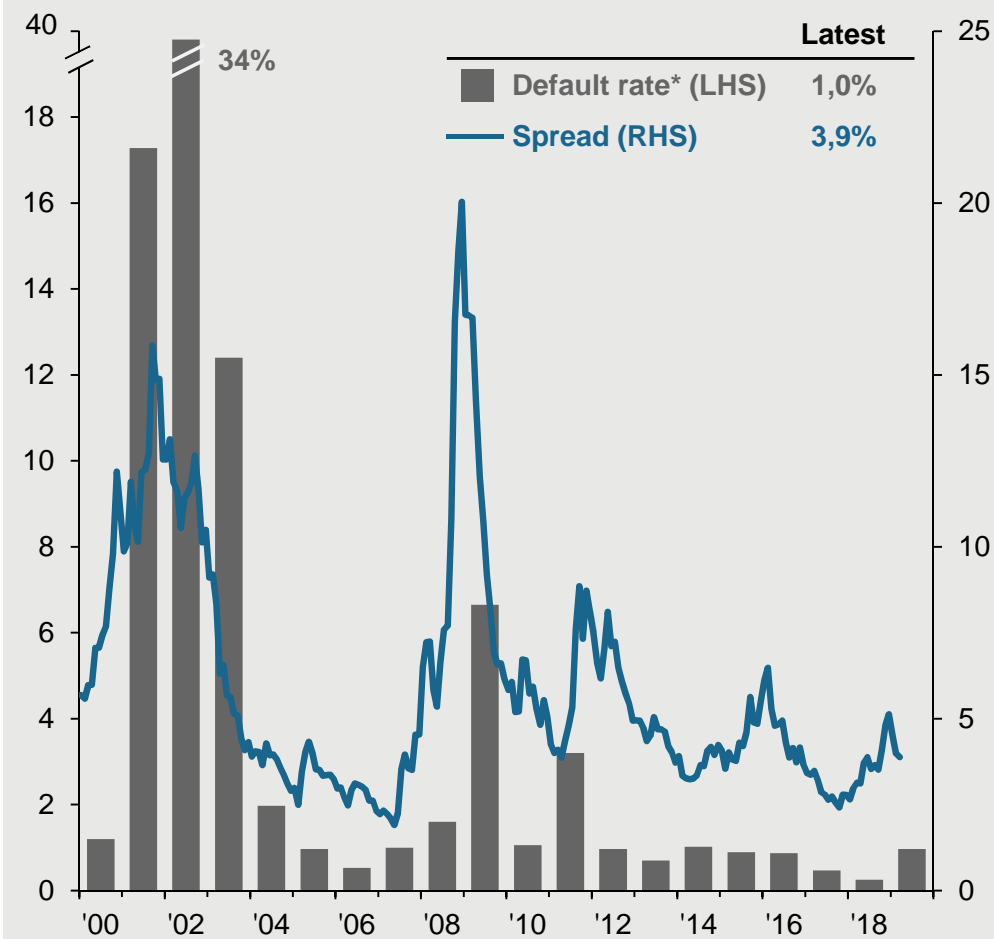
x, leverage (LHS); x, interest coverage ratio (RHS)



Source: (Left) Bloomberg Barclays, Refinitiv Datastream, J.P. Morgan Asset Management. Indices are Euro inv. grade: Bloomberg Barclays Euro Agg. – Corporates; UK inv. grade: Bloomberg Barclays Sterling Agg. – Corporates. (Right) J.P. Morgan Securities, J.P. Morgan Asset Management. Net leverage is net debt divided by earnings before interest, tax, depreciation and amortisation (EBITDA). Interest coverage ratio is EBITDA divided by interest expense. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

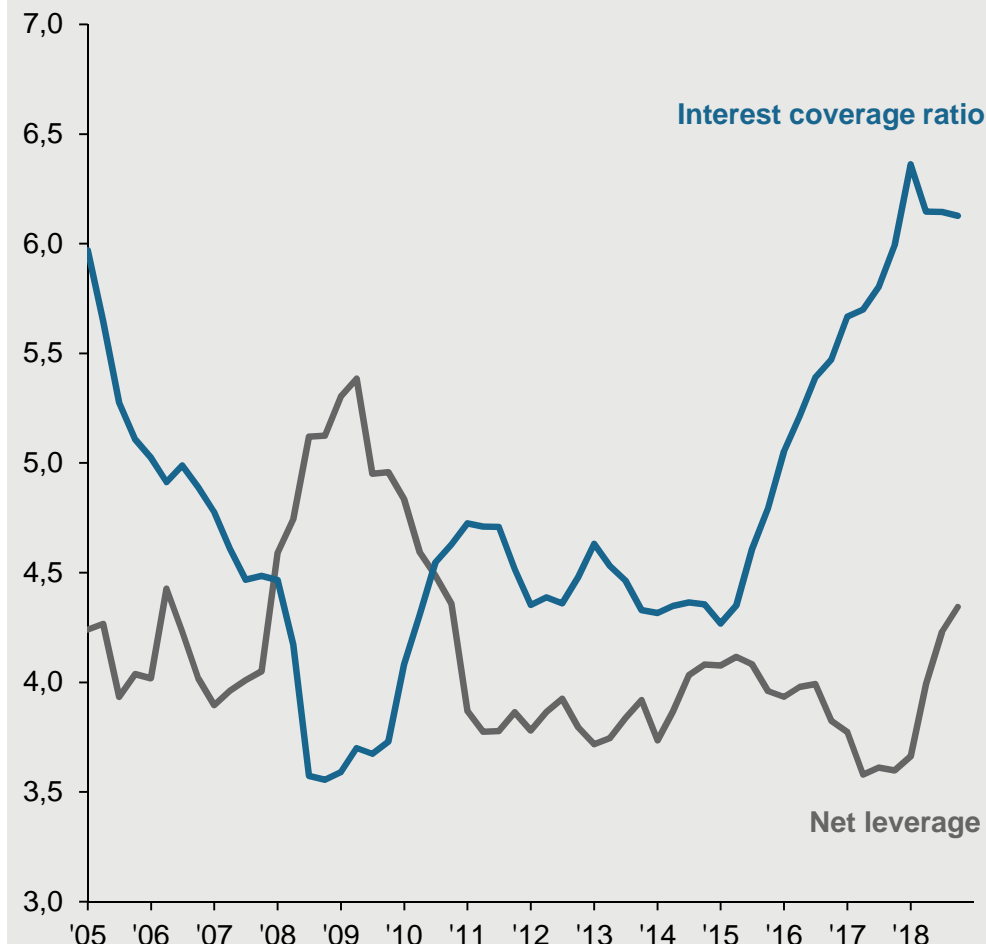
European high yield spread and defaults

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



European high yield leverage measures

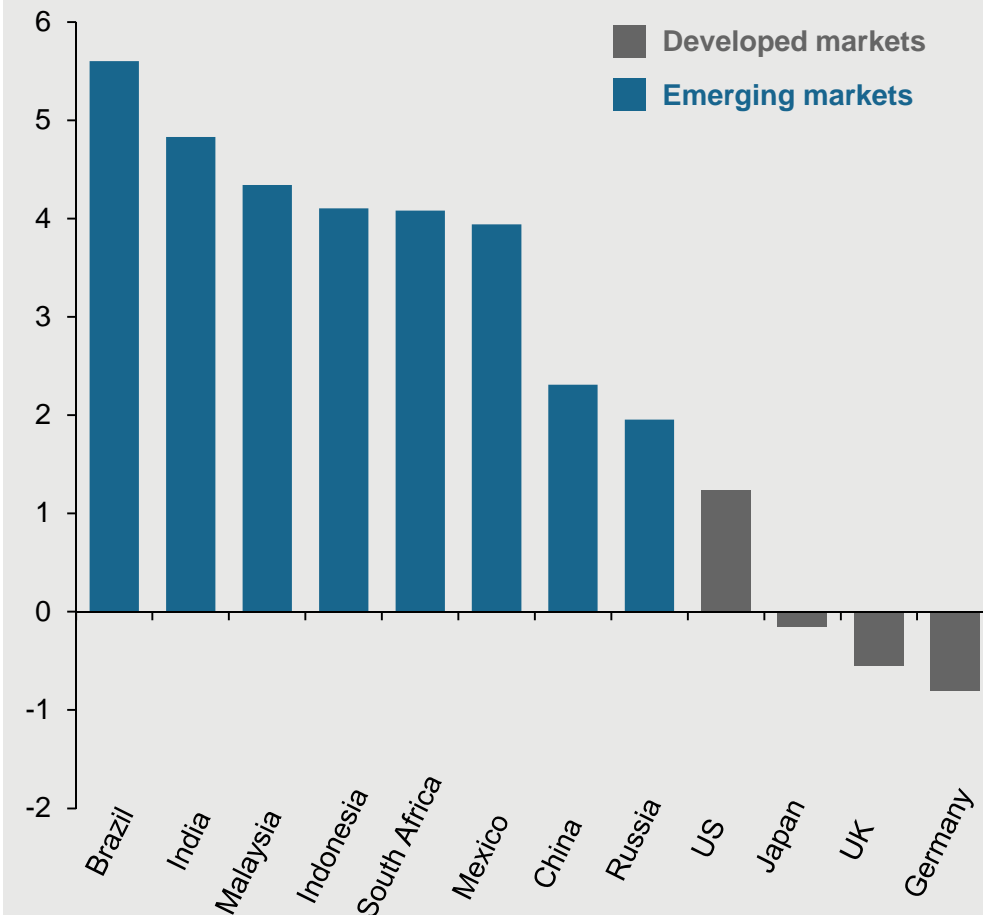
x, leverage and interest coverage ratio



Source: (Left) BofA/Merrill Lynch, Refinitiv Datastream, J.P. Morgan Asset Management. Spread to worst is BofA/Merrill Lynch Euro Non-Financial High Yield Constrained. Default rates are reported by JPMAM GFICC Quantitative Research Group. Defaults are defined as a bond rated as Ca or lower. The calculation universe is based on par value percentage of the BofA ML Global High Yield Index (HW00) that is covered by Moody's and filtered for EUR Developed Markets Ex-Financial. *2019 default rate is for the last 12 months. (Right) J.P. Morgan Securities Research, J.P. Morgan Asset Management. Net leverage is net debt divided by earnings before interest, tax, depreciation and amortisation (EBITDA). Interest coverage ratio is EBITDA divided by interest expense. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

