Guide to the Markets

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  6. Global unemployment
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  8. Global core inflation
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Global growth

Real GDP growth
% change year on year

<table>
<thead>
<tr>
<th>Year</th>
<th>US</th>
<th>UK</th>
<th>Eurozone</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td>'00</td>
<td>2.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'02</td>
<td>1.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'04</td>
<td>1.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'06</td>
<td>0.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'08</td>
<td>2.0%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>'10</td>
<td>1.5%</td>
<td></td>
<td></td>
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<tr>
<td>'12</td>
<td>1.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'14</td>
<td>0.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'16</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'18</td>
<td>-0.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'20</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2019 consensus forecast

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.

Source: Markit, J.P. Morgan Asset Management.
Unemployment rates

## Global inflation

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed</td>
<td>1.8</td>
<td>1.8</td>
<td>1.9</td>
</tr>
<tr>
<td>Emerging</td>
<td>1.4</td>
<td>1.5</td>
<td>1.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eurozone</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>1.7</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>France</td>
<td>0.8</td>
<td>1.0</td>
<td>1.2</td>
</tr>
<tr>
<td>Switzerland</td>
<td>0.4</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>UK</td>
<td>2.6</td>
<td>2.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1.6</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>China</td>
<td>1.5</td>
<td>1.4</td>
<td>1.5</td>
</tr>
<tr>
<td>Indonesia</td>
<td>4.4</td>
<td>3.9</td>
<td>2.8</td>
</tr>
<tr>
<td>Korea</td>
<td>1.8</td>
<td>2.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Taiwan</td>
<td>1.0</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td>India</td>
<td>1.5</td>
<td>2.4</td>
<td>2.5</td>
</tr>
<tr>
<td>Brazil</td>
<td>3.0</td>
<td>2.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Mexico</td>
<td>6.3</td>
<td>6.2</td>
<td>2.6</td>
</tr>
<tr>
<td>Russia</td>
<td>4.4</td>
<td>3.8</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Core inflation
% change year on year

Source: Bank of Japan, BLS, Eurostat, ONS, Refinitiv Datastream, J.P. Morgan Asset Management. CPI is the Consumer Price Index. Core inflation for the US is defined as CPI excluding food and energy. Core inflation for Japan is defined as CPI excluding fresh food and energy. Core inflation for the UK and the eurozone is defined as CPI less energy, food, alcohol and tobacco. Japan core CPI has been adjusted down by 2% from April 2014 to March 2015 to remove the estimated impact of the consumption tax hike over this period. Past performance is not a reliable indicator of current and future results. Guide to the Markets - Europe.
Data as of 30 June 2019.
Global central bank policy

Market expectations for policy rate

%  
2,5  
2,0  
1,5  
1,0  
0,5  
0,0  
-0,5  
-1,0  

Jun '19  
Jun '20  
Jun '21  
Jun '22  
Jun '23  

US  
UK  
Japan  
Eurozone  
Switzerland  

Central bank balance sheets

USD trillions  
18  
16  
14  
12  
10  
8  
6  
4  
2  
0  

'07  
'08  
'09  
'10  
'11  
'12  
'13  
'14  
'15  
'16  
'17  
'18  
'19  
'20  

Switzerland  
UK  
Japan  
Eurozone  
US  

Forecast*

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

Global trade

Exports of goods
% of nominal GDP, 2018

<table>
<thead>
<tr>
<th>Country</th>
<th>US</th>
<th>China</th>
<th>EM ex-China</th>
<th>Eurozone</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eurozone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>UK</td>
<td></td>
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<td></td>
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<tr>
<td>Brazil</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>India</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td></td>
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<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drivers of US GDP growth
Average % change year on year

Global working-age population growth
Annualised % change

Source: (Left) BEA, BLS, J.P. Morgan Asset Management. GDP drivers are calculated as the average annualised growth between 4Q 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.

Contribution to US real GDP growth and ISM manufacturing

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

Source: BEA, Bloomberg, ISM, Refinitiv Datastream, J.P. Morgan Asset Management. The Institute for Supply Management (ISM) composite is an economy weighted average of the manufacturing and non-manufacturing surveys. A score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. ISM 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.
US future capex intentions and business investment

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

US unemployment rate and wage growth

%, wage growth is year on year

US inflation

**US headline and core inflation**
% change year on year

<table>
<thead>
<tr>
<th></th>
<th>Average since 2000</th>
<th>May 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headline CPI</td>
<td>2.2%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Core CPI</td>
<td>2.0%</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

**US core goods and services inflation**
% change year on year

<table>
<thead>
<tr>
<th></th>
<th>Average since 2000</th>
<th>May 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services CPI</td>
<td>2.8%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Core goods CPI</td>
<td>0.0%</td>
<td>-0.2%</td>
</tr>
</tbody>
</table>

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.

Federal funds policy rate expectations
% Fed funds rate, FOMC and market expectations

FOMC June 2019 forecasts* (%)

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in real GDP, 4Q to 4Q</td>
<td>2,1</td>
<td>2,0</td>
<td>1,8</td>
</tr>
<tr>
<td>Unemployment rate, 4Q</td>
<td>3,6</td>
<td>3,7</td>
<td>3,8</td>
</tr>
<tr>
<td>PCE inflation, 4Q to 4Q</td>
<td>1,5</td>
<td>1,9</td>
<td>2,0</td>
</tr>
</tbody>
</table>

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.

