Outlook 2017:
Rates are back

We examine the fundamentals behind the present backdrop of low interest rates and challenge the dominant idea that this is the fate of our future as investors.

Themes

- Stronger growth
- Fading demand slack
- Creative central banks
- Financial stability & risks
- Carry in emerging markets
- Return of risk premia
- Real assets

With contributions from:
Justin Curlow - Real Assets, Honyu Fung - Fixed Income

AXA INVESTMENT MANAGERS

Content

A new humble world and the return of yields

By Laurence Boone

The past year has witnessed something of a turn-around in investors' perceptions of the economic and financial outlook, chiefly on the back of hopes that the cloud of secular stagnation maybe starting to dissipate.

In our 2017 outlook, we take a step back from current market jitters and examine the fundamentals behind the present backdrop of ultra-low interest rates and poor economic growth. Simply we challenge the dominant idea that this is the fate of our future as investors.

For this, we analyse the root causes at the origin of the lack of demand, the low productivity growth based on the absence of technical progress, the drivers of the saving gluts and the end of globalisation slowing buoyant growth in emerging markets (EM).

Ultimately our conviction is that secular stagnation is an over-rated concept for a number of reasons. We have produced a set of indicators which demonstrate a contrasting demand slack across the globe. However we believe there is no fatality in a lack of demand. Policies, cyclical and structural, technological progress, demographics, are all factors which can influence this course – and we highlight their impact. This should challenge those who have given up on the idea of enjoying robust investment returns going forward. We believe opportunities will come back once risk premia have returned to normalised long-term levels. Meanwhile, active duration and equity management, investment into alternatives, such as real estate, structured finance and even EM, provided the US refrains from implementing its obstructive trade policies, make sense.

In the short term, policy-makers can address the lack of demand by adopting an appropriate mix of monetary and fiscal policies – and they have the means to do so. Far from the caricature of "conservative central bankers", policymakers across the world have deployed incredible creativity to address stumbling demand. We will demonstrate that monetary policy will never be the same as before the Global Financial Crisis (GFC) but the extension of their tool box is there to last and central bank balance sheets will continue to play an active role, alongside interest rates, in cyclical management. This is all the more true given that elevated debt levels make rising interest rates a mixed blessing across countries. Yet in some regions, even if monetary policy has managed to buffer a cyclical downturn and prevent a deep-dive in deflation, more still needs to be done. As more pressure is put on central bankers to normalise, fiscal policy has to take over to lift demand and help restore cyclical momentum and this is particularly the case in the euro area, where some, but not all countries, have the fiscal space to do so. Overall, we see some potential for cyclical policies to help lift growth in the US, in the north of Europe and we expect China to continue on this path, despite rising imbalances.

Looking into the medium term, we also examine how the saving glut is set to resorb, while productivity will regain some strength and may even be boosted by the digital economy, especially if structural reforms provide a tailwind. First, we anticipate saving rates will decrease in both developed markets (DMs) and EMs. In the former, ageing projections, and assuming little changes in inequality, suggest a slowly declining saving rate as countries pass the ageing peak. Across EMs, we analyse how the changing growth model, from export-driven towards more domestic investment and consumption, together with improved financial institutions, will slow the pace of accumulated savings. Notably, the build-up in FX reserves which followed the balance of payment crises of the 1990s appears to be coming to a standstill. Elsewhere Middle-East oil savers also have to face the challenging environment of lower oil prices. In all, we expect that this will mean less global savings chasing investments.

Second, we show that as economies recover, human capital and investment will push the global economy toward higher growth rates than observed since the financial crisis. Even with conservative assumptions on a productivity level and without complacency on the impact of Brexit, our estimates put the US trend growth at 1.6%, while the UK (affected by Brexit) and the euro area would reach an average of 1.25%, while Japan would remain around 0.6% over the coming decade.

Our report also disputes the idea that technology is "everywhere but in the data". Technology is already showing in the data. For instance, data-driven decision making has already improved productivity by 5% to 6% for firms that use it and autonomous machines may likewise boost productivity by up to 60%. We believe the countries investing most heavily in the digital economy will benefit extensively, as they will be the most well-equipped to seize opportunities to reform their production capabilities. Additionally, policymakers can go even further. For example, they could reform their labour and product markets to ensure that new technology

and digital developments diffuse rapidly, which will in turn increase production levels and therefore potentially boost trend growth. Should the technology drive spread out even faster, everything else being equal, growth could be elevated by about 0.9pp in the US and 0.3pp in the euro area. Should structural reforms be implemented, the euro area could even catch-up with the US.

