



BANK OF ENGLAND

# Speech

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## Financial stability post Brexit: risks from global debt

Speech given by

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CFO Agenda, London

Tuesday 7 May 2019

Thank you for inviting me in January to speak today at your conference on “Financial Stability Post Brexit”. I suspect that when this subject was chosen and the invitation sent, it was assumed that Brexit itself would have happened by the time of the conference. As it is, not only has Brexit not occurred, but the path to it and its eventual outcome are perhaps less clear now than a few months ago.

So it is perhaps worth spending a little time today on the financial stability risks that might arise from Brexit. I will then go on to examine the financial stability risk environment more generally.

Before going further, a health warning is necessary. It cannot be repeated too often that the Bank’s approach to its financial stability objective is, in one key respect, very different to its approach to its monetary stability objective. For the latter, the Monetary Policy Committee makes the best forecast we can of the path of the economy and the path of inflation – the central case. We set out clearly and graphically the risks around those forecast, but it is the central case – what we think most likely to happen – that informs our policy decisions.

For financial stability, the focus of the Financial Policy Committee (FPC) is not on the central case – on what is most likely to happen; rather it is on the risks – on what *could* happen even if it is not the most likely scenario. It is the risks, what could happen, that inform our policy decisions.

## **Brexit**

That is why our financial stability focus has been on the risks from a disorderly Brexit.

The Bank has been working since the referendum to reduce the risks to financial stability and the risk of disruption to financial services, in the event, that the UK leaves the EU without a deal and without any transition period.

This has been a pretty large task.

Alongside the Treasury and the FCA we have made sure that we will have a working legal and regulatory framework for the financial sector at the point that EU law no longer applies in the UK.

Over 10,000 pages of financial sector related EU legislation has been assessed to see what changes would be required to make the legislation operable in the UK statute book.

Over 1,000 pages of amendments have been made by the Treasury in 50 statutory instruments. The Bank has reviewed 6,000 pages of Binding Technical Standards and over 6,500 rules, and published 473 pages of amendments in 15 EU Exit Instruments.

We have also put in place temporary permission and recognition regimes so that EU firms providing financial services into the UK will be able to do so without disruption even in the event of a 'no deal, no transition' Brexit.

Some risks have required action on both sides of the Channel. We have worked with the ECB and other EU authorities to identify and mitigate these. We have not, to be frank, agreed on everything and there remain areas of potential disruption that, as of the last FPC assessment, need to be addressed.<sup>1</sup> But, action, at EU and member state level, has been taken on most of the main financial stability risks.

The other financial stability risk is the general economic impact of a disorderly Brexit upon the financial system.

The Bank of England tests the core UK banking system annually against a stress scenario to ensure it has the resilience to absorb the losses that would arise from a very severe but plausible set of domestic, global and market shocks.<sup>2</sup>

To address resilience to Brexit risks, we developed a worst case Brexit scenario, and compared its impact to the impact of the Bank's 2018 annual stress test that the core banks had passed.

The conclusion was that our annual stress tests comprised stresses of a scale and nature that encompassed even the worst case disorderly Brexit scenario and that the core banking system would be resilient to such an outcome, were it to occur. We have also assessed other parts of the financial system in the same vein. And of course over recent months, as we approached 'crunch' Brexit dates and events, we have developed and have been ready to implement contingency plans to respond to financial sector stress.

I would make three observations about this work that has occupied an increasing amount of the Bank's resources over the last year and a half.

First, we have sought to address risks to financial stability. Financial stability is a high hurdle. It does not mean market or economic stability or absence of any disruption or absence of losses.

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<sup>1</sup> The March FPC statement noted that, while most risks to UK financial stability that could arise from a disruptive Brexit have been mitigated, in the absence of further actions some potential risks to financial stability remain. These risks were: the ability of UK and global banks to provide wholesale banking to EU clients; the operational risks involved with migrating businesses, assets, and contracts in a short period of time; and the ability of UK-EU counterparts to use uncleared derivatives to manage risks.