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.
US effective import tariff rate

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

Tariffs on US imports from China

USD billions

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.
Contribution to eurozone real GDP growth and composite PMI

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

Source: Eurostat, Markit, Refinitiv Datastream, J.P. Morgan Asset Management. PMI is Purchasing Managers’ Index where a score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. PMI data is shown with quarterly frequency. Past performance is not a reliable indicator of current and future results. Guide to the Markets - Europe. Data as of 30 June 2019.
Eurozone future capex intentions and business investment

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

Eurozone consumer confidence

Index level

Recession

Eurozone house prices relative to income

Index level

Spain
France
Italy
Germany

Eurozone unemployment rate and wage growth

Germany, France, Italy and Spain unemployment rates


Eurozone headline and core inflation

% change year on year

Average since 2000 | June (flash)
--- | ---
Headline CPI | 1.7% | 1.2%
Core CPI | 1.4% | 1.1%

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.
European Central Bank policy rate

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Real GDP growth (y/y)</th>
<th>Unemployment rate</th>
<th>HICP inflation (y/y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>1.2</td>
<td>7.7</td>
<td>1.3</td>
</tr>
<tr>
<td>2020</td>
<td>1.4</td>
<td>7.5</td>
<td>1.4</td>
</tr>
<tr>
<td>2021</td>
<td>1.4</td>
<td>7.3</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Eurozone debt to GDP ratios

% of nominal GDP

Eurozone debt service ratios

% of disposable income

Source: (All charts) Bank for International Settlements, Refinitiv Datastream, J.P. Morgan Asset Management. Debt refers to gross debt. Debt service ratios are a GDP-weighted average of France, Germany, Italy and Spain. For the household sector, gross disposable income is the amount of money that all of the individuals in the household sector have available for spending or saving after income distribution measures (for example, taxes, social contributions and benefits) have taken effect. For the non-financial corporate sector, gross disposable income is essentially akin to gross operating surplus before dividends or interest is paid. Past performance is not a reliable indicator of current and future results. Guide to the Markets - Europe. Data as of 30 June 2019.
France, Germany, Italy and Spain government debt to GDP
% of nominal GDP

European 10-year government bond spreads over Germany
% spread


European politics

European parliament seat breakdown

% of seats

- Pro-Europe
- Moderately Eurosceptic
- Eurosceptic
- Other

Survey results: Do you support the euro?

% answering “yes”

Eurozone focus: Employment and loan growth

**Eurozone PMI: Employment**

<table>
<thead>
<tr>
<th>Share of total employment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
<td>76%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>14%</td>
</tr>
</tbody>
</table>

**Eurozone loan growth to non-financial corporates**

% change year on year

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.
Contribution to UK real GDP growth and composite PMI
% change year on year (LHS); index level (RHS)

Source: Markit, ONS, Refinitiv Datstream, 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.
UK consumer confidence
Index level, three-month moving average

UK house prices relative to income
Index level

UK headline and core inflation
% change year on year

<table>
<thead>
<tr>
<th></th>
<th>Average since 2000</th>
<th>May 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Headline CPI</strong></td>
<td>2,1%</td>
<td>2,0%</td>
</tr>
<tr>
<td><strong>Core CPI</strong></td>
<td>1,7%</td>
<td>1,7%</td>
</tr>
</tbody>
</table>

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.

UK core goods and services inflation
% change year on year

<table>
<thead>
<tr>
<th></th>
<th>Average since 2000</th>
<th>May 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Services CPI</strong></td>
<td>3,3%</td>
<td>2,6%</td>
</tr>
<tr>
<td><strong>Core goods CPI</strong></td>
<td>-0,7%</td>
<td>0,4%</td>
</tr>
</tbody>
</table>

Headline inflation target

Guide to the Markets - Europe.

Past performance is not a reliable indicator of current and future results.
### UK focus: Brexit

#### What Brexit outcome would you prefer to see?

<table>
<thead>
<tr>
<th></th>
<th>No-deal</th>
<th>Customs union</th>
<th>Single market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control of migration</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>No budget payments to EU</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td><strong>'Sovereignty'</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Ability to set broader laws</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>- Ability to set goods regulations</td>
<td>✔️</td>
<td></td>
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<tr>
<td>Ability to negotiate trade deals</td>
<td>✔️</td>
<td>~</td>
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</tr>
<tr>
<td>Resolves Northern Ireland border/Union risk</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Preserve current supply chain and economic links</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

Contribution to Japan real GDP growth and composite PMI
% change year on year (LHS); index level (RHS)

Source: Japan Cabinet Office, Markit, Refinitiv Datastream, J.P. Morgan Asset Management. PMI is Purchasing Managers’ Index where a score of 50 indicates that economic activity is neither expanding nor contracting, above 50 indicates expansion. PMI data is shown with quarterly frequency. Past performance is not a reliable indicator of current and future results. Guide to the Markets - Europe. Data as of 30 June 2019.
Japan headline and core inflation
% change year on year

<table>
<thead>
<tr>
<th></th>
<th>Average since 2000</th>
<th>May 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headline CPI</td>
<td>0.1%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Core CPI</td>
<td>0.1%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

Headline inflation target

Japan core goods and services inflation
% change year on year

<table>
<thead>
<tr>
<th></th>
<th>Average since 2000</th>
<th>May 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core goods CPI</td>
<td>0.0%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Services CPI</td>
<td>0.1%</td>
<td>0.3%</td>
</tr>
</tbody>
</table>

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.
China GDP

**Contribution to China real GDP growth**
% change year on year

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP growth</th>
<th>Investment</th>
<th>Consumption</th>
<th>Net exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>'18</td>
<td>6.4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'17</td>
<td></td>
<td>6.2%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**China industrial production and retail sales**
% change year on year

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.

