Macro

"Low and slow" does not equal "Never, ever"

Why low unemployment still matters for wages and prices

Just how worried should markets be about an inflationary surprise this year? In our view: a little, but probably not too much. Our base case remains that underlying inflation (after stripping out the volatile food and energy prices) edges up slightly in both the Eurozone and the United States. This rests in part on the notion of inflation inertia, the idea that persistently low inflation in the recent past helps anchor inflation expectations, tempering worker's wage demands and firms' pricing aspirations, and thus makes it less likely that inflation will suddenly surge. In other words, adjustment to better economic surroundings and thus higher inflation is apt to be modest and gradual. A key risk to this is if there is some kink in the relationship between economic conditions and inflation lurking in the shadows, so that we could see a sudden upward surge in inflation if and when unemployment falls too much, forcing central banks to tighten policy very quickly.

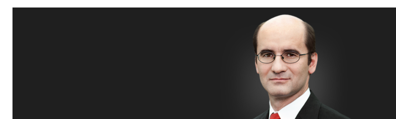
If this sounds familiar, it is because we have written about the Phillips curve before. As you may remember from introductory macroeconomics classes, this measures the supposed trade-off between cyclical unemployment and inflation. This note brings together our thinking from various publications. (Links to: Macro Quarterly Dec; CotW 20171110; Josh Feinman Closer look: "The Phillips curve: Reports of its death are greatly exaggerated.") It ends with the factors we are watching out for.

Nowadays, the Philips curve typically comes up when fiscal and monetary policy are discussed. In the short-run, the textbook argument suggests that, it is possible to push unemployment below the level consistent with normal labor-market turnover, but only at the cost of permanently higher inflation and inflation expectations. That is why generations of central bankers have avidly been watching unemployment rates, so as to intervene before an economy starts to overheat.

In recent decades, however, the relationship between core inflation and cyclical unemployment has gotten flatter and flatter, not just in the United States but in many developed economies. The same is true if you simply look at the U.S. unemployment rate and the year-on-year change in average hourly earnings, as an updated chart we are rather fond of shows. Lately, there has been barely any relationship at all. That is odd. Of the supposed linkages underlying the modern Phillips curve, the most obvious one should be between unemployment and hourly wages.

This is the relationship Alban W. Phillips initially studied. A major problem Phillips faced sounds pretty familiar: in today's terms, we would phrase it as discovering the links between national wages and national unemployment rates in a globalized world. The full title

Johannes Müller
Head of Macro Research



In a nutshell

- In recent decades, the relationship between wages and cyclical unemployment has gotten flatter and flatter.
- Conceptually, in our view, the Phillips curve can only be interpreted as dormant but not dead entirely.
- For now, inflationary risks appear low. Eventually, however, the market may be setting itself up for an unpleasant surprise.

All opinions and claims are based upon data on 2/2/18 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Deutsche Asset Management Investment GmbH

CRC 054737 (02/2018)

of the 1958 paper was "The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957." The UK, with its vast empire and close trading links to its former colonies, was already a very open economy. Phillips found, for example, that by increasing the cost of living in the UK due to higher import prices, the American Civil War caused a wage-price spiral that lasted for three years in the 1860s.

And if globalization is not quite as new as some imagine, neither are demographic and technological change. After all, the 90 plus years of data Phillips was studying included the spread of electrification and other major technological innovations. For now, most recent innovations still pale in comparison, at least in terms of their measurable, positive impact in national income statistics. In any case, the Phillips curve has been flattening during both periods of relatively rapid U.S. productivity growth of the late 1990s, and the more recent sluggish growth rates. Of course, digitalization, smart phones and artificial intelligence might eventually raise sluggish productivity growth rates. (Equity investors with teenage kids might be wise to look around their kitchen table, before getting their hopes up too much.) That might then depress inflation - but whether it actually will depends on a whole range of factors. This starts with which goods and services might feel the strongest productivity-enhancing impact, relative to others. And it ends with how much of the putative gains will be passed on to customers and employees, thanks to firms competing for workers and customers.

