Guide to the Markets

Europe | **3Q 2019** | As of 30 June 2019

J.P.Morgan
Asset Management

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Page reference

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Global economy

Real GDP growth
% change year on year

2019 consensus forecast	
◆ **US**	**2,5%**
◆ **UK**	**1,3%**
◆ **Eurozone**	**1,2%**
◆ **Japan**	**0,7%**

Contribution to global real GDP growth
% change year on year

— **Global**
■ **China**
■ **EM ex-China**
■ **DM ex-US**
■ **US**

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. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

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Global Purchasing Managers' Index (PMI) for manufacturing

Global economy

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	'19	2019 May	Jun
	Global													49,8	49,4
	Developed													49,2	48,9
	Emerging													50,4	49,9
Eurozone	**Eurozone**													47,7	47,6
	France													50,6	51,9
	Germany													44,3	45,0
	Italy													49,7	48,4
	Spain													50,1	47,9
	Greece													54,2	52,4
	Ireland													50,4	49,8
Developed	**Sweden**													53,1	52,0
	Switzerland													48,6	47,7
	UK													49,4	48,0
	US													50,5	50,6
	Japan													49,8	49,3
Emerging	**China**													50,2	49,4
	Indonesia													51,6	50,6
	Korea													48,4	47,5
	Taiwan													48,4	45,5
	India													52,7	52,1
	Brazil													50,2	51,0
	Mexico													50,0	49,2
	Russia													49,8	48,6

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 30 June 2019.

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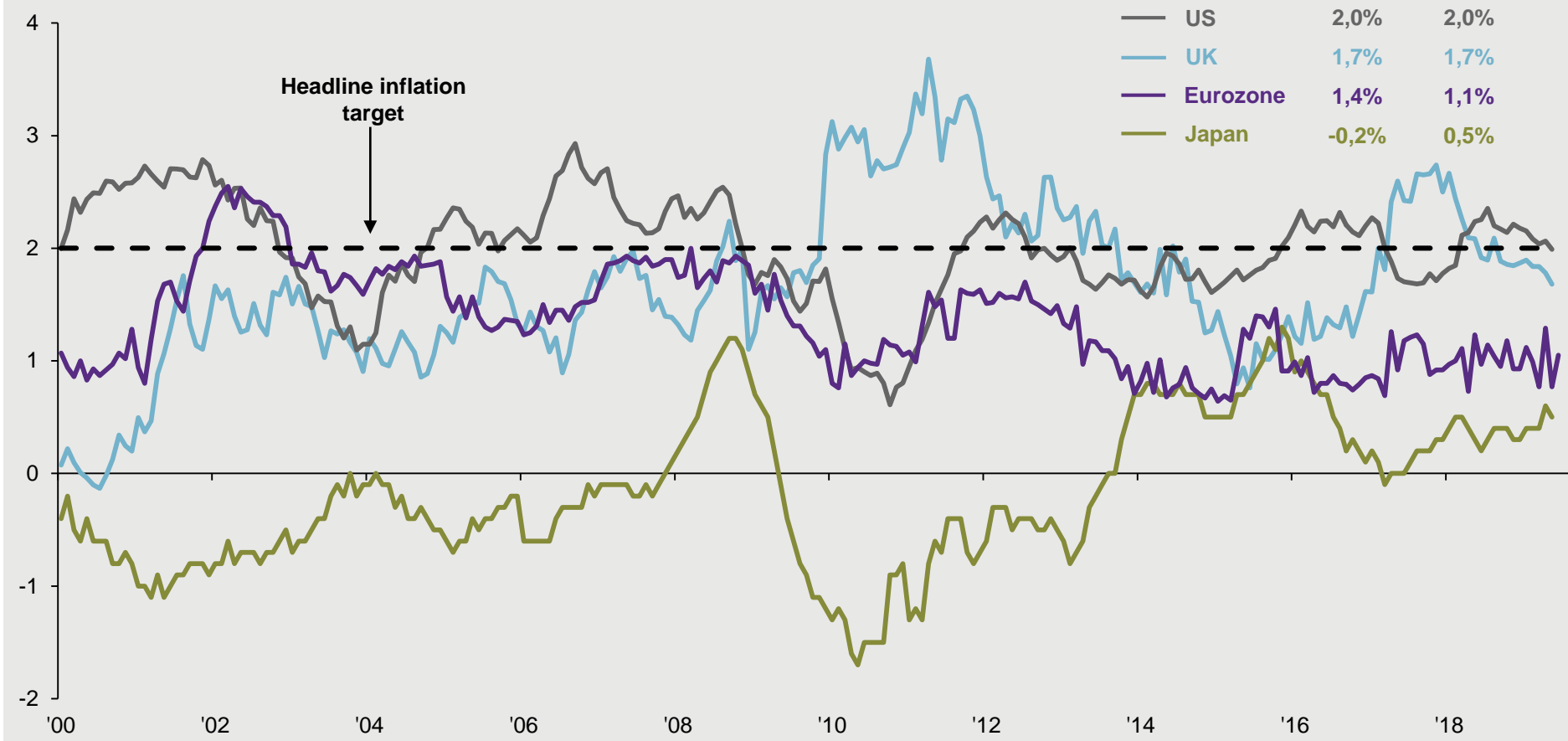Global economy

Unemployment rates

%
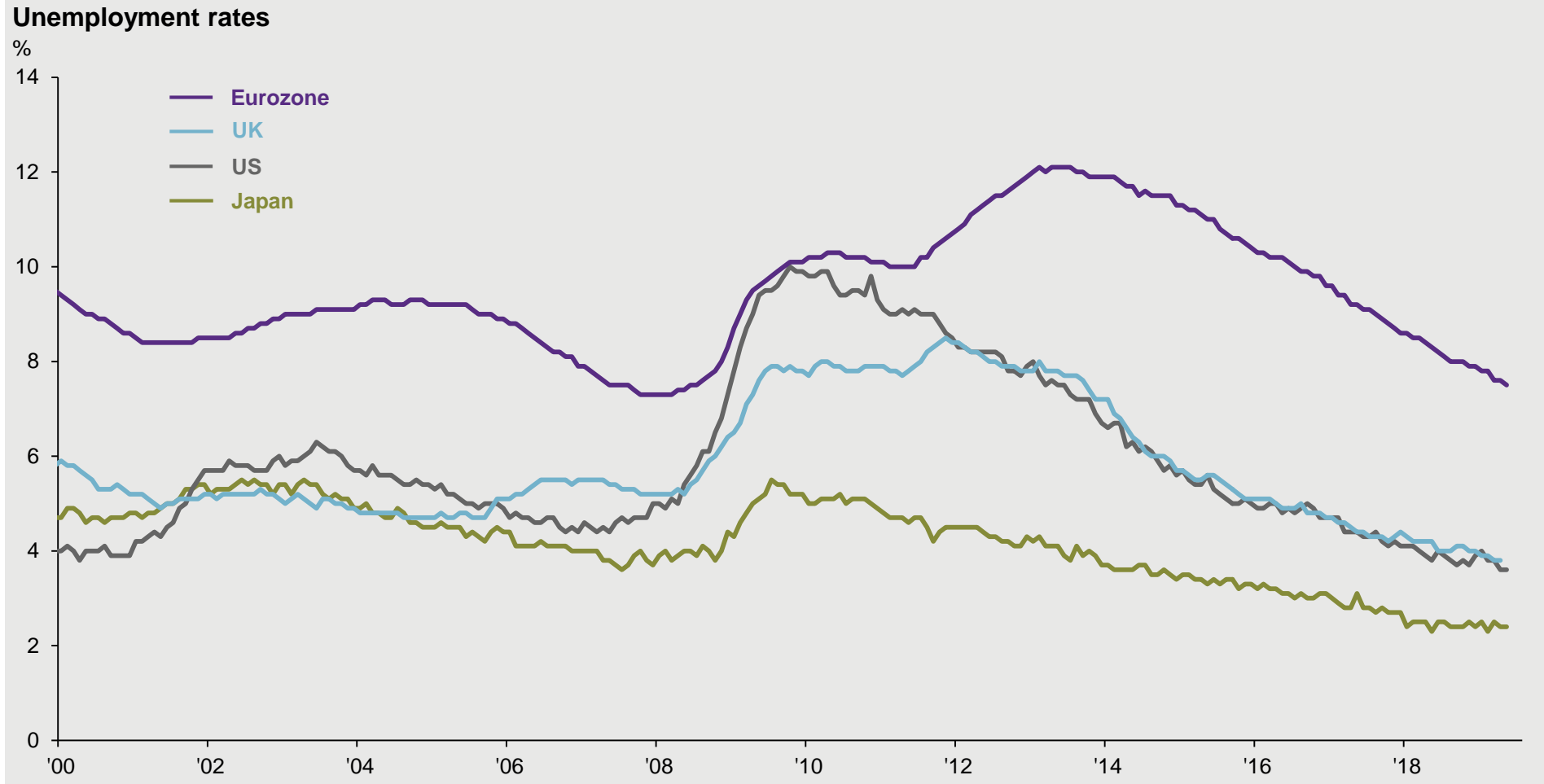
Source: BLS, Eurostat, Japan Ministry of Internal Affairs & Communications, ONS, Refinitiv Datastream, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

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Global economy

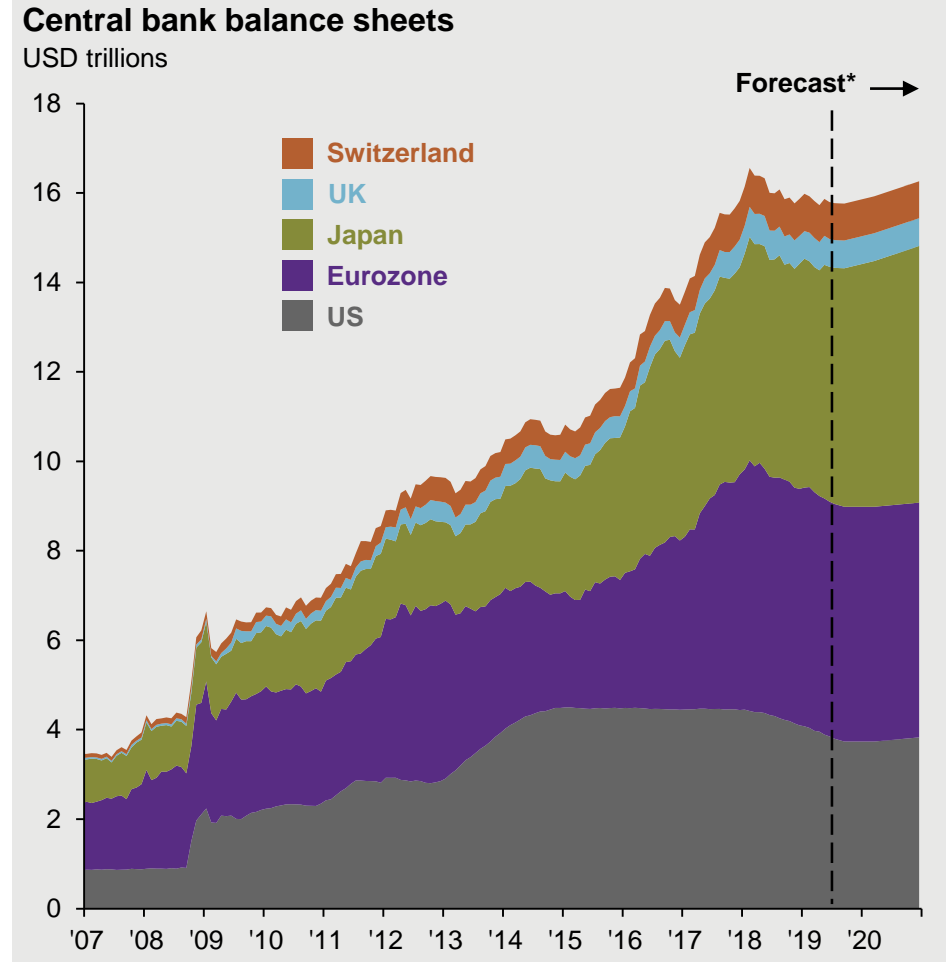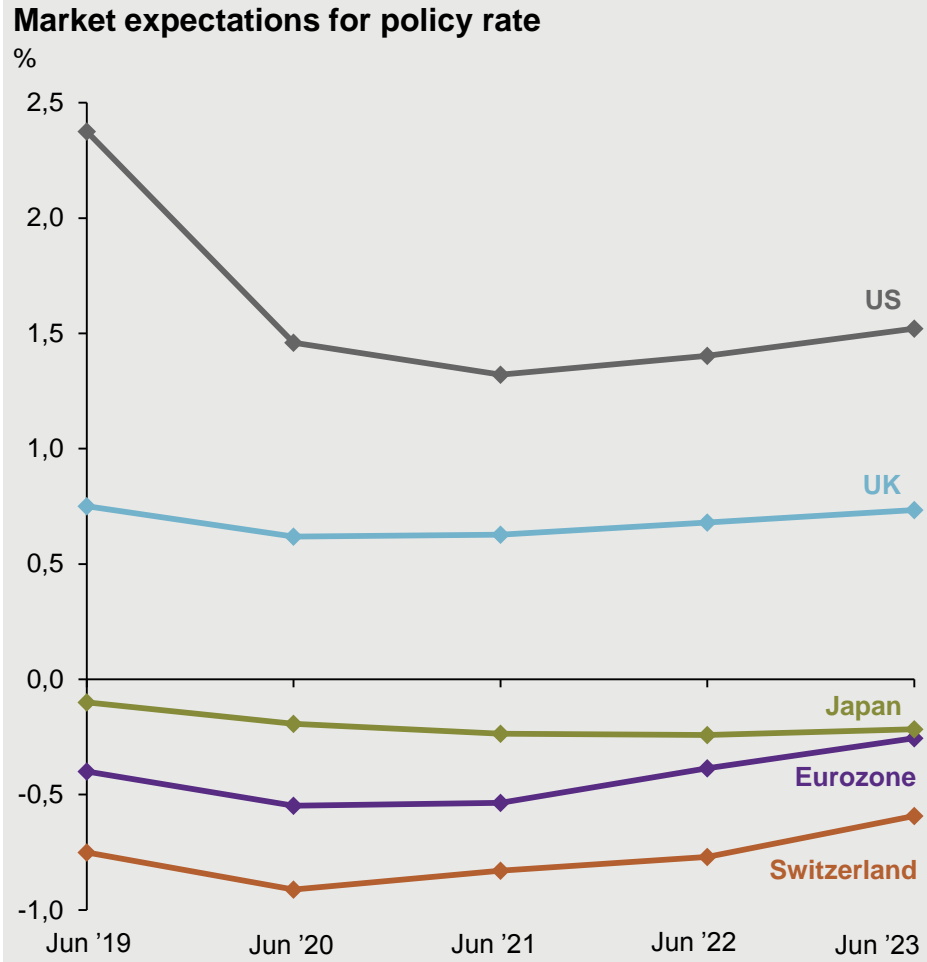|		2017							2018												2019				
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
	Global	1,8	1,8	2,1	2,1	2,1	2,2	2,2	2,1	2,3	2,2	2,2	2,4	2,6	2,7	2,7	2,7	2,8	2,4	2,1	1,9	1,9	2,2	2,4	2,3
	Developed	1,4	1,5	1,7	1,9	1,6	1,8	1,8	1,8	1,8	1,9	1,8	2,2	2,3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

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 30 June 2019.

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Global economy

Core inflation
% change year on year

|	Average since 2000	Latest
US	2,0%	2,0%
UK	1,7%	1,7%
Eurozone	1,4%	1,1%
Japan	-0,2%	0,5%

Headline inflation target

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 30 June 2019.

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Global economy

Market expectations for policy rate

%

Central bank balance sheets

USD trillions

Forecast*

- Switzerland
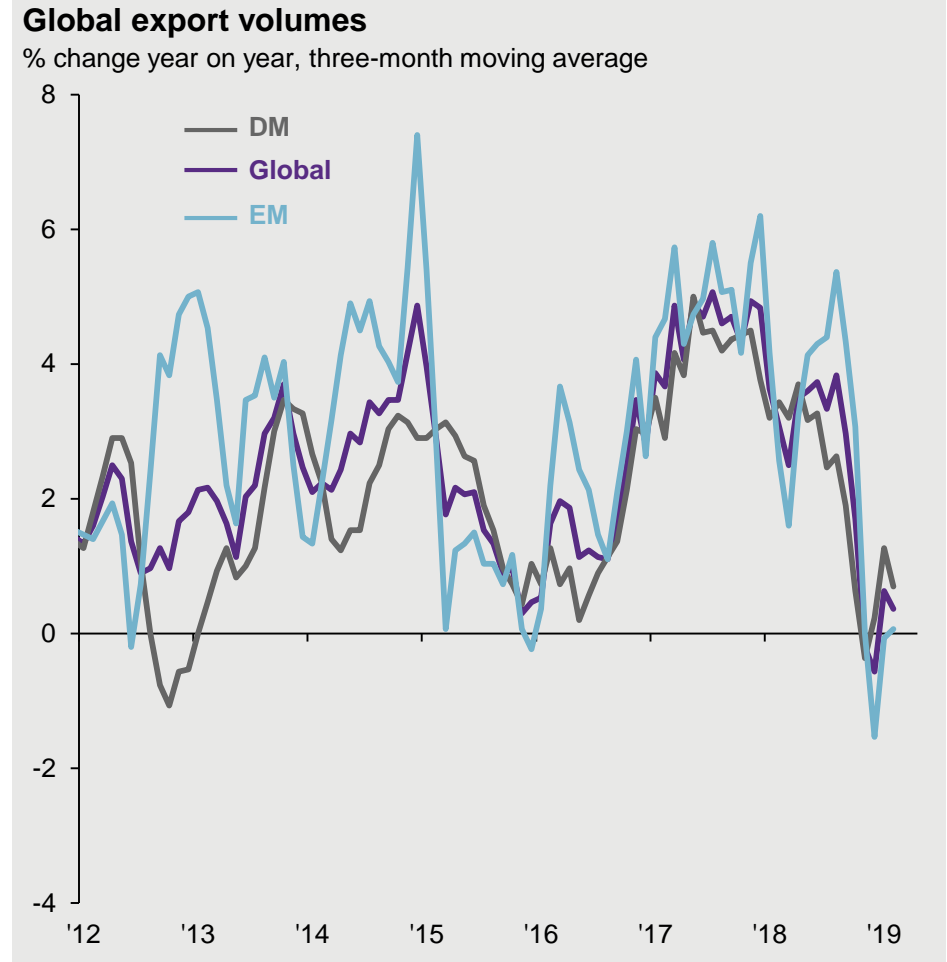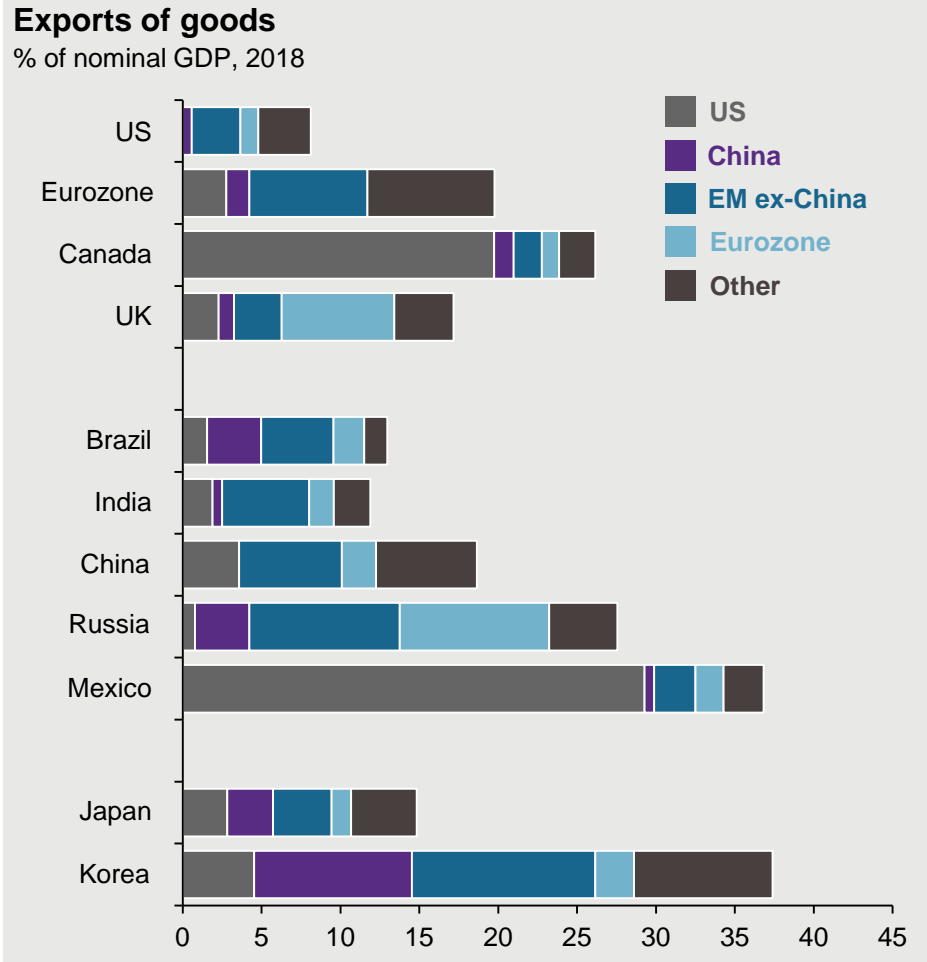- UK
- Japan
- Eurozone
- US

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 35 trillion 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 30 June 2019.

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Global currencies

Global economy

Real effective exchange rates

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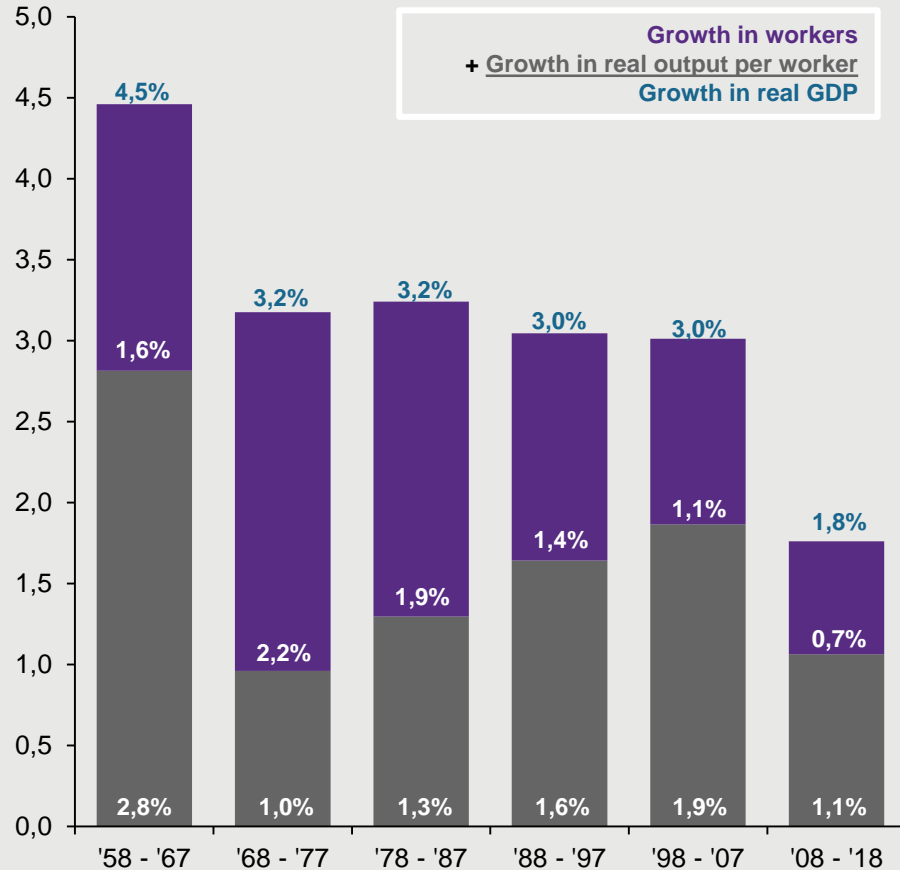

Legend: USD, GBP, EUR, JPY
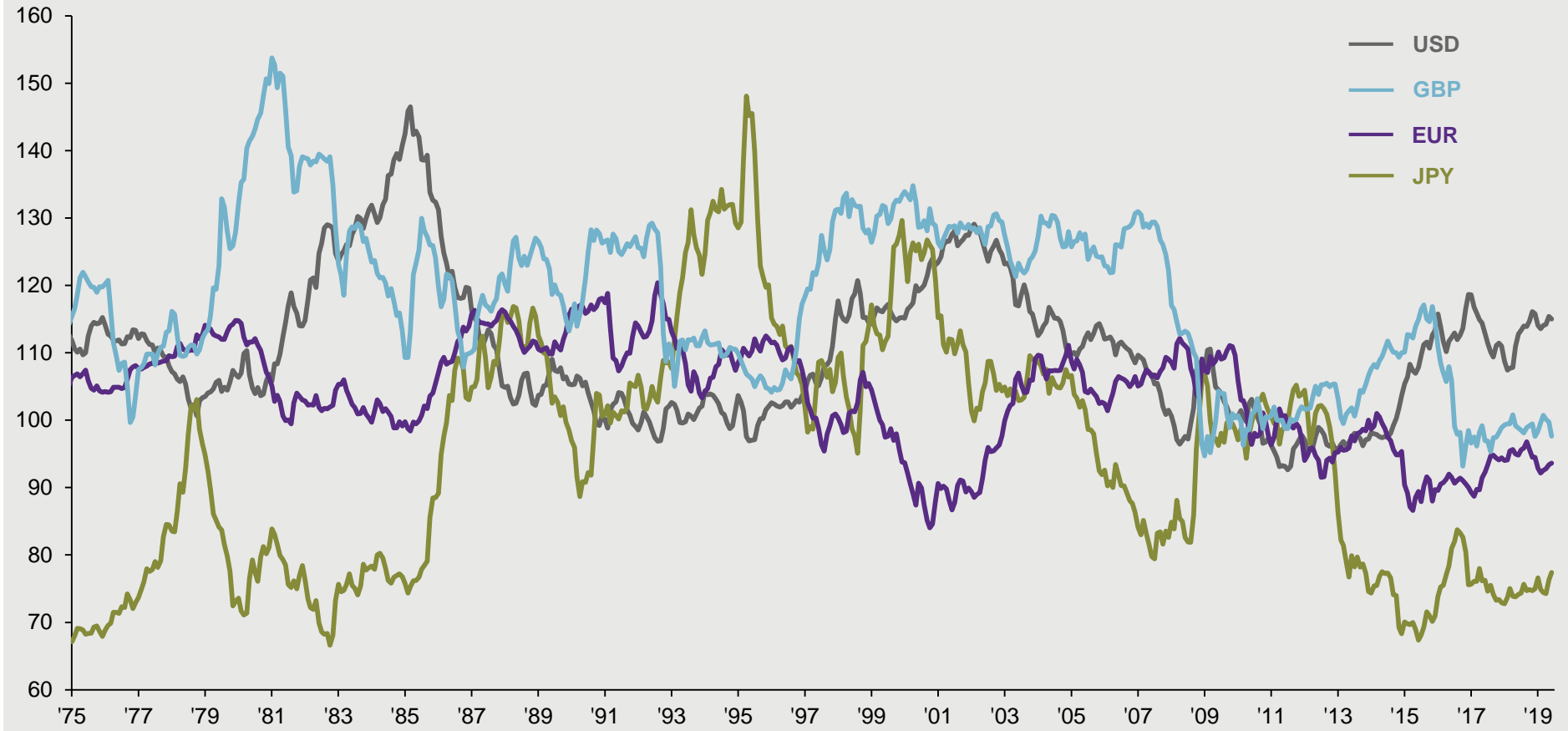
Source: J.P. Morgan Securities Research, Refinitiv Datastream, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.
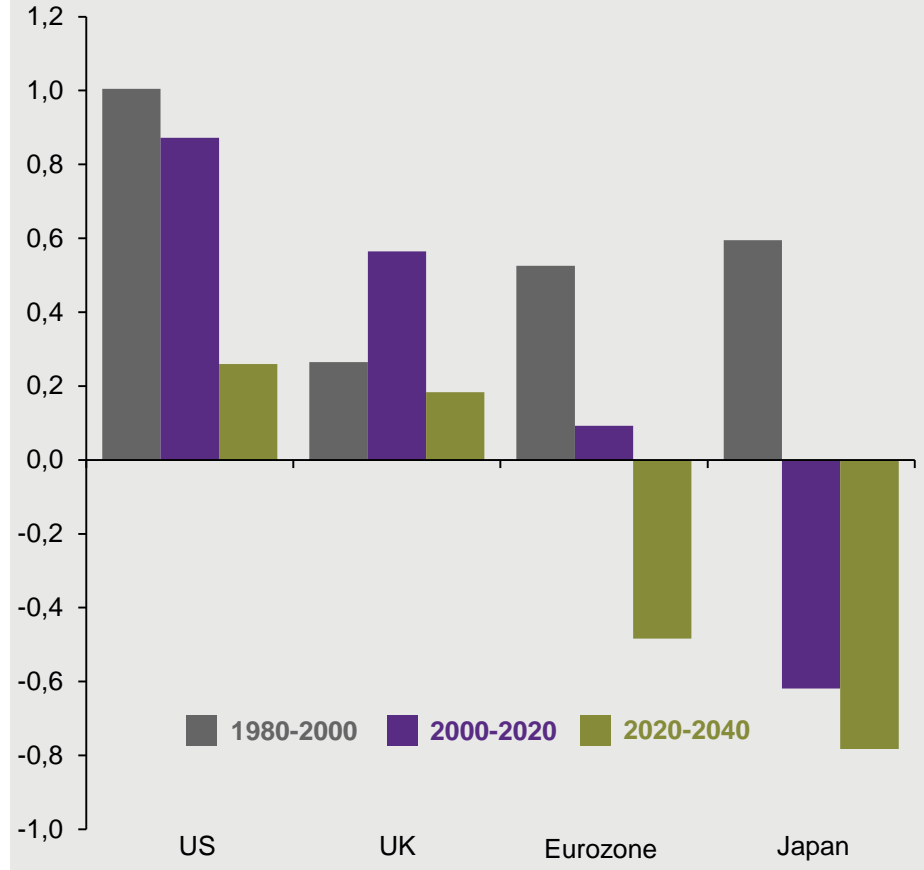
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Global economy

Exports of goods
% of nominal GDP, 2018

Legend:
- US
- China
- EM ex-China
- Eurozone
- Other

Categories (top to bottom):
US, Eurozone, Canada, UK, Brazil, India, China, Russia, Mexico, Japan, Korea

X-axis: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45

Global export volumes
% change year on year, three-month moving average

Legend:
- DM
- Global
- EM

Y-axis: -4, -2, 0, 2, 4, 6, 8

X-axis: '12, '13, '14, '15, '16, '17, '18, '19

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 30 June 2019.

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Productivity and population growth

Global economy

Drivers of US GDP growth
Average % change year on year

Legend:
Growth in workers
+ Growth in real output per worker
Growth in real GDP

Period	Growth in real GDP	Growth in real output per worker	Growth in workers
'58 - '67	4,5%	1,6%	2,8%
'68 - '77	3,2%	2,2%	1,0%
'78 - '87	3,2%	1,9%	1,3%
'88 - '97	3,0%	1,4%	1,6%
'98 - '07	3,0%	1,1%	1,9%
'08 - '18	1,8%	0,7%	1,1%

Global working-age population growth
Annualised % change

Legend: 1980-2000, 2000-2020, 2020-2040

Source: (Left) BEA, BLS, J.P. Morgan Asset Management. GDP drivers are calculated as the average annualised growth between 4Q from the preceding year in the period and 4Q of the last year of the period. (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 30 June 2019.

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Global economy

Contribution to US real GDP growth and ISM manufacturing

% change year on year (LHS); index level (RHS)
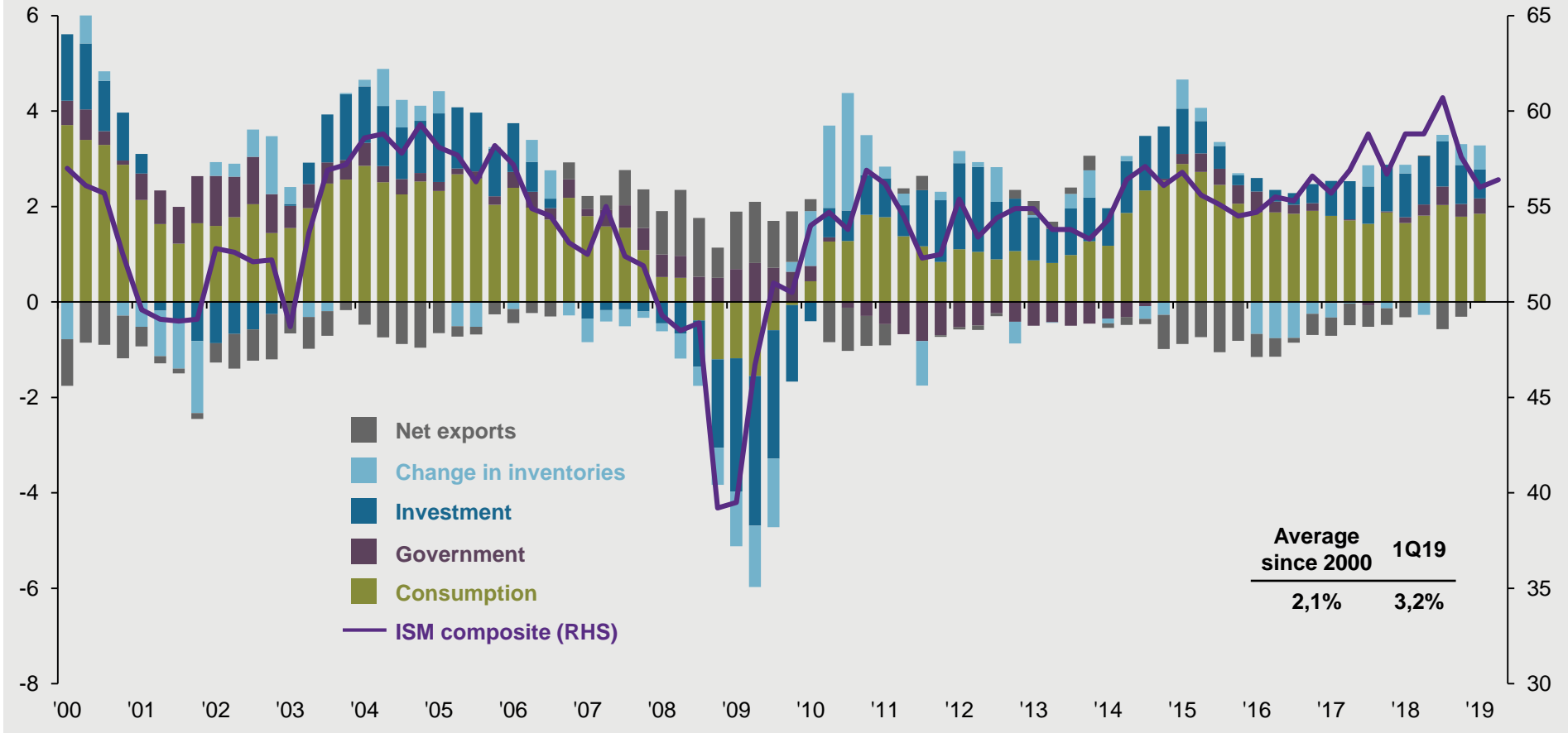
Legend:
- Net exports
- Change in inventories
- Investment
- Government
- Consumption
- ISM composite (RHS)

	Average since 2000	1Q19
	2,1%	3,2%

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US future capex intentions and business investment

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

◄ Business investment

◄ Duke CFO future capex intentions

Future capex intentions ►

Global economy
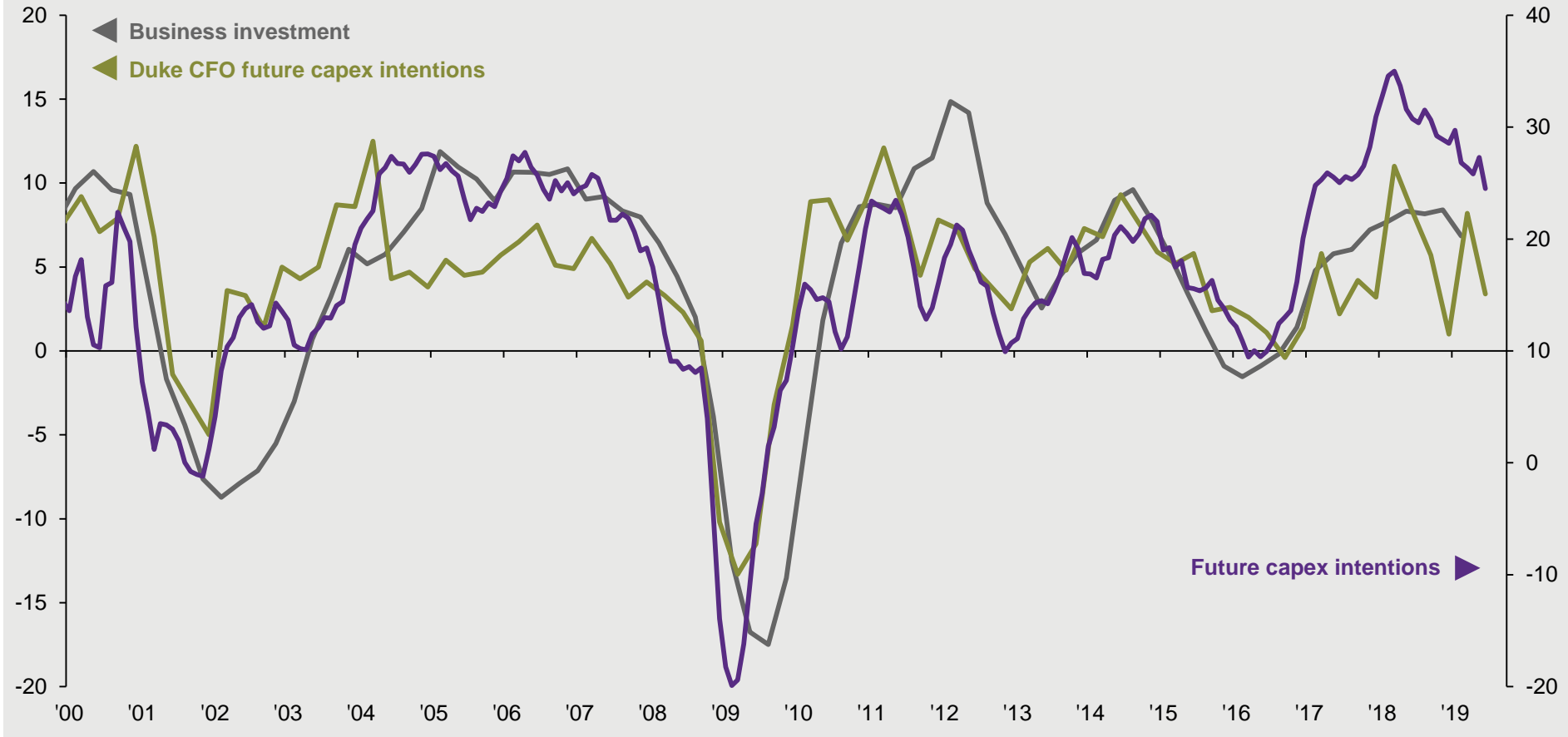
Source: BEA, Dallas Fed, Duke CFO Global Business Outlook, Haver Analytics, Kansas City Fed, New York Fed, Philadelphia Fed, Refinitiv Datastream, Richmond Fed, J.P. Morgan Asset Management. Future capex intentions is an average index level of the five aforementioned fed districts equally weighted, displayed using a three-month moving average. Duke CFO future capex intentions is expected growth in the next 12 months. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

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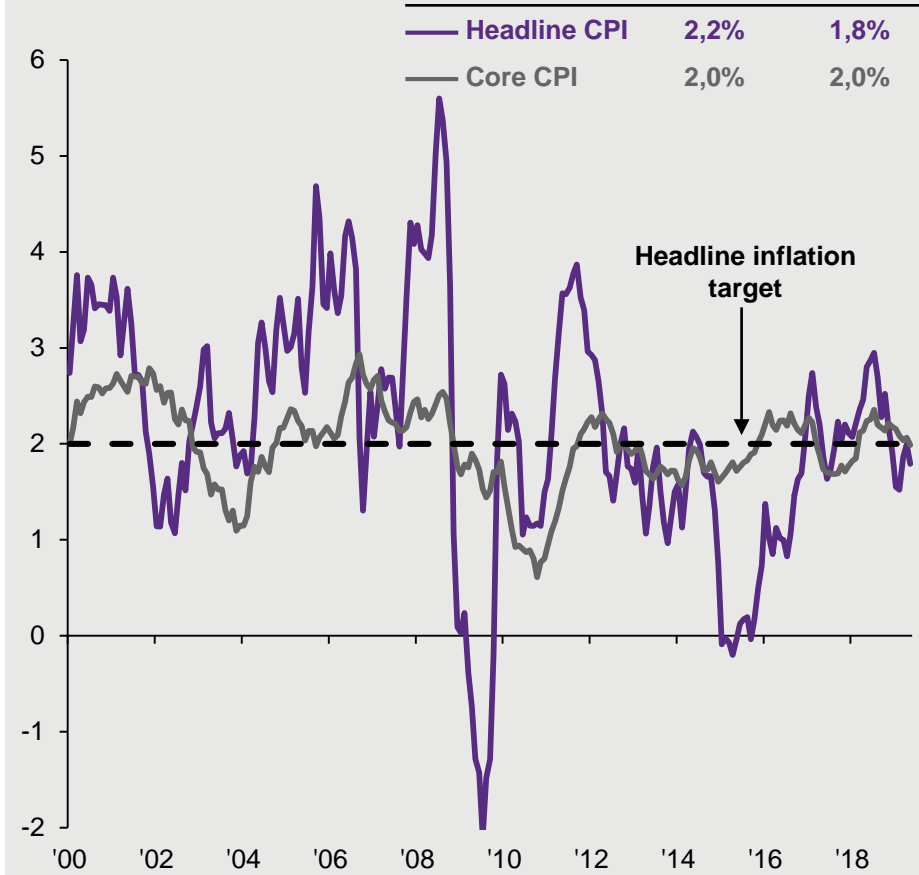Global economy

US consumer confidence
Index level

US house prices relative to income
Index level

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 30 June 2019.