China inflation and policy rates

**China inflation**

<table>
<thead>
<tr>
<th>% change year on year</th>
<th>Average since 2007</th>
<th>May 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headline CPI*</td>
<td>2.7%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Core CPI</td>
<td>1.3%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Headline PPI**</td>
<td>1.1%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>


Data as of 30 June 2019.
Emerging markets GDP and inflation

**EM GDP growth**
% change year on year

**EM inflation**
% change year on year

Source: (All charts) IMF, national statistics agencies, J.P. Morgan Securities Research, J.P. Morgan Asset Management. Other EM countries are China, India, Malaysia, Mexico, Philippines, Poland, Romania, Thailand, Turkey, Vietnam. Commodity countries are Argentina, Brazil, Chile, Colombia, Indonesia, Kazakhstan, Peru, Russia, South Africa, Venezuela. GDP and inflation aggregates are calculated using a GDP-weighted average. Forecasts are from J.P. Morgan Securities Research. Past performance is not a reliable indicator of current and future results. Guide to the Markets - Europe. Data as of 30 June 2019.
Emerging markets currencies and current account

**EM currencies vs. US dollar**

% from fair value, relative to US dollar

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.


**EM current account balance**

% of GDP

Source: (Left) J.P. Morgan Asset Management. Fair value is based on nominal exchange rates relative to PPP exchange rates and adjusted for GDP per capita.

Urbanisation, real GDP per capita and population size

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


Data as of 30 June 2019.
China stimulus
% of GDP

Central government
Local government
Tax cuts

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.
Global equity earnings and valuations

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

Global forward price-to-earnings ratios
x, multiple

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

Data as of 30 June 2019.
S&P 500 earnings and performance

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

S&P 500 index level

S&P 500 EPS

Source: (All charts) IBES, Refinitiv Datastream, Standard & Poor’s, J.P. Morgan Asset Management. EPS is earnings per share. Expected earnings growth and delivered earnings growth are calculated using IBES consensus estimates for next 12 months’ EPS and last 12 months’ EPS, respectively. Year on year growth rates are calculated using year-end data. Past performance is not a reliable indicator of current and future results. Guide to the Markets - Europe. Data as of 30 June 2019.
Leading economic indicator vs. S&P 500 performance

Index level

Initial jobless claims vs. S&P 500 performance

Index level (LHS); thousands, 12-week moving average (RHS)

S&P 500 forward P/E ratio

<table>
<thead>
<tr>
<th>Valuation measure</th>
<th>Average since 1990</th>
<th>Latest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shiller cyclically-adjusted P/E ratio</td>
<td>25,8x</td>
<td>30,2x</td>
</tr>
<tr>
<td>P/B ratio</td>
<td>2,9x</td>
<td>3,3x</td>
</tr>
</tbody>
</table>

US valuations and subsequent returns

Forward P/E ratios and subsequent 1-year returns

% annualised total return*

Forward P/E ratios and subsequent 10-year returns

% annualised total return*

US Fed funds rate and equities/government bonds relative performance
% (LHS); relative total return index level, rebased to 100 in 1997 (RHS)


Characteristics of past bear and bull markets*

<table>
<thead>
<tr>
<th>Bear markets</th>
<th>Market peak</th>
<th>Bear return</th>
<th>Duration (months)</th>
<th>Bull markets</th>
<th>Bull return</th>
<th>Duration (months)</th>
<th>Return before peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Crash of 1929 – excessive leverage, irrational exuberance</td>
<td>Sep 1929</td>
<td>-86%</td>
<td>33</td>
<td>Recession</td>
<td>Jun 1932</td>
<td>324%</td>
<td>58</td>
</tr>
<tr>
<td>2 1937 Fed Tightening – premature policy tightening</td>
<td>Mar 1937</td>
<td>-60%</td>
<td>63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Post WWII crash – post-war demobilisation, recession fears</td>
<td>May 1946</td>
<td>-30%</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Flash crash of 1962 – flash crash, Cuban Missile Crisis</td>
<td>Dec 1961</td>
<td>-28%</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Tech crash of 1970 – economic overheating, civil unrest</td>
<td>Nov 1968</td>
<td>-36%</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Stagflation – OPEC oil embargo</td>
<td>Jan 1973</td>
<td>-48%</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Volcker Tightening – campaign against inflation</td>
<td>Nov 1980</td>
<td>-27%</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 1987 crash – programme trading, overheating markets</td>
<td>Aug 1987</td>
<td>-34%</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Tech bubble – extreme valuations, &quot;dot com&quot; boom/bust</td>
<td>Mar 2000</td>
<td>-49%</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Global Financial Crisis – leverage/housing, Lehman collapse</td>
<td>Oct 2007</td>
<td>-57%</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Current cycle</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MEDIAN</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>158%</td>
<td>61</td>
<td>27%</td>
</tr>
</tbody>
</table>

