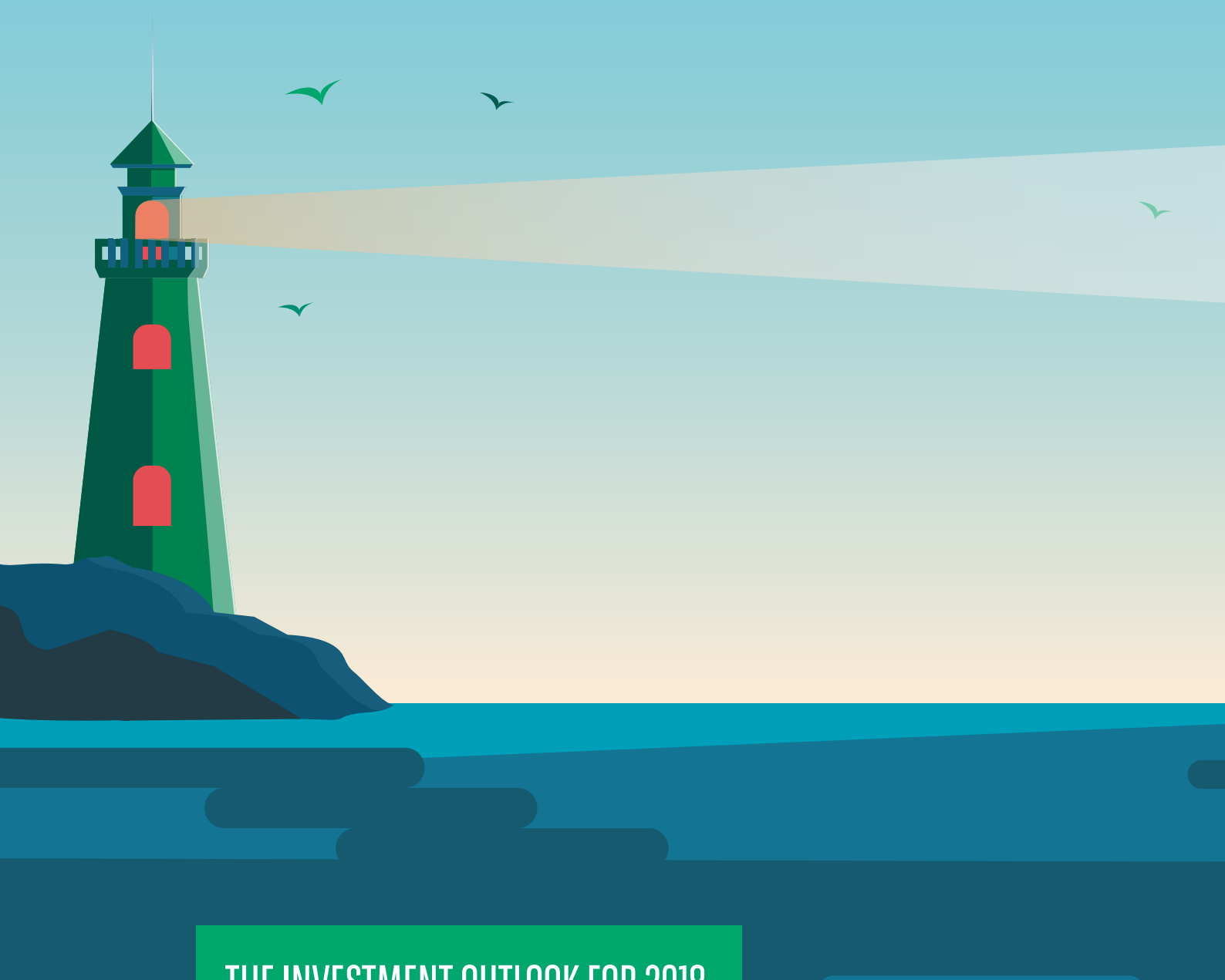


# THE TIDE IS HIGH

Please note that this document may contain technical language.  
For this reason, it is not recommended to readers  
without professional investment experience.



## THE INVESTMENT OUTLOOK FOR 2018



**BNP PARIBAS**  
**ASSET MANAGEMENT**

The asset manager  
for a changing  
world

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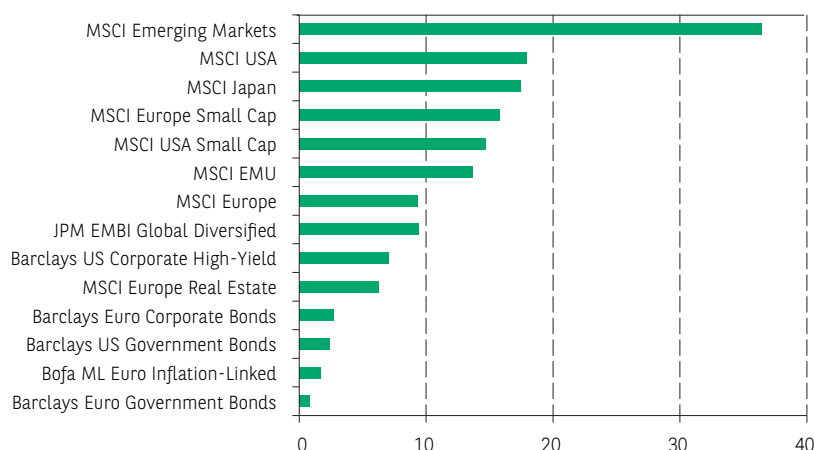
Note to readers: all assessments, data and forecasts in this document are made using data and information up to and including 24 November 2017, unless stated otherwise.

## LETTER TO INVESTORS

The tide is high in financial markets. Non-conventional central bank policy since 2008 has sent waves of liquidity flooding through global asset markets. In 2017, these liquidities and a synchronised pick-up in global economic growth provided a favourable backdrop for risk assets (see below).

### Performance of selected asset classes in 2017

(Total return in %, local currency year-to-date performance)



Source: Datastream, BNP Paribas Asset Management, 24 November 2017

Central bank policy has been the biggest factor in determining financial market returns in recent years. As policymakers intended their policy has driven investors out of 'riskless' assets into riskier sectors compressing risk premiums in the process. Resisting the tides of liquidity created by central banks has so far been futile.

And now? We are at the beginning of the end of central bank dominance but their retreat will be gradual particularly if, as we expect, the sweet spot of stronger growth and low inflation continues in 2018. Risk premiums can remain compressed but may be vulnerable to the bouts of angst which are inevitable when asset valuations are no longer firmly anchored to the fundamentals.

Well thought-through ideas are required to successfully navigate these waters. Our 2018 Investment Outlook is presented in two sections. Firstly, we assess the global macroeconomic environment and the prospects for the principal asset classes. Further articles by our specialist teams discuss the areas that we believe offer investors attractive solutions.

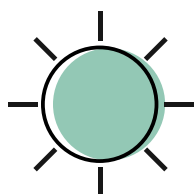
**Frédéric Janbon**

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## INVESTMENT OUTLOOK 2018

## THE TIDE IS HIGH

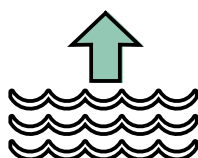
– Overview –  
the factors driving financial markets in 2018



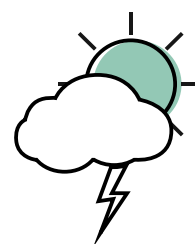
Financial markets are in the thrall of **positive macroeconomic** fundamentals and the longer-term investment implications of a low-rate, low-inflation environment.



The expansion of G3 central bank balance sheets since 2009 has **lowered the risk premium** in equity, fixed-income, credit and emerging markets. In our view, this could continue, particularly as the aggregate size of central bank balance sheets looks set to continue to increase until late in 2018.



The principal risk we see to this scenario is **an abrupt rise in inflation** triggering a major correction in debt markets. We ascribe a low probability to this outcome. On the contrary, we expect G3 central banks to continue to **struggle to achieve their inflation targets**.



In 2018, we see scope **for further gains in risk assets** (we do not, for example, consider valuations in equity markets to be excessive), but we are cognisant of the risk that *“capital superabundance can increase the frequency, size and longevity of market overshoots.”*<sup>1</sup>

<sup>1</sup> On 14 November 2012, Bain & Company published an extremely prescient report entitled ‘A world awash in money’ explaining the notion of capital superabundance and the risks created as a consequence of long-term intervention by fiscal policy makers and central banks. <http://www.bain.com/publications/articles/a-world-awash-in-money.aspx>

In 2017, the non-conventional policy measures of G3 central banks, in combination with the strongest – and most globally synchronised – acceleration in the pace of economic growth since the Great Financial Crisis lifted valuations across a broad range of asset classes.

### ELEVATED PRICES FOR ASSETS AND A COMPRESSION OF RISK SPREADS

Global stock prices, as measured by the MSCI World index, have risen every month for the last 13 months (up to and including November 2017). Over the same period the US S&P 500 index rose for 13 consecutive months. This is an almost unprecedented bull run; in the last 70 years, the only comparable runs of performance were sequences of 11 consecutive monthly rises during the 1950s.<sup>2</sup> Yields of high-yield bonds and leveraged loans fell to cyclical lows during the course of 2017. Emerging market assets, after a number of years of underperformance, put in a barnstorming run only corrected by a US dollar rally. On 15 November, Leonardo da Vinci's Salvator Mundi became the most expensive painting ever sold when it was auctioned at USD 400 million. The list goes on, but in short, risk assets undoubtedly have the wind in their sails.

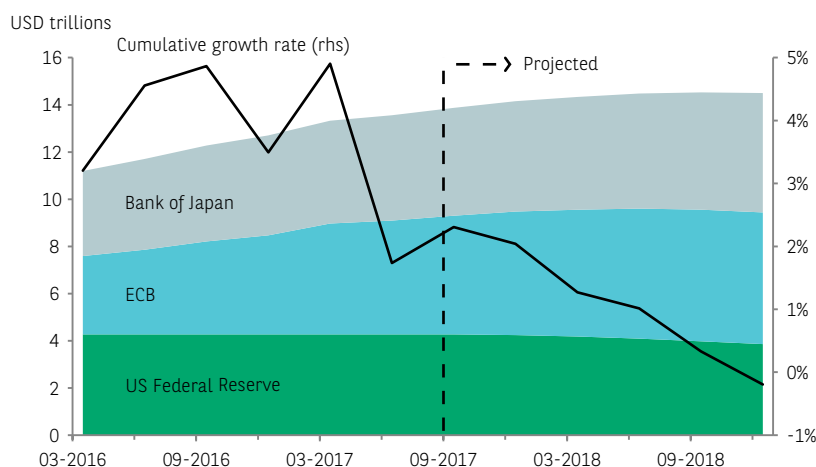
### THE TIDE OF LIQUIDITY IS NOT SET TO RECEDE ANYTIME SOON

As the exhibit below shows, G3 central banks now hold around USD 14 trillion of assets, compared to USD 3 trillion before the 2008 crisis. And the tide of liquidity is not set to recede anytime soon: aggregate G3 central bank balance sheets are forecast to keep increasing until at least the third quarter of 2018.

Over the course of 2018, a reduction in the amount of securities held by the US Federal Reserve should be counterbalanced by growth in the European Central Bank and Bank of Japan's portfolios, albeit at a slower pace. So, expansion in aggregate G3 central bank balance sheets should continue to effectively remove interest-rate risk and thus lower the risk of a 'tantrum' in sovereign debt markets.