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Global economy

US unemployment rate and wage growth

%, wage growth is year on year

Unemployment

May 2019: 3,6%

Wage growth

May 2019: 3,4%

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 30 June 2019.
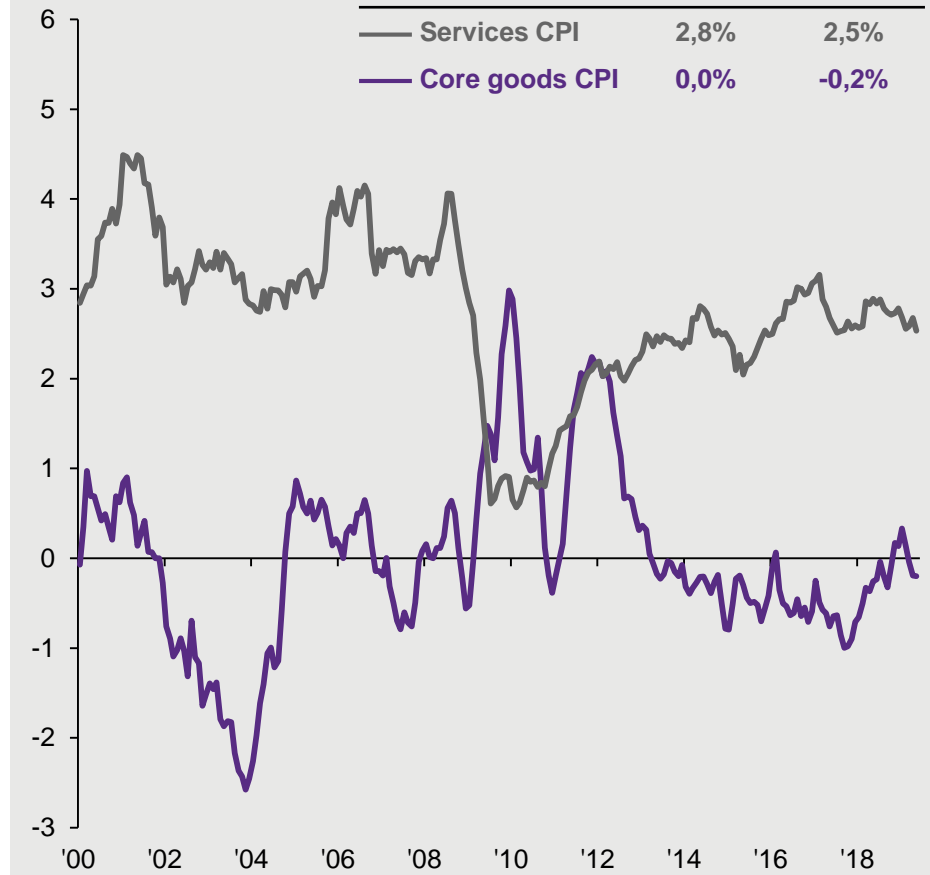
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Global economy

US headline and core inflation

% change year on year

	Average since 2000	May 2019
Headline CPI	2,2%	1,8%
Core CPI	2,0%	2,0%

Headline inflation target

US core goods and services inflation

% change year on year

	Average since 2000	May 2019
Services CPI	2,8%	2,5%
Core goods CPI	0,0%	-0,2%

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.
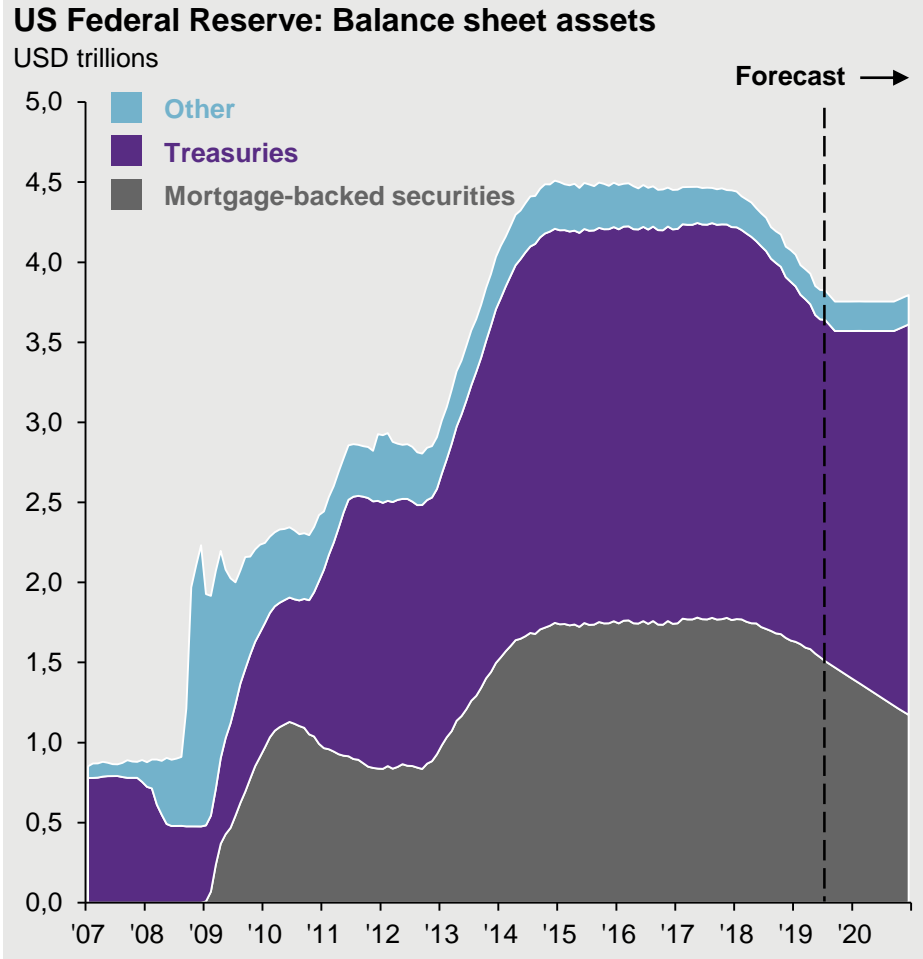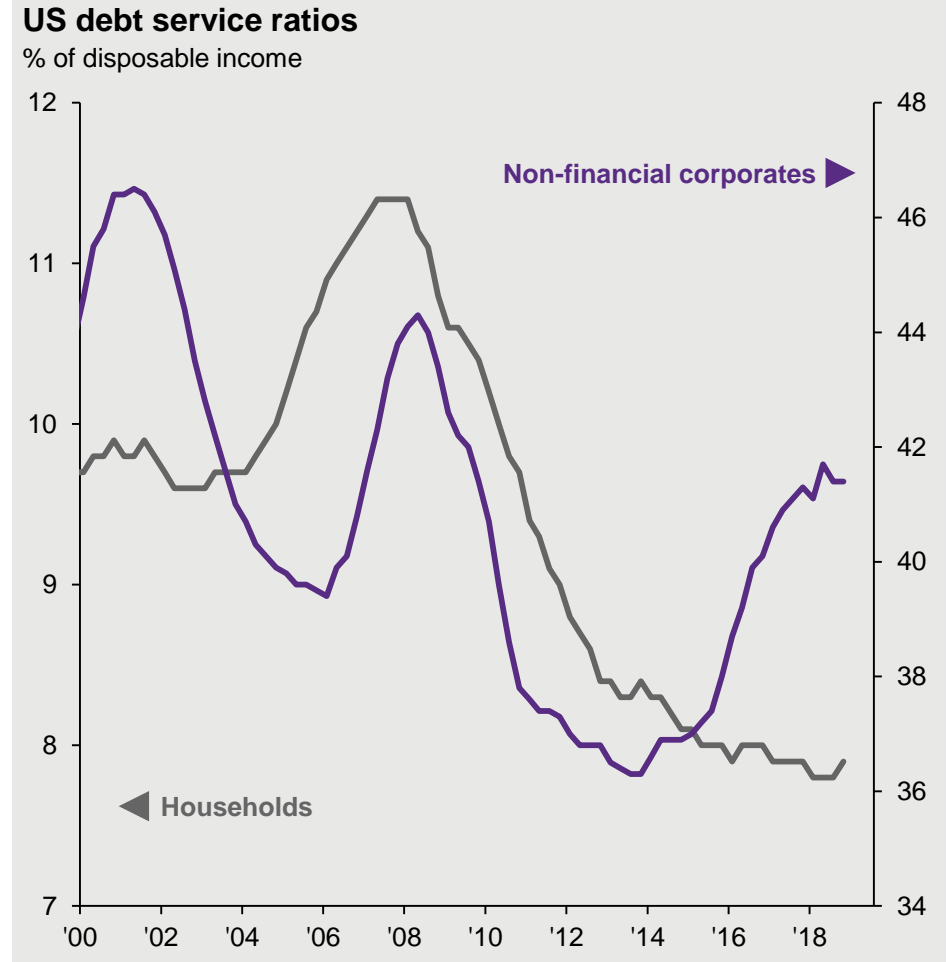*Guide to the Markets - Europe.* Data as of 30 June 2019.

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Global economy

Federal funds policy rate expectations

% Fed funds rate, FOMC and market expectations

FOMC June 2019 forecasts* (%)			
	2019	**2020**	**2021**
Change in real GDP, 4Q to 4Q	2,1	2,0	1,8
Unemployment rate, 4Q	3,6	3,7	3,8
PCE inflation, 4Q to 4Q	1,5	1,9	2,0

—— Federal funds rate

◆ US Fed FOMC December 2018 forecasts (median)

◆ US Fed FOMC June 2019 forecasts (median)

—— Market expectations on 30 June 2019 (mean)
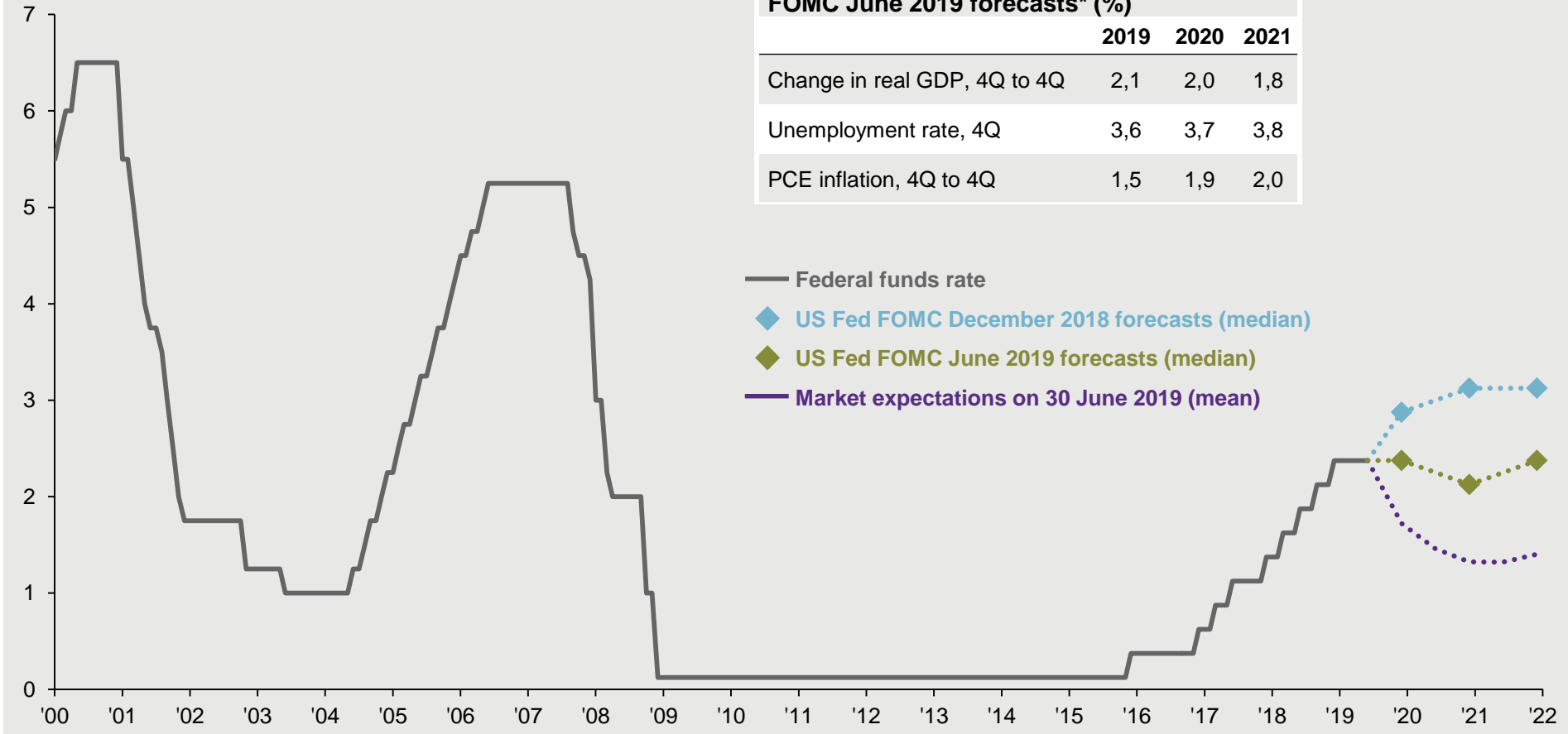
Source: Bloomberg, US Federal Reserve, J.P. Morgan Asset Management. *Forecasts are median estimates of Federal Open Market Committee (FOMC) participants. PCE is personal consumption expenditure. Market expectations are calculated using OIS forwards. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

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Global economy

US Federal Reserve: Balance sheet assets
USD trillions

Forecast →

- **Other**
- **Treasuries**
- **Mortgage-backed securities**

US Federal Reserve: Balance sheet liabilities
USD trillions

Forecast →

- **Other**
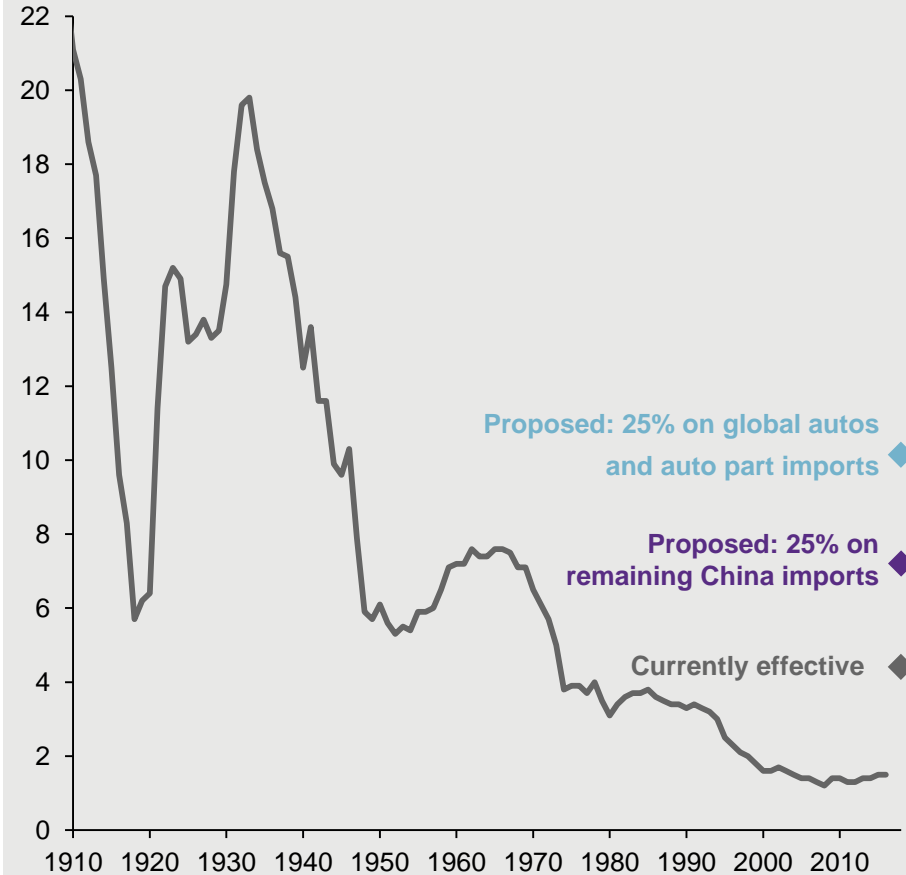- **Reserves**
- **Currency in circulation**
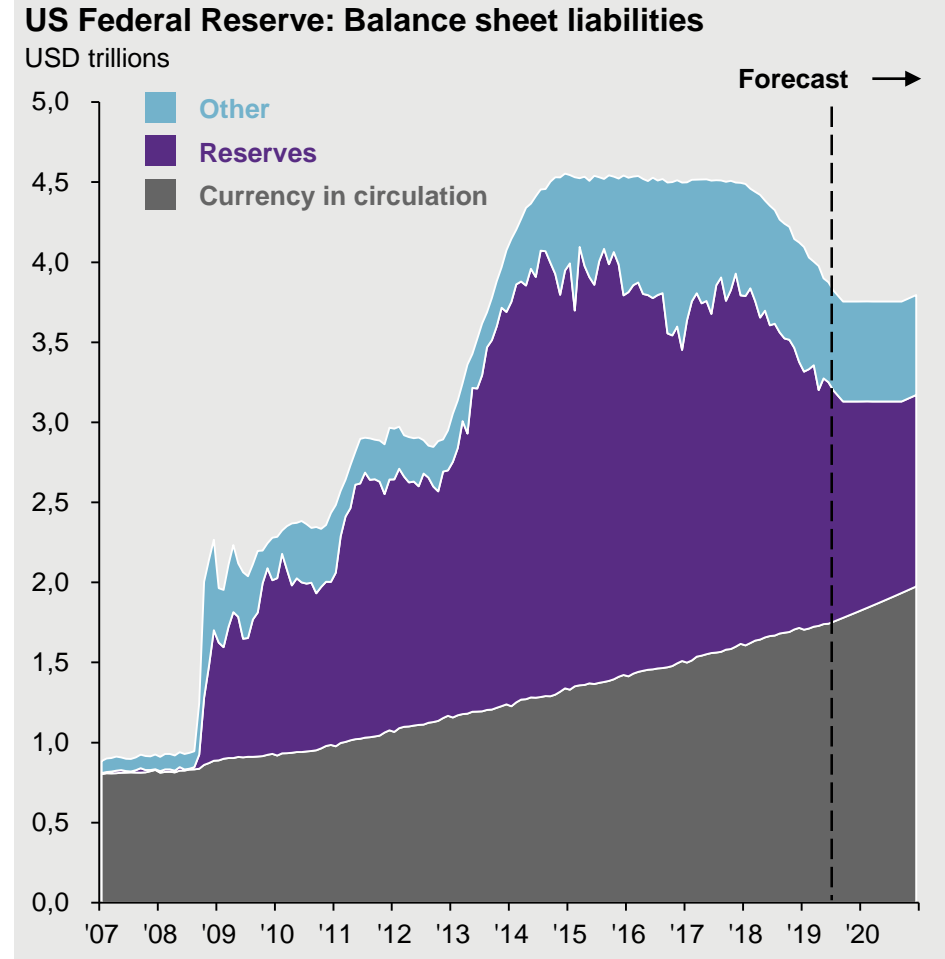
Source: (All charts) Refinitiv Datastream, US Federal Reserve, J.P. Morgan Asset Management. Forecast: US Federal Reserve (Fed) balance sheet assets are projected to decrease until the end of September 2019, in line with the Fed's announced plans. Reserves are subsequently expected to decline to a level 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 30 June 2019.

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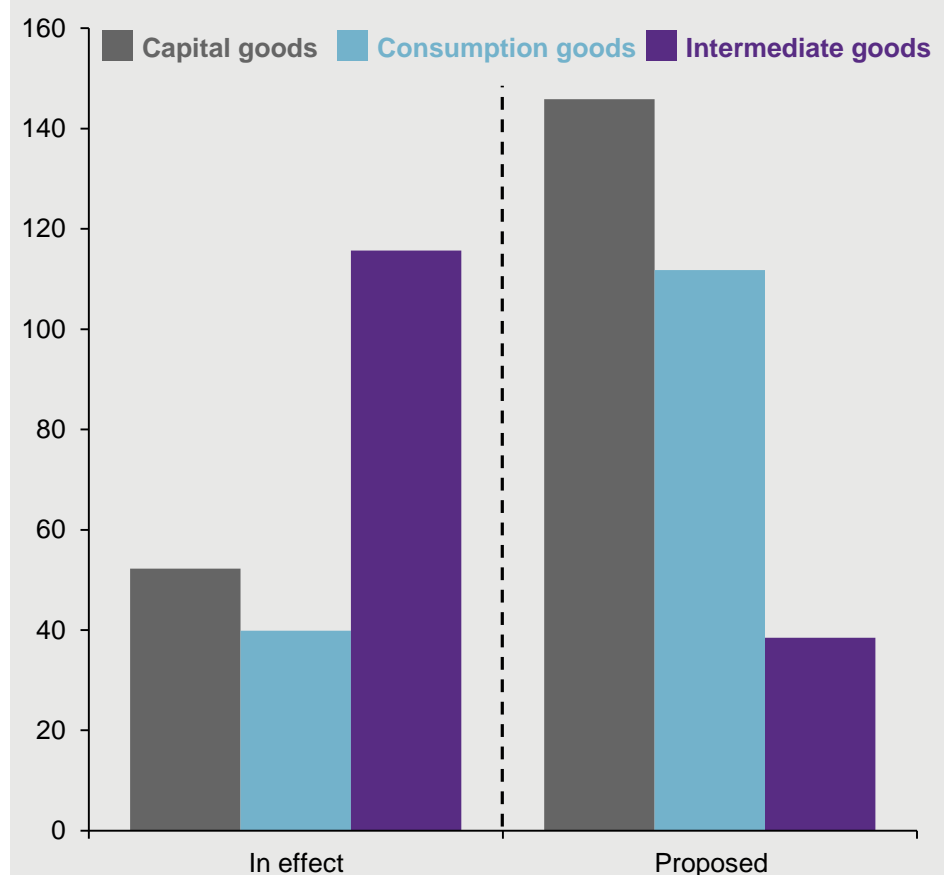Asset Management

Global economy

US debt to GDP ratios
% of nominal GDP

Recession

Government

Households

Non-financial corporates

US debt service ratios
% of disposable income

Non-financial corporates ▶

◀ Households

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 30 June 2019.

J.P.Morgan
Asset Management

Global economy

US effective import tariff rate

%, effective tariff rate (tariffs collected as % of all imported goods)

Proposed: 25% on global autos and auto part imports ◆

Proposed: 25% on remaining China imports ◆

Currently effective ◆

Tariffs on US imports from China

USD billions

■ Capital goods   ■ Consumption goods   ■ Intermediate goods

In effect   Proposed

Source: (Left) Esteban Ortiz-Ospina and Max Roser "International Trade", US Census Bureau, US International Trade Commission, J.P. Morgan Asset Management. Currently effective and proposed data are JPMAM calculations. Currently effective tariffs includes tariffs on washing machines, solar panels, steel and aluminium, as well as tariffs implemented on approximately USD 250 billion of China imports. Remaining China imports and global autos (including auto parts) are measures proposed on approximately USD 290 billion worth of goods for each. (Right) United Nations, US International Trade Commission, US Trade Representative, J.P. Morgan Asset Management. Analysis classifies each individual product that the US imports from China to the HTS-8 level that either appears on the 2018 & 2019 tariff lists published in the US Federal Register or has been threatened with higher tariffs into its appropriate System of National Accounts group and aggregates these categories by value of imports from 2017. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

J.P.Morgan
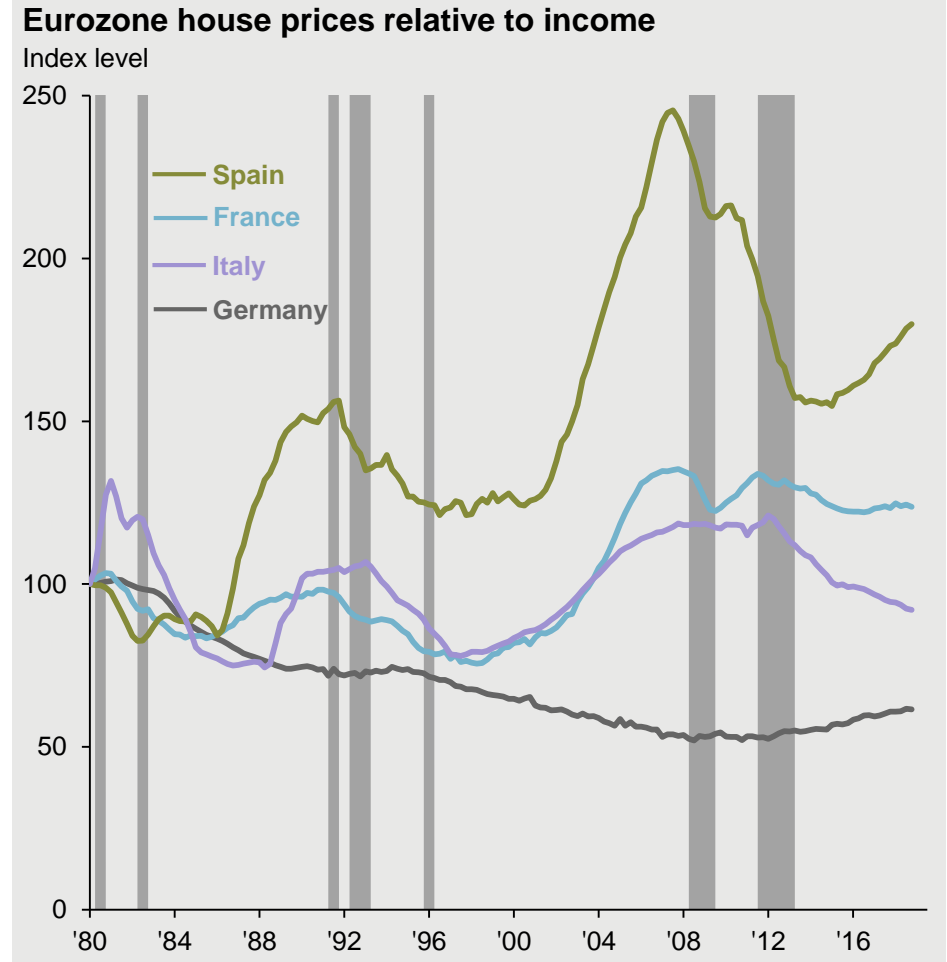Asset Management

Contribution to eurozone real GDP growth and composite PMI

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

	Average since 2000	1Q19
	1,4%	1,2%

Legend:
- Net exports
- Change in inventories
- Investment
- Government
- Consumption
- Composite PMI (RHS)
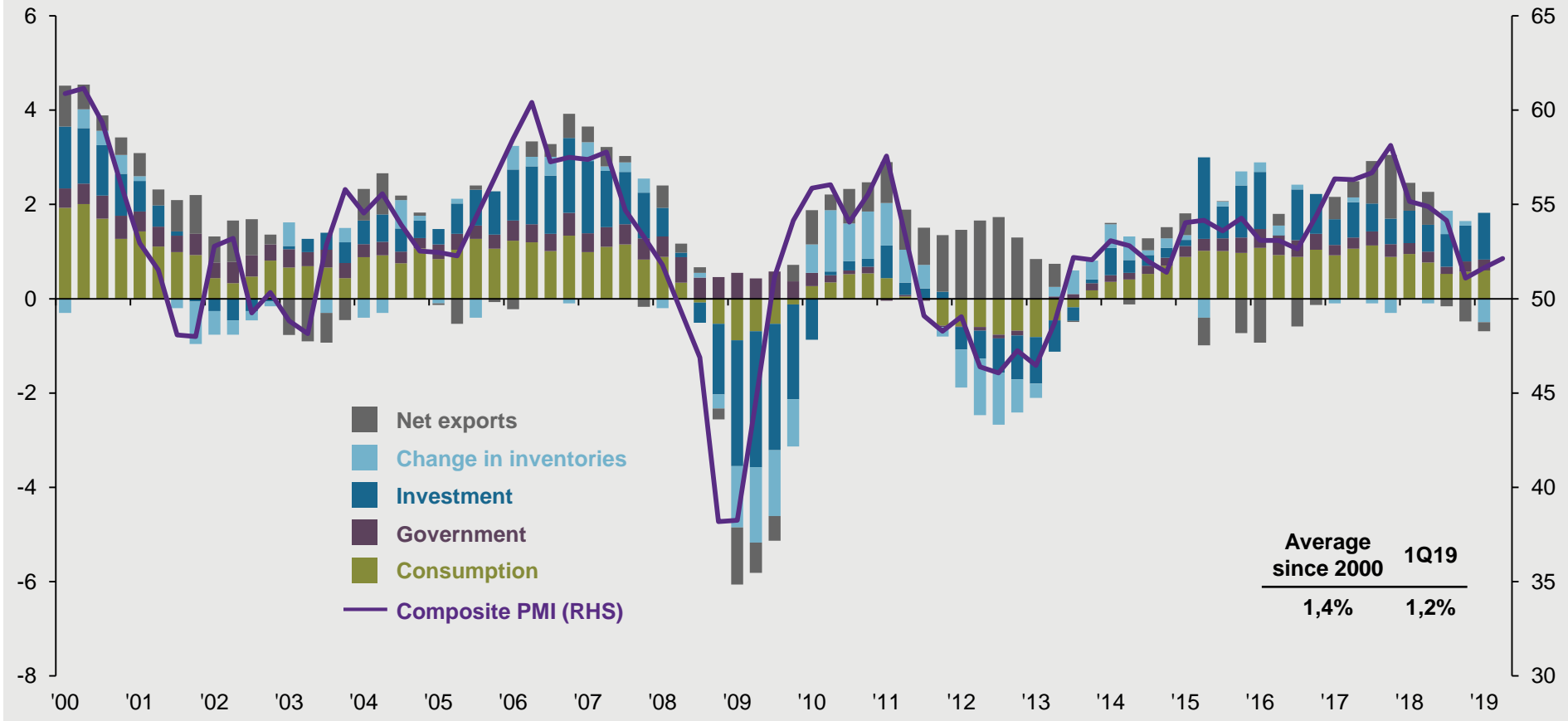
Source: Eurostat, Markit, Refinitiv Datastream, J.P. Morgan Asset Management. PMI is Purchasing Managers' Index where a score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. PMI data is shown with quarterly frequency. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

J.P.Morgan
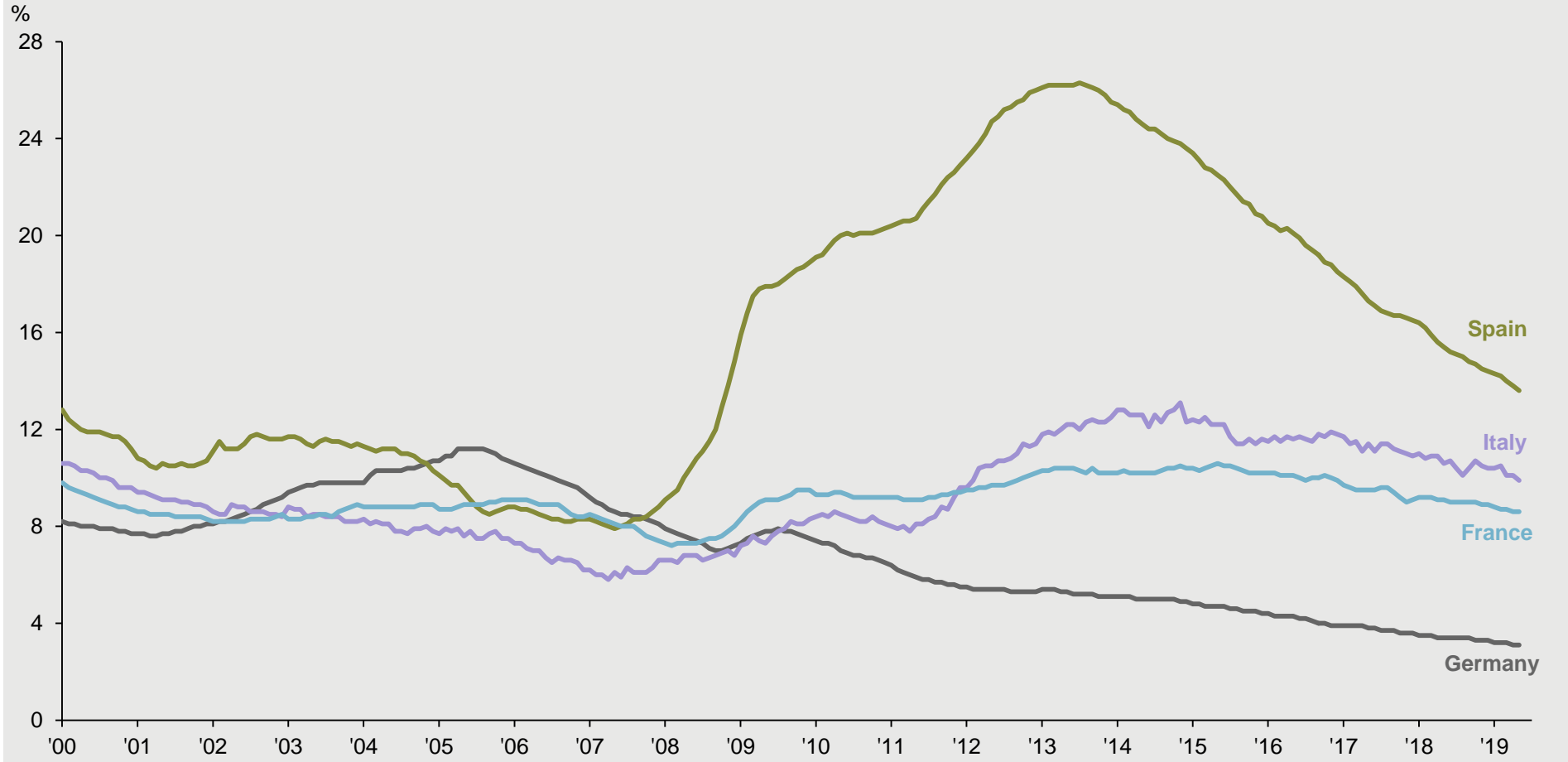Asset Management

Global economy

Eurozone future capex intentions and business investment
% change year on year (LHS); index level, four-quarter moving average (RHS)

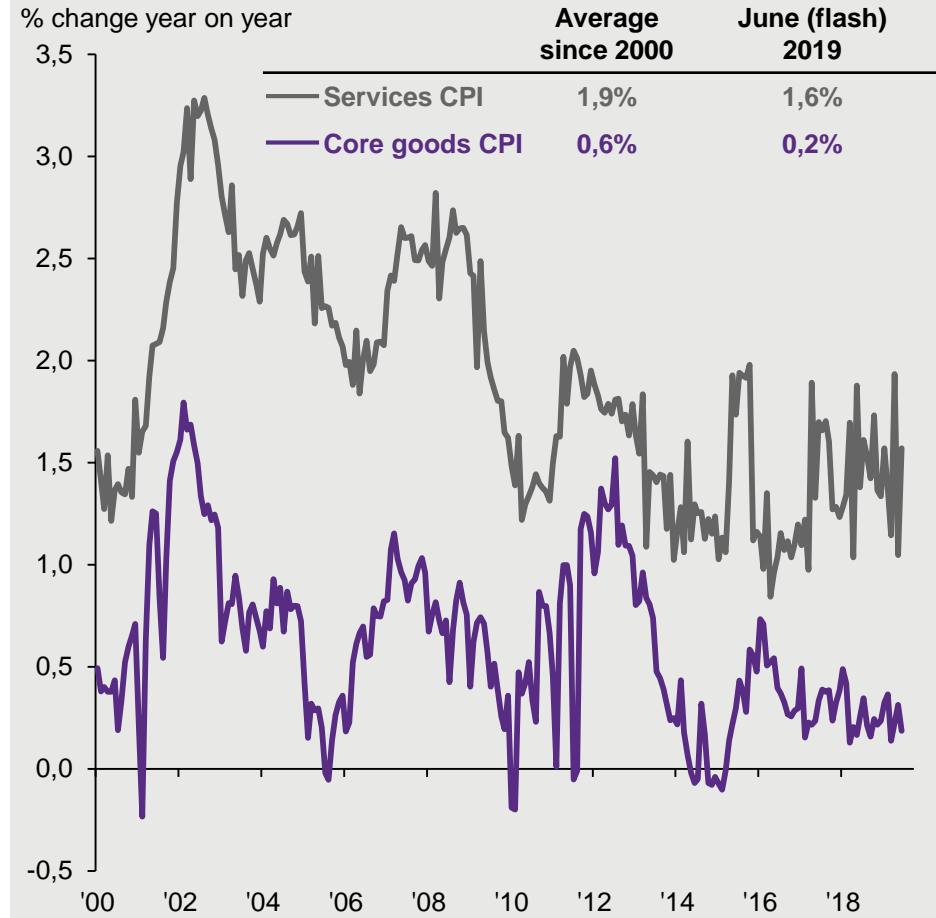▶ **Future capex intentions**

◀ **Business investment**

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 30 June 2019.

J.P.Morgan
Asset Management

Global economy

Eurozone consumer confidence

Index level

Recession

Eurozone house prices relative to income

Index level

- Spain
- France
- Italy
- Germany

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 30 June 2019.
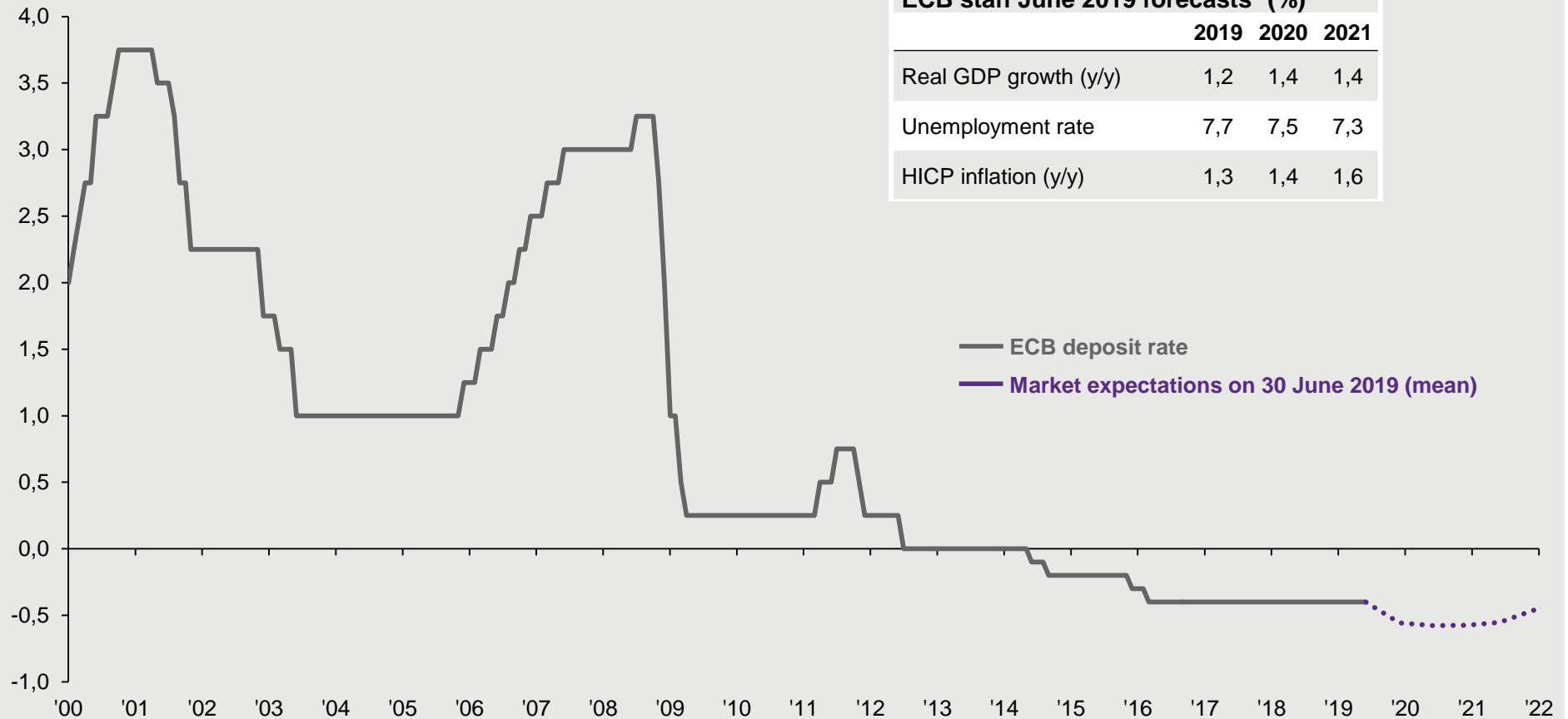
J.P.Morgan
Asset Management

Global economy

Eurozone unemployment rate and wage growth
%, wage growth is year on year

◄ Unemployment

Wage growth ►

May 2019: 7,5%

1Q19: 2,2%

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 30 June 2019.

J.P.Morgan
Asset Management

Global economy

Germany, France, Italy and Spain unemployment rates

J.P.Morgan
Asset Management

Global economy

Eurozone headline and core inflation

% change year on year

	Average since 2000	June (flash) 2019
Headline CPI	1,7%	1,2%
Core CPI	1,4%	1,1%

Headline inflation target
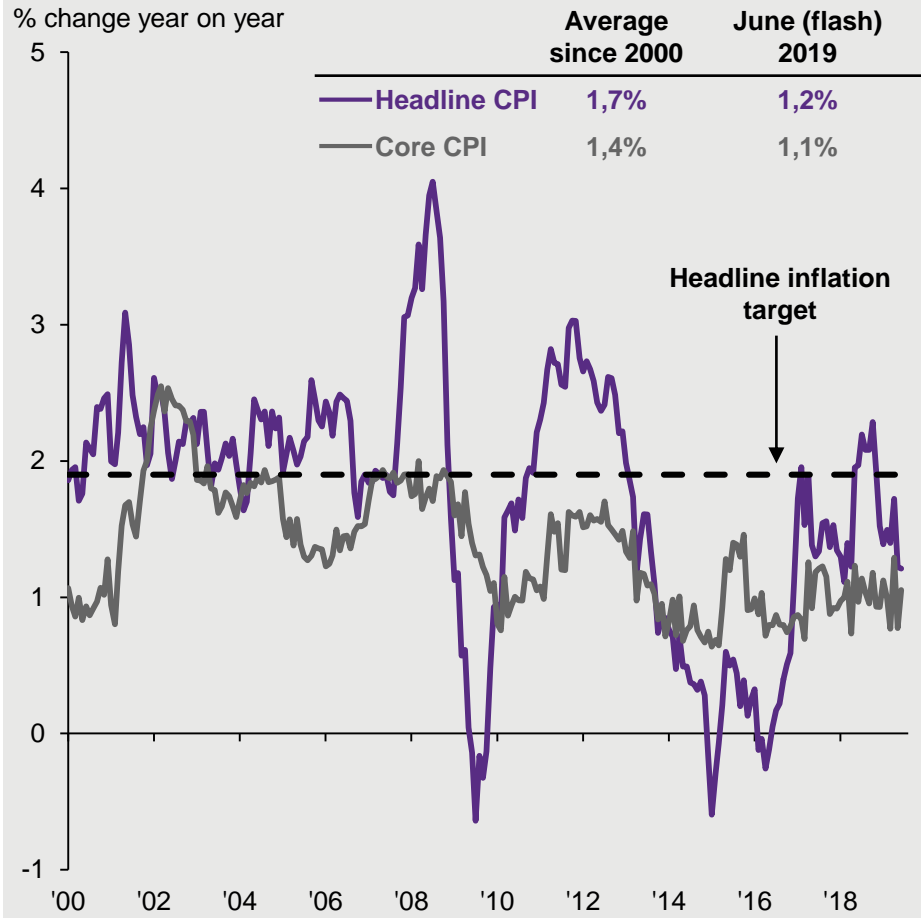
Eurozone core goods and services inflation

% change year on year

	Average since 2000	June (flash) 2019
Services CPI	1,9%	1,6%
Core goods CPI	0,6%	0,2%

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, food, alcohol and tobacco. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

J.P.Morgan
Asset Management

Global economy

European Central Bank policy rate expectations
% deposit rate, market expectations

ECB staff June 2019 forecasts* (%)			
	2019	2020	2021
Real GDP growth (y/y)	1,2	1,4	1,4
Unemployment rate	7,7	7,5	7,3
HICP inflation (y/y)	1,3	1,4	1,6

— ECB deposit rate

— Market expectations on 30 June 2019 (mean)

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 30 June 2019.

J.P.Morgan
Asset Management

Global economy

Eurozone debt to GDP ratios
% of nominal GDP

Non-financial corporates

Government

Households
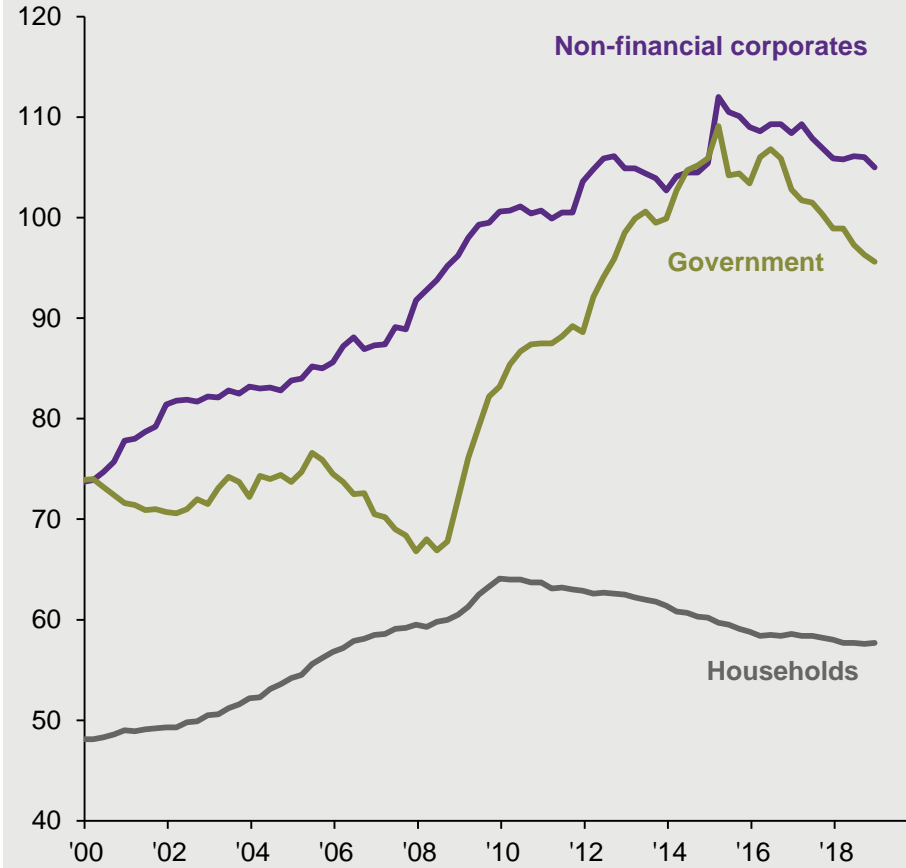
Eurozone debt service ratios
% of disposable income

◄ Households

Non-financial corporates ▶

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 30 June 2019.

