

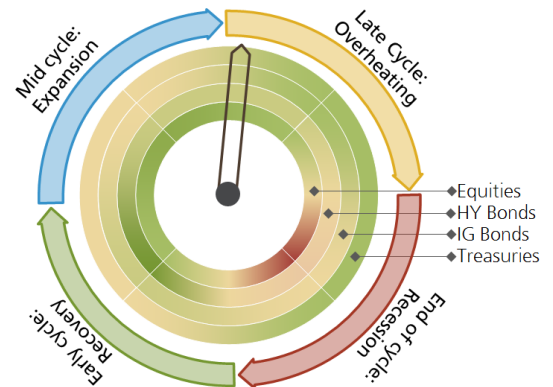
Global financial markets

The business cycle: Where are we?

Chief Investment Office WM | 19 December 2018 4:01 pm GMT

Kiran Ganesh, Strategist, kiran.ganesh@ubs.com; Vincent Heaney, Strategist, vincent.heaney@ubs.com

- The global economy seems to be entering the late phase of the business cycle ("late cycle"), characterized by positive performance in equity markets but also heightened investor uncertainty and market volatility. We think this phase can continue for at least another year.
- CIO holds tactical overweights in global and emerging market equities, as well as USD-denominated emerging market sovereign bonds, complemented by a number of countercyclical positions aimed at reducing portfolio risk.
- We do not believe that a transition to the next stage of the cycle – recession – is likely in 2019. Still, we provide three possible scenarios for an "end of the cycle" as well as an upside scenario for global markets next year.



Source: UBS, as of December 2018

As the global bull market approaches its 10th anniversary, volatility has returned to markets. Many investors are now asking where we stand in the economic cycle, how much longer it might be before the next downturn occurs, and how to position for this period of uncertainty.

We believe the global economy is now in late cycle which can persist for at least another year. Although unlikely in 2019, the next phase of the business cycle could be a recession accompanied by a bear market. With various drivers affecting markets today, we discuss three risks that could lead us to this phase, and present a fourth scenario in which this late cycle stage proves temporary and a mid-cycle regime resumes instead. We also offer a view on how major asset classes could perform in each of these scenarios (see Table 1).

We hope this analysis proves useful for investors looking to prepare their portfolios for various potential downside scenarios. For more information regarding our current investment positioning, please see the latest UBS House View.

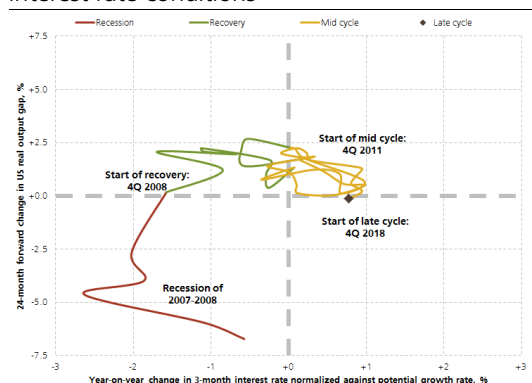
Where are we in the cycle?

In our complementary paper "The business cycle: An investment framework," we describe late cycle as a state of moderating economic growth and tightening central bank policy. By this definition, the global economy seems to be entering a late cycle as we look into the new year.

Related reports

- *The business cycle: An investment framework*, 19 December 2018.
- *UBS House View Monthly Letter*, 13 December 2018.
- *Global risk radar: A tale of two (risk) tails*, 12 November 2018.

Fig. 1: Estimated business cycle dynamic (US)
Based on changes in economic activity and interest rate conditions



Source: Bloomberg, Congressional Budget Office, OECD, UBS, as of December 2018. Note: Please see our related report *The business cycle: An investment framework* for more information.

In early 2018, our global economic growth outlook pointed to accelerating growth, market volatility was still at cycle lows, and the protectionist US tariff measures were still in nascent form. In the context of tightening global monetary policy, this placed us firmly in mid-cycle.

Since then, however, market volatility has risen back to historical averages, growth in several regions started to disappoint, and the US output gap has continued to close.