This also shakes up our own market views. Taking into account these growth estimates and modelling the term premium, we estimate that US long-term rates should return to 3.4% in the coming five years. This is certainly far from current levels, implying a multi-year normalisation that should radically affect asset allocations. We are not only leaving a world of declining rates and inflation but we are also turning to a world where rates will converge towards higher levels and inflation closer to central bank targets. However it is unlikely that we will see a return to levels last seen in the 1990s and 2000s. With the gradual unwind of central bank unconventional policies, we expect the term premium to rise back to 40bps, well above its current level but also below its historical average of 90bps since 2008 and 135bps since 1991.

Turning to equities, we feel that DM equity risk premia will remain elevated for an extended period, a pattern which has followed previous financial crises. We estimate that the US equity premium will remain around its current level of 3.6% in our central growth scenario, while it could decline to 3% if technology was diffusing faster. Yet overall we remain cautious as growth becomes more elevated but not to the past prevailing extent as yields return to higher levels. But overall there is an implicit and intrinsic greater economic uncertainty, which strengthens the case for active management of equity investments.

Given that previous episodes of rising rates have scarcely been smooth operations, we also take a deep dive into financial market stability analysis. Somewhat ironically, these risks may have been exacerbated by the very policies deployed to restore stability in the wake of the crisis in the first place. Our research focuses on system-wide leverage (credit gaps), valuations (across assets), credit fundamentals (e.g. US corporates), investor behaviour and downside liquidity risks. It suggests the key ingredients of another financial crisis are mostly absent at the current juncture but there are certain elements in markets which may be a cause for concern such as stretched fixed income valuations and constrained market liquidity.

We also have a special focus chapter on real assets, an alternative asset class that offers illiquidity premia while bringing some diversification. It presents the key features of the market and offers suggestions as the economy turns upwards and rates start to rise again. More specifically, we argue that investing in property markets is about anticipating the cycle peak by shifting allocations towards more defensive, income-focused strategies.

We hope you enjoy our 2017 Outlook!

Macro forecast summary

Real GDP growth (%)	2015	2016*	Consensus	2017*	Consensus	2018*
World	**3.2**	**3.1**		**3.4**		**3.5**
Advanced economies	**2.1**	**1.6**		**1.8**		**1.8**
US	2.6	1.6	*1.5*	2.1	*2.2*	1.9
Euro area	2.0	1.6	*1.6*	1.45	*1.3*	1.5
Germany	1.5	1.7	*1.8*	1.4	*1.3*	1.6
France	1.5	1.3	*1.3*	1.3	*1.2*	1.6
Italy	1.3	0.9	*0.8*	1.0	*0.7*	0.9
Spain	0.8	3.1	*1.3*	2.2	*1.5*	2.1
Japan	0.5	0.7	*0.6*	1.3	*0.9*	1.3
UK	2.2	2.0	*2.0*	0.9	*1.1*	0.8
Switzerland	0.8	1.5	*1.5*	1.3	*1.5*	1.5
Emerging economies	**4.0**	**4.1**		**4.6**		**4.7**
Asia	**6.6**	**6.5**		**6.2**		**6.1**
China	6.9	6.6	*6.7*	6.2	*6.4*	6.1
Rest of EM Asia	6.3	6.4		6.3		6.2
LatAm	**0.0**	**-0.6**		**1.7**		**2.1**
Brazil	-3.8	-3.2		1.2		2.0
Mexico	2.5	1.7		1.6		1.9
EM Europe	**-0.1**	**1.1**		**2.1**		**2.3**
Russia	-3.7	-0.7		1.1		1.4
Poland	3.7	2.4		3.2		3.3
Turkey	4.0	2.9		2.8		3.0
Other EMs	**3.1**	**3.2**		**3.4**		**3.7**

Source: Datastream, IMF and AXA IM Research - As of 24 November 2016

CPI Inflation (%)	2015	2016*	Consensus	2017*	Consensus	2018*
Advanced economies	**3.5**	**0.8**		**1.5**		**2.1**
US	3.8	1.3	*1.2*	1.8	*2.3*	2.5
Euro area	3.3	0.2	*0.2*	1.2	*1.3*	1.3
Japan	1.4	-0.1	*-0.2*	0.3	*0.4*	0.4
UK	3.6	0.7	*1.8*	2.1	*3.2*	2.8
Switzerland	2.4	-0.2	*-0.4*	0.2	*0.3*	0.6
Other DMs	4.1	1.3		2.1		3.1

Source: Datastream, IMF and AXA IM Research - As of 24 November 2016

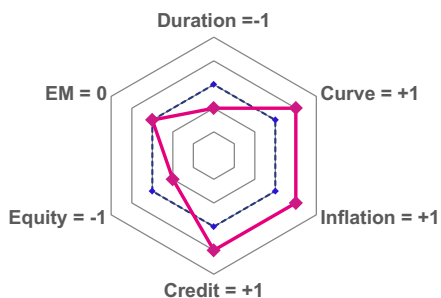For detailed country forecasts, please refer to Annex C, page 39.

