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ASSET MANAGEMENT

**Discussion Paper** | CROSS ASSET Investment Strategy

DP-33-2018

**Where will the next financial crisis  
come from?**

**Are we ready to confront it?**

Research  
& Macro  
Strategy



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# Where will the next financial crisis come from? Are we ready to confront it?

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First version: March 2018 (\*) - This version: July 2018

## Abstract

The world is not yet completely out of the 2007-2008 financial crisis, but the risk of a new crisis already arises. The theme of “regime shift” (volatility, interest rate, inflation, etc.) has resurfaced, which led to a marked correction in financial markets in January – February. Economic history also teaches that financial crises are seldom anticipated, or more precisely, it teaches us that measures to avoid them have never been taken in time. In reality, crises have

“The stock market has predicted nine of the last five recessions”

*Paul Samuelson (1966) “Science and Stocks, Newsweek, September 19*

all been preceded by often very clear signals, but they have been ignored or underestimated (by regulators, by central banks, investors...).

Is it possible to move from a regime of growth without inflation and low rates to a regime of higher volatility and inflation, and higher interest rates, without a financial crisis or a macroeconomic shock? Here is the major stake for 2018... and beyond. Where could the next financial crisis come from? Are we ready to confront it? These are the main topics of this article.

*(\*) The first version of this article had been prepared for an Amundi Advisory Board meeting (March 28, 2018). The author would like to thank all participants for their valuable comments.*

Keywords; Financial Crisis, Contagion, regime shift, bubbles, risk premia repricing



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## Executive summary

Economic history teaches that financial crises are seldom anticipated, or more precisely, it teaches us that measures to avoid them have never been taken in time. In reality, crises have all been preceded by often very clear signals, but they have been ignored or underestimated (by regulators, by central banks, investors...).

Market shocks (for example, 10% drop) are frequent and most generally salutary, because they allow 'purge' excess positions, or correct excess valuations. These corrections are not alarming for the continuity of the regime. Financial crises, on the other hand, often represent real questioning of the existing regime, or even the overall functioning of financial markets and the economy (they are also seen as crises of capitalism and its excesses).

**The factors that can develop (and burst) excessive bubbles/valuations are quite well identified:** rationality (often a justification found in the underlying macroeconomic situation), opportunism (attractiveness of some markets), the excess of confidence (most often provided by the attitude of the central banks), complacency (an exaggeration of trends), mimesis (common views and positions to the largest number of players), and the sense that the period is atypical (giving some comfort to exaggeration).

**Three markets may trigger a major shock or a crisis:**

- The first segment of the market that is at risk is undoubtedly the bond market. There is no price inflation, but asset inflation. In total, interest rates are 'too low' due to ultra-expansionary monetary policies and QE, excess liquidity in central banks and lower market liquidity;
- The second market segment at risk is the credit market in China;
- The third market at risk is the US stock market, which is regarded by many investors as being highly overvalued.

Within markets suddenly bearish and affected by fire sales, **we must not confuse crisis-triggering factors** (change of monetary policy stance, geopolitical shock...) **and crisis-accelerating factors** such as mimesis (reversals of portfolio positions when they are all positioned in the same direction), or the low liquidity... No need for a significant shock to cause a market drop or even a real crash.

**What would trigger bubbles to burst?** Several factors are likely to play this role.

- A "repricing" of risk premiums;
- An inflationary shock;
- A monetary policy shock;
- A disappointment on growth - inflation;
- Some dismantling of financial regulations (it would undoubtedly lead to excessive risk-taking, and even greater complacency);

- A political or geopolitical shock;
- An increase in protectionism and self-centrism.

**With rare exceptions, contagion effects are inevitable.** This is mainly linked to economic and financial globalisation, but also to the nature of the crisis. If it concerns a country or zone, and if non-residents have invested little in that country or zone, then contagion remains low. A “simple” repricing of risk premiums, resulting in a moderate rise in interest rates would be less damaging to the real spheres, as interest rates would remain objectively low at the end. But the question of the impact of the financial sphere on the real sphere has always to be raised.

**The capacity to cope with an eventual financial crisis can be assessed against several criteria.**

- The vulnerability of countries, especially emerging countries;
- The existence - or not - of fiscal and tax room of maneuver;
- The existence - or not - of room of maneuver for monetary policies;
- Investors’ positioning (mimesis and liquidity);
- The health of the economies: the situation is good at present, and this is undoubtedly an asset in the current circumstances. All growth engines are active: consumption, investment, world trade and fiscal, tax and monetary policies are rather accommodative. In the Eurozone, Japan, the US or China, growth is above potential;
- Debt constraint: the level of debt forces - or even influences - economic policies, including monetary policies. A sharp rise in interest rates would raise new issues on the solvency of the States/companies with high levels of leverage.

The large part of recent regimes (especially from the 1980’s) pleaded for low inflation and low interest rates (**great moderation, global savings glut, global liquidity glut**), while **secular stagnation fears** that emerged in the 2000’s amplified the underlying trends. However, secular stagnation scenarios gradually disappear, the risk for risk premia repricing has increased, and excessive valuation of some assets, with geopolitical risks adds uncertainty. The question now deals with an effective regime shift, with eventually higher interest rates, higher inflation, higher volatility.

Five different regimes are plausible:

**Regime # 1: great moderation again?** Low volatility of growth and inflation as the major two consequences;

**Regime # 2: inflation like in the 70’s?** Higher interest rates and higher bond yields inevitable, while equity markets would be severely hurt;

**Regime # 3: debt super-cycle: a worldwide phenomenon?** In such a scenario, global debt crises like in the 80’s in EMG countries would be highly probable, with financial crisis and stock markets collapses, debt crisis



and big contagion to the real sphere (with global recession the major risk);  
**Regime # 4: secular stagnation (fears) like in the 2010's?** Such a regime would be a combination of low rates, low inflation, low yields, low growth, low volatility;

**Regime #5, the most probable in the coming year:** growth remaining above potential still, with moderate inflation but inflationary risk tilted to the upside and risk inflation figures from time to time disappointing, higher volatility although limited, higher rates although moderate, appeasement on trade war, geopolitical risks contained, EMU not at risk...

These 5 regimes are completely different, and they have very different impacts.

**Three scenarios at play for the coming year:**

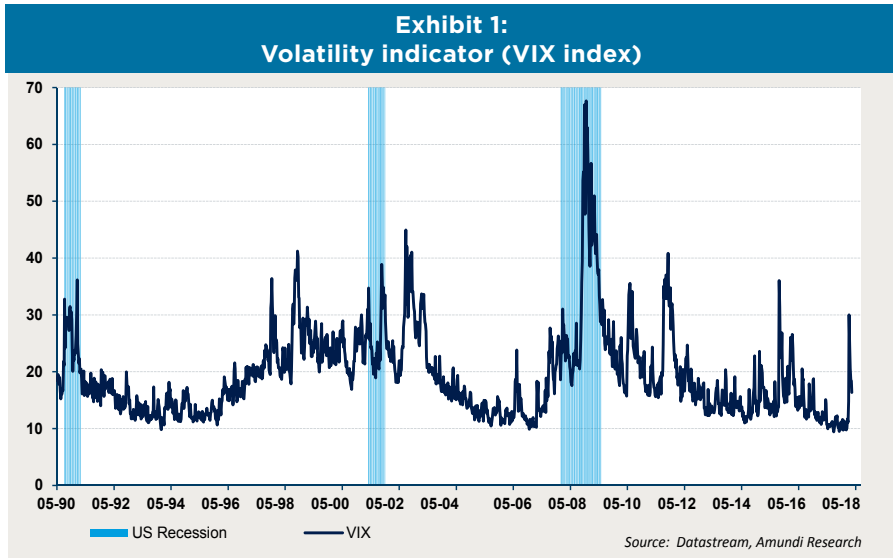
**Scenario # 1:** 2018-2019, new period of “great moderation”, with low volatility, stability of growth and inflation, low inflation and low interest rates (*probability: 10%*);

**Scenario # 2:** 2018-2019, a period of higher volatility, with interest rates rising further and with regularly hectic financial markets (*probability: 75%*);

**Scenario # 3:** a major crisis (*probability: 15%*).

## Introduction

**The world is not yet completely out of the 2007-2008 financial crisis, but the risk of a new crisis already arises.** The theme of regime shift (volatility, interest rate, inflation, etc.) has resurfaced, which led to a marked correction in financial markets in January – February (exhibit 1).