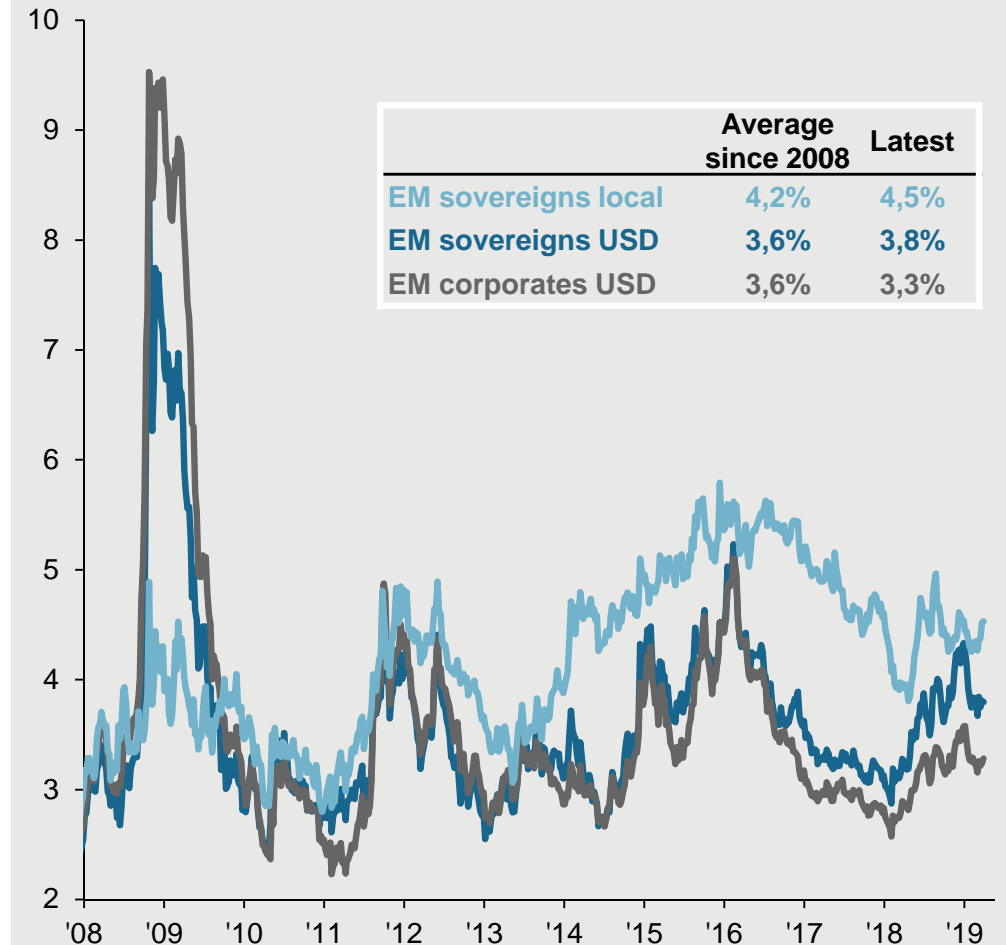
Real 10-year government bond yields

% yield, local currency



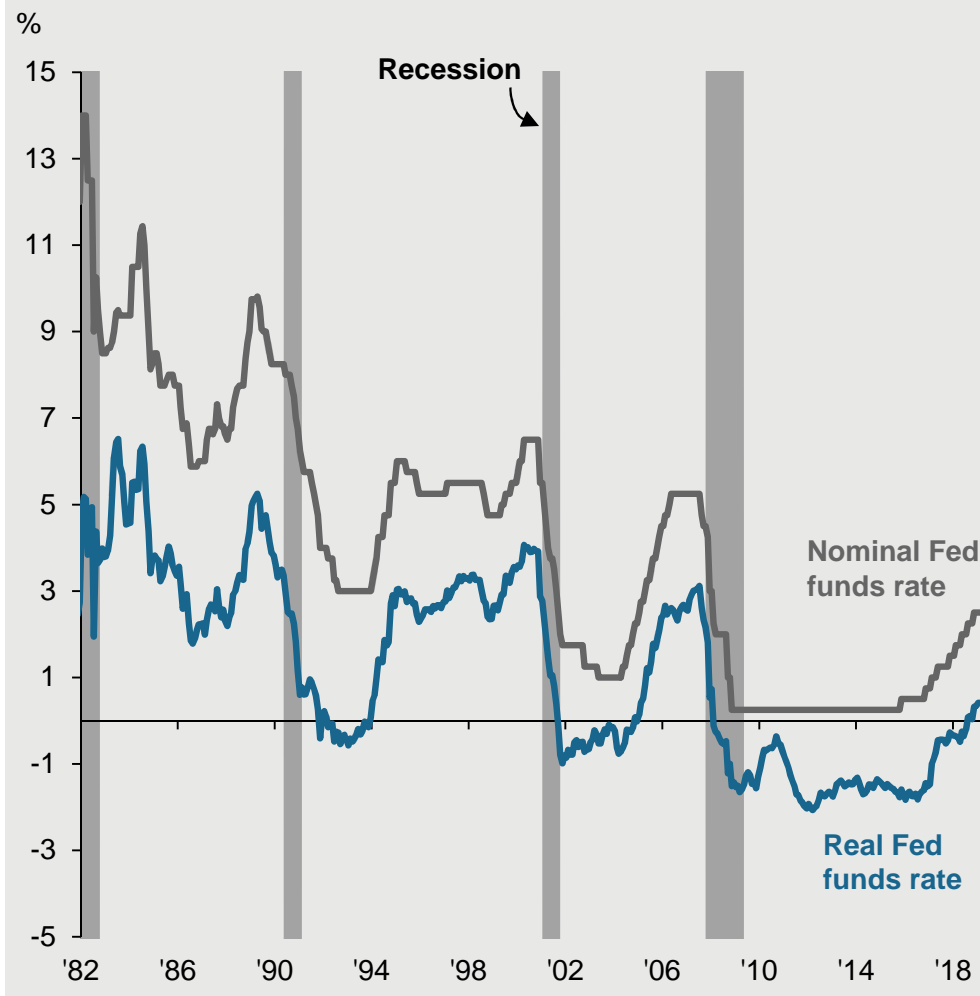
Corporate and sovereign EMD spreads

%, spread over 10-year US Treasury



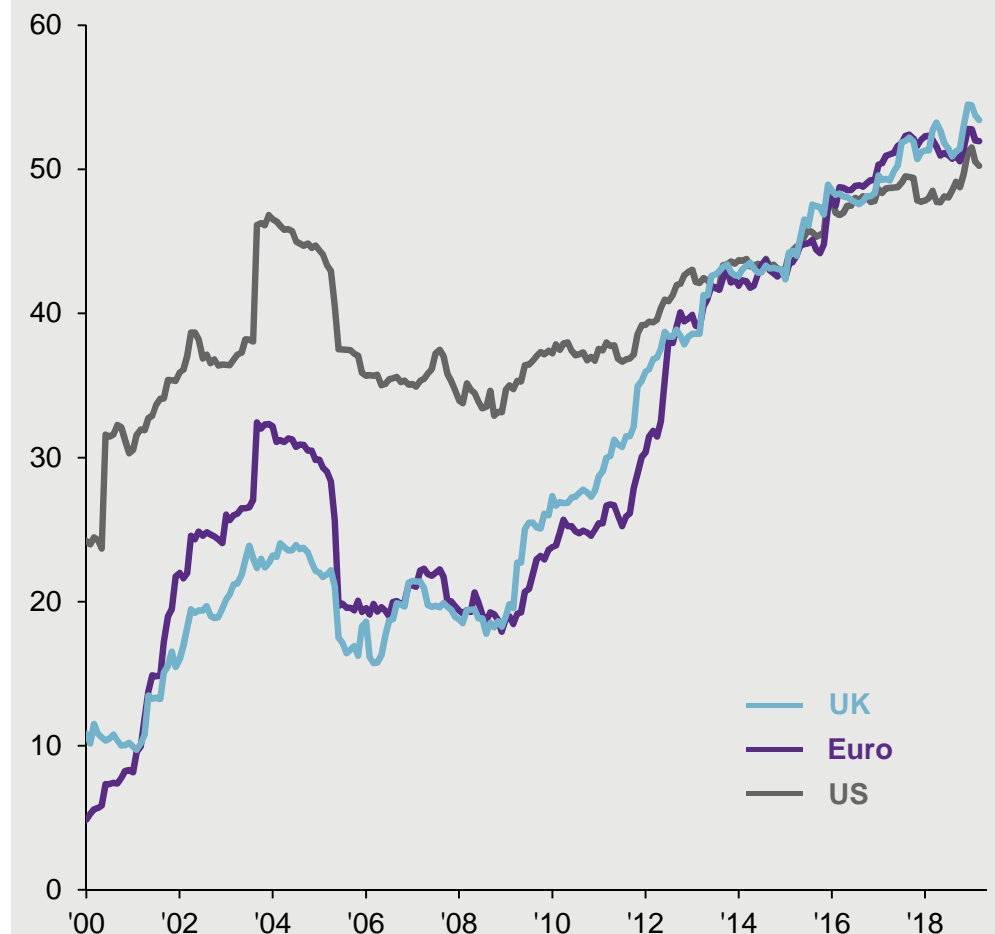
Source: (Left) Bloomberg, J.P. Morgan Asset Management. Real yield is calculated by using nominal yield less current CPI for the respective countries.
 (Right) J.P. Morgan DataQuery, J.P. Morgan Asset Management. EM sovereign local currency is the J.P. Morgan GBI-EM; EM sovereigns USD is the J.P. Morgan EMBIG; EM corporate USD is the J.P. Morgan CEMBI. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*.
 Data as of 31 March 2019.

US nominal and real Fed funds rate



Share of BBB-rated bonds in investment-grade indices

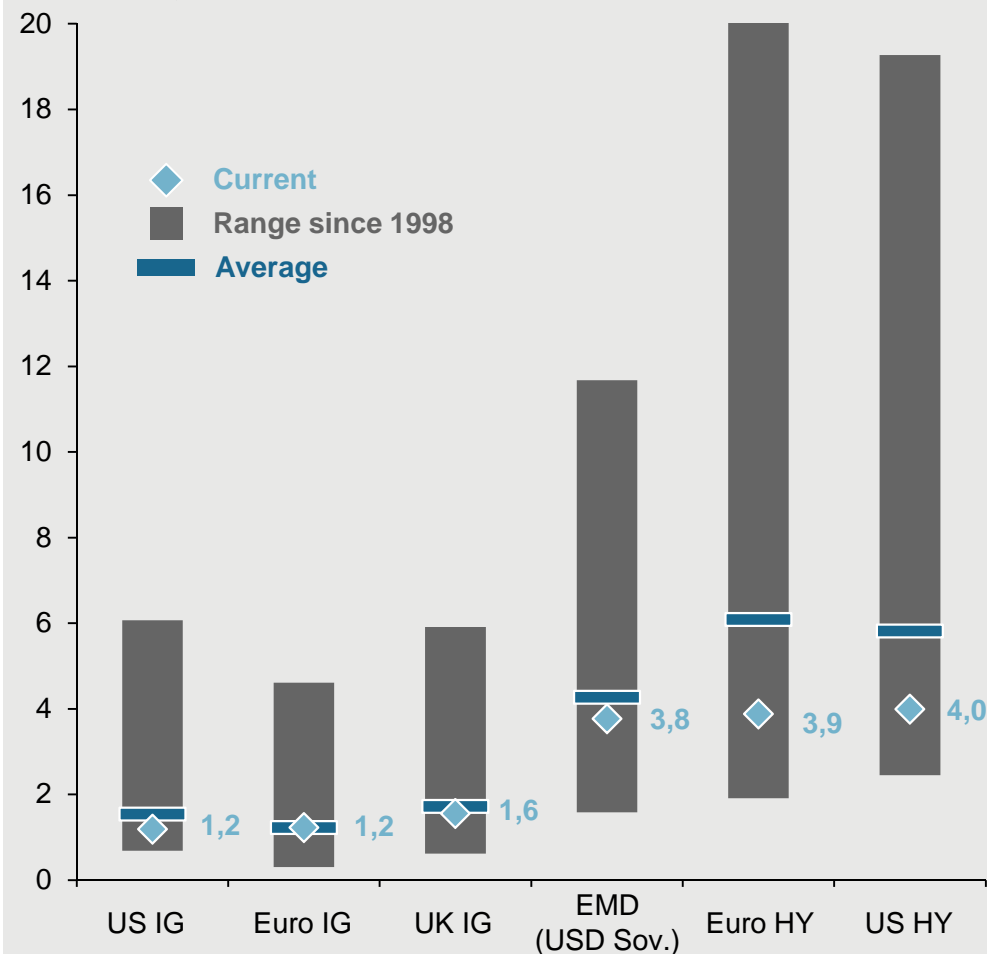
%, market value of BBB index as a share of market value of benchmark



Source: (Left) BEA, Refinitiv Datastream, US Federal Reserve, J.P. Morgan Asset Management. Real federal funds rate is the nominal Fed funds rate minus year on year core CPI (CPI ex-food and energy). Periods of "recession" are defined using US National Bureau of Economic Research (NBER) business cycle dates. (Right) Bloomberg Barclays, J.P. Morgan Asset Management. Benchmark indices are US: Bloomberg Barclays US Corporate Investment Grade; Euro: Bloomberg Barclays Euro Agg. – Corporates; UK: Bloomberg Barclays Sterling Agg. – Corporates. Credit rating methodology is the middle of Standard & Poor's, Moody's and Fitch ratings. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Fixed income spreads