J.P.Morgan
Asset Management

Global economy

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

Italy
France
Spain
Germany
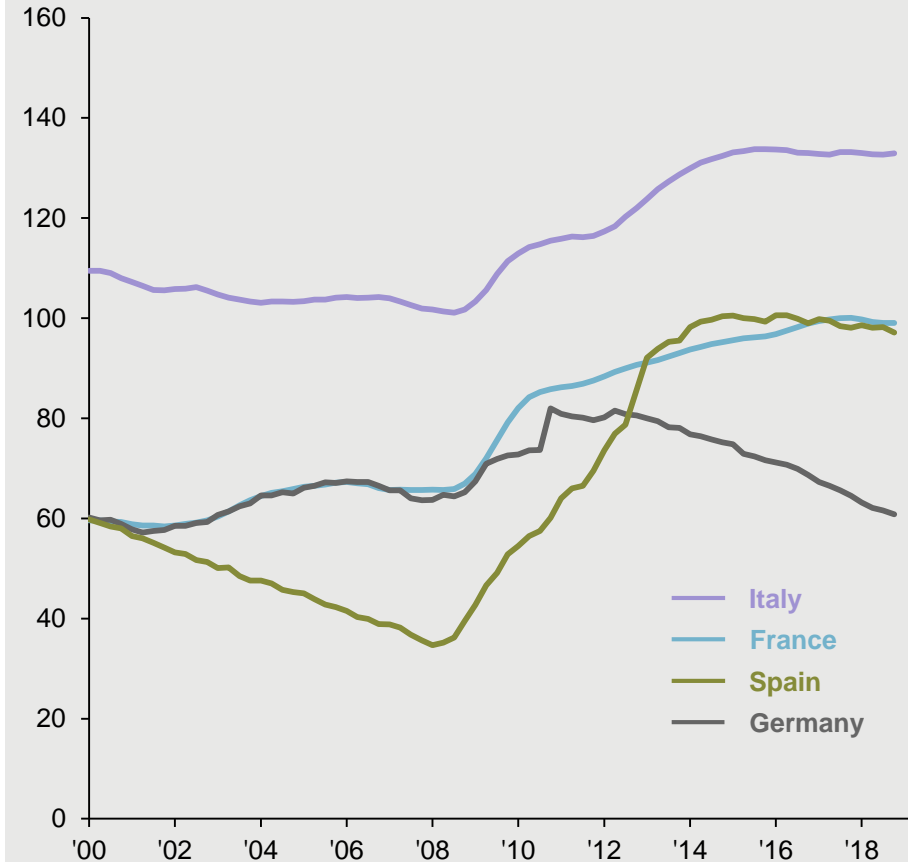
European 10-year government bond spreads over Germany
% spread
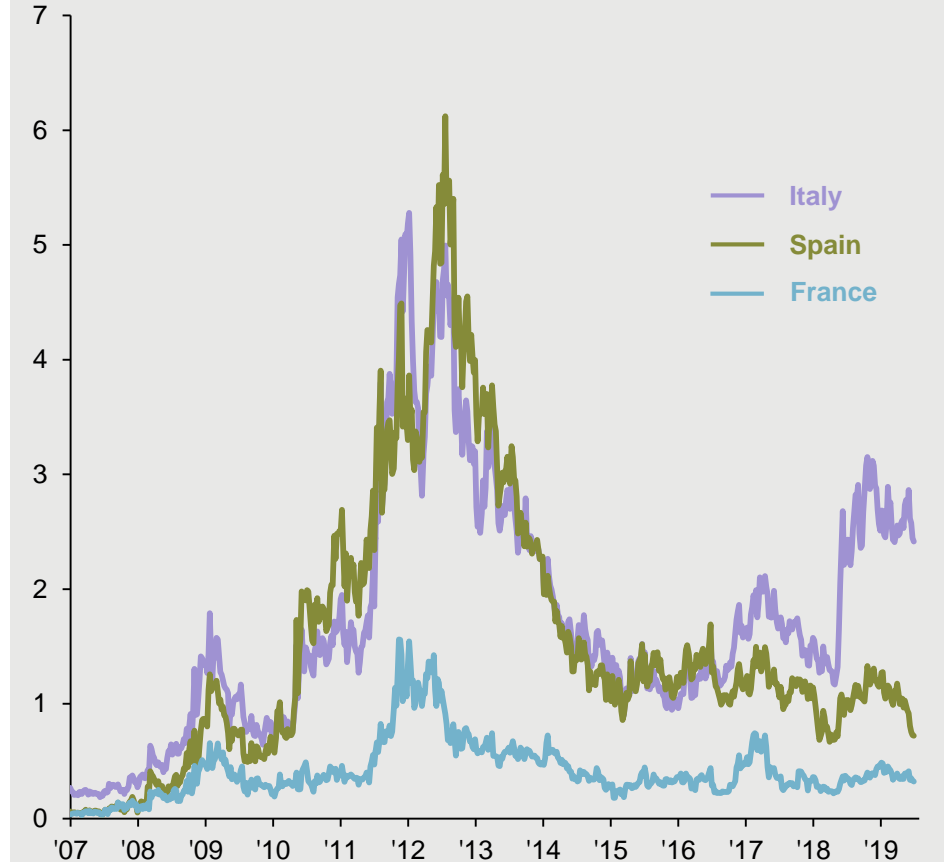
Italy
Spain
France

Source: (Left) Bank for International Settlements, Refinitiv Datastream, J.P. Morgan Asset Management. Italy and France data are four-quarter moving averages. 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 30 June 2019.
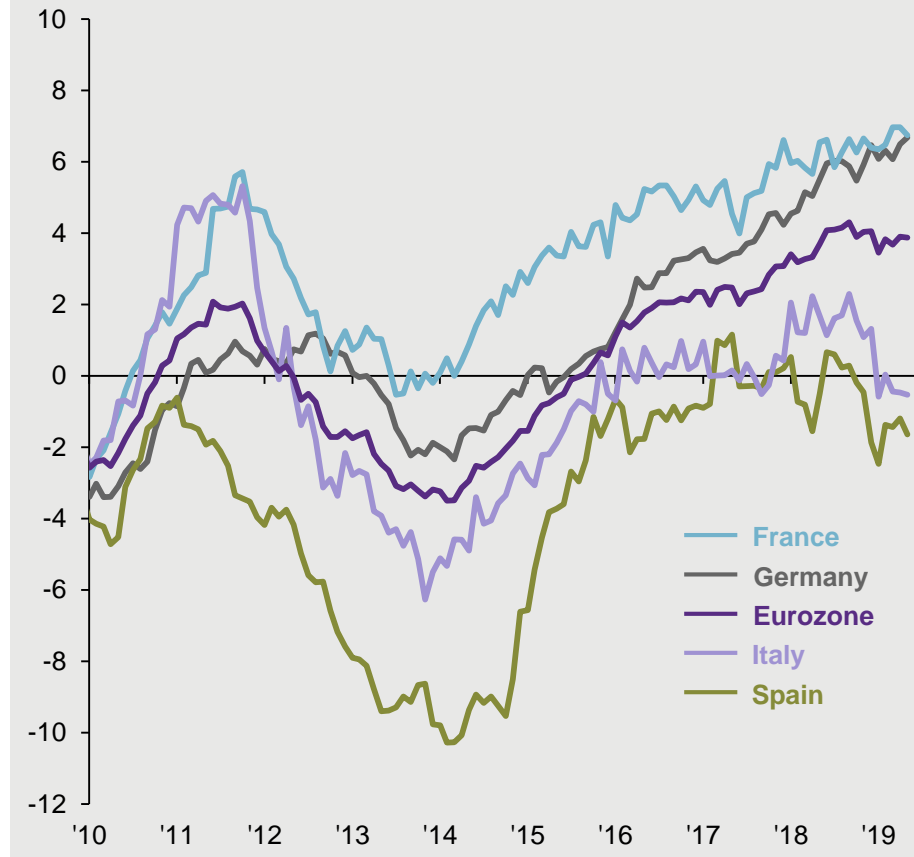
J.P.Morgan
Asset Management

Global economy

European parliament seat breakdown

% of seats

- **Pro-Europe**
- **Moderately Eurosceptic**
- **Eurosceptic**
- **Other**
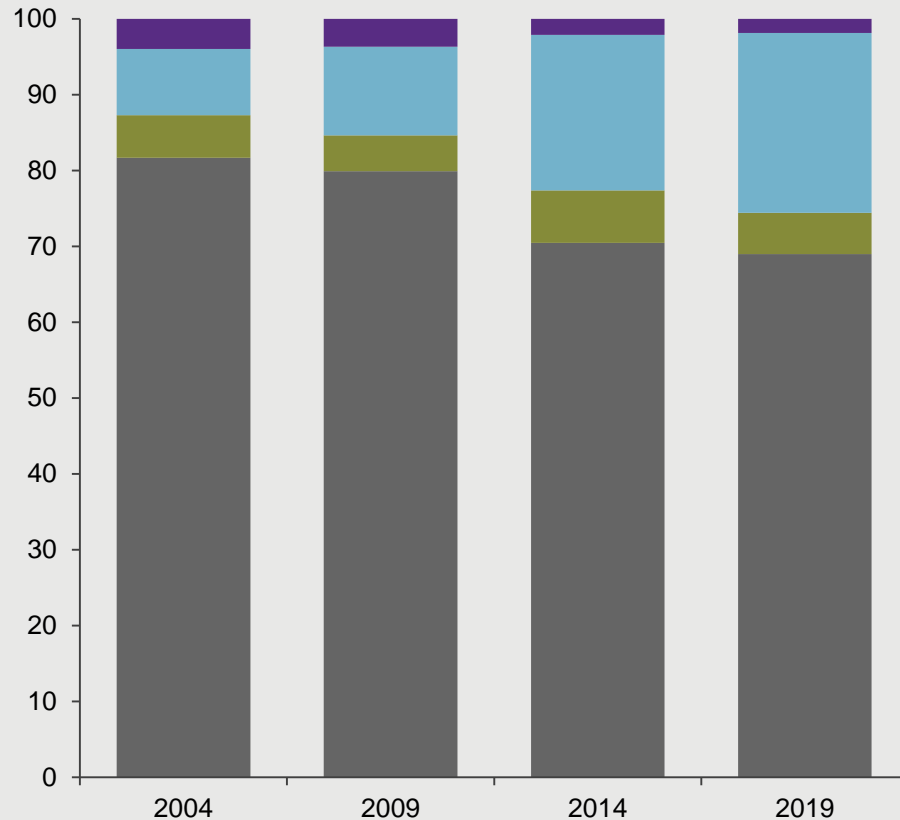
Survey results: *Do you support the euro?*

% answering "yes"

- Nov '13
- Nov '17
- Nov '18
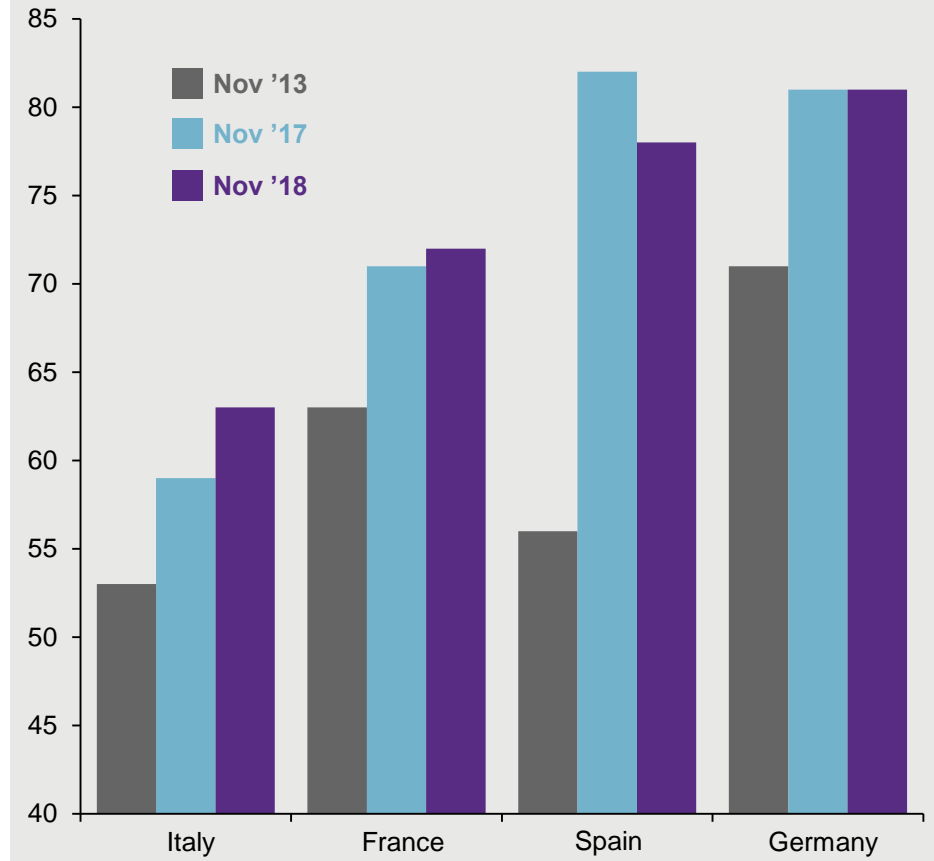
Source: (Left) European Parliament, J.P. Morgan Asset Management. Pro-Europe includes EPP: European People's Party, Renew Europe, Greens/EFA: The Greens/European Free Alliance, S&D: Group of the Progressive Alliance of Socialists and Democrats in the European Parliament. Moderately Eurosceptic includes GUE/NGL: European United Left-Nordic Green Left. Eurosceptic includes ID: Identity and Democracy, EFDD: Europe of Nations and Freedom, ECR: European Conservatives and Reformists. (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 30 June 2019.

J.P.Morgan
Asset Management

Global economy

Eurozone PMI: Employment

Index level

Share of total employment	
Services	76%
Manufacturing	14%

— Services: Employment

— Manufacturing: Employment
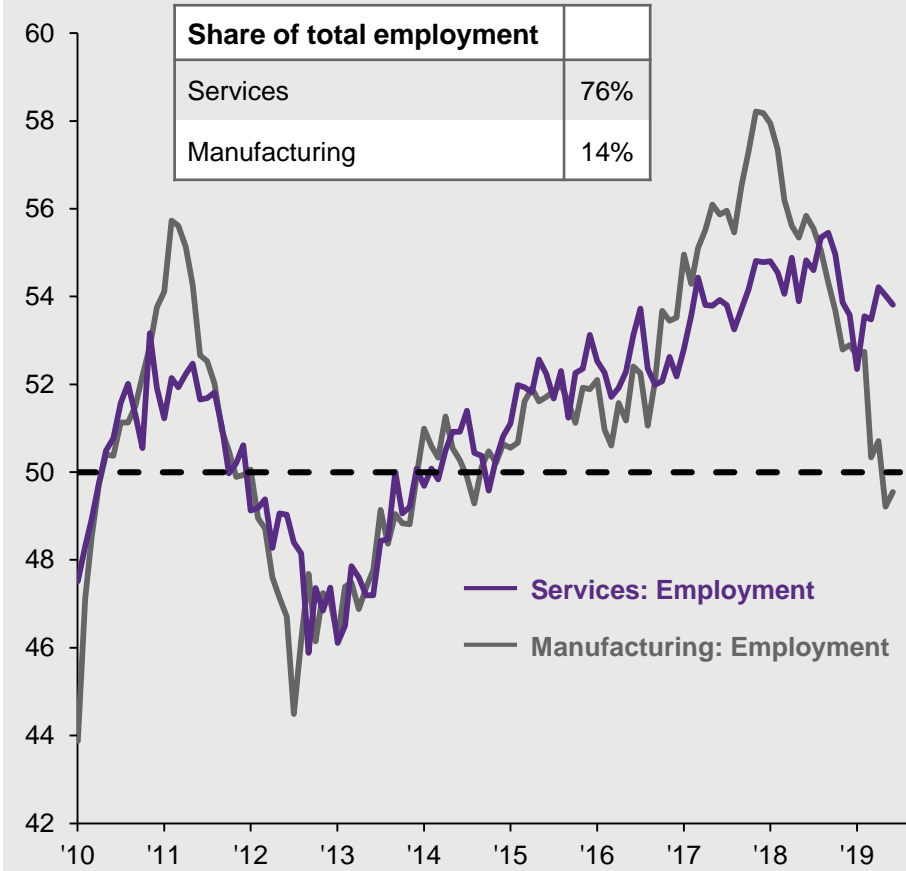
Eurozone loan growth to non-financial corporates
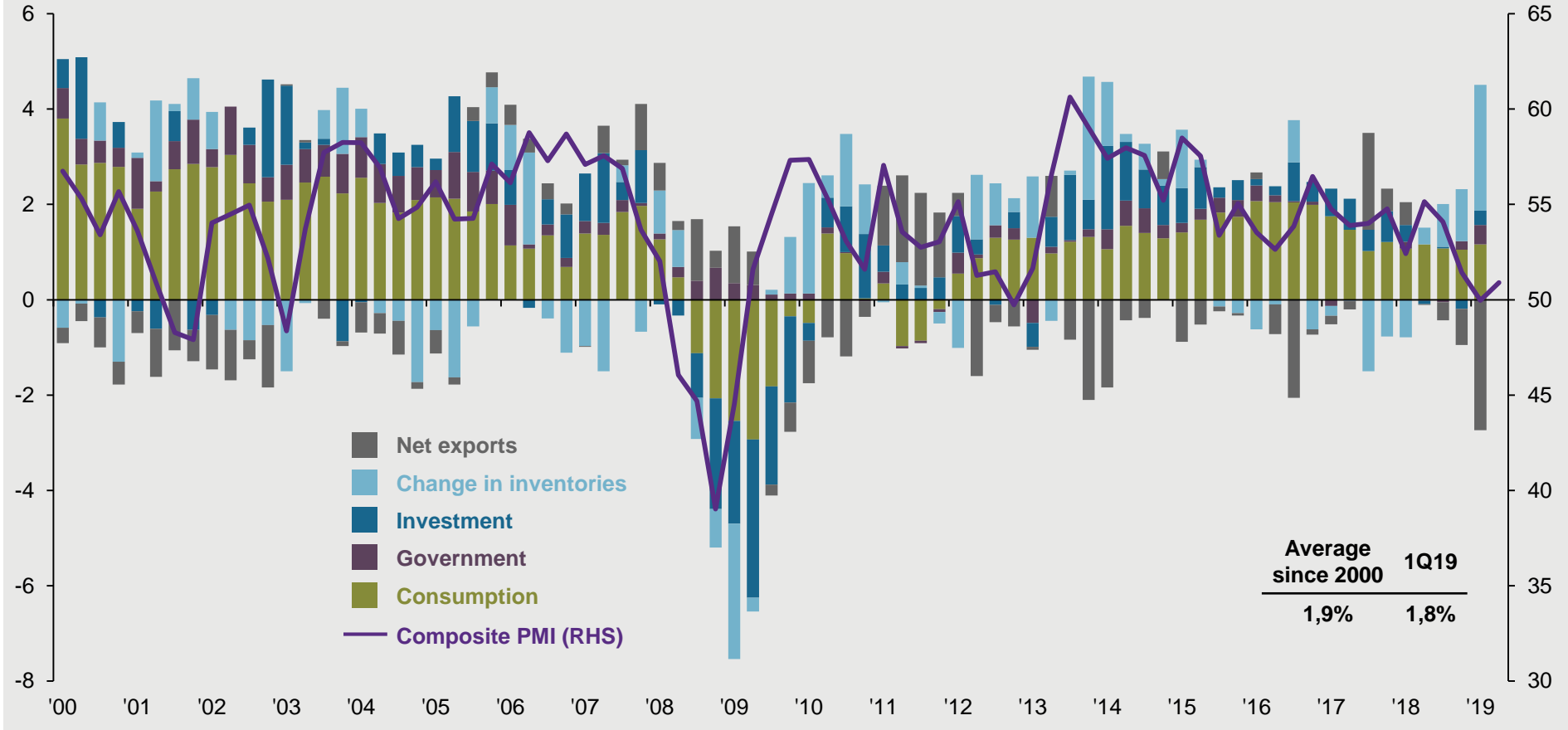
% change year on year
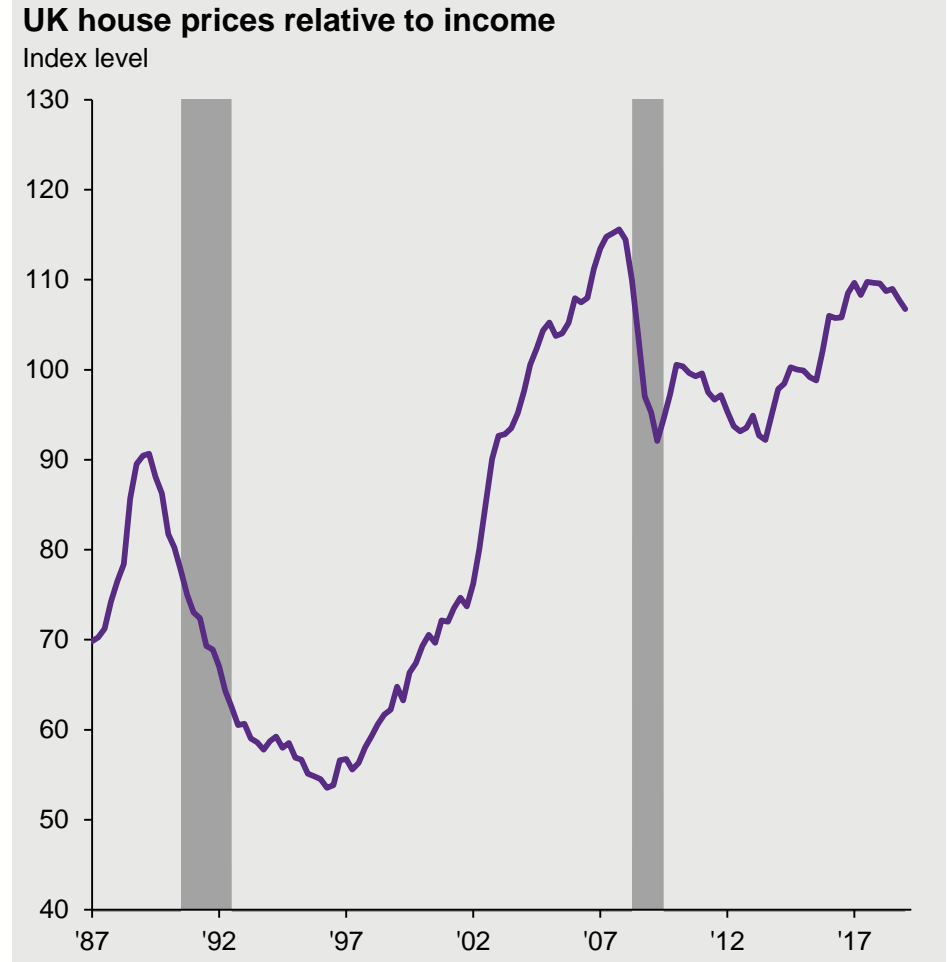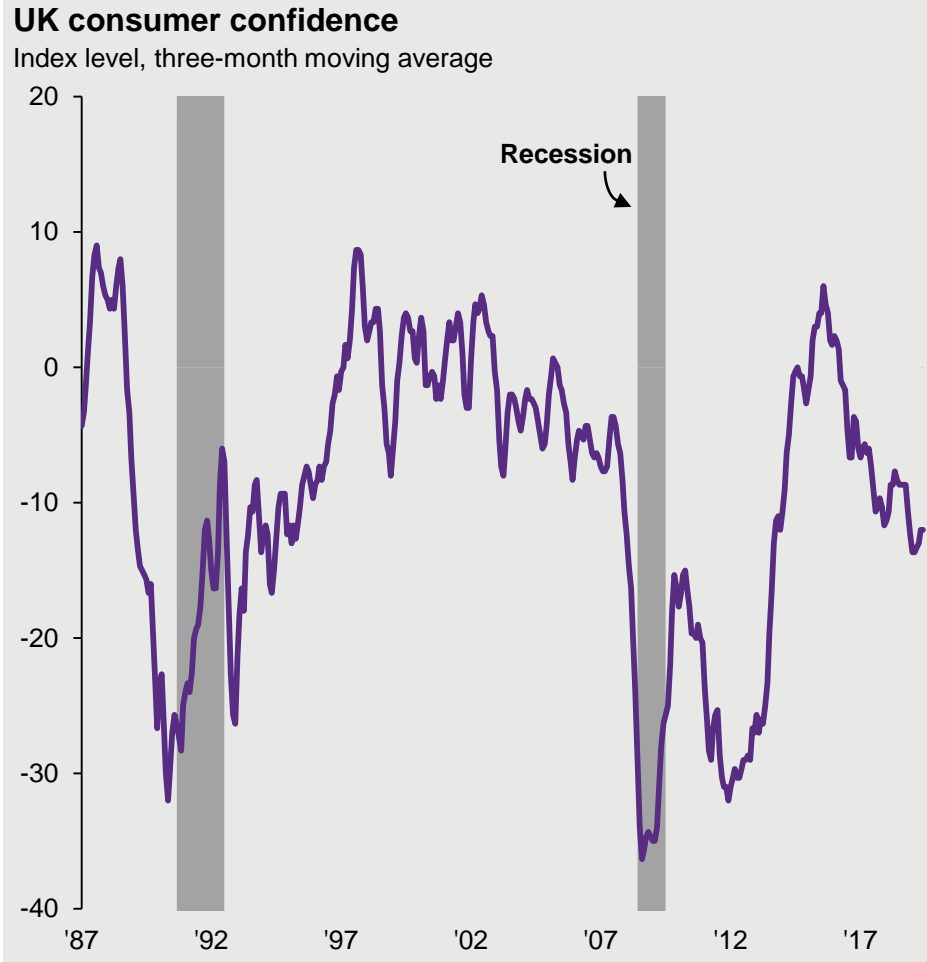
- France
- Germany
- Eurozone
- Italy
- Spain

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. 10% of total eurozone employment is accounted for by other industries, mainly comprising of construction and agriculture. (Right) ECB, J.P. Morgan Asset Management. Loan growth measure is adjusted to reflect loans that have been sold or securitised and are no longer reported on banks' balance sheets. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

J.P.Morgan
Asset Management

Contribution to UK real GDP growth and composite PMI

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

Legend:
- Net exports
- Change in inventories
- Investment
- Government
- Consumption
- Composite PMI (RHS)

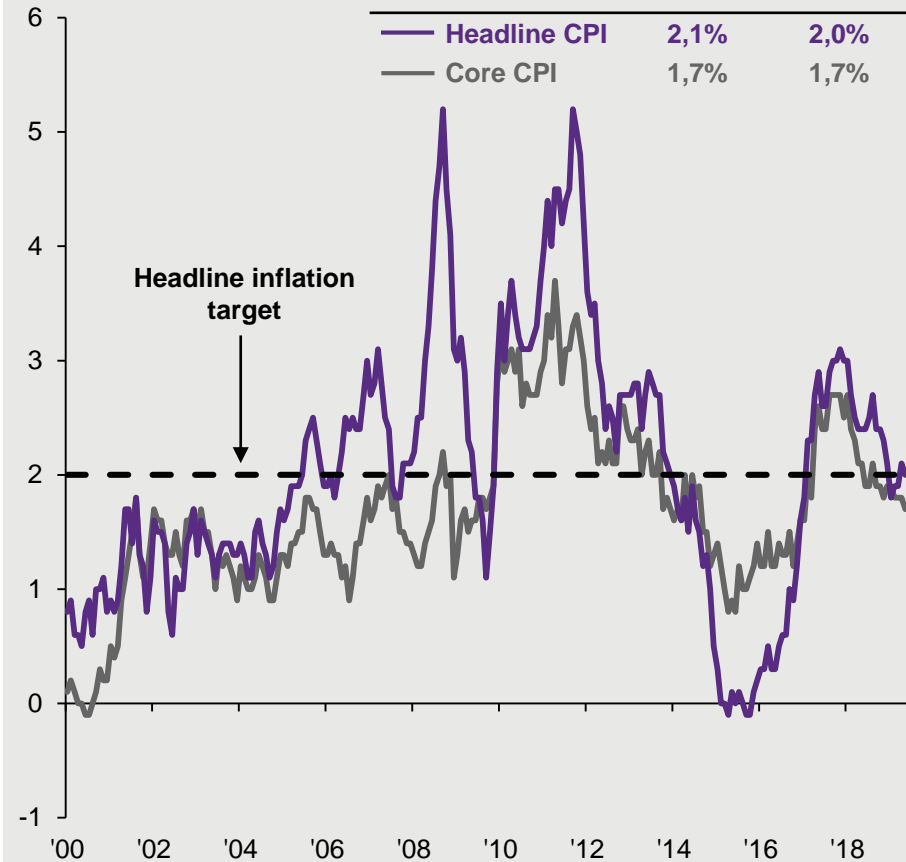|	Average since 2000	1Q19
	1,9%	1,8%

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 30 June 2019.
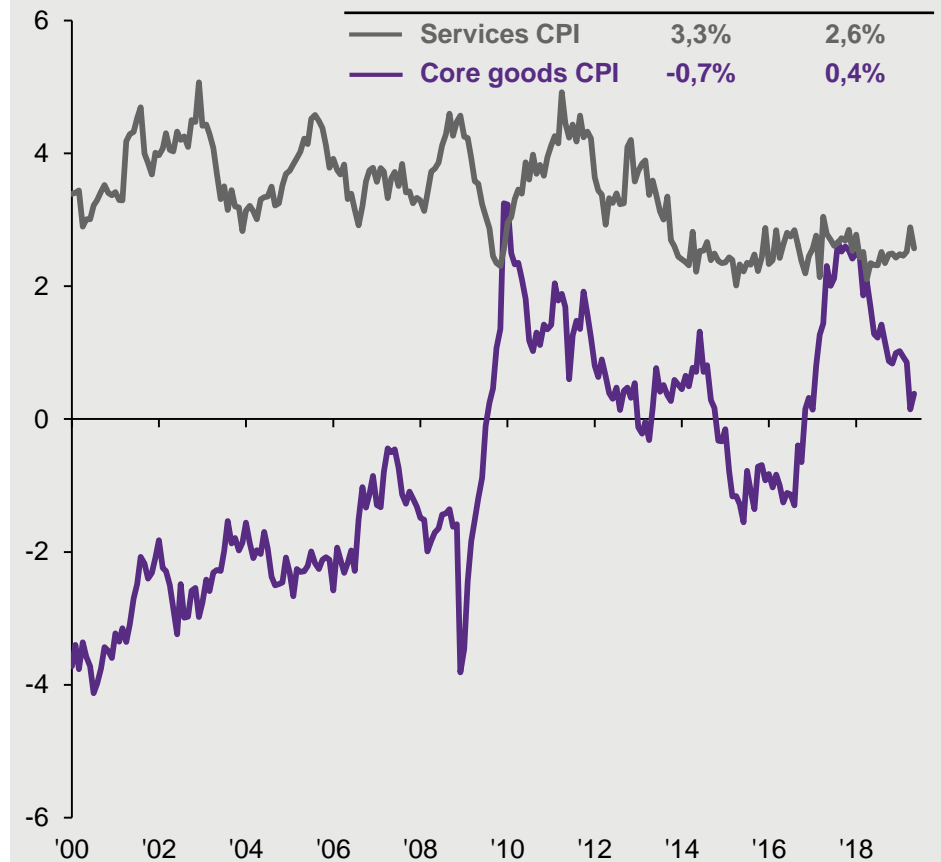
Global economy

J.P.Morgan
Asset Management

Global economy

UK consumer confidence
Index level, three-month moving average

Recession

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 30 June 2019.

J.P.Morgan
Asset Management

Global economy

UK headline and core inflation

% change year on year

	Average since 2000	May 2019
Headline CPI	2,1%	2,0%
Core CPI	1,7%	1,7%

Headline inflation target

UK core goods and services inflation

% change year on year

	Average since 2000	May 2019
Services CPI	3,3%	2,6%
Core goods CPI	-0,7%	0,4%

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 30 June 2019.

J.P.Morgan Asset Management

Global economy

	No-deal	Customs union	Single market
Control of migration	☑	☑	
No budget payments to EU	☑	☑	
'Sovereignty'			
- Ability to set broader laws	☑	☑	
- Ability to set goods regulations	☑		
Ability to negotiate trade deals	☑	~	
Resolves Northern Ireland border/Union risk		☑	☑
Preserve current supply chain and economic links		☑	☑

What Brexit outcome would you prefer to see?
% of respondents

Outcome	%
No-deal	30
This deal	9
Single market	10
Remain	35
Not sure	16
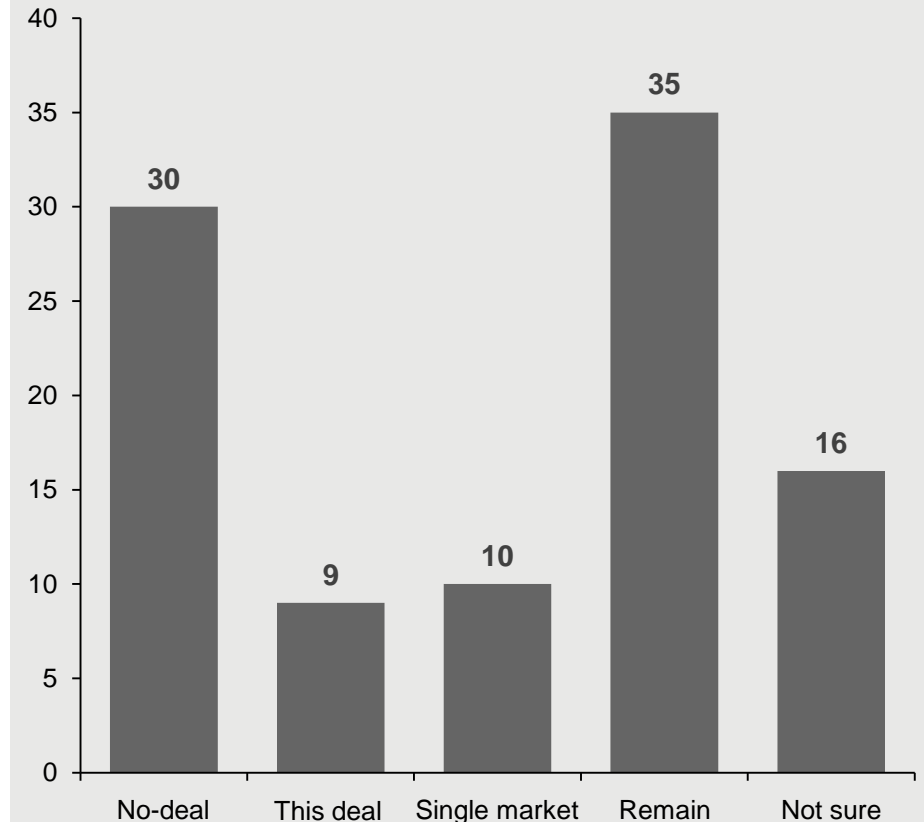
Source: (Left) J.P. Morgan Asset Management. (Right) YouGov, J.P. Morgan Asset Management. Survey fieldwork was carried out on 10-11 April 2019.
Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

J.P.Morgan
Asset Management

Contribution to Japan real GDP growth and composite PMI

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

Legend:
- Net exports
- Change in inventories
- Investment
- Government
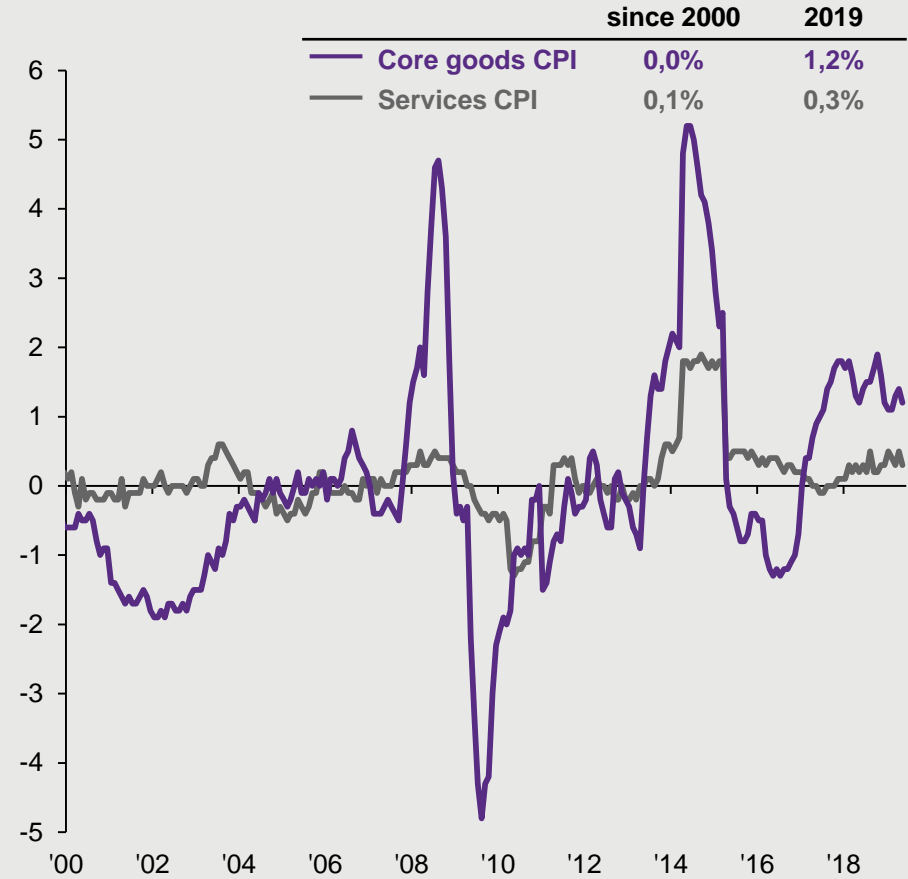- Consumption
- Manufacturing PMI (RHS)

	Average since 2000	1Q19
	0,9%	0,9%
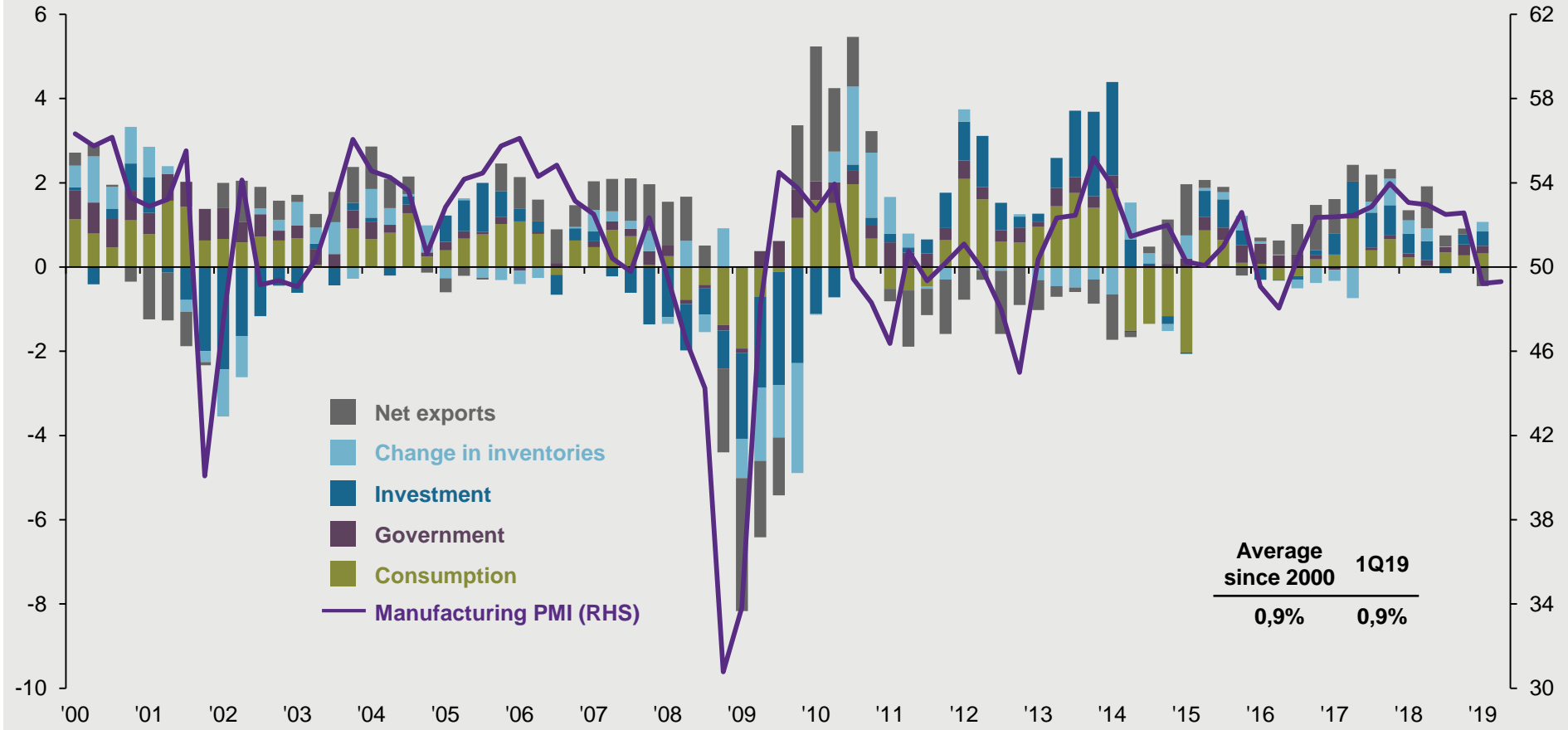
Source: Japan Cabinet Office, Markit, Refinitiv Datastream, J.P. Morgan Asset Management. PMI is Purchasing Managers' Index where a score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. PMI data is shown with quarterly frequency. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

J.P.Morgan Asset Management

Global economy

Japan headline and core inflation

% change year on year

	Average since 2000	May 2019
Headline CPI	0,1%	0,7%
Core CPI	0,1%	0,8%

Headline inflation target

Japan core goods and services inflation

% change year on year

	Average since 2000	May 2019
Core goods CPI	0,0%	1,2%
Services CPI	0,1%	0,3%
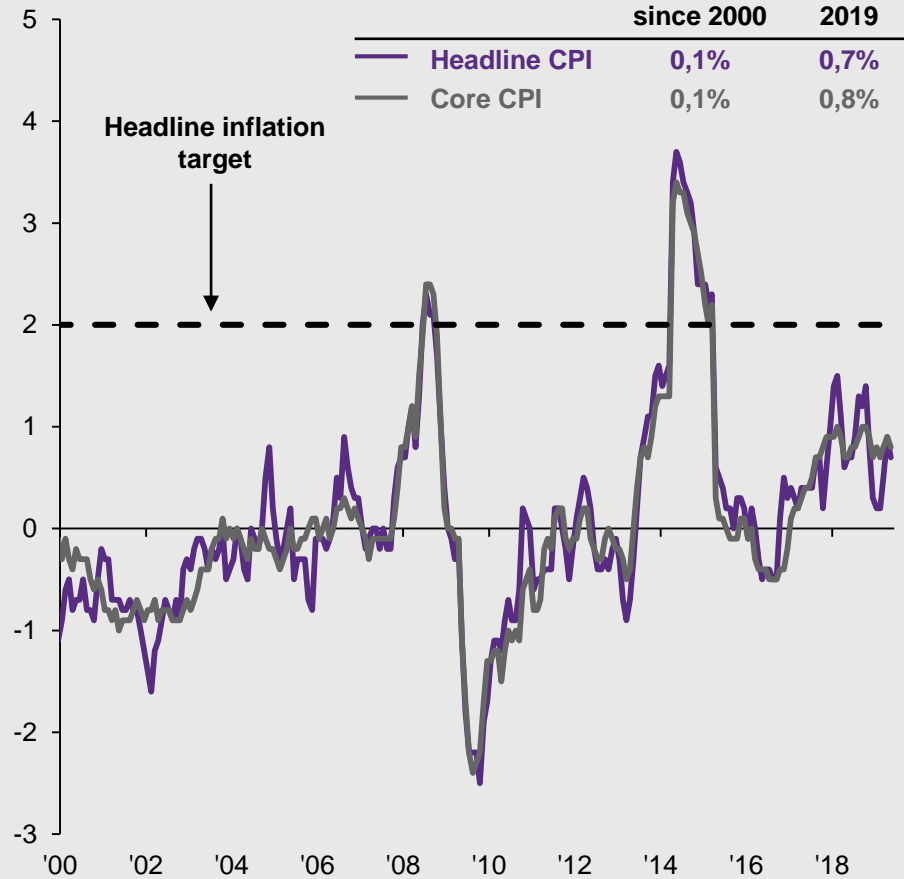
Source: (All charts) Japan Ministry of Internal Affairs & Communications, Refinitiv Datastream, J.P. Morgan Asset Management. CPI is the Consumer Price Index. Core CPI is defined as CPI excluding fresh food. Core goods CPI is defined as goods CPI excluding fresh food. Increase in Japan inflation measures 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 30 June 2019.