**With sudden change in regime, the traditional ingredient of a financial crisis is excess liquidity that leads to a credit bubble:** the stock and the evolution of private debt (in particular China) and public debt, as well as the low deleveraging since the 2008 crisis remain a concern. Economic history also teaches us that financial crises are seldom anticipated, or more precisely, it teaches us that measures to avoid them have never been taken in time. In reality, **crises have all been preceded by often very clear signals, but they have been ignored or underestimated** (by regulators, by central banks, etc.). Who really thought in the 1990's that the tech bubble would not eventually burst? Who really believed that the continuing overhang would not create strong economic and financial turmoil in the 1990s? How seriously consider that subprimes and abnormal risk aversion would not turn into deep problems in the middle of the 2000s? As a CEO of a big US bank ironically mentioned as an excuse following the crisis, “as long as music played, we all kept dancing”. Similarly, who still believes that the regime of low volatility, low inflation, low rates and excessive valuation of assets can last indefinitely? In other words, to see financial markets change, once again, constitutes a real threat. Two types of crises should be specified: market shocks (for example,

10% drop) are frequent and most generally salutary, because they allow 'purge' excess positions, or correct excess valuations. These corrections are not alarming for the continuity of the regime. Financial crises, on the other hand, often represent real questioning of the existing regime, or even the overall functioning of financial markets and the economy (they are also seen as crises of capitalism and its excesses).

Is it possible to move from a regime of growth without inflation and low rates to a regime of higher volatility and inflation, and higher interest rates, without a financial crisis or a macroeconomic shock? Here is the major stake for 2018. Where could the next financial crisis come from? Are we ready to confront it?

## I. Bubbles / Excessive valuations: what are the markets at risk?

The factors that can develop (and burst) such excessive bubbles/valuations are quite well identified:

- **Rationality:** the justification is often found in the underlying macroeconomic situation;
- **Opportunism:** the attractiveness of the corresponding market;
- **(the excess of) Confidence:** it is most often provided by the attitude of the central banks (low rates forever", explicit forward guidance, QE programmes when refer to the recent past);
- **Complacency:** it leads to an exaggeration of the existing trends;
- **Mimesis:** when common views and common positions to the largest number of players drive the markets;
- **The sentiment that the period is atypical ("this time is different"):** this sentiment gives some comfort to exaggeration.

A significant driver of asset prices since the Financial Crisis has definitely been the amount of liquidity in the system. From 2008-2015 the Fed grew its balance sheet by over \$3.5 trln and kept rates close to zero for those 7 years. Including the ECB/PBOC/BOJ, there was over \$13 trln in Global balance sheet growth. This liquidity spurred massive appreciation across all assets as investors pushed out the risk curve to achieve yield. However, the "liquidity party" cannot last indefinitely.

**1.1 The first segment of the market that is at risk is undoubtedly the bond market.** Globally, the excess liquidity provided by central banks is not going to the prices of goods and services, but to financial assets. There is no price inflation, but asset inflation. In total, interest rates are 'too low' due to ultra-expansionary monetary policies and QE, excess liquidity in central banks.

In Europe, the bond market is at risk because the price does not reflect the effective risk and because of the gap with the fundamental value (around 100bp).

As regard the US, it is different... bond yields are in line with the fundamentals. The question deals with the capacity of the bond market to finance the twin deficit: is the risk-free asset role of the US public debt (and the global demand for US treasuries) sufficient to finance them? The US public debt (US-Treasuries) is the largest global risk-free asset, thanks to the liquidity of its market and the ability of the US state to remain solvent. During crises and recessions, investors rush to this asset class, which lowers US equilibrium interest rates and leads to an appreciation of the US dollar.

However, in history, it is easy to find periods when this risk-free asset role of the US public debt is insufficient. Sometimes, it is insufficient to finance the US public deficit, which normally leads to a rise in US bond yields. this occurred in 1983-84, 1990-91, 2013-2014, 2017-2018. And sometimes, the risk-free asset role of the US public debt is insufficient to finance the US external deficit, which normally leads to a depreciation of the dollar, as in 1985-87, 2004-2008.

At present, the expansionary fiscal and tax policy of full employment should lead to both a public deficit and an external deficit in the United States, hence the risk of both rising interest rates and the depreciation of the dollar is rising. These risks that are not (not yet?) priced in valuations.

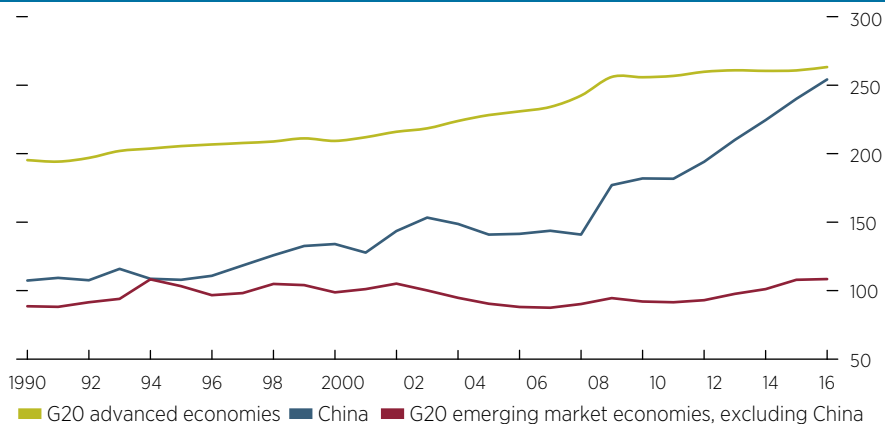
**1.2 The second market segment at risk is the credit market in China.** China's economy continued to grow strongly following the 2008 GFC, and the Chinese government is doing its utmost to maintain a growth rate of more than 6%. But this has led to higher domestic debt (government debt, corporate and household debt). The increase in gross debt / GDP ratio in China is impressive (exhibit 2), and a rise in interest rates globally would therefore be significantly detrimental to the Chinese economy. Even if the situation recently improved, the risk is still important, and it could be poorly controlled by the central authority. Its mismanagement of the stock-market bubble, which it caused and then split into 2015, or its management of the Yuan in 2015 and early 2016, may not bode well.

Five comments:

- China's debt level calculated by the BIS in its report is the highest of the 43 countries studied: higher than the United States, Greece and the United Kingdom;
- What is even more worrying is the rise in the Chinese debt: from 120% about 10 years ago, the total debt-to-GDP ratio has reached 250-260%, which makes this increase one of the highest in recent history;

- The bulk of the increase in Chinese debt comes from the corporate sector. Even if the debt is stable for the past quarters, the situation needs to be monitored closely;
- Academic and empirical papers emphasize the comparison between the credit-to-GDP ratio and its long-term trend, commonly known as the credit-to-GDP gap, and show that this is the best indicator of financial crisis. Essentially, based on the historical record, any level above 10 signals a likely crisis within three years. The Chinese ratio, at zero in 2009, is now 30! this level is by far the highest in the world: less than 2% in France, less than 5% in Japan, Argentina, South Korea, close to 5% in Switzerland and the Czech Republic, less than 10% Brazil and Russia, around 15% in Thailand and Singapore, less than 20% in Chile... and close to 25% in Hong Kong.
- Even considering the biases (high indicators for countries having low debt in the past, like in China and low indicators for countries having high debt in the past and already deleveraged, like Spain or Ireland, to name a few), these indicators stress the caution on total debt in many countries, including China.

**Exhibit 2:  
Gross Debt-to-GDP Ratios by Region (in percent)**



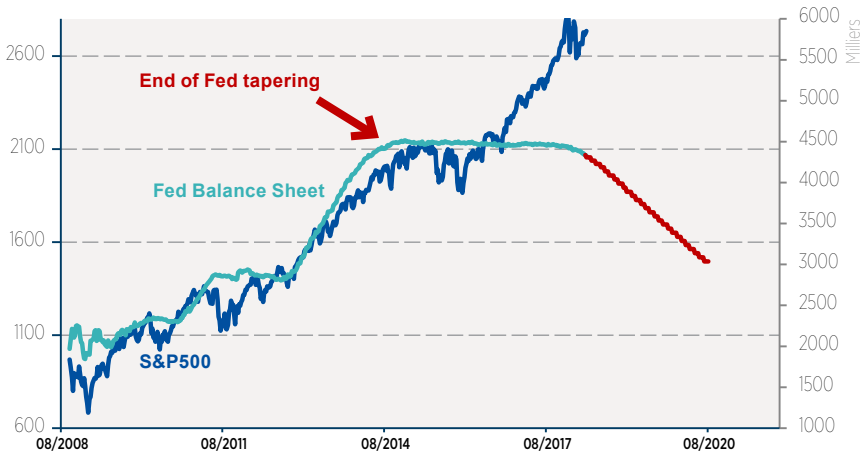
Sources: Bank for International Settlements; Bloomberg Finance LP; Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations.