%, option-adjusted spread



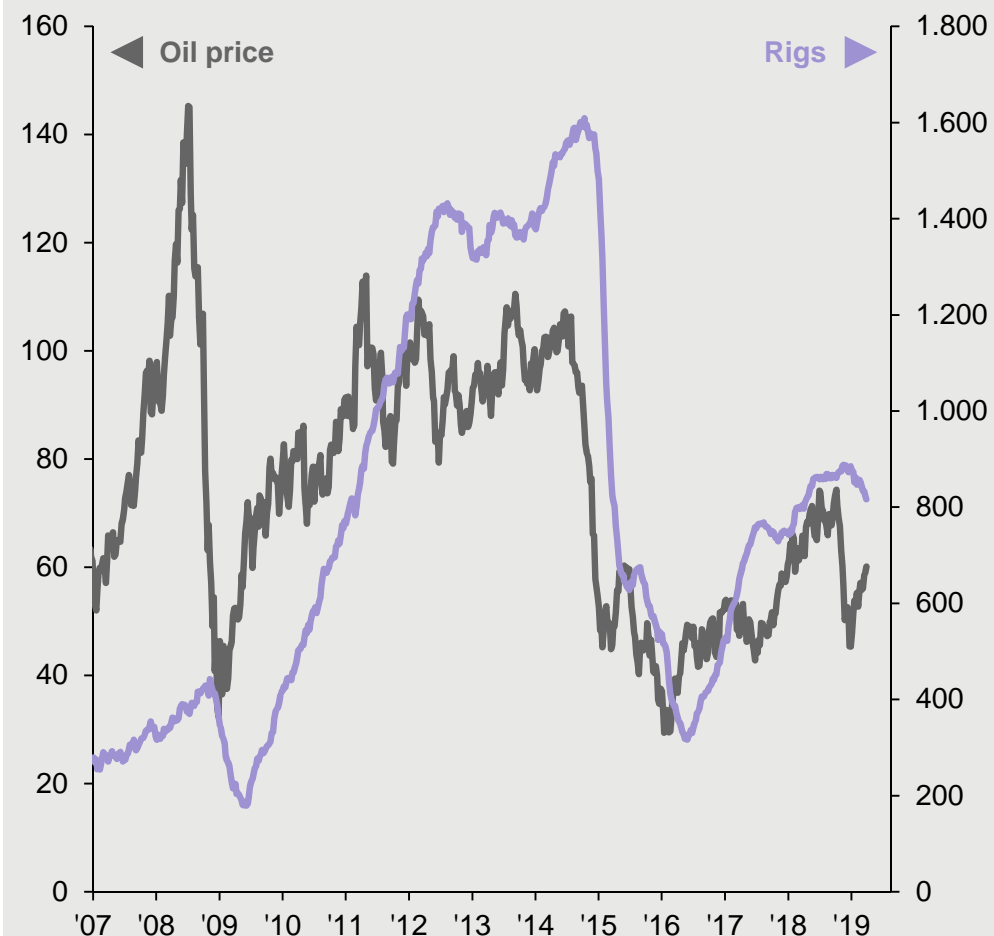
Fixed income returns

2015	2016	2017	2018	1Q19	10-yr ann.
€: 12,8% EM Debt LCL: 1,2%	21,0% US HY 17,5%	6,1% Euro HY 6,1%	5,9% US Treas. 0,9%	9,3% US HY 7,4%	13,2% US HY 11,0%
12,3% US Treas. 0,8%	13,5% EM Debt 10,2%	2,4% Euro IG 2,4%	2,7% US HY -2,3%	8,5% EM Debt 6,6%	11,6% Euro HY 11,6%
10,6% US IG -0,7%	10,1% Euro HY 10,1%	1,4% Infl Linked 1,4%	2,4% US IG -2,5%	7,0% US IG 5,1%	9,9% EM Debt 7,8%
6,4% Portfolio 0,1%	9,3% US IG 6,1%	0,2% Euro Gov 0,2%	1,3% Portfolio -1,4%	5,3% Euro HY 5,3%	8,0% US IG 5,9%
6,3% US HY -4,6%	8,1% Portfolio 6,4%	-2,9% Portfolio 4,2%	1,0% Euro Gov 1,0%	5,1% Portfolio 4,0%	7,0% Portfolio 5,8%
1,7% Euro Gov 1,7%	4,7% Euro IG 4,7%	-4,0% EM Debt 9,3%	0,2% EM Debt -4,6%	4,0% US Treas. 2,1%	5,0% Euro IG 5,0%
0,8% Infl Linked 0,8%	4,1% US Treas. 1,0%	-5,6% US HY 7,5%	-1,3% Euro IG -1,3%	3,2% Euro IG 3,2%	4,1% US Treas. 2,1%
0,5% Euro HY 0,5%	3,8% Infl Linked 3,8%	-6,5% US IG 6,4%	-1,5% Infl Linked -1,5%	2,5% Euro Gov 2,5%	4,0% Euro Gov 4,0%
-0,6% Euro IG -0,6%	3,2% Euro Gov 3,2%	-10,1% US Treas. 2,3%	-3,7% Euro HY -3,7%	1,2% Infl Linked 1,2%	2,4% Infl Linked 2,4%

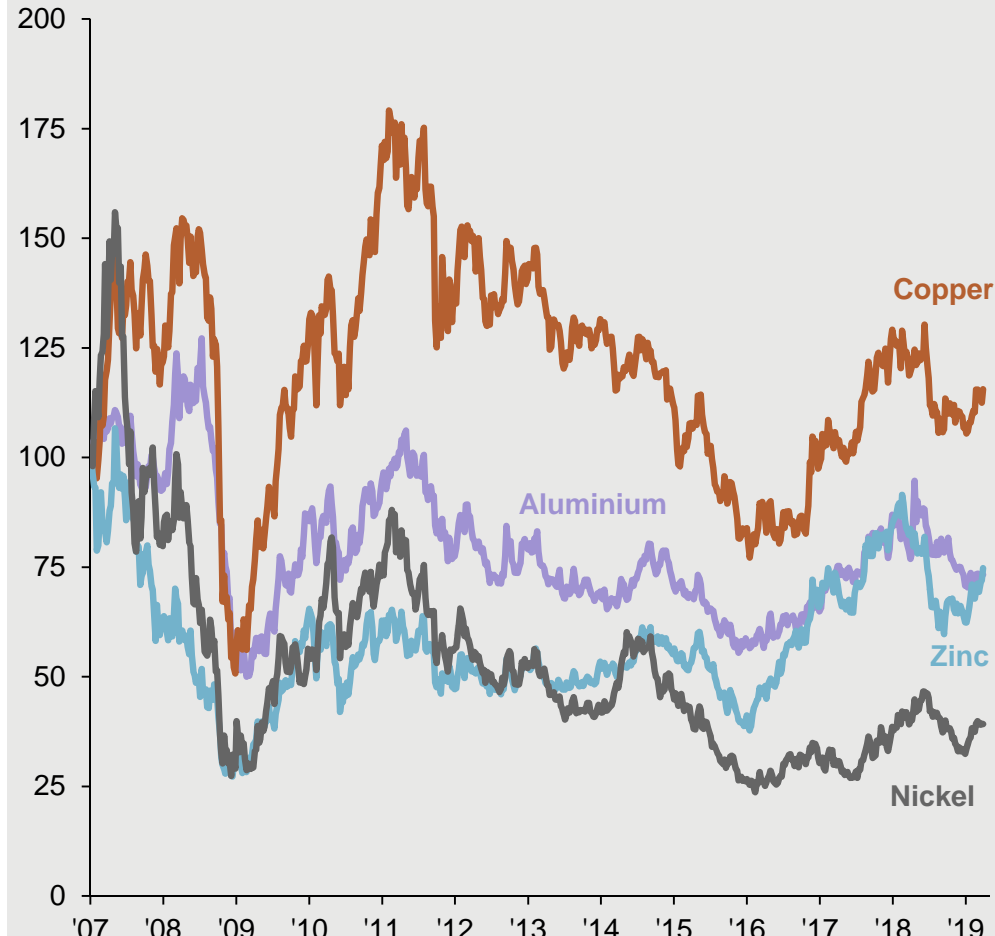
Source: (All charts) Bloomberg Barclays, BofA/Merrill Lynch, J.P. Morgan Economic Research, Refinitiv Datastream, J.P. Morgan Asset Management. UK IG: Bloomberg Barclays Sterling Agg. – Corporates; US HY: BofA/Merrill Lynch US High Yield Constrained; EM Debt: J.P. Morgan EMBI Global; Euro HY: BofA/Merrill Lynch Euro 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 2009 to 2018. Returns are unhedged in euro and local currencies. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

WTI crude oil price and US rig count

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

**Metal prices**

Index level, rebased to 100 in Jan 2007



Source: (Left) Baker Hughes, Bloomberg, J.P. Morgan Asset Management. (Right) Bloomberg, 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 March 2019.

Gold vs. real US 10-year Treasury yields

\$ per Troy ounce (LHS), % inverted (RHS)



Gold price

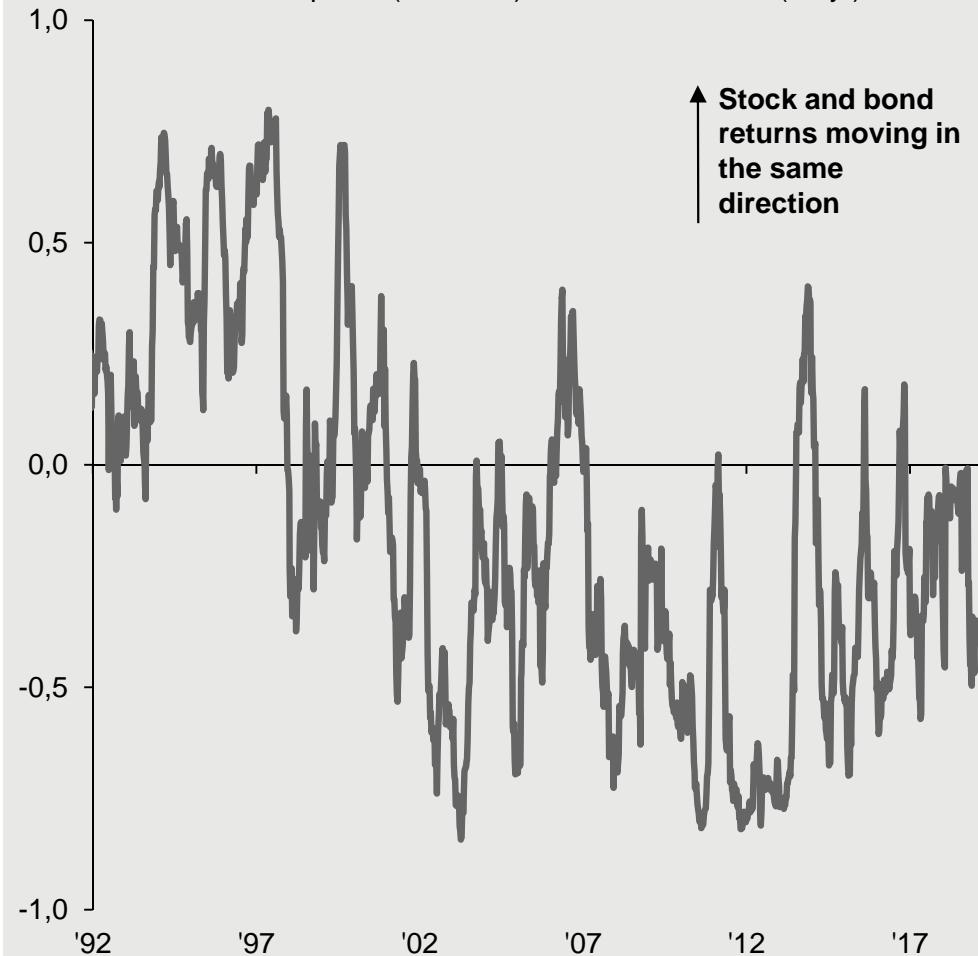
\$ per Troy ounce



Source: (All charts) Refinitiv Datastream, J.P. Morgan Asset Management. Inflation-adjusted gold price is the historic gold price in today's money, converted using the US Consumer Price Index. The 2001 low is defined as April 2001, and the 2011 peak is defined as August 2011. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