None of this, moreover, would necessarily change much in the Phillips curve relationship. To Phillips, its existence was a matter of simple logic. "When demand for labour is high and there are very few unemployed, we should expect employers to bid up wages quite rapidly.", he wrote, referring to periods of strong growth, before continuing, "On the other hand, it appears that workers are reluctant to offer their services at less than the prevailing rates when demand for labour is low and unemployment is high, so that wage rates fall only very slowly. The relation between unemployment and the rate of change of wage rates is therefore likely to be highly non-linear. "[1] Conceptually, in our view, the Phillips curve can only be interpreted as dormant but not dead entirely. If unemployment, properly measured, fell to zero, any firm wishing to hire would obviously need to pay more than the going rate – and potentially much more, if other firms are also hiring or workers already employed dislike changing jobs.

This relationship was borne out by the curve he found, especially for the early period between 1861 and 1913. It looked pretty flat for unemployment rates between about 4% and 10%, with only a very slightly negative slope. Below 4%, however, it rapidly rose. This earlier golden age of globalization has some contemporary parallels. For one thing, trade unions were only just emerging as wage setters, through collective bargaining. Given recent declines in manufacturing employment and trade-union density, it is a useful reminder to consider that trade unions are not a necessary precondition for scarce workers to drive up wages.

All opinions and claims are based upon data on 2/2/18 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Deutsche Asset Management Investment GmbH

CRC 054737 (02/2018)

[1] A. Philips (1958) The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom 1861-1957. Economica, 25, p. 285

Indeed, some of the recent flattening of the Phillips curve has been more apparent than real. This is partly due to higher-wage baby boomers retiring. If you look only at hourly earnings of U.S. workers aged 25-54, the Phillips curve appears very much alive. Youngsters entering the workforce on average earn far less than the older generation they are replacing. Using measures such as the Employment Cost Index (ECI) can help overcome such composition effects and also suggests some flattening. Partly, this may be because life has been pretty hard for those coming of age since the Great Recession in general and for college graduates in particular.[2] Some took gap years. Others have entered working life via a string of minimally paid internships or entry-level jobs, but outsourcing and, increasingly, artificial intelligence mean that there are simply fewer and fewer routine tasks for them to do. And quite a few appear to have ended up in jobs for which college graduates would once have been considered overqualified. Once labor markets get too tight, however, you might expect the Phillips curve to reassert itself with vengeance.

Are we at this point yet? Probably not, though if you are looking for signs at the lower-skilled end of the labor market, there are certainly some. For example, anecdotal evidence suggests that fast food chains find it increasingly hard to find burger flippers.[3] Given that these jobs are largely local in nature, you might also expect to see wage increases first where local labor markets are tight. Indeed, this is exactly what our colleagues from Deutsche Bank research report in some of their recent research.[4]

This highlights a more general message: not to read too much into recent experience. For example, the case remains strong that since the 1970s, inflation expectations have become much better anchored. Certainly, more credible central banks have contributed to the Phillips curve flatting. Whether this remains as valid in 2018 as it was in 1998, remains to be seen, however. Notice that the above description of labor-market slack among younger workers is consistent with a period of inflation inertia, but the endgame would be a sudden uptick in wages.

Nor is it clear that central-bank credibility would be as helpful as it once was in getting inflation back under control. Weaker unions and more decentralized wage setting might mean that for any desired reduction in inflation, more unemployment might one day be required. The decline in collective bargaining is just one of the factors that might complicate the story in interesting ways. Clearly, there have been major structural changes in the economy, from globalization and the rising share of service-sector employment to higher demand for and supply of skills - issues we plan to explore further in future publications.

However, none of these changes suggest that the Phillips curve should have necessarily – and permanently – become flatter, let alone obsolete. The market may be setting itself up for an unpleasant surprise. The familiar story about demographics,

All opinions and claims are based upon data on 2/2/18 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Deutsche Asset Management Investment GmbH

CRC 054737 (02/2018)

[2] See, for example, A. Sum, I. Khatiwada, M. Trubskyy, and M. Ross with W. McHugh and S. Palma (2014) The Plummeting Labor Market Fortunes of Teens and Young Adults, The Brookings Institution; and P. Beaudry, D. Green, and B. Sand. (2014). "The Declining Fortunes of the Young Since 2000." American Economic Review 104(5, May): 381–86.