**1.3 The third market at risk is the US stock market. It is also at risk because it is considered by many investors to be highly overvalued,** because of the Fed's QE, the ultra-low rate policy for 7 years, an overvaluation of US growth, an underestimation of inflationary risks, undervaluation of risk premiums... The mere observation of the US stock market and the Fed's balance sheet gives a clear idea of the importance

of monetary policy in the past years and sums up the current fears well. There are several distinct phases (Exhibit 3):

- The S&P500 perfectly followed the Fed’s balance sheet for 5 years, with an appreciation in line with the strong balance sheet growth and liquidity injections;
- It then experienced greater volatility in the rumours of QE tapering, and then a stabilization in line with the end of the buying program. The Fed’s balance sheet remained stable, as did the stock market;
- He rose sharply with the election of D. Trump and the outline of his “America First” program, and then following the adoption of favourable tax measures, despite the announced reduction in the balance sheet from the Fed.

**Exhibit 3:  
Fed Balance Sheet and US Equities**



Source: Amundi Research

The least we can say is that the current gap between the stock market’s rise and that of the Fed’s balance sheet (current and anticipated) is dizzying. And this chart alone can explain why many believe in a bubble in the US stock market. For this gap to remain sustainable, we need guarantees on growth and profits and / or be convinced that potential growth will continue to grow (with a long-term increase in productivity). A big challenge.

**It must be remembered, however, that the “high” value of the US market cannot be summed up in the Fed’s balance sheet alone.** It is also justified by the strength of economic activity (higher than potential growth), the moderate rise in inflation (not a threat, but the materialisation of the improvement in the underlying situation), by the return of corporates’ profits

(much higher in the United States than anywhere else), by tax measures by the Trump government, and by the still very accommodating financial conditions, despite the Fed's rate hikes. As a result, corporate earnings expectations remain strong: 20% in 2018, then 11% in 2019 and 2020 (versus 8% -8.5% in Europe in 2018-2020, for comparison). This amply justifies the valuation of the market.

**The key question at this stage** is rather the following: is the recent appreciation of the US stock market purely ad hoc (and excessive), purely cyclical (related to tax measures and to the cyclical improvement of the US economy), or also of a structural and therefore sustainable nature (increased productivity in companies, increase in long-term profitability...)?

All in all, **even if the valuation of the US equity market is not extreme, is not abnormal or overvalued, it is understandable that the sustainability of the past appreciation is questioned.** It is in this sense that the US stock market is at risk... and there is no need to show the existence of a bubble to experience significant market declines.

It should be noted that the first two risks (and to some extent the third one) are linked due to the bulk of the US and euro government bond holdings held by China. If China was to sell them, for example because of capital outflows, or because of aggressive interest rate hikes expectations, this would have an effect on the bursting of the bond bubble. This is a possible scenario for a new global financial crisis.

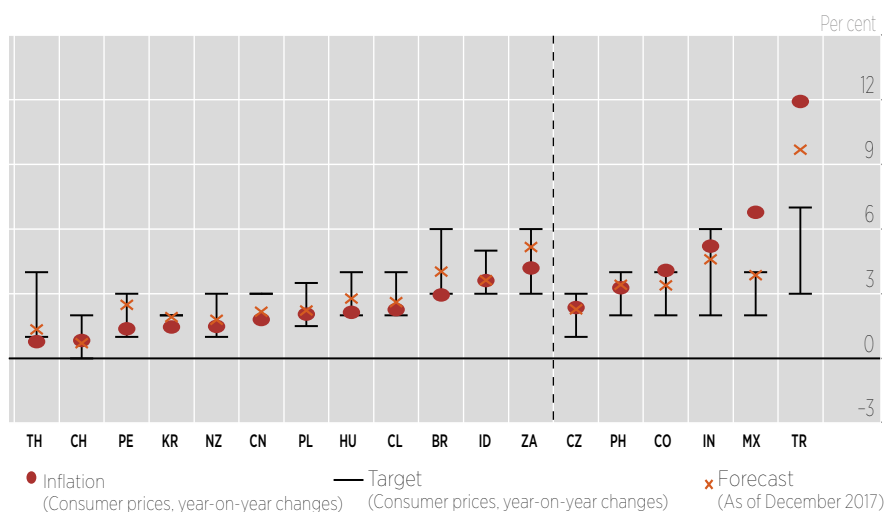
## II. What would trigger bubbles to burst?

**Several factors are likely to play this role.**

1. A **“repricing” of risk premiums** would result in phases of higher volatility, higher short and long term interest rates, wider credit spreads, and without any doubt about frequent equity market drops, except if further expansion of the growth cycle and profit prospects.
2. **An inflationary shock:** Inflation rates are everywhere - or almost - below the target of the Central Bank (exhibit 4). Apart from an oil shock or a political will leading to a radically different wage policy, it is difficult to believe that inflation will suddenly and sharply rise. Rather, the current functioning of labour markets is in the opposite direction, but we are not immune to publication of poor inflation indicators or simply rising inflation expectations.
3. **A monetary policy shock:** Monetary policy is often the trigger for financial crises. In February 1994, it was a monetary policy

event that triggered the bond crash. In the mid-1990s, the Fed's monetary laxity created a bubble, and then its collapse in 2000. This crisis had even led to a global recession: massive corporate deleveraging, loss of confidence, lower stock markets and negative wealth effects... From 2002 to 2007, it was once again the low rates that, together with abnormally low risk premiums, caused the housing bubble to rise, with the development of a sometimes dubious securitisation. This resulted in the major financial crisis of 2007/2008 (sub-prime crisis, Lehman Brothers bankruptcy...). In 2013, the announcement of the end of the US QE programme (and the effective end of asset purchases in 2014) caused market declines and recession in some emerging countries.

### Exhibit 4: Inflation rates (CPI, YoY changes)



Inflation and target as of December 2017; Forecast = Consensus Economics Forecasts for 2018 (Dec. 2017)

Sources: Datastream; national data; BIS calculations.

Is it reasonable to raise interest rates in the absence of inflation? The answer seems to us to be positive in the current context: rising interest rates allow for gradual recovery of future leeway, but also to better control financial imbalances such as excess credit, excessive valuations of financial assets... We also do not believe macro-prudential policies can replace monetary policies in order to prevent financial imbalances. The Fed's strategy is currently quite different from that of the ECB, and we believe that the ECB takes some risks on its credibility (no room of maneuver, perception of "fiscal dominance", a too high inflation target, etc.).



## Fed and ECB: different views and actions ... but same difficulties

One of the lessons of the past 2 years has been to show that, in the non-inflationary growth environment, the reaction function of the Fed and the ECB were completely different: the positioning in the business cycle is of course different, but this cannot explain by itself the entire divergence between the Fed and ECB. Different reactions to identical problems.

**1. Having an inflation target is questionable.** It may not be wise to believe that inflation will return to its target, and thus to support this return through too expansionary monetary policies. Phillips curve (the decreasing response between unemployment rate and wage growth or wage cost) is somehow flat or even reversed (other possible factors: greater time lags than before, measurement errors...). The central banks' Taylor rule (which is a link between inflation, unemployment, potential growth and inflation targets) is useless. In any case, if the current situation persists, it will probably not lead to inflation at 2 per cent..

**2. Too expansionary monetary policies is useless, because inflation will not return “naturally” to its target.** According to the facts and the statistical relationships, the decline in the unemployment rate is no longer leading to faster wage growth and unit wage costs. Even in the US, as well as in the Eurozone, the average wage is slowing down, which indicates that economies are creating low wages, or low skilled wages, which do not favour wage inflation.

**3. The central banks must worry about the bond bubble.** It is real, and a burst would have a very damaging impact on financial assets and growth. It is a global bubble, not just linked to the ECB's quantitative easing (QE) programmes. Cooperation and common vision/policy of central banks would be welcome.