Today, global economic data show broad-based signs of moderation, suggesting we may be past the peak in growth and entering a late cycle phase. In the US, housing data are weakening while the impulse from earlier corporate tax cuts is fading. In the Eurozone, the weakness in business activity seems to be more broad-based than what the new emissions regulation and the related slowing in the car sector alone would justify. And in China, the economy continues to slow, driven in part by the government's own deleveraging efforts, and in part by the effects of the US tariffs on Chinese exports.

As we enter 2019, we expect global economic growth to moderate to 3.7% from an estimated 3.8% this year, with all major countries save for Japan and Brazil contributing to the slowdown (see Fig. 2). We also expect major central banks to continue to withdraw monetary policy support. The US Federal Reserve is now close to a "neutral" policy bias according to its own official communication, and we expect it to continue to raise interest rates next year, though perhaps at a slower pace than it did in 2018. The European Central Bank has confirmed it will end its quantitative easing program this year, which would make 2019 the first year in this business cycle when global central banks are shrinking, rather than growing, their balance sheets in aggregate (see Fig. 3).

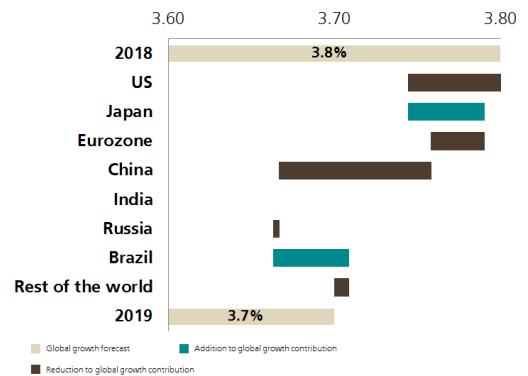
While all of these views are consistent with a late cycle regime going forward, recent market behavior has also been largely consistent with a late cycle. The VIX Index, a measure of US equity market volatility, has averaged 19.7 so far in the fourth quarter compared with 12.9 in third quarter, while US high yield credit spreads over US Treasuries have increased to 454 basis points from 320 basis points over the past months.

How have markets done in past late cycle periods?

Historically, a late cycle does not imply poor investment performance (see our related report *The business cycle: An investment framework*). Quite the contrary, it is normally characterized by healthy, if also volatile, returns in equities. Credit markets can experience pockets of weakness – as we are currently seeing in US BBB corporate bonds – but still offer opportunities under the right economic conditions (see Fig. 4).

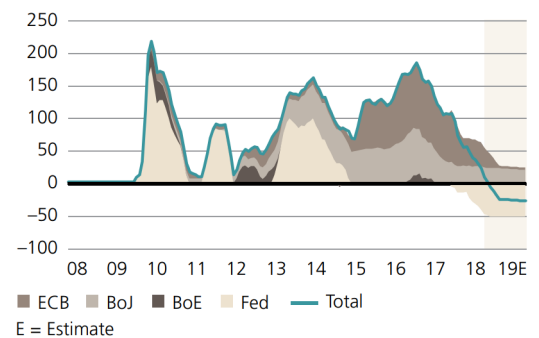
At this stage of the cycle, safe-haven investments and hedges may become increasingly useful in a portfolio context. That said, their attractiveness increases only as the probability of a recession starts to rise. Current signals broadly suggest that the risk of a recession in 2019 remains quite low, which means overly hedging a portfolio may prove counterproductive at this point.