[3] https://www.bloomberg.com/news/articles/2017-01-11/headhunters-throwing-cash-at-people-who-know-how-to-flip-burgers

[4] Deutsche Bank Research, A tipping point for wage growth? Evidence of non-linearities in state data; 20 December 2017

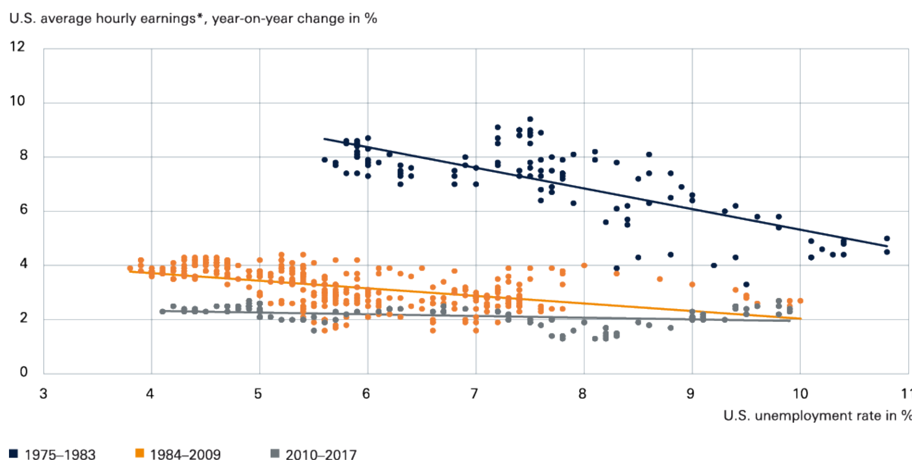
technological change and globalization is incomplete and inconsistent with much of the data. For example, there is absolutely no evidence that the latest round of globalization has squeezed corporate profit margins. Instead margins in most places have been higher than history would suggest.

So, to conclude the question is really threefold. First, how likely is it that unemployment has already fallen "too much" in either the Eurozone or the United States? Second, is the general relationship that we postulated still valid? That is could there be a sudden upward reversal in inflation or will structural factors depress it more or less permanently? And third, what level of unemployment would be "too low"?

Our answers can be brief. In the Eurozone as a whole, there still appears plenty of room for unemployment to fall, though labor-market rigidities should limit this. U.S. labor markets, by contrast, already appear quite tight. At 4.1%, the U.S. unemployment rate is at levels last seen in 2000. And if you want to find a period where it stayed that low for any prolonged period, you have to go back to the late 1960s. Based on this, our view is that there could be an inflation surprise – just probably not by the end of 2018. As we concluded before, "low and slow" does not equal "never, ever".

A flattening Phillips curve?

The Phillips curve measures the supposed trade-off between cyclical unemployment and inflation. In recent years, it appears to have gotten flatter.



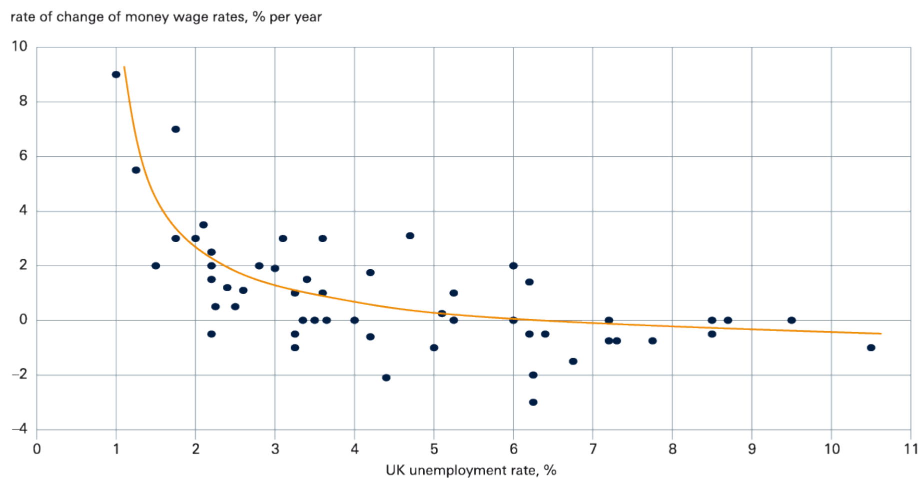
Sources: Bloomberg Finance L.P., Deutsche Asset Management Investment GmbH as of 11/9/17
* Private sector