J.P.Morgan
Asset Management

Contribution to China real GDP growth
% change year on year

	1Q 2019	2019 consensus forecast
GDP growth	6,4%	6,2%

- Investment
- Consumption
- Net exports

China industrial production and retail sales
% change year on year

Retail sales

Industrial production
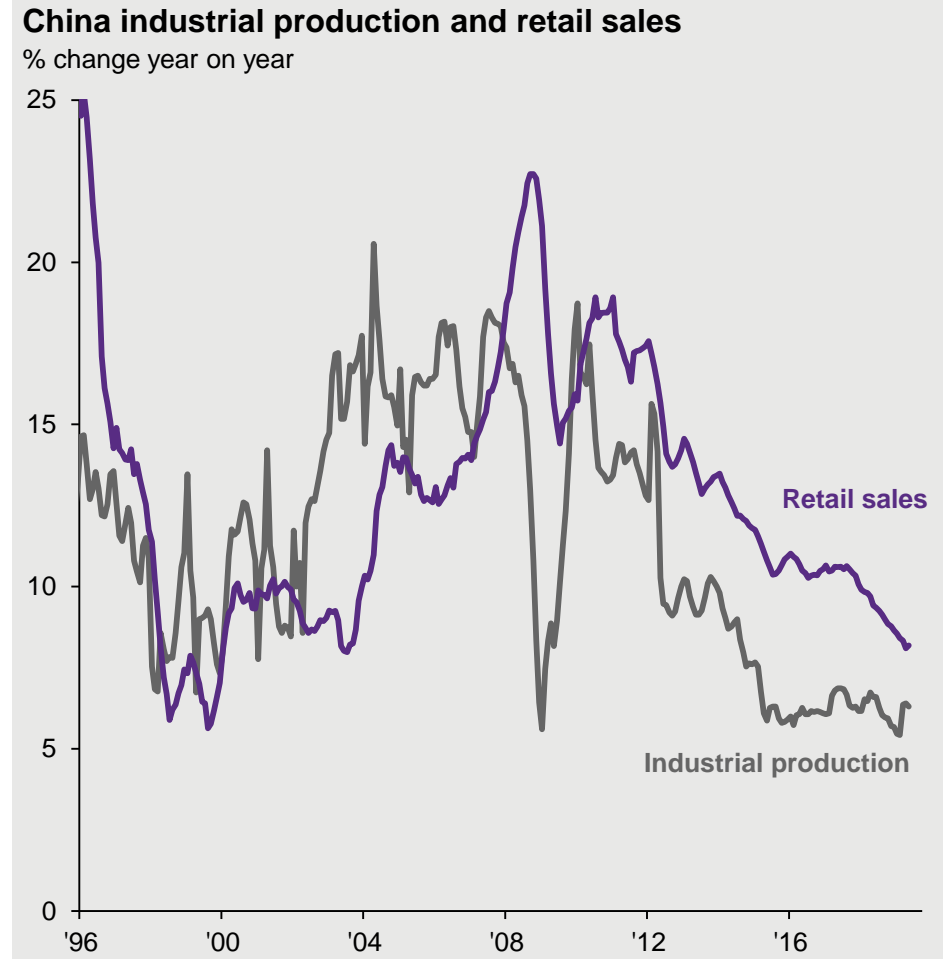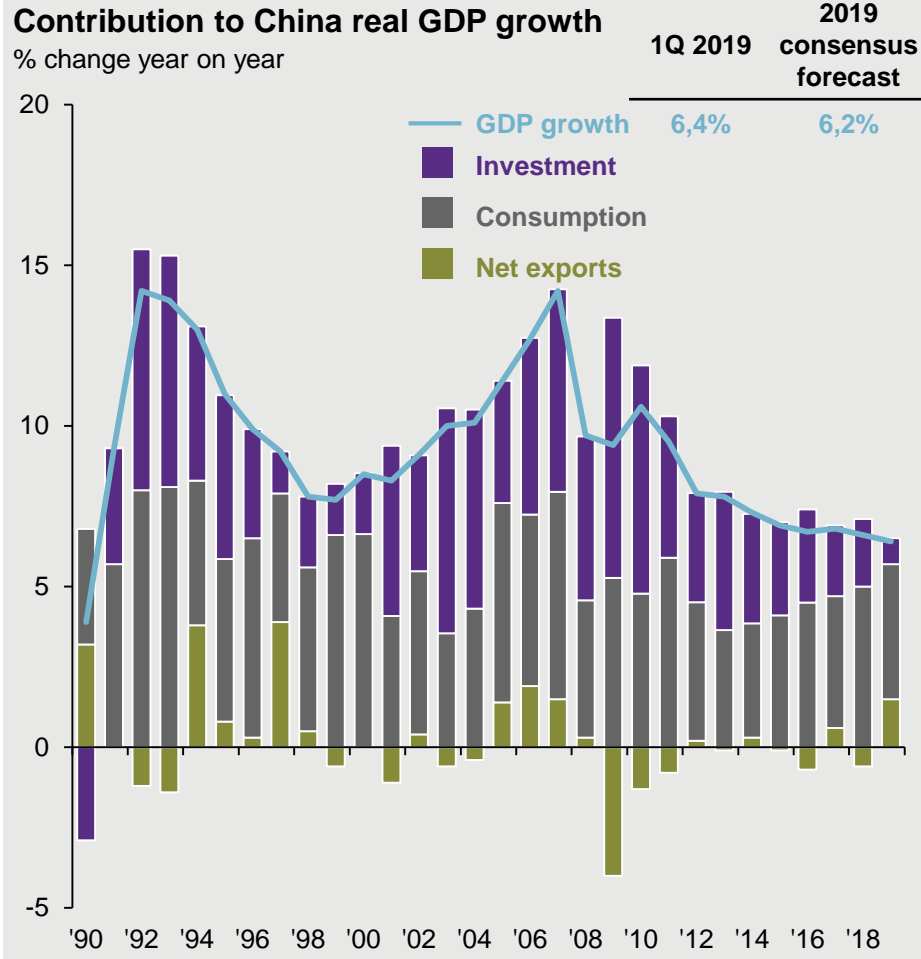
Source: (Left) Bloomberg, National Bureau of Statistics of China, Refinitiv Datastream, J.P. Morgan Asset Management. Forecast is from Bloomberg contributor composite. (Right) National Bureau of Statistics of China, Refinitiv Datastream, J.P. Morgan Asset Management. Industrial production is a three-month 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 30 June 2019.
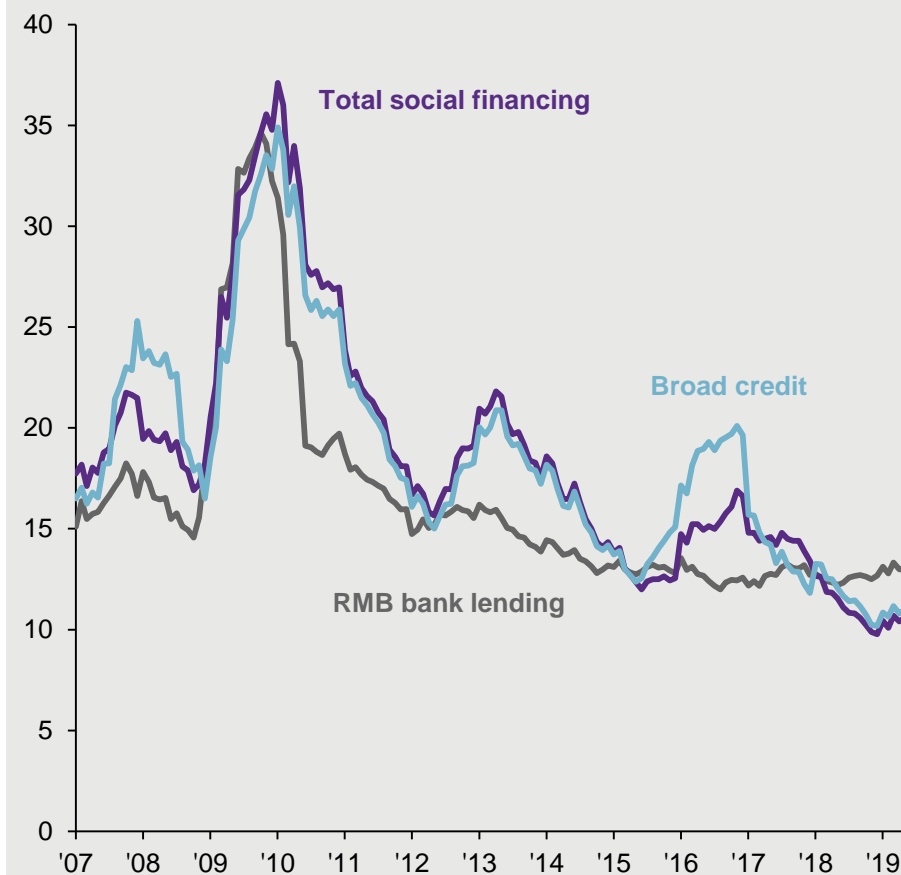
Global economy

J.P.Morgan
Asset Management

Global economy

China debt to GDP ratios
% of nominal GDP

Non-financial corporates

Government

Households
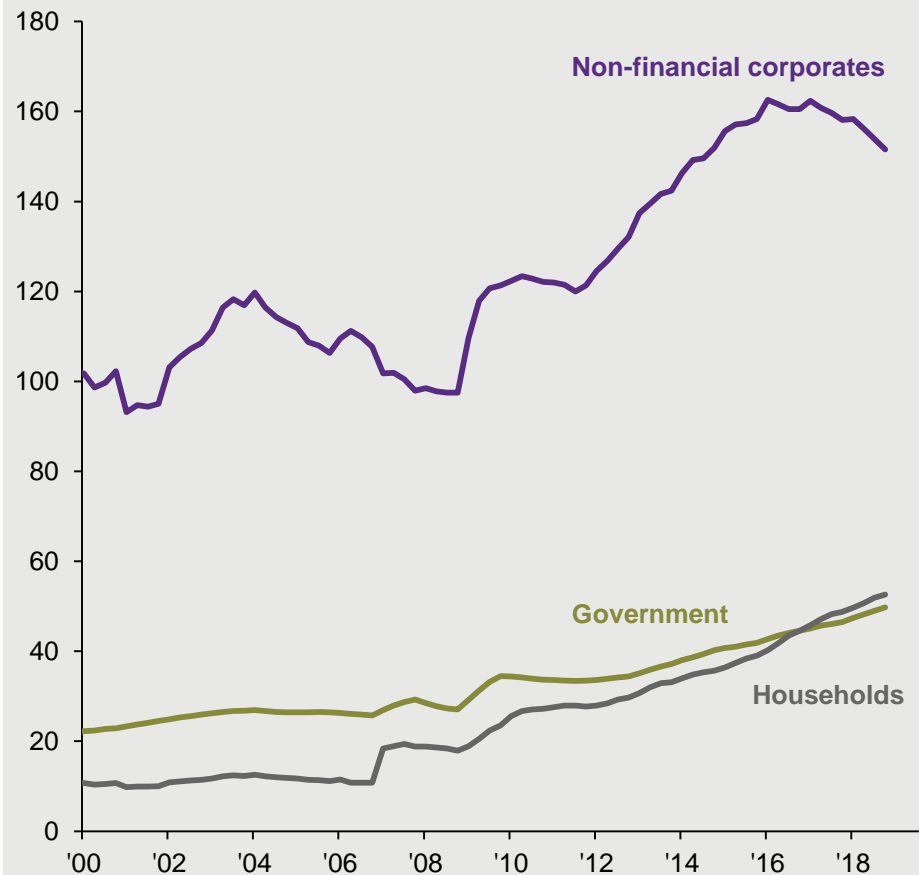
China credit growth
% change year on year

Total social financing
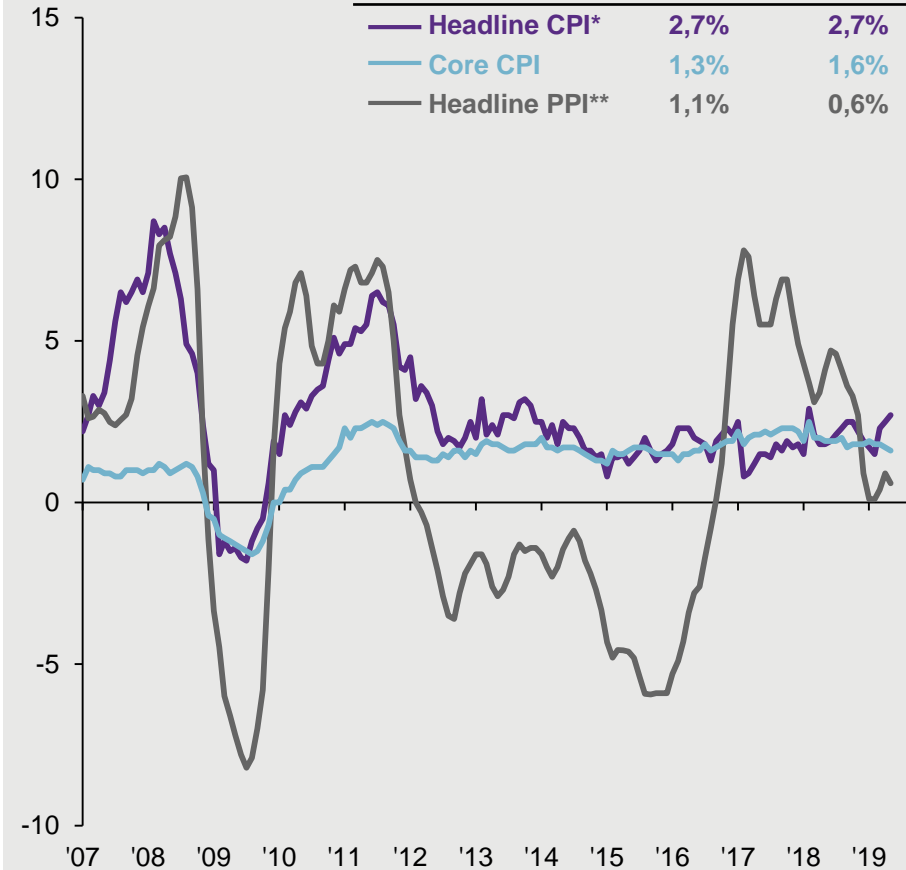
Broad credit

RMB bank lending

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. This chart includes three measures of credit ranging from the narrowest – RMB bank lending – to the more extensive broad credit. Specifically, RMB bank lending is the sum of all loans made by the commercial banking system to domestic borrowers. Total social financing (TSF) is all funding to domestic borrowers that is not explicitly backed by the sovereign and thus includes bank lending, trust loans, entrusted loans, bankers' acceptances, corporate bonds and equity financing by non-financial enterprises, asset backed securities, loan write-offs and local government 'special' bonds. Broad credit is total social financing plus all finance provided by local and central governments. Past performance is not a reliable indicator of current and future results.

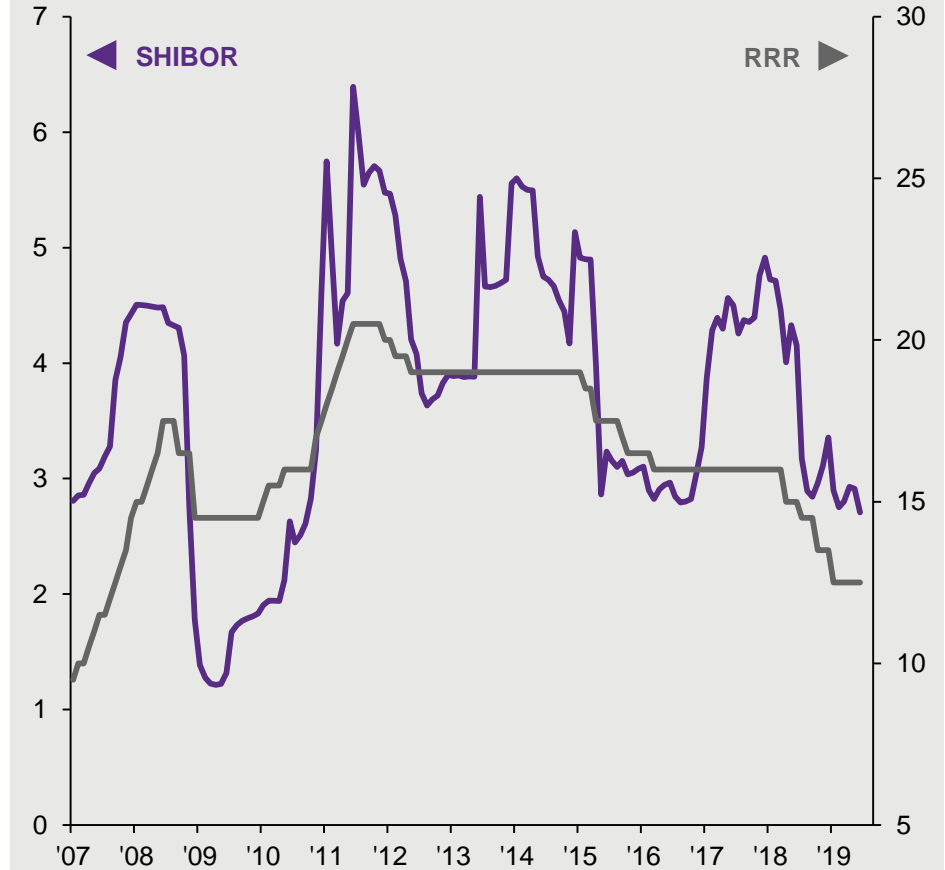*Guide to the Markets - Europe.* Data as of 30 June 2019.

J.P.Morgan
Asset Management

Global economy

China inflation

% change year on year

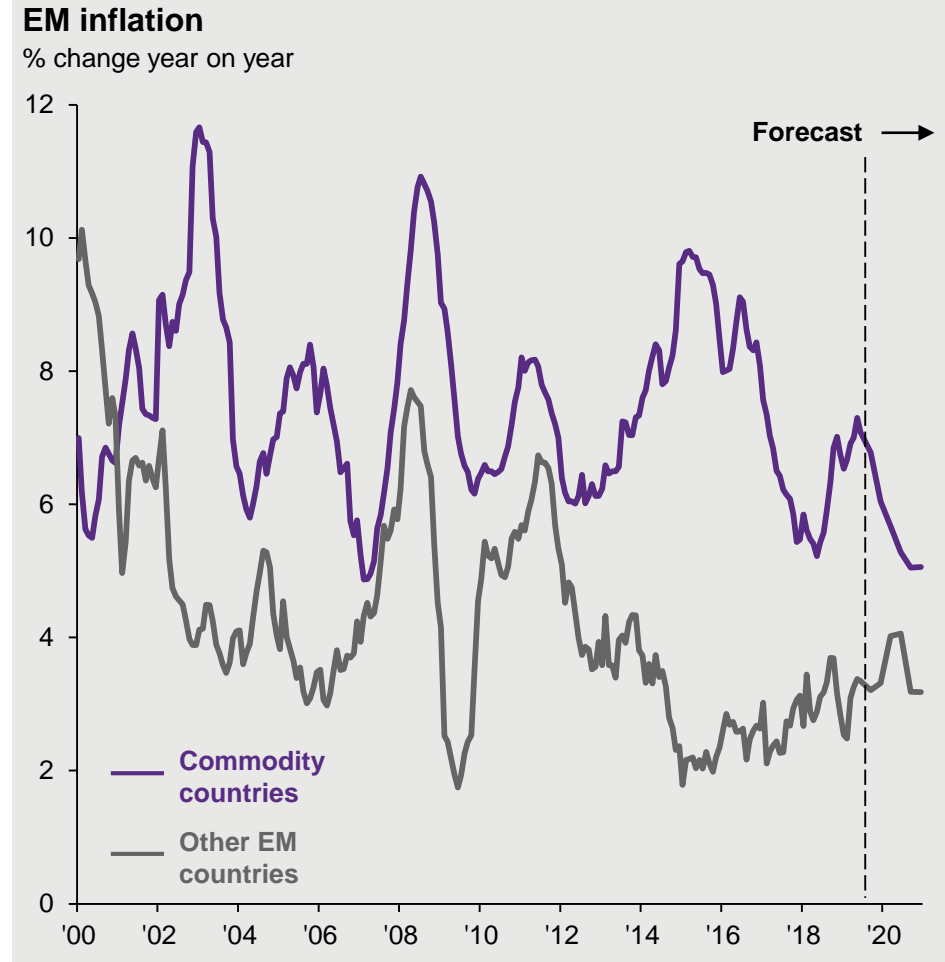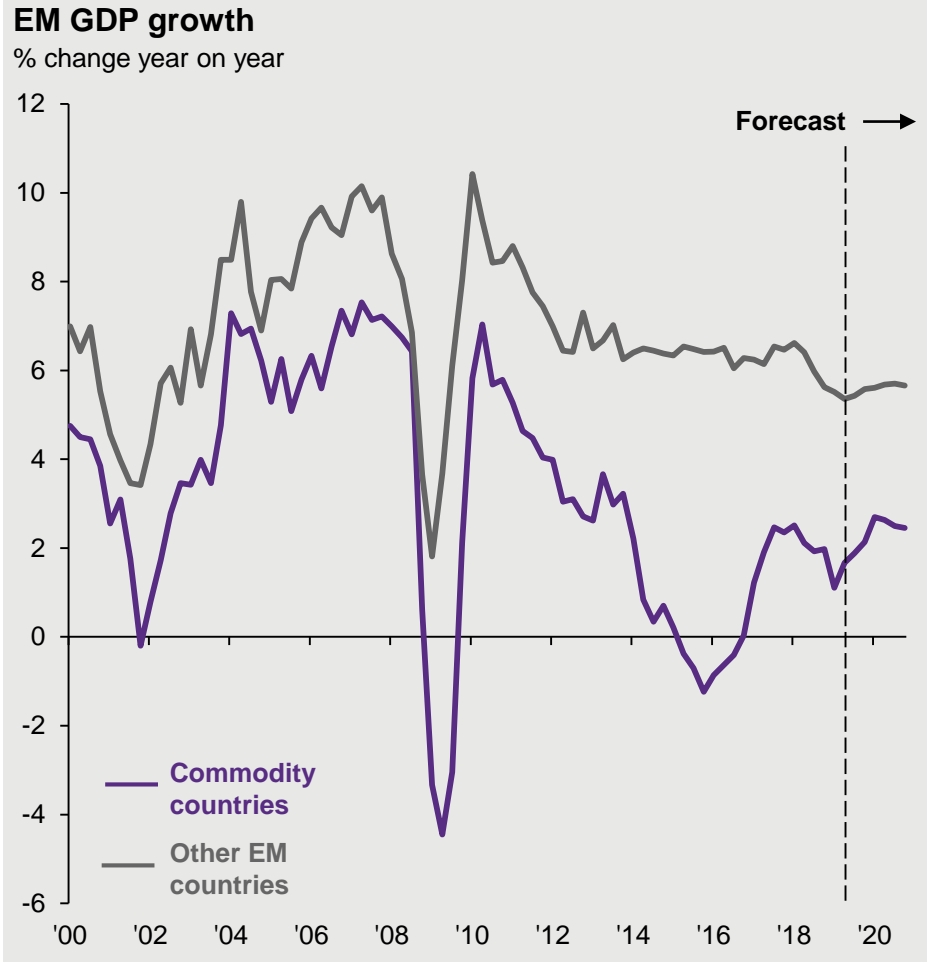|	Average since 2007	May 2019
Headline CPI*	2,7%	2,7%
Core CPI	1,3%	1,6%
Headline PPI**	1,1%	0,6%

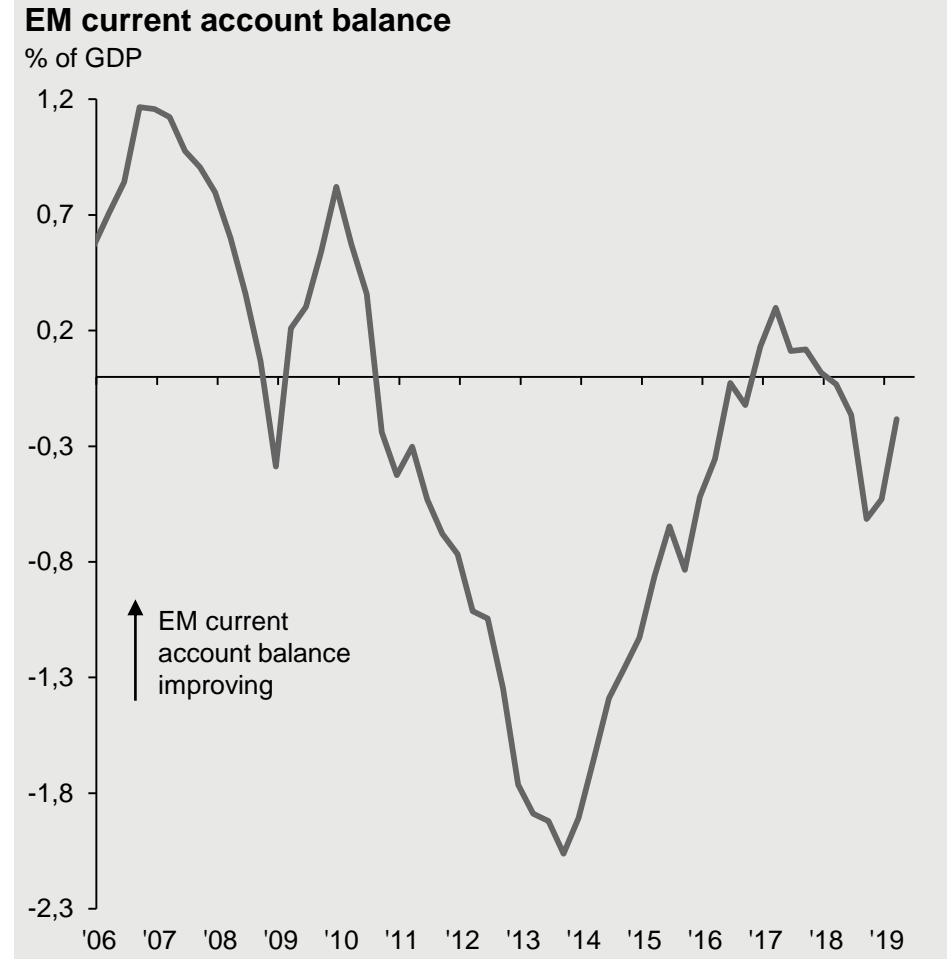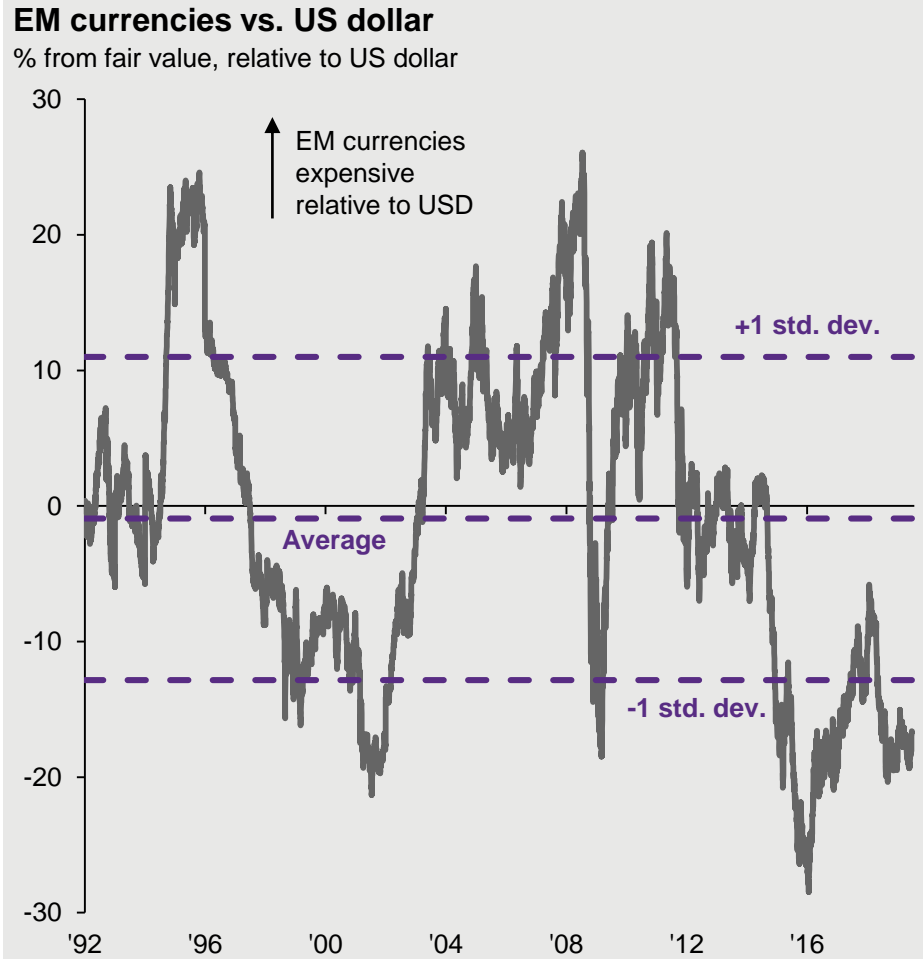**China interbank rate and reserve requirement ratio (RRR)**

% rate

◀ SHIBOR   RRR ▶

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 30 June 2019.

J.P.Morgan
Asset Management

Global economy

EM GDP growth
% change year on year

Forecast →

Commodity
countries

Other EM
countries

EM inflation
% change year on year

Forecast →

Commodity
countries

Other EM
countries

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 30 June 2019.

J.P.Morgan
Asset Management

Global economy

EM currencies vs. US dollar
% from fair value, relative to US dollar

↑ EM currencies expensive relative to USD

+1 std. dev.

Average

-1 std. dev.

EM current account balance
% of GDP

↑ EM current account balance improving

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 30 June 2019.

J.P.Morgan
Asset Management

Global economy

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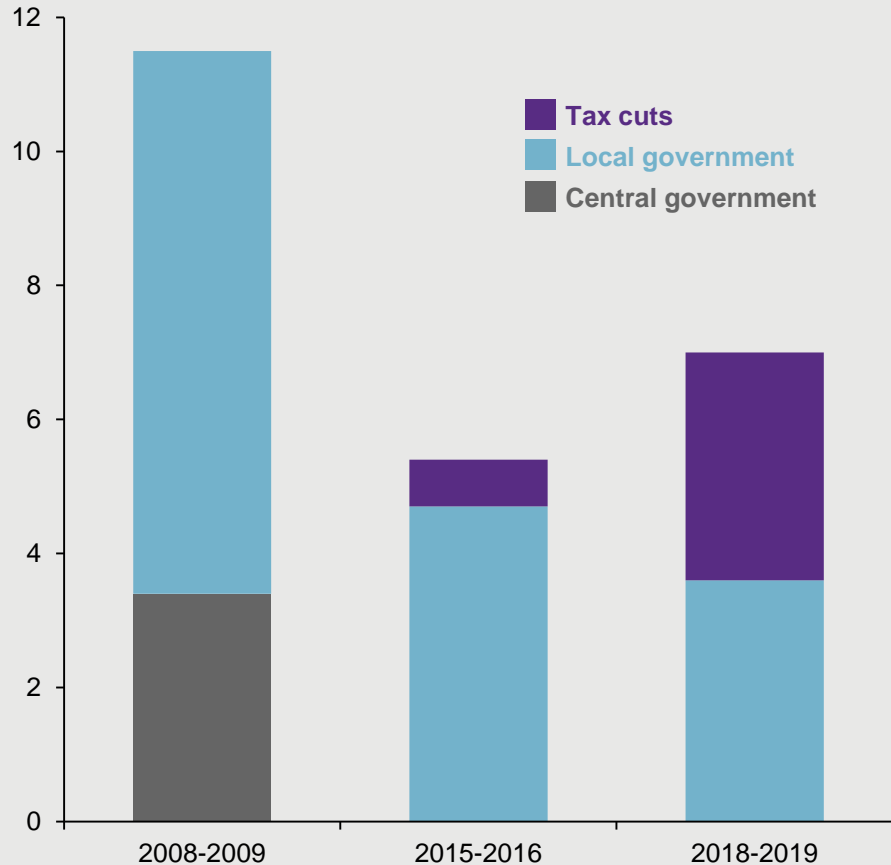

- Developed markets
- Emerging markets
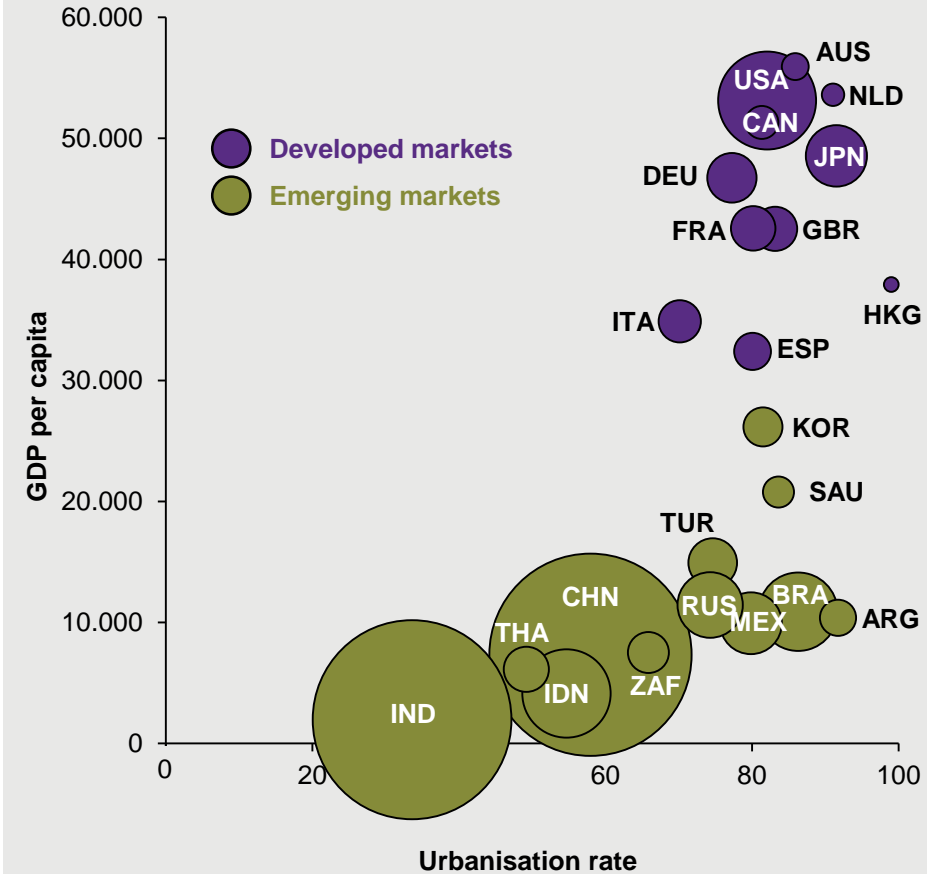
Share of global real GDP
%
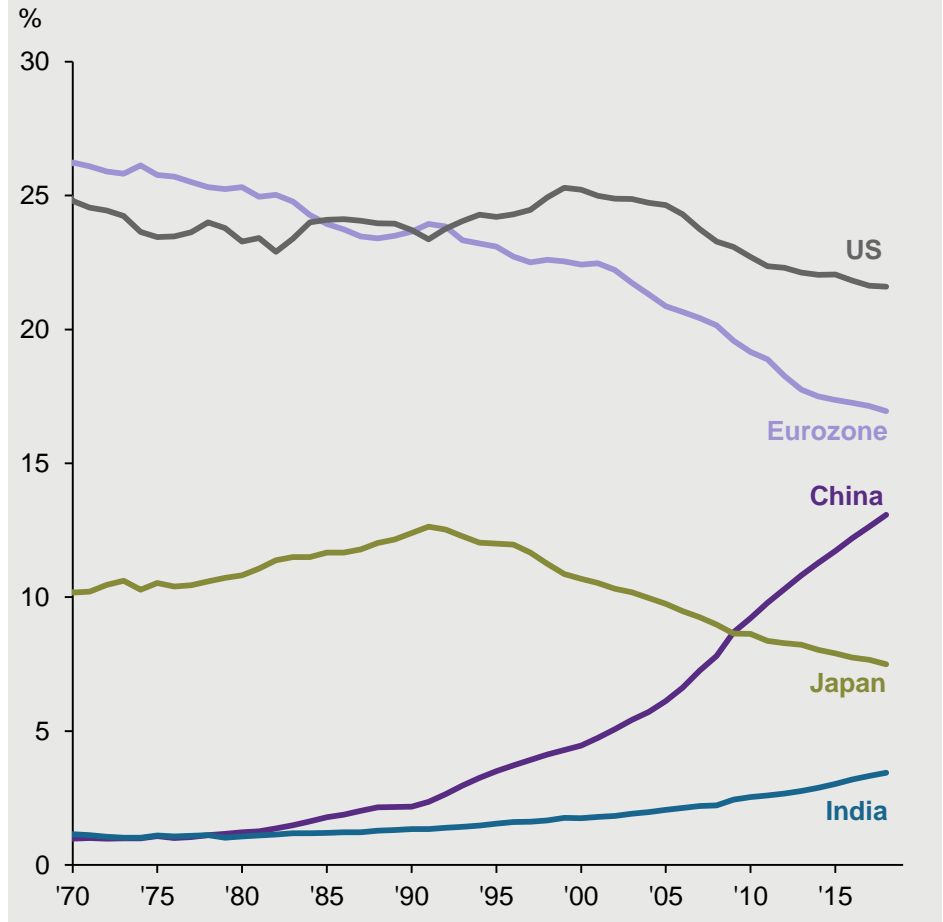
Source: (Left) World Bank, J.P. Morgan Asset Management. Urbanisation rate refers to the proportion of the total population living within an urban area defined by national statistical offices. Countries are labelled using three-letter International Organisation of Standardisation country codes. (Right) 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 30 June 2019.

J.P.Morgan
Asset Management

Global economy

China stimulus
% of GDP

Legend:
- Tax cuts
- Local government
- Central government

China broad credit impulse and imports
% of GDP (LHS); % change year on year, three-month moving average (RHS)

China broad credit impulse (advanced 18 months) ◄   China imports ▶

Source: (Left) Ministry of Finance of China, J.P. Morgan Securities Research, J.P. Morgan Asset Management. Central government spending is the incremental expenditure by the central government on infrastructure construction and subsidies to certain economic sectors. The spending is financed by tax revenue and issuance of treasury bonds. Local government spending is mostly composed of infrastructure investment conducted by local governments and their financing vehicles. These investments are mainly financed by bank loans, issuance of special local government bonds, policy bank loans and Private Public Partnership (PPP) projects. Tax cuts include cuts to VAT, personal income tax, corporate taxes and tariffs. (Right) China Customs, People's Bank of China (PBoC), Refinitiv Datastream, J.P. Morgan Asset Management. Broad credit impulse is the rate of change (using absolute 12-month changes) of annual broad credit as a % of GDP. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.
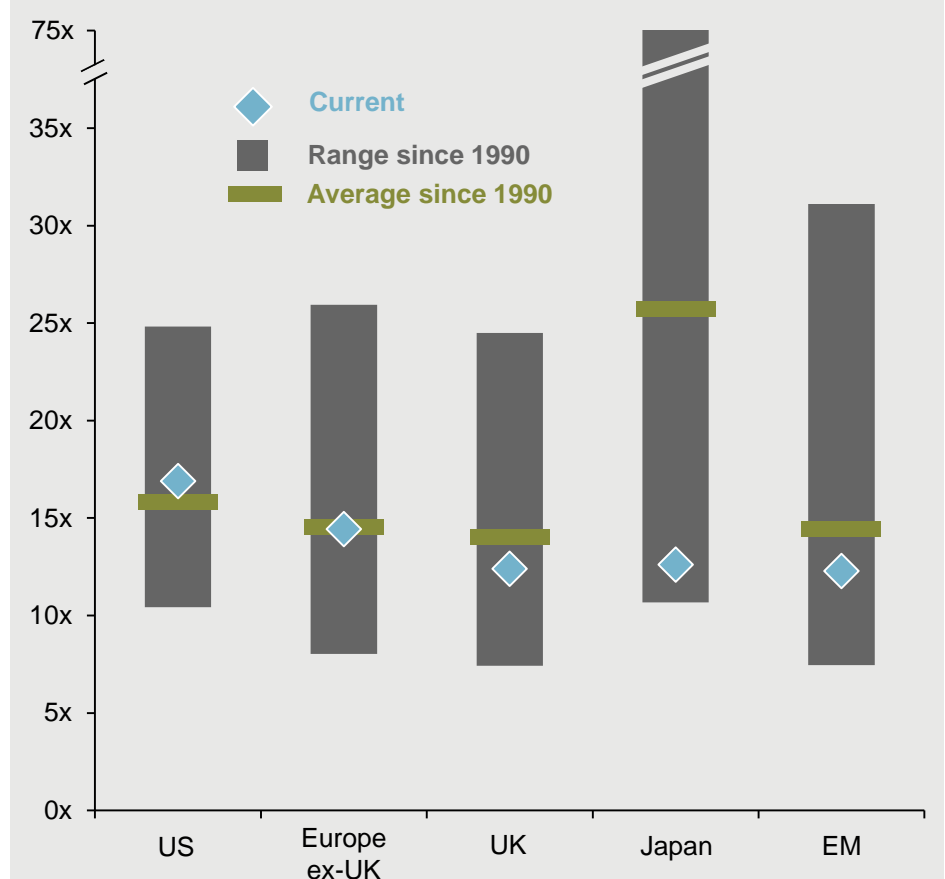
J.P.Morgan Asset Management

Global earnings per share

NTM EUR earnings per share estimates, rebased to 100 in Jan 2009
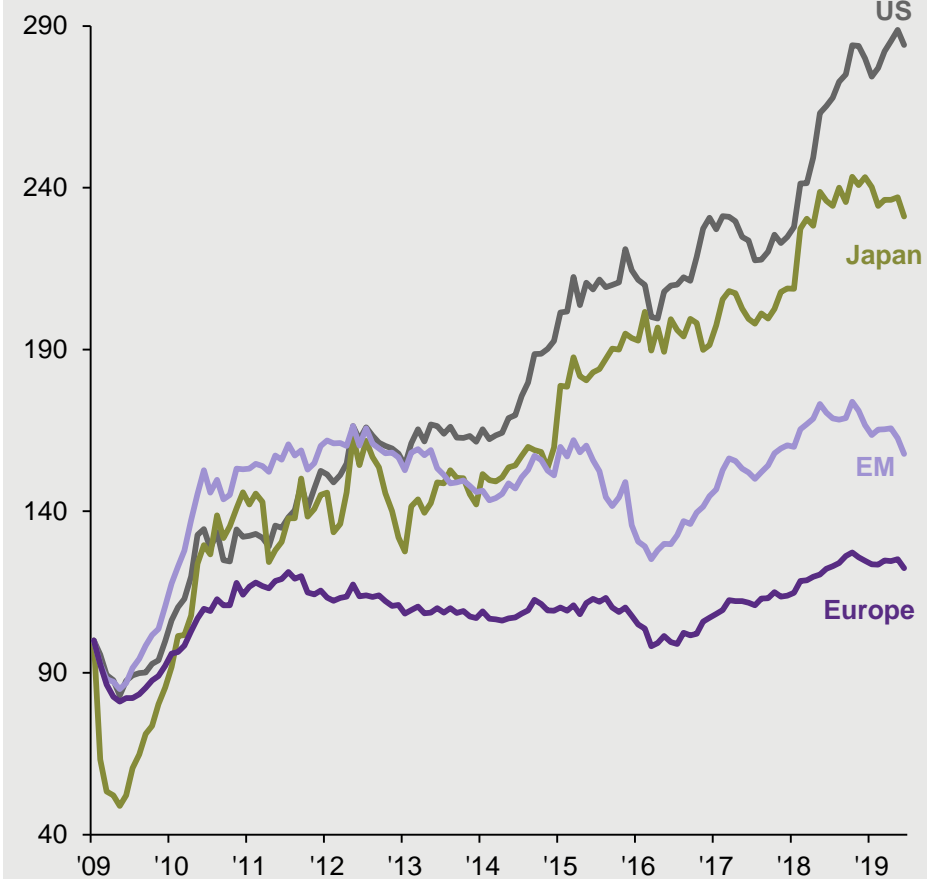
Global forward price-to-earnings ratios

x, multiple

- Current
- Range since 1990
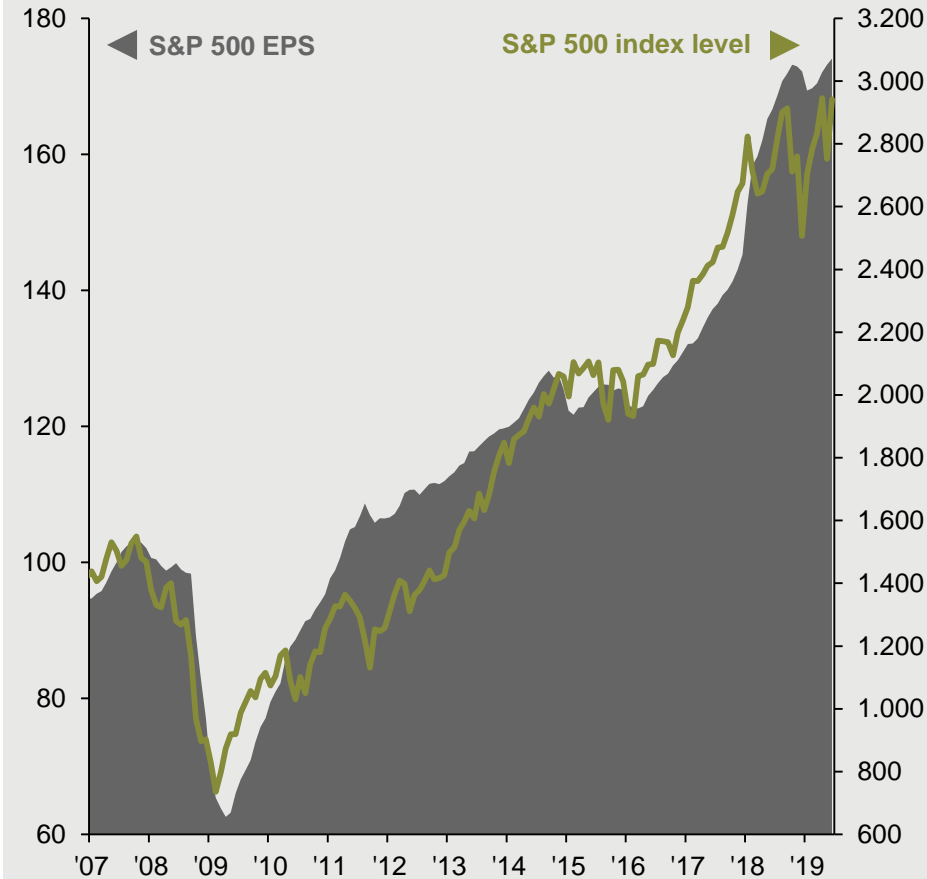- Average since 1990

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 30 June 2019.