Fig. 2: Global growth is expected to slow
Contributions to global growth from select countries and regions, %



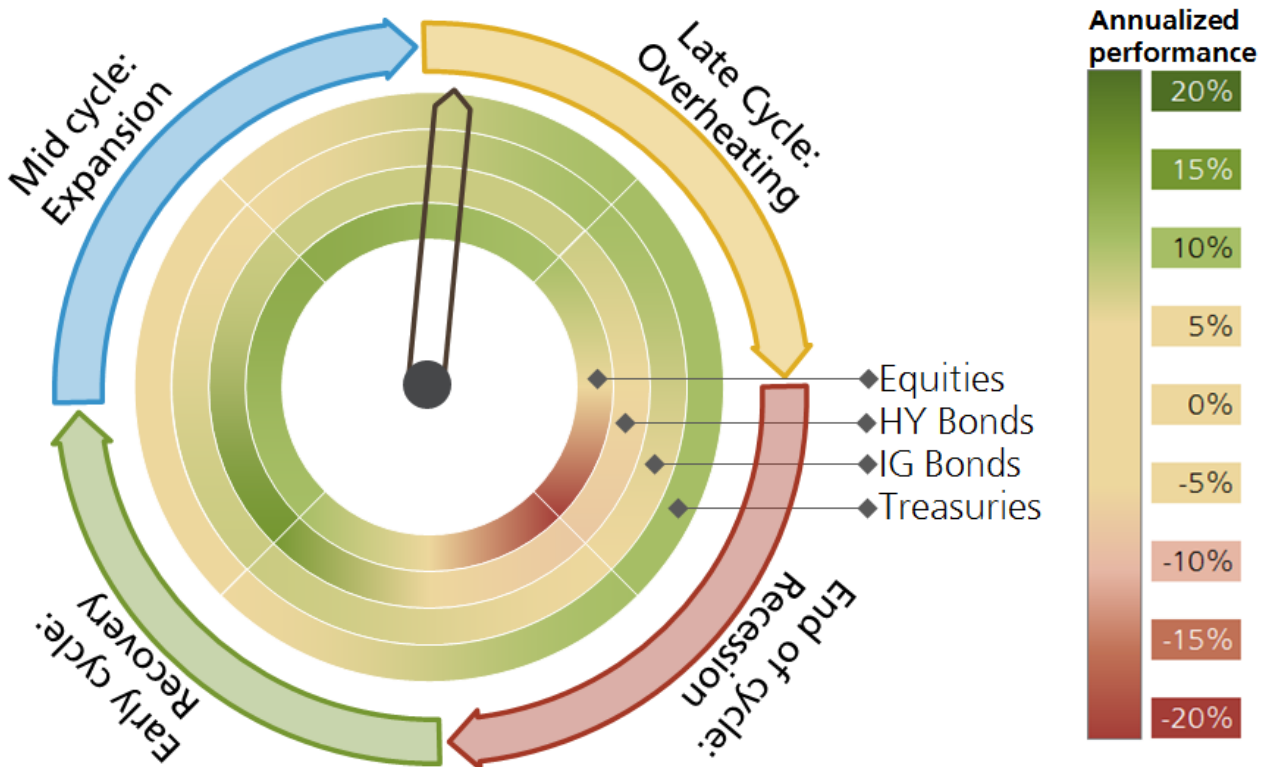
Source: UBS, as of November 2018

Fig. 3: Central banks are reducing their balance sheets in aggregate
in USD billion



Note: Includes securities purchases of the ECB, Federal Reserve, Bank of England and Bank of Japan (financed by central bank money creation). 3-month moving average until end of 2019. Source: Haver Analytics, UBS, as of 7 November 2018

Fig. 4: The cycle compass



Source: Bloomberg, Congressional Budget Office, OECD, UBS, as of December 2018. Note: Approximate total returns on asset classes by business cycle stage, annualized, based on historical observations over the past 30 years and CIO expert assessment.

What could lead us to the end of the cycle?

With volatility picking up late in 2018, and with signs emerging that the economy is entering late cycle, more investors are asking how much longer the current expansion can continue and how the next downturn might look. We think the late cycle phase can continue for at least another year, and concur with the Fed that the economic data today suggest that the risk of a recession within the next 12 months is low.

But we are monitoring three primary risks that could tip us from late cycle into a recession, each with different potential implications for asset markets.