The original Phillips curve

The initial Phillips curve representing the relationship in an earlier age of globalization (1861 - 1913).

All opinions and claims are based upon data on 2/2/18 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Deutsche Asset Management Investment GmbH

CRC 054737 (02/2018)



Source: Reproduced from: Phillips, A. (1958) The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom 1861-1957. Economica, 25, p. 285

All opinions and claims are based upon data on 2/2/18 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Deutsche Asset Management Investment GmbH

CRC 054737 (02/2018)

Glossary

Core inflation

Core inflation excludes items which can be susceptible to volatile price movements, e.g. food and energy.

Eurozone

The **Eurozone** is formed of 19 European Union member states that have adopted the euro as their common currency and sole legal tender.

Fiscal policy

Fiscal policy describes government spending policies that influence macroeconomic conditions. Through fiscal policy, the government attempts to improve unemployment rates, control inflation, stabilize business cycles and influence interest rates in an effort to control the economy.

Inflation

Inflation is the rate at which the general level of prices for goods and services is rising and, subsequently, purchasing power is falling.

Monetary policy

Monetary policy focuses on controlling the supply of money with the ulterior motive of price stability, reducing unemployment, boosting growth, etc. (depending on the central bank's mandate).

Phillips curve

In economics, the Phillips curve is a historical inverse relationship between rates of unemployment and corresponding rates of inflation.

Volatility

Volatility is the degree of variation of a trading-price series over time. It can be used as a measure of an asset's risk.

All opinions and claims are based upon data on 2/2/18 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Deutsche Asset Management Investment GmbH

CRC 054737 (02/2018)

Risk warning

Investments are subject to investment risk, including market fluctuations, regulatory change, possible delays in repayment and loss of income and principal invested. The value of investments can fall as well as rise and you might not get back the amount originally invested at any point in time.

Investments in Foreign Countries – Such investments may be in countries that prove to be politically or economically unstable. Furthermore, in the case of investments in foreign securities or other assets, any fluctuations in currency exchange rates will affect the value of the investments and any restrictions imposed to prevent capital flight may make it difficult or impossible to exchange or repatriate foreign currency. Foreign Exchange/ Currency – Such transactions involve multiple risks, including currency risk and settlement risk. Economic or financial instability, lack of timely or reliable financial information or unfavorable political or legal developments may substantially and permanently alter the conditions, terms, marketability or price of a foreign currency. Profits and losses in transactions in foreign exchange will also be affected by fluctuations in currency where there is a need to convert the product's denomination(s) to another currency. Time zone differences may cause several hours to elapse between a payment being made in one currency and an offsetting payment in another currency. Relevant movements in currencies during the settlement period may seriously erode potential profits or significantly increase any losses.

High Yield Fixed Income Securities – Investing in high yield bonds, which tend to be more volatile than investment grade fixed income securities, is speculative. These bonds are affected by interest rate changes and the creditworthiness of the issuers, and investing in high yield bonds poses additional credit risk, as well as greater risk of default.