**4. Risk premia do not reflect the reality of the Eurozone,** and the ECB should pay more attention to it. Low returns of low-risk assets, the “rush” to risky assets, to spread papers, and ECB QE (especially investment grade bonds) distorted risk premia. As a consequence, asset returns are no longer in line with the risk taken. In these situations, a crisis or a significant shock always occurred when the reality of this risk resurfaced properly.

**5. It is not reasonable to continue to weaken banks with such low or negative interest rates.** The current monetary policy of ultra-low / negative rates is not adapted to the economic situation and has at least two negative impacts on banks: i) it has flattened the yield curve significantly, reducing interest margins on bank loans; ii) it has reduced the yield on bond securities that banks are “forced” to hold for regulatory reasons. Of course, European banks are now in a good financial position (with a very few exceptions), but it would be preferable to have stronger banks.

**6. Central banks do not have leeway for a contra-cyclical monetary policy if necessary,** and economic optimism will inevitably clash with reality: the unemployment rate is now close to the structural unemployment rate in the Eurozone (around 8%) or even below this level in the US. In normal circumstances, this is a prelude to economic activity that slows or is back to its potential level of growth (with the risk of a more pronounced decline). In short, a situation that would require the ECB to have leeway.

#### **7. It is not wise to stoke doubts about the central bank's reaction function.**

The theme of “fiscal dominance” (the sustainability of debt as the central bank's target) is growing because interest rates remain ultra-low despite the economic recovery. If real or perceived as such, it would not support the credibility of the Central Bank, nor the perception of its independence...

**Conclusion.** No misunderstanding. We do not claim for active monetary policy tightening or for an abrupt reversal of QEs in the Eurozone. So far, the ECB did what was necessary to revive the economies following the Great Financial Crisis, and financial markets warmly appreciated all decisions. But at present, the level of interest rates and QE programmes are not in line with the underlying economic conditions. Exiting QE, normalising balance sheet and recalibrating / normalizing the monetary policy will drive markets expectations and markets movements... They have to be done gradually and this will certainly not be, at one stage, a long calm river... be ready to live with higher volatility.

- 4. A disappointment on growth - inflation...** financial markets might overestimate both inflation and growth rates. The current economic recovery (with growth above potential, accommodative monetary policies, low inflation, low rates, low volatility, “great moderation”) will not become a “new standard” and a return of growth to its potential is highly probable, which will also reduce inflationary risks.
- 5. Some dismantling of financial regulations** would undoubtedly lead to excessive risk-taking, and even greater complacency than currently prevailing. Since the great financial crisis, we have witnessed a considerable increase in financial regulations (mainly for banks and insurance companies), including capital and liquidity requirements, which aim to reduce both the risk of bankruptcy of each financial entity and the systemic risk of an isolated bankruptcy. A backward return would probably be a factor in speeding up excess credit and reducing safety of investors, which would lead to an inevitable repricing of risk premia.
- 6. A political or geopolitical shock:** There is no shortage of tension areas (Korea, Turkey, Saudi Arabia - Iran, Syria, Brexit...), and an unexpected and/or big shock would likely create what is feared, i.e. a repricing of risk premia. Add that an increase in oil prices, as the result of tension in The Middle East, would probably be, as regard a rise in inflation expectations, a more possible trigger factor than an increase in wages. Other risk: The rise of populism... the latest Italian elections, in which the “5 stars” party became - by far - the country's first party with nearly 32% of the votes, clearly show that this risk has not disappeared.

7. **An increase in protectionism and self-centrism**, would be presumably disastrous for many “emerging” countries. The world has entered a sustainable phase of low growth, for various reasons, including ageing in some major countries, the slowdown or even lower productivity gains (so far), the excess of savings in relation to investment. If the weaker growth of today leads to a rise in protectionism, a currency war, and a fall in globalisation, this will worsen the economic downturn and create a vicious circle that will lead to a new crisis, a much more severe crisis than the 2008 one. It could be an economic, financial and political crisis. This is one of the most serious risks in the coming years. Recent US decisions to tax European imports of steel and aluminium contribute to these risks.

### III. Is contagion inevitable?

It is to recognise that, with rare exceptions, contagion effects are inevitable. This is mainly linked to economic and financial globalisation, but also to the nature of the crisis. If it concerns a country or zone, and non-residents have invested little in that country or zone, contagion remains low. However, **correlations between fixed income and equity asset classes rose sharply following the major financial crisis, and the bubble perception in these markets now binds their destiny.**

Therefore, the issue of contagion of interest rates to equity markets does not really arise. However, **the question of the impact of the financial sphere on the real sphere is raised** (Table 1). The 1929 financial crisis, the collapse of the Tech bubble in 2000 or more recently the 2008 crisis, had all severely affected the level of economic growth, creating a recession in the developed countries.

**A new financial crisis might have the same effect... while a “simple” repricing of risk premiums, resulting in a moderate rise in interest rates would be less damaging to the real spheres, as interest rates would remain objectively low at the end.**

**Table 1:  
Financial crises: origins and contagion effects**

<b>Event</b>	<b>Origin of the crisis</b>	<b>Contagion</b>
<b>1929 market crisis</b>	US stock market	Economic and financial spheres of the developed world
<b>Crisis in the developing countries of the 1980's</b>	Mexican sovereign debt crisis	Contagion to all Latin American countries
<b>1987 stock market crash</b>	US stock market	European and Japanese equity markets mainly
<b>Japanese banking crisis of the 1990's</b>	Real estate	Japanese economic and financial spheres
<b>1994 bond crash</b>	US bond market	Global bond markets
<b>Mexico's 1994 currency crisis</b>	Foreign exchange market	Contagion to all Latin American countries (tequila effect), Argentina and Brazil
<b>Thailand's currency crisis 1997</b>	Foreign exchange market	Contagion to all emerging and transition economies (Asia, Latin America, Europe), all economic and financial sectors
<b>April 2000 crash</b>	US stock market	Contagion to all stock markets and real sectors of developed countries
<b>Great Financial Crisis of 2008 (GFC)</b>	US property market (sub-prime)	Contagion to all financial markets and real sectors of developed and emerging countries

## IV. How to avoid these risks?

In view of the foregoing, the prerequisites for avoiding the occurrence of a financial crisis are:

- **To encourage a slow and gradual rise in key rates** to reduce the excess of liquidity - less needed today - and to restore capacity to support the economy if needed;
- **Not to give the impression that inflation at any price becomes an objective** of the central banks because it is known that it is not easily manageable;
- **Not to give the impression that central banks have abandoned the objective of price stability to adopt a debt sustainability target** (theme of “fiscal dominance”);
- It is difficult to smooth out quantitative easing programmes, but it is necessary to exit it. Central banks’ balance sheets have sharply boomed for a decade, and a return to normality has to be done over time. **Removing – gradually – QE and normalizing – gradually – central bank balance sheets is now required**, because the economic and financial situation has changed significantly, and it would create new room for maneuver if needed;
- **Maintain financial regulation** to control credit and financial markets derivatives;
- **Provide evidence of international cooperation** and avoid any self-centrism or temptations from large countries such as the US, the UK, China...

## V. Are we ready to confront a financial crisis?

The capacity to cope with an eventual financial crisis can be assessed against several criteria.

1. **The vulnerability of countries:** What can be said is that emerging countries are currently much less vulnerable than they were at the time of the 2008 Great Financial Crisis or at the time of the Fed’s QE tapering: stronger growth, more growth engines, better current account and fiscal balances, higher FX reserves, inflation rates below inflation targets (except in countries like Malaysia and Turkey...).
2. **The existence - or not - of fiscal and tax room of maneuver:** Some countries have been able to rebuild flexibility, such as Germany, for example... but this are isolated cases (Table 2). For the rest of the Eurozone or for the United States, this is much less secure. At the global level, debt is growing faster than GDP (exhibit 5). The debt was considered excessive in 2008: what should we say today? How would financial markets react to rising interest rates?