Risk 1: Fed tightening

Historically, recessions and cyclical bear markets were often preceded by tighter financial conditions in the US and a peak in the US federal funds rate. We expect the Federal Reserve to increase rates very gradually, but rising wage pressures due to a tight labor market could force it to accelerate the pace of monetary tightening. This would create challenges for the US economy and for emerging countries that finance their activities with USD-denominated debt (e.g., Turkey, South Africa).

Risk 2: Escalation of global trade tensions

With little doubt, global trade tensions will remain a key topic for investors in 2019. While the China-US trade dispute has calmed down a bit since the G20 summit in Buenos Aires, it is far from being resolved. For example, the US has postponed its plan to increase the tariff rate on USD 200bn worth of Chinese imports to 25%

from 10%, but by no means is the plan off the table. Moreover, the looming US tariffs on automobile imports are weighing on car producers around the world, especially those in Europe.

In sum, while not our base case, a sharp escalation of the global trade dispute could trigger the end of the cycle, particularly in combination with peaking US policy interest rates.

Risk 3: China hard-landing

A sharp slowdown in Chinese growth could spell trouble for Asia and export-oriented economies in general. Overall, we expect China's real GDP growth to slow in a healthy fashion, to 6.1% in 2019 from 6.5% in 2018. But a weaker economy, a buildup in debt, and a depreciating currency raise the risk of rapid capital outflows and a sharper deceleration in economic growth.

Despite the soft patch in local economic data and the potential for escalation in the China-US trade dispute, we see encouraging signs that Beijing is being proactive in counteracting a sharp slowdown. We believe the government will take more steps to support the real economy, capital reform, and foreign investment. We also think China-traded stocks (i.e., onshore Chinese equities) have more than priced in the potential economic weakness related to the trade conflict, but we are monitoring the situation closely.

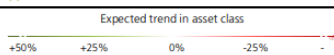
Upside scenario: Return to mid-cycle

As we mention in "The business cycle: An investment framework," in the real world the economy does not always follow a sequential path along its business cycle stages. For example, if central bank policy remained accommodative and allowed economic growth to regain solid footing, and if growth expectations turned more optimistic from here, then the business cycle could return to a mid-cycle phase. This would be good news for financial markets, especially for risky assets such as equities and credit which have recently suffered from falling valuations. An improvement in the global growth cycle could allow valuations to expand, and risky assets could enjoy strong capital gains next year.

Table 1: CIO key upside and downside risk scenarios

Selected Scenarios	Scenario Description	Expected market performance for select asset classes
Base case	Positive outlook with increased volatility Global economic performance remains solid, but ongoing trade tensions and uncertainty about Eurozone growth keep the volatility high.	<ul style="list-style-type: none"> US equities +0-5% due to solid economic activity supported by government spending, business confidence and capital access Eurozone equities +0-5% amid political uncertainty surrounding Italy, Brexit and the ongoing trade conflict EURUSD between 1.15 and 1.20 as monetary policy is being normalized
Key upside scenarios	<p>Trade: A comprehensive deal with rollback of existing tariffs With China ready to make clear concessions to the US, both countries strike a new deal that reduces existing trade barriers</p> <p>China: Stable GDP growth Chinese GDP growth remains in a 6.6-6.8% range as the current account balance goes back above USD 100bn.</p>	<ul style="list-style-type: none"> US equities +10-15% as increased confidence in the cycle allows P/E's to expand to 17-18x and 2019 EPS estimates hold in the mid USD 170s Chinese equities +10-15% due to a strong recovery on risk sentiment and better than expected fundamentals USD - EURUSD 1.20-1.25 Chinese equities +15-20% due to a recovery on valuation as growth beats consensus expectations EMBIGD +6-7% as spreads tighten to around 310bps due to improving EM growth prospects CNY - USDCNY to 6.50 as strong Chinese growth supports the domestic equity market, preventing outflows and supporting inflows of capital
Key downside scenarios	<p>Trade: Further US sanctions Further sanctions are implemented, notably an increase of tariffs on USD 200bn of Chinese goods from 10% to 25%, tariffs on remaining Chinese imports, and tariffs on car imports.</p> <p>Fed ends the business cycle sooner As US inflation rises rapidly, the Fed is forced to hike rates at each meeting. This leads to a flat or inverted US Treasury yield curve towards mid-2019, followed by an equity bear market. A US recession starts early 2020.</p>	<ul style="list-style-type: none"> US equities -5-10% composed of a 3-5% hit to our EPS estimates coupled with P/E's contracting 0-5% Chinese equities -20-25% as sentiment tanks further with worse than expected economic consequences USD - EURUSD to around 1.10 as US tariffs are supporting the USD US equities -10-15% as valuations fall 5-10% as fears about the end of the cycle rise and earnings do not grow in 2019 US high yield -6-9% US high yields spreads widen towards recession levels, while mid- to longer-term US Treasury yields fall USD - EURUSD falls to or below 1.10 as the USD strengthens due to contractionary monetary policy