Hedge Funds – An investment in hedge funds is speculative and involves a high degree of risk, and is suitable only for "Qualified Purchasers" as defined by the US Investment Company Act of 1940 and "Accredited Investors" as defined in Regulation D of the 1933 Securities Act. No assurance can be given that a hedge fund's investment objective will be achieved, or that investors will receive a return of all or part of their investment. Commodities – The risk of loss in trading commodities can be substantial. The price of commodities (e.g., raw industrial materials such as gold, copper and aluminium) may be subject to substantial fluctuations over short periods of time and may be affected by unpredicted international monetary and political policies. Additionally, valuations of commodities may be susceptible to such adverse global economic, political or regulatory developments. Prospective investors must independently assess the appropriateness of an investment in commodities in light of their own financial condition and objectives. Not all affiliates or subsidiaries of Deutsche Bank Group offer commodities or commodities-related products and services.

All opinions and claims are based upon data on 2/2/18 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Deutsche Asset Management Investment GmbH

CRC 054737 (02/2018)

Investment in private equity funds is speculative and involves significant risks including illiquidity, heightened potential for loss and lack of transparency. The environment for private equity investments is increasingly volatile and competitive, and an investor should only invest in the fund if the investor can withstand a total loss. In light of the fact that there are restrictions on withdrawals, transfers and redemptions, and the Funds are not registered under the securities laws of any jurisdictions, an investment in the funds will be illiquid. Investors should be prepared to bear the financial risks of their investments for an indefinite period of time.

Investment in real estate may be or become nonperforming after acquisition for a wide variety of reasons. Nonperforming real estate investment may require substantial workout negotiations and/ or restructuring. Environmental liabilities may pose a risk such that the owner or operator of real property may become liable for the costs of removal or remediation of certain hazardous substances released on, about, under, or in its property. Additionally, to the extent real estate investments are made in foreign countries, such countries may prove to be politically or economically unstable. Finally, exposure to fluctuations in currency exchange rates may affect the value of a real estate investment.

Structured solutions are not suitable for all investors due to potential illiquidity, optionality, time to redemption, and the payoff profile of the strategy. We or our affiliates or persons associated with us or such affiliates may: maintain a long or short position in securities referred to herein, or in related futures or options, purchase or sell, make a market in, or engage in any other transaction involving such securities, and earn brokerage or other compensation. Calculations of returns on the instruments may be linked to a referenced index or interest rate. In such cases, the investments may not be suitable for persons unfamiliar with such index or interest rates, or unwilling or unable to bear the risks associated with the transaction. Products denominated in a currency, other than the investor’s home currency, will be subject to changes in exchange rates, which may have an adverse effect on the value, price or income return of the products. These products may not be readily realizable investments and are not traded on any regulated market.

Hong Kong

The contents of this document have not been reviewed by any regulatory authority in Hong Kong. You are advised to exercise caution in relation to the investments contained herein. If you are in any doubt about any of the contents of this document, you should obtain independent professional advice. This document has not been approved by the Securities and Futures Commission in Hong Kong nor has a copy of this document been registered by the Registrar of Companies in Hong Kong and, accordingly, (a) the investments (except for investments which are a “structured product” as defined in the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong) (the “SFO”)) may not be offered or sold in Hong Kong by means of this document or any other document other than to “professional investors” within the meaning of the SFO and any rules made thereunder, or in other circumstances which do not result in the document being

All opinions and claims are based upon data on 2/2/18 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Deutsche Asset Management Investment GmbH

CRC 054737 (02/2018)

a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32 of the Laws of Hong Kong) ("CO") or which do not constitute an offer to the public within the meaning of the CO and (b) no person shall issue or possess for the purposes of issue, whether in Hong Kong or elsewhere, any advertisement, invitation or document relating to the investments which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to the investments which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" within the meaning of the SFO and any rules made thereunder.

Singapore

Singapore Interests in the funds mentioned herein are not allowed to be made to the public or any members of the public in Singapore other than (i) to an institutional investor under Section 274 or 304 of the Securities and Futures Act (Cap 289) ("SFA"), as the case may be, (ii) to a relevant person (which includes an Accredited Investor) pursuant to Section 275 or 305 and in accordance with other conditions specified in Section 275 or 305 respectively of the SFA, as the case may be, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Important Information

Deutsche Asset Management is the brand name of the Asset Management division of the Deutsche Bank Group. The respective legal entities offering products or services under the Deutsche Asset Management brand are specified in the respective contracts, sales materials and other product information documents. Deutsche Asset Management, through Deutsche Bank AG, its affiliated companies and its officers and employees (collectively "Deutsche Bank") are communicating this document in good faith and on the following basis.