<sup>2</sup> The scenario for the 2019 test includes a deep recession in the UK with GDP falling by 4.7 % from peak to trough, house price falls of 33%, falls in commercial real estate prices of 41%, recessions in the Euro Area, the US, and China and market stresses including a 41% fall in equity prices and a nearly 400bps widening of investment grade spreads

In the event of a no deal, no transition Brexit, markets would be likely to be very volatile – as they were after the referendum - as prices adjust to that outcome. The banking system has the ability to withstand the losses that would accompany a serious downturn – but one would still expect there to be losses. And, of course, while we have addressed all of the risks we can foresee, stress events can evolve and combine with other events in unpredictable ways.

Second, to return to my opening point, the reason we have focused on the risks from a disorderly no deal, no transition Brexit is not because that is what we expect to happen but because the financial system needs to be able to withstand what *could* happen. The crisis taught us the costs to the economy and to society of a breakdown in the financial system.

Third, we have been fully transparent in our assessment of the risks and the actions necessary to address them.

The FPC has published its assessment of Brexit risks and its ‘Checklist’ of actions necessary on both sides of the Channel regularly since 2017. The FPC also published, in response to a request from Parliament, its severely adverse Brexit stress scenarios.

This approach has not been without some criticism – in the UK and in the EU. I would argue however that not only is it our statutory duty to report on risks to financial stability but that by making our assessments public we have encouraged others to prepare for the risks.<sup>3</sup>

And by making transparent not just our assessment of the resilience of the financial system but the assumptions and judgments that underpin them, we reduce risk by ensuring people can have confidence in the system even if it comes under severe stress.

Looking further forward, there are two Brexit related financial stability risks that may surface after we have left the EU.

The first are the risks that may arise from our future relationship with the EU. The choice of that relationship is for government and parliament and not for central bankers. It will need to balance very different economic and social objectives on which views are, as we have seen in recent months, very divided.

Financial stability, which is my responsibility in the Bank, is I think an important consideration in that equation, but it is only one consideration.

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<sup>3</sup> This is set out in section 9W(4) of the Bank of England Act 1998: (1)The Financial Policy Committee must prepare and publish reports relating to financial stability (“financial stability reports”). (2)Two financial stability reports must be published in each calendar year. (3)A financial stability report must include— (a) the Committee’s view of the stability of the UK financial system at the time when the report is prepared, (b) an assessment of the developments that have influenced the current position, (c) an assessment of the strengths and weaknesses of the UK financial system, (d) an assessment of risks to the stability of the UK financial system, and (e) the Committee’s view of the outlook for the stability of the UK financial system.

However, a situation in which the UK is home to the largest and most complex financial centre in the world, along with a large domestic financial sector, but effectively has no say in the regulation of that financial sector would, as I have said before, become very uncomfortable with regard to the Bank's financial stability objective and our ability to manage financial stability risks.

By the same token, pressure to weaken regulation post Brexit would create financial stability risks: the FPC has made clear that given the size and complexity of its financial sector post Brexit the UK will need a level of resilience as least as great as that currently planned, which itself exceeds that required by international baseline standards.

The second risk that may arise after we have left the EU, is the related but perhaps more prosaic issue of the flexibility of the UK's regulatory framework and allocation of responsibilities within it – the division of tasks between Parliament, Government and the regulatory authorities.

Much of our financial sector legislation and regulation has been made at the EU level. This has increasingly taken the form of extremely detailed EU primary and secondary legislation directly applicable in Member States.<sup>4</sup>

This approach has been justified as necessary in the EU by the need to prevent divergences between member states. The cost, however, as some have observed, is an over complex and rigid regulatory framework.<sup>5</sup>

As a preparatory step for Brexit, Parliament has 'onshored' EU legislation and regulation and also the allocation of responsibilities that lie behind it.