Equities

J.P.Morgan Asset Management

S&P 500 Index

Equities

J.P.Morgan
Asset Management

Equities

S&P 500 earnings and performance
Next 12 months' earnings per share estimates (LHS); index level (RHS)

◄ S&P 500 EPS   S&P 500 index level ►

S&P 500 earnings per share growth
% change year on year

■ Start of year EPS growth expectations
■ Delivered EPS growth
▲ Current EPS growth expectations

11%
3%

J.P.Morgan
Asset Management

Leading economic indicator vs. S&P 500 performance
Index level

◀ **S&P 500 index level**   **Leading economic indicator** ▶

Recession

Initial jobless claims vs. S&P 500 performance
Index level (LHS); thousands, 12-week moving average (RHS)

◀ **S&P 500 index level**   **Initial jobless claims** ▶

Equities

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 30 June 2019.
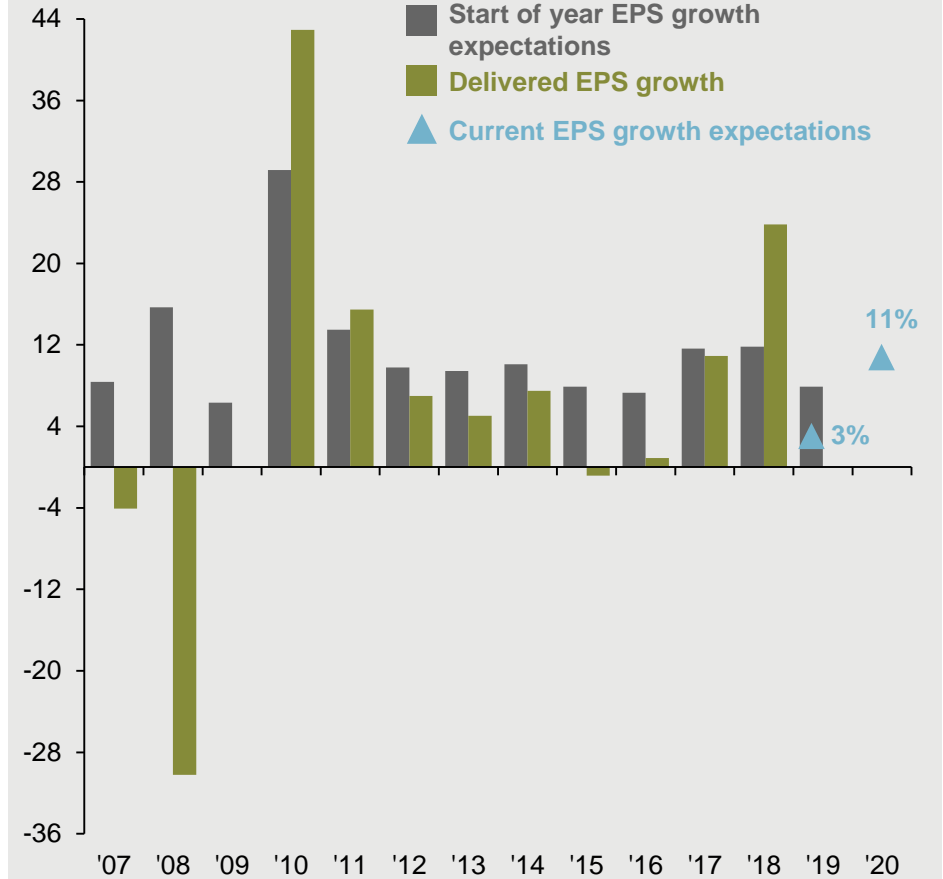
J.P.Morgan
Asset Management

S&P 500 forward P/E ratio

x, multiple

Valuation measure	Average since 1990	Latest
Shiller cyclically-adjusted P/E ratio	25,8x	30,2x
P/B ratio	2,9x	3,3x

Equities

30 June 2019: 16,9x

Average: 15,8x

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 30 June 2019.

J.P.Morgan
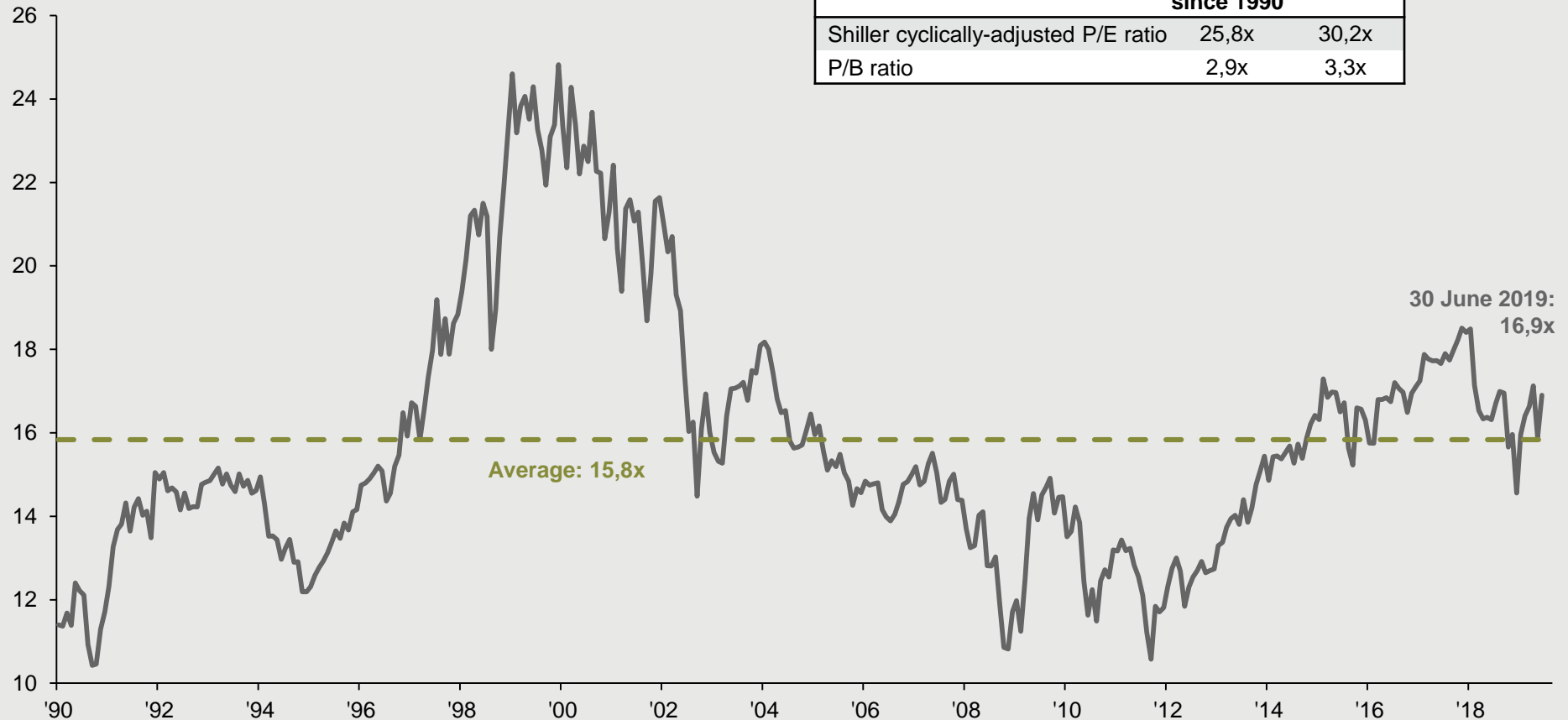Asset Management

Equities

Forward P/E ratios and subsequent 1-year returns
%, annualised total return*

Current level

Forward P/E ratios and subsequent 10-year returns
%, annualised total return*

Current level

Source: (All charts) IBES, Refinitiv Datastream, Standard & Poor's, 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 30 June 2019.
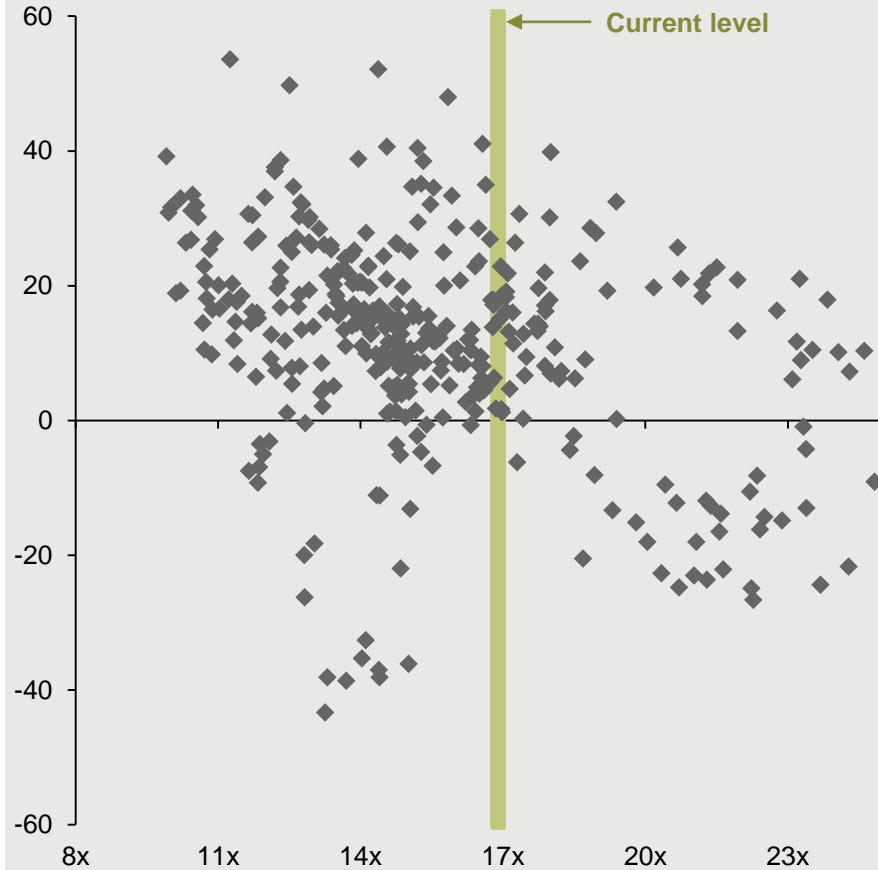
J.P.Morgan
Asset Management

US Fed funds rate and equities/government bonds relative performance

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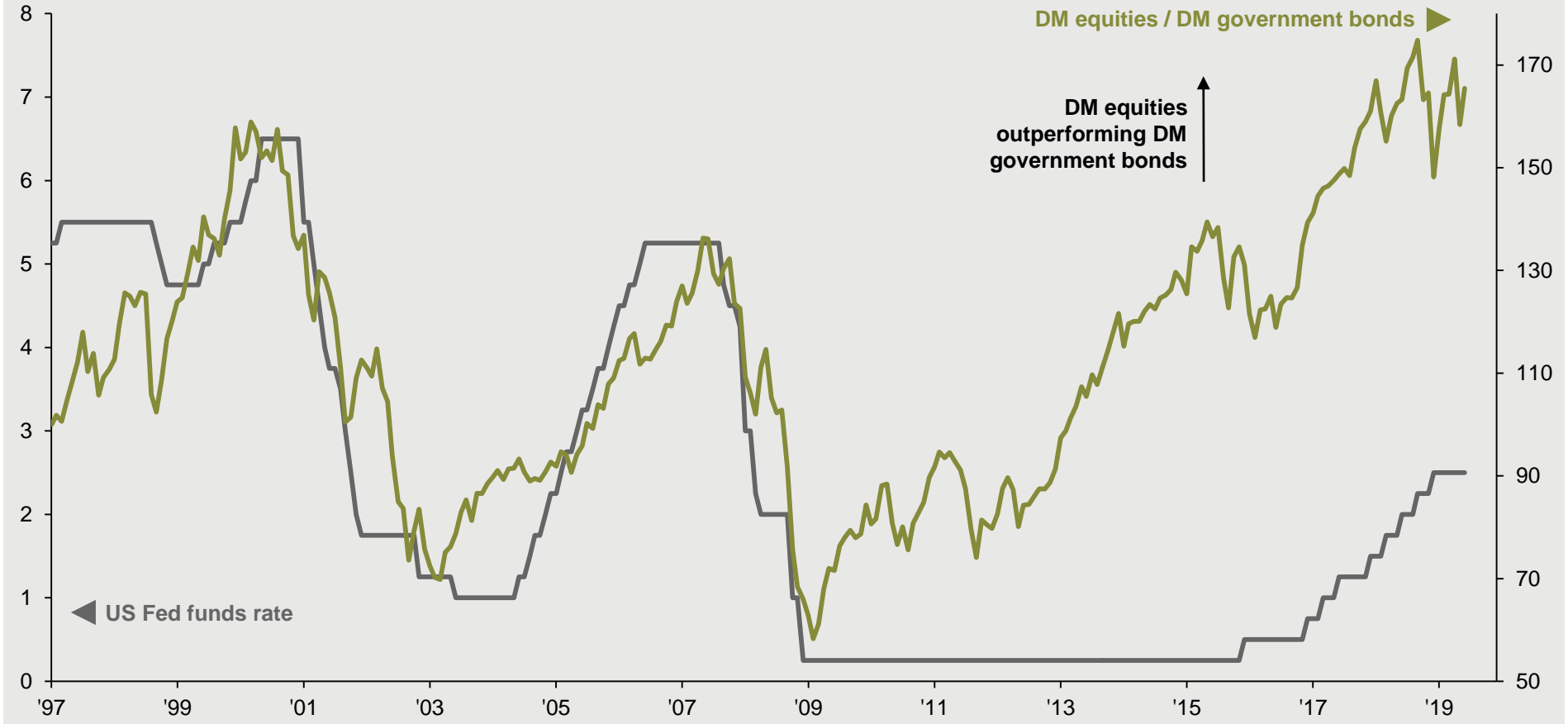
Equities

DM equities / DM government bonds ▶

DM equities outperforming DM government bonds

◀ US Fed funds rate

Source: MSCI, Refinitiv Datastream, US Federal Reserve, J.P. Morgan Asset Management. Developed market (DM) equities: MSCI World and DM government bonds: BofAML/Merrill 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 30 June 2019.

J.P.Morgan
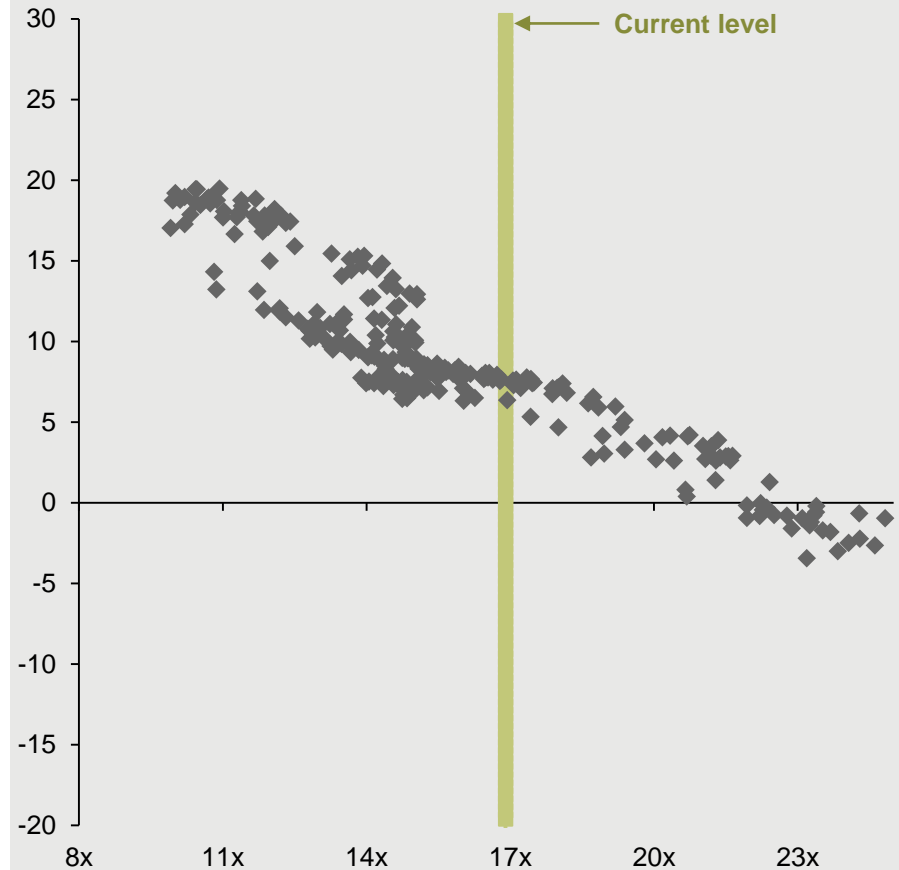Asset Management

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

20% market decline
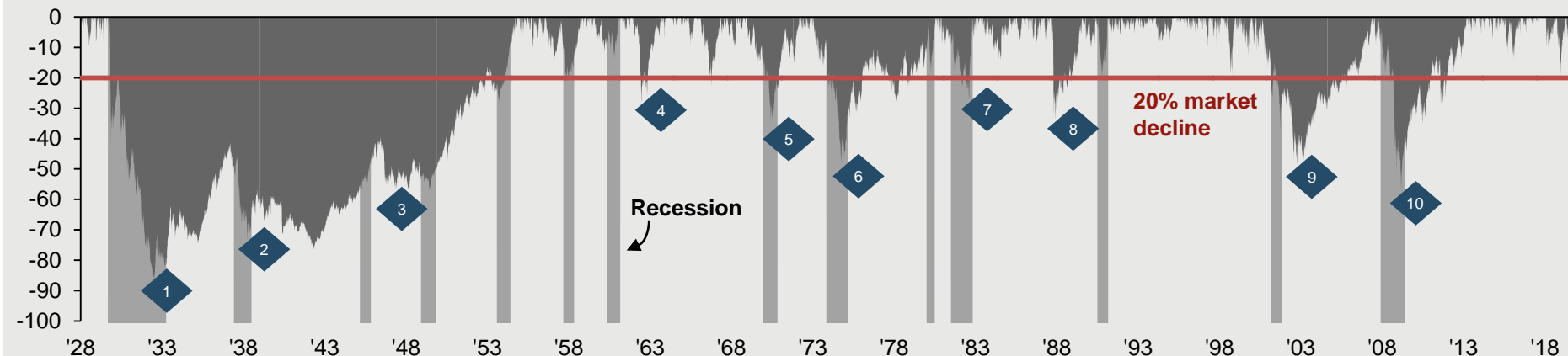
Recession
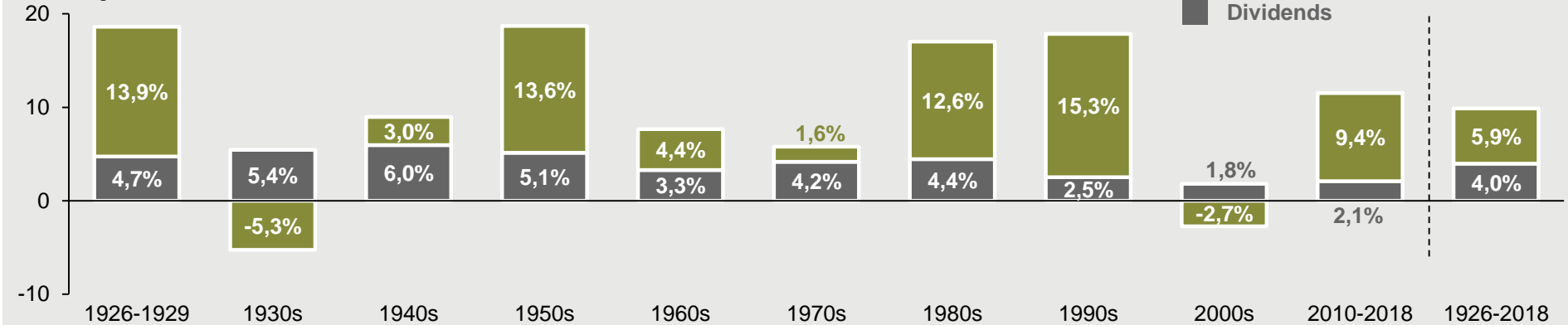
Characteristics of past bear and bull markets*

Market corrections	Bear markets			Macro environment	Bull markets			Return before peak	
	Market peak	Bear return	Duration (months)	Recession	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	335%	123		
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 30 June 2019.

Equities

J.P.Morgan
Asset Management

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

%, average annualised returns

Capital appreciation

Dividends

	1926-1929	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010-2018	1926-2018
Capital appreciation	13,9%	-5,3%	3,0%	13,6%	4,4%	1,6%	12,6%	15,3%	-2,7%	9,4%	5,9%
Dividends	4,7%	5,4%	6,0%	5,1%	3,3%	4,2%	4,4%	2,5%	1,8%	2,1%	4,0%

Sources of income

% yield

**Europe average inflation: 1,9%
(12 months to May 2019)**

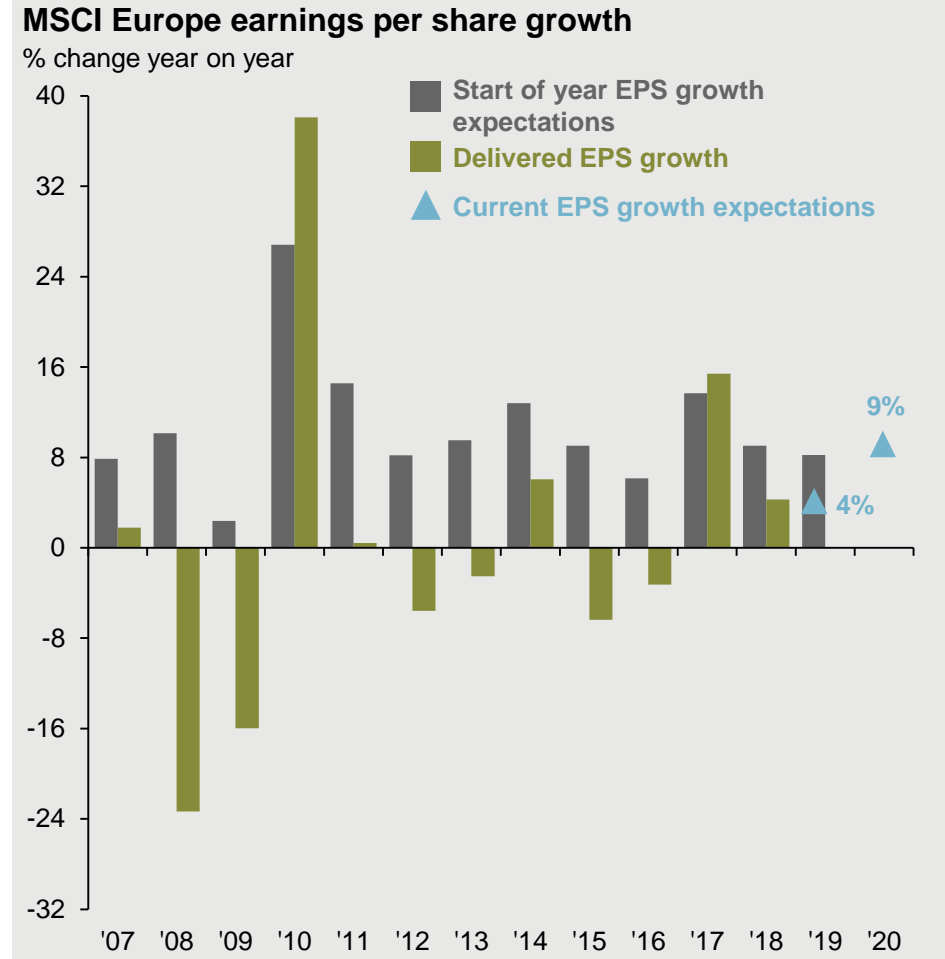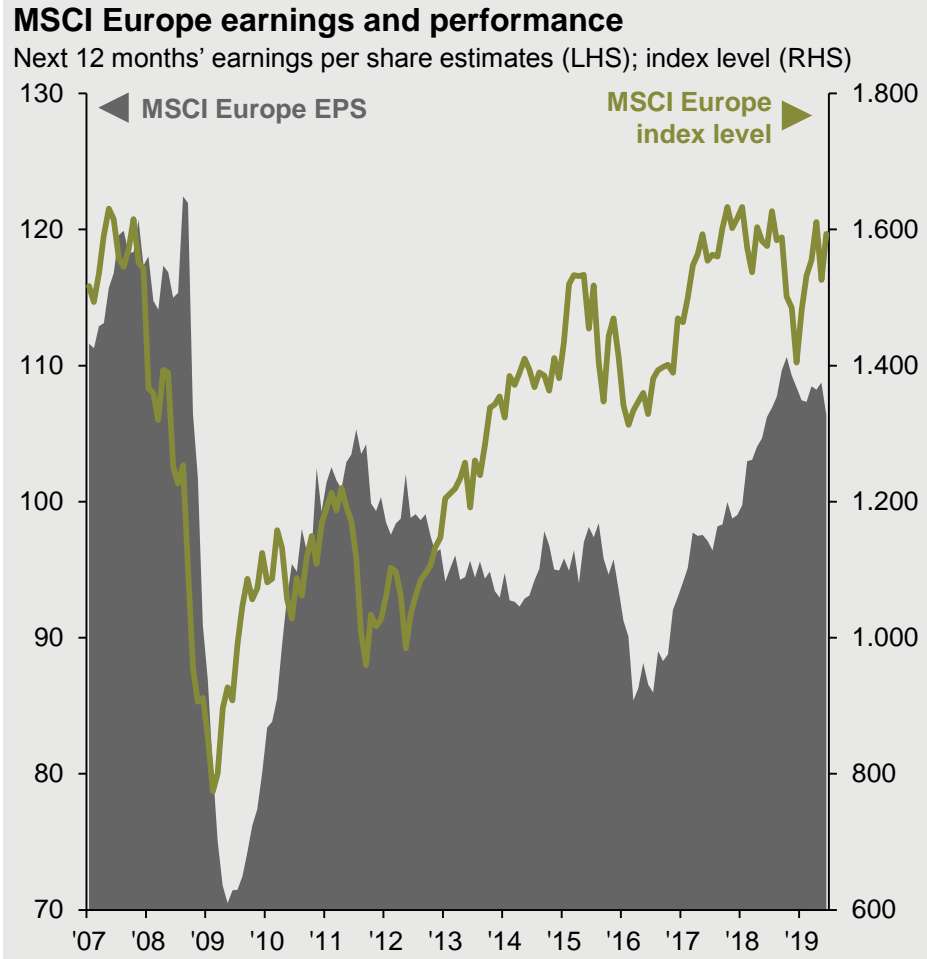| German Bunds	Cash	Euro IG	EM equity	MSCI Europe	Global convertibles	Global REITs	EM debt	DM high yield
-0,3	0,0	0,5	2,8	3,7	3,9	4,2	5,8	5,9

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 30 June 2019.
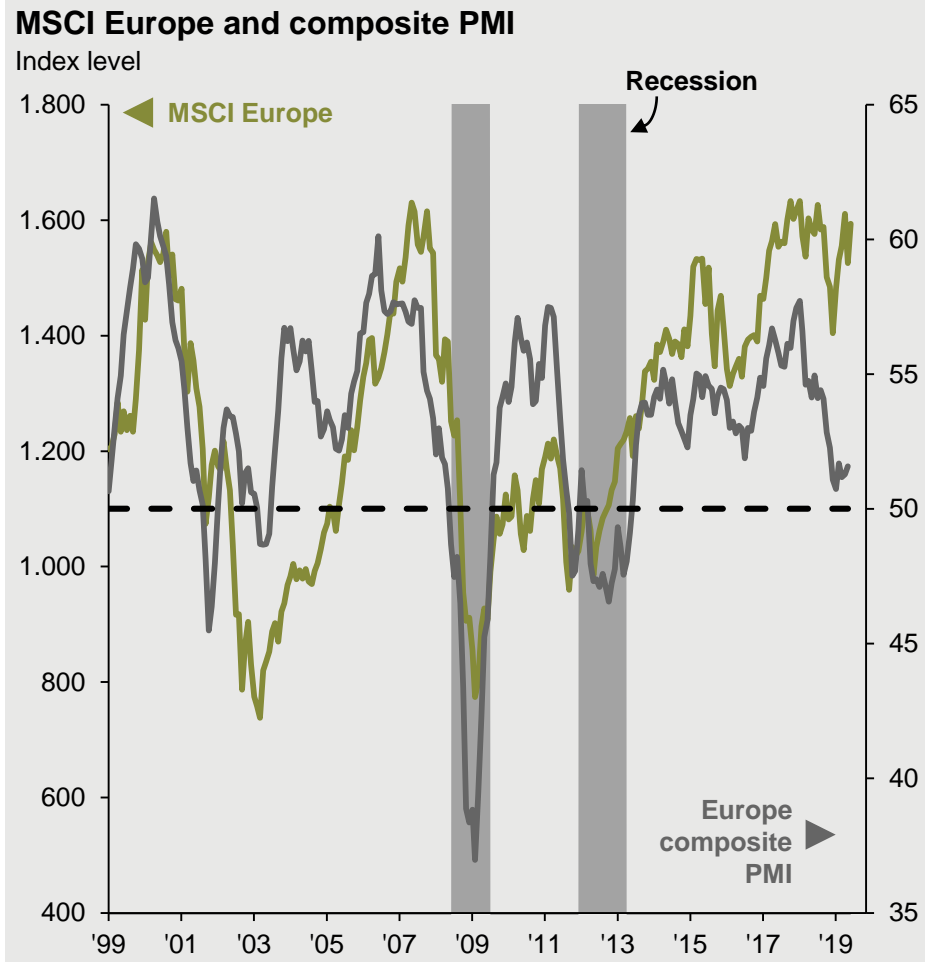
J.P.Morgan
Asset Management

Equities

Equities

S&P 500 Index

	Materials	Industrials	Financials	Energy	Cons. Discr.	Tech	Comm. Services*	Real Estate	Health Care	Cons. Staples	Utilities	S&P 500	
S&P 500 weight	2,8%	9,4%	13,1%	5,0%	10,2%	21,5%	10,2%	3,1%	14,2%	7,3%	3,3%	100%	**Weights**
Russell Growth weight	1,9%	11,5%	4,4%	0,7%	15,2%	33,5%	12,0%	2,4%	12,6%	5,7%	0,0%	100%	
Russell Value weight	4,0%	8,0%	22,5%	9,0%	5,3%	9,7%	7,1%	5,0%	15,2%	7,8%	6,4%	100%	
2Q 2019	6,3	3,6	8,0	-2,8	5,3	6,1	4,5	2,5	1,4	3,7	3,5	4,3	**Return**
YTD	17,3	21,4	17,2	13,1	21,8	27,1	19,1	20,4	8,1	16,2	14,7	18,5	
Since market peak**	76,7	124,9	21,1	7,7	280,6	279,0	60,9	97,1	219,5	188,0	128,0	141,4	
Since market low***	321,0	518,2	560,9	97,3	781,0	694,2	207,3	630,8	415,1	303,9	299,1	439,5	
Beta to S&P 500	1,28	1,20	1,19	1,18	1,11	1,11	0.94*	0,84	0,79	0,60	0,30	1,00	**β**
Forward P/E ratio	17,3x	16,0x	11,9x	16,1x	21,2x	19,2x	17,7x	19,3x	15,4x	19,2x	18,8x	16,9x	**P/E**
Average since 1996	14,0x	16,2x	12,8x	17,5x	17,9x	20,3x	18.2x*	15,4x	17,6x	17,3x	14,1x	16,0x	
Trailing P/E ratio	17,0x	17,3x	12,6x	17,1x	22,3x	19,4x	18,4x	19,4x	16,5x	19,3x	19,2x	17,4x	
Average since 1996	16,6x	17,9x	15,3x	21,1x	20,3x	23,7x	19.9x*	16,4x	19,5x	18,7x	14,7x	17,8x	
Dividend yield	2,2%	2,0%	2,3%	3,7%	1,4%	1,5%	1,4%	3,3%	1,8%	3,0%	3,4%	2,0%	**Div**
Average since 1996	2,6%	2,1%	2,3%	2,4%	1,5%	0,9%	1.6%*	4,4%	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 30 June 2019.

J.P.Morgan
Asset Management

MSCI Europe earnings and performance

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

◄ MSCI Europe EPS   MSCI Europe index level ►

MSCI Europe earnings per share growth

% change year on year

- Start of year EPS growth expectations
- Delivered EPS growth
- ▲ Current EPS growth expectations

9%
4%

Equities

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 30 June 2019.

J.P.Morgan
Asset Management

Equities

MSCI Europe and composite PMI

Index level

◀ **MSCI Europe**

Recession

Europe composite PMI ▶

MSCI Europe and consumer confidence

Index level

Europe consumer confidence ▶

◀ **MSCI Europe**

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 30 June 2019.

J.P.Morgan
Asset Management

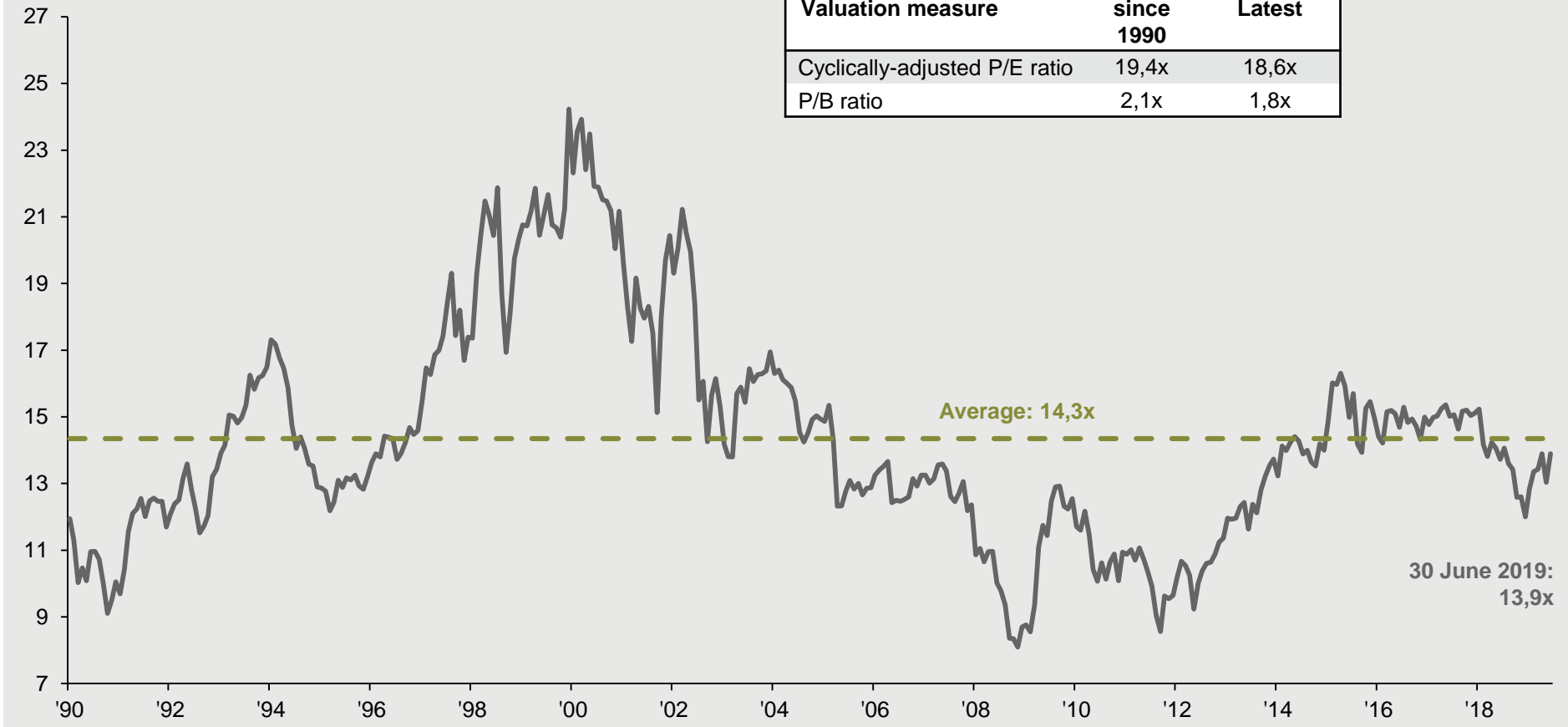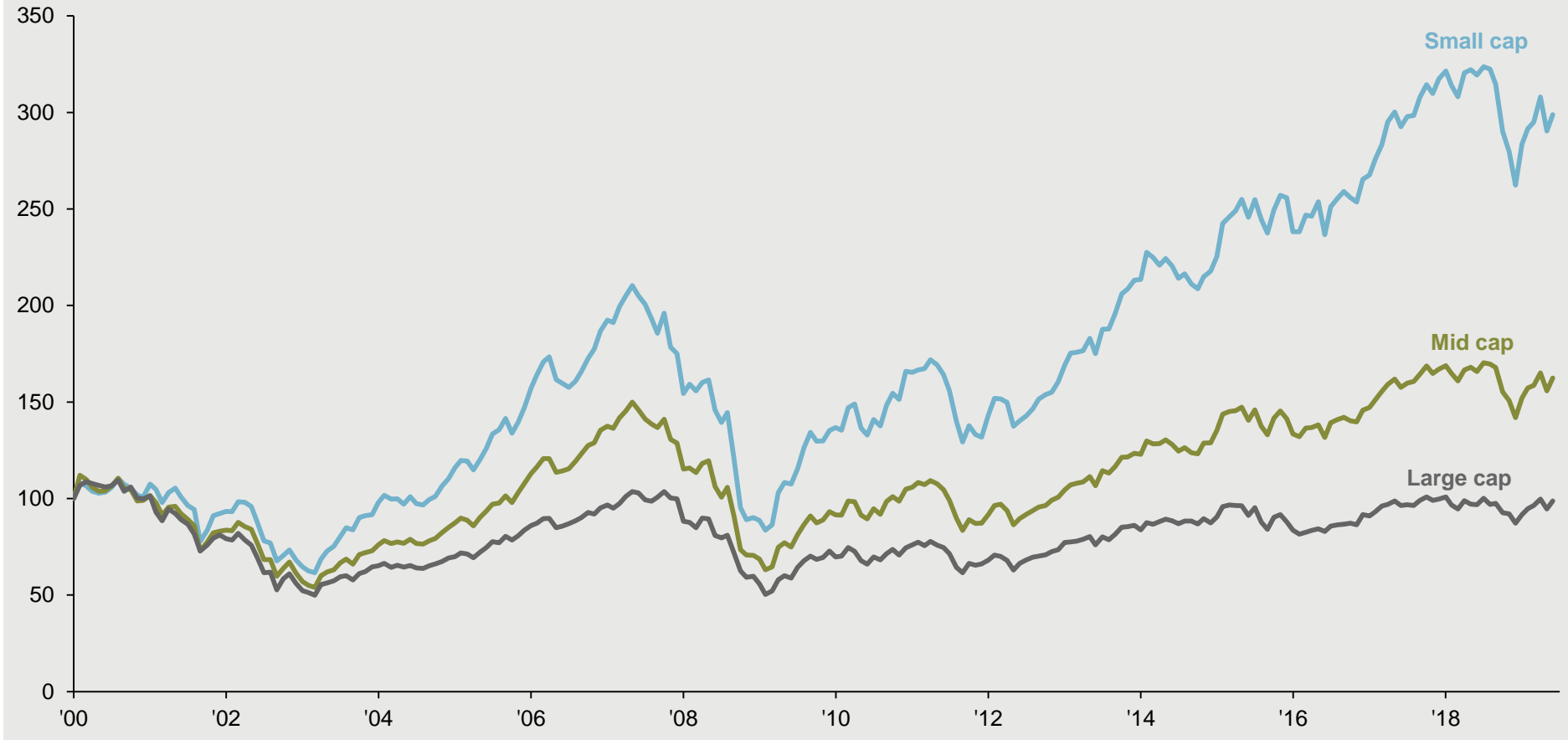**Equities**

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 30 June 2019.

J.P.Morgan
Asset Management

MSCI Europe forward P/E ratio

x, multiple

Valuation measure	Average since 1990	Latest
Cyclically-adjusted P/E ratio	19,4x	18,6x
P/B ratio	2,1x	1,8x

Average: 14,3x

30 June 2019:
13,9x

Equities

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 30 June 2019.