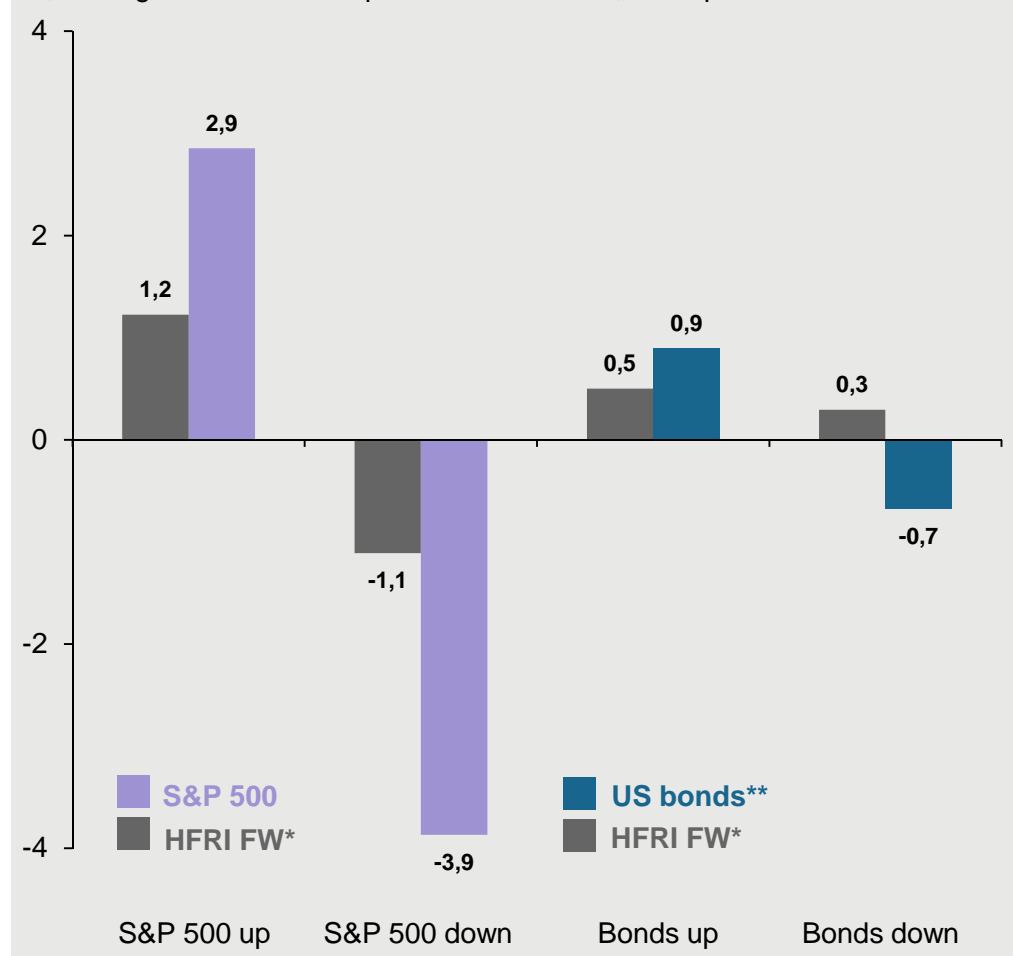
Rolling six-month stock and bond correlations

Of total return on US equities (S&P 500) and US Treasuries (10-yr)



Hedge fund returns in different market environments

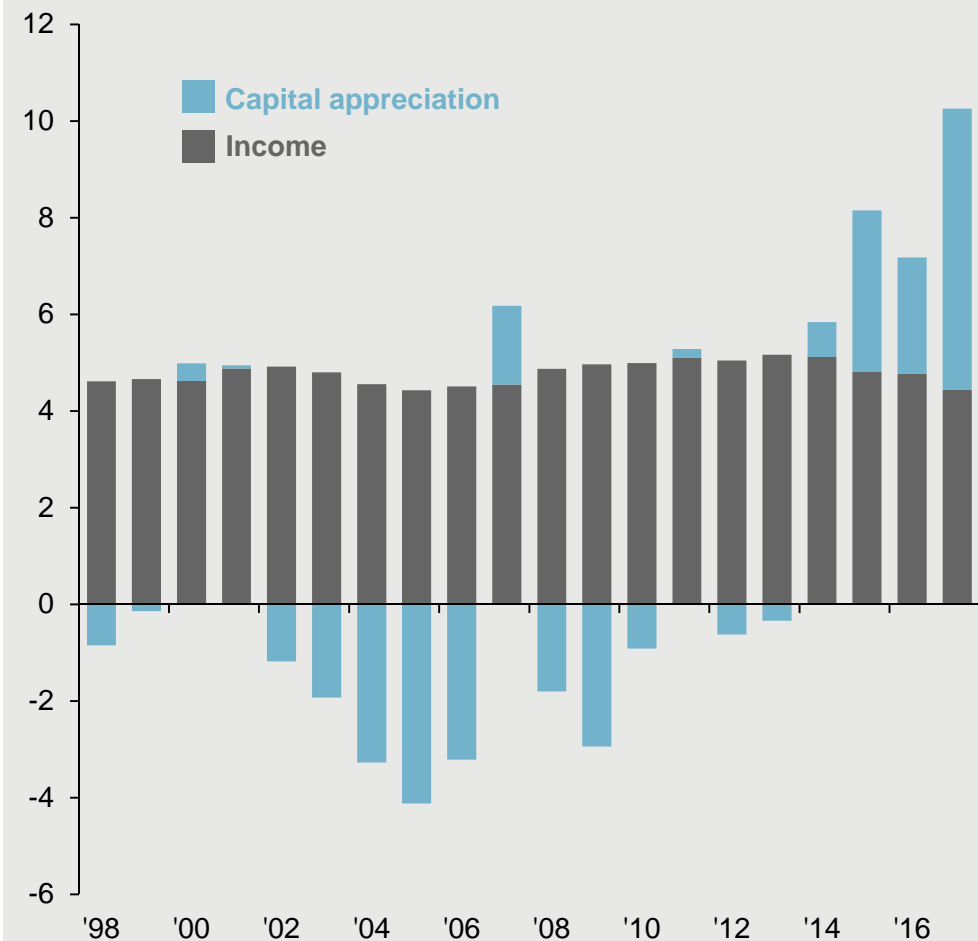
%, average total return in up and down months, 2001-present



Source: (Left) Refinitiv Datastream, J.P. Morgan Asset Management. (Right) Barclays, Hedge Fund Research, Refinitiv Datastream, Standard & Poor's, J.P. Morgan Asset Management. *HFRI FW is Hedge Fund Research Index Fund Weighted. **US bonds is the Bloomberg Barclays US Aggregate Bond Index. Downside protection refers to attempting to minimise the impact of any falls in the underlying investments. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

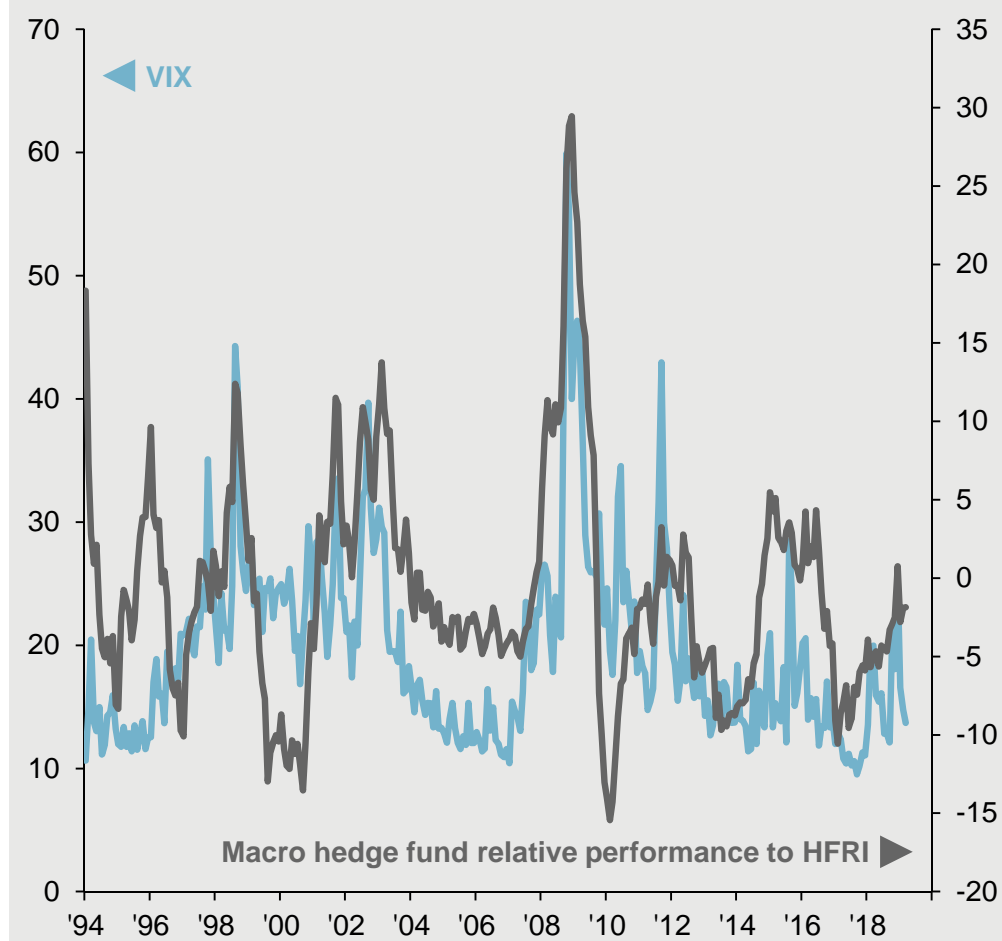
Germany property returns

%, annual returns



Macro hedge fund relative performance & volatility

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



Source: (Left) MSCI, J.P. Morgan Asset Management. Germany property includes retail, office, industrial, residential, and hotel sectors. (Right) CBOE, Hedge Fund Research Indices (HFRI), Refinitiv, J.P. Morgan Asset Management. Macro hedge fund relative performance is calculated relative to the HFRI fund weighted hedge fund index. VIX is the implied volatility of S&P 500 Index based on options pricing. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Environmental, social and governance considerations