### Exhibit 1: The tide is high – and there is no sign of it going out soon

(Central bank balance sheets and cumulative growth rate projections)



Source: Federal Reserve Bank of New York, European Central Bank, Bank of Japan, BNP Paribas Asset Management projections, as of 31 October 2017



By reducing the stock of fixed-income instruments available to the private sector, central banks crowded out traditional investors, such as banks, insurance companies, and asset managers

<sup>2</sup> With thanks to our colleagues in the Quant Research Group at BNP Paribas Asset Management who found four periods of 11 consecutive months of positive performance for the S&P 500 since 1927. The last such run of performance ended in January 1959.

## FULL STEAM AHEAD (BUT THE SEA IS STILL FULL OF REEFS)

In this environment, the good times can roll on, particularly as many investors are not overwhelmed by the feel-good factor. What little exuberance there is does not seem to be irrational. Valuations of risk assets are underpinned by solid expectations for growth in both advanced and emerging economies and a prolongation of the low-rate, low-inflation environment throughout 2018.

The monetary policy backdrop in developed markets remains supportive of risk-taking, with the absence of inflationary pressures suggesting that the withdrawal of exceptional policy measures will likely be extremely tentative. We thus subscribe to the view that gradualism will continue to be the hallmark of central bank policy and that when it comes, the unwinding of central bank balance sheets can 'run quietly in the background.'<sup>3</sup>

## IN OUR VIEW, THE MAIN RISK TO THIS FAVOURABLE ENVIRONMENT IS A RAPID AND SUSTAINABLE INCREASE IN INFLATION

Inflation remains conspicuous by its absence. Even after almost 10 years of non-conventional monetary policy, the average rate of inflation in the global economy is at below 3% and at around 2% in OECD member states. And this at a time when the pace of economic growth in major economies is outrunning their potential growth rate and there is close to full employment.

For the moment, many investors accept the idea that seismic, secular and global deflationary forces arising from technology and demographics are behind the low-inflation paradigm. Valuations of market indicators such as long-term swaps and inflation-linked bonds signal that investors expect US inflation to average around 2% for the next decade.

We see little prospect of a material rise in global inflation and also little prospect of central banks achieving their inflation targets in the years ahead. For these reasons, we expect the low-inflation, low-rate paradigm to continue in 2018.

## A WORLD AWASH WITH CAPITAL

In our view, valuations in equity markets are high, but not extremely so. We believe it is reasonable to expect gains in earnings in 2018 and hence market appreciation on constant multiples.

We do not see rising interest rates triggering a bond market sell-off in 2018. And interest rates of course matter. Remember your Finance 101 class - the price of a stock is the expected stream of future dividends, discounted back to the present value, using a discount factor that is a function of the interest rate and the expected growth rate of dividends. As such - and while they are not the only variable - the prospect of interest rates remaining low, or rising only very gradually, should continue to underpin stock prices.

When ranking asset classes in terms of their prospects in 2018, we see scope for emerging market (EM) assets to deliver strong returns. EM equities, for example, have lagged returns in developed markets by 60% since 2010, so there is potential for further outperformance, perhaps driven by an extension of the pick-up in economic conditions and the global trading environment.

Under the circumstances we have described, after almost 10 years of non-conventional policies from G3 central banks, liquidity is abundant and will continue to fuel the search for yield in a low-inflation, low interest-rate world. ■



We expect the  
low-inflation,  
low-rate  
paradigm to  
continue in 2018

<sup>3</sup> "We think this is a workable plan, and it will, as one of my colleagues, President Harker, described it, it will be like watching paint dry, that this will just be something that runs quietly in the background." Quote from Federal Reserve Chair Janet Yellen on how the Federal Reserve plans to reduce the size of its balance sheet at a press conference on 14 June 2017. Full transcript available at: <https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20170614.pdf>

# WHERE HAS INFLATION GONE?

## A review of the economic outlook



**Nathalie BENATIA**  
Macroeconomic Content Manager

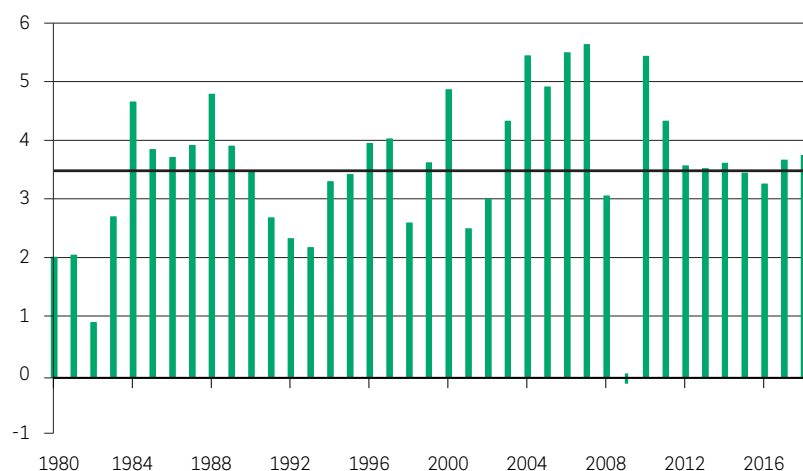
### THE GLOBAL UPSWING IN ECONOMIC ACTIVITY HAS STRENGTHENED...

What a difference a year makes! "The global cyclical upswing that began midway through 2016 continues to gather strength," wrote the International Monetary Fund (IMF) in the *World Economic Outlook report* (published October 2017). The IMF forecast global growth of 3.6% for 2017 and 3.7% for 2018 (vs. 3.1% and 3.4%, respectively, in its October 2016 report – see Exhibit 1 below).

Observers who attended the October 2017 meetings of the World Bank and the IMF came away with the view that confidence in the recovery is rising. The same goes for the OECD, while private economists have also raised their growth forecasts in recent months, especially with regard to the eurozone.

### Exhibit 1: World economy growing at its fastest pace since 2011

(World GDP growth in %; 1980-2015 average = 3.5%)



Source: Datastream, IMF, BNP Paribas Asset Management; October 2017

The list of positive macroeconomic indicators in 2017 is lengthy. In the US, economic growth is forecast to have accelerated from 1.5% in 2016 to 2.2% or 2.3% in 2017. As a result, the unemployment rate has fallen to its lowest since early 2001, and purchasing manager surveys on manufacturing and services activity have risen to cyclical highs. In March 2017, consumer confidence reached its highest since late 2000 and has pulled back only slightly since then.

The eurozone keeps getting the better of cautious forecasters who expected it to "run out of steam". After four quarters of 0.6%-0.7% growth rates, it is now clocking up a 2.5% year-on-year expansion, the highest pace since early 2011. Japanese GDP has risen over six consecutive quarters, the longest uninterrupted period of economic growth since mid-2006. Emerging economies are riding the acceleration in global trade, which in turn is being driven by strong domestic demand in developed economies.

### ... BUT INFLATION IS CONSPICUOUS BY ITS ABSENCE

There is one thing missing from this landscape, and in 2018, economists, investors and central bankers may well be gripped by a sense of déjà-vu: what is still absent is inflation. In recent years, it has become a very docile beast, running at a rate below 3% for the global economy and at around 2% in OECD member-countries. And this at a time when the pace of economic growth in major economies is running faster than their potential growth rate with close to full employment.

Economists are questioning the pertinence of the Phillips curve in linking changes in inflation (through wages) to a higher or lower unemployment rate. Some say it is still relevant, others say the relationship is broken. Janet Yellen, who will chair the US Federal Reserve until February 2018, took sides, stating in mid-October that inflation will ultimately rise. "My best guess is that these soft readings [on inflation] will not persist", she said, in line with her 'new Keynesian' approach to the economy. ECB President Mario Draghi, meanwhile, does not expect the causes of sluggish wage growth to vanish overnight. Two major central banks, two different opinions. The old joke about economists suggests that we could even have two central banks with three different opinions.

Putting academic debate and old jokes aside, economists will have to answer a deeper question about how productivity is best estimated.

*"Productivity isn't everything but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker"* – Paul Krugman, Professor of Economics and International Affairs Emeritus at Princeton University in *The Age of Diminishing Expectations*<sup>1</sup> (1994)

Based on estimates from the OECD, the European Commission and the US Congressional Budget Office, production in developed economies is above potential and any 'output gaps' are in the process of closing or have already done so.

### ENOUGH WITH 'NAÏVE' EXPECTATIONS

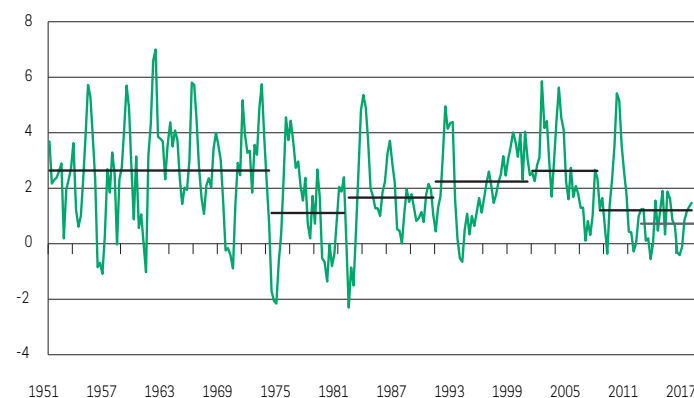
The tentativeness of central banks – and the Fed in particular, which is in pole position given that the expansion of the US economy began in mid-2009 and is now quite mature – in phasing out their post-crisis monetary support measures suggests that monetary policy committees are most certainly discussing how best to calculate productivity. If there was a fool-proof way of determining an economy's productivity, it would be just as easy to determine potential growth and,

<sup>1</sup> This is a quote from a book written by Paul Krugman in 1994 entitled *The Age of Diminishing Expectations*, a title that with the benefit of hindsight appears very apt.

### WHAT IS PRODUCTIVITY?

Let's start by reminding ourselves that an economy's growth potential can be broken down into growth of the labour market and growth in labour productivity. The latter is another way of expressing capital intensity and total factor productivity, which can be quantified as an estimate on the basis of the Cobb-Douglas production function. Growth in the labour market is quite easy to calculate (based on changes in population size, which may result from immigration trends). Capital intensity is remarkably stable over time once an economy is mature. What remains for economists to debate, therefore, is the estimate of total factor productivity. In recent years, the finding has been of a trend decline in productivity over more than 10 years, i.e. since before the Great Recession of 2008. Some explanations have been put forward, most of which point to how difficult it is to measure the impact on productivity of the everyday use of 'new technologies'. But none of these offers a conclusive approach to correcting these possible measuring errors. Therein lies the source of the difficulties in estimating growth potential.

US non-farm productivity and averages  
(real output per hour; YoY % change)



Source: Datastream, BNP Paribas Asset Management, November 2017



Investors and central bankers may well be gripped by a sense of déjà-vu: what is still absent is inflation. In recent years, it has become a very docile beast

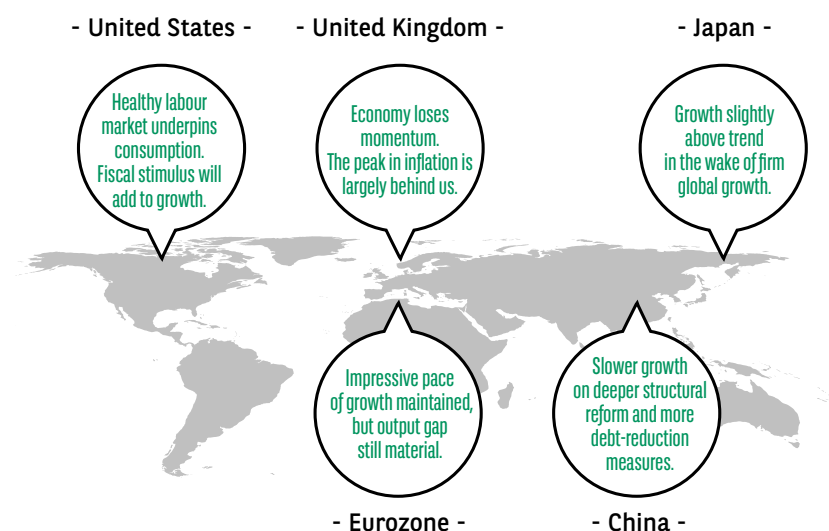


hence, the appropriate level for the key interest rate. Alas, this is not possible, and central banks must consider several possible scenarios, leaving room for policy errors in 2018. Investors face a similar challenge, and financial market behaviour reflects, in turn, the probability being attributed to the emergence of one or another scenario. This is no surprise and reflects the contribution of economic theory over the past 30 years, in its endogenous growth and technological change models.