At some point, post Brexit, we will, I think, need to address this rigidity and hard wiring of detail to ensure we have a coherent, effective and flexible regulatory system with appropriate accountability. How we do that will have an impact on how we address risks, at firm and at system level, in a fast changing financial system.

### **Financial stability post-Brexit**

With that nod to the future, I will leave Brexit - for today at any rate – and turn to the examination question you have set for today – financial stability post Brexit. I would like to focus on the question of debt.

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<sup>4</sup> For example, the Capital Requirements Regulation for banks, and the Solvency 2 Delegated Act for insurers and the European Market Infrastructure Regulation for CCPs.

<sup>5</sup> See for example, "The evolution of the financial services regulation in a post-Brexit Europe" - Speech by Robert Ophèle, Chairman of the Autorité des marchés financiers – 13 November 2017 "This has led to a hypertrophy or swelling of regulations that - probably to avoid national drifts - has entered a stage of extreme luxury of details... and has led to a rigidifying of regulation of a very damaging sort."

Debt, its level, its growth, its composition and its sustainability lies at the centre of the financial stability mandate.

Modern societies and economies are built around the claims we hold on each other. A very large proportion of those claims are expressed as financial claims to be honoured in the future. The future, of course, does not always turn out to be what we expect and the value of our claims has sometimes to be adjusted downwards.

Some financial claims, like equity, adjust the value of the return relatively smoothly. Debt liabilities, however, are fixed and amplify the impact of any negative shock to the income or assets of the debtor. And if the impact cannot be accommodated, the result can be a painful write-down or deleveraging of the economy. Financial crises are much more likely to be associated with corrections of asset values where asset purchases have been financed with debt rather than equity.

Aggregate global debt – public, private and financial – is now around 320% of global GDP, close to its record highs. Excluding financial sector debt, the debt of the real economy is around 240% of global GDP.<sup>6</sup>

But aggregates can only tell you so much. And they can hide a multitude of sins. We need to need to look not just at the level of the total, but the growth rate and sustainability. And we need to drill down into the composition to see where the risks are most prominent.

### **Growth, level and sustainability**

Research suggests that it is the growth rate of debt rather than its actual level that is the leading indicator of financial crises. Bank of England work based on 130 downturns in 26 advanced economies since the 1970s suggests that a rapid build up of debt is the best early warning indicator of a recession.<sup>7</sup> Other academic work supports this conclusion.<sup>8</sup>

The actual level of debt matters rather in determining the depth, as opposed to the probability, of the crisis. So we need to look at the growth rate as well as the level.

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<sup>6</sup> See IIF Global Debt Monitor. Of the 317% of global debt to GDP, 60pp is household debt, 90pp is to non-financial corporates, 86 is government, and 80pp is financial corporates. Including financial sector debt in the total leads to some double counting. But in my view, including financial sector debt is informative as it reveals information about the financial system that is intermediating credit - and as such, about financial stability.

<sup>7</sup> 'Down in the slumps: the role of credit in five decades of recessions' by Jonathan Bridges, Chris Jackson and Daisy McGregor (Bank of England Staff Working Paper No. 659). As reported in Carney (2019), 'The global outlook', over half of recessions are preceded by private sector credit booms and within advanced economies, two-thirds of private credit booms have also ended in recessions.

<sup>8</sup> See, for example, Schularick and Taylor (2012), 'Credit booms gone bust: Monetary policy, leverage cycles and financial crises, 1870-2008', *American Economic Review*, 102(2): 1029-61, and Kaminsky and Reinhart (1999), 'The twin crises: the causes of banking and balance of payments problems', *American Economic Review*, 89: 473-500.

Between 2000 and the crisis in 2008, total global debt as a proportion of global GDP grew by over 60 percentage points, a growth rate of nearly 30%. Between 2008 and 2018 it has grown by around 25 percentage points, a growth rate over the last 10 years of just under 10%.

However, the bulk of the post crisis growth occurred in the first 5 years after the crisis as governments stepped in to offset private sector deleveraging and support the economy. Since then, global debt has stabilized, growing by only 1% in total, relative to global GDP, over the past 5 years.