J.P.Morgan
Asset Management

MSCI Europe large, mid and small cap performance
Index level, rebased to 100 in 2000

Source: MSCI, Refinitiv Datastream, J.P. Morgan Asset Managament. Past performance is not a reliable indicator of current and future results.
Guide to the Markets - Europe. Data as of 30 June 2019.
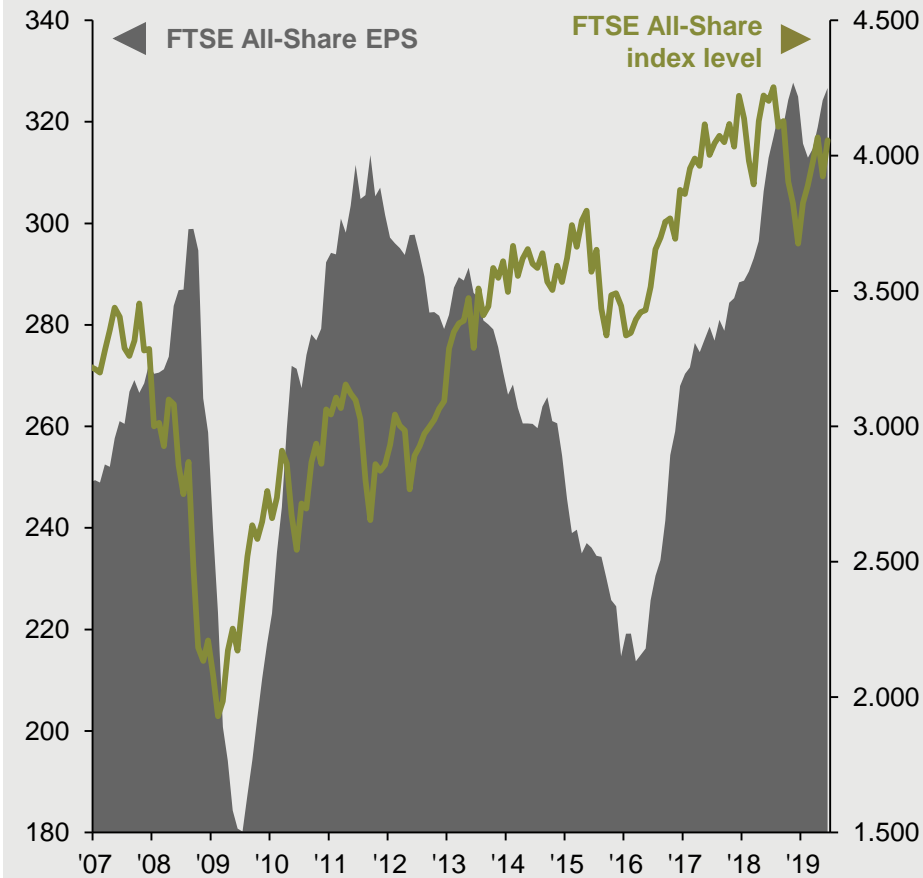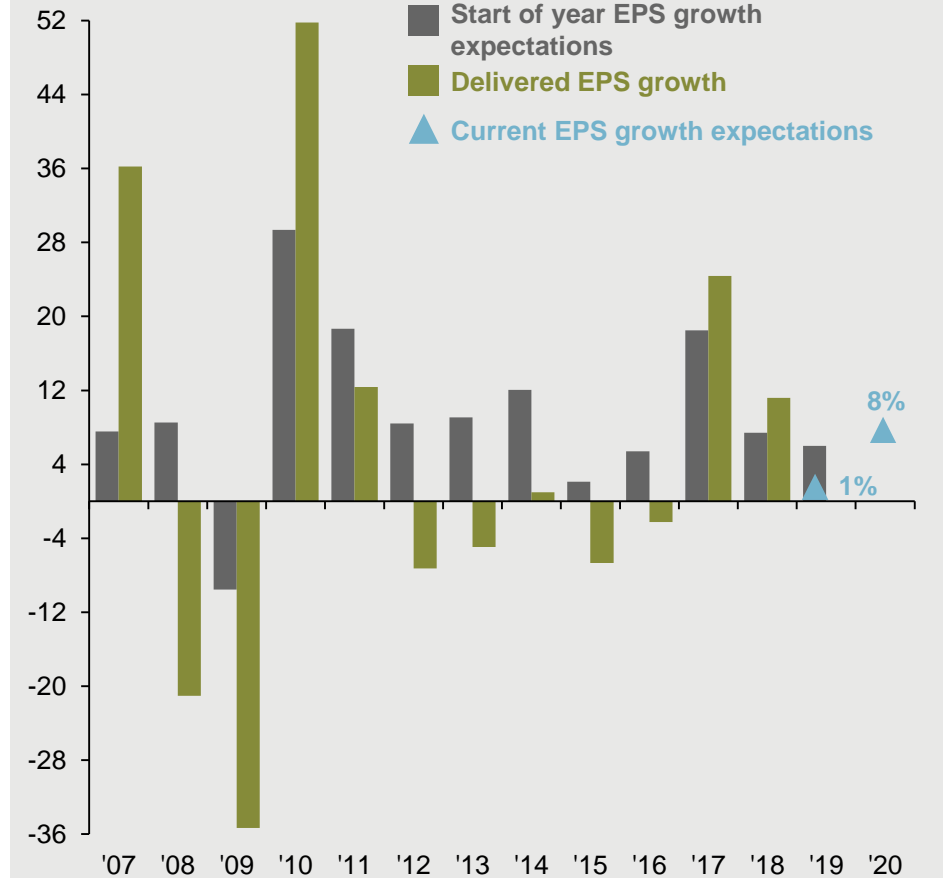
Equities

J.P.Morgan Asset Management

MSCI Europe

	Financials*	Health Care	Cons. Staples	Cons. Disc.	Industrials	Materials	Energy	Comm. Services**	Utilities	Tech	MSCI Europe	
MSCI Europe weight	**18,0%**	**13,0%**	**14,5%**	**9,6%**	**13,5%**	**7,6%**	**7,9%**	**4,6%**	**4,1%**	**5,9%**	**100%**	Weights
Growth weight	4,5%	17,5%	24,4%	12,3%	19,6%	6,7%	1,1%	1,9%	1,2%	10,4%	100%	
Value weight	33,0%	8,0%	3,4%	6,5%	6,7%	8,5%	15,5%	7,7%	7,3%	0,9%	100%	
2Q 2019	4,4	2,7	3,4	7,6	8,1	4,2	1,6	-0,9	4,3	9,1	4,5	Return
YTD	12,6	15,6	19,4	22,0	22,6	19,1	11,9	-0,9	15,7	26,7	16,7	
Since market peak*	-26,3	144,6	171,1	106,1	65,5	40,5	62,2	40,3	30,4	70,9	49,4	
Since market low**	225,2	256,8	289,5	362,5	311,4	229,6	135,5	102,2	120,0	332,1	225,9	
Beta to Europe	**1,30**	**0,73**	**0,65**	**1,07**	**1,09**	**1,23**	**0,98**	**0,84**	**0,84**	**0,99**	**1,00**	β
Forward P/E ratio	9,8x	16,4x	18,9x	12,9x	16,6x	13,2x	10,9x	13,4x	14,8x	21,0x	13,9x	P/E
Average since 1995	**12,0x**	**17,6x**	**17,1x**	**14,8x**	**14,9x**	**12,9x**	**13,2x**	**13,8x**	**13,9x**	**17,3x**	**14,6x**	
Trailing P/E ratio	10,1x	17,2x	20,4x	13,3x	17,8x	13,0x	11,6x	14,7x	16,3x	23,3x	14,6x	
Average since 1995	**13,7x**	**19,3x**	**18,5x**	**17,5x**	**17,2x**	**14,4x**	**14,3x**	**14,2x**	**14,5x**	**20,1x**	**16,5x**	
Dividend yield	5,2%	3,0%	2,8%	3,1%	2,6%	3,6%	5,6%	5,0%	4,8%	1,4%	3,7%	Div
Average since 1995	**3,6%**	**2,5%**	**2,6%**	**2,7%**	**2,7%**	**3,0%**	**4,0%**	**4,0%**	**4,5%**	**1,6%**	**3,1%**	

Equities

J.P.Morgan
Asset Management

Equities

FTSE All-Share earnings and performance

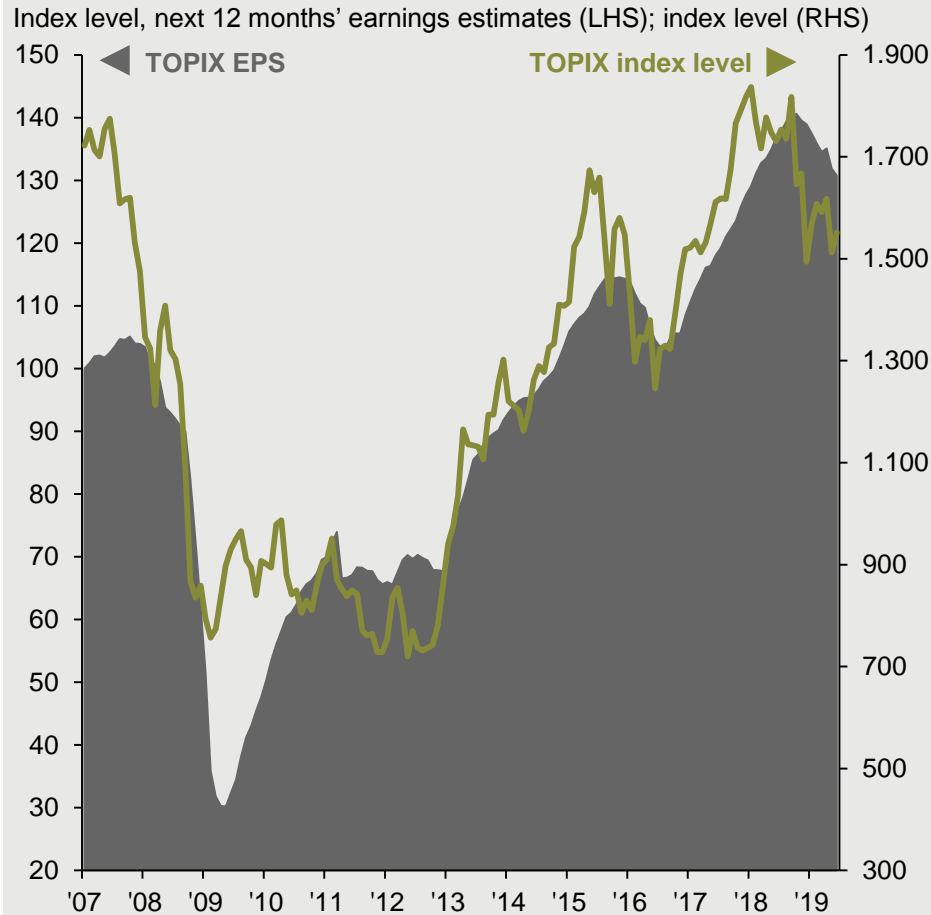Next 12 months' earnings per share estimates (LHS); index level (RHS)

◄ FTSE All-Share EPS

FTSE All-Share index level ►

FTSE All-Share earnings per share growth

% change year on year

■ Start of year EPS growth expectations
■ Delivered EPS growth
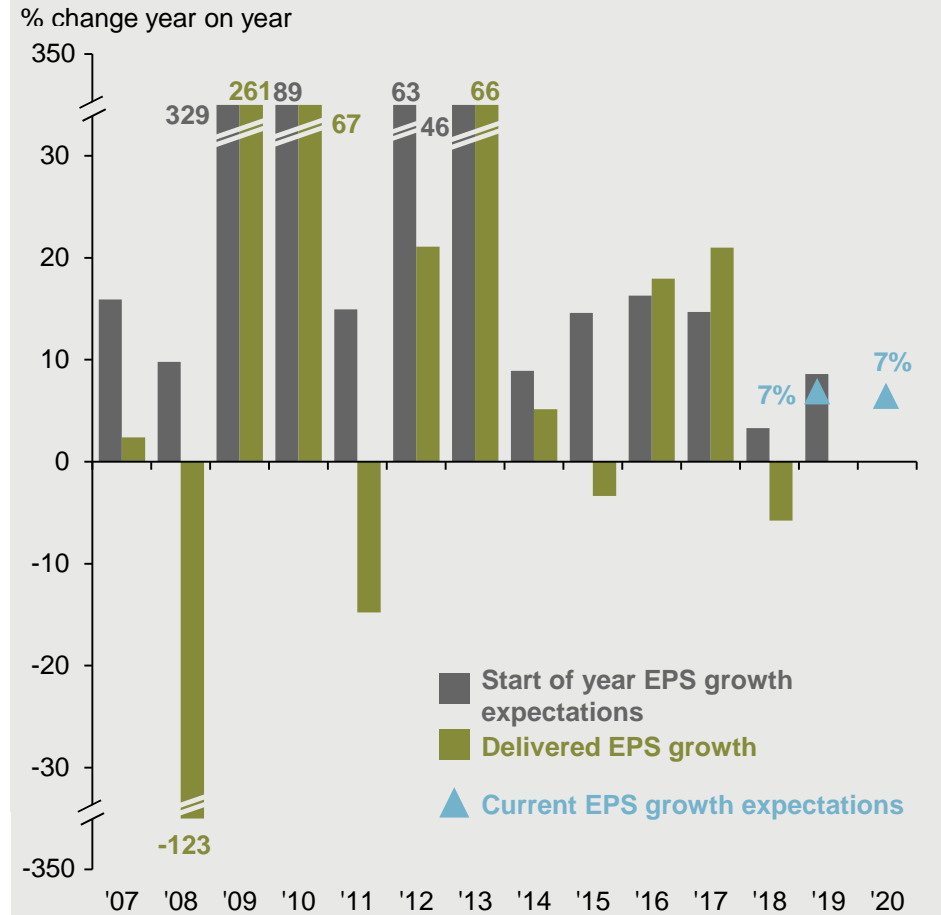▲ Current EPS growth expectations

8%

1%

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 30 June 2019.

J.P.Morgan
Asset Management

Equities

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

◀ TOPIX EPS   TOPIX index level ▶

TOPIX earnings per share growth
% change year on year

- Start of year EPS growth expectations
- Delivered EPS growth
- ▲ Current EPS growth expectations

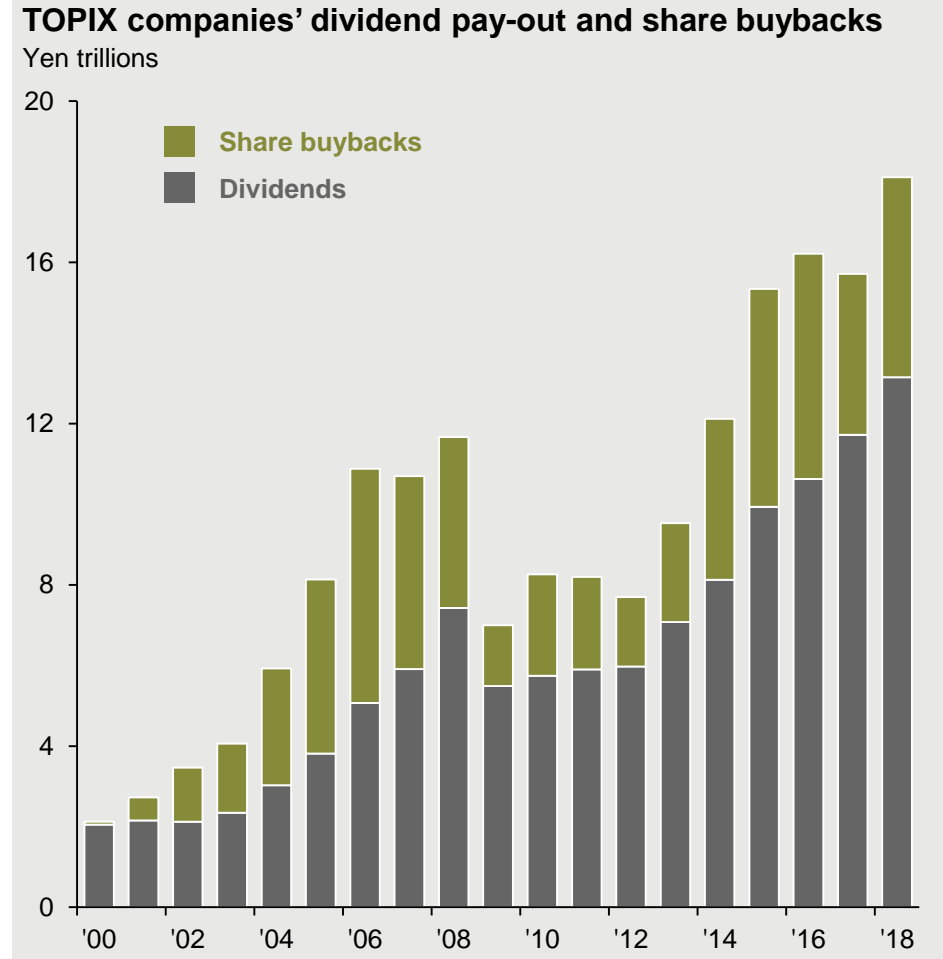329   261 89   67   63   46   66

-123

7%   7%

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 30 June 2019.

J.P.Morgan
Asset Management

TOPIX vs. the yen
Index level (LHS); Japanese yen per US dollar (RHS)

Equities

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 30 June 2019.

J.P.Morgan
Asset Management

Equities

Japan corporate profits and return on equity
% of GDP (LHS); % (RHS)

◄ **Corporate profits**

ROE ►

TOPIX companies' dividend pay-out and share buybacks
Yen trillions

■ **Share buybacks**
■ **Dividends**

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 30 June 2019.
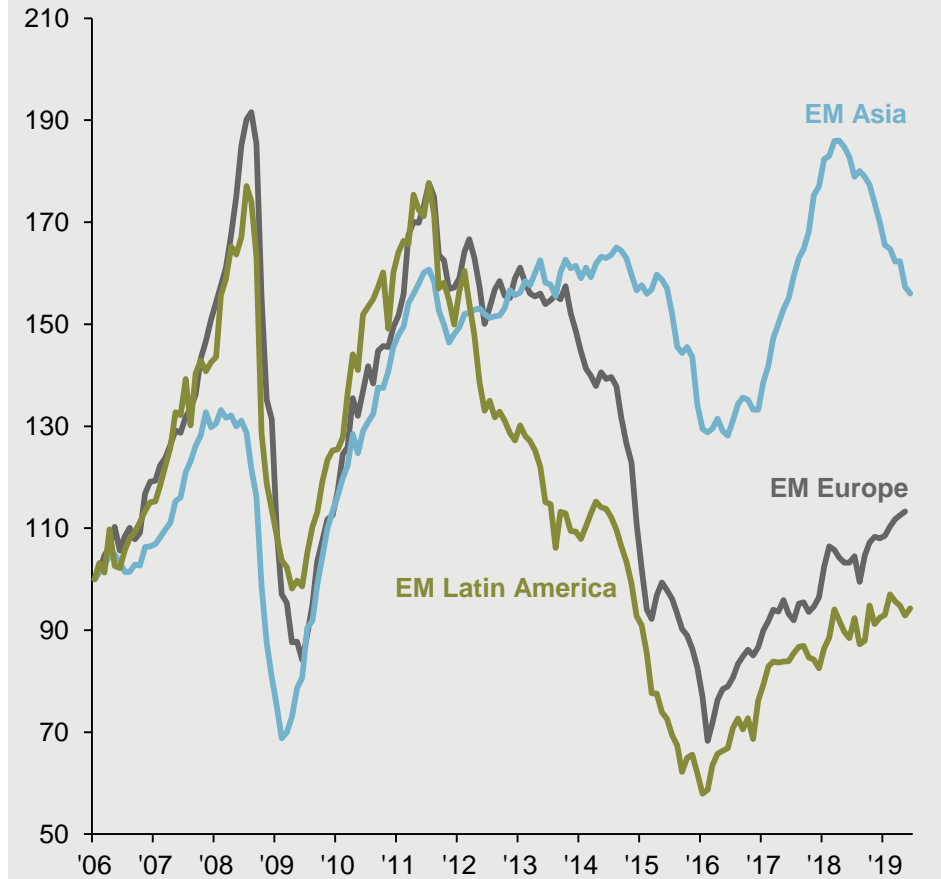
J.P.Morgan
Asset Management

Equities

EM vs. DM growth and equity performance
%, next 12 months' growth estimates (LHS); index level (RHS)

◀ **EM minus DM GDP growth**

↑ **EM growth & equity outperformance**
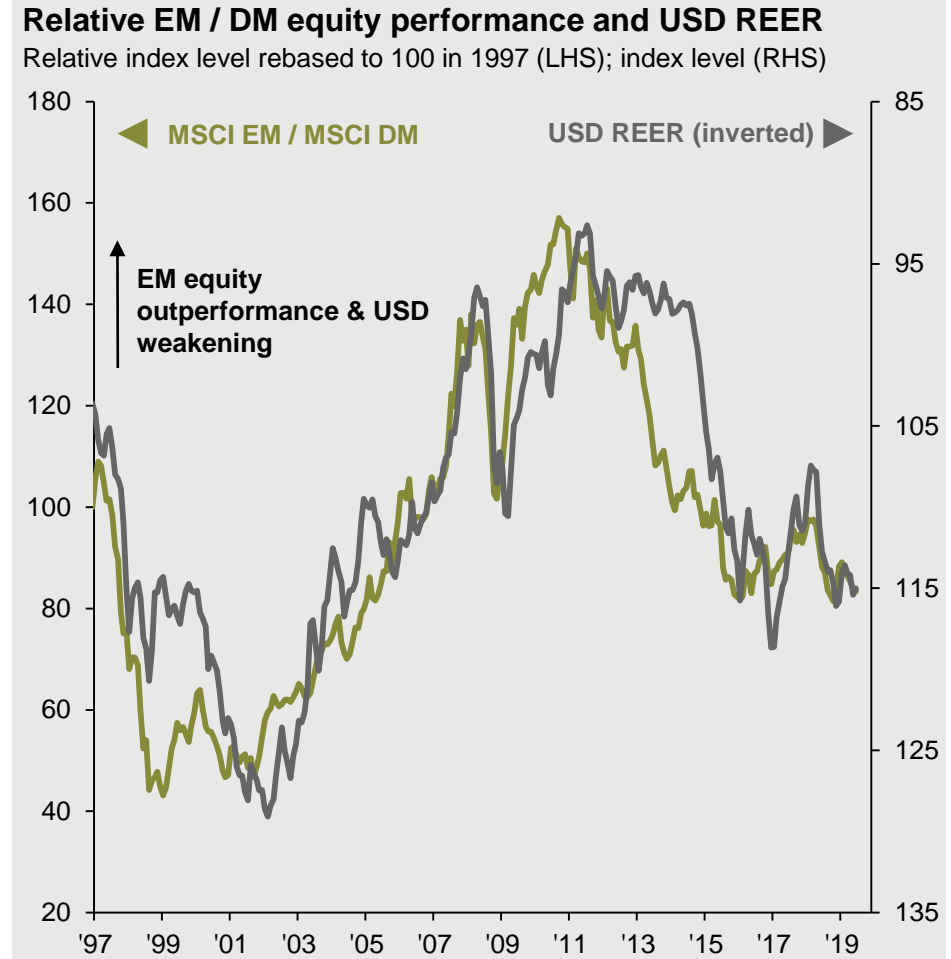
MSCI EM / MSCI DM ▶

EM earnings expectations by region
Consensus EPS for next 12 months, US dollar, rebased to 100 in 2006

EM Asia

EM Europe

EM Latin America

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. MSCI DM is MSCI World. (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 30 June 2019.

J.P.Morgan
Asset Management

Equities

EM equity relative performance and commodities
Relative index level rebased to 100 in 1997 (LHS); index level (RHS)

◄ **MSCI EM / MSCI DM**   **CRB Commodity Index** ►

EM equity
outperformance &
commodity prices
rising

Relative EM / DM equity performance and USD REER
Relative index level rebased to 100 in 1997 (LHS); index level (RHS)

◄ **MSCI EM / MSCI DM**   **USD REER (inverted)** ►

EM equity
outperformance & USD
weakening
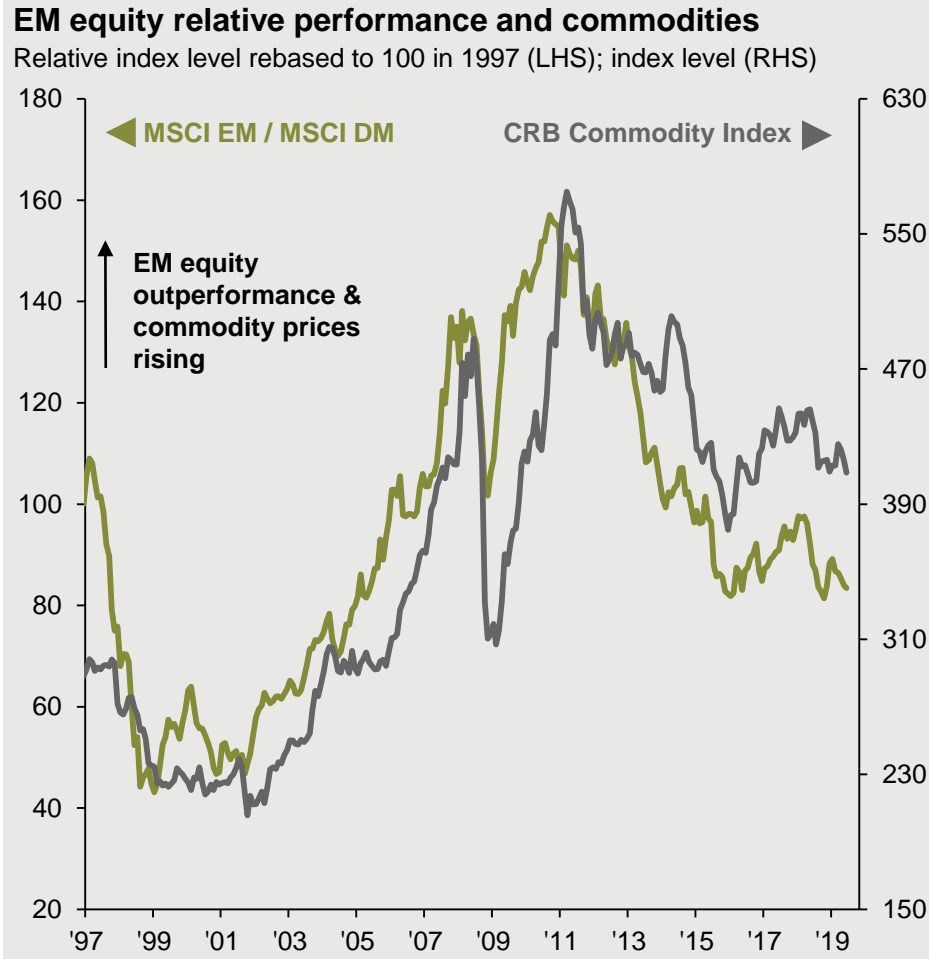
Source: (Left) Commodity Research Bureau, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. (Right) J.P. Morgan Securities Research, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. For all charts, MSCI EM and MSCI DM returns are in USD. MSCI DM is MSCI World. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

J.P.Morgan
Asset Management

Equities

MSCI EM price-to-book ratio

x, multiple

Average: 1,8x

30 June 2019:
1,6x

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

%, annualised total return*

Current level
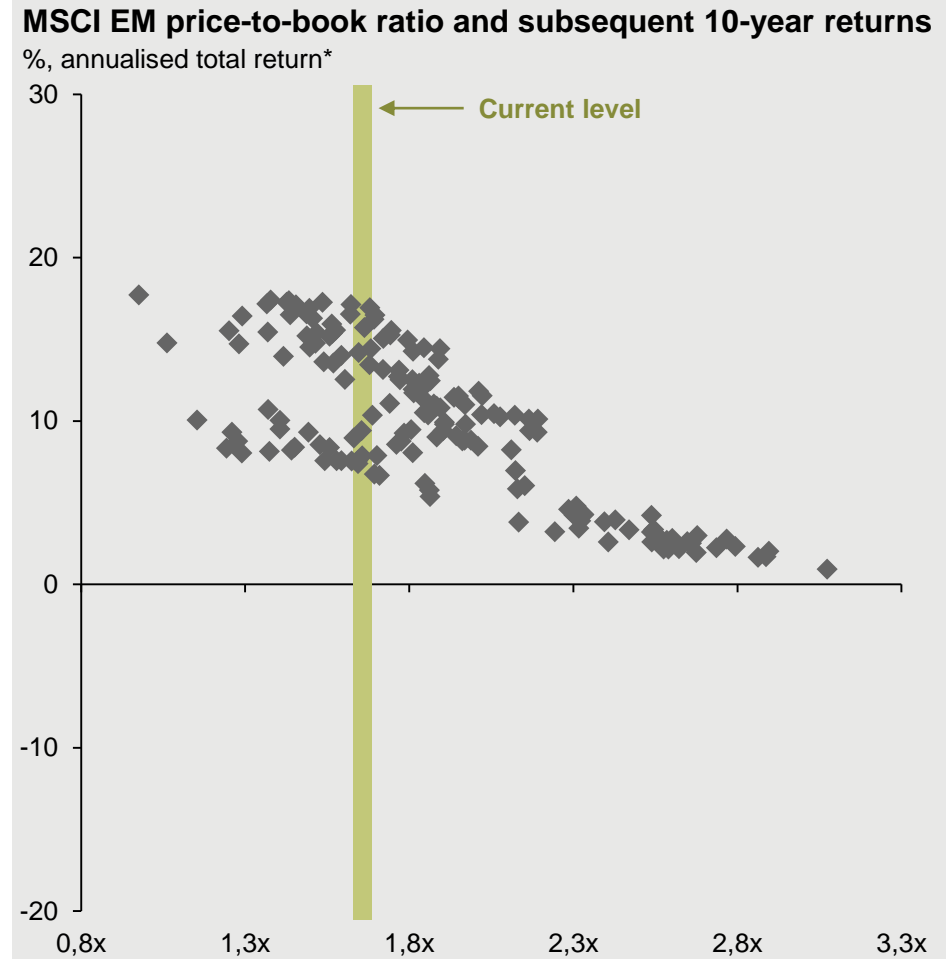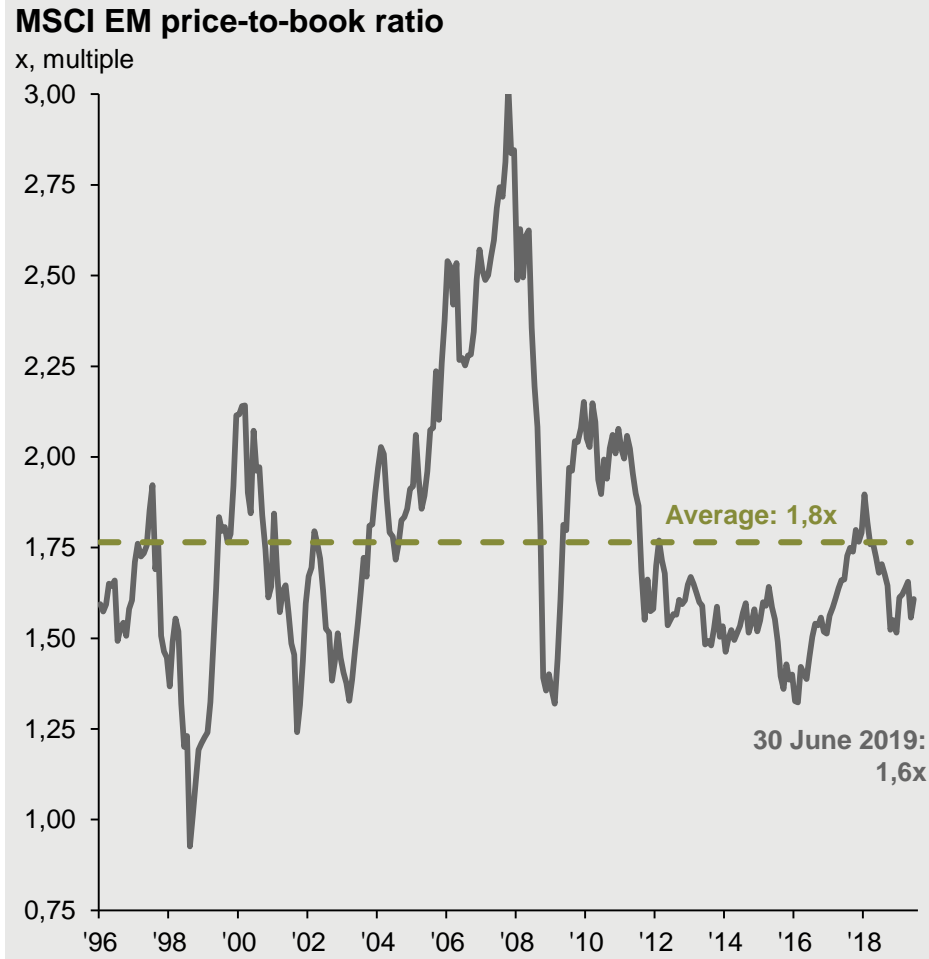
Source: (All charts) MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. *Dots represent monthly data points since 1996, which is earliest available. MSCI EM index returns are in USD. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe*. Data as of 30 June 2019.
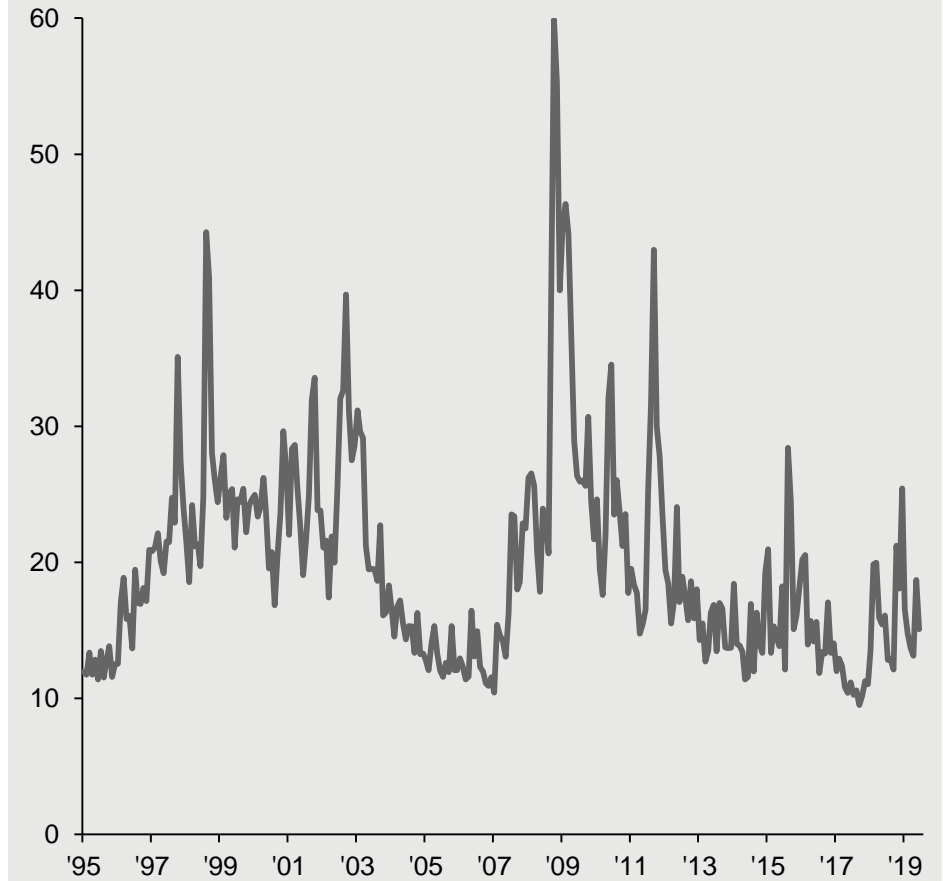
J.P.Morgan
Asset Management

Equities

Cross country equity index correlation
%, rolling six-month average pairwise correlations

↑ Increasing correlation between different countries' equity markets
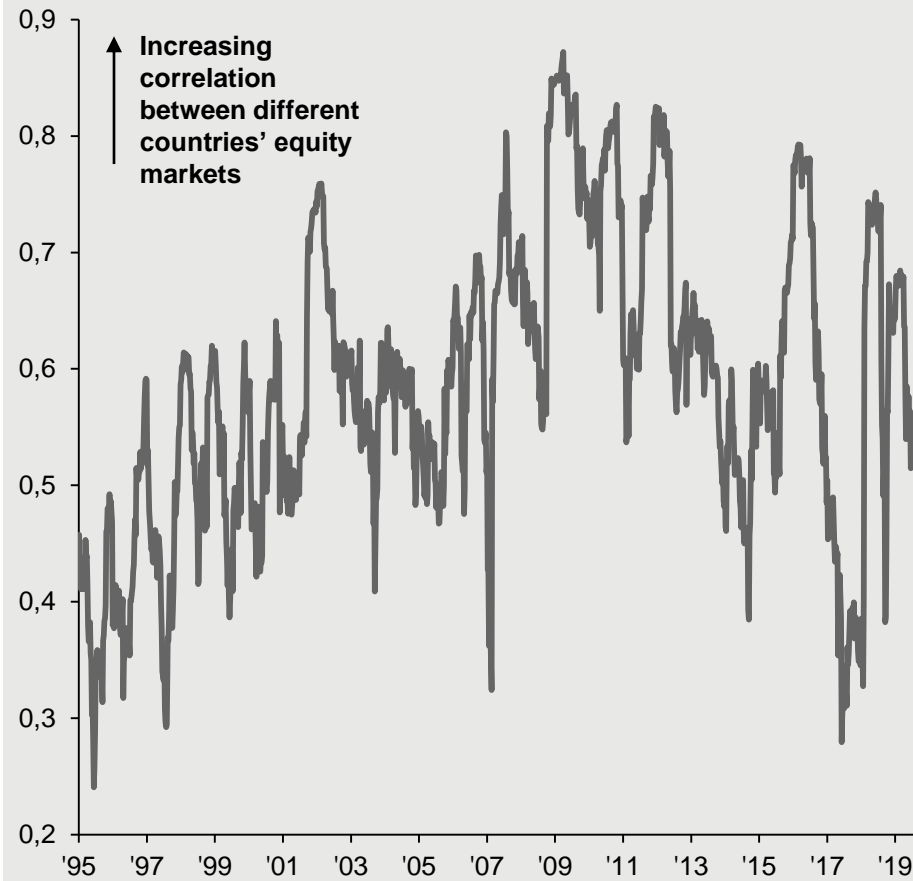
VIX volatility index
Index level, implied volatility of S&P 500 Index based on options pricing

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 30 June 2019.
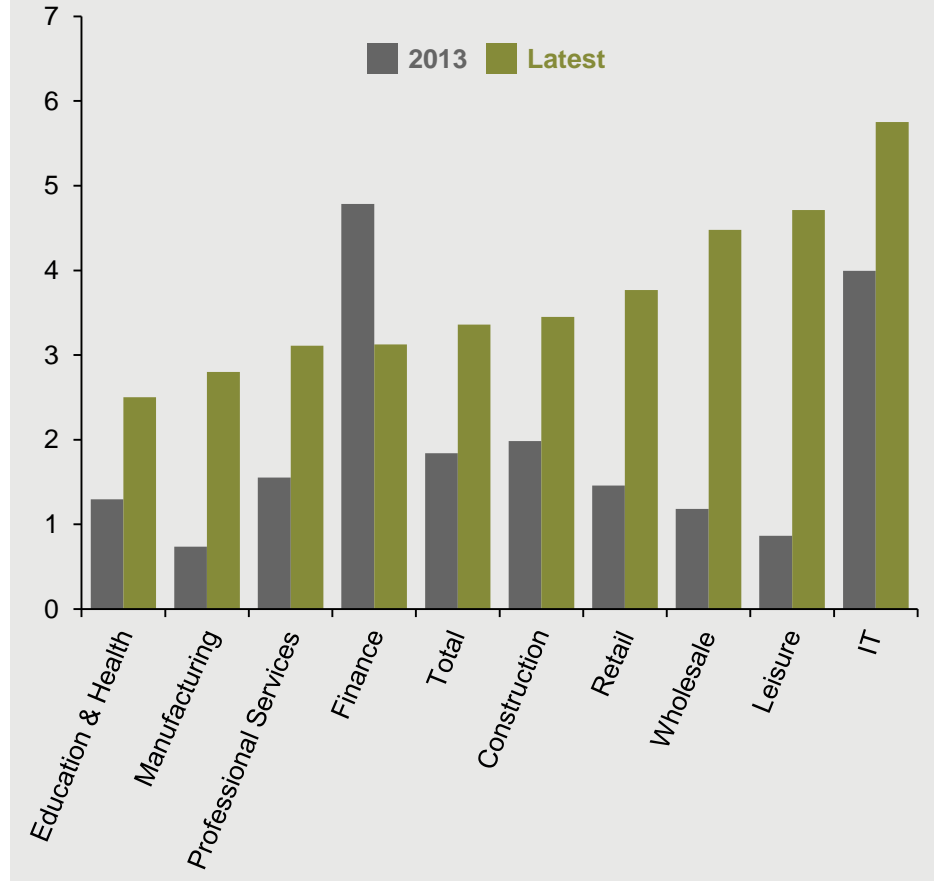
J.P.Morgan
Asset Management

World export volumes and US earnings

% change year on year, export volumes are a three-month moving average

◄ World export volumes   S&P 500 forward EPS ►

US wage growth by sector

% change year on year

■ 2013   ■ Latest

Education & Health, Manufacturing, Professional Services, Finance, Total, Construction, Retail, Wholesale, Leisure, IT

Equities

Source: (Left) CPB Netherlands, IBES, Refinitiv Datastream, J.P. Morgan Asset Management. EPS is earnings per share. The sharp increase in S&P 500 forward EPS at the start of 2018 is attributed to the Tax Cuts and Jobs Act of 2017, which came into effect at the beginning of 2018. (Right) 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 30 June 2019.
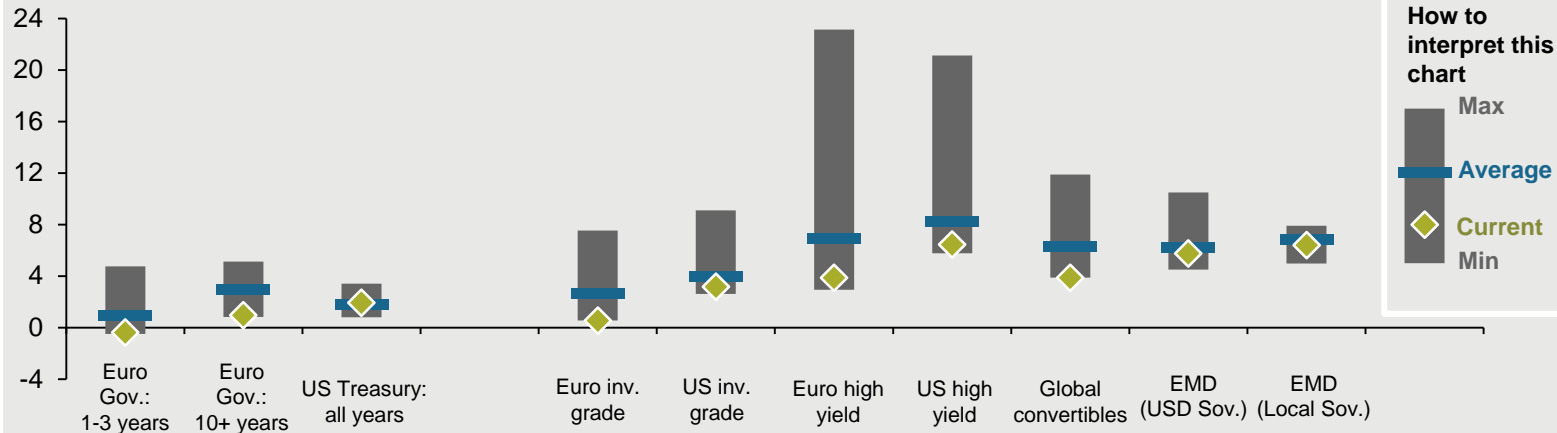
J.P.Morgan
Asset Management

Equities

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	YTD	Q219	Ann. return since '08
EUR / **Local**	-23,0% TOPIX -40,6%	73,5% MSCI EM 62,8%	35,4% Small Cap 24,4%	5,5% US S&P 500 2,1%	20,8% Asia ex-Jp 19,7%	27,2% Small Cap 35,8%	29,5% US S&P 500 13,7%	24,4% TOPIX 12,1%	16,6% Small Cap 14,5%	24,8% Asia ex-Jp 35,9%	0,4% US S&P 500 -4,4%	19,0% US S&P 500 18,5%	3,4% Europe 4,5%	10,7% US S&P 500 8,0%
	-33,7% US S&P 500 -37,0%	67,2% Asia ex-Jp 67,2%	28,3% Asia ex-Jp 15,6%	3,5% HDY Equity 1,5%	18,1% Europe 16,4%	26,7% US S&P 500 32,4%	19,7% Asia ex-Jp 7,7%	12,9% US S&P 500 1,4%	15,3% US S&P 500 12,0%	21,0% MSCI EM 31,0%	-1,5% HDY Equity -3,9%	16,9% Europe 16,7%	2,8% US S&P 500 4,3%	9,3% Small Cap 7,3%
	-38,0% HDY Equity -34,4%	40,2% Small Cap 40,8%	27,5% MSCI EM 14,4%	-5,7% Small Cap -8,7%	16,8% MSCI EM 17,4%	21,5% TOPIX 54,4%	16,5% Small Cap 6,8%	11,5% Small Cap 2,8%	14,9% MSCI EM 10,1%	12,4% Portfolio 21,4%	-6,9% Portfolio -9,1%	16,7% Small Cap 15,9%	2,1% HDY Equity 3,2%	6,6% HDY Equity 5,8%
	-38,6% Small Cap -40,4%	37,6% Portfolio 35,8%	23,9% TOPIX 1,0%	-5,8% Portfolio -7,5%	16,3% Small Cap 18,4%	20,5% Europe 22,3%	16,2% HDY Equity 8,7%	8,8% Europe 5,4%	14,3% HDY Equity 13,1%	11,2% TOPIX 22,2%	-9,1% Small Cap -12,2%	14,7% Portfolio 14,0%	1,4% Portfolio 2,4%	6,0% Portfolio 4,8%
	-40,4% Portfolio -40,1%	34,0% HDY Equity 30,2%	23,1% US S&P 500 15,1%	-7,5% Europe -8,8%	15,6% Portfolio 17,1%	15,3% Portfolio 23,6%	15,3% Portfolio 8,2%	8,3% Portfolio 1,9%	10,1% Portfolio 9,0%	10,9% Europe 13,7%	-9,4% TOPIX -16,0%	14,5% HDY Equity 13,7%	0,7% Small Cap 1,7%	5,2% TOPIX 2,4%
	-43,3% Europe -38,5%	32,6% Europe 28,6%	20,9% Portfolio 11,1%	-9,6% TOPIX -17,0%	14,2% US S&P 500 16,0%	13,9% HDY Equity 20,5%	11,8% MSCI EM 5,6%	6,3% HDY Equity 0,3%	8,9% Asia ex-Jp 6,4%	8,2% Small Cap 19,1%	-9,8% Asia ex-Jp -12,0%	11,2% Asia ex-Jp 11,0%	-0,7% MSCI EM 0,3%	5,1% Asia ex-Jp 3,6%
	-49,8% Asia ex-Jp -47,7%	22,5% US S&P 500 26,5%	16,2% HDY Equity 8,0%	-14,3% Asia ex-Jp -14,6%	13,6% HDY Equity 14,0%	-1,1% Asia ex-Jp 6,2%	10,1% TOPIX 10,3%	1,5% Asia ex-Jp -5,3%	6,6% TOPIX 0,3%	7,0% US S&P 500 21,8%	-9,9% MSCI EM -9,7%	11,2% MSCI EM 10,2%	-1,1% TOPIX -2,4%	3,0% MSCI EM 3,4%
	-50,8% MSCI EM -45,7%	1,5% TOPIX 7,6%	11,7% Europe 7,5%	-15,4% MSCI EM -12,5%	5,9% TOPIX 20,9%	-6,5% MSCI EM 3,8%	7,4% Europe 5,2%	-4,9% MSCI EM -5,4%	3,2% Europe 7,9%	5,3% HDY Equity 14,7%	-10,0% Europe -10,0%	7,5% TOPIX 5,2%	-2,0% Asia ex-Jp -0,6%	2,9% Europe 3,1%

Source: MSCI, Refinitiv Datastream, Standard & Poor's, TOPIX, J.P. Morgan Asset Management. Annualised return covers the period 2008 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 30 June 2019.