**Table 2:  
Sovereign and Nonfinancial Private Sector Debt-to-GDP Ratios  
(Percent)**

		Advanced Economies								
		JPN	CAN	USA	GBR	ITA	AUS	KOR	FRA	DEU
General Government	2006	184	70	64	41	103	10	29	64	66
	2016	239	92	107	89	133	41	38	96	68
Households	2006	59	74	96	90	36	105	70	44	65
	2016	57	101	79	88	42	123	93	57	53
Nonfinancial Corporations	2006	100	76	65	79	67	73	83	56	49
	2016	92	102	72	73	71	79	100	72	46
<b>Total</b>	<b>2006</b>	<b>343</b>	<b>221</b>	<b>225</b>	<b>210</b>	<b>205</b>	<b>187</b>	<b>183</b>	<b>164</b>	<b>180</b>
	<b>2016</b>	<b>388</b>	<b>295</b>	<b>259</b>	<b>250</b>	<b>246</b>	<b>243</b>	<b>232</b>	<b>226</b>	<b>168</b>

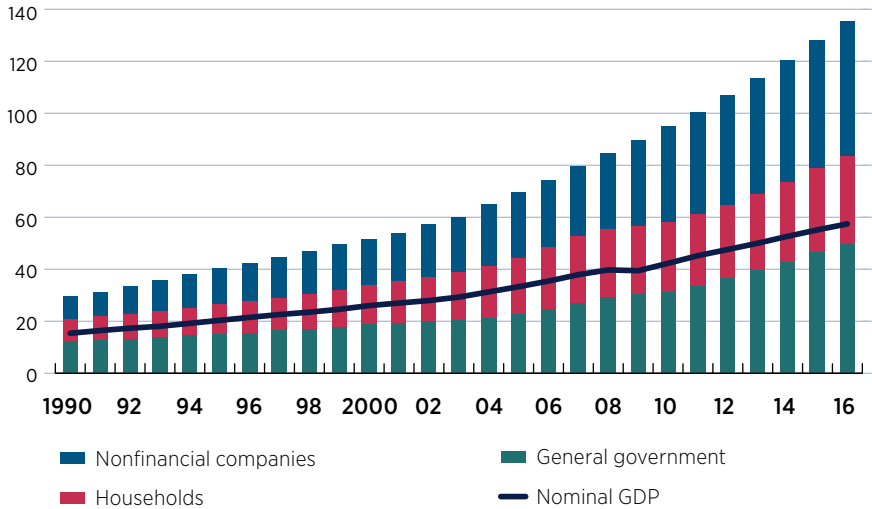
Sources: Bank for International Settlements; Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations

		Emerging Market Economies									
		CHN	BRA	IND	ZAF	TUR	MEX	RUS	SAU	ARG	IDN
General Government	2006	25	66	77	31	45	38	10	26	70	36
	2016	44	78	70	52	28	58	16	13	54	28
Households	2006	11	14	10	39	9	12	8	12	4	11
	2016	44	23	10	35	18	16	16	15	6	17
Nonfinancial Corporations	2006	105	39	38	33	27	14	32	28	20	14
	2016	165	44	45	37	67	28	52	50	12	23
<b>Total</b>	<b>2006</b>	<b>142</b>	<b>118</b>	<b>125</b>	<b>104</b>	<b>81</b>	<b>64</b>	<b>49</b>	<b>66</b>	<b>93</b>	<b>61</b>
	<b>2016</b>	<b>254</b>	<b>145</b>	<b>125</b>	<b>124</b>	<b>113</b>	<b>103</b>	<b>84</b>	<b>78</b>	<b>73</b>	<b>68</b>

Sources: Bank for International Settlements; Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations.

**Note:** Dark shading denotes a higher debt-to-GDP ratio in 2016 than in 2006. The table shows debt at market values. Advanced economy non financial corporate debt is shown net of estimated intercompany loans where data are available. Data labels in the table use International Standardization Organization (ISO) codes.

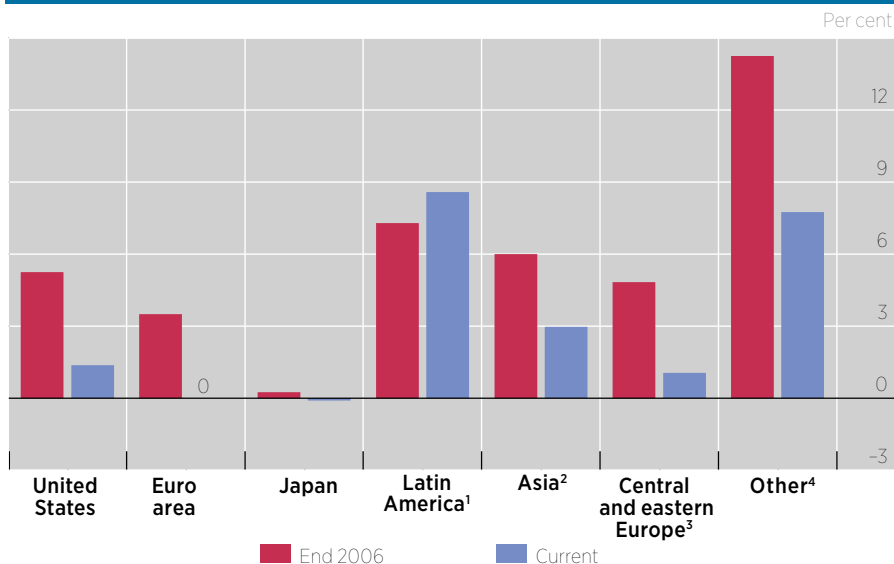
**Exhibit 5:  
Gross debt and nominal GDP (in USD Trln) – G20 countries**



*Sources: Bank for International Settlements; Bloomberg Finance L.P.; Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations.*

**3. The existence - or not - of room of maneuver for monetary policies:** we have seen the central banks of the major advanced economies lagging the cycle, the Bank of Japan more than the ECB, and the ECB much more than the Fed. Central banks are “behind the curve” and have not restored room for maneuver (exhibit 6). With very low rates, new QE programmes are plausible, should central banks have to curb a financial crisis and/or to fight threats to the economic activity. In other words, the solution would come from an instrument (QE) that itself causes market excesses (!).

## Exhibit 6: Monetary policies (Simple averages of the countries for the regional aggregates)



1. Argentina, Brazil, Chile, Colombia, Mexico and Peru.

2. China, Hong Kong, SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand.

3. Czech Republic, Hungary and Poland.

4. Russia and Turkey

*Sources: Datastream; national data; BIS calculations.*

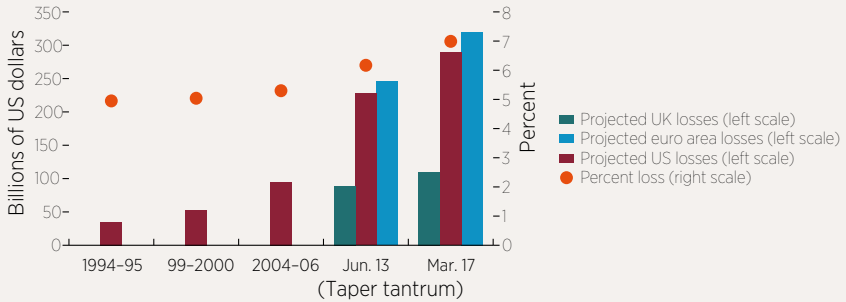
**4. Financial markets: investors' positioning and liquidity. We must not confuse crisis triggers** (change of monetary policy stance, geopolitical shock...) **and crisis-accelerating factors** such as mimesis (reversals of portfolio positions when they are all positioned in the same direction), or the low liquidity in markets suddenly bearish and affected by fire sales... the more the positions are consensual and / or liquidity is low, and the greater the risk of collapse. No need for a significant shock to cause a market drop or even a real crash: in February 1994, a 25 bp interest rate rise was enough to create a bond market crash, while both risk aversion was low and portfolios too unprepared for such a hike. It should also be recalled that when liquidity declines, prices become much less powerful in terms of information as they move away from their fundamentals. Contagion and volatility risks also tend to increase, while less liquid markets have less shock absorption capacity. Lower liquidity means greater handling capacity. In total, we understand how important the issue of liquidity and market positioning is in the current context.



- 5. The state of the economy:** The situation is good at present, and this is undoubtedly an asset in the current circumstances. All growth engines are active: consumption, investment, world trade and fiscal, tax and monetary policies are rather accommodative. In the Eurozone, Japan, the US or China, growth is above potential.
- 6. Debt constraint:** It is now clear that the level of debt influences - or even forces - economic policies, including monetary policies. While the debt service has changed little since 2005 (it has even been able to decline in some countries), nominal debt has risen steadily (it roughly doubled in just over 10 years). In other words, a rise in interest rates would raise new issues on the solvency of the States/companies with high levels of leverage. Higher duration (everybody chasing returns and spreads) leaves investors more vulnerable to interest rate risk than before, at a time when there is a greater sensitivity of investor outflows (see insert next page). Mutual funds hold a larger portion of high yield bonds in their portfolios (above 30% in the US, above 20% in Europe). Liquidity mismatch risk (due the increasing portion of illiquid or less liquid assets) is now a real concern. On these points, the economy is certainly not well prepared to deal with a financial crisis. The graphs below is a clear illustration of the increase in debt / GDP ratios and of “extreme” situation in China (exhibit 8 and 9). Even if the situation is improving at the moment in China (the flows of credit), the level of debt (the stock of debt) is still excessive.