The aggregate growth rate is not therefore signaling an impending correction. The level, however, may well represent a significant vulnerability given that high levels of debt are associated with deeper and more persistent recessions.

Assessing the sustainability of this debt is more difficult. Whether debt is sustainable depends on the difference between the interest rate and the growth rate of the income stream that will be used to repay the debt. The future is not known – in assessing today whether a given level of debt is sustainable, we must rely on our best forecast of future interest rates and growth.

The level of debt that is sustainable in an economy is not a constant. It can change over time and indeed has changed enormously over the last 150 years. The ratio of credit to GDP in the late Victorian British economy was under 20% (not including the financial sector). In the mid-twentieth century it was around 60% and by the early 1990s over 100%.

It is influenced by many factors including, very importantly, the long run real rate of interest. There is strong evidence that the long run, or trend real rate has come down materially over the past 40 years as a result of slow moving, secular changes in the supply of savings and the demand for investment.

The MPC published analysis last August suggesting that the trend real rate in the UK has fallen by more than 2pp since 1990. Slower population growth, increased life expectancy and slower productivity growth have all contributed to this fall.<sup>9</sup>

Looking forward, many of the structural factors currently weighing on the trend real rate – in particular, changes in demographics – are likely to persist for many years to come, though other factors could push in the opposite direction.<sup>10</sup>

The trend real rate of interest, however, cannot be observed directly. It can only be estimated and while most estimates suggest it has reduced materially, estimates do vary widely.

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<sup>9</sup> See August 2018 Inflation Report. See also 'Secular drivers of the global real interest rate' by Lukasz Rachel and Thomas D Smith (Bank of England Staff Working Paper No. 571).

<sup>10</sup>For example, increasing financial integration of lower-income countries, a pickup in overall global productivity growth and increasing automation.

As to income growth, to the extent that expected low real rates reflect expected lower productivity and hence expected lower income growth, they would not make debt more sustainable.

Over the economic cycle, of course, the short-term real rate of interest will be moved around its longer-term trend by more temporary factors. But the persistence of the fall in the trend real rate means interest rates are likely to need to remain low by historical standards for some time to come. One might therefore expect this generally to support the sustainability of global debt overall, though given the uncertainties of estimates and forecasts of trend real rates, there are clearly risks to this assessment.

## **Composition**

From a financial stability viewpoint, the composition of the debt stock matters. Even if the aggregate level of debt is not growing and there are reasons to believe its sustainability may generally be supported by relatively low rates going forward, components of the debt stock can vary greatly in riskiness and vulnerability to correction.

The composition of the global debt stock has changed since the crisis.

Overall, advanced economy private sector debt has reduced a little since the crisis. The increase in advanced economy debt has been in the public sector.

I do not want here to enter into a discussion of fiscal sustainability and limits to government borrowing. But I would observe, from a narrow financial stability perspective, that growth of own currency sovereign debt, especially when financed internally, is not a good predictor of financial crises. Elevated own currency sovereign debt can certainly weigh very heavily on economies but its adverse effects are usually chronic rather acute.

The rotation of debt in advanced economies from the private sector to the government, post crisis, makes it more likely that any correction will lead to chronic rather than acute problems.<sup>11</sup>

By contrast, the decline in the aggregate level of advanced economy private debt may not be as comforting as it appears. Aggregates, as I have said, can hide a multitude of sins.

Household debt came down post crisis in most advanced economies – falling from 83% of GDP in 2009 to around 73% today – and has grown very slowly, if at all, since, moving within a percentage point for the last five years.<sup>12</sup>

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<sup>11</sup> The Euro area is perhaps something of an exception, given that Euro members issue debt in a common currency rather than a national currency. This removes the exchange rate and inflation mechanisms for correcting debt values that can operate when sovereigns issue in their own currency and makes the adjustment mechanism of default more likely, as was seen in the Euro crisis.