This document has been prepared without consideration of the investment needs, objectives or financial circumstances of any investor. Before making an investment decision, investors need to consider, with or without the assistance of an investment adviser, whether the investments and strategies described or provided by Deutsche Bank, are appropriate, in light of their particular investment needs, objectives and financial circumstances. Furthermore, this document is for information/ discussion purposes only and does not constitute an offer, recommendation or solicitation to conclude a transaction and should not be treated as giving investment advice. Deutsche Bank does not give tax or legal advice. Investors should seek advice from their own tax experts and lawyers, in considering investments and strategies suggested by Deutsche Bank. Investments with Deutsche Bank are not guaranteed, unless specified.

Investments are subject to various risks, including market fluctuations, regulatory change, possible delays in repayment and

All opinions and claims are based upon data on 2/2/18 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Deutsche Asset Management Investment GmbH

CRC 054737 (02/2018)

loss of income and principal invested. The value of investments can fall as well as rise and you might not get back the amount originally invested at any point in time. Furthermore, substantial fluctuations of the value of the investment are possible even over short periods of time. The terms of any investment will be exclusively subject to the detailed provisions, including risk considerations, contained in the offering documents. When making an investment decision, you should rely on the final documentation relating to the transaction and not the summary contained herein. Past performance is no guarantee of current or future performance. Nothing contained herein shall constitute any representation or warranty as to future performance. Although the information herein has been obtained from sources believed to be reliable, we do not guarantee its accuracy, completeness or fairness. Opinions and estimates may be changed without notice and involve a number of assumptions which may not prove valid. We or our affiliates or persons associated with us or such affiliates ("Associated Persons") may (i) maintain a long or short position in securities referred to herein, or in related futures or options, and (ii) purchase or sell, make a market in, or engage in any other transaction involving such securities, and earn brokerage or other compensation.

The document was not produced, reviewed or edited by any research department within Deutsche Bank and is not investment research. Therefore, laws and regulations relating to investment research do not apply to it. Any opinions expressed herein may differ from the opinions expressed by other Deutsche Bank departments including research departments. This document may contain forward looking statements. Forward looking statements include, but are not limited to assumptions, estimates, projections, opinions, models and hypothetical performance analysis. The forward looking statements expressed constitute the author's judgment as of the date of this material. Forward looking statements involve significant elements of subjective judgments and analyses and changes thereto and/or consideration of different or additional factors could have a material impact on the results indicated. Therefore, actual results may vary, perhaps materially, from the results contained herein. No representation or warranty is made by Deutsche Bank as to the reasonableness or completeness of such forward looking statements or to any other financial information contained herein.

This document may not be reproduced or circulated without our written authority. The manner of circulation and distribution of this document may be restricted by law or regulation in certain countries, including the United States. This document is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction, including the United States, where such distribution, publication, availability or use would be contrary to law or regulation or which would subject Deutsche Bank to any registration or licensing requirement within such jurisdiction not currently met within such jurisdiction. Persons into whose possession this document may come are required to inform themselves of, and to observe, such restrictions. Unless notified to the contrary in a particular case, investment instruments are not insured by the Federal Deposit Insurance Corporation ("FDIC")

All opinions and claims are based upon data on 2/2/18 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Deutsche Asset Management Investment GmbH

CRC 054737 (02/2018)

or any other governmental entity, and are not guaranteed by or obligations of Deutsche Bank AG or its affiliates.

© 2017 Deutsche Asset Management Investment GmbH
Publisher: Deutsche Asset Management Investment GmbH, Mainzer Landstraße 11-17, 60329 Frankfurt am Main, Germany

All opinions and claims are based upon data on 2/2/18 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Deutsche Asset Management Investment GmbH

CRC 054737 (02/2018)