ENVIRONMENTAL

Carbon emissions
Water & waste
Biodiversity



SOCIAL

Labour management
Health & product safety
Privacy & data security



GOVERNANCE

Management & oversight
Board composition
Ownership & pay

Global equities

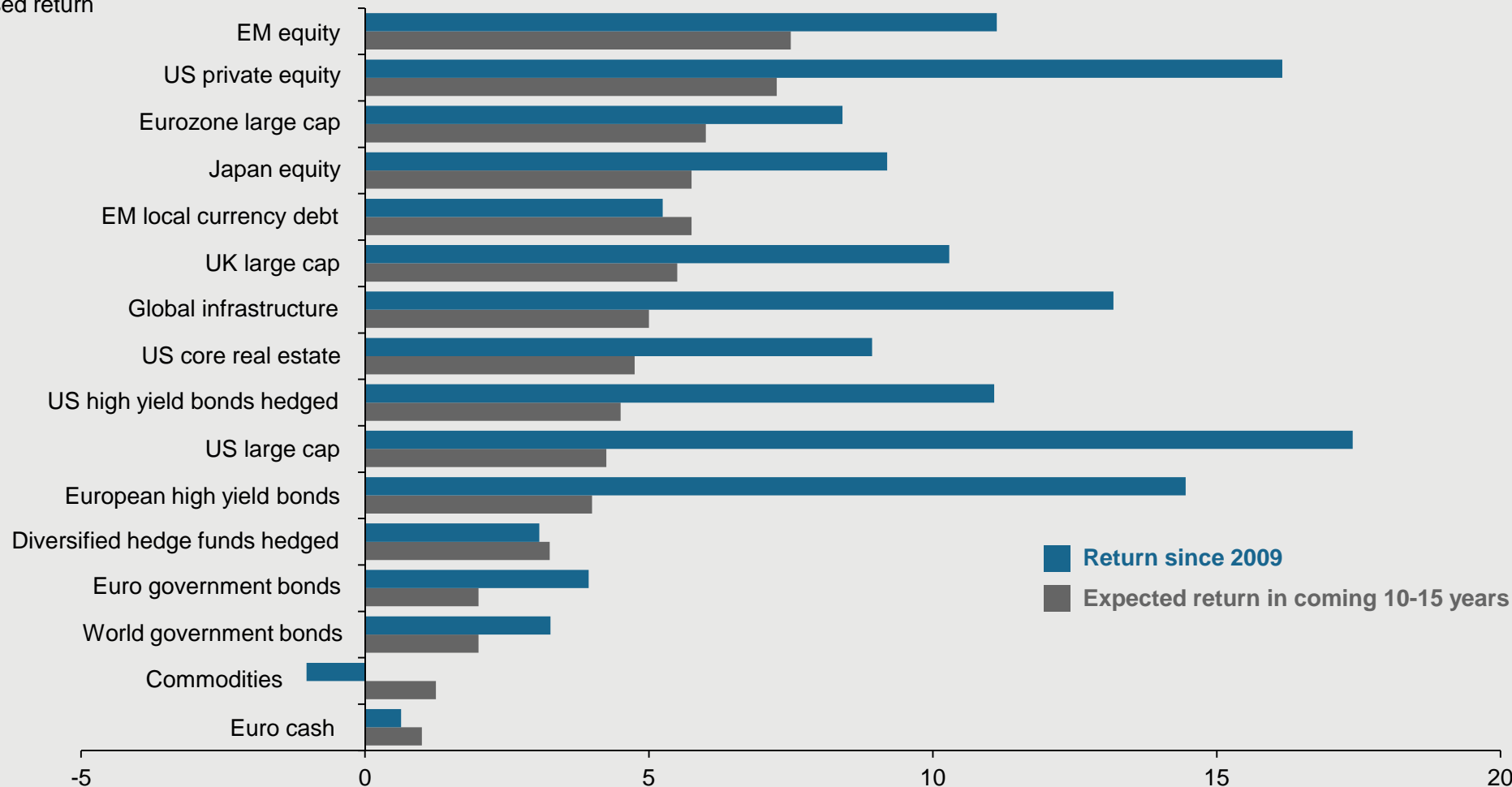
Price index



Source: MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Both MSCI ACWI and MSCI ACWI ESG Leaders are in USD, rebased to 100 at the inception of the ESG Leaders index. MSCI ACWI ESG Leaders is a capitalisation-weighted price index that provides exposure to companies with high Environmental, Social and Governance (ESG) rankings relative to their sector peers and excludes companies with involvement in alcohol, gambling, tobacco, nuclear power and weapons. ESG rankings are given to companies based on the MSCI framework. The MSCI ESG Leaders index aims to target the sector weights of the underlying indices to limit systematic risk introduced by the ESG selection process. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Past and expected returns

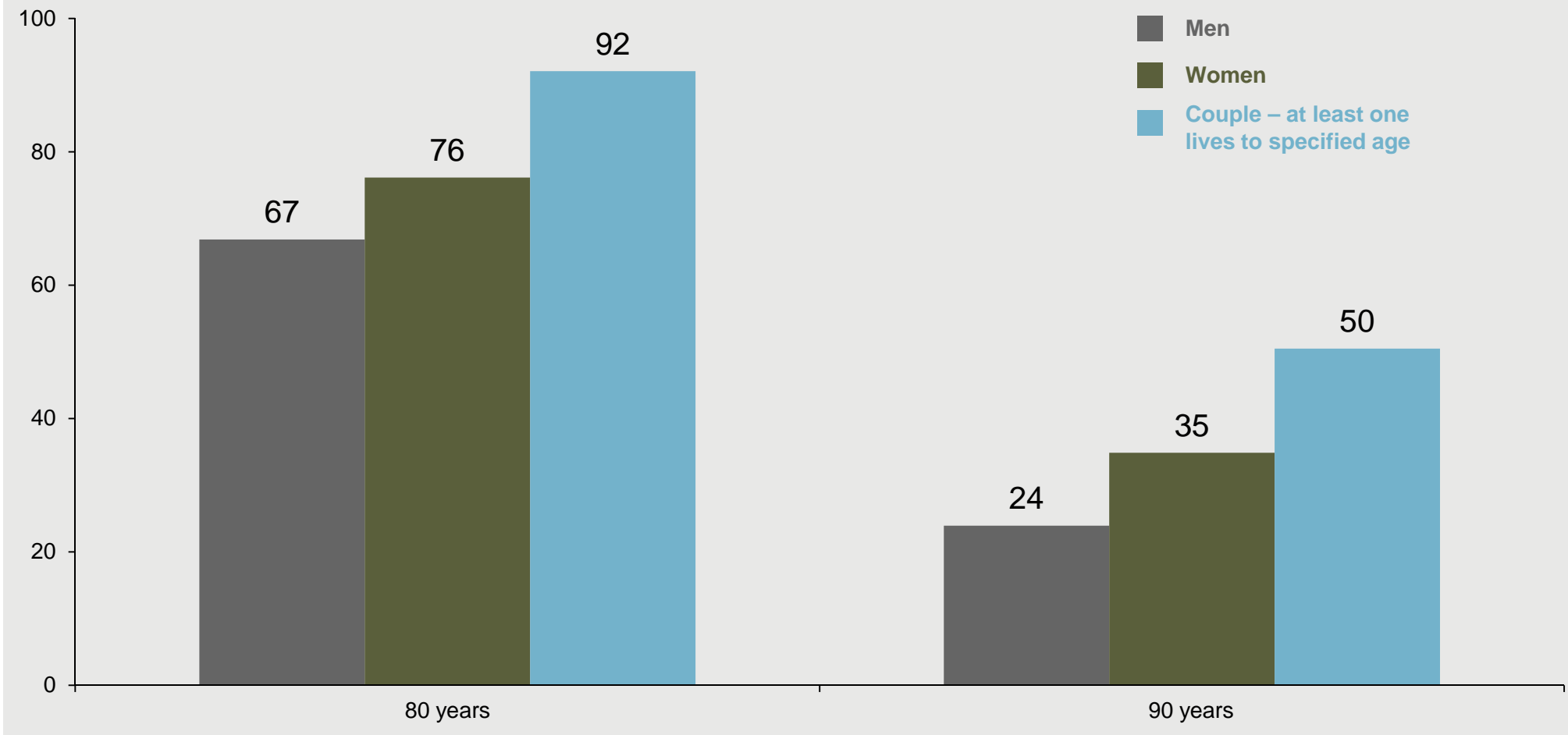
%, annualised return



Source: 2019 Long-Term Capital Market Assumptions, November 2018, J.P. Morgan Multi-Asset Solutions, J.P. Morgan Asset Management. Returns are nominal and in euros. Past returns are calculated from the start of 2009 up to 3Q 2018, or the most recent available data. The projections in the chart above are based on J.P. Morgan Asset Management's (JPMAM) 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 is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

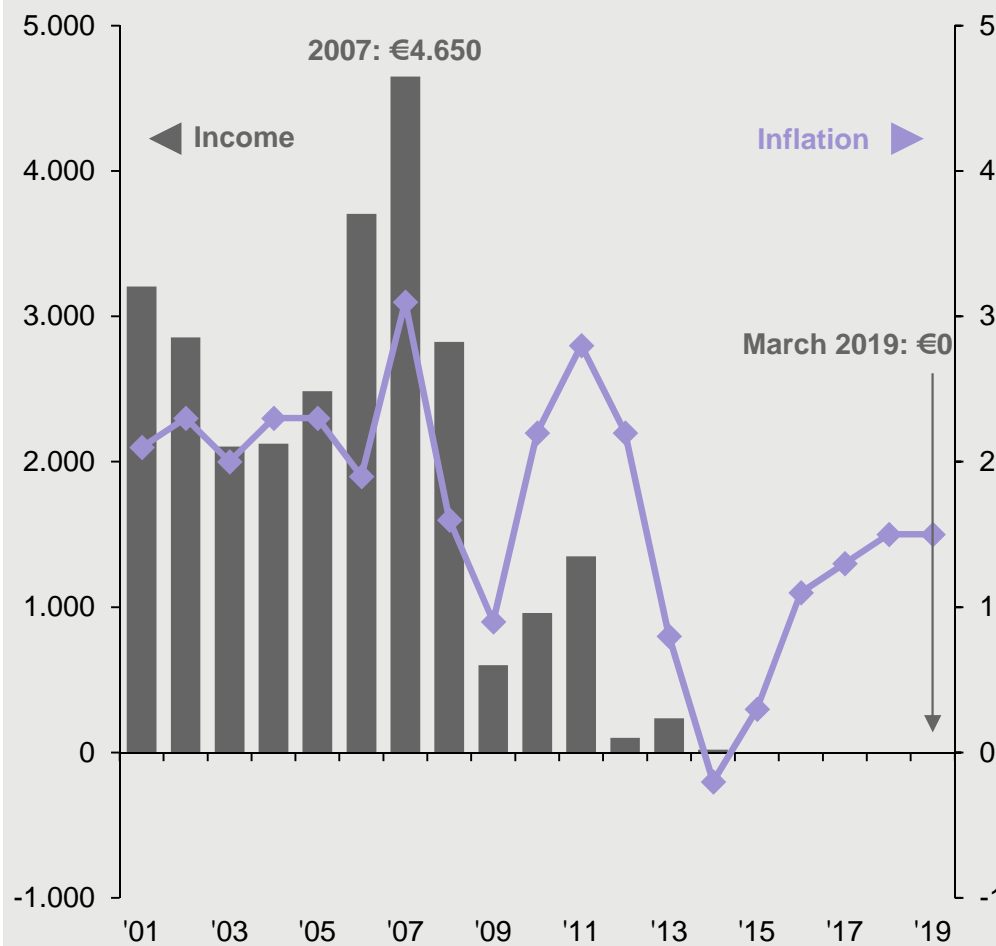
Probability of reaching ages 80 and 90

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



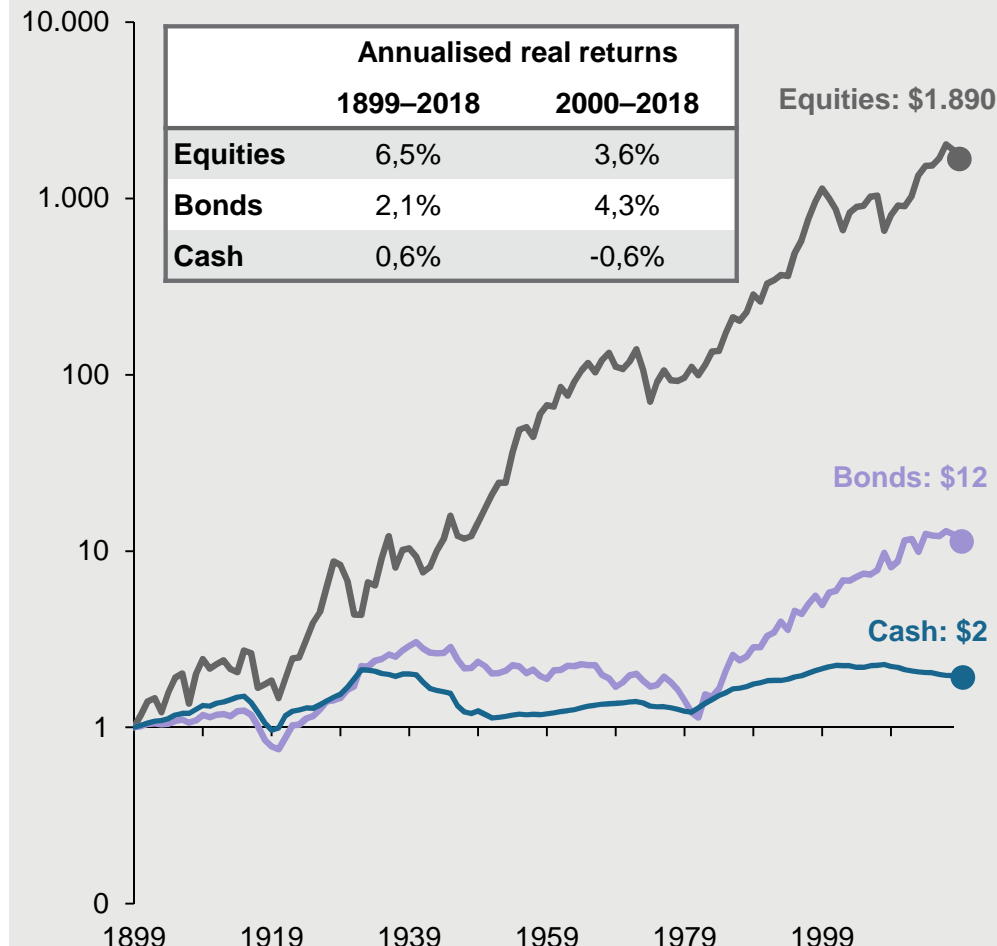
Source: ONS 2015-2017 Life Tables, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results.
Guide to the Markets - Europe. Data as of 31 March 2019.