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.
S&P 500 total return index: Dividends and capital appreciation
%
average annualised returns


13,9% 13,6% 12,6% 15,3% 9,4% 5,9%
4,7% 3,0% 4,4% 1,6% 2,1% 4,0%
5,4% 6,0% 4,2% 4,4% 1,8%
-5,3% 3,3% 2,5% -2,7%

Sources of income
% yield

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

-0,3
0,0
0,5
2,8
3,7
3,9
4,2
5,8
5,9

German Bunds
Cash
Euro IG
EM equity
MSCI Europe
Global convertibles
Global REITs
EM debt
DM high yield

## US sector returns and valuations

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P 500 weight</td>
<td>2.8%</td>
<td>9.4%</td>
<td>13.1%</td>
<td>5.0%</td>
<td>10.2%</td>
<td>21.5%</td>
<td>10.2%</td>
<td>3.1%</td>
<td>14.2%</td>
<td>7.3%</td>
<td>3.3%</td>
<td>100%</td>
</tr>
<tr>
<td>Russell Growth weight</td>
<td>1.9%</td>
<td>11.5%</td>
<td>4.4%</td>
<td>0.7%</td>
<td>15.2%</td>
<td>33.5%</td>
<td>12.0%</td>
<td>2.4%</td>
<td>12.6%</td>
<td>5.7%</td>
<td>0.0%</td>
<td>100%</td>
</tr>
<tr>
<td>Russell Value weight</td>
<td>4.0%</td>
<td>8.0%</td>
<td>22.5%</td>
<td>9.0%</td>
<td>5.3%</td>
<td>9.7%</td>
<td>7.1%</td>
<td>5.0%</td>
<td>15.2%</td>
<td>7.8%</td>
<td>6.4%</td>
<td>100%</td>
</tr>
<tr>
<td>2Q 2019</td>
<td>6.3</td>
<td>3.6</td>
<td>8.0</td>
<td>-2.8</td>
<td>5.3</td>
<td>6.1</td>
<td>4.5</td>
<td>2.5</td>
<td>1.4</td>
<td>3.7</td>
<td>3.5</td>
<td>4.3</td>
</tr>
<tr>
<td>YTD</td>
<td>17.3</td>
<td>21.4</td>
<td>17.2</td>
<td>13.1</td>
<td>21.8</td>
<td>27.1</td>
<td>19.1</td>
<td>20.4</td>
<td>8.1</td>
<td>16.2</td>
<td>14.7</td>
<td>18.5</td>
</tr>
<tr>
<td>Since market peak**</td>
<td>76.7</td>
<td>124.9</td>
<td>21.1</td>
<td>7.7</td>
<td>280.6</td>
<td>279.0</td>
<td>60.9</td>
<td>97.1</td>
<td>219.5</td>
<td>188.0</td>
<td>128.0</td>
<td>141.4</td>
</tr>
<tr>
<td>Since market low***</td>
<td>321.0</td>
<td>518.2</td>
<td>560.9</td>
<td>97.3</td>
<td>781.0</td>
<td>694.2</td>
<td>207.3</td>
<td>630.8</td>
<td>415.1</td>
<td>303.9</td>
<td>299.1</td>
<td>439.5</td>
</tr>
<tr>
<td>Beta to S&amp;P 500</td>
<td>1.28</td>
<td>1.20</td>
<td>1.19</td>
<td>1.18</td>
<td>1.11</td>
<td>1.11</td>
<td>0.94*</td>
<td>0.84</td>
<td>0.79</td>
<td>0.60</td>
<td>0.30</td>
<td>1.00</td>
</tr>
<tr>
<td>Forward P/E ratio</td>
<td>17.3x</td>
<td>16.0x</td>
<td>11.9x</td>
<td>16.1x</td>
<td>21.2x</td>
<td>19.2x</td>
<td>17.7x</td>
<td>19.3x</td>
<td>15.4x</td>
<td>19.2x</td>
<td>18.8x</td>
<td>16.9x</td>
</tr>
<tr>
<td>Average since 1996</td>
<td>14.0x</td>
<td>16.2x</td>
<td>12.8x</td>
<td>17.5x</td>
<td>17.9x</td>
<td>20.3x</td>
<td>18.2x*</td>
<td>15.4x</td>
<td>17.6x</td>
<td>17.3x</td>
<td>14.1x</td>
<td>16.0x</td>
</tr>
<tr>
<td>Trailing P/E ratio</td>
<td>17.0x</td>
<td>17.3x</td>
<td>12.6x</td>
<td>17.1x</td>
<td>22.3x</td>
<td>19.4x</td>
<td>18.4x</td>
<td>19.4x</td>
<td>16.5x</td>
<td>19.3x</td>
<td>19.2x</td>
<td>17.4x</td>
</tr>
<tr>
<td>Average since 1996</td>
<td>16.6x</td>
<td>17.9x</td>
<td>15.3x</td>
<td>21.1x</td>
<td>20.3x</td>
<td>23.7x</td>
<td>19.9x*</td>
<td>16.4x</td>
<td>19.5x</td>
<td>18.7x</td>
<td>14.7x</td>
<td>17.8x</td>
</tr>
<tr>
<td>Dividend yield</td>
<td>2.2%</td>
<td>2.0%</td>
<td>2.3%</td>
<td>3.7%</td>
<td>1.4%</td>
<td>1.5%</td>
<td>1.4%</td>
<td>3.3%</td>
<td>1.8%</td>
<td>3.0%</td>
<td>3.4%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Average since 1996</td>
<td>2.6%</td>
<td>2.1%</td>
<td>2.3%</td>
<td>2.4%</td>
<td>1.5%</td>
<td>0.9%</td>
<td>1.6%*</td>
<td>4.4%</td>
<td>1.8%</td>
<td>2.6%</td>
<td>4.1%</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