## Exhibit 7: Vulnerability of the corporate credit investor base to interest rate shocks

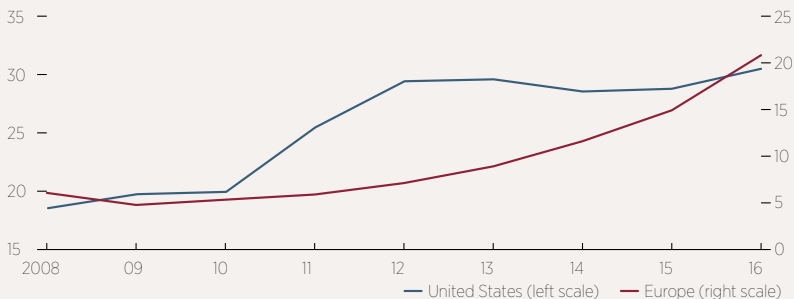
**1. Estimated Loss to Fixed-Income Mutual Funds Following a 100 Basis Point Shock to Interest Rates**



**2. Flows and Performance of US High-Yield Bond Mutual Funds (Periods when cumulative losses exceeded 5 percent)**



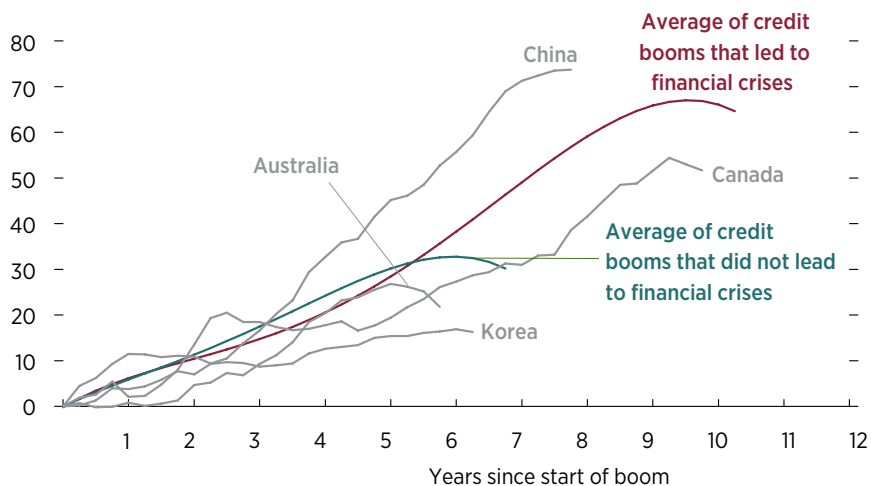
**3. Mutual Funds Holdings as Share of Total High-Yield Bond Market (Percent)**



Sources: Bloomberg Finance L.P.; EPFR Global; Federal Reserve; Investment Company Institute; and IMF staff estimates.

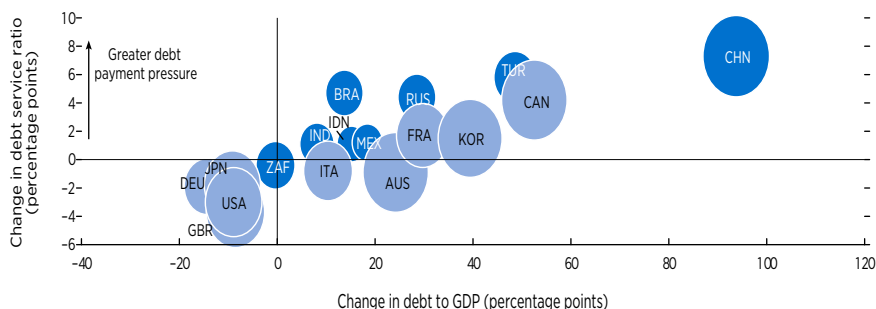
Note: In panel 1, data are based on prior periods of US monetary policy tightening starting in February 1994, July 1999, July 2004, and December 2015 and periods of large interest rate moves since the global financial crisis. The Barclays Capital Global Aggregate index is used as a proxy for duration of an average fixed-income portfolio. Total fixed-income mutual fund assets are used to calculate the dollar losses from a parallel 100 basis point increase in interest rates. Panel 2 shows periods when cumulative losses have exceeded 5 percent. There have been only four periods over the past decade when cumulative monthly losses on US high-yield bond benchmarks have exceeded 5 percent—a typical threshold used by investors when implementing stop-loss strategies. These risk management strategies are commonly used by investors to reduce their holdings in risky assets if prices breach certain prespecified loss limits. By closing out the position, the investor is hoping to avoid further losses.

## Exhibit 8: Change in Credit-to-GDP Ratio (Percentage points)



Sources: Bank for International Settlements; Bloomberg Finance L.P.; national statistical offices; Organisation for Economic Co-operation and Development; and IMF staff calculations.

## Exhibit 9: Change in Private Non financial Sector Debt and Debt Service ratios, 2006 - 2016



Sources: Bank for International Settlements; Bloomberg Finance L.P.; national statistical offices; Organisation for Economic Co-operation and Development; and IMF staff calculations.

Note: Debt service ratios are defined as annualized interest payments plus amortizations as a percentage of income, as calculated by the Bank for International Settlements. In panel 1, the size of the circles is proportional to debt to GDP in 2016. In panel 2, income is gross disposable income plus interest payments (plus dividends paid for firms). Panel 3 shows Group of Twenty economies with higher demeaned nonfinancial private sector debt service ratios and debt levels against past booms. Past booms are for a sample of 43 advanced and emerging market economies where the credit-to-GDP gap rose above 10 percent. The start and end dates of the booms are defined as periods when the credit gap was above 6 percent. Financial crisis dates were taken from Laeven and Valencia 2012. Data labels in the figure use International Organization for Standardization (ISO) country codes.

7. **Other challenges have emerged**, including climate change, population ageing, immigration, technological change, rising inequality, uncertainty about the labour market in the future (quantity vs. quality of jobs), as well as the rise in populism. These issues, as important as they are, condition economic policies (and responses to future crises), as well as the structure of growth, its level and sustainability, but they will not be responsible for market corrections that we should experience in 2018.

## VI. Regime or paradigm shifts vs. crisis: lessons from recent past

Any crisis is a break, a break in confidence in a system that has become unstable, and that has spread suddenly. And even if the factors of instability are identified, it is impossible to predict whether or not they will be corrected in stages or abruptly; i.e. a crisis or a regime shift. That is the key point.

### **From the golden era to stagflation: constantly changing regimes**

Financial markets have experienced many disruptions, regime changes or paradigm shifts since the 1970s.

After the Second World War, while the emerging world was still called developing world, it was a period of 30 years of strong growth (and reasonable inflation) for advanced countries (a period called in France “les **Trente Glorieuses**”). This period of reconstruction - **the golden era** - was accompanied by full employment that only the Cold War threatened from time to time.

In the 1990s, in particular with the first oil shock in 1973, “**stagflation**” became commonplace. This portmanteau word, a contraction in the words ‘stagnation’ and ‘inflation,’ was originally used to describe the economic situation of the United Kingdom by the Chancellor of the Exchequer Iain Macleod in November 1965. As this is most often accompanied by a high unemployment rate, it has undermined the (Keynesian) economic theories and policies that have been conducted so far, the logic of which is based on an arbitrage between inflation and unemployment. The stimulus policies advocated have proved ineffective: while they were based on lower unemployment, there was even a considerable increase in some of them. This has been known as ‘**slumpflation**,’ (a portmanteau word with slump and inflation), a period of economic recession / economic crisis and high inflation. This situation gave birth to monetarism (Milton Friedman, Chicago School) that considered the money market to be paramount and had given a leading role in combating inflation. It is on these foundations that the independence of central banks (missions, objectives and statutes) and the major European treaties (fiscal and tax discipline, Maastricht Treaty criteria) were built.

The period of **'great moderation'** (low volatility of major macroeconomic aggregates, GDP and inflation), which characterises the period 1985 to 2005, has benefited from the expansion of trade areas (through globalisation) and the availability of low cost pockets of employment, which can mask the reality of the difficult repayment of private debts and especially public debts. The expansion of demand has not led to an inflation crisis but an increase in trade deficits. In some aspects, it can even be considered that the current difficult period (with recession, banking crises, public debt crises...) is the result of a period of excessive disinflation. The period of great moderation was a period of low price volatility consumption and production, but it was also supported by the accumulation of large financial imbalances. These led to several crises (real estate crisis in the early 1990s, crises in some emerging countries in the late 1990s and in the early 2000s, the stock market crisis in 2000), and of course the 2007-2008 Great Financial Crisis. The economic growth of the 1980–2000 period has clearly been artificially boosted by excess credit: a detailed analysis conducted by Schularick and Taylor [2012] (140 years study and 14 countries) allowed to show its predictive power of crisis financial bubbles and debt drift. The depression/deflation that followed the financial crisis has actually highlighted a reality, the lack of dynamism in investment.

What is certain is that since the 1980s we have entered a high financial risk era, and everything has accelerated: the frequency of crises (stock markets and bonds crashes, bursting of bubbles...), regimes changes, the growing role and power of financial markets (an increasingly significant impact on the real economy), investment opportunities (financial innovation, the emergence of new types of players), globalization (increased role of world trade, emergence of new countries on the international scene...). During these last twenty-five years, we have witnessed quite distinct phases, but which reflect in reality the same evil. excess credit and debt.

### **From the 1970's to today, through the Great Financial Crisis of 2008: different facets of the same evil**

**'Irrational exuberance'** is a concept highlighted by Alan Greenspan in 1996 to warn against a probable excessive and abnormal overpricing in equities. The bursting of the tech bubble has made this concept very popular... and A. Greenspan can be blamed for identifying an evil (bubble formation) and not trying to contain it.

**'The bond yield conundrum'**, another Greenspan concept developed in 2005, aims to emphasise the low level of long rates in short rates. Several explanations were then made to try to explain this phenomenon. According to the Bernanke's **'global savings glut'** (popular concept in 2005), there would be an imbalance between global savings and world investment explaining the low level of interest rates by lowering interest rate volatility, resulting in lowering risk premia. Other works argue that

the fall in inflation volatility explains the lowest level of long-term rates alone. Other authors highlighted the global recycling of savings. Thus, the accumulation of US dollar securities by Asian central banks, and more generally by non-residents, would cause the relationship between short and long rates to disappear. In other words, the lack of savings in the developed countries would have been offset by the excess of savings and the lack of investment products in emerging countries. It should be noted that this 'natural' recycling has led to a lack of pain, particularly in financing the US deficits, and that it has not been used to correct behaviour that leads to these excesses. It also amplified differences between the effective valuations of certain assets and their real fundamental values.

The '**Global liquidity glut**', which characterises the current situation, stems from extraordinarily accommodative monetary policies, both conventional and unconventional policies. To say that there is a lot of liquidity is not enough, it is a question of showing excess liquidity: Clearly, if the money supply grows continuously faster than nominal GDP, the excess liquidity can be found. It is clear that this is a global case since the mid-1990s, with broadly accommodative monetary policies. This is even more pronounced in the case of the United States since the introduction of QE programmes, and for almost 3 years in the case of the Eurozone. This situation is reflected in extremely low interest rates, but also by significant increases in credit aggregates (before the financial crisis) and monetary aggregates (since the financial crisis). Of course, the policies aimed at facilitating deleveraging or debt sustainability of private sectors (banks, corporates and households) and the public sector. In order to avoid a further collapse in asset prices (especially equities and real estate) and create a new negative wealth effect that could lead to economies of recession - deflation - depression, it became necessary to implement strong, non-standard measures.

What has intrigued many observers in recent years, particularly since the financial crisis, is weak investment and productivity gains despite the economic recovery (and technological revolution). It seems difficult to identify the precise causes, as they can be so many. Some consider that this is linked to the severity of the financial crisis and the low availability of credit for new companies. Others cite weak domestic demand, others focus on major demographic trends. All of this fuels fears of '**secular stagnation**'. If an economy does not increase the quantity of production factors, it does not invest in education and that it does not manage to accumulate productive capital, then will not generate growth, unless technological advances are made. In the long run, technical progress is proven to be the main determinant of growth. In other words, any decline in innovation capacity inevitably leads to a decline in potential growth.

The phase of secular stagnation is a persistent incapacity of the economy to achieve at the same time full employment, stable inflation and stable financial stability (L. Summers). In other words, when the economy is discarded from the sustainable growth path due to technological changes, demographic changes, rising inequality, or due to large-scale financial imbalances, it is unable to return spontaneously. Some observers even went further, considering that we had entered a **'secular deflation'** phase, which means a contraction of both economic activity and inflation:

- Global Demographics (with widespread population ageing) are deflationary;
- Technical progress (new technologies, computers, robotics, etc.) is deflationary because it makes it possible to produce much more and much better with fewer employees. The theme of 'jobless growth' is increasingly being raised.
- Fiscal policy austerity and tax policy austerity are deflationary: their almost unique objective is to allow the payment of interest on the debt.
- Extremely strict income policies are deflationary: the main concern is not to undermine competitiveness by international competition.
- Globalization is deflationary if the key objective is to produce cheaper further.
- Tax and social competition within Europe itself is deflationary.
- Migration policies are deflationary. They weigh on wage gains.

It must be acknowledged that these fears have gradually disappeared due to renewed economic growth. Japan, China, the Eurozone, the United States ... have all returned to growth above potential. As this growth also goes in hand with controlled inflation and low volatility (of growth, inflation and interest rates), the theme of great moderation has resurfaced since 2015, mainly in the United States (ahead of the other countries mentioned above in the cycle). While some attribute this low variability of the major aggregates to the credibility of central banks, there can be another cause: the increasing flexibility of the labour market, which, with globalisation, makes wage inflation disappear... and a serious consequence: ultra-loose monetary policies (which push growth upward and interest rates downward) favour an excessive rise in the price of financial assets and the deterioration of financial balances through an excessive recourse to debt. What is known as 'Minsky effect' or **'Minsky moment'** is the period characterised by the tendency to increase leverage as long periods of economic stability make leverage easier to justify.

In other words, financial stability is only apparent or temporary. In other words, the Great Moderation carries within it the seeds of future financial crises.

**A constant since the 90's (regardless of the regime):**  
**persistently low rates, disinflation, declining potential growth,**  
**and high asset valuations**

The common points of these five distinct situations (irrational exuberance, bond conundrum, global savings glut, global excess of liquidity and secular stagnation), it is finally the sometimes abnormal level, sometimes enigmatic, but always low level of interest rates (short and long rates), as well as the excess of valuation of financial assets, both equities and bonds. In reality, the consequences of a 'secular stagnation' (or more simply of seeing the economy suffer from the danger of secular stagnation) are quite clear:

- Reduced potential growth,
- Non-existent or limited inflationary pressures,
- Ultra accommodating monetary policies,
- Low short term interest rates,
- Low long-term interest rates,
- High asset prices,
- Increasingly asymmetric risks,
- Higher financial volatility.

**Among the 'heavy,' structural factors, which justify sustainable growth, let us recall:**

- **The decline in the working-age population and/or the decrease in participation rates.** This is true in most advanced countries and in China, a country that is old before being rich;
- **Slower pace of technical progress,** which reduces productivity gains. These are themes (with demographics) often evoked by the supporters of secular stagnation;
- **The massive increase in inequalities** that weighs on potential economic growth, a theme developed by Robert Gordon, in particular;
- **The decline or stagnation in real disposable income:** here we find the role of wage policies and that of taxation;
- **The impact of the debt burden.** Excess credit had 'artificially' boosted growth in many countries (United States, Spain, etc.) until the Great Financial Crisis. The broad-based deleveraging that followed (still incomplete) has pushed down growth. Worse still, economic policies, constrained by debt, need to improve overall solvency, including that of states and can no longer counter economic cycles. In other words, debt maintains the natural interest rate at a very low level. As, in addition, deleveraging is far from being done, this drain on growth



remains dominant. Here too, we find one of the themes developed by the proponents of the thesis of secular stagnation.

**Cyclical factors (some of which can now be considered sustainable) include:**

- **The impact of the 2008 financial crisis:** It has been global, and it translates into a widespread collapse of the natural interest rate and equilibrium interest rates;
- **The cuts in central bank interest rates**, which began in the 2008 financial crisis, and the maintenance at ultra-low levels, a situation that is difficult to leave, the United States being the most flagrant example;
- **The implementation of unconventional asset purchase and forward guidance programmes**, which have anchored rates (all rates), term premiums and bond yields at low levels;
- **Lower inflation expectations** (short-term and long-term). A major difficulty for central banks because these expectations are no longer anchored on the central bank's target;
- **The increase in risk aversion**, which inevitably increases precautionary savings (which now even accepts to invest in assets at negative rates!) and reduces investment, one of the major absences from the current economic recovery.

In times of secular stagnation, it would difficult to find where economic growth can come from, and the macro-financial stability of this new regime would clearly require lower interest rates, and probably for a long time, because changes are supposed to be structural.

**To sum up, the large part of recent regimes (especially from the 1980s) pleaded for low inflation and low interest rates, while secular stagnation fears that emerged in the 2000's amplified the underlying trends. However, secular stagnation scenarios gradually disappear, the risk for risk premia repricing has increased, and excessive valuation of some assets, with geopolitical risks adds uncertainty. The question now deals with an effective regime shift, with eventually higher interest rates, higher inflation, higher volatility...**

Five different regimes are plausible:

**Regime # 1: great moderation again?** Low volatility of growth and inflation as the major two consequences;

**Regime # 2: inflation like in the 70's?** Higher interest rates and higher bond yields inevitable, while equity markets would be severely hurt;

**Regime # 3: debt super-cycle: a worldwide phenomenon?** In such a scenario, global debt crises like in the 80's in EMG countries would be highly probable, with financial crisis and stock markets collapses, debt

crisis and big contagion to the real sphere (with global recession the major risk);

**Regime # 4: secular stagnation (fears) like in the 2010's?** Such a regime would be a combination of low rates, low inflation, low yields, low growth, low volatility;

**Regime #5, the most probable in the coming year:** growth remaining above potential still, with moderate inflation but inflationary risk tilted to the upside and risk inflation figures from time to time disappointing, higher volatility although limited, higher rates although moderate, appeasement on trade war, geopolitical risks contained, EMU not at risk...

These 5 regimes are completely different, and they have very different impacts. Let's present our scenarios.

## VII. Short-term and medium-term scenarios: towards higher rates and higher volatility

Three scenarios are at play for the coming year:

**Scenario # 1: 2018-2019, another period of “great moderation”, low volatility, stability of growth and inflation, low(er) inflation and low(er) interest rates (probability: 10%)**

2018 will not look like 2017, because the economic situation is changing strongly. The output gaps will be closed in the coming months, unemployment rates go back to structural levels... all of this is to say that growth will not accelerate (the less one can say), and that inflation risks - even moderate - are clear. A situation that is likely to allow central banks, the Fed in lead, to continue to rebuild room of maneuver. The environment of “great moderation” (stability of major economic aggregates, such as growth and inflation), but also low volatility and low interest rates are gradually wiped out.

**Scenario # 2: 2018-2019, a period of higher volatility, with regularly hectic financial markets (probability: 75%)**

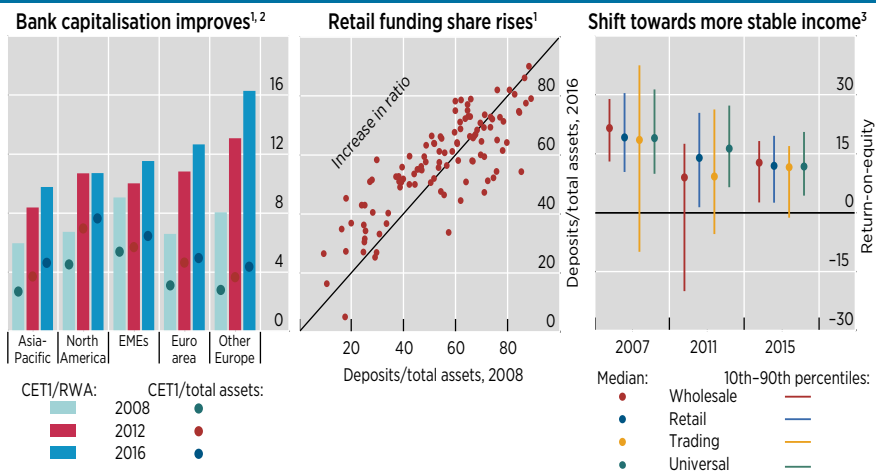
It is difficult to bet on a major financial crisis, like those that prevailed in 2000 or 2008. Among the reassuring criteria:

- The health of banks, well-capitalised, reasonably leveraged, with more stable revenues (exhibit 10). Banks now give greater weight to retail activities (as was the case in the wake of the emerging markets crisis in the late 1990s);
- A favourable macroeconomic situation;
- Moderate inflation;
- A lower sensitivity of the economies to inflation;
- A low neutral interest rate, which means that closing the gap with these

rates is easier or that interest rate policies are less ultra-accommodative than it seems (this is true for the US, but much less for the Eurozone);

- Central banks still credible, predictable, with still a good capacity to communicate.

### Exhibit 10: Banks have strengthened balance sheets and stabilised revenues (in %)



CET1 = Common Equity Tier 1; RWA = risk-weighted assets.

1/ Sample of more than 100 banks with at least \$100 billion of total assets in 2014. 2/ Median ratios; values for 2008 may overstate actual capitalisation levels due to imperfect adjustment to new capital/RWA definitions. 3/ Based on a classification of bank/year observations into four business models.

Sources: R Roengpitya, N Tarashev, K Tsatsaronis and A Villegas, "Bank business models: popularity and performance", BIS Working Papers No 682, 2017; SNL; BIS calculations.

However, the market environment changed: (i) conventional monetary policies (interest rate policies) have reached their end... and "the era of low rates forever is over", (ii) the great period of disinflation is finished; (iii) unconventional monetary policy (QE) programmes fade slowly. All of this means that the "repricing" of risk premia will inevitably lead to periods of greater volatility, with higher short and long term interest rates, wider credit spreads, and no doubt of regular shocks in equity markets.

### Scenario # 3: a major crisis (probability: 15%)

Nothing is impossible, and the possibility of a significant financial crisis cannot be ruled out. It is not our central scenario, though. It should be noted that low liquidity and similar positioning of many portfolios provide additional risk to financial markets in the event of a crisis / shock. We have also seen little room of maneuver for central banks, while government debt and government deficits will constrain policies. Clearly, monetary policies in most advanced countries are not in a position to support economies and financial markets in the event of crisis... except to reopen new QE programmes.

## Conclusion

The theme of “regime shift” (volatility, interest rate, inflation, etc.) has resurfaced. The supposed excessive valuation of some markets and the uncertainty about equilibrium risk premia explain the ups and downs of financial markets

In fact, three markets may trigger a major shock or a crisis:

- The first segment of the market that is at risk is undoubtedly the bond market. There is no price inflation, but asset inflation. In total, interest rates are ‘too low’ due to ultra-expansionary monetary policies and QE, excess liquidity in central banks and lower market liquidity;
- The second market segment at risk is the credit market in China;
- The third market at risk is the US stock market, which is regarded by many investors as being highly overvalued.

We must not confuse crisis-triggering factors (change of monetary policy stance, geopolitical shock...) and crisis-accelerating factors such as mimesis (reversals of portfolio positions when they are all positioned in the same direction), or the low liquidity... No need for a significant shock to cause a market drop or even a real crash.

With rare exceptions, contagion effects are inevitable. This is mainly linked to economic and financial globalisation, but also to the nature of the crisis. If it concerns a country or zone, and if non-residents have invested little in that country or zone, then contagion remains low. A “simple” repricing of risk premiums, resulting in a moderate rise in interest rates would be less damaging to the real spheres, as interest rates would remain objectively low at the end. But the question of the impact of the financial sphere on the real sphere has always to be raised. As always, it is impossible to eliminate risks of financial crisis, but our central scenario is much more constructive: 2018 should be a year with higher (although moderate) volatility and interest rates, and with regularly hectic financial markets. Amongst the drivers for higher volatility and rates, the normalisation of central banks balance sheet, the key rate policy, and inflation expectations should be the major ones... with geopolitical events, that are being now perceived as permanent risks. All these drivers might significantly change the perception of risk premia. Caution is needed...

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