Expected total returns over a 6-month horizon
 Note: Upside and downside scenarios are possible events outside of CIO's base case expectations.
 For further information please contact CIO strategist Dirk Effenberger, dirk.effenberger@ubs.com



Source: UBS, as of December 2018

How to invest today

At the time of writing, CIO holds tactical overweights in global and emerging market equities as well as dollar-denominated emerging market sovereign debt. We believe these "risk on" positions should perform well at this stage of the business cycle while also being supported by other factors. We expect economic growth to slow but remain close to trend in 2019, providing support for corporate earnings. Furthermore, the recent market sell-off has left risk assets trading at attractive valuations. Global stocks, for example, are now trading on a trailing price-to-earnings ratio of 15.5 times compared to a long-term average of 18.3 times, while emerging market stocks are trading at a larger-than-normal 25% discount to their developed-market peers.

We have recently seen volatility rise as investors begin to focus on potential economic imbalances and fear a recession ahead. This is why we also recommend that investors include countercyclical positions in their portfolios that can help contain portfolio volatility and reduce the burden of timing the cycle should things take a turn for the worse.

Longer-term, CIO continues to stress the importance of a well-diversified strategic portfolio. Holding a combination of equities, fixed income, and alternatives can help investors achieve consistent returns at a preferred level of volatility beyond a single business cycle.

For more information regarding our current tactical investment recommendations, please see the latest UBS House View.

Appendix

Generic investment research – Risk information: UBS Chief Investment Office's investment views are prepared and published by Global Wealth Management, a Business Division of UBS Switzerland AG (regulated by FINMA in Switzerland), its subsidiaries or affiliates ("UBS").

The investment views have been prepared in accordance with legal requirements designed to promote the **independence of investment research**.