J.P.Morgan Asset Management

Current and historical yields for selected indices

% yield, since 2008*

How to interpret this chart

Max
Average
Current
Min

Euro Gov.: 1-3 years
Euro Gov.: 10+ years
US Treasury: all years
Euro inv. grade
US inv. grade
Euro high yield
US high yield
Global convertibles
EMD (USD Sov.)
EMD (Local Sov.)

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
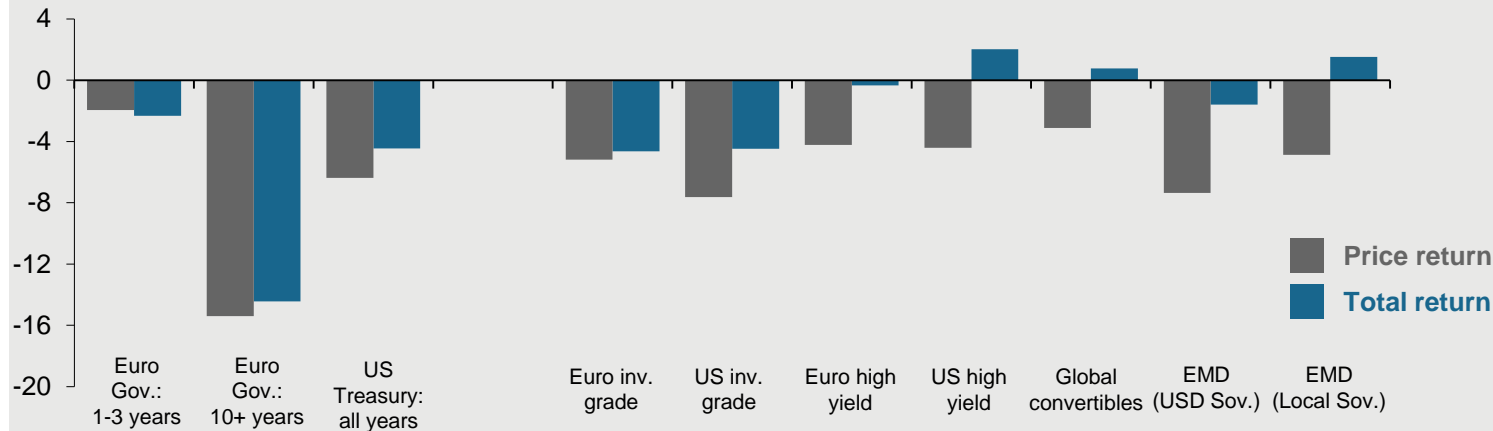
Price return
Total return

Euro Gov.: 1-3 years
Euro Gov.: 10+ years
US Treasury: all years
Euro inv. grade
US inv. grade
Euro high yield
US high yield
Global convertibles
EMD (USD Sov.)
EMD (Local Sov.)

Fixed income

J.P.Morgan
Asset Management

Fixed income

Nominal 10-year government bond yields

% yield

Legend: US, UK, Germany

10-year government bond breakeven inflation rates

% yield

Legend: UK, US, Germany
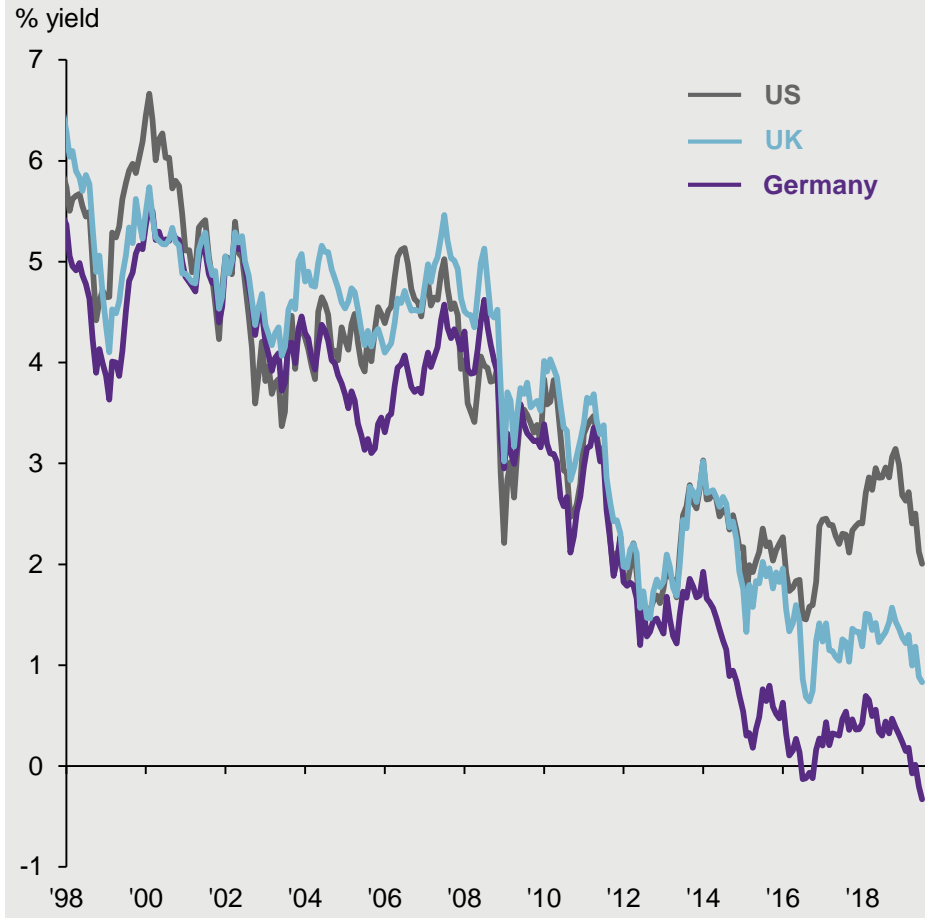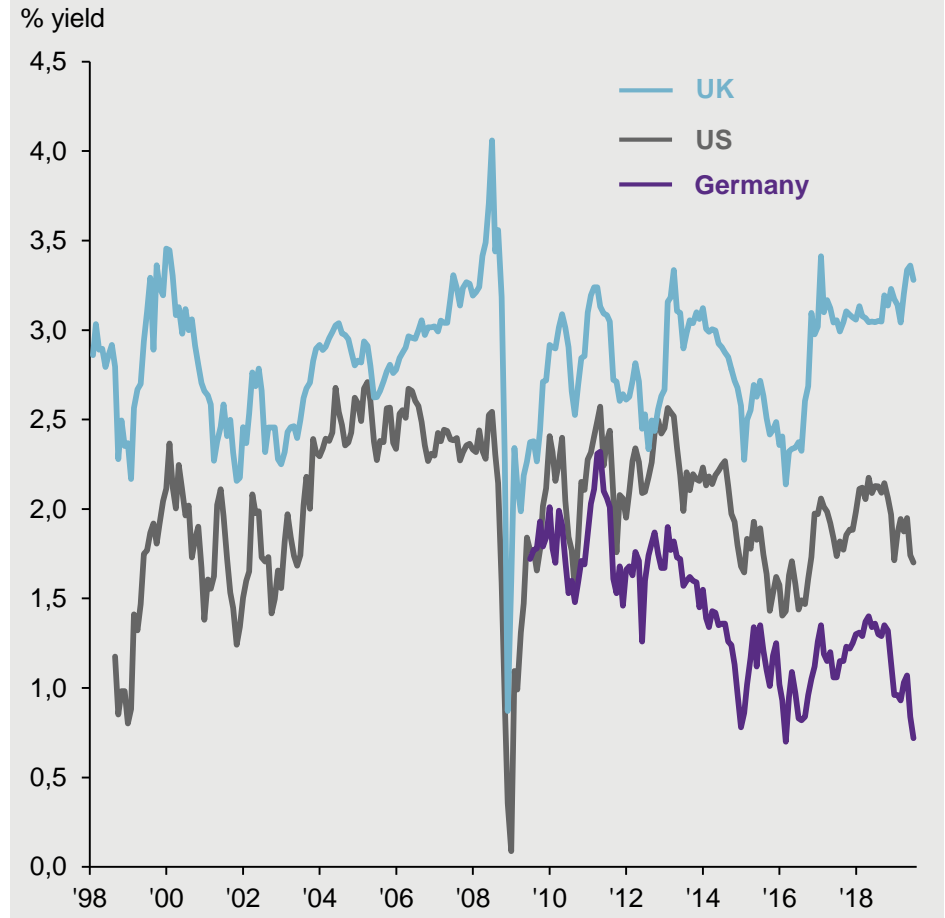
Source: (All charts) Bloomberg, J.P. Morgan Asset Management. Government bond breakeven inflation rates are the difference in yield between nominal and inflation-protected government bonds. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

J.P.Morgan
Asset Management

Fixed income

Yield curve

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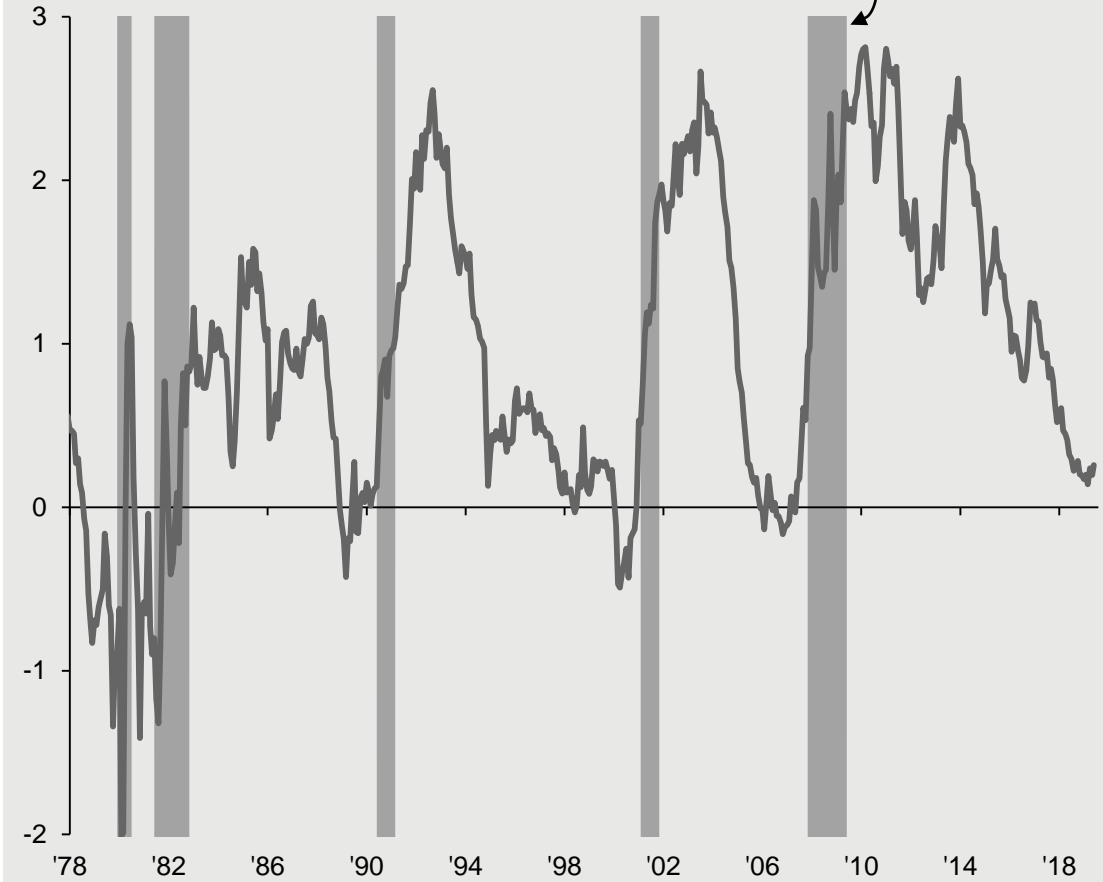
Recession

## 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 30 June 2019.
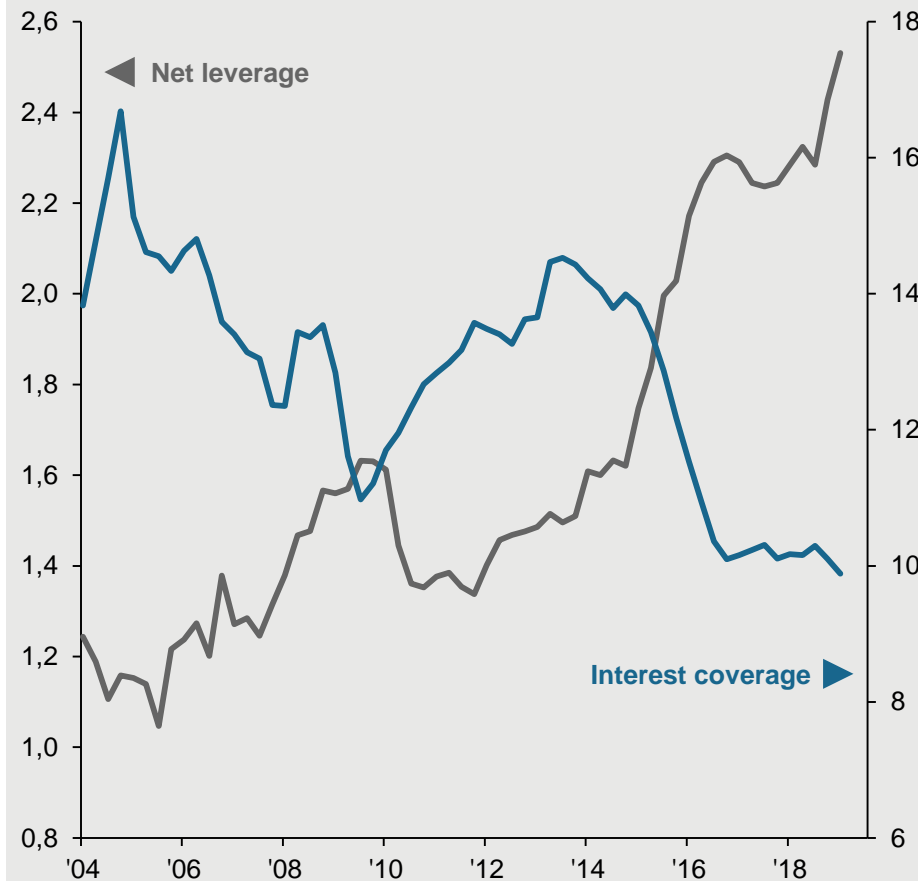
J.P.Morgan
Asset Management

Fixed income

US investment-grade spread

%, option-adjusted spread over local government bond yield
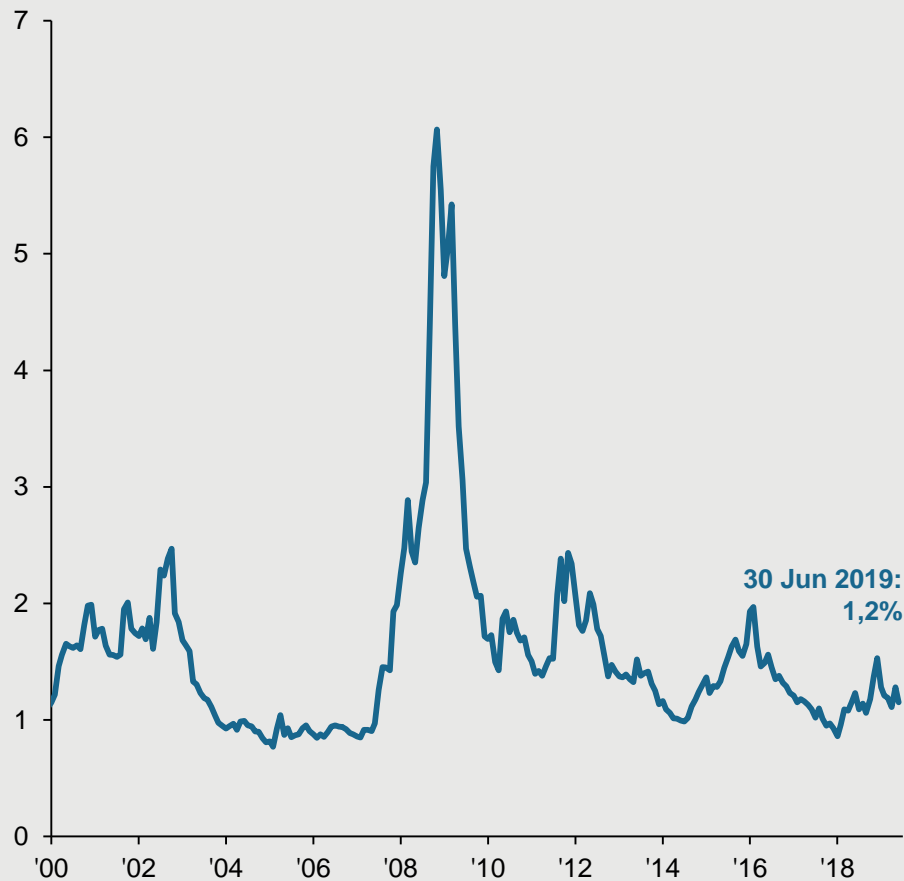
30 Jun 2019:
1,2%

US investment-grade leverage measures

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

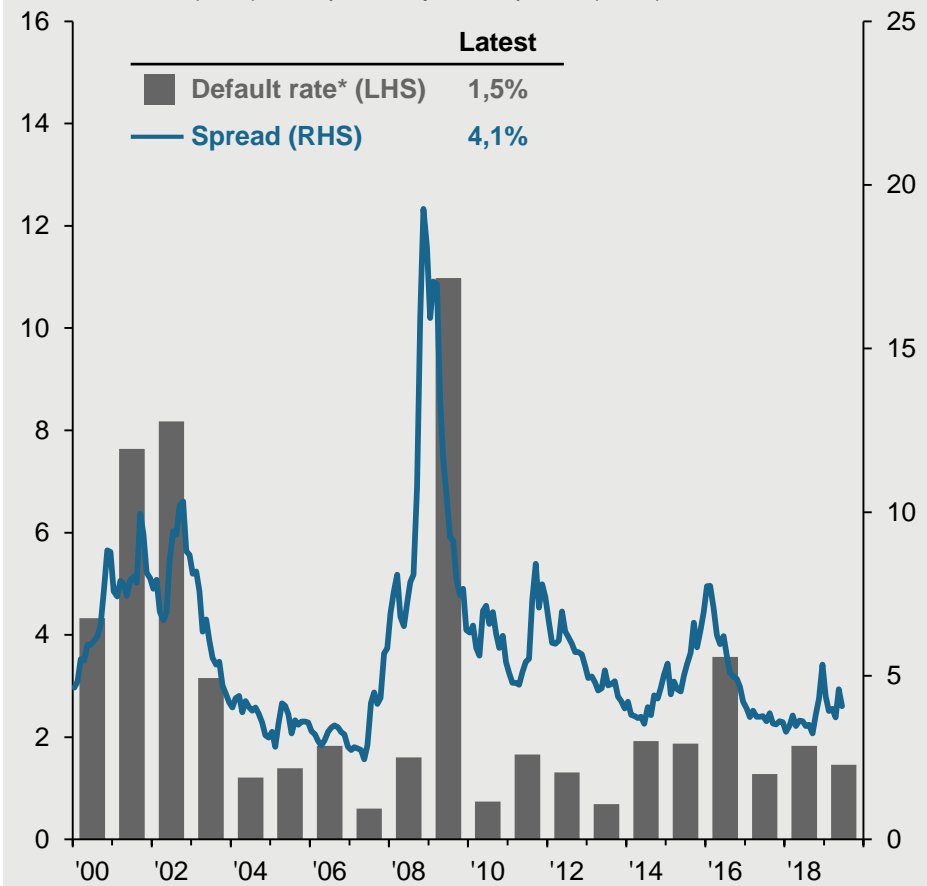◄ Net leverage

Interest coverage ►

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 30 June 2019.

J.P.Morgan
Asset Management

US high yield spread and defaults
%, default rate (LHS); %, option-adjusted spread (RHS)

	Latest
■ Default rate* (LHS)	1,5%
— Spread (RHS)	4,1%

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 30 June 2019.
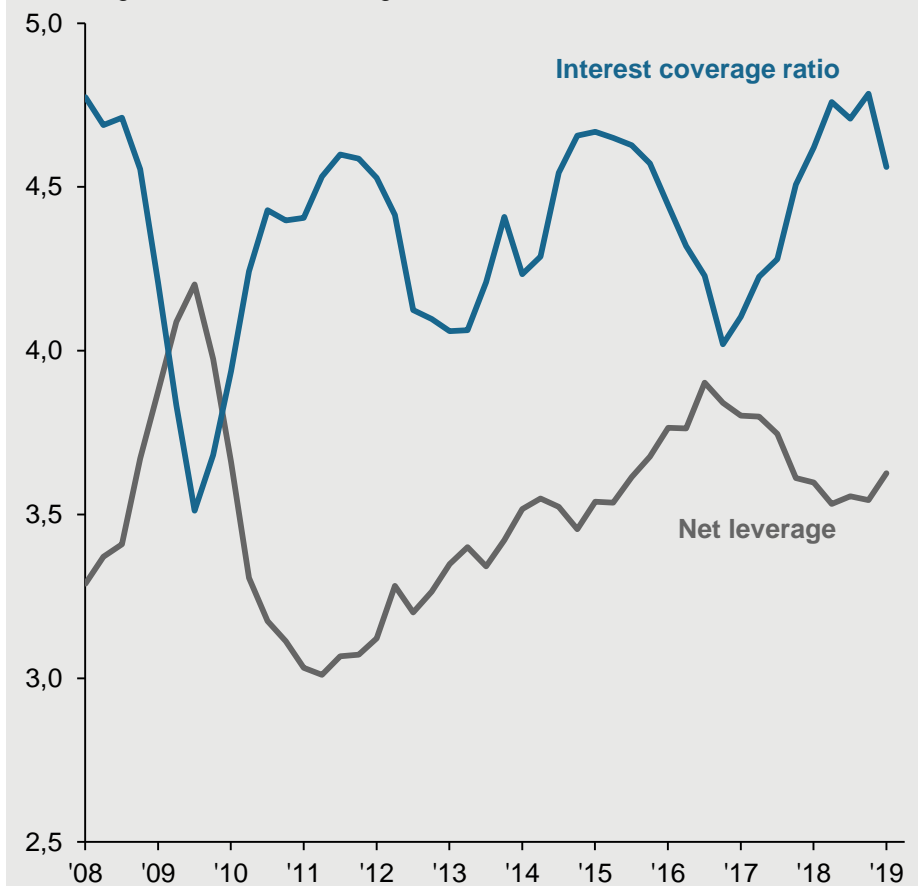
J.P.Morgan
Asset Management

Fixed income

Fixed income

Euro and UK investment-grade spreads
%, option-adjusted spread over local government bond yield

UK

Euro

30 Jun 2019:
1,5%

30 Jun 2019:
1,1%

Euro investment-grade leverage measures
x, leverage (LHS); x, interest coverage ratio (RHS)

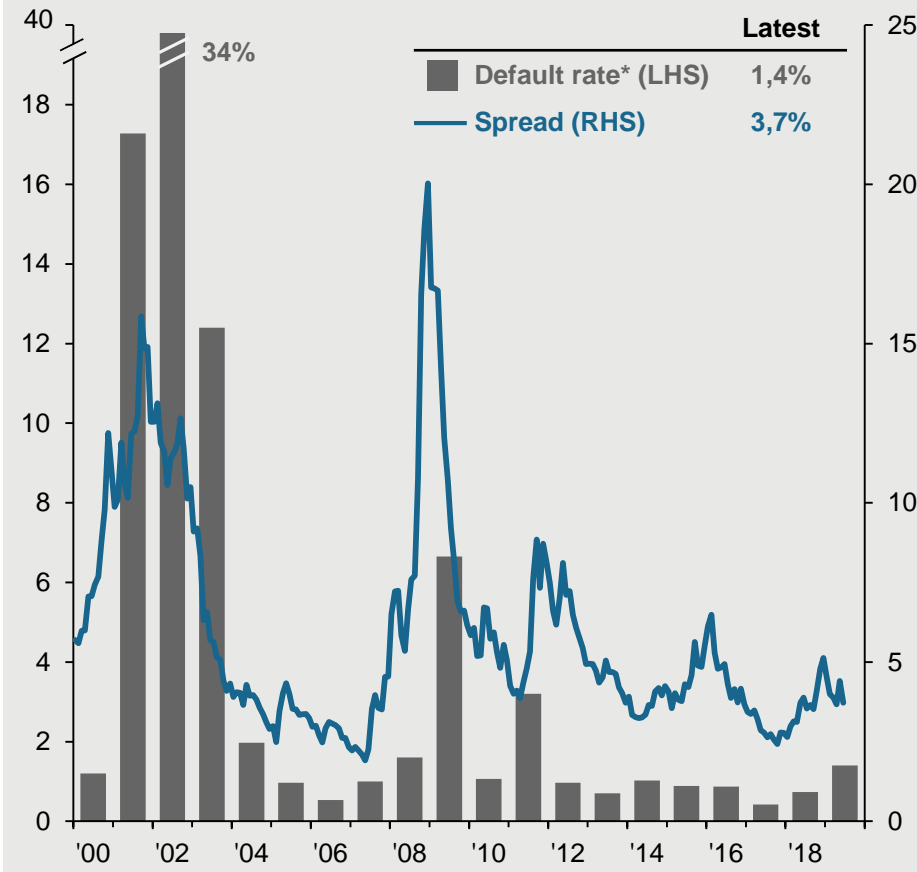◀ Net leverage

Interest coverage ▶

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 30 June 2019.

J.P.Morgan
Asset Management

Fixed income

European high yield spread and defaults
%, default rate (LHS); %, option-adjusted spread (RHS)

	Latest
■ Default rate* (LHS)	1,4%
— Spread (RHS)	3,7%

34%

European high yield leverage measures
x, leverage and interest coverage ratio

Interest coverage ratio

Net leverage

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 30 June 2019.
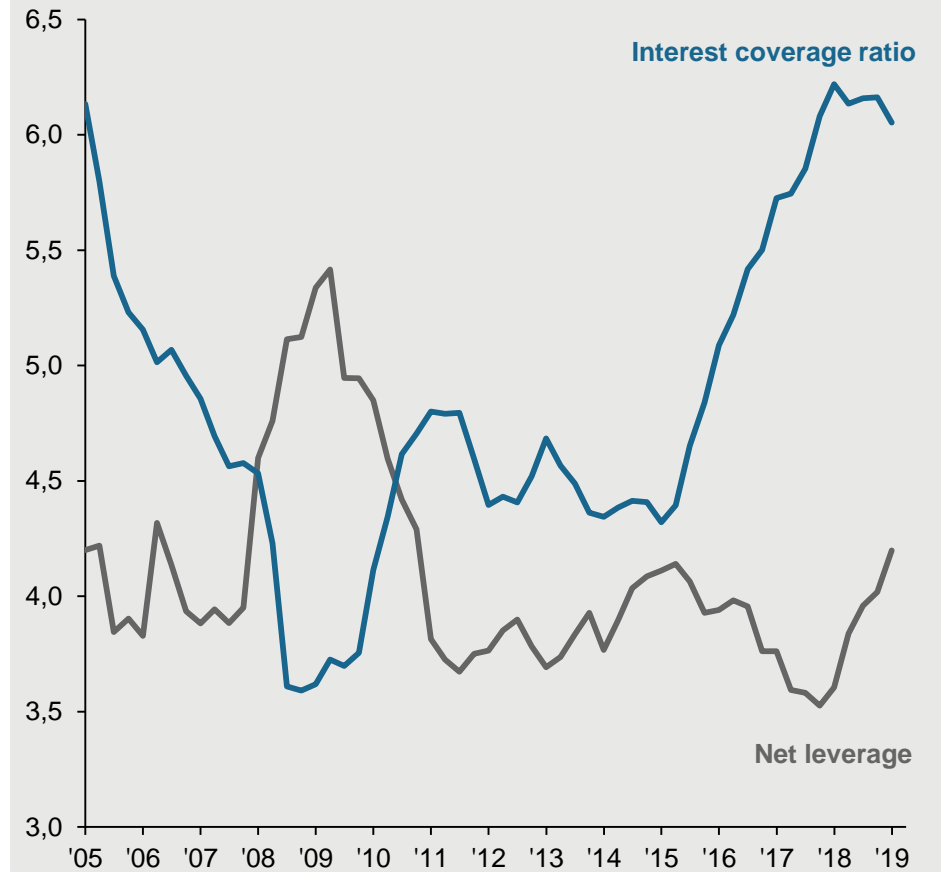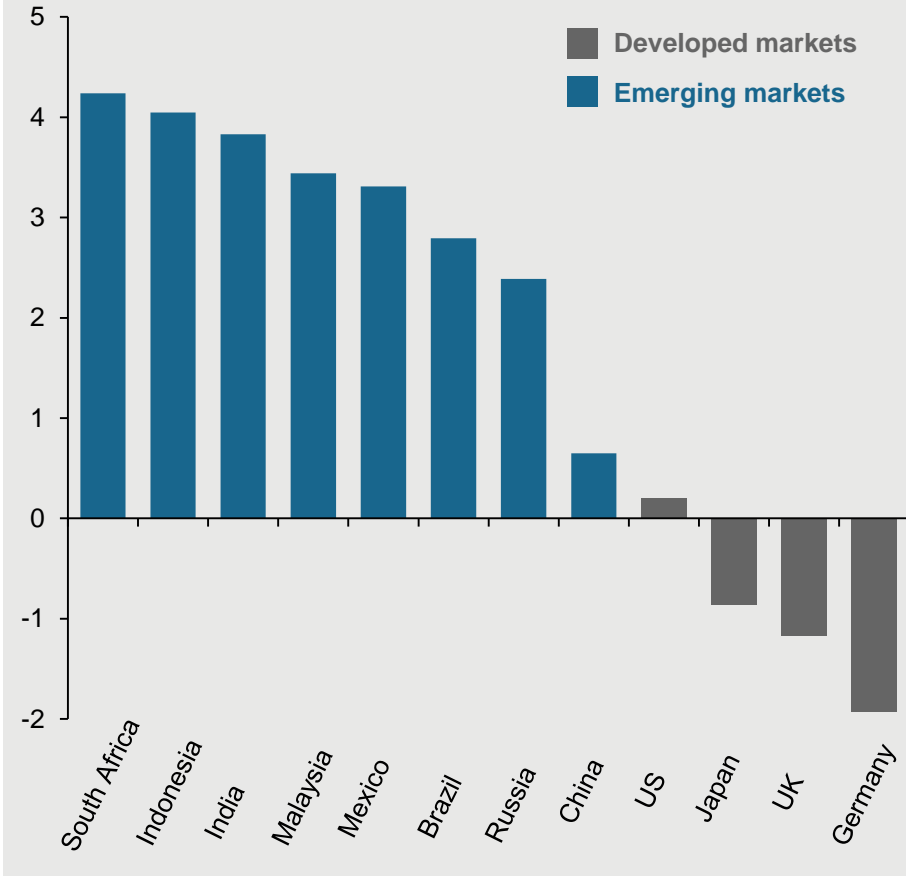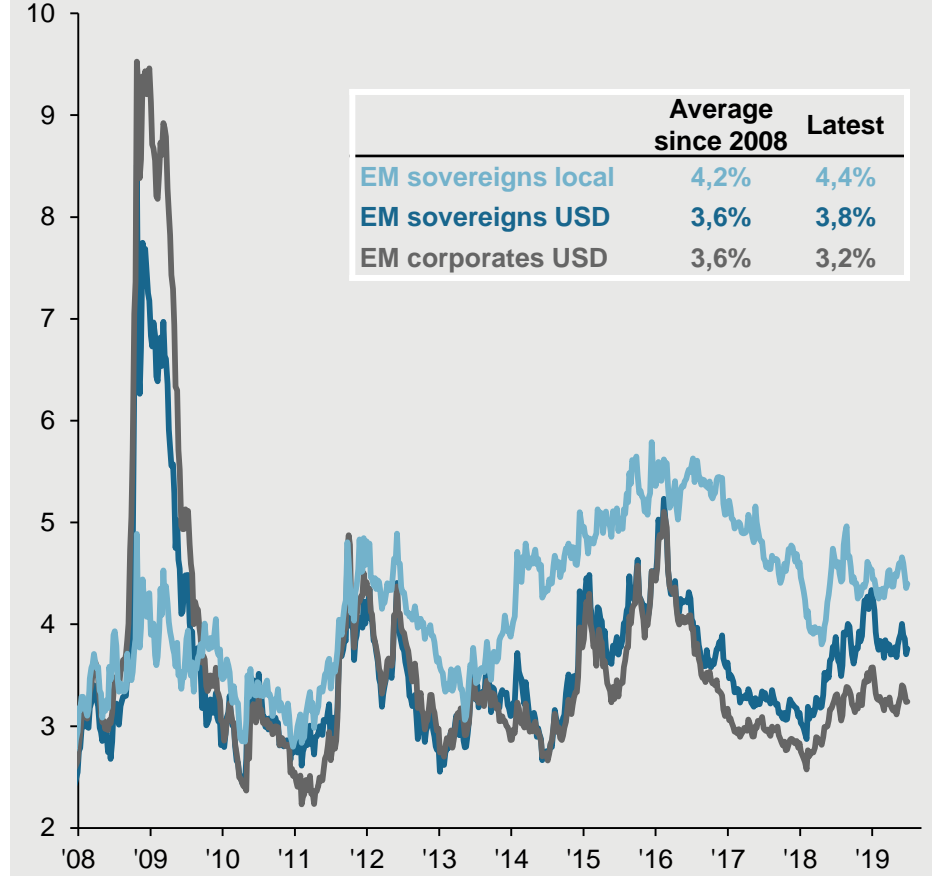
J.P.Morgan
Asset Management

Fixed income

Real 10-year government bond yields

% yield, local currency

- Developed markets
- Emerging markets

South Africa, Indonesia, India, Malaysia, Mexico, Brazil, Russia, China, US, Japan, UK, Germany

Corporate and sovereign EMD spreads

%, spread over 10-year US Treasury

|	Average since 2008	Latest
EM sovereigns local	4,2%	4,4%
EM sovereigns USD	3,6%	3,8%
EM corporates USD	3,6%	3,2%

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 30 June 2019.

J.P.Morgan
Asset Management

Developed market government bond yields

% of BofA/Merrill Lynch Global Government Bond Index

- % of government bonds below 1%
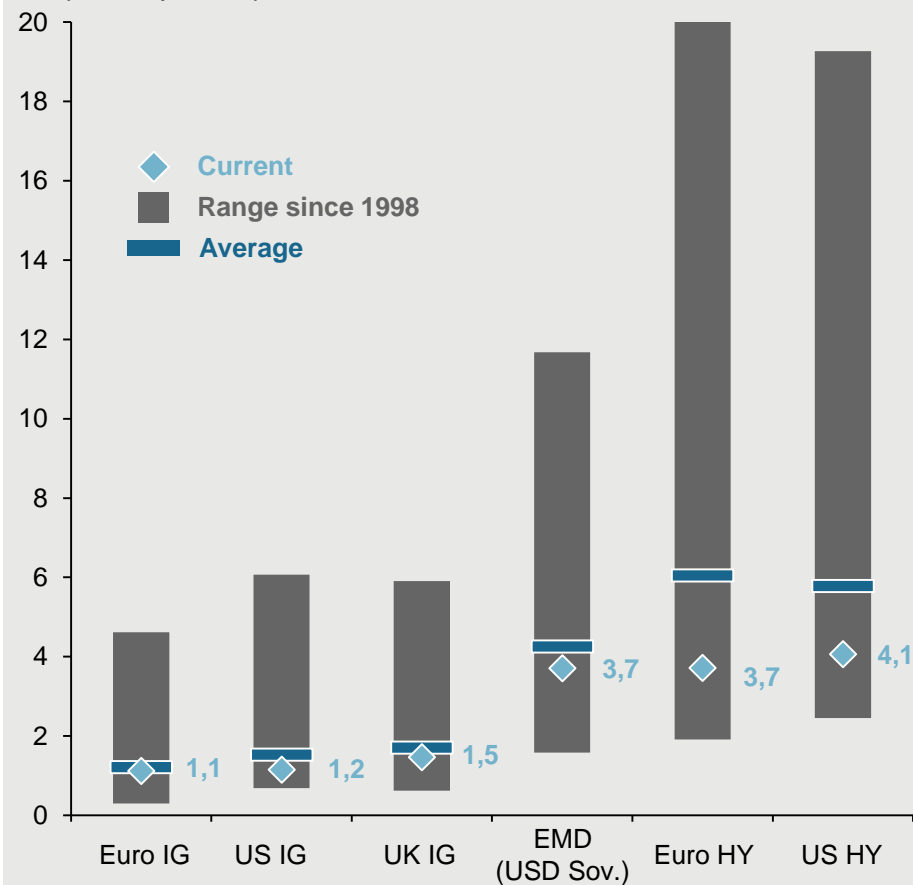- % of government bonds below 0%
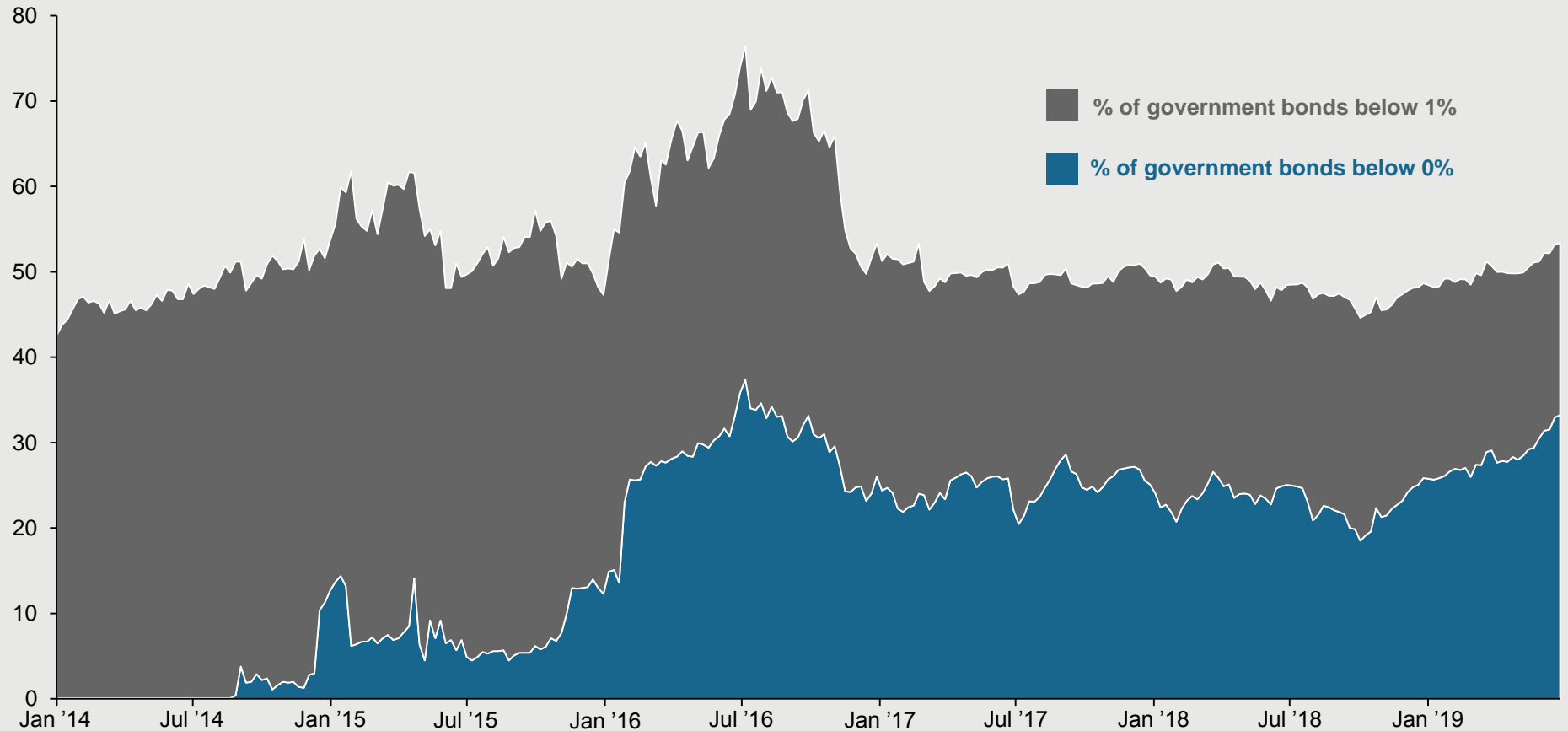
Source: Bloomberg, BofA/Merrill Lynch, J.P. Morgan Asset Management. Index shown is the BofA/ML Global Government Bond index. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

Fixed income

J.P.Morgan
Asset Management

Fixed income (vertical sidebar label)

Fixed income spreads
%, option-adjusted spread

Legend:
- ◆ Current
- Range since 1998
- ▬ Average

Values by category:
- Euro IG: 1,1
- US IG: 1,2
- UK IG: 1,5
- EMD (USD Sov.): 3,7
- Euro HY: 3,7
- US HY: 4,1

Fixed income returns

2015	2016	2017	2018	YTD	2Q19	Ann. return since '08
€: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%	11,0% EM Debt 10,6%	3,4% Euro Gov 3,4%	10,4% US HY 7,7%
12,3% US Treas. 0,8%	13,5% EM Debt 10,2%	2,4% Euro IG 2,4%	2,7% US HY -2,3%	10,5% US HY 10,1%	3,0% US IG 4,5%	9,2% EM Debt 6,6%
10,6% US IG -0,7%	10,1% Euro HY 10,1%	1,4% Infl Linked 1,4%	2,4% US IG -2,5%	10,3% US IG 9,9%	2,8% Infl Linked 2,8%	8,0% US IG 5,4%
6,4% Portfolio 0,1%	9,3% US IG 6,1%	0,2% Euro Gov 0,2%	1,3% Portfolio -1,4%	7,6% Portfolio 7,4%	2,4% Portfolio 3,2%	7,3% Euro HY 7,3%
6,3% US HY -4,6%	8,1% Portfolio 6,4%	-2,9% Portfolio 4,2%	1,0% Euro Gov 1,0%	7,5% Euro HY 7,5%	2,3% EM Debt 3,8%	7,0% Portfolio 5,5%
1,7% Euro Gov 1,7%	4,7% Euro IG 4,7%	-4,0% EM Debt 9,3%	0,2% EM Debt -4,6%	6,0% Euro Gov 6,0%	2,2% Euro IG 2,2%	6,0% US Treas. 3,4%
0,8% Infl Linked 0,8%	4,1% US Treas. 1,0%	-5,6% US HY 7,5%	-1,3% Euro IG -1,3%	5,6% US Treas. 5,2%	2,2% Euro HY 2,2%	5,0% Euro Gov 5,0%
0,5% Euro HY 0,5%	3,8% Infl Linked 3,8%	-6,5% US IG 6,4%	-1,5% Infl Linked -1,5%	5,4% Euro IG 5,4%	1,6% US Treas. 3,0%	4,6% Euro IG 4,6%
-0,6% Euro IG -0,6%	3,2% Euro Gov 3,2%	-10,1% US Treas. 2,3%	-3,7% Euro HY -3,7%	4,1% Infl Linked 4,1%	1,1% US HY 2,5%	2,8% Infl Linked 2,8%

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 2008 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 30 June 2019.
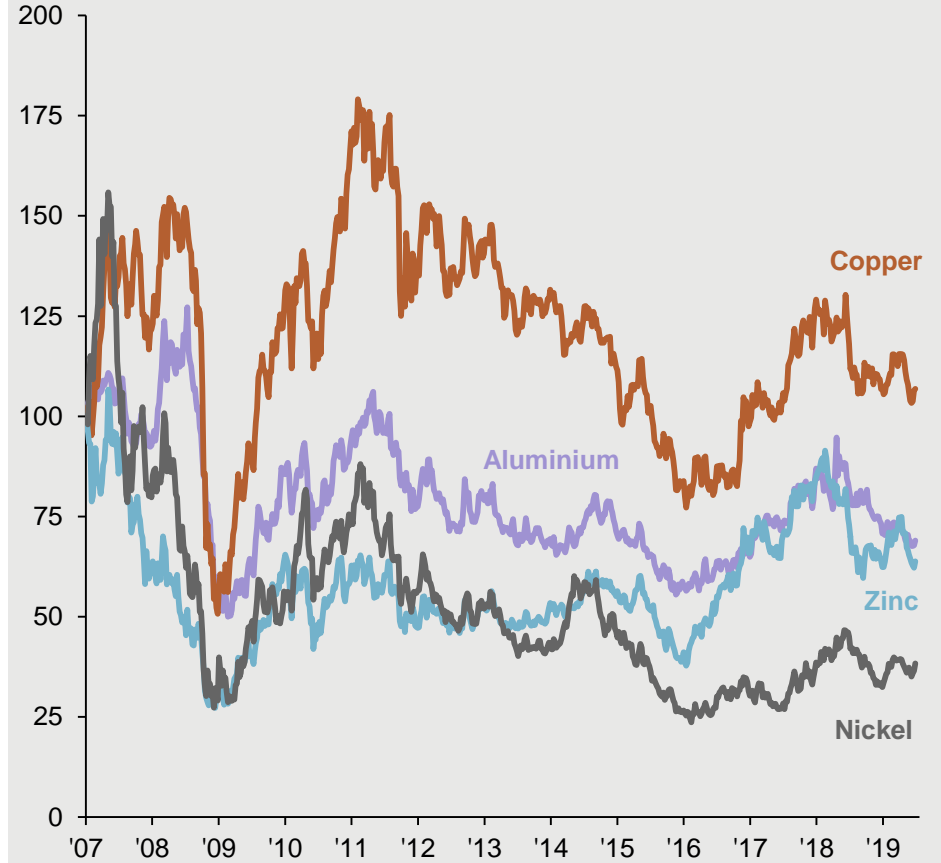
J.P.Morgan Asset Management

WTI crude oil price and US rig count
USD/barrel (LHS); number of rigs (RHS)
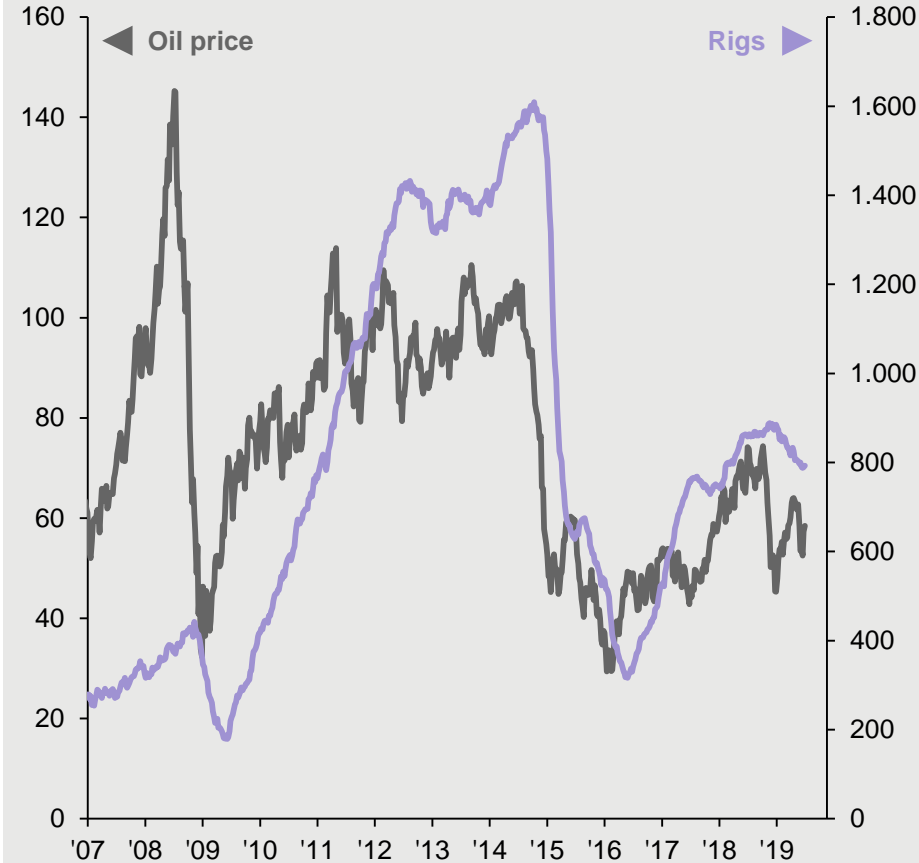
Metal prices
Index level, rebased to 100 in Jan 2007

Other assets

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 30 June 2019.