These projections are not necessarily a reliable indicator of future results

Recommended asset allocation

Global allocation	Positioning
Cash	🟢
Core rates	🔴
Credit	🟢
Equities	🔴

Source: AXA IM Research

Tactical allocation: overall exposure

Scores range from -2 to +2, 0 stands for a neutral position

Source: AXA IM Research

Asset class	Positioning
Core rates	🔴
United States	🔴
Germany	🔴
UK	🔴
Japan	=
Swap spreads	=
Inflation break-evens	🟢
United States	🟢
Euro	=
Credit	🟢
Corporate Investment Grade	🔴
United States	=
Euro	=
Euro periphery government	🔴
Emerging Markets government	=
Corporate High Yield	🟢
United States	=
Europe	=
Equities	🔴
United States	🟢
Euro area	🔴
UK	=
Switzerland	=
Japan	=
Emerging Markets	=
Latin America	🔴
Emerging Europe	🟢
Emerging Asia	=

Source: AXA IM Research

Asset classes forecasts

Asset classes	Reference	Current 23/11/2016	Target 2017	Target 2018	Total returns 2017	Total returns 2018
Rates						
US 10Y Treasury		2.35	2.75	3.25	-1%	0%
German 10Y Bund		0.25	0.80	1.50	-5%	-6%
British 10Y Gilt		1.44	1.70	2.10	-1%	-1%
Japanese 10Y JGB		0.02	0.00	0.00	0%	0%
Credit						
USD Investment Grade	BofA C0A0	136	143	150	1%	1%
EUR Investment Grade	BofA ER00	124	125	130	-1%	-1%
USD High Yield	BofA H0A0	466	480	500	5%	5%
EUR High Yield	BofA HE00	412	420	435	3%	3%
Equities						
US	MSCI US	2,100	2,050	2,150	0%	7%
Eurozone	MSCI Euro	190	180	190	-2%	9%
Japan	MSCI Japan	871	840	870	-1%	6%
Emerging markets	MSCI EM	856	820	885	-1%	11%
FX						
EUR/USD		1.06	1.04	1.05	-2%	1%
USD/JPY		113	107	104	6%	3%
GBP/USD		1.25	1.23	1.25	-1%	2%

Note: All targets are for year-end and refer to yields for rates, spreads for credit and prices for equities. Total returns include coupons and reflect the change in rates and spreads for credit. Total returns include dividends for equities.
Source: Datastream, AXA IM – As of 24 November 2016

These projections are not necessarily a reliable indicator of future results

Renewing with higher trend growth

By Ano Kuhanathan & Céline Renucci

- While saving glut has been an argument for rates to be persistently low, we argue that the evolution of ageing even with unchanged inequality level will drive the saving rate down thereby putting upward pressures on interest rates.

- We estimate that long-term interest rates could rise to 3.5%, 2.5%, 2.3% and 1%, respectively for the US, the UK, Germany and Japan, as growth recovers.

- While low potential growth could last in the euro area, Japan and the UK – because of Brexit; it could reach 1.6% in the US on average for 2016-2026. These figures would be boosted by faster adoption of technology.

Exhibit 1
Trend growth estimates in three time periods

	Trend growth (%)		
	1995-2007	2008-2015	2016-2026
US	3.2	1.2	1.6
UK	2.9	0.9	1.3
Euro area	2.3	0.1	1.2
Japan	1.2	0.2	0.6

Source: AMECO, Total Economy Database and AXA IM Research

1/ Savings and investment dynamics support our view of rising interest rates

The goal and consequence of QE

Central banks' QE has been pushing interest rates lower, as they are providing liquidity to banks and competing with them for safe assets (*Exhibit 2* for an illustration for the euro area). But more fundamentally, it has been argued that excess savings, in both developed and emerging markets, have been driving interest rates at record low levels.

Here we argue that the saving glut is not there to last. As ageing kicks in, older population will rise and start dissaving, thus ending to some extent the excess savings that has prevailed in the run-up to the Great Financial Crisis. In parallel, we show in another piece that even excess savings in EM will decline[1].