This material is for your **information only** and is not intended as an offer, or a solicitation of an offer, to buy or sell any investment or other specific product. Certain services and products are subject to legal restrictions and cannot be offered worldwide on an unrestricted basis and/or may not be eligible for sale to all investors. All information and opinions expressed in this material were obtained from sources believed to be reliable and in good faith, but no representation or warranty, express or implied, is made as to its accuracy or completeness (other than disclosures relating to UBS). All information and opinions as well as any forecasts, estimates and prices indicated are current as of the date of this report, and are subject to change without notice. The market prices provided in performance charts and tables are closing prices on the respective principal stock exchange. The analysis contained herein is based on numerous assumptions. Different assumptions could result in materially different results. Opinions expressed herein may differ or be contrary to those expressed by other business areas or divisions of UBS as a result of using different assumptions and/or criteria. In no circumstances may this document or any of the information (including any forecast, value, index or other calculated amount ("Values")) be used for any of the following purposes (i) valuation or accounting purposes; (ii) to determine the amounts due or payable, the price or the value of any financial instrument or financial contract; or (iii) to measure the performance of any financial instrument including, without limitation, for the purpose of tracking the return or performance of any Value or of defining the asset allocation of portfolio or of computing performance fees. By receiving this document and the information you will be deemed to represent and warrant to UBS that you will not use this document or otherwise rely on any of the Information for any of the above purposes. UBS and any of its directors or employees may be entitled at any time to hold long or short positions in investment instruments referred to herein, carry out transactions involving relevant investment instruments in the capacity of principal or agent, or provide any other services or have officers, who serve as directors, either to/ for the issuer, the investment instrument itself or to/for any company commercially or financially affiliated to such issuers. At any time, investment decisions (including whether to buy, sell or hold securities) made by UBS and its employees may differ from or be contrary to the opinions expressed in UBS research publications. Some investments may not be readily realizable since the market in the securities is illiquid and therefore valuing the investment and identifying the risk to which you are exposed may be difficult to quantify. UBS relies on information barriers to control the flow of information contained in one or more areas within UBS, into other areas, units, divisions or affiliates of UBS. Futures and Options trading is not suitable for every investor as there is a substantial risk of loss, and losses in excess of an initial investment may occur. Past performance of an investment is no guarantee for its future performance. Additional information will be made available upon request. Some investments may be subject to sudden and large falls in value and on realization you may receive back less than you invested or may be required to pay more. Changes in foreign exchange rates may have an adverse effect on the price, value or income of an investment. The analyst(s) responsible for the preparation of this report may interact with trading desk personnel, sales personnel and other constituencies for the purpose of gathering, synthesizing and interpreting market information. Tax treatment depends on the individual circumstances and may be subject to change in the future. UBS does not provide legal or tax advice and makes no representations as to the tax treatment of assets or the investment returns thereon both in general or with reference to specific client's circumstances and needs. We are of necessity unable to take into account the particular investment objectives, financial situation and needs of our individual clients and we would recommend that you take financial and/or tax advice as to the implications (including tax) of investing in any of the products mentioned herein. This material may not be reproduced or copies circulated without prior authority of UBS. Unless otherwise agreed in writing UBS expressly prohibits the distribution and transfer of this material to third parties for any reason. UBS accepts no liability whatsoever for any claims or lawsuits from any third parties arising from the use or distribution of this material. This report is for distribution only under such circumstances as may be permitted by applicable law. Forecasts and estimates are current only as of the date of this publication and may change without notice. For information on the ways in which UBS CIO WM manages conflicts and maintains independence of its investment views and publication offering, and research and rating methodologies, please visit www.ubs.com/research. Additional information on the relevant authors of this publication and other CIO publication(s) referenced in this report; and copies of any past reports on this topic; are available upon request from your client advisor.