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.*
MSCI Europe earnings and performance

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

MSCI Europe earnings per share growth

% change year on year

Source: (All charts) IBES, MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. EPS is earnings per share. Expected earnings growth and delivered earnings growth are calculated using IBES consensus estimates for next 12 months’ EPS and last 12 months’ EPS, respectively. Year on year growth rates are calculated using year-end data. Past performance is not a reliable indicator of current and future results. Guide to the Markets - Europe. Data as of 30 June 2019.
MSCI Europe and composite PMI

MSCI Europe vs. the euro
Index level (LHS); US dollars per euro (RHS)


MSCI Europe forward P/E ratio

x, multiple

<table>
<thead>
<tr>
<th>Valuation measure</th>
<th>Average since 1990</th>
<th>Latest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclically-adjusted P/E</td>
<td>19.4x</td>
<td>18.6x</td>
</tr>
<tr>
<td>ratio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P/B ratio</td>
<td>2.1x</td>
<td>1.8x</td>
</tr>
</tbody>
</table>

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

### Europe sector returns and valuations

The table below provides a summary of sector returns and valuations for the MSCI Europe index. The data includes forward and trailing P/E ratios, dividend yields, and betas relative to the MSCI Europe index. The table also highlights specific periods such as Since market peak and Since market low.

#### MSCI Europe

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>MSCI Europe weight</td>
<td>18.0%</td>
<td>13.0%</td>
<td>14.5%</td>
<td>9.6%</td>
<td>13.5%</td>
<td>7.6%</td>
<td>7.9%</td>
<td>4.6%</td>
<td>4.1%</td>
<td>5.9%</td>
<td>100%</td>
</tr>
<tr>
<td>Growth weight</td>
<td>4.5%</td>
<td>17.5%</td>
<td>24.4%</td>
<td>12.3%</td>
<td>19.6%</td>
<td>6.7%</td>
<td>1.1%</td>
<td>1.9%</td>
<td>1.2%</td>
<td>10.4%</td>
<td>100%</td>
</tr>
<tr>
<td>Value weight</td>
<td>33.0%</td>
<td>8.0%</td>
<td>3.4%</td>
<td>6.5%</td>
<td>6.7%</td>
<td>8.5%</td>
<td>15.5%</td>
<td>7.7%</td>
<td>7.3%</td>
<td>0.9%</td>
<td>100%</td>
</tr>
<tr>
<td>2Q 2019</td>
<td>4.4</td>
<td>2.7</td>
<td>3.4</td>
<td>7.6</td>
<td>8.1</td>
<td>4.2</td>
<td>1.6</td>
<td>-0.9</td>
<td>4.3</td>
<td>9.1</td>
<td>4.5</td>
</tr>
<tr>
<td>YTD</td>
<td>12.6</td>
<td>15.6</td>
<td>19.4</td>
<td>22.0</td>
<td>22.6</td>
<td>19.1</td>
<td>11.9</td>
<td>-0.9</td>
<td>15.7</td>
<td>26.7</td>
<td>16.7</td>
</tr>
<tr>
<td>Since market peak***</td>
<td>-26.3</td>
<td>144.6</td>
<td>171.1</td>
<td>106.1</td>
<td>65.5</td>
<td>40.5</td>
<td>62.2</td>
<td>40.3</td>
<td>30.4</td>
<td>70.9</td>
<td>49.4</td>
</tr>
<tr>
<td>Since market low****</td>
<td>225.2</td>
<td>256.8</td>
<td>289.5</td>
<td>362.5</td>
<td>311.4</td>
<td>229.6</td>
<td>135.5</td>
<td>102.2</td>
<td>120.0</td>
<td>332.1</td>
<td>225.9</td>
</tr>
</tbody>
</table>

#### Financials*

The Financials* sector includes the following sub-sectors: Financials, Health Care, Consumer Staples, Consumer Discretionary, Industrials, Materials, Energy, and Communication Services.

#### Beta to Europe

The beta to Europe is calculated for both forward and trailing P/E ratios and is presented for the period since market peak and since market low.

#### Dividend yield

The dividend yield is presented for the full year and average since 1995.