To start out, we assume that the only information we possess on productivity is accurate. This is a significant assumption (see above), but even though imperfect, this is the only framework that allows us to determine a baseline scenario. We place ourselves – modestly – in the position of the central banker who must explain his decisions to the legislative branch (e.g. during regular hearings before parliament). After all, central bank independence does not mean absolute freedom. Moreover, this could be seen as an ‘obligation of means’: freely available information should be taken into account when establishing a scenario.

## WHAT CAN WE EXPECT FOR 2018?

### Exhibit 2: Solid GDP growth and muted inflation in 2018



Source: BNP Paribas Asset Management, 25 October 2017

Economic growth in the major developed economies is likely to remain largely on its current trajectory. This scenario discounts any external or internal shocks and, hence, any recession. It is in line with the scenarios of international institutions such as the IMF and the OECD, which suggest, respectively, that ‘the global upswing in economic activity is strengthening’ and that the ‘recovery is now more synchronised on an international scale’. Both institutions have the same doubts on the emergence of ‘strong, sustained and inclusive medium-term global growth’ and stress how important it is for policymakers to ‘maintain a longer-term vision [...] and to implement structural reforms’.

We share this point of view, in particular as regards the structural risks arising from the deepening of inequalities. However, we will limit our analysis to the short-term outlook, which is more likely to influence financial markets in the coming months.



Economic growth in the major developed economies is likely to remain largely on its current trajectory

In our 2017 Outlook (*Beyond the shadow of quantitative easing*), we asked several questions. Since then, answers have begun to emerge. Here is a short guide to the issues that are still with us.

**Is peak monetary policy behind us?**

For the most part, yes (as concerns the Fed and the Bank of England), but policy normalisation has been tentative and will likely remain so. The Bank of Japan has no plans to modify its ultra-accommodative quantitative policy. In emerging economies, particularly in Latin America and, to a lesser extent, in eastern Europe, the 'conventional' monetary easing cycle (cuts in key rates) is likely to continue.

**Will fiscal policy save the world?**

In 2018, it is the economy that clearly needs fiscal loosening the least – that of the US – that will get it the most. Less expansive measures are being considered in Japan. For the eurozone as a whole, the European Commission forecasts a slight worsening in cyclically-adjusted fiscal accounts, i.e. a slight easing in fiscal constraints.

**Will inflation force the Fed's hand?**

Probably not, but inflation will be put under the microscope (see box on p. 12) and will figure heavily in any decisions.

**Will investment pick up in the eurozone?**

The signs are more and more encouraging and improved confidence could further this trend.

**When will the ECB start tapering?**

In early 2018, as Mario Draghi announced in October 2017, tapering will begin, but monetary support will remain in place until at least September 2018, and there should be no rate rises until at least the end of the year.

**Can China rebalance its economy?**

This is a perennial favourite. The answer is: so far, yes, with the goal of enhancing the quality of growth to meet the objective of doubling per capita GDP between 2010 and 2020.

**Will global trade revive?**

It already has and, this time, it does not look like a false start.



**It is the economy  
that clearly  
needs fiscal  
loosening the least  
– that of the US –  
that will get  
it the most**

## OUR VIEW ON GROWTH AND INFLATION IN 2018

The major economies are growing at a rate near their potential, which is causing output gaps to close in the US and Japan and to narrow in the UK and the eurozone. The global economy is expanding at cruising speed with no major imbalances apparent in either developed or emerging markets.

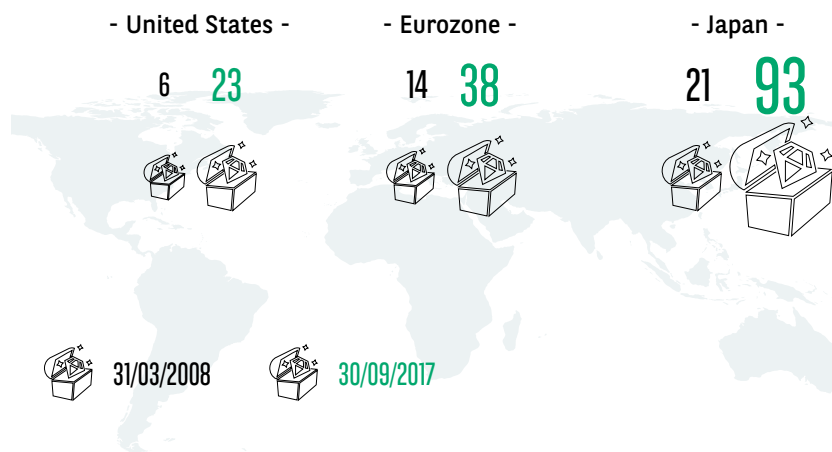
In reaction, central banks can be expected to continue to normalise their monetary policy, but in doing so are taking notably different paths. The Fed wants to regain some leeway in its key rates (which are its natural monetary policy tools) while continuing to raise them in 2018, but the fed funds rate is unlikely to reach the Fed's equilibrium rate of 2.75%, based on the latest available projections. The other aspect of normalisation, the shrinking of central bank balance sheets, is macro-prudential in nature and the very meticulous processes made public in 2017 are likely to be implemented in 2018. We do not expect fiscal policy to have any significant impact on monetary policy decisions.

The ECB will likely focus on tapering its asset purchases in 2018, mainly because of the limited supply of securities it can buy, and given that inflation is still far below its 2% target, it is unlikely to raise its key rates until it has stabilised the size of its balance sheet, just as the Fed did in 2014 and 2015.

The Bank of England is being torn between inflationary pressures and a clear slowdown in economic activity against a backdrop of the Brexit negotiations between the UK and its European partners. Policy normalisation is unlikely to amount to more than the token withdrawal of the emergency measures passed in the wake of the June 2016 Brexit referendum.

The Bank of Japan is staying the course, as inflation remains low, and the 2% target looks out of reach for another several years. In Japan, it looks even more certain than is the case in the US that fiscal stimulus will not prompt monetary authorities to alter their approach.

**Exhibit 3: Central banks have done their best**  
(Central bank balance sheets, % of GDP)



Source: Bloomberg, BNP Paribas Asset Management, 30 September 2017

As expected, the 19th congress of the Communist party of China re-elected Xi Jinping as secretary general and agreed to changes to the politburo. Based on previous five-year post-congress patterns, it will not be until the third plenum, in late 2018, that the new regime's economic policy and reforms are officially announced. This traditional timetable does not imply an absence of new policy measures in the interim. On the contrary, future reforms (in the foreign currency market, for example) are already planned. The target of doubling GDP per capita in 10 years, based on what has already been accomplished since 2010, assumes an average of 6.3% annual growth until 2020. Accordingly, any significant shift in growth would trigger a prompt response from the authorities, who would likely try to find the right balance between reforms, debt reduction and short-term growth.

**WHAT ARE THE REAL DANGERS FOR 2018?**

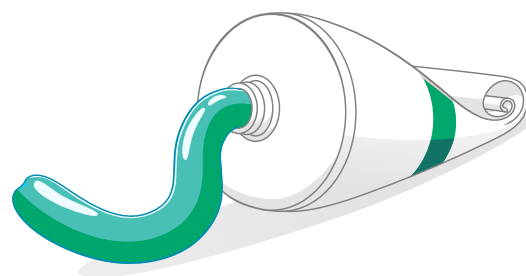
Drawing up a list of the potential risks to the global economy in 2018 – whether geopolitical, political, natural or financial in nature – does little to help us understand the nature of the challenges involved. Moreover, if one or more of these risks were to materialise, it would not be surprising to see markets shrug them off or react in a totally unexpected manner. For proof, just look at how the markets reacted just after the election of Donald Trump in November 2016. We therefore think it a better idea to review those factors that are more structural in nature.

The main risk, in our view, is a rapid and sustainable increase in inflation if potential growth is weaker than thought and central banks are unable to react quickly enough to this state of affairs and/or tried for too long to extend the 'Goldilocks' moment of constant economic expansion without inflation. The

The 'inflation tube' has, in fact, been empty, but that has not stopped central bankers from trying to squeeze what they can out of it

## INFLATION – WHAT ABOUT THE TUBE OF TOOTHPASTE?

The comparison of inflation to toothpaste, made on the basis that once it is out of the tube, it cannot be put back in, has been attributed various central bankers<sup>2</sup>. However, the toothpaste analogy has been less relevant in recent years. The tube has, in fact, been empty, but that has not stopped central bankers from trying to squeeze what they can out of it. In September, the ECB served notice that the 'medium term' – the normal horizon for all monetary policy – would probably become 'longer', given stubbornly weak inflationary pressures. The Bank of Japan has gone even further, constantly putting off the date at which it believes it will be able to meet its inflation target. In contrast, the Fed has recently adopted the stance that it is concerned about a possible acceleration in inflation, but without reacting accordingly. The Bank of England, meanwhile, could not really ignore 3% inflation in September, which marked a five-year high.



scenario of a monetary policy error would then come to the fore, with a bearish reaction from bond markets worldwide. This would then be exacerbated by the fact that many major economies are still highly indebted, which was the original reason for the profusion of non-conventional monetary policy measures aimed at keeping rates low for all maturities.

Regarding potential exogenous shocks, we still see the risk of a return of protectionism, given the manner in which the Trump administration approached renegotiations of the North American Free Trade Agreement (NAFTA) in late 2017. As we pointed out last year, protectionist measures in one country tend to spread like wildfire, with trade partners then bidding up the stakes to 'protect' their own economies, with the ultimate victim being global growth.

## WHAT CAN WE HOPE FOR IN 2018?

The best-case scenario for both economic agents and financial markets would be an acceleration in global growth beyond current levels to achieve 'escape velocity' with no acceleration in inflation because potential growth is higher than expected. Let's go back to the concerns we expressed as economists at the start of this article about measuring productivity. On top of the issue of how to measure it, a productivity shock assumes the emergence of a major innovation, which is by its nature unpredictable, and its dissemination throughout the economy and/or its adaptation to changes in the organisation of production, which could require structural reforms.

This is also the hope expressed, in essence, by the OECD and the European Commission. After emerging stronger from the sovereign debt crisis, Europe looks better equipped to put through reforms that could help boost potential growth in coming years.

As 2017 draws to a close, the broad-based global recovery is still on track without any acceleration in inflation. Along with other factors, this makes it more likely in our view that Goldilocks<sup>3</sup> will wake up no later than in 2018. This reference to the fairy tale "Goldilocks and the Three Bears" is used by the financial markets to describe an economy that is solid enough to ensure corporate earnings growth but with no risk of overheating, which would lead to more hawkish monetary policy to stave off inflation. The economy is indeed "just right", like in the three bears' house, where just one bowl of porridge was warm enough and only one bed was comfy enough. ■



Europe looks better  
equipped to put  
through reforms

2 Either Karl Otto Pöhl, President of the Bundesbank from 1980 to 1991, or Jean-Claude Trichet, then Governor of the Banque de France, in an interview with the French business daily Les Echos in 1994.