Income generated by €100.000 in a three-month bank deposit
EUR (LHS); % change year on year (RHS)



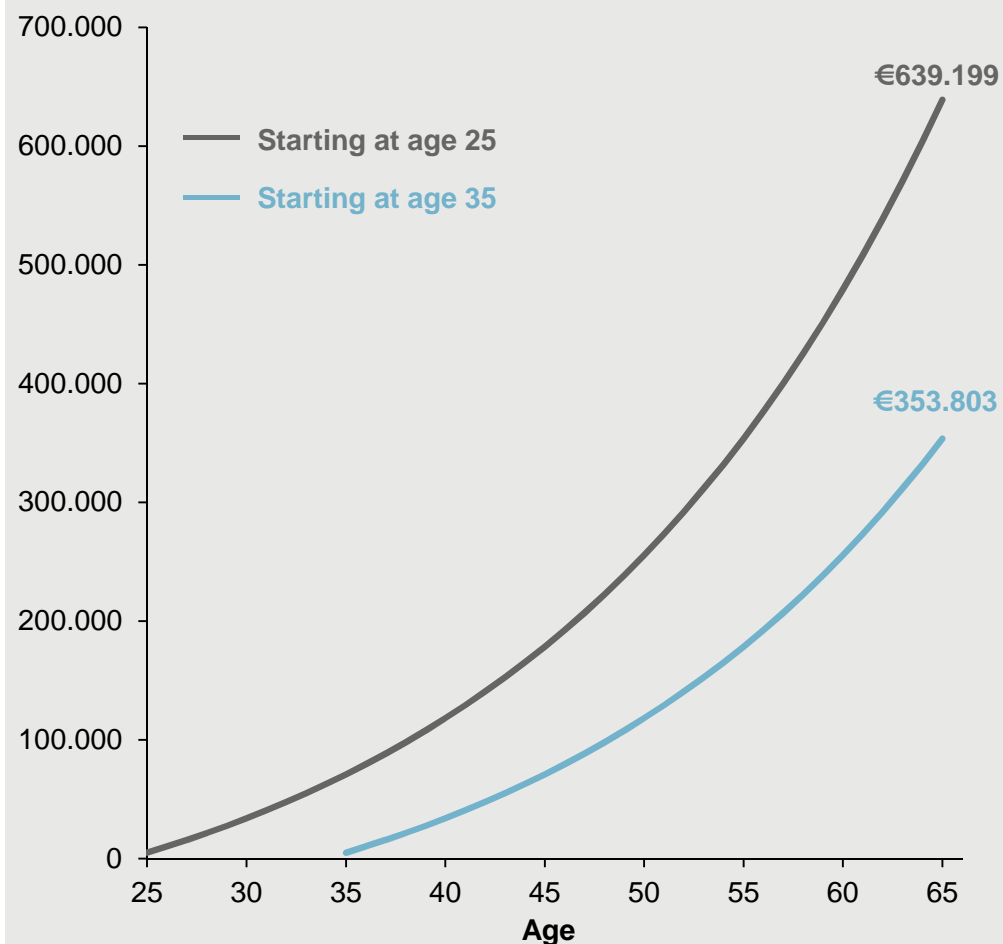
Total return of \$1 in real terms

USD, log scale, total returns

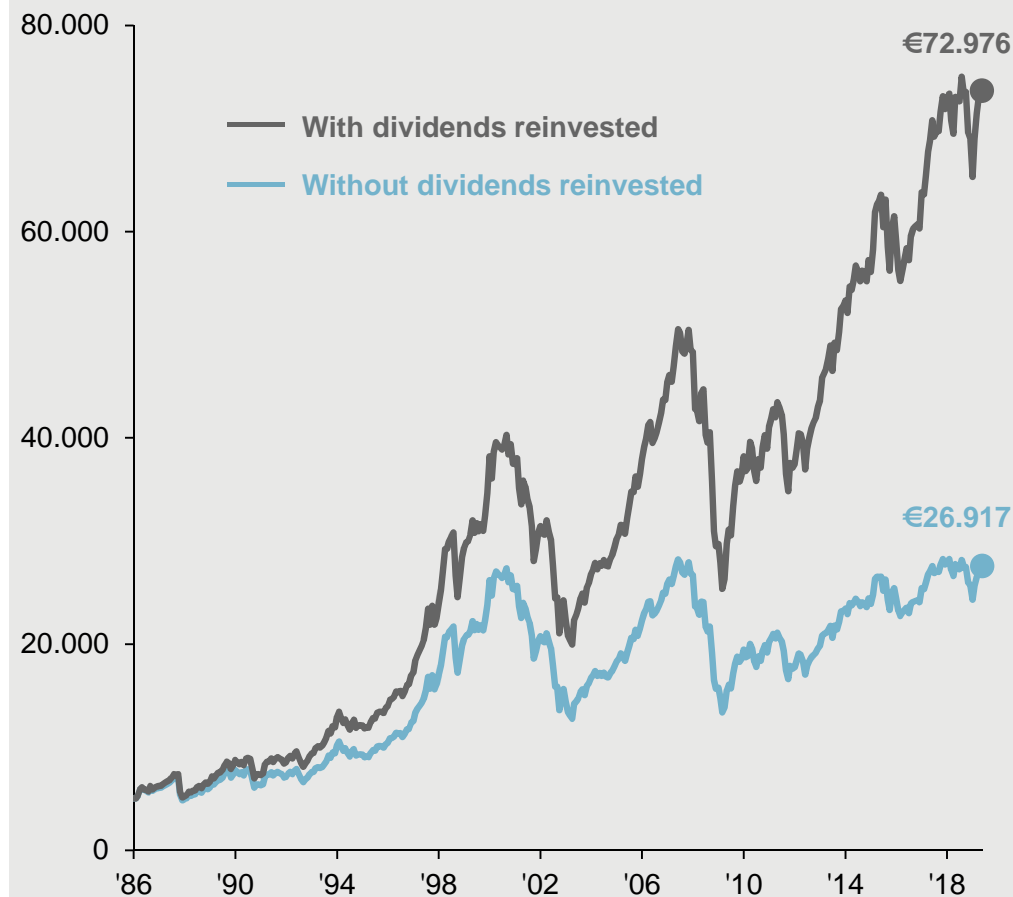


Source: (Left) Bloomberg, Eurostat, J.P. Morgan Asset Management. Inflation is the percentage change year on year for the eurozone harmonised index of consumer prices. (Right) Bloomberg, Bloomberg Barclays, FactSet, Shiller, Siegel, Standard & Poor's, J.P. Morgan Asset Management. Pre 2010 returns: Shiller, 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 March 2019.

€5.000 invested annually with 5% growth per year EUR



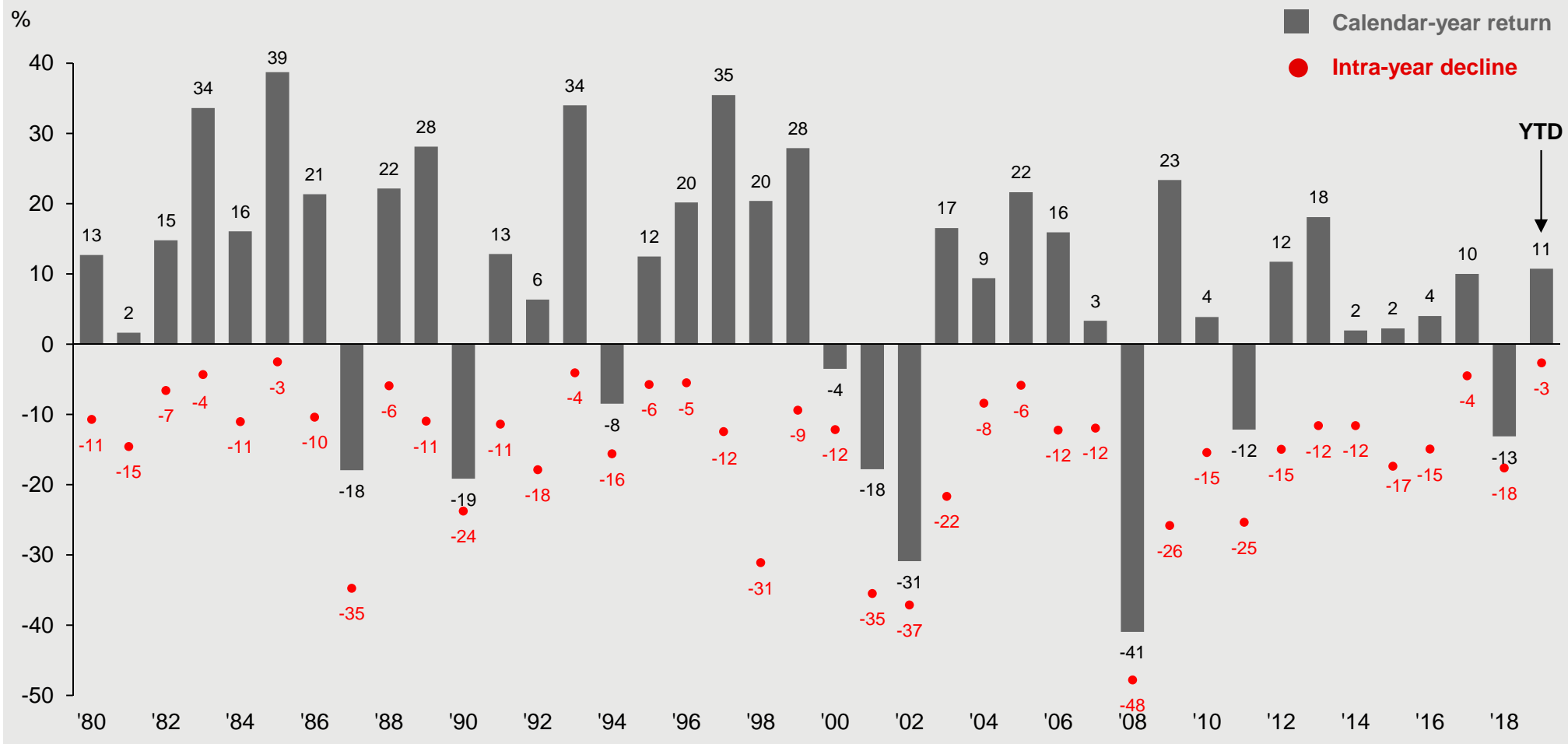
€5.000 investment with/without income reinvested EUR, MSCI Europe returns



Source: (Left) J.P. Morgan Asset Management. For illustrative purposes only, assumes all income reinvested, actual investments may incur higher or lower growth rates and charges. (Right) Bloomberg, MSCI, J.P. Morgan Asset Management. Based on MSCI Europe index and assumes no charges. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