### Source

MSCI, Refinitiv Datastream, J.P Morgan Asset Management. All calculations are total return in local currency, not annualised. Technology and Communication Services have forward and trailing P/E averages since 2005 due to data availability. *Financials no longer includes real estate, which is now a separate section making up 2.3% of the MSCI Europe Value index and 0.4% of the MSCI Europe growth index. It is not included in the chart due to a lack of historical data for the sector.* **Telecommunication Services was renamed as Communication Services in December 2018 and reconstituted along with Technology and Consumer Discretionary sectors.*** Since market peak represents period 9 October 2007 to end of latest quarter. **** Since market low represents period 9 March 2009 to end of latest quarter. Past performance is not a reliable indicator of current and future results. Guide to the Markets - Europe. Data as of 30 June 2019.
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.
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.
Japan equity market and currency

**TOPIX vs. the yen**

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

Japan corporate governance

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

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

Corporate profits
ROE

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

EM earnings expectations by region

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

Emerging markets equity drivers

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

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

Emerging markets equity valuations and subsequent returns

MSCI EM price-to-book ratio

x, multiple

3,00
2,75
2,50
2,25
2,00
1,75
1,50
1,25
1,00
0,75

'96 '98 '00 '02 '04 '06 '08 '10 '12 '14 '16 '18

Average: 1,8x

30 June 2019: 1,6x


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

% annualised total return

Current level

0,8x 1,3x 1,8x 2,3x 2,8x 3,3x

-20 -10 0 10 20 30

0,75 1,00 1,25 1,50 1,75 2,00 2,25 2,50 2,75 3,00
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

Equity focus: US earnings and margin pressure

World export volumes and US earnings

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

<table>
<thead>
<tr>
<th>'01</th>
<th>'03</th>
<th>'05</th>
<th>'07</th>
<th>'09</th>
<th>'11</th>
<th>'13</th>
<th>'15</th>
<th>'17</th>
<th>'19</th>
</tr>
</thead>
<tbody>
<tr>
<td>-40</td>
<td>-30</td>
<td>-20</td>
<td>-10</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
</tbody>
</table>

### World stock market returns

<table>
<thead>
<tr>
<th>Year</th>
<th>EUR</th>
<th>US S&amp;P 500</th>
<th>HDY Equity</th>
<th>Europe</th>
<th>Asia ex-Jp</th>
<th>Small Cap</th>
<th>TOPIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>-23.0%</td>
<td>-40.6%</td>
<td>TOPIX</td>
<td>-40.4%</td>
<td>Small Cap</td>
<td>MSCI EM</td>
<td>62.8%</td>
</tr>
<tr>
<td>2009</td>
<td>73.5%</td>
<td>67.2%</td>
<td>-37.0%</td>
<td>26.3%</td>
<td>Asia ex-Jp</td>
<td>15.6%</td>
<td>5.7%</td>
</tr>
<tr>
<td>2010</td>
<td>35.4%</td>
<td>28.3%</td>
<td>-35.8%</td>
<td>21.5%</td>
<td>MSCI EM</td>
<td>14.4%</td>
<td>-5.8%</td>
</tr>
<tr>
<td>2011</td>
<td>5.5%</td>
<td>18.1%</td>
<td>16.8%</td>
<td>16.5%</td>
<td>Small Cap</td>
<td>6.8%</td>
<td>-8.7%</td>
</tr>
<tr>
<td>2012</td>
<td>20.8%</td>
<td>26.7%</td>
<td>US S&amp;P 500</td>
<td>32.4%</td>
<td>19.7%</td>
<td>16.4%</td>
<td>20.5%</td>
</tr>
<tr>
<td>2013</td>
<td>27.2%</td>
<td>21.0%</td>
<td>Europe</td>
<td>12.0%</td>
<td>Asia ex-Jp</td>
<td>7.7%</td>
<td>16.2%</td>
</tr>
<tr>
<td>2014</td>
<td>29.5%</td>
<td>12.9%</td>
<td>US S&amp;P 500</td>
<td>1.4%</td>
<td>15.3%</td>
<td>14.4%</td>
<td>8.8%</td>
</tr>
<tr>
<td>2015</td>
<td>24.4%</td>
<td>21.0%</td>
<td>MSCI EM</td>
<td>31.0%</td>
<td>-1.5%</td>
<td>HDY Equity</td>
<td>14.3%</td>
</tr>
<tr>
<td>2016</td>
<td>16.6%</td>
<td>12.4%</td>
<td>Portfolio</td>
<td>21.4%</td>
<td>14.9%</td>
<td>MSCI EM</td>
<td>10.1%</td>
</tr>
<tr>
<td>2017</td>
<td>24.8%</td>
<td>12.4%</td>
<td>Portfolio</td>
<td>21.4%</td>
<td>15.9%</td>
<td>Small Cap</td>
<td>11.2%</td>
</tr>
<tr>
<td>2018</td>
<td>19.0%</td>
<td>11.2%</td>
<td>TOPIX</td>
<td>13.7%</td>
<td>10.9%</td>
<td>Europe</td>
<td>-9.4%</td>
</tr>
<tr>
<td>YTD</td>
<td>0.4%</td>
<td>10.1%</td>
<td>HDY Equity</td>
<td>14.9%</td>
<td>14.5%</td>
<td>MSCI EM</td>
<td>-9.8%</td>
</tr>
<tr>
<td>Q219</td>
<td>3.4%</td>
<td>14.7%</td>
<td>European</td>
<td>10.9%</td>
<td>11.2%</td>
<td>Asia ex-Jp</td>
<td>-9.4%</td>
</tr>
</tbody>
</table>

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.
Current and historical yields for selected indices

% yield, since 2008*

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

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

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

*Historical yield range is since Jan 2008, convertibles is since Dec 2008.