J.P.Morgan
Asset Management

Gold vs. real US 10-year Treasury yields
$ per Troy ounce (LHS), % inverted (RHS)

Real yields (inverted) ▶

◀ Gold

Gold price
$ per Troy ounce

— Inflation-adjusted gold price

— Gold price

30 June 2019:
$1.412

Other assets

Source: (All charts) Refinitiv Datastream, J.P. Morgan Asset Management. Real yield is the 10-year US Treasury inflation protected security yield. 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 30 June 2019.
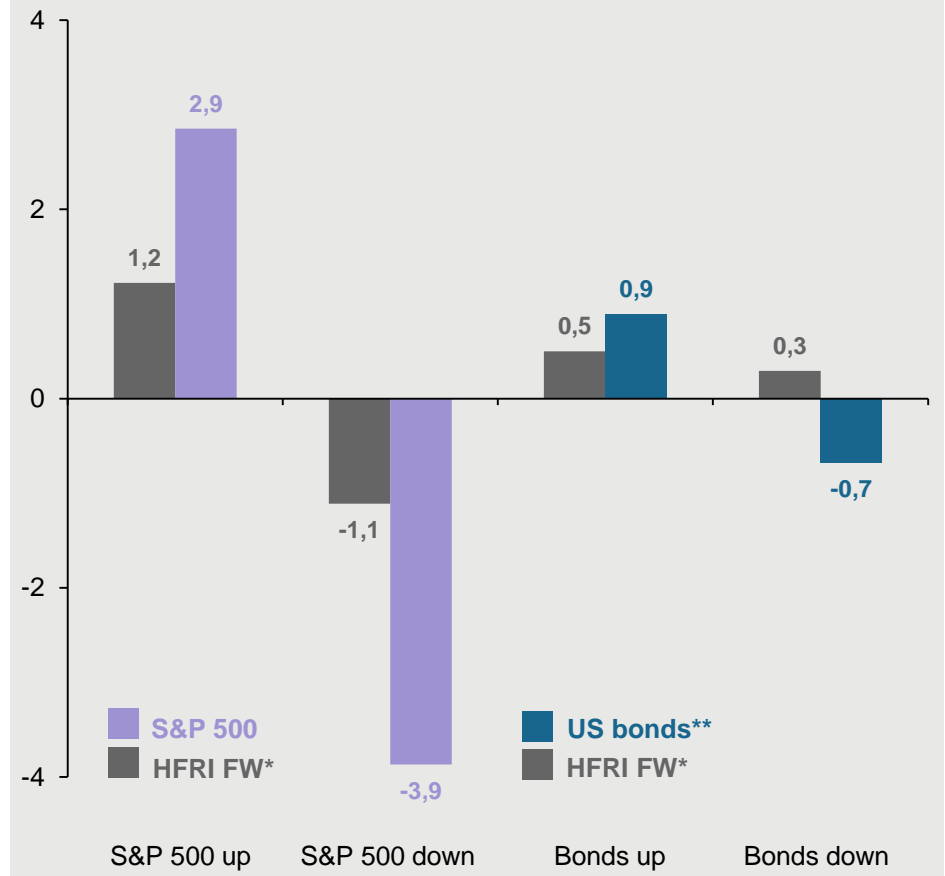
J.P.Morgan
Asset Management

Rolling six-month stock and bond correlations
Of weekly total return on US equities (S&P 500) and US Treasuries (10-yr)

Stock and bond returns moving in the same direction
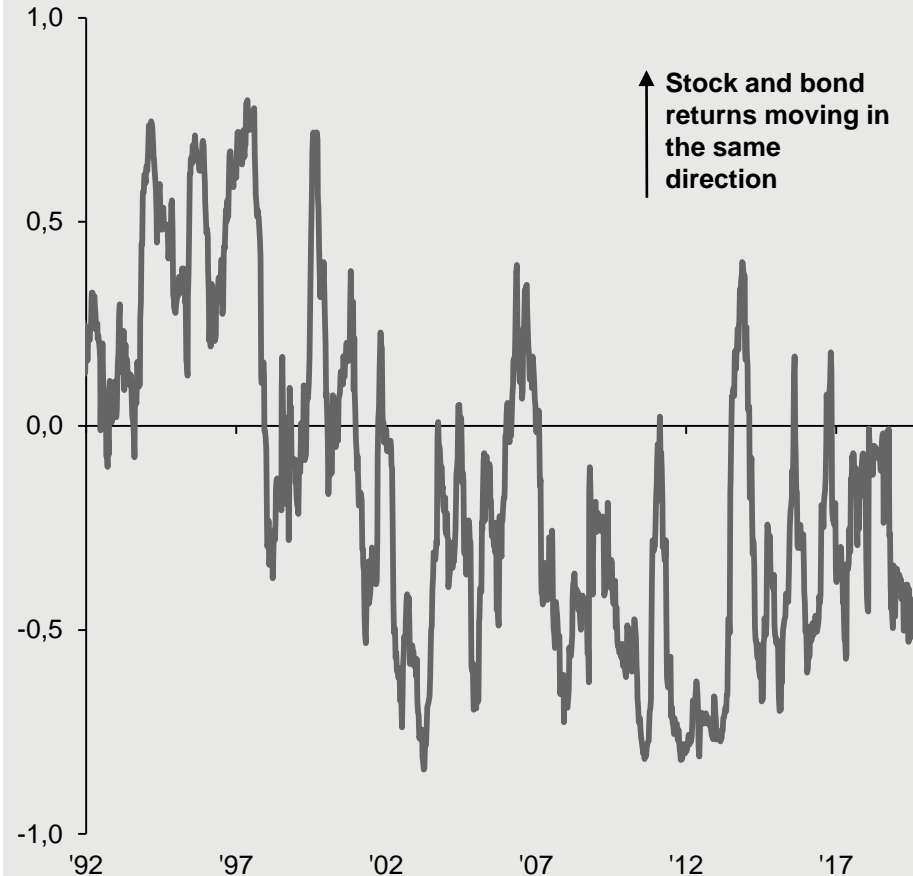
Hedge fund returns in different market environments
%, average total return in up and down months, 2001-present

	S&P 500 up	S&P 500 down	Bonds up	Bonds down
HFRI FW*	1,2	-1,1	0,5	0,3
S&P 500	2,9	-3,9		
US bonds**			0,9	-0,7

S&P 500
HFRI FW*
US bonds**
HFRI FW*

Other assets

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 30 June 2019.
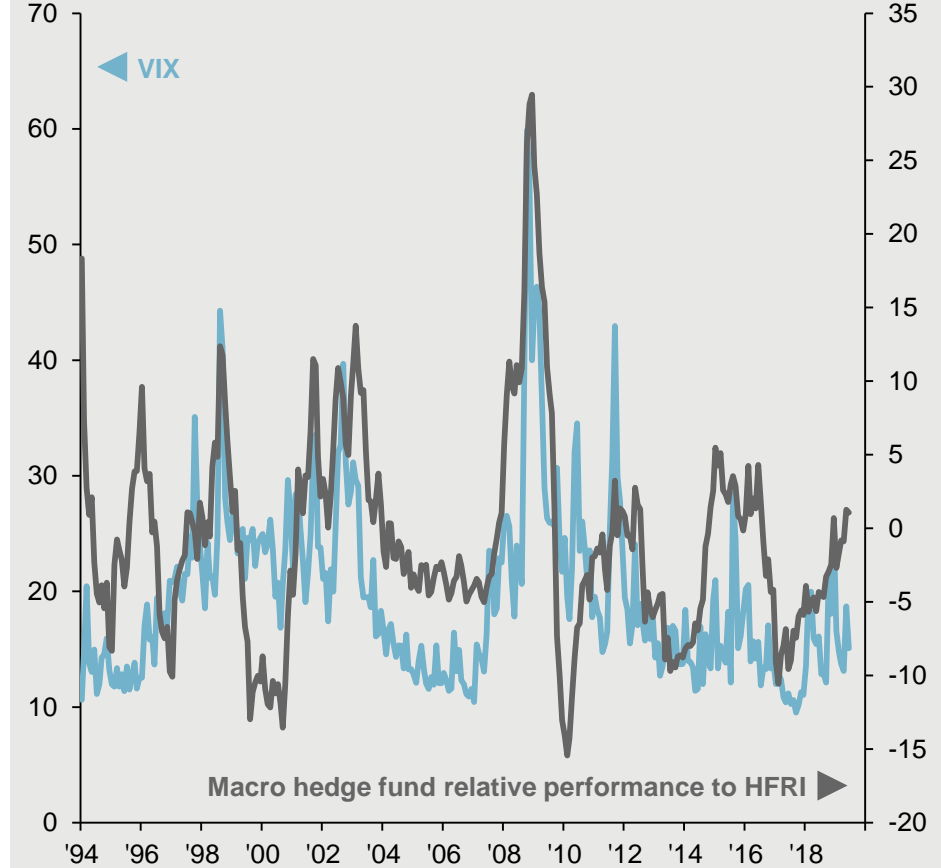
J.P.Morgan
Asset Management

Other assets

Global core infrastructure returns
%, rolling 4-quarter returns from income and capital appreciation
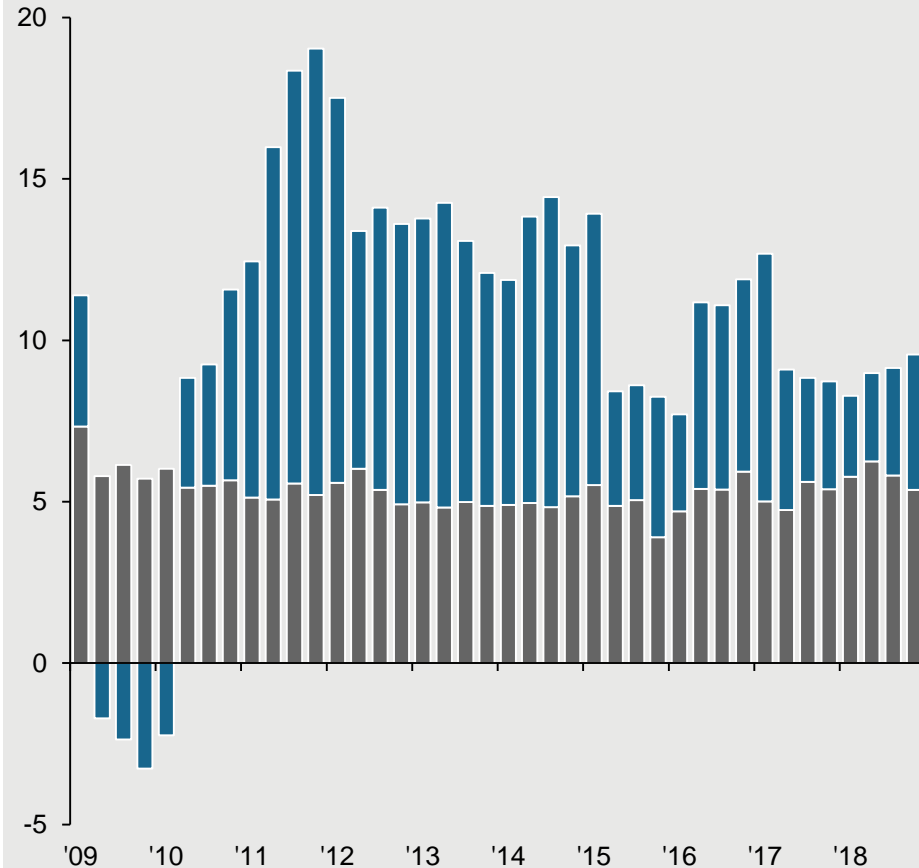
Macro hedge fund relative performance & volatility
Index level (LHS); % change year on year (RHS)

◀ VIX

Macro hedge fund relative performance to HFRI ▶

Source: (Left) MSCI, J.P. Morgan Asset Management. Infrastructure returns represented by the "low risk" category of the MSCI Global Quarterly Infrastructure Asset Index. Data show rolling one-year returns from income and capital appreciation. The chart shows the full index history, beginning in the first quarter of 2009. (Right) 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 30 June 2019.

J.P.Morgan
Asset Management

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

Other assets

Global equities

Price index

MSCI ACWI ESG Leaders
MSCI ACWI

J.P.Morgan
Asset Management

Past and expected returns

%, annualised return

Legend:
- **Return since 2009** (blue)
- **Expected return in coming 10-15 years** (grey)

Categories (top to bottom):
- EM equity
- US private equity
- Eurozone large cap
- Japan equity
- EM local currency debt
- UK large cap
- Global infrastructure
- US core real estate
- US high yield bonds hedged
- US large cap
- European high yield bonds
- Diversified hedge funds hedged
- Euro government bonds
- World government bonds
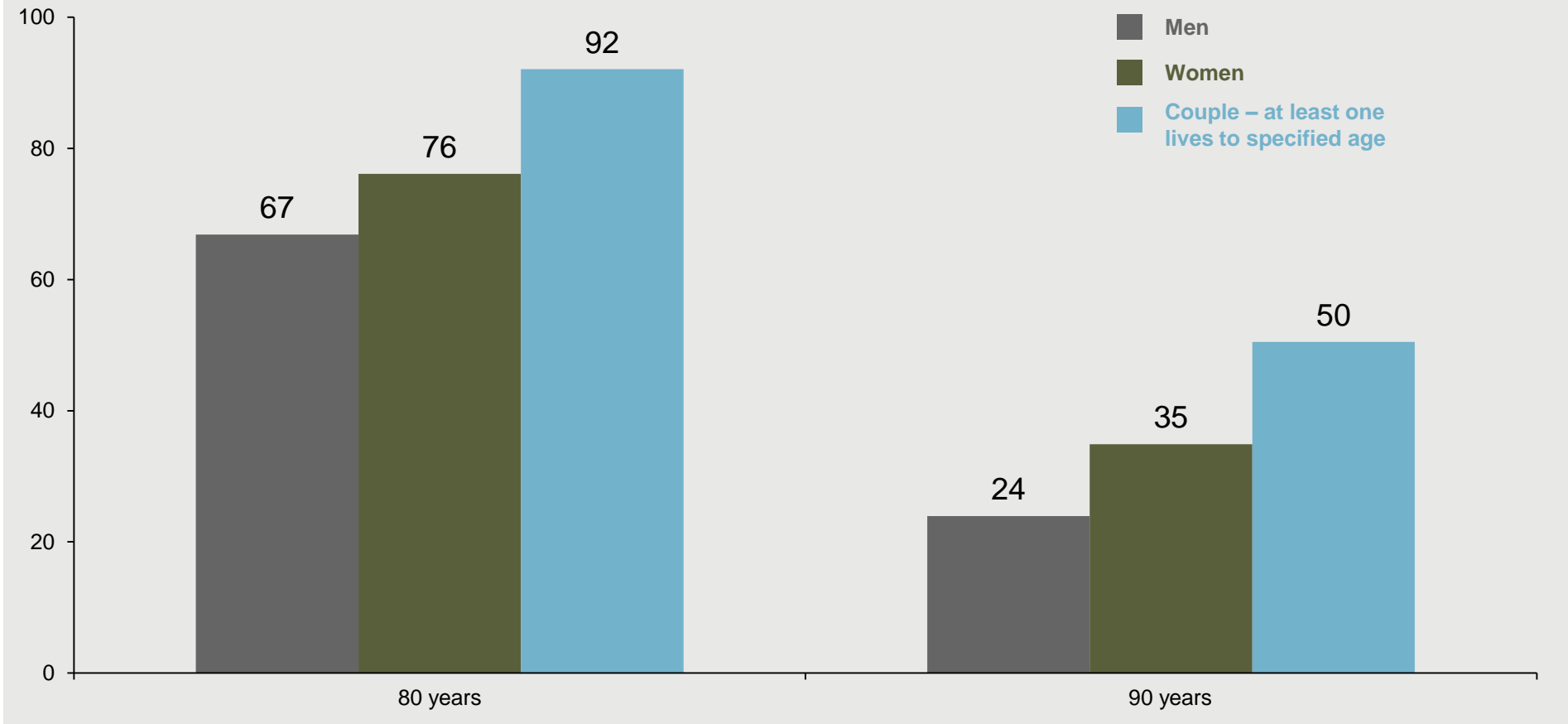- Commodities
- Euro cash

X-axis: -5, 0, 5, 10, 15, 20

Other assets

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 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 30 June 2019.

J.P.Morgan
Asset Management

Probability of reaching ages 80 and 90

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

Legend:
- Men
- Women
- Couple – at least one lives to specified age

80 years: Men 67, Women 76, Couple 92

90 years: Men 24, Women 35, Couple 50

Investing principles

J.P.Morgan
Asset Management

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

EUR (LHS); % change year on year (RHS)

2007: €4.650

◄ Income

Inflation ►

June 2019: €0

Total return of $1 in real terms

USD, log scale, total returns

Annualised real returns		
	1899–2018	2000–2018
Equities	6,5%	3,6%
Bonds	2,1%	4,3%
Cash	0,6%	-0,6%

Equities: $1.890

Bonds: $12

Cash: $2

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 30 June 2019.
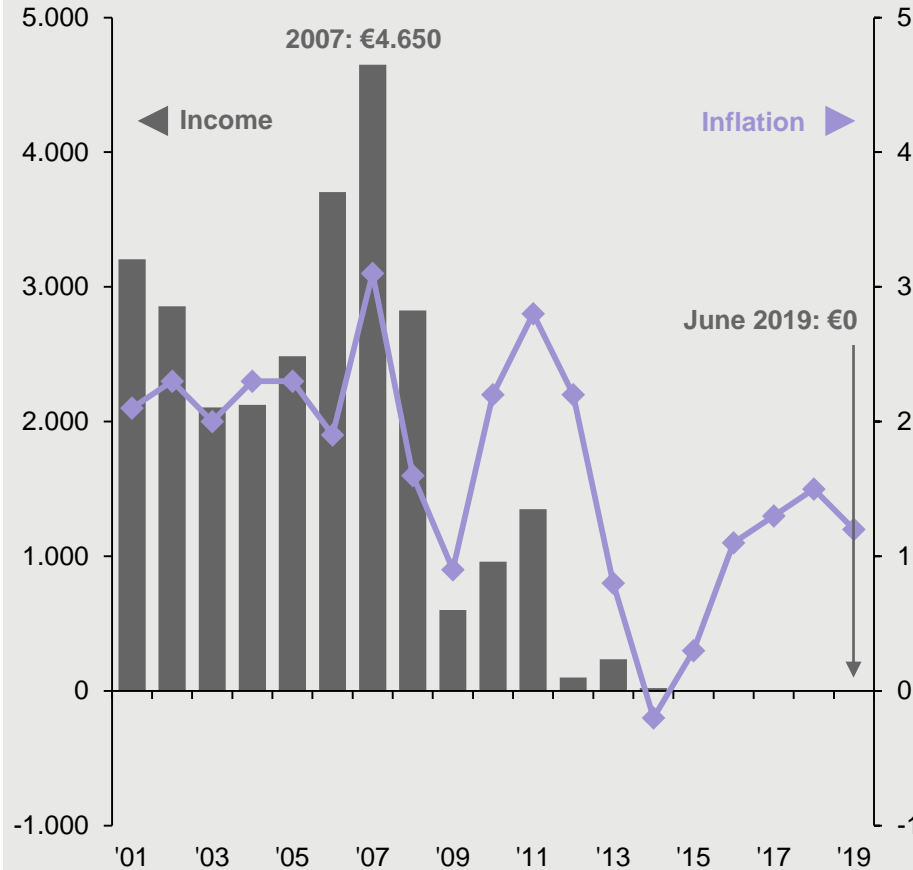
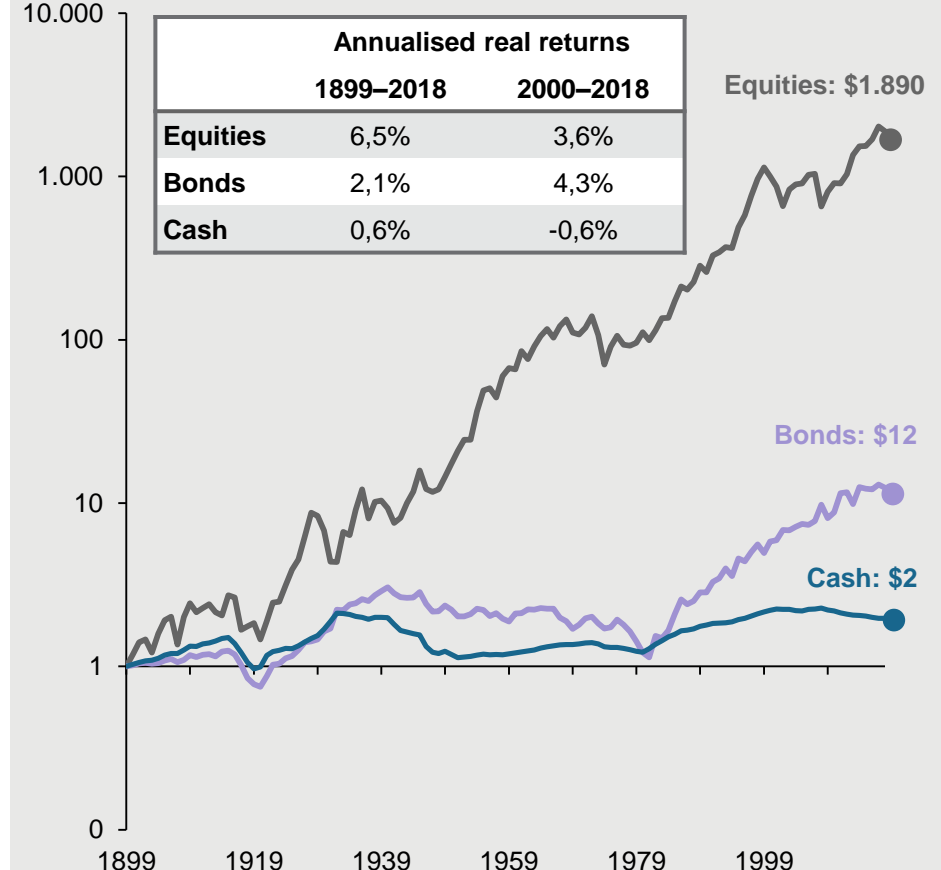Investing principles

J.P.Morgan
Asset Management

€5.000 invested annually with 5% growth per year
EUR

Starting at age 25
Starting at age 35

€639.199
€353.803

Age

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

With dividends reinvested
Without dividends reinvested

€76.233
€27.578
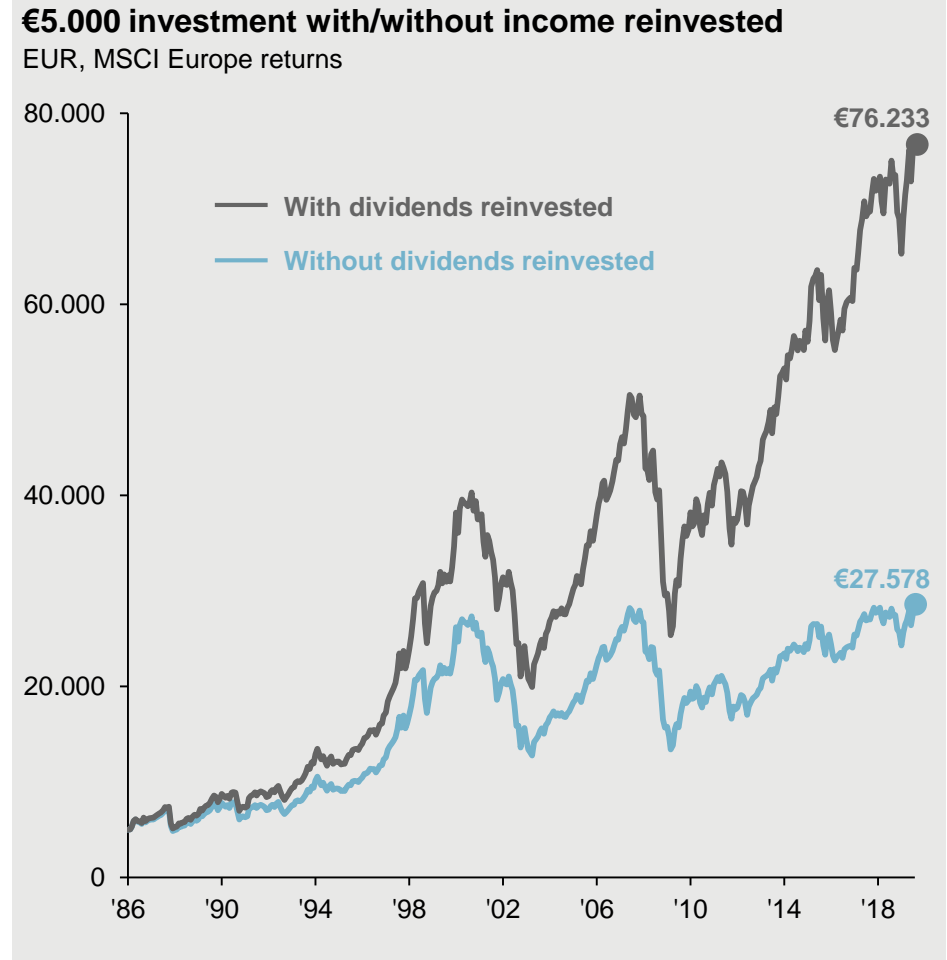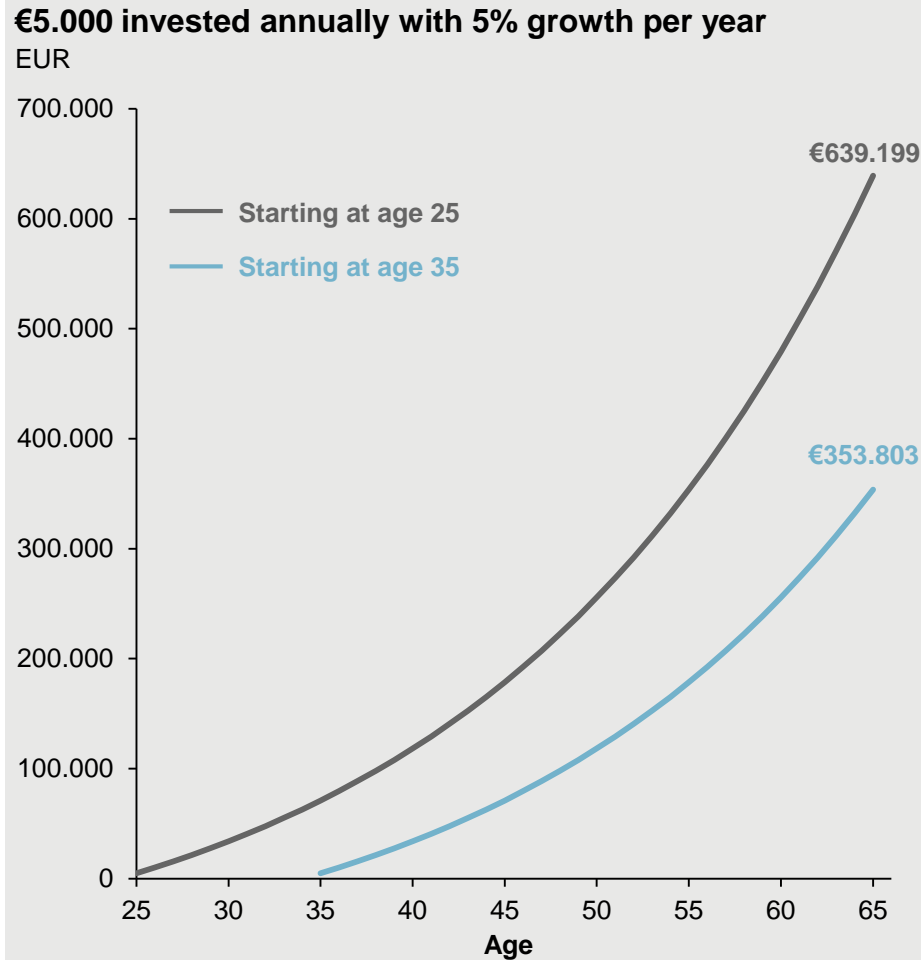
Source: (Left) J.P. Morgan Asset Management. For illustrative purposes only, assumes all income reinvested, actual investments may incur higher or lower growth rates and charges. (Right) Bloomberg, MSCI, J.P. Morgan Asset Management. Based on MSCI Europe index and assumes no charges. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

Investing principles

J.P.Morgan
Asset Management

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

Legend:
- ■ Calendar-year return
- ● Intra-year decline

Investing principles

J.P.Morgan
Asset Management

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

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

Avoid selling at the bottom
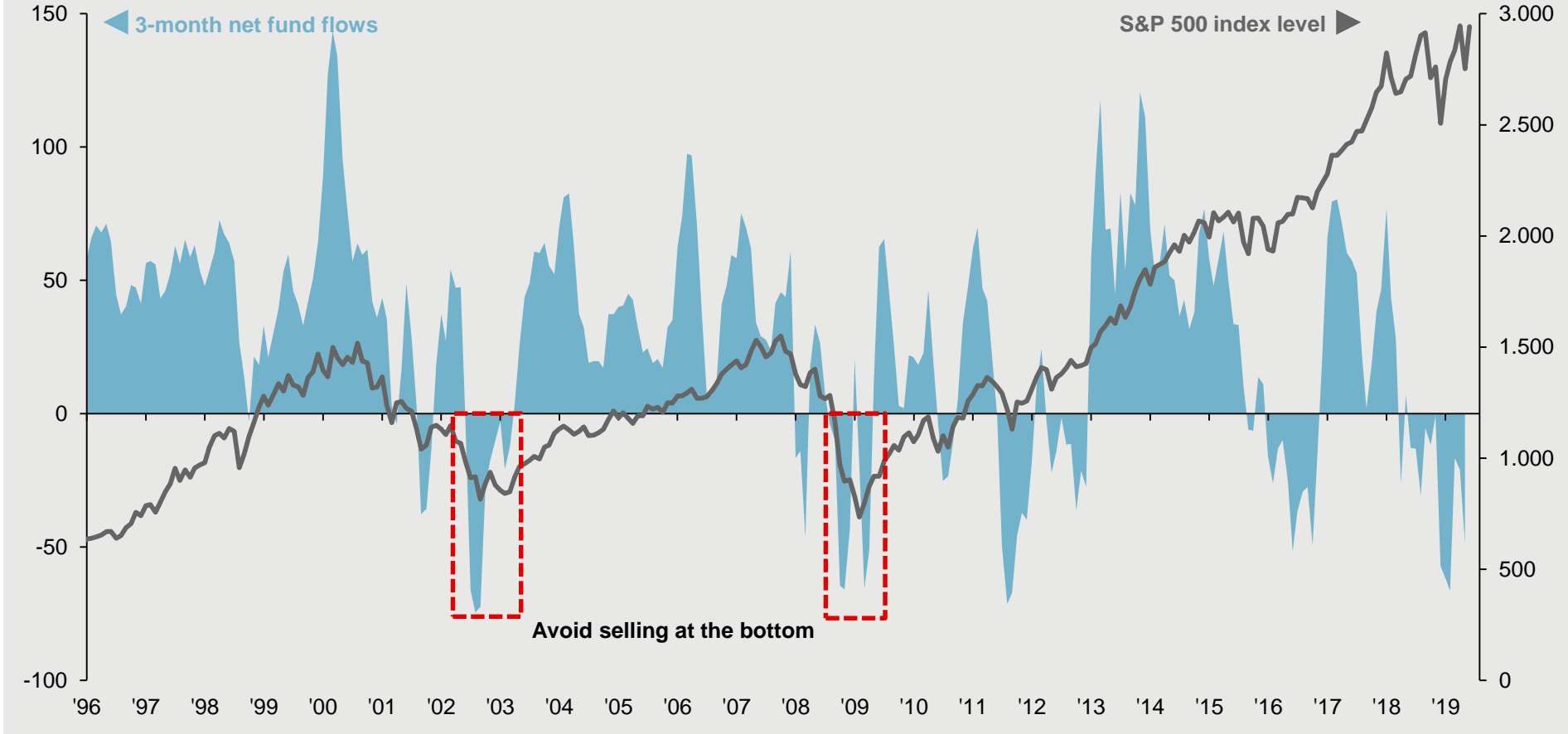
Source: FactSet, Investment Company Institute, J.P. Morgan Asset Management. Fund flows are US long-term equity fund flows with ETF flows included from 2006 onwards. Past performance is not a reliable indicator of current and future results. *Guide to the Markets - Europe.* Data as of 30 June 2019.

Investing principles

J.P.Morgan
Asset Management

Range of equity and bond total returns

%, annualised total returns, 1950-present

Legend:
- Large cap equity
- Bonds
- 50/50 portfolio

1-yr rolling: 61%, 48%, 49%, -43%, -18%, -24%

5-yr rolling: 30%, 24%, 24%, -7%, -3%, -1%

10-yr rolling: 21%, 17%, 17%, -3%, 0%, 1%

20-yr rolling: 18%, 4%, 13%, 1%, 15%, 4%
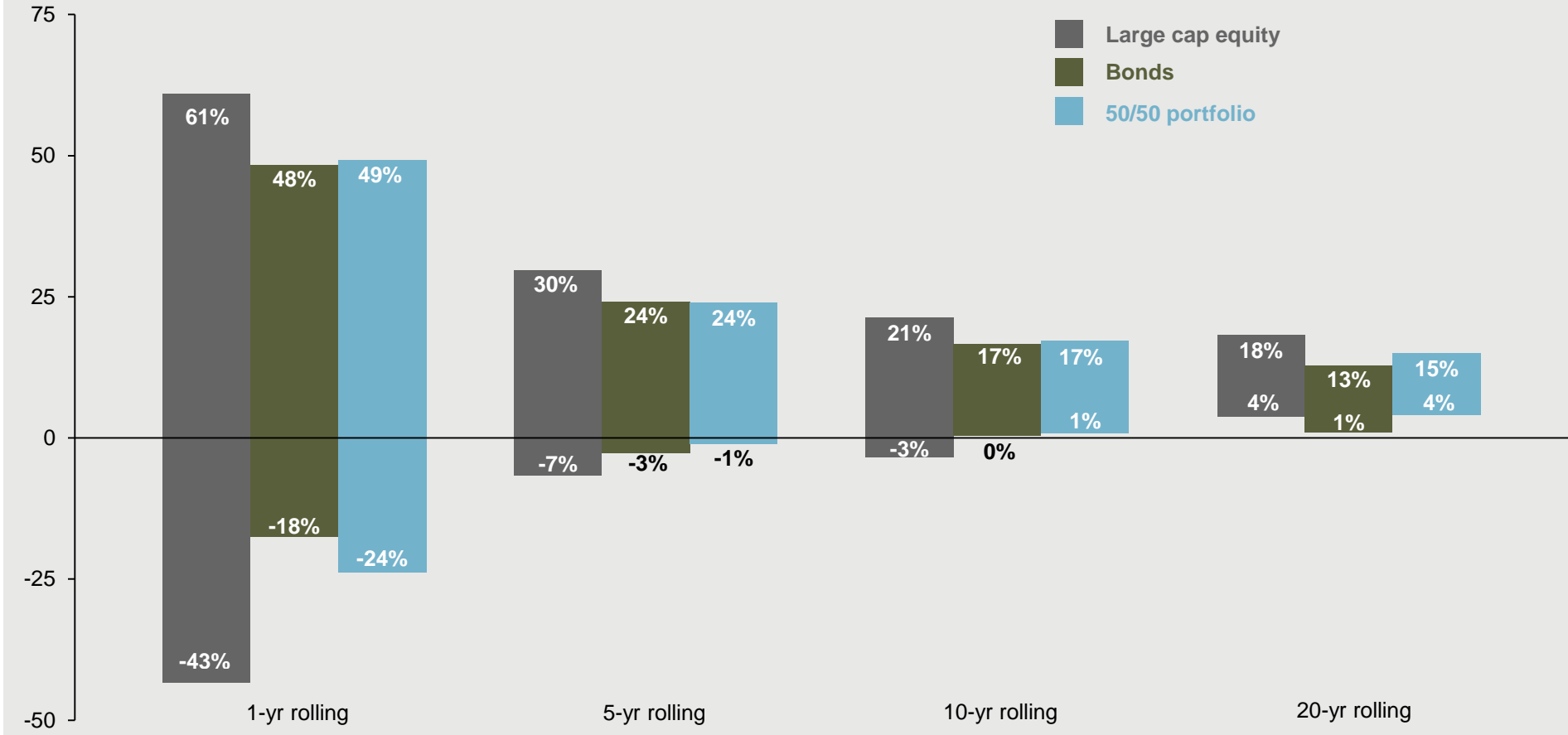
Source: Strategas/Ibbotson, J.P. Morgan Asset Management. Large cap equity represents the S&P 500 Composite and Bonds represents the Strategas/Ibbotson US Government Bond Index and US Long-term Corporate Bond Index. Returns shown are per annum and are calculated based on monthly returns from 1950 to 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 30 June 2019.

Investing principles

J.P.Morgan
Asset Management

Asset class returns (EUR)

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	YTD	2Q19	Ann. return since '08	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 19,2%	DM Equities 2,7%	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%	Cmdty 15,1%	DM Equities 8,1%	IG bonds 1,3%	DM Equities 17,8%	IG bonds 2,5%	REITS 9,0%	REITS 20,3%
IG bonds -3,9%	DM Equities 26,7%	Cmdty 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%	Portfolio 11,2%	EMD 2,3%	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%	EME 11,2%	Govt bonds 1,9%	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 11,0%	HY bonds 1,5%	IG bonds 5,9%	Cmdty 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 9,9%	Portfolio 1,5%	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%	IG bonds 8,7%	REITS 0,3%	Govt bonds 4,7%	EMD 11,4%
Cmdty -32,3%	Cmdty 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%	Cmdty 5,5%	Hedge Funds 0,0%	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%	Govt bonds 5,5%	Cash -0,1%	Hedge Funds 1,2%	Govt bonds 7,6%
DM Equities -37,2%	Cash 2,3%	Hedge Funds 12,5%	Cmdty -10,4%	Govt bonds 0,3%	EMD -10,6%	Cash 0,3%	EME -4,9%	Govt bonds 4,7%	Hedge Funds -6,9%	Cmdty -6,8%	Hedge Funds 4,5%	EME -0,7%	Cash 1,1%	IG bonds 7,5%
EME -50,8%	Govt bonds -0,6%	Cash 1,1%	EME -15,4%	Cmdty -2,6%	Cmdty -13,4%	Cmdty -5,5%	Cmdty -16,1%	Cash -0,1%	Cmdty -10,7%	EME -9,9%	Cash -0,1%	Cmdty -2,6%	Cmdty -5,1%	Cash 1,7%

Source: Barclays, Bloomberg, FTSE, J.P. Morgan Economic Research, MSCI, 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; Cmdty: 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 30 June 2019.

Investing principles

J.P.Morgan Asset Management

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**SM 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**SM 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**SM 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**SM 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**SM 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**SM 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

J.P. Morgan Asset Management: Risks and disclosures

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Unless otherwise stated, all data as of 30 June 2019 or most recently available.

Guide to the Markets - Europe

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