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

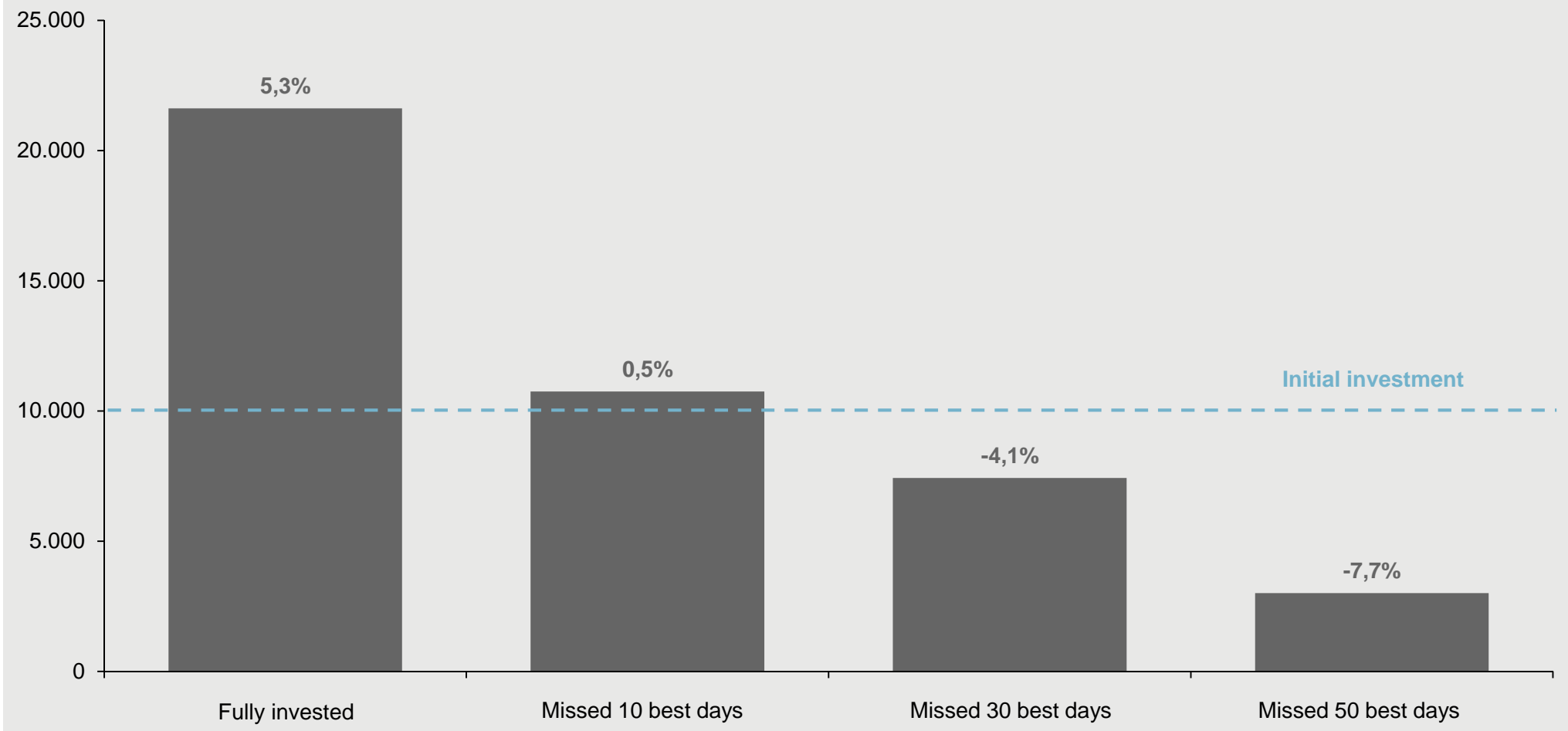
Despite average intra-year drops of 15,4% (median 12,1%), annual returns are positive in 30 of 39 years



Source: MSCI, Refinitiv Datastream, J.P Morgan Asset Management. Returns are based on local price only and do not include dividends. Intra-year decline refers to the largest market fall from peak to trough within a short time period during the calendar year. Returns shown are calendar years from 1980 to 2018. YTD is year to date. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 31 March 2019.

Returns of MSCI Europe

EUR, value of a €10.000 investment from 2004 to 2018 with annualised total return (%)

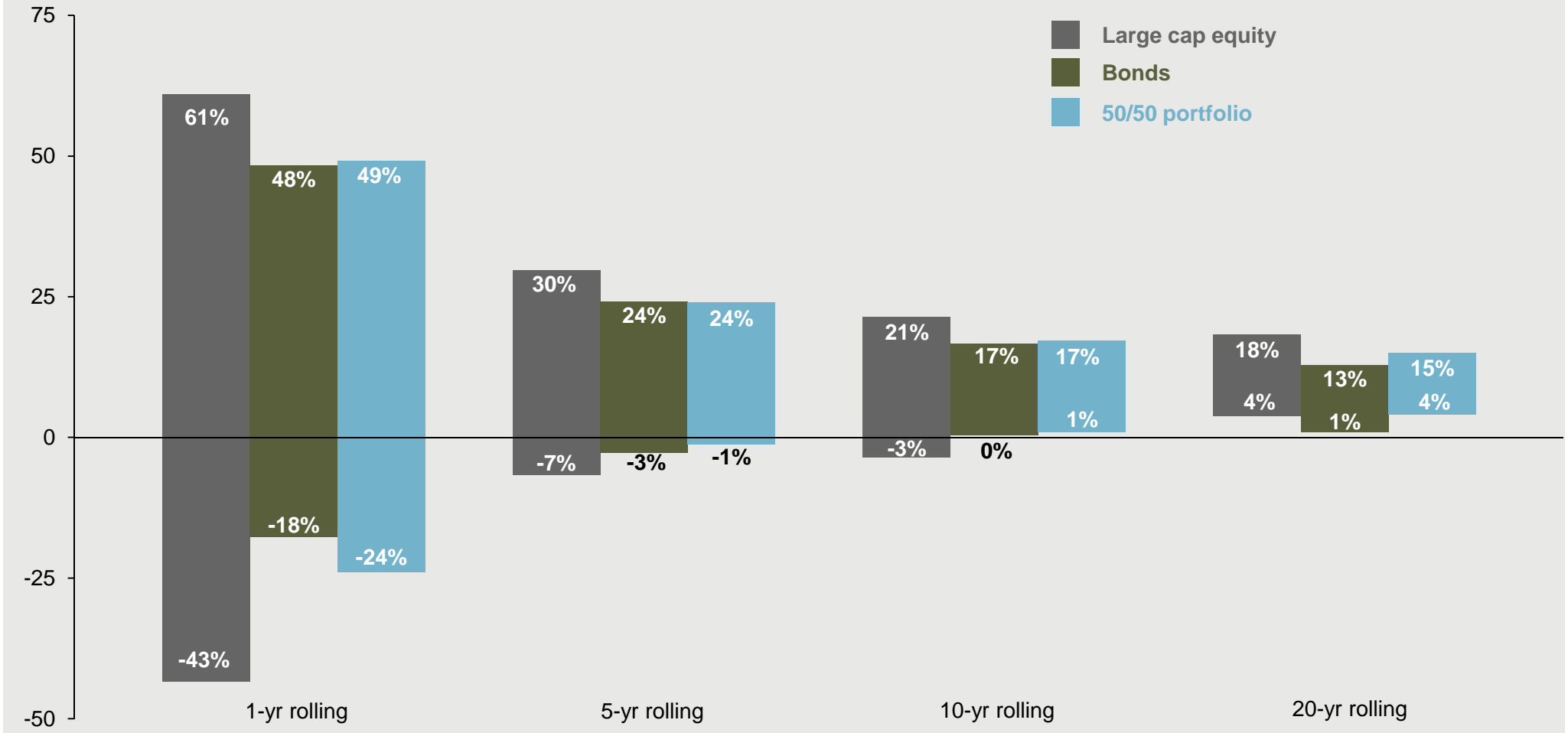


Source: Bloomberg, MSCI, J.P. Morgan Asset Management. Investment outcomes based on total return. For illustrative purposes only. Returns calculated daily over the time period assuming no return on each of the specified number of best days. Past performance is not a reliable indicator of current and future results.

Guide to the Markets - Europe. Data as of 31 March 2019.

Range of equity and bond total returns

%, annualised total returns, 1950-present



Source: 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 and US Long-term Corporate Bond Index. 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 March 2019.

Asset class returns (EUR)

GTM - Europe | 94

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	1Q19	Ann. return	Vol.
Govt bonds 15,9%	EME 73,5%	REITS 36,4%	EMD 12,1%	REITS 18,3%	DM Equities 21,9%	REITS 44,8%	REITS 13,9%	HY bonds 17,7%	EME 21,0%	Govt bonds 4,6%	REITS 18,8%	HY bonds 9,3%	EME 29,6%
Cash 5,7%	HY bonds 54,4%	EME 27,5%	REITS 10,9%	HY bonds 17,8%	Portfolio 3,3%	EMD 20,2%	EMD 12,8%	Cm dty 15,1%	DM Equities 8,1%	IG bonds 1,3%	DM Equities 14,7%	REITS 9,0%	REITS 20,3%
IG bonds -3,9%	DM Equities 26,7%	Cm dty 24,9%	Govt bonds 9,9%	EME 16,8%	HY bonds 2,7%	DM Equities 20,1%	DM Equities 11,0%	EME 14,9%	Portfolio 1,7%	HY bonds 0,8%	EME 11,9%	EMD 8,3%	HY bonds 18,3%
EMD -6,3%	Portfolio 25,4%	HY bonds 22,8%	IG bonds 7,8%	EMD 16,7%	Hedge Funds 2,1%	IG bonds 17,5%	HY bonds 8,4%	EMD 13,5%	Cash -0,3%	REITS 0,7%	Portfolio 9,6%	DM Equities 6,7%	DM Equities 17,0%
Hedge Funds -19,3%	EMD 24,2%	DM Equities 20,1%	HY bonds 6,6%	DM Equities 14,7%	Cash 0,2%	Portfolio 16,2%	Govt bonds 7,7%	REITS 12,6%	HY bonds -3,0%	EMD 0,2%	EMD 8,5%	IG bonds 5,9%	Cm dty 15,7%
Portfolio -20,9%	REITS 23,5%	EMD 19,8%	Cash 1,7%	Portfolio 10,7%	REITS -1,3%	HY bonds 13,9%	IG bonds 7,4%	DM Equities 11,4%	EMD -4,0%	Cash -0,3%	HY bonds 8,3%	Portfolio 5,8%	Portfolio 11,7%
HY bonds -23,1%	IG bonds 15,5%	Portfolio 18,9%	Portfolio 1,2%	IG bonds 9,5%	IG bonds -4,0%	Hedge Funds 13,2%	Hedge Funds 7,3%	Portfolio 10,3%	REITS -4,0%	Portfolio -1,6%	Cm dty 8,2%	Govt bonds 4,7%	EMD 11,4%
Cm dty -32,3%	Cm dty 15,2%	Govt bonds 13,3%	DM Equities -1,8%	Hedge Funds 1,9%	EME -6,5%	Govt bonds 13,0%	Portfolio 6,4%	IG bonds 7,4%	IG bonds -4,2%	Hedge Funds -2,0%	IG bonds 6,0%	EME 2,7%	Hedge Funds 9,3%
REITS -34,1%	Hedge Funds 9,9%	IG bonds 13,2%	Hedge Funds -5,8%	Cash 1,2%	Govt bonds -8,4%	EME 11,8%	Cash 0,1%	Hedge Funds 5,6%	Govt bonds -5,8%	DM Equities -3,6%	Hedge Funds 4,7%	Hedge Funds 1,2%	Govt bonds 7,6%
DM Equities -37,2%	Cash 2,3%	Hedge Funds 12,5%	Cm dty -10,4%	Govt bonds 0,3%	EMD -10,6%	Cash 0,3%	EME -4,9%	Govt bonds 4,7%	Hedge Funds -6,9%	Cm dty -6,8%	Govt bonds 3,4%	Cash 1,1%	IG bonds 7,5%
EME -50,8%	Govt bonds -0,6%	Cash 1,1%	EME -15,4%	Cm dty -2,6%	Cm dty -13,4%	Cm dty -5,5%	Cm dty -16,1%	Cash -0,1%	Cm dty -10,7%	EME -9,9%	Cash -0,1%	Cm dty -5,1%	Cash 1,7%

Source: Barclays, Bloomberg, FTSE, MSCI, J.P. Morgan Economic Research, Refinitiv Datastream, J.P. Morgan Asset Management. Annualised return covers the period from 2008 to 2018. Vol. is the standard deviation of annual returns. Govt bonds: Bloomberg Barclays Global Aggregate Government Treasuries; HY bonds: Bloomberg Barclays Global High Yield; EMD: J.P. Morgan EMBI Global; IG bonds: Bloomberg Barclays Global Aggregate – Corporates; Cm dty: Bloomberg Commodity; REITS: FTSE NAREIT All REITS; DM Equities: MSCI World; EME: 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 March 2019.

J.P. Morgan Asset Management: Index definitions

All indexes are unmanaged and an individual cannot invest directly in an index. Index returns do not include fees or expenses.