3 David Shulman: "I coined the term in March 1992 with a strategy piece for Salomon Brothers entitled, The Goldilocks Economy: Keeping the Bears at Bay".

# EQUITIES AND CREDIT TO HEDGE AGAINST THE TRANSITION IN CENTRAL BANKS' POLICIES



**Daniel MORRIS**

Senior Investment Strategist

**The performance of equity markets has been excellent in 2017, despite valuations being distinctly high, particularly in the US. Is it time to start talking about a return of 'irrational exuberance'?**

No, certainly not yet. As high as valuations are, in our view, they are not at extreme levels. Former US Federal Reserve Chair Alan Greenspan famously made his comment about irrational exuberance<sup>1</sup> in December 1996, when the forward price-to-earnings (P/E) ratio for the S&P 500 index was at just 15.7x; the market continued to rise for three more years. The P/E multiple on the S&P at the time of writing is at just over 18 times earnings, and so well above the level at which Greenspan made his comment over 20 years ago.

But, in relative terms, it is similar. At the time of Greenspan's observation, the market multiple was 21% above its historical average up to that point. The current S&P 500 P/E ratio is a comparable 24% above its present historical average, nearly one standard deviation above the long-run average (see Exhibit 1).

**Exhibit 1: Relative valuation metrics (z-scores)**

	P/E	P/B	P/S	P/CF	PEG	DY	ROIC
US	0.9	0.8	1.1	1.5	0.2	0.8	0.3
Latin America	1.1	0.2	-0.1	0.6	0.5	0.6	0.8
Europe	0.3	0.1	0.7	1.1	-0.7	0.5	0.6
Asia ex-Japan	0.7	-0.4	0.9	-0.2	0.0	0.0	0.7
Developed markets	0.0	0.5	1.5	1.3	-0.6	0.6	0.2
EMEA	0.4	-0.8	0.5	-0.1	-0.3	-0.9	0.6
Emerging markets	-0.2	0.1	0.7	1.2	-0.2	0.5	0.2
Emerging Asia	-0.3	0.1	1.2	0.7	-0.2	0.3	0.0
Japan	-0.9	-0.7	1.4	0.0	-0.6	-0.4	-0.7

Data as at 15 November 2017. Percentages are the current value of the measure relative to the long-run median since inception. Japan's values exclude 1985-1991. Source: MSCI, IBES, FactSet, BNP Paribas Asset Management

**Key:**

A z-score shows a value's relationship to the mean in a group of values. If a z-score is 0, the score is identical to the mean. A positive value indicates the score is above the mean and a negative score indicates it is below the mean. As an example, for the US, the z-score for the P/E ratio indicates that the multiple is slightly above the mean.

**P/E ratio.** The price-earnings ratio is the ratio for valuing a company by measuring its current share price relative to its per-share earnings. Also known as the price multiple or earnings multiple.

**P/B ratio.** The price-to-book ratio is a financial ratio used to compare a company's current market price to its book value. Also known as the market-to-book ratio.

**P/S ratio.** The price-sales ratio is a valuation metric calculated by dividing the company's market capitalisation by the revenue in the most recent year (or by dividing the per-share stock price by the per-share revenue).

**P/CF ratio.** The price-to-cash flow ratio is used to compare a company's value to its cash flow.

**PEG ratio.** The price/earnings to growth ratio is a stock's price-to-earnings ratio divided by the growth rate of its earnings for a specified time period.

**DY.** The dividend yield or dividend-price ratio of a share is the dividend per share, divided by the price per share (or a company's total annual dividend payments divided by its market capitalisation, assuming the number of shares is constant).

**ROIC.** The return on invested capital is a profitability ratio measuring the percentage amount that a company is making for every percentage point over the cost of capital.

<sup>1</sup> "Irrational exuberance" is a phrase used by the then-Federal Reserve Board Chair Alan Greenspan, in a speech given in 1996. At the time the phrase was interpreted as a warning that the market might be overvalued. Here is the full quote:

*Clearly, sustained low inflation implies less uncertainty about the future, and lower risk premiums imply higher prices of stocks and other earning assets. We can see that in the inverse relationship exhibited by price/earnings ratios and the rate of inflation in the past. But how do we know when irrational exuberance has unduly escalated asset values, which then become subject to unexpected and prolonged contractions as they have in Japan over the past decade? From 'The Challenge of Central Banking in a Democratic Society' 5 December 1996*

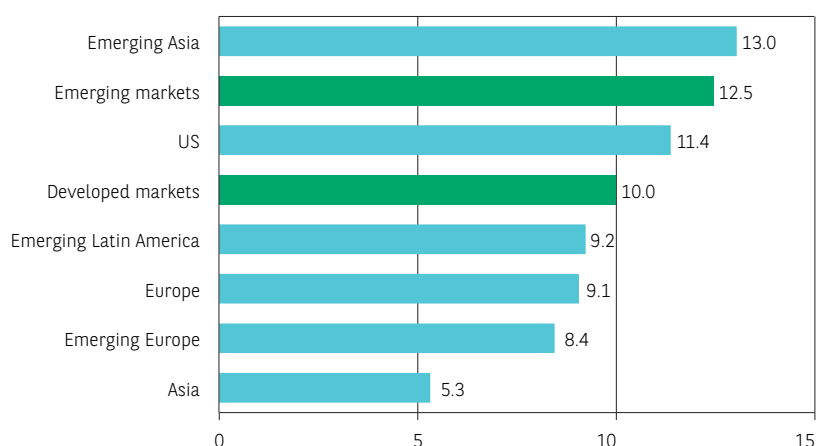
As Exhibit 1 illustrates, while other metrics do show even higher valuations, notably price-to-book, some are more measured. P/E multiples relative to expected growth rates (PEG) are actually at below average for most markets. It is only modestly above average for the US. This suggests that despite the relatively high forward P/Es, analysts expect earnings growth to be strong enough to support them. Of course, this rosy outlook assumes analyst forecasts are accurate and experience tells us that this is unlikely. However, in a world of accommodative monetary policy and low inflation, equity valuations are perhaps justifiably elevated.

Another argument to support higher-than-average multiples is currently low inflation and the widespread expectation that it will remain so for quite some time yet. The inflation-adjusted equity earnings yield in the US is currently only 40 basis points (bp) below its long-term average and appears sustainable at these levels. But with the US unemployment rate set to drop possibly to below 4% and little excess capacity in the economy, inflation could yet rise. This is something markets are certainly not expecting. Were long-term inflation expectations to rise by 25bp (to the level of two years ago), that would imply just a 4% drop in equity prices if the real earnings yield remained constant. So, a modest rise in inflation in the US would not necessarily precipitate a significant re-rating of the equity market.

**Global economic growth has picked up in 2017 and forecasts are optimistic for 2018. Will this be sufficient to keep developed equity markets on an upward path in 2018?**

Economic growth is certainly a necessary condition for markets to rise, but not a sufficient one. There are two ways in which markets can continue to appreciate in 2018: rising earnings or rising multiples. The outperformance of US equities versus Europe during most of 2017 was driven by multiples expansion, not by superior earnings growth. In 2018, the challenge for US equities centres on their ability to live up to the already high (forward) multiples and optimistic earnings growth expectations. Analysts currently forecast a gain of over 11% in US earnings in 2018 compared to just 9% in Europe (see Exhibit 2).

**Exhibit 2: Forecast year-on-year earnings growth in 2018 (in %)**



Data as at 30 October 2017. Note: Growth in US dollar terms. Source: IBES, BNP Paribas Asset Management

It is encouraging, however, that expected earnings growth for 2018 is actually below what is forecast for 2017: 10% in 2018 for developed markets versus 12% in 2017, and 12% for emerging markets in 2018 versus 22% in 2017. Even in the case of negative revisions to these estimates, we believe it is reasonable to expect gains in earnings in 2018 and hence market appreciation on constant multiples.

The question then is how sustainable are such multiples when leading central banks are moving, however slowly, to unwind their extraordinarily loose monetary policies. The Fed could raise US interest rates by 75bp-100bp in 2018, and it is likely that the ECB will no longer be buying government or corporate bonds



Accommodative  
monetary policy  
and low inflation  
mean that equity  
valuations could  
be justifiably  
high

by December 2018. Nonetheless, we do not see rising interest rates as a likely trigger for a bond market sell-off. Rates are already rising in the US because growth is strong, so any negative impact from higher interest costs should be more than offset by the benefits of growth for corporate profits. Thanks to significant amounts of debt refinancing over the last several years, interest costs are generally extremely low for companies, despite higher levels of debt. Given that the pace of policy adjustment in the eurozone is likely to be slow and that there will still be a meaningful level of reinvestment of maturing bonds by the ECB, we do not expect eurozone yields to rise sharply, either.

**How do you see positioning among institutional investors and retail investors with regard to equity markets? Is it correct to say that investors have been fairly cautious in 2017?**

To a fault. There could have been a 'great rotation' out of fixed income and into equities in 2014 as the US ended its quantitative easing (QE) programme. Bond yields still seemed low (at around 2.5% for US Treasuries) and P/E multiples were at about 15 times earnings. But the launch of the ECB's own QE initiative in early 2015 suddenly made investing in bonds attractive again, and Treasury yields fell to nearly 1.6%.

Now that eurozone QE is drawing to a close and the Fed has begun running down its balance sheet, the relative appeal of equities over bonds has become less apparent. While yields are marginally lower than in 2014, so are inflation expectations. Equity market multiples are much higher. Retail investors have responded accordingly; so far in 2017, they have put twice as much money into bond funds as they have into equity funds.<sup>2</sup>

That asset allocation has not turned out to be optimal, given that equities outperformed bonds by nearly 14% in 2017 (as at 1 November), but it is understandable when one considers the balance of risks investors perceived at the beginning of the year. Equities have nonetheless outperformed bonds in every year except one since the market low of March 2009, despite massive central bank purchases of fixed-income assets. Perhaps the eventual removal of that stimulus will conversely hurt equities just as much.

But the prospect of rising bond yields (and falling bond prices) amid solid economic growth would suggest higher equity allocations are more appropriate. Moreover, fund flows into bonds have been almost three times those into equities over the last nine years.<sup>2</sup> Interestingly, this is almost the exact proportion by which equity flows exceeded bond flows from 2002 to 2007. So, investors may actually be quite overweight bonds at exactly the wrong time.

**Let's talk about the microeconomic fundamentals for equities. Corporate results have been very positive in 2017, both in terms of margins and turnover. In that light, how do you see prospects for 2018?**

While profit margins are historically high, the biggest challenge for US companies has been revenue growth. While US corporate tax reform may yet reduce the headline tax rate, it is not expected to have much impact on cash taxes paid as companies are likely to lose some deductions. The impact on small and medium-sized companies could be larger, however. US GDP is expected to expand by around 2.3% in 2018. Combined with a 2% inflation rate, that suggests revenue growth could just slightly exceed 4% – far below the 12% expected expansion in earnings. Productivity gains and sales abroad will have to make up the difference.

For Europe, there is less prospect for revenue gains given lower nominal GDP growth, but fortunately there is greater potential for margin expansion. Margins have been rising over the past year, but are still comparatively low. The same is true for emerging markets, and the outlook there is even more promising as valuations are comparatively low and revenue growth should easily exceed what developed economies are able to produce (see Exhibit 3).