For illustrative purposes only. Change in bond price is calculated using both duration and convexity, with the exception of Convertibles, which is historical change.

Past performance is not a reliable indicator of current and future results.

Guide to the Markets - Europe.

Data as of 30 June 2019.
Global government bond yields and inflation expectations

Nominal 10-year government bond yields

% yield

US
UK
Germany

10-year government bond breakeven inflation rates

% yield

UK
US
Germany

**Yield curve inversion and recession**

<table>
<thead>
<tr>
<th>Yield curve inversion date</th>
<th>Curve inversion to S&amp;P 500 peak before recession</th>
<th>S&amp;P 500 peak to start of recession</th>
<th>Curve inversion to recession</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug ’78</td>
<td>18</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Sep ’80</td>
<td>3</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Dec ’88</td>
<td>19</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>May ’98</td>
<td>22</td>
<td>12</td>
<td>34</td>
</tr>
<tr>
<td>Dec ‘05</td>
<td>22</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td><strong>19</strong></td>
<td><strong>3</strong></td>
<td><strong>20</strong></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>17</strong></td>
<td><strong>5</strong></td>
<td><strong>22</strong></td>
</tr>
</tbody>
</table>


Data as of 30 June 2019.
US investment-grade bonds

**US investment-grade spread**
% option-adjusted spread over local government bond yield

**US investment-grade leverage measures**
$x$, leverage (LHS); $x$, interest coverage ratio (RHS)


Data as of 30 June 2019.
US high yield bonds

US high yield spread and defaults

\%

\%

Spread (RHS)

Default rate (LHS)

<table>
<thead>
<tr>
<th>Year</th>
<th>Spread (RHS)</th>
<th>Default rate* (LHS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'00</td>
<td></td>
<td>1,5%</td>
</tr>
<tr>
<td>'02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'06</td>
<td></td>
<td></td>
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<tr>
<td>'08</td>
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<td></td>
</tr>
<tr>
<td>'10</td>
<td></td>
<td></td>
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<td>'12</td>
<td></td>
<td></td>
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<td>'14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latest</td>
<td>4,1%</td>
<td>1,5%</td>
</tr>
</tbody>
</table>

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.
**Europe and UK investment-grade bonds**

**Euro and UK investment-grade spreads**

% option-adjusted spread over local government bond yield

---

**Euro investment-grade leverage measures**

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

---

European high yield bonds

**European high yield spread and defaults**
%

- Default rate (LHS) 1,4%
- Spread (RHS) 3,7%

Latest

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.
Real 10-year government bond yields
% yield, local currency

- Developed markets
- Emerging markets

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.
Developed market government bond yields

% of BofA/Merrill Lynch Global Government Bond Index

Global fixed income spreads and returns

**Fixed income spreads**

- **Current**
- **Range since 1998**
- **Average**

**Fixed income returns**

<table>
<thead>
<tr>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>YTD</th>
<th>2Q19</th>
<th>Ann. return since '08</th>
</tr>
</thead>
<tbody>
<tr>
<td>€:12.8%</td>
<td>21.0%</td>
<td>6.1%</td>
<td>5.8%</td>
<td>11.0%</td>
<td>3.4%</td>
<td>10.4%</td>
</tr>
<tr>
<td>12.3%</td>
<td>10.2%</td>
<td>2.4%</td>
<td>2.7%</td>
<td>10.5%</td>
<td>3.0%</td>
<td>9.2%</td>
</tr>
<tr>
<td>10.6%</td>
<td>10.1%</td>
<td>1.4%</td>
<td>2.4%</td>
<td>10.3%</td>
<td>2.6%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Euro IG</td>
<td>Portfolio</td>
<td>0.2%</td>
<td>1.3%</td>
<td>Portfolio</td>
<td>2.4%</td>
<td>7.3%</td>
</tr>
<tr>
<td>0.8%</td>
<td>6.4%</td>
<td>0.2%</td>
<td>-1.4%</td>
<td>2.4%</td>
<td>7.4%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Portfolio</td>
<td>US IG</td>
<td>US Gov</td>
<td>Portfolio</td>
<td>US HY</td>
<td>EM Debt</td>
<td>Portfolio</td>
</tr>
<tr>
<td>6.4%</td>
<td>6.1%</td>
<td>0.2%</td>
<td>7.6%</td>
<td>6.0%</td>
<td>2.3%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Euro HY</td>
<td>US IG</td>
<td>Euro Gov</td>
<td>Euro IG</td>
<td>US HY</td>
<td>EM Gov</td>
<td>Euro Gov</td>
</tr>
<tr>
<td>-4.6%</td>
<td>4.2%</td>
<td>-2.9%</td>
<td>-4.0%</td>
<td>-4.0%</td>
<td>-4.6%</td>
<td>-4.6%</td>
</tr>
<tr>
<td>US HY</td>
<td>Portfolio</td>
<td>6.4%</td>
<td>1.0%</td>
<td>1.0%</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>1.7%</td>
<td>4.7%</td>
<td>0.2%</td>
<td>6.0%</td>
<td>6.0%</td>
<td>2.2%</td>
<td>2.2%</td>
</tr>
<tr>
<td>1.7%</td>
<td>4.7%</td>
<td>0.2%</td>
<td>6.0%</td>
<td>6.0%</td>
<td>2.2%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Euro IG</td>
<td>Portfolio</td>
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<td>-5.6%</td>
<td>-1.3%</td>
<td>5.6%</td>
<td>5.0%</td>
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<tr>
<td>0.8%</td>
<td>1.0%</td>
<td>7.5%</td>
<td>5.2%</td>
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<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>0.5%</td>
<td>3.8%</td>
<td>6.4%</td>
<td>3.8%</td>
<td>1.6%</td>
<td>3.0%</td>
<td>3.0%</td>
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<td>Euro HY</td>
<td>Infl Linked</td>
<td>US IG</td>
<td>Infl Linked</td>
<td>US IG</td>
<td>Euro IG</td>
<td>Infl Linked</td>
</tr>
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<td>0.5%</td>
<td>-1.5%</td>
<td>-1.5%</td>
<td>-1.5%</td>
<td>5.4%</td>
<td>5.4%</td>
<td>5.4%</td>
</tr>
<tr>
<td>-6.6%</td>
<td>3.2%</td>
<td>-10.1%</td>
<td>4.1%</td>
<td>1.1%</td>
<td>2.5%</td>
<td>2.5%</td>
</tr>
<tr>
<td>-3.2%</td>
<td>-3.7%</td>
<td>-3.7%</td>
<td>-3.7%</td>
<td>4.1%</td>
<td>4.1%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Portfolio</td>
<td>US IG</td>
<td>US HY</td>
<td>Portfolio</td>
<td>US HY</td>
<td>EM Gov</td>
<td>Portfolio</td>
</tr>
<tr>
<td>-0.6%</td>
<td>3.8%</td>
<td>2.3%</td>
<td>-1.4%</td>
<td>-1.4%</td>
<td>-1.4%</td>
<td>-1.4%</td>
</tr>
<tr>
<td>-3.2%</td>
<td>2.3%</td>
<td>-3.7%</td>
<td>-3.7%</td>
<td>4.1%</td>
<td>4.1%</td>
<td>4.1%</td>
</tr>
<tr>
<td>-0.6%</td>
<td>-3.7%</td>
<td>-3.7%</td>
<td>-3.7%</td>
<td>4.1%</td>
<td>4.1%</td>
<td>4.1%</td>
</tr>
</tbody>
</table>