Financial sector debt in advanced economies has also grown very slowly after the very painful deleveraging of the financial sector during and after the crisis. This reflects greater risk aversion in the banking sector reinforced by the much higher level of capital banks are now required to hold against losses, a very positive development for financial stability.

Corporate debt in advanced economies, however, is a more mixed story. It has not grown much overall over the past 5 years. But within that, over the past 3 years its growth rate has accelerated in some countries – particularly the US and France. And perhaps more importantly, while the totals may not be changing much, the riskiness has been increasing.

Within corporate debt, the proportion of leveraged lending and lower grade corporate bonds has risen rapidly in recent years, and in the UK and US there is a larger tail of highly indebted companies than there was before the crisis.<sup>13</sup>

Alongside this, protections for investors have been weakened materially. There has been an increase in borrower leverage, greater use of earnings add-backs and a relaxation of other investor protections like restrictions on collateral transfers. The share of ‘covenant-lite’ loans has reached record highs.<sup>14</sup>

Leveraged loans originate in the banking system. Much of the exposure, however, appears to have been passed on to market based investors, such as investment funds, insurance companies and pension funds either directly or in the form of collateralized loan obligations (CLOs).

The growth of market-based finance has been one of the major changes of the post crisis financial landscape. Assets under management (AuM) globally now total \$184 trillion as opposed to \$100 trillion ten years ago. The growth in corporate borrowing over the same period has largely come through the market-based channel, rather than banks, as has the increase in net external borrowing by emerging markets.

The development of market based finance in and of itself probably increases the resilience of the financial system by providing an alternative channel of credit.<sup>15</sup>

Its use of leverage is much less than the banking channel. Investors using the market-based channel have a claim on the value of their investments not the nominal amount they invested and their claims should therefore be able to adjust to losses more smoothly.

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<sup>12</sup> There are exceptions such as Canada, France and the Nordic economies.

<sup>13</sup> This refers to firms with net debt to EBITDA ratios greater than 4x.

<sup>14</sup> At around 60% of the flow of leveraged loan issuance in 2018 (vs. a pre-crisis peak of 20%).

<sup>15</sup> For example, in the US the stock of market-based lending in the two years from Q3 2008 to Q3 2010 was broadly stable (going from \$5.1tn to \$5.2tn) helping to moderate the impact of the 11% fall in bank loans over the same period (from \$5.5n to \$4.9tn).

Nonetheless, market-based finance often involves liquidity and maturity transformation and can be subject to run risk.<sup>16</sup> And one of the developments over the last ten years has been the expansion of the investment fund component of market finance into riskier and less liquid areas.

We know much less about how this channel of finance will behave under stress say, following the loss of confidence in an asset class such as high yield corporate debt and leveraged loans.

High yield corporate bonds and leveraged loans are only 15% of advanced economy corporate debt. But while it is important to look at aggregates, it is also worth recalling that a very sharp correction in a relatively small asset class can have major repercussions: the stock of US subprime mortgage was only \$1.1 trillion in 2006, or 13% of the total stock of US mortgages.

There are of course many differences between leveraged loans and associated CDOs and subprime.<sup>17</sup> But, as the Financial Stability Board announced last week, it is now a priority for the international regulatory community to understand better how this market might behave under stress and who is holding the risk.<sup>18</sup>

The other striking development that I would note in the evolution of debt over the past 10 years has been in emerging markets, primarily China, rather than advanced economy debt. Emerging market debt now accounts for over a quarter of the global total compared to an eighth before the crisis.

Within this, there has been a persistent buildup of private debt to record levels in China: excluding the financial sector, private debt has risen from 115% in 2008 to 203% of GDP.

The majority of this increase occurred in the years after the financial crisis but Chinese private debt has continued to grow, by 30 percentage points of GDP, over the past 5 years, much of it intermediated through the less regulated shadow banking sector.<sup>19</sup>

The largest increases have been in the corporate sector, mainly in state owned enterprises, but more recently household debt has begun to grow quickly.