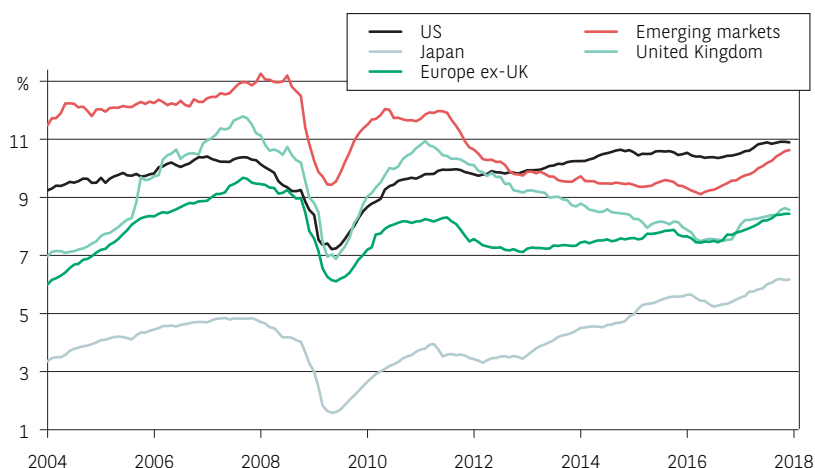
The prospect of rising bond yields amid solid economic growth suggests higher equity allocations are more appropriate



<sup>2</sup> According to data from Broadridge Financial Solutions; end of October 2017



**Exhibit 3: Margin forecasts (next-twelve-month estimate) for selected equity markets**



Data as at 30 October 2017. Source: FactSet, BNP Paribas Asset Management

M&A and  
buybacks  
should continue  
to support EPS

### **Should we reckon on a new wave of mergers and acquisitions and share buybacks?**

One driver of US per share earnings growth over the last few years has been share buybacks, but we believe it is important to recognise that while this was a key driver for US equities, particularly in 2016, it has been declining in significance. Over the last 12 months, share buybacks only added about 1% to earnings-per-share growth.

Many companies have funded these buybacks by issuing (relatively cheap) debt. Given that corporate debt had fallen to historic lows following the Global Financial Crisis, it is not surprising that companies choose to redress the balance of their funding between debt and equity. Debt ratios have now returned to their historical averages, but with interest rates still low, it would not surprise us to see further increases. If US corporate tax reform encourages the repatriation of profits, some of that cash may be funnelled to buyback (or dividend) programmes. One caveat is that with total profits already expected to grow by more than 10%, CEOs may feel less pressure to boost EPS growth in this manner.

Mergers and acquisitions are also likely to continue to play a major role in corporate strategy. Sustaining double-digit earnings growth will likely be challenging for any CEO and low-cost financing can make it tempting to try to achieve that via restructurings or 'buying earnings'.

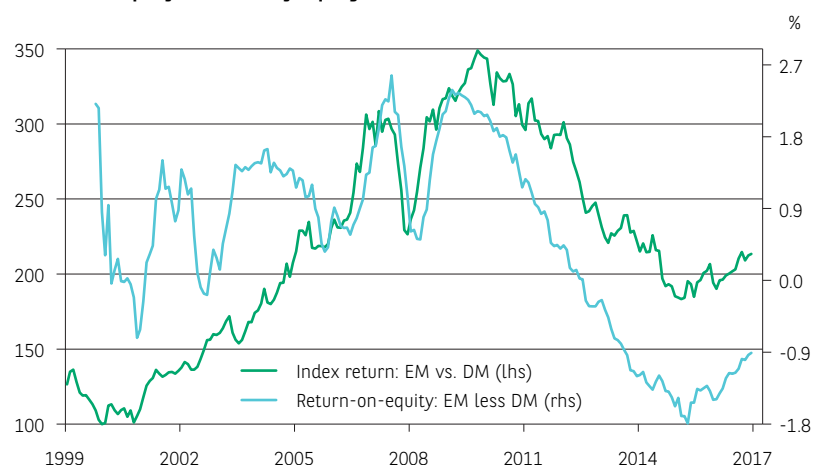
### **If we asked you to rank the principal asset classes in terms of their prospects for 2018, what would be your preference for the start of 2018? Is it too late to invest in emerging market (EM) equities?**

Emerging markets remains one of the more attractive asset classes, both for equity and for debt. One question investors have is whether EM can continue to outperform following such strong returns in 2017 – around 30% for EM equities and 10% for EM debt. To begin with equities, it is important to realise that the gains have been driven primarily by the local currency returns, with only a slight boost from the weakening US dollar. As of October 2017, the depreciating dollar added only 4% to the index total return. The strong local currency gains demonstrate that emerging markets have benefited primarily from domestic factors.

Secondly, the relative gains in 2017 are small compared to the underperformance since the Global Financial Crisis. EM equity returns have lagged those of developed market equities by nearly 60% since 2010, after what had been a decade of (volatile) outperformance (see Exhibit 4). A new, multi-year period of superior EM equity performance is certainly feasible. Fundamental support comes from comparatively low margins (and hence greater earnings growth potential) and comparatively low valuations.



**Exhibit 4: Relative emerging market (EM)/developed market (DM) profitability and relative performance of equity indices 1999-2017**



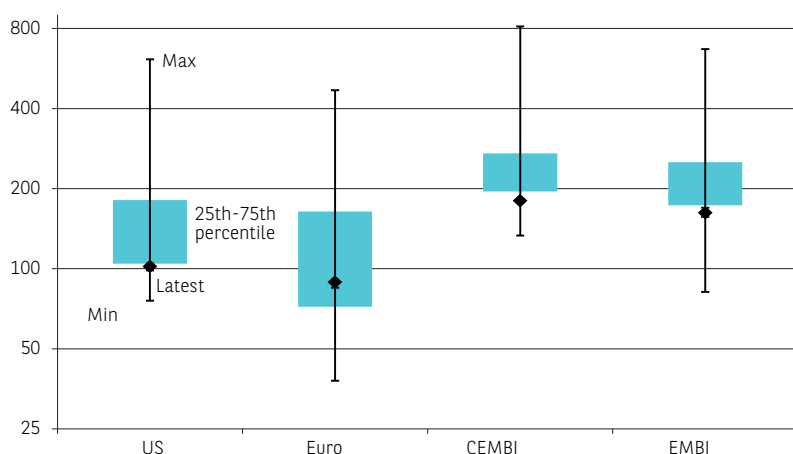
Data as at 31 October 2017. Note: Index returns in US dollar terms. ROE based on next-twelve-month consensus estimates. Source: FactSet, BNP Paribas Asset Management

A multi-year  
period of superior  
EM equity  
performance is  
certainly feasible

The weakening US dollar has been more important for local currency EM debt returns, accounting for around one-third of the total return. The dollar had appreciated by 65% from 2011 until the start of 2016 and has weakened only modestly since. After such a long period of appreciation, it now appears too strong to us, even taking into account additional interest-rate increases from the Fed providing support. We believe it will continue to depreciate against EM currencies in 2018, thus providing scope for further local currency gains.

The appeal of US dollar-denominated EM debt stems from its relatively high spreads compared to those of equivalently rated corporate bonds. Across the investment-grade universe, spreads are generally below the 25<sup>th</sup> percentile (see Exhibit 5).

**Exhibit 5: Emerging market debt currently offers relatively high spreads compared to those of equivalently rated corporate bonds**



**Key:**  
**US** = US investment-grade corporate bonds  
**Euro** = Eurozone investment-grade corporate bonds  
**EMBI** = JPMorgan Emerging Market Bond index  
**CEMBI** = JPMorgan Corporate Emerging Markets Bond index

Data as at 30 October 2017. Range is from index inception. Source: JPMorgan, BNP Paribas Asset Management

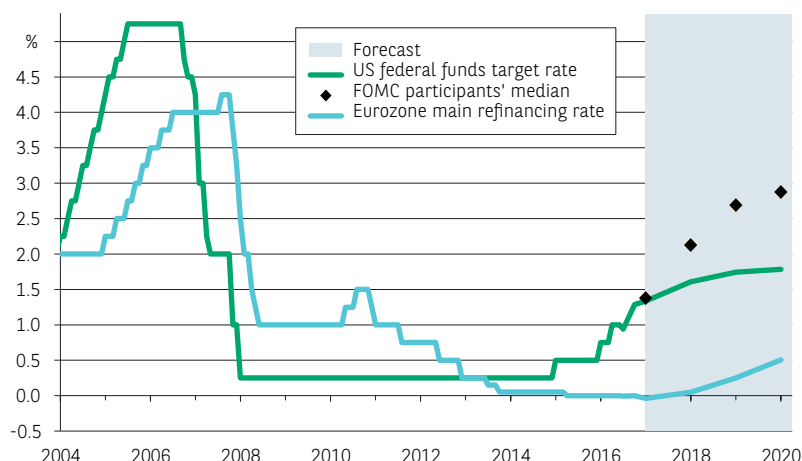
Euro-denominated bonds are the exception, but spreads here are at risk from the eventual unwinding of the ECB's Corporate Sector Purchase Programme (CSPP). Spreads on investment-grade sovereign (EMBI) and corporate (CEMBI) debt are low compared to historical levels, but still offer a pick-up of around 75bp compared to their US and European counterparts. Besides ECB-related risk in Europe, the US credit cycle is nearer the end than the beginning and current spreads do not seem to compensate fairly for this risk. EM growth, by contrast, looks robust and durable.

The picture for high-yield debt across the regions is similar, although in the eurozone, spreads fell to just 40bp above their pre-crisis lows in 2004 (based on the Barclays Bloomberg euro high-yield index) before rebounding, showing how much pressure remains on investors to find yield at 'at any price'.

### Turning to developed debt markets, does the mantra 'lower for longer' still apply?

In a certain sense, yes, it does. While growth is solid in the US and accelerating in Europe, inflation remains quiescent. Without the prospect of inflation accelerating, central banks have little reason to tighten policy aggressively, either by raising policy rates or slowing/unwinding QE purchases. Markets are anticipating only 50bp-75bp of tightening over the next several years (see Exhibit 6).

**Exhibit 6: Changes in central bank key policy rates 2004-2016 and 2017-2020 forecast**



Data as at 30 October 2017. Note: FOMC = Federal Open Markets Committee. Source: Bloomberg, US Federal Reserve, BNP Paribas Asset Management

So, although interest rates will likely stay low, they are nonetheless rising. Leading central banks intend for the interest-rate normalisation process to be very gradual and measured, allowing the markets and investors to adjust equally gradually to higher rates. We expect this is what will occur, but of course we are conscious of the risks to such a benign transition.

As we have already stated, the most pertinent probability remains an acceleration in the US inflation rate. With the US unemployment rate potentially falling to below 4% in 2018, wage growth should accelerate. While the Fed's own forecasts for the fed funds rate would suggest that it anticipates just such an event, the markets clearly do not. If inflation does accelerate and investors need to factor in a steeper path for interest rates, the adjustment in both bond and equity markets could be difficult.



We expect  
the US dollar  
to depreciate against  
EM currencies,  
providing scope  
for further local  
currency bond gains

**What do you think investors should do to position themselves for the gradual reduction in asset purchases by the Fed (undertaken since October via the operations to reduce the size of its balance sheet) and by the ECB?**

Equities and credit should continue to offer the best hedge against the transition in central bank policies, with US Treasuries in our view offering the highest expected total return among developed market government bonds. With interest rates rising in most of the developed world other than Japan, investors will need to pay more attention to coupon returns to offset modest price declines. Markets are currently anticipating a 20bp-30bp rise in 10-year Bund and Treasury yields by the end of 2018. While we suspect yields may well rise by more, the currently 200bp difference in spreads between US and Germany is wide and attractive.

Credit should continue to outperform government bonds as investment-grade spreads are not expected to widen thanks to steady consumer demand and business investment. High-yield is more challenging in our view given the extremely low spreads in some markets, notably in the eurozone. For example, euro investment-grade bond spreads are in the 33<sup>rd</sup> percentile (that is, roughly equidistant between the historical low and the median), while high-yield bond spreads are in the 3<sup>rd</sup> percentile (only slightly above all-time lows).