Metal prices
Index level, rebased to 100 in Jan 2007

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

Gold price
$ per Troy ounce

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

Hedge fund returns in different market environments
% average total return in up and down months, 2001-present

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)

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.
Environmental, social and governance considerations

- Carbon emissions
- Water & waste
- Biodiversity

- Labour management
- Health & product safety
- Privacy & data security

- Management & oversight
- Board composition
- Ownership & pay

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

Data as of 30 June 2019.
Past and expected returns
%

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.
Probability of reaching ages 80 and 90
% probability, persons aged 65, by gender and combined couple


Income generated by €100,000 in a three-month bank deposit
EUR (LHS); % change year on year (RHS)

Total return of $1 in real terms
USD, log scale, total returns

Income Inflation

June 2019: €0

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


The power of compounding

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

- Starting at age 25
  - €353,803
- Starting at age 35
  - €639,199

€5,000 investment with/without income reinvested

- With dividends reinvested
  - €27,578
- Without dividends reinvested
  - €76,233

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

Despite average intra-year drops of 15.4% (median 12.1%), annual returns are positive in 30 of 39 years.

% 

Source: MSCI, Refinitiv Datastream, J.P. Morgan Asset Management. Returns are based on local price only and do not include dividends. Intra-year decline refers to the largest market fall from peak to trough within a short time period during the calendar year. Returns shown are calendar years from 1980 to 2018. YTD is year to date. Past performance is not a reliable indicator of current and future results. Guide to the Markets - Europe. Data as of 30 June 2019.
US mutual fund and ETF flows and S&P 500 index
USD billions, three-month net flow (LHS); index level (RHS)

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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 Value 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 Growth Index® measures the performance of those Russell Midcap companies with higher 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 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 Emerging Markets Index® is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. As of June 2007, the MSCI Emerging Markets Index consisted of 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 World Index® is a capitalization-weighted index that lists all firms that are considered to be under the 'first section' on the TSE, which groups all of the large firms on the exchange into one pool. The second section groups all of the remaining smaller firms.

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

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

The MSCI Value and Growth Indices® cover the full range of developed, emerging and All Country MSCI Equity indexes. As of the close of May 30, 2003, MSCI implemented an enhanced methodology for the MSCI Global Value and Growth Indices, adopting a two dimensional framework for style segmentation in which value and growth securities are categorized using different attributes - three for value and five for growth including forward-looking variables.

The objective of the index design is to divide constituents of an underlying MSCI Standard Country Index into a value index and a growth index, each targeting 50% of the free float adjusted market capitalization of the underlying country index. Country Value/Growth indices are then aggregated into regional Value/Growth indices. Prior to May 30, 2003, the indices used Price/Book Value (P/BV) ratios to divide the standard MSCI country indices into value and growth indices. All securities were classified as either "value" securities (low P/BV securities) or "growth" securities (high P/BV securities), relative to each MSCI country index.

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

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

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

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.

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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.

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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 sovereigns 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, non-investment-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 Index 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.
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Unless otherwise stated, all data as of 30 June 2019 or most recently available.

Guide to the Markets - Europe

JP-LITTLEBOOK

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