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<sup>16</sup> The Financial Stability Board's Global Monitoring Report on Non-Bank Financial Intermediation 2018 shows that collective investment vehicles with features that make them susceptible to runs represent 71% (\$37 trn) of the FSB's risk-based narrow measure of non-bank financial intermediation.

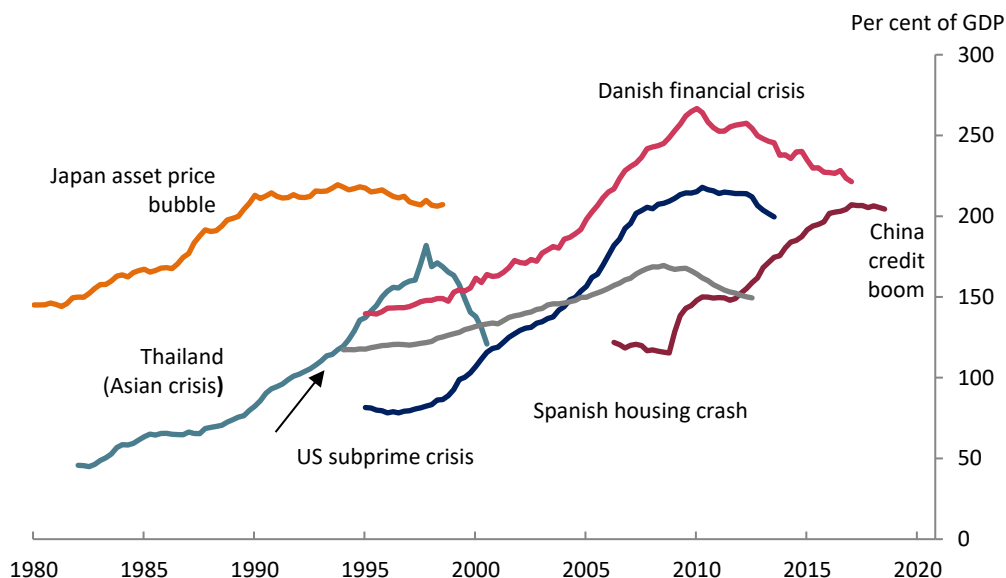
<sup>17</sup> See the November Financial Stability Report for a discussion of the similarities and differences between the current leveraged lending market and sub-prime lending in the run up to the crisis. Chart F.8 also illustrates which market actors are holding the collateralised loan obligations.

<sup>18</sup> See [FSB Plenary Press Release](#)

<sup>19</sup> IIF Global Debt Monitor.

As published by the Bank in the past, the rate of growth and level have passed the points where other economies, advanced and emerging, have experienced sharp corrections in the past (Chart 1).

**Chart 1: China's credit boom in a historical context**



Sources: BIS and Bank of England.

The Chinese authorities have, since the start of 2017, taken material policy measures to de risk the financial sector and bring the growth rate of debt into line with the growth rate of nominal GDP.

More recently, however, in the face of slowing economic growth, they have adopted a range of measures to support domestic credit. A sharp slowdown in economic growth would make China's elevated debt levels significantly less sustainable.

China's external debt is small and denominated in its currency. Although a number of international banks are active in its jurisdiction, its financial system is not highly integrated into the global system. A debt correction in China would first and most directly affect the Chinese economy.

The impacts could be expected to spillover, however, to wider financial stability through a number of channels.

The Chinese economy is now pivotal to regional growth and one of the main pillars of world growth and trade. As well as the economic effects and effects directly through banking exposures, it is likely that there would be a severe impact on financial market sentiment, this effect was seen in 2015 when a period of sharp correction in domestic Chinese financial markets sparked a correction in US financial assets.

## Pricing of risk

Finally, I have tried today to trace a line from financial stability risks in the overall level and growth rate of global debt to those that may lie beneath the surface of the aggregate numbers.