The **S&P 500 Index** is widely regarded as the best single gauge of the U.S. equities market. This world-renowned index includes a representative sample of 500 leading companies in leading industries of the U.S. economy. Although the S&P 500 Index focuses on the large-cap segment of the market, with approximately 75% coverage of U.S. equities, it is also an ideal proxy for the total market. An investor cannot invest directly in an index.

The **S&P 400 Mid Cap Index** is representative of 400 stocks in the mid-range sector of the domestic stock market, representing all major industries.

The **Russell 3000 Index**® measures the performance of the 3,000 largest U.S. companies based on total market capitalization.

The **Russell 1000 Index**® measures the performance of the 1,000 largest companies in the Russell 3000.

The **Russell 1000 Growth Index**® measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

The **Russell 1000 Value Index**® measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values.

The **Russell Midcap Index**® measures the performance of the 800 smallest companies in the Russell 1000 Index.

The **Russell Midcap Growth Index**® measures the performance of those Russell Midcap companies with higher price-to-book ratios and higher forecasted growth values. The stocks are also members of the Russell 1000 Growth index.

The **Russell Midcap Value Index**® measures the performance of those Russell Midcap companies with lower price-to-book ratios and lower forecasted growth values. The stocks are also members of the Russell 1000 Value index.

The **Russell 2000 Index**® measures the performance of the 2,000 smallest companies in the Russell 3000 Index.

The **Russell 2000 Growth Index**® measures the performance of those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values.

The **Russell 2000 Value Index**® measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

The **Russell Top 200 Index**® measures the performance of the largest cap segment of the U.S. equity universe. It includes approximately 200 of the largest securities based on a combination of their market cap and current index membership and represents approximately 68% of the U.S. market.

The **MSCI® EAFE** (Europe, Australia, Far East) Net Index is recognized as the pre-eminent benchmark in the United States to measure international equity performance. It comprises 21 MSCI country indexes, representing the developed markets outside of North America.

The **MSCI Emerging Markets Index**™ is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. As of June 2007, the MSCI Emerging Markets Index consisted of the following 25 emerging market country indices: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Jordan, Korea, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey.

The **MSCI ACWI (All Country World Index) Index** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets. As of June 2009 the **MSCI ACWI** consisted of 45 country indices comprising 23 developed and 22 emerging market country indices.

The **MSCI Small Cap Indices**™ target 40% of the eligible Small Cap universe within each industry group, within each country. MSCI defines the Small Cap universe as all listed securities that have a market capitalization in the range of USD200-1,500 million.

The **MSCI All Country Asia Pacific ex-Japan Index** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of the developed and emerging markets in the Pacific region. The **MSCI All Country Asia Pacific ex-Japan Index** consists of the following 11 developed and emerging market countries: Australia, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, Taiwan, and Thailand.

The **MSCI China Index** is an unmanaged index considered representative of stocks of China.

The **MSCI KOKUSAI Index** is a free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets excluding Japan. The MSCI KOKUSAI Index consists of the following 23 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States*.

The **Nikkei 225 Index** is a price-weighted average of the 225 top-rated Japanese companies listed in the first section of the Tokyo Stock Exchange.

The **Tokyo Price Index (TOPIX)** is a capitalization-weighted index lists all firms that are considered to be under the 'first section' on the TSE, which groups all of the large firms on the exchange into one pool. The second section groups all of the remaining smaller firms.

The **FTSE 100 Index** is an index of the 100 largest companies (by market capitalization) in the United Kingdom.

The **FTSE All Share Index** is an index of the 630 largest companies (by market capitalization) in the United Kingdom.

The **MSCI Value and Growth Indices**™ cover the full range of developed, emerging and All Country MSCI Equity indexes. As of the close of May 30, 2003, MSCI implemented an enhanced methodology for the MSCI Global Value and Growth Indices, adopting a two dimensional framework for style segmentation in which value and growth securities are categorized using different attributes - three for value and five for growth including forward-looking variables. The objective of the index design is to divide constituents of an underlying MSCI Standard Country Index into a value index and a growth index, each targeting 50% of the free float adjusted market capitalization of the underlying country index. Country Value/Growth indices are then aggregated into regional Value/Growth indices. Prior to May 30, 2003, the indices used Price/Book Value (P/BV) ratios to divide the standard MSCI country indices into value and growth indices. All securities were classified as either "value" securities (low P/BV securities) or "growth" securities (high P/BV securities), relative to each MSCI country index.

The following **MSCI Total Return Indices**™ are calculated with gross dividends:

This series approximates the maximum possible dividend reinvestment. The amount reinvested is the dividend distributed to individuals resident in the country of the company, but does not include tax credits.

The **MSCI Europe Index**™ is a free float-adjusted market capitalization index that is designed to measure developed market equity performance in Europe. As of June 2007, the MSCI Europe Index consisted of the following 16 developed market country indices: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

The **MSCI Pacific Index**™ is a free float-adjusted market capitalization index that is designed to measure equity market performance in the Pacific region. As of June 2007, the MSCI Pacific Index consisted of the following 5 Developed Market countries: Australia, Hong Kong, Japan, New Zealand, and Singapore.

Credit Suisse/Tremont Hedge Fund Index is compiled by Credit Suisse Tremont Index, LLC. It is an asset-weighted hedge fund index and includes only funds, as opposed to separate accounts. The Index uses the Credit Suisse/Tremont database, which tracks over 4500 funds, and consists only of funds with a minimum of US\$50 million under management, a 12-month track record, and audited financial statements. It is calculated and rebalanced on a monthly basis, and shown net of all performance fees and expenses. It is the exclusive property of Credit Suisse Tremont Index, LLC.

The **NCREIF Property Index** is a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only. All properties in the NPI have been acquired, at least in part, on behalf of tax-exempt institutional investors - the great majority being pension funds. As such, all properties are held in a fiduciary environment.

The **NAREIT EQUITY REIT Index** is designed to provide the most comprehensive assessment of overall industry performance, and includes all tax-qualified real estate investment trusts (REITs) that are listed on the NYSE, the American Stock Exchange or the NASDAQ National Market List.

J.P. Morgan Asset Management: Index definitions

The **Dow Jones Industrial Average** measures the stock performance of 30 leading blue-chip U.S. companies

The **Dow Jones-UBS Commodity Index** is composed of futures contracts on physical commodities and represents twenty two separate commodities traded on U.S. exchanges, with the exception of aluminum, nickel, and zinc.

West Texas Intermediate (WTI) is underlying commodity in the New York Mercantile Exchange's oil futures contracts.

The **S&P GSCI Index** is a composite index of commodity sector returns representing an unleveraged, long-only investment in commodity futures that is broadly diversified across the spectrum of commodities. The returns are calculated on a fully collateralized basis with full reinvestment.

The **Bloomberg Barclays U.S. Aggregate Index** represents securities that are SEC-registered, taxable, and dollar denominated. The index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities.

This **U.S. Treasury Index** is a component of the U.S. Government index.

The **Bloomberg Barclays High Yield Index** covers the universe of fixed rate, non-investment grade debt. Pay-in-kind (PIK) bonds, Eurobonds, and debt issues from countries designated as emerging markets (e.g., Argentina, Brazil, Venezuela, etc.) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.

The **Bloomberg Barclays 1-3 Month U.S. Treasury Bill Index** includes all publicly issued zero-coupon U.S. Treasury Bills that have a remaining maturity of less than 3 months and more than 1 month, are rated investment grade, and have \$250 million or more of outstanding face value.

The **Bloomberg Barclays Euro-Aggregate Index** consists of bond issued in the euro or the legacy currencies of the sovereign countries participating the European Monetary Union (EMU).

The **Global Bond Index Emerging Market Broad Diversified Index (GBI-EM)** is a comprehensive global local emerging markets index, and consists of liquid, fixed-rate, domestic currency government bonds.

The **Bloomberg Barclays Global Aggregate Corporate Index** consists of corporate issues in Europe, the US and Asia-Pacific regions.

The **Bloomberg Barclays Global High Yield Index** is an unmanaged index considered representative of fixed rate, noninvestment-grade debt of companies in the U.S., developed markets and emerging markets.

The **Bloomberg Barclays Emerging Markets Index** includes USD-denominated debt from emerging markets in the following regions: Americas, Europe, Middle East, Africa, and Asia. As with other fixed income benchmarks provided by Barclays Capital, the index is rules-based, which allows for an unbiased view of the marketplace and easy replicability.

The **Bloomberg Barclays MBS Index** covers the mortgage-backed pass-through securities of Ginnie Mae, Fannie Mae, and Freddie Mac. Aggregate components must have a weighted average maturity of at least one year, must have \$250 million par amount outstanding, and must be fixed rate mortgages.

The **Bloomberg Barclays Corporate Bond Index** is the Corporate component of the U.S. Credit index.

The **Bloomberg Barclays TIPS Index** consists of Inflation-Protection securities issued by the U.S. Treasury.

The **J.P. Morgan EMBI Global Index** includes U.S. dollar denominated Brady bonds, Eurobonds, traded loans and local market debt instruments issued by sovereign and quasi-sovereign entities.

The **Li Keqiang Index** is a composite measure composed of China's electricity production, financial institution loans and railway freight.

The **Euro Stoxx 600 Index** represents large, mid and small capitalisation companies across 18 European countries.

The **JPMorgan GBI-EM Global Diversified** consists of regularly traded, liquid fixed-rate, domestic currency government bonds to which international investors can gain exposure. The weightings among the countries are more evenly distributed within this index.

The **JPMorgan Corporate Emerging Markets Bond Index (CEMBI)**: The CEMBI tracks total returns of US dollar-denominated debt instruments issued by corporate entities in Emerging Markets countries, and consists of an investable universe of corporate bonds. Both indices are also available in Diversified version.

The **JPMorgan CEMBI Index** is a USD denominated external debt index tracking bond issued by sovereigns and quasi-sovereigns in the developing nations.

The **J.P. Morgan Domestic High Yield Index** is designed to mirror the investable universe of the U.S. dollar domestic high yield corporate debt market.

The **CS/Tremont Equity Market Neutral Index** takes both long and short positions in stocks with the aim of minimizing exposure to the systematic risk of the market (i.e. a beta of zero).*

The **CS/Tremont Multi-Strategy Index** consists of funds that allocate capital based on perceived opportunities among several hedge fund strategies. Strategies adopted in a multi-strategy fund may include, but are not limited to, convertible bond arbitrage, equity long/short, statistical arbitrage and merger arbitrage.

The **Bloomberg Barclays U.S. Dollar Floating Rate Note (FRN) Index** provides a measure of the U.S. dollar denominated floating rate note market.

*Market Neutral returns for November 2008 are estimates by J.P. Morgan Funds Market Strategy, and are based on a December 8, 2008 published estimate for November returns by CS/Tremont in which the Market Neutral returns were estimated to be +0.85% (with 69% of all CS/Tremont constituents having reported return data). Presumed to be excluded from the November return are three funds, which were later marked to \$0 by CS/Tremont in connection with the Bernard Madoff scandal. J.P. Morgan Funds believes this distortion is not an accurate representation of returns in the category. CS/Tremont later published a finalized November return of -40.56% for the month, reflecting this mark-down. CS/Tremont assumes no responsibility for these estimates.

The **Office of National Statistics (ONS) Index** is a mix-adjusted average housing price index. The index is calculated monthly using mortgage financed transactions from the Regulated Mortgage Survey by the Council of Mortgage Lenders.

The **Nationwide House Price Index** is a mix adjusted index constructed from Nationwide lending data across the UK.

The **Halifax House Price Index** is constructed from mortgage data derived from Halifax lending data across the UK.

The **MSCI AC World High Dividend Yield Index** is composed of those securities that have higher-than-average dividend yield within its parent index, a track record of consistent dividend payments and the capacity to sustain future dividend payments.

J.P. Morgan Asset Management: Risks and disclosures

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Prepared by: Karen Ward, Tilmann Galler, Vincent Juvyns, Maria Paola Toschi, Michael Bell, Jai Malhi and Ambrose Crofton.

Unless otherwise stated, all data as of 31 March 2019 or most recently available.

Guide to the Markets - Europe

JP-LITTLEBOOK

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