Assuming there are no surprises, even this meagre additional income will be welcome (the yield is more than 200bp above that of Bunds), but there is little cushion should something unexpected occur. US high-yield bond valuations, on the other hand, are less extreme and offer more income than in the eurozone.

We expect equity market returns to again surpass those of fixed income in 2018. While valuations are somewhat high, they are not extreme and should be sustainable given that economic growth is expected to remain steady and inflation subdued. ■

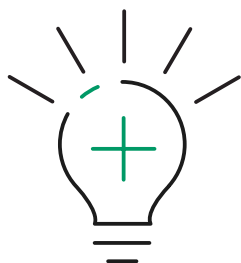


**We expect equity  
market returns to  
surpass those of  
fixed income**

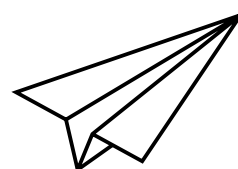


## INVESTMENT OUTLOOK 2018: SECTION II

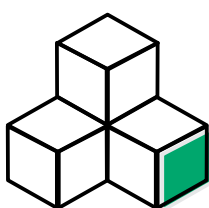
# WELL THOUGHT-THROUGH IDEAS ARE REQUIRED



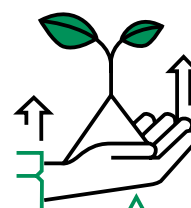
We see the following strategies as offering investors **solutions** to the challenges the current environment presents.



We analyse the factors that could trigger a rise in **volatility** and the steps we have taken to ensure our investment processes integrate this eventuality.



Bond coupons today generate insufficient returns. We present our approach to **applying factor investing to bond markets**.



We explain how BNP Paribas Asset Management's Sustainability Centre puts **green bonds** through their paces to ensure they advance the sustainable development agenda.

# NEW YEAR, NEW RISKS: FOUR GOOD REASONS TO ANTICIPATE A RETURN OF VOLATILITY



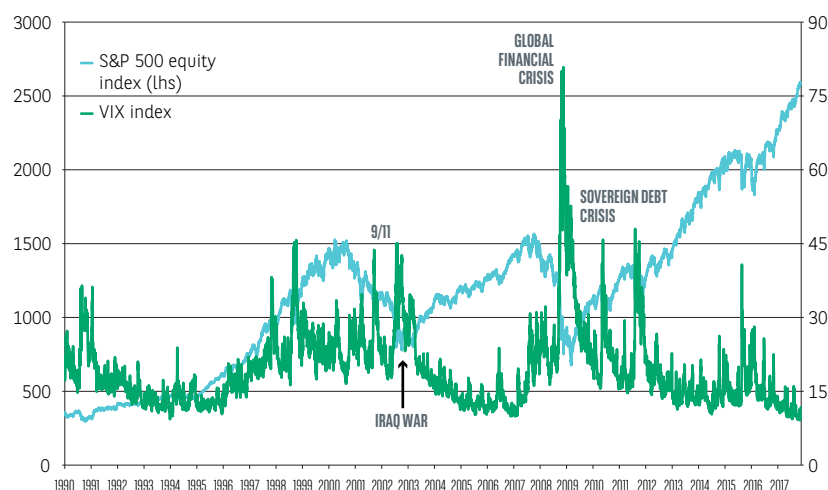
**Tarek ISSAOUI**

Head of Flexible and Absolute Return Multi Asset

From a simple statistical indicator used mostly by risk management teams, volatility has become a key variable in financial markets over the last few years, scrutinised by a large number of investors and analysts.

The increasing popularity of implied volatility indices such as the VIX (the Chicago Board Options Exchange Volatility index), but also the rise of management processes based on risk budgeting, have contributed to media coverage of the concept. What had been the subject of expert discussions has now become a matter of coffee-time conversation, at least within financial circles. Recently, the debate seems to be focused on one question: why is volatility so low and how long can it remain so?

**Exhibit 1: Volatility and major market events 1990-2017**



Source: Cboe; 14 November 2017

The fact is that market volatility is now exceptionally low. The VIX hit an historic trough in September 2017 at 9.51 (see Exhibit 1). Rather than looking at the implicit volatility measure based on options prices, one could also look at realised volatility. Here too, what we see is clear: at the end of September 2017, the historical volatility of the S&P 500 stock index over a rolling one-year period was 7.7. To put this figure into perspective, such volatility is not so far from that of long-maturity government bonds. This concerns data for the US market, but the



## THE CHICAGO BOARD OPTIONS EXCHANGE VOLATILITY INDEX – THE VIX

The level of the VIX reflects valuations of call and put options on the S&P 500 equity index maturing in around the next 30 days. The index is structured such that fluctuations of the S&P 500 averaging around 1% a day over the coming month would translate into a level of the VIX at around 20, while daily fluctuations of 2% would translate into a VIX at 40. In 2017, the VIX fell to as low as 9.51 and averaged around 11.7.

The VIX reflects then a bundle of underlying derivatives – it is not possible to trade the current level of the VIX. The Cboe has, however, created derivative instruments based on the index including VIX futures and VIX options.

same low-volatility phenomenon applies to both other equity indices – for the European market, the VStoxx index also recently hit an historic low – and to asset classes such as bonds and currencies. We are faced with a global trend: volatility is simultaneously low across a broad spectrum of regions and assets.

This issue is all the more sensitive because this rare situation has consequences for portfolio management. How does one calibrate asset allocation in this context? Must one adapt to a low- volatility regime on a long-term basis?

In our view, most of the main factors behind the decline in volatility are unlikely to continue forever. We could even see a turning point in the coming quarters.

### **QUANTITATIVE EASING HAS CONTRIBUTED TO LOWER VOLATILITY**

Firstly, what the major central banks have done with their unconventional monetary stimulus, through quantitative easing, has had a significant effect, not only through their direct purchasing of securities, but equally because of the implicit assurance that central banks would step in to prop up valuations of financial assets if this was judged necessary. The notion of ‘forward guidance’ – i.e. central banks providing greater clarity on the future path of monetary policy – has also affected volatility. As a result, implied volatility on interest rates, which reflects the level of market uncertainty about policy, is close to all-time lows.

These same central banks are now embarking on a gradual unwinding of their unconventional policy measures, as is the case with the US Federal Reserve, or are planning to do so. Normalisation of policy is underway. Initially, rather than outright increases in key policy interest rates, tangible reductions in central bank balance sheets await us. This should have a significant impact on the volatility cycle and looks set to be one of the key themes in 2018.

### **HIGH LEVELS OF DEBT POTENTIALLY EXACERBATE VULNERABILITY TO A TURN IN THE CYCLE**

At the same time, maintaining interest rates at accommodative levels over a relatively long period has led many companies to increase their debt loads, taking advantage of the favourable terms for financing. This is particularly apparent in the US, where many listed companies have entered into extensive share buyback programmes, but also in China, where the ratio of corporate private debt to GDP increased from 99.8% in 2008 to 158.6% at the end of 2016. This widespread

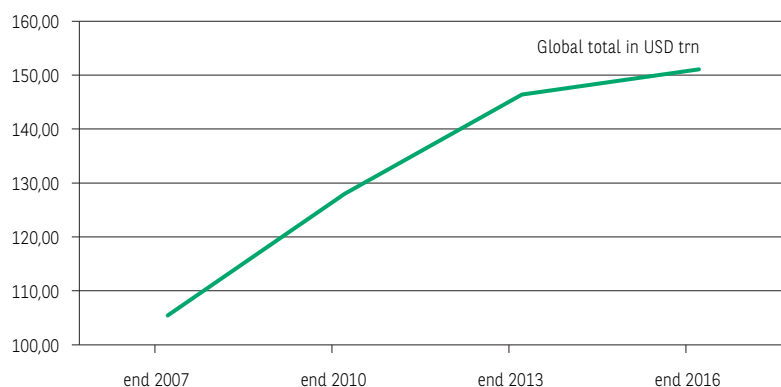


Central banks  
gradually unwinding  
their unconventional  
policies looks set  
to be one of the key  
themes



increase in debt (see Exhibit 2) goes hand in hand with a deterioration in the quality of company balance sheets. For us, this is the second factor that could contribute to a rise in volatility. The price of risk must be linked to the greater or lesser vulnerability of private sector companies to a fall in revenues or increase in interest rates. On this point, we recall the work of Nobel laureate Robert Merton, among others, on the link between corporate debt and the volatility of equities.

**Exhibit 2: Global total debt burden 2007-2016** (in USD trn)



Source: Bank of International Settlements, Annual Report; 25 June 2017

### THE SEARCH FOR YIELD HAS LED INVESTORS INTO NEW TERRITORY

Another source of uncertainty is to be found in the behavioural nature of financial markets themselves. Several years of calm markets, low interest rates and credit spread compression have driven investors to new areas in their search for yield. Some bond investors have sought out defensive stocks paying attractive dividends in place of clipping the coupons from debt instruments.

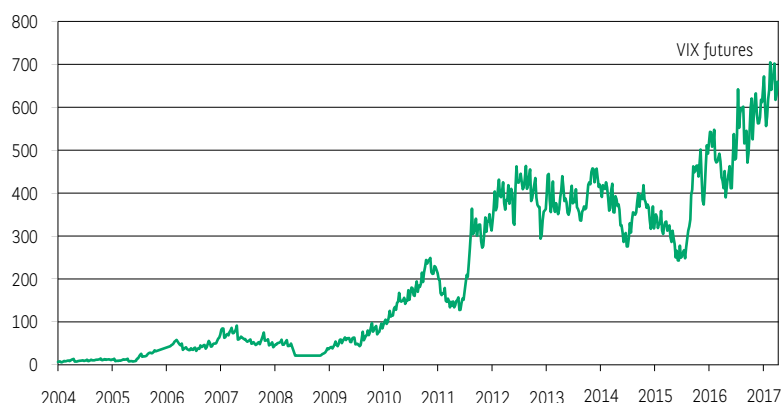
Over the same period, financial engineers have developed a range of derivative products linked to VIX futures that allow investors to take positions anticipating a rise or fall in the VIX. Financial products that structurally sell implied volatility indices have seen significant inflows in the wake of the strong performance of equity markets in recent years (see Exhibit 3). As the VIX fell, this paid off handsomely. Such products and other forays into new territory in the search for yield are nevertheless vulnerable to reversals of the trend. Assuming that the cycle begins to turn, one can expect pro-cyclical behaviour by some market participants, mechanically accelerating the pace of sales.



Calm in financial markets could well persist, especially if economic fundamentals continue to show positive momentum



**Exhibit 3: VIX futures: total open interest 2004-2017**  
(futures only; number of contracts in '000)



Source: Cboe, Bloomberg, BNP Paribas Asset Management, November 2017

### POLITICAL RISK: A KNOWN UNKNOWN

Lastly, there is the issue of political risk, whose influence has been on the rise since the Brexit vote and the surprise election of Donald Trump as US president. While the emergence of this potential source of volatility is widely debated, it has not yet translated into a change of approach in financial markets. It is as if market participants, being unable to precisely define future threats, would prefer to stick to more of a wait-and-see approach to this risk. Despite everything – growing inequality, the middle classes feeling vulnerable in the face of globalisation and the rise of geopolitical tensions in Asia and the Middle East – all this combines to reinforce the feeling of uncertainty.

Although we have identified four good reasons for anticipating a return of volatility, it is difficult to link these to a specific date or timeframe. Calm in financial markets could well persist, especially if economic fundamentals continue to show positive momentum. The course of action we are taking is to prepare for a rise in volatility by paying particular attention to the flexibility of investment processes. As a result, in recent years, we have increased the responsiveness of our risk re-allocation thresholds and extended the period taken into consideration by our volatility measure with regard to past crises. It is also possible to turn to options strategies to mitigate the impact of an eventual turnaround. After all, if we believe that the level of volatility is artificially low, the cost of options as a hedge looks all the more attractive.