Savings glut to fade thanks to demographics

For a number of reasons, including reduced external surpluses and saving dynamics, EMs will contribute less to the global savings glut. In DMs, ageing will drive savings down. Based on age-saving profiles and UN demographic projections, we estimate the aggregate saving rate for both the US, Japan, Germany and

France. It is worthwhile noting that age-saving profiles have been stable over the last twenty years in the countries we analyse and that they are quite different from one country to another (*Exhibit 3*). We find a significant decrease in the overall saving rate in the US. Elsewhere, savings would tend to be slightly declining for Japan and Germany and slightly up for France (*Exhibit 4*).

Exhibit 2
Excess liquidity in the euro area attains record-high
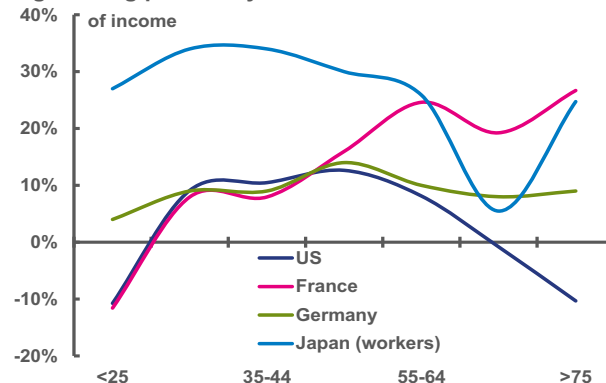Excess liquidity & deposit facility in the €-zone
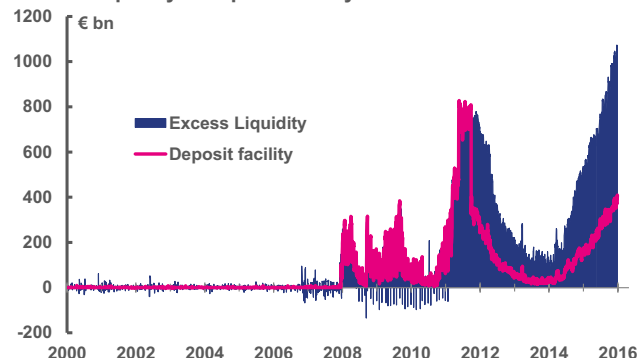
Source: Bloomberg and AXA IM Research

Exhibit 3
**Saving profiles differ across countries**
Age-saving profiles by countries

Source: INSEE, Bundesbank, BLS, Statistics Bureau and AXA IM Research

Exhibit 4
US saving rate is most likely to decrease
Savings rates by country (100 in 2016)

Source: INSEE, Bundesbank, BLS, Statistics Bureau and AXA IM Research

---

[1] Davradakis, M., "EMs: carry over DMs to prevail to a small extent", page 23.
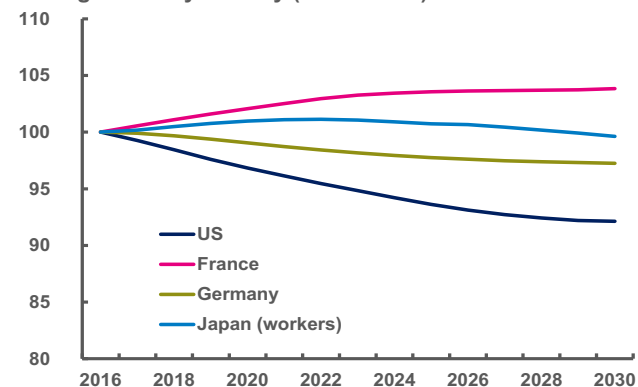
Inequality might weigh on savings

Ageing is not the only factor that will drive savings in the future: income inequalities could partially compensate. Indeed, the saving behaviour depends on the level of income, and data show that top income quintile does not de-save at retirement age compared to other population segments. Thus, if inequality tends to increase and lead to a growing share of higher income earners in overall population, the ageing negative impact on saving stock could be partly offset.

In order to analyse upside and downside risks stemming from the evolution of inequality, we project savings rate based on income-quintile savings rates for different scenarios for the US, Japan and France. We build our "higher inequality" (downside risk) scenario by assuming that higher incomes rise faster than lower incomes (we exclude the case in which lower incomes decline while higher incomes increase, as it is unprecedented in recent history). Conversely, our "lower inequality" (upside risk) scenario takes the opposite stance with lower incomes rising at faster pace than higher incomes. Lower inequality leads to lower savings rates in all countries. On