Another perspective on the risks around debt is pricing – whether investors have taken all risks into account, and priced them prudently or whether there's a degree of optimism that is reflected in the pricing (just as optimism can be a factor in rising debt levels).

Pricing for much of the stock of global debt is not easily visible, but for debt traded in markets – typically corporate bonds – we can observe the following.

Spreads – the amount charged for risk, be that credit risk or liquidity risk – are low by historical standards at the moment. The relatively low compensation demanded for risk can also be seen in the small difference between the price of investment grade and high yield bonds.

We can observe some of these trends in non-traded debt. Spreads on leveraged loans are roughly 100bps lower than they were in 2015 for the US, which comprises most of the global market, and 70 bps lower in the UK.

Alongside this low pricing for risk, volatility is low. The VIX ended April at about 13 – well below its 21<sup>st</sup> century average of about 20. And US equities are similarly priced – implying investors are demanding a low equity risk premium.

Moreover, risk-free rates are low in many jurisdictions, and yield curves are broadly flat in all major jurisdictions. This suggests there is little market expectation of any pickup in growth or, perhaps more notably, inflation. Similar conditions have persisted for much of the last few years.

An environment of low pricing for risk and low volatility might appear to suggest that global markets are not expecting large changes in asset prices.

And yet, in a short period over the end of last year and start of this one we saw very sharp moves across asset markets in response to what seemed relatively modest amounts of news. Between mid-October and the end of the year spreads on investment grade bonds, for example, went up by around 50bps.

Since then, these moves have completely retraced – spreads at the start of May were the same as they were in mid-October last year. Bonds in other currencies and high yield bonds went on a similar round trip. At one point towards the end of 2018, the S&P was 15% lower than it had been just 3 weeks earlier – it is now at record highs.<sup>20</sup>

The fall in financial asset prices seems to have been due in no small part first to market concerns about future economic growth and the recovery to better news about the world economy and to the signal of greater support to economic growth from central banks than had hitherto been perceived.

But the episode may also suggest that when it comes to expectations about the value of debt, the market itself is very sensitive to changes in sentiment and a correction might come very quickly, either because of weakening expectations of economic performance or signs of inflation. Given the apparent current compression of risk pricing, such a correction could be a sharp one.

## **Conclusion**

The level of the global debt stock relative to GDP remains near its record high, though it has stabilized over the past five years. The sustainable level of debt to GDP is not, however, a constant and there are reasons to believe that the lower trend real rate will likely support sustainability. While less expected, however, a relatively small increase in the trend rate could lead to a reassessment of debt sustainability.

While there is evidence that the level of debt, as opposed to the growth rate, does not appear to be a good predictor of recessions and financial crises, the level does seem to be associated with depth of losses when crises occur. The historically high level of debt may generally suggest a higher vulnerability in periods of stress.

The composition of debt, within the aggregate numbers, has changed since the crisis. Emerging market debt has grown as a proportion of the global debt stock, over the past 10 years, with much of the increase driven by China.

Advanced economy public debt has risen but household and financial sector debt is lower now and the lower post crisis levels have been stable for a number of years. Advanced economy corporate debt, however, has grown rapidly in recent years in some major jurisdictions, particularly the US, and its riskiness has increased. The pricing of risk in financial markets is relatively compressed by historic standards, as is market volatility. But recent events suggest the market may be very sensitive to changes in expectations of growth or inflation.

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<sup>20</sup> For UK assets, there has been the additional impact of fluctuations in Brexit news and sentiment. The evaluation of Brexit outcomes seems to have dominated responsiveness to near-term domestic news.

As always, the risk picture is mixed. From a financial stability perspective, the right response to this picture is to ensure that the financial system is sufficiently resilient to a very severe but plausible correction in values should it occur.

A colleague of mine recently asked me why the financial stability side of the Bank was so gloomy, always pointing to risks on the horizon and seeing the glass as half empty at best? My answer was that it was our job to worry about what could plausibly happen - and to ensure that if it did happen, the glass did not suddenly empty entirely.