Let us conclude by pointing out that a return to a more volatile market would not have only adverse effects. Without involving a Nietzschean-style bout of pain and suffering, greater volatility could reduce what may look like complacency and put a limit on the leverage of the economic and financial system. A more differentiated environment should also provide opportunities for active asset managers, with a premium for those who are flexible in their approach. ■



Greater volatility  
could reduce  
what may look like  
complacency and put  
a limit on leverage



# FACTOR-BASED INVESTING IN BOND MARKETS



**Charles CRESTEIL**  
Investment Specialist -  
Quantitative Investments

While factor investing has gained in popularity among equity investors, its range of application is not limited to one asset class. Indeed, BNP Paribas Asset Management has been developing factor-based strategies in fixed income since 2009, initially on government bonds and currencies and more recently on corporate bonds.

This article aims to show that factor investing can not only be applied successfully to fixed-income markets, it is also an approach that is fundamentally different from – and complementary to – what active managers do.

## BEYOND DURATION, CURRENCY AND CREDIT RISK: THE FACTORS THAT DRIVE BOND MARKETS

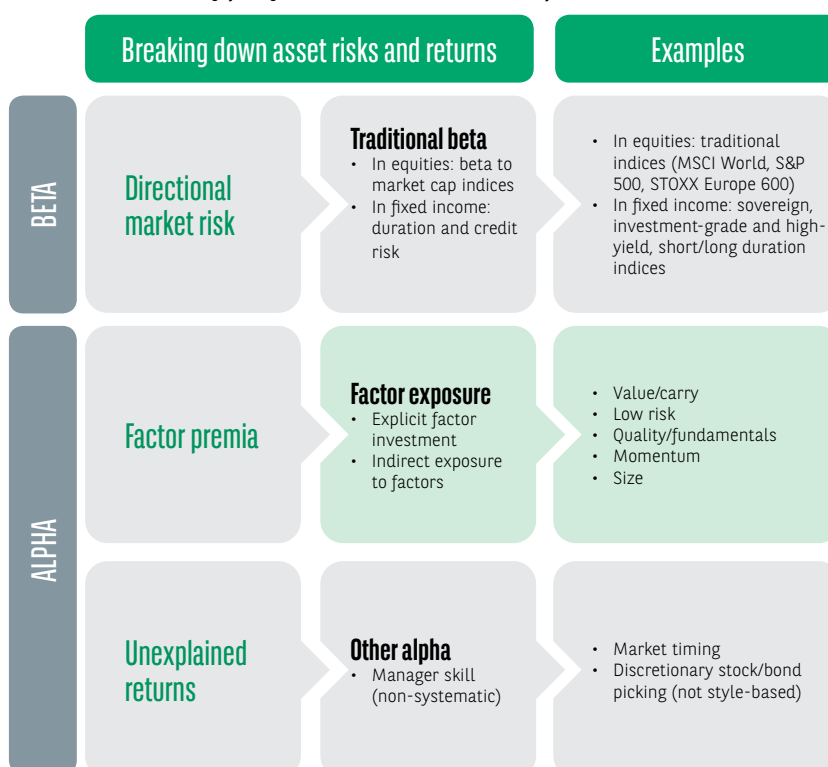
The traditional approach to bond investing essentially focuses on actively managing duration, credit risk and/or currency exposure – three parameters that can be characterised as directional risks, i.e. a form of ‘beta’.

The factor-investing approach, on the other hand, aims to delve into all the other sources of risk — and returns — most likely to drive markets. The objective of factor-based strategies is thus to improve risk-adjusted returns by actively targeting these non-directional sources of performance, also called factor premiums (or factor alpha). In practical terms, it means that factor-based strategies are designed to generate performance without taking any active view on the direction of interest rates or credit markets (see Exhibit 1 below).



**Olivier LAPLENIE**  
Head of Quant Fixed Income  
Portfolio Management

**Exhibit 1: Sources of portfolio risk and returns in equities and bonds**



Source: BNP Paribas Asset Management, November 2017. For illustrative purposes only

So, what are the factors that drive bond markets? We have found the four following groups of factors (see Exhibit 2 below) to be critical drivers of performance in fixed-income markets:

- The value/carry group: factors that focus on price-related data, mostly with a value for money – or carry for risk – approach
- Fundamental factors: focusing on non-price-related data, such as company-specific data for corporate bonds and country-specific data for government bonds (macroeconomic data, for example)
- Momentum-type factors: based on market dynamics and sentiment, they are a way to capture market moves that may not be fully reflected by fundamentals
- The low-risk factor, which builds on the empirical observation that the bonds with the lowest risk tend to offer higher risk-adjusted returns over the long term. This factor is mostly used in the corporate bond segment.

These diverse factors – somewhat similar in their definition to those used in equity markets – are well-documented in academic research for their capacity to explain long-term returns, and have been the subject of extensive historical testing. They are based on relatively simple concepts, which have been used by active portfolio managers for decades – only in a less formalised and disciplined way.

**Exhibit 2: The factors that drive fixed income markets**

Fixed-income factors				
	Carry (value)	Fundamentals	Momentum	Low risk
	Looking for attractive risk-adjusted carry	Based on non-price related data (balance sheet, macroeconomic...)	Focusing on market dynamics and sentiment	Targeting securities with the best return-to-risk
Government bonds	✓	✓	✓	
Currencies	✓		✓	
Corporate bonds	✓	✓	✓	✓

Source: BNP Paribas Asset Management, September 2017. For illustrative purposes only

## **PRACTICAL CONSIDERATIONS: SEPARATING FACTOR EXPOSURE FROM MARKET EXPOSURE**

While the concepts that underpin factors are straightforward and well-recognised, building an efficient factor allocation requires an elaborate investment process.

In particular, one specific area which requires sophistication is the removal of directional biases in a factor. For instance, let us consider a naïve carry/value factor, which would overweight bonds with high carry and underweight those with low carry. If this factor is not adjusted for beta, it will be biased toward high-beta bonds/countries/sectors, and much of the final performance of the factor will be the result of this beta bias. Another typical example is when fundamental factors are used to select corporate bonds: if issuers are ranked according to their fundamentals without implementing sector-neutral scorings, some significant sector biases will occur.

A further specific feature of systematic factor-based strategies is that they are risk-budgeted, i.e. that they can allocate a pre-defined budget of risk to factors (either in terms of volatility or tracking error relative to a benchmark). This ensures that the portfolio will maintain a relatively stable risk profile over time.

Hence it is not just the definition of factors (i.e. the choice of indicators), but also the methodology used to build them and to control relative risks that are critical to ensuring a factor-based strategy can generate long-term returns, regardless of the market direction.

### **FROM AN INVESTOR'S POINT OF VIEW: THE BENEFITS OF DIVERSIFICATION**

As stated previously, one of the main characteristics of factor-based strategies is that they are designed to generate performance without taking any active view on the direction of interest rates or credit markets.

For investors, the implications are twofold. Firstly, in a low-yield/high-valuation environment where directional risks are not particularly well rewarded, these strategies can offer another source of returns rather than just adding more duration, credit or liquidity risk. Secondly, on a broader level, the fundamental differences in the investment approach that is used means that returns from factor-based and traditional strategies will tend to have a low correlation. That means that combining both types of strategies will be beneficial in terms of diversification.

Typically, factor-based strategies can be used as part of investors' 'core' allocation to bring some style diversification relative to other active strategies. Asset allocators can also use factor-based strategies as 'building blocks' to implement their top-down views, for example, as an alternative to purely passive indices. Finally, these strategies can generally be implemented in 'absolute return' types of products, to be included as part of investors' diversification buckets.

Furthermore, systematic factor-based strategies have the benefit of being quite simple to customise, either by adapting the list of the factors that are used or by adjusting the risk budget to fit specific investment guidelines.

With the development of factor-investing, a new breed of strategies has emerged with the objective of improving risk-adjusted returns by focusing on the underlying drivers of fixed-income markets, such as carry, fundamentals and momentum. By combining these factors efficiently, it is possible to build investment solutions that can be included in any investor's portfolio and generate diversified returns without adding any significant duration, credit or liquidity risk. ■



In a low-yield/  
high-valuation  
environment,  
factor-based  
strategies can  
act as an another  
source of returns



# GREEN BONDS – PUTTING THEM THROUGH THEIR PACES

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**Felipe GORDILLO**  
Senior ESG Analyst

According to the definition used in the Green Bond Principles (GBP)<sup>1</sup>, a green bond is any type of debt instrument whose proceeds are used to finance or refinance green projects.

The principles require that the bonds be aligned with four core components:

- (i) use of proceeds
- (ii) process for project evaluation and selection
- (iii) management of proceeds
- (iv) reporting.

To evaluate the environmental and social benefits of green bonds, close attention must be paid to components (i) and (iv). This means that it is important to look at both the type of projects selected and financed with the proceeds, as well as their outcome and impact.

A green bond has a beneficial impact if the proceeds are invested in promising projects and if, once such projects have been implemented, they are subject to a comprehensive and robust reporting mechanism.

With this in mind, BNP Paribas Asset Management has developed an engagement process (see next page) specific to green bonds, with the aim of avoiding any reputational risk associated with project implementation. Accordingly, bonds are analysed at issuance on the primary market and projects are evaluated based on their compliance with a list of eligible sectors and projects drawn up by BNP Paribas Asset Management.

Additionally, issuer reports on the green bonds are closely scrutinised to gauge the outcome and impact of projects. Throughout the engagement process, the team of analysts at BNP Paribas Asset Management's Sustainability Centre is constantly at work to consult with and challenge issuers on the implementation of their green bond programmes.

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<sup>1</sup> <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/GreenBondsBrochure-JUNE2017.pdf>



Eligible sectors  
include renewable  
energy, energy  
efficiency,  
green buildings,  
transport, waste  
management,  
water  
management and  
natural resources

## GREEN BONDS ENGAGEMENT PROCESS

### AT THE TIME OF ISSUANCE EX ANTE



**ESG\* decile:**  
assessment of the issuer's ESG credentials.  
Decile 10 issuers are OUT.



**Taxonomy:**  
the projects to be funded must be in line with our definition of eligible activities.  
If the issuer plans to finance excluded activities e.g. large hydro, nuclear,  
fossil fuels\*\*, the recommendation is OUT.



**Green bonds implementation:**  
(1) disclose a forecast of their green projects allocations;  
(2) manage the potential environmental and social risks embedded in this project;  
(3) clear governance structure for project selection and evaluation.

### ONE YEAR AFTER ISSUANCE EX POST



**Ex post reporting:**  
if the issuer does not provide reporting, the recommendation is OUT.



**Engagement with the issuer:**  
consultation on the actual proceeds allocation, outcome indicators and impact  
indicators. If engagement is satisfactory, the recommendation is IN for another year.  
If not, it is OUT.