External Asset Managers / External Financial Consultants: In case this research or publication is provided to an External Asset Manager or an External Financial Consultant, UBS expressly prohibits that it is redistributed by the External Asset Manager or the External Financial Consultant and is made available to their clients and/or third parties. **Austria:** This publication is not intended to constitute a public offer under Austrian law, but might be made available for information purposes to clients of UBS Europe SE, Niederlassung Österreich, with place of business at Wächtergasse 1, A-1010 Wien. UBS Europe SE, Niederlassung Österreich is a branch of UBS Europe SE, a credit institution constituted under German Law in the form of a Societas Europaea, duly authorized by the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin), and is subject to the joint supervision of BaFin, the central bank of Germany (Deutsche Bundesbank), as well as of the Austrian supervisory authority (Finanzmarktaufsicht, FMA), to which this publication has not been submitted for approval. **Bahrain:** UBS is a Swiss bank not licensed, supervised or regulated in Bahrain by the Central Bank of Bahrain and does not undertake banking or investment business activities in Bahrain. Therefore, Clients have no protection under local banking and investment services laws and regulations. **Brazil:** Prepared by UBS Brasil Administradora de Valores Mobiliários Ltda, entity regulated by Comissão de Valores Mobiliários ("CVM"). **Canada:** In Canada, this publication is distributed to clients of UBS Wealth Management Canada by UBS Investment Management Canada Inc.. **China:** This report is prepared by UBS AG or its offshore subsidiary or affiliate (collectively as "UBS Offshore"), an entity incorporated outside of China and not licensed, supervised or regulated in China to carry out banking or securities business or to provide securities investment advice in China. This report shall not be regarded as specific securities related analysis provided by UBS Offshore. The recipient shall not contact the analysts or UBS Offshore for investment advice and should not use this document or otherwise rely on any information contained in this report in making investment decisions and UBS assumes no responsibility in this regard. **Czech Republic:** UBS is not a licensed bank in the Czech Republic and thus is not allowed to provide regulated banking or investment services in the Czech Republic. This material is distributed for marketing purposes. **Denmark:** This publication is not intended to constitute a public offer under Danish law, but might be distributed by UBS Europe SE, Denmark Branch, filial af UBS Europe SE, with place of business at Sankt Annæ Plads 13, 1250 Copenhagen, Denmark, registered with the Danish Commerce and Companies Agency, under the No. 38 17 24 33. UBS Europe SE, Denmark Branch, filial af UBS Europe SE is a branch of UBS Europe SE, a credit institution constituted under German Law in the form of a Societas Europaea, duly authorized by the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin). UBS Europe SE, Denmark Branch, filial af UBS Europe SE is subject to the joint supervision of the BaFin, the central bank of Germany (Deutsche Bundesbank) and the Danish Financial Supervisory Authority (DFSA) (Finanstilsynet), to which this document has not been submitted for approval. **France:** This publication is distributed by UBS (France) S.A., French "société anonyme" with share capital of € 132.975.556, 69, boulevard Haussmann F-75008 Paris, R.C.S. Paris B 421 255 670, to its clients and prospects. UBS (France) S.A. is a provider of investment services duly authorized according to the terms of the "Code Monétaire et Financier", regulated by French banking and financial authorities as the "Autorité de Contrôle Prudentiel et de Résolution". **Germany:** The issuer under German Law is UBS Europe SE, Bockenheimer Landstrasse 2-4, 60306 Frankfurt am Main. UBS Europe SE is authorized and regulated by the "Bundesanstalt für Finanzdienstleistungsaufsicht". **Hong Kong:** This publication is distributed to clients of UBS AG Hong Kong Branch by UBS AG Hong Kong Branch, a licensed bank under the Hong Kong Banking Ordinance and a registered institution under the Securities and Futures Ordinance. **Israel:** UBS Switzerland AG is registered as a Foreign Dealer in cooperation with UBS Wealth Management Israel Ltd, a wholly owned UBS subsidiary. UBS Wealth Management Israel Ltd is a licensed Portfolio Manager which engages also in Investment Marketing and is regulated by the Israel Securities Authority. This publication shall not replace any investment advice and/or investment marketing provided by a relevant licensee which is adjusted to your personal needs. **Italy:** This publication is distributed to the clients of UBS Europe SE, Succursale Italia, Via del Vecchio Politecnico, 3 - 20121 Milano, the branch of a German bank duly authorized by the "Bundesanstalt für Finanzdienstleistungsaufsicht" to the provision of financial services and supervised by "Consob". **Jersey:** UBS AG, Jersey Branch, is regulated and authorized by the Jersey Financial Services Commission for the conduct of banking, funds and investment business. Where services are provided from outside Jersey, they will not be covered by the Jersey regulatory regime. UBS AG, Jersey Branch is a branch of UBS AG a public company limited by shares, incorporated in Switzerland whose registered offices are at Aeschenvorstadt 1, CH-4051 Basel and Bahnhofstrasse 45, CH 8001 Zurich. UBS AG, Jersey Branch's principal place business is 1, IFC Jersey, St Helier, Jersey, JE2 3BX. **Luxembourg:** This publication is not intended to constitute a public offer under Luxembourg law, but might be made available for information purposes to clients of UBS Europe SE, Luxembourg Branch, with place of business at 33A, Avenue J. F. Kennedy, L-1855 Luxembourg. UBS Europe SE, Luxembourg Branch is a branch of UBS Europe SE, a credit institution constituted under German Law in the form of a Societas Europaea, duly authorized by the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin), and is subject to the joint supervision of BaFin, the central bank of Germany (Deutsche Bundesbank), as well as of the Luxembourg supervisory authority, the Commission de Surveillance du Secteur Financier (the "CSSF"), to which this publication has not been submitted for approval. **Mexico:** This document has been distributed by UBS Asesoros México, S.A. de C.V., a company which is not part of UBS Grupo Financiero, S.A. de C.V. or of any other Mexican financial group and whose obligations are not guaranteed by any third party. UBS Asesoros México, S.A. de C.V. does not guarantee any yield whatsoever. **Saudi Arabia:** This publication has been approved by UBS Saudi Arabia (a subsidiary of UBS AG), a Saudi Arabian closed joint stock company incorporated in the Kingdom of Saudi Arabia under commercial register number 1010257812 having its registered office at Tatweer Towers, P.O. Box 75724, Riyadh 11588, Kingdom of Saudi Arabia. UBS Saudi Arabia is authorized and regulated by the Capital Market Authority of Saudi Arabia. **Singapore:** Please contact UBS AG Singapore branch, an exempt financial adviser under the Singapore Financial Advisers Act (Cap. 110) and a wholesale bank licensed under the Singapore Banking Act (Cap. 19) regulated by the Monetary Authority of Singapore, in respect of any matters arising from, or in connection with, the analysis or report. **Spain:** This publication is distributed to its clients by UBS Europe SE, Sucursal en España, with registered office at Calle María de Molina 4, C.P. 28006, Madrid, entity supervised by Banco de España and the Bundesanstalt für Finanzdienstleistungsaufsicht. UBS Europe SE, Sucursal en España is a branch of UBS Europe SE, a credit institution constituted in the form of a Societas Europaea authorized and regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht. **Sweden:** This publication is not intended to constitute a public offer under Swedish law, but might be distributed by UBS Europe SE, Sweden Bankfilial with place of business at Regeringsgatan 38, 11153 Stockholm, Sweden, registered with the Swedish Companies Registration Office under the Reg. No 516406-1011. UBS Europe SE, Sweden Bankfilial is a branch of UBS Europe SE, a credit institution constituted under German Law in the form of a Societas Europaea, duly authorized by the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin). UBS Europe SE, Sweden Bankfilial is subject to the joint supervision of the BaFin, the central bank of Germany (Deutsche Bundesbank) and the Swedish financial supervisory authority (Finansinspektionen), to which this document has not been submitted for approval. **Taiwan:** This material is provided by UBS AG, Taipei Branch in accordance with laws of Taiwan, in agreement with or at the request of clients/prospects. **Thailand:** This material was provided to you as a result of a request received by UBS from you and/or persons entitled to make the request on your behalf. Should you have received the material erroneously, UBS asks that you kindly delete the e-mail and inform UBS immediately. The material may not have been reviewed, approved, disapproved or endorsed by any financial or regulatory authority in your jurisdiction. The relevant investments will be subject to restrictions and obligations on transfer as set forth in the material, and by receiving the material you undertake to comply fully with such restrictions and obligations. You should carefully study and ensure that you understand and exercise due care and discretion

Appendix

in considering your investment objective, risk appetite and personal circumstances against the risk of the investment. You are advised to seek independent professional advice in case of doubt. **UK:** Approved by UBS AG, authorised and regulated by the Financial Market Supervisory Authority in Switzerland. In the United Kingdom, UBS AG is authorised by the Prudential Regulation Authority and subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Details about the extent of our regulation by the Prudential Regulation Authority are available from us on request. A member of the London Stock Exchange. This publication is distributed to private clients of UBS London in the UK. Where products or services are provided from outside the UK, they will not be covered by the UK regulatory regime or the Financial Services Compensation Scheme. **USA:** This document is not intended for distribution into the US, to US persons, or by US-based UBS personnel. UBS Securities LLC is a subsidiary of UBS AG and an affiliate of UBS Financial Services Inc., UBS Financial Services Inc. is a subsidiary of UBS AG.

Version 10/2018. CIO82652744

© UBS 2018. The key symbol and UBS are among the registered and unregistered trademarks of UBS. All rights reserved.