\* ESG: environmental, social and governance credentials

\*\* According to the Climate Bonds Initiative and the Transition Énergétique et Ecologique pour le Climat Label (TEEC); source: Sustainability Centre - BNP Paribas Asset Management

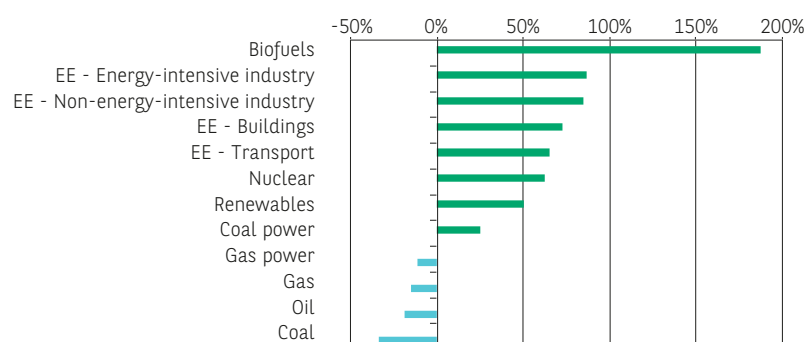
## USE OF PROCEEDS

In their ex ante analysis, the analysts verify that the bond is in line with the 'taxonomy'<sup>2</sup> of the eligible sectors and projects defined by BNP Paribas Asset Management. This list currently includes the following sectors: renewable energy, energy efficiency, green buildings, transport, waste management, water management, natural resources and social initiatives. A certain number of criteria and standards are applied to each sector of the taxonomy to determine whether the financed assets are compatible with the development of long-term solutions.

When projects are intended to tackle climate change, the analysts only include assets that are in line with a scenario in which global warming is kept below 2 degrees Celsius. According to the International Energy Agency (IEA), for such a scenario to be possible, more investment must be made in biofuels and initiatives to increase the energy efficiency of the industry, building and transport sectors, as well as in renewable energies (see Exhibit 1). At the same time, the volume of additional investment in the gas, oil and coal industries must be lowered.

BNP Paribas Asset Management has therefore decided to exclude assets or projects related to fossil fuels from its green bond investment scope. Furthermore, although in some cases assets in the fossil energy industry can allow for a sizeable reduction in greenhouse gas emissions over the near term, the company is committed to supporting green bonds that are compatible with long-term climate scenarios<sup>3</sup>.

**Exhibit 1: Additional investment needs under the IEA 2°C scenario (vs. base case), globally and by category**



Source: IEA, Crédit Agricole CIB; November 2016

Meanwhile, to avoid any controversy or an increase in reputational risk, the ex ante analysis also assesses how the environmental and social risks associated with the financed projects are managed. Issuers are asked to explain the procedures that must be followed should a project have an adverse or unexpected impact, to clearly define the governance structure responsible for mitigating any undesirable repercussions and to describe the standards and frameworks used in this mechanism.

A green bond is beneficial to the environment and to society if any unexpected or undesirable impacts related to the implementation of a project have been clearly mitigated and offset by the issuer, and if the positive repercussions are consistent with a sustainable, long-term development vision.

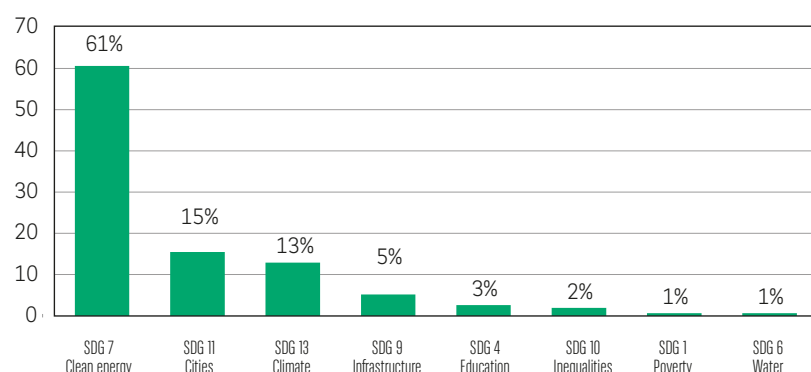
In 2015, the United Nations brought into force a series of Sustainable Development Goals (SDGs). Governments and businesses can use these SDGs<sup>4</sup> to measure their actions and contributions to the welfare and protection of the planet.

At BNP Paribas Asset Management, we have decided to incorporate green bonds into our investment universe precisely because they are an effective vehicle to advance the sustainable development agenda.



Impact report is  
a way to measure  
the positive  
repercussions  
of investments

<sup>2</sup> BNP Paribas Asset Management. Green Bonds Handbook. Eligible technologies taxonomy. February 2017  
<sup>3</sup> <https://www.climatebonds.net/2017/05/oil-gas-bond-we-knew-would-come-eventually-repsol-good-gbps-not-so-sure-green-credentials>  
<sup>4</sup> [www.un.org/sustainabledevelopment/development-agenda](http://www.un.org/sustainabledevelopment/development-agenda)

**Exhibit 2: Percentage of bonds contributing to the Sustainable Development Goals (SDGs)**

Source: Sustainability Centre - BNP Paribas Asset Management, October 2017

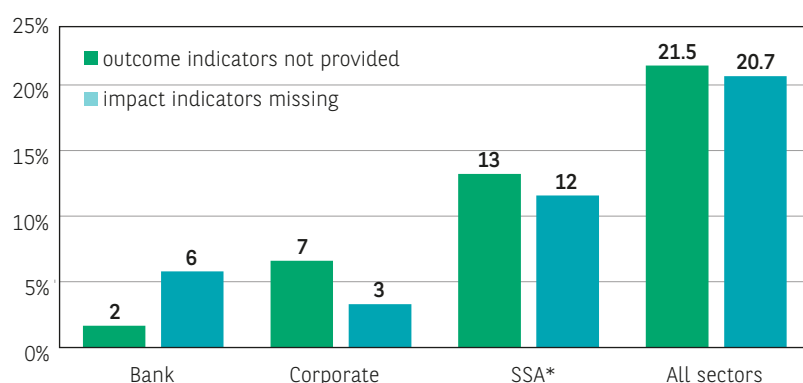
Most of the proceeds of green bond issues go towards financing SDG 7 'Affordable and clean energy', with 67% of the bonds supporting this goal. The second most funded category — 15% of the bonds — corresponds to SDG 11 'Sustainable cities and communities'.

The bonds within our investment scope also support, albeit to a lesser degree, more socially-oriented goals, such as education and the fight against poverty.

## IMPACT REPORTS

Why is it important to ask issuers to provide impact reports? Because it is a way for investors to quantify and measure the positive repercussions of their investments, and it enables them to verify that the issuers responsible for the implementation of projects are delivering on the promises made at issuance on the primary market.

In their ex post assessment, the analysts examine the quality and transparency of the issuer's disclosures. For this, they monitor how funds are allocated to environmental or social projects and examine information on the positive repercussions, in the form of outcome or impact indicators.

**Exhibit 3: Reports by issuer category**

\* Sovereign, supranational and agency issuers

Source: Sustainability Centre - BNP Paribas Asset Management, October 2017



A green bond has a beneficial impact if the proceeds are invested in promising projects involving a comprehensive and robust reporting mechanism

We have noted a steady increase in the number of impact reports. A report is issued for 95% of the bonds included in the scope of our coverage<sup>5</sup>. However, there are still some disparities in the content of these reports, with 21.5% of them not supplying any information on the outcome of the projects. For instance, in the case of some renewable energy projects, the issuer does not disclose the outcome indicator 'installed capacity in megawatts per hour'. Furthermore, impact indicators measuring the benefits for society and the environment are missing in 20.7% of the reports on green bonds.

It is also worth mentioning the degree to which impact reports use external verification or audit. Despite this now being standard practice in the sector, 72% of the impact reports published contain no third-party checks.

Very little content is comparable from one impact report to the next, and this is currently one of the major challenges in the green bond market. Within a given business sector, issuers can apply very different indicators, frequencies and scopes in their environmental impact reports, for example.

We believe that harmonised reporting methodologies are needed to ensure the integrity of these reports and thus the confidence of existing and prospective investors. Indeed, development banks have recently proposed a common framework for impact reporting on renewable energy project<sup>6</sup>. Issuers could also build on existing standards that have been in place for years to report on companies' ecological footprint<sup>7</sup>.

The market has been undergoing constant change in the past 10 years. Just a few years ago, the simple issuance of a green bond was deemed praiseworthy enough, and the publication of an impact report was considered unnecessary. Now, it is the norm for issuers to provide evidence of the benefits of projects in the form of a report. As we move forward, we are hopeful that the information disclosed in these reports will be sufficiently transparent and standardised to enable comparisons between bonds, as is already the case in other sectors (for instance, in the food industry, where consumers can easily compare the calorific, protein and sugar content of any product). ■



<sup>5</sup> The scope of our coverage corresponds to green bonds included in the Bloomberg Barclays MSCI Global Green Bond index and bonds issued outside the index. This is not the same as our investible universe, which is made up of bonds that are eligible in accordance with our analysis methodology.

<sup>6</sup> [http://treasury.worldbank.org/cmd/pdf/InformationonImpactReporting\\_V1.pdf](http://treasury.worldbank.org/cmd/pdf/InformationonImpactReporting_V1.pdf)

<sup>7</sup> <http://www.ghgprotocol.org/standards>



## ASSET CLASS OVERVIEW

## PERFORMANCE: TOTAL RETURN IN EUR

(AS OF 30 SEPTEMBER 2017)

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
9.9 %	57.7 %	28.8 %	6.2 %	26.7 %	21.2 %	32 %	11.5 %	15.6 %	7.7 %	Performance + ↑ Performance -
-5.3 %	34 %	19.5 %	6.2 %	19.2 %	6.5 %	19.5 %	10.4 %	10.7 %	3.5 %	
-25.2 %	25.9 %	15.1 %	3.6 %	14 %	0 %	8.4 %	1 %	10.1 %	3 %	
-37.6 %	17.5 %	14.5 %	-2.4 %	10.7 %	-0.1 %	7.5 %	-0.5 %	8.1 %	0.1 %	
-37.6 %	16.6 %	7.2 %	-2.7 %	4.4 %	-0.1 %	2.6 %	-0.7 %	4.6 %	-4.2 %	
-45 %	1.1 %	3.5 %	-14.7 %	-2.1 %	-9.8 %	-17.8 %	-25.9 %	2.3 %	-4.3 %	

- Global government bonds (H)
- Global corporate bonds (H)
- Global corporate high-yield (H)
- Commodities (H)
- Developed equities (UH)
- Global real estate (UH)

H: hedged; UH: unhedged

Source: Bloomberg, Quant Research Group, BNP Paribas Asset Management; as of 30 September 2017

Indices used: global real estate (RNGL), developed equities (MSDEWIN), global government bonds (SBWGEC), global corporate bonds (LGCPTRH), global corporate high-yield (LG30TRUH), commodities (BCOMHET). Bloomberg ticker in brackets

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IN ENGLISH,  
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INVESTORS' corner

# Thoughts on the flattening of the US yield curve

The US yield curve has been flattening all year, that's to say, the gap between long-term US bond yields and shorter-term interest rates is getting smaller. [...]

**Fixed income**



**Global convertible bonds: this could be their moment**  
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**Investing**



**China: Fears on government bonds are overdone but be wary of onshore corporates!**  
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**Investing**



**Offshore wind power: one way to tackle the energy transition**  
The French Energy Transition for Green Growth Act, enacted on 17 August 2015, aims to increase the share of renewable energy [...]

**Factor investing**



**How does 'quantamental' investing?**  
Quantamental is a relatively new management lingo. Its creation is in [...]

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Felipe Gordillo  
SRI Senior Analyst

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## Stepping stones on the way to developing the green bond

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Several Asian countries recently introduced stewardship codes to encourage investors to act responsibly on the sustainability of their business models. Codes in Asia, Japan, Malaysia, Taiwan, Hong Kong, South Korea and Singapore are already proving effective when it comes to a constructive dialogue about sustainability and green finance with bond issuers.

But, as I explained at a recent BNP Paribas Sustainable Future Forum in Singapore, they are just one of the elements that need to be addressed in considering how best to develop the green bond market in Asia.

Well-adapted regulation – driven by pragmatism

When it comes to regulation in the green bond market, we can learn lessons from Singapore's 'economic miracle' which

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This publication is produced by the Publication Centre at BNP Paribas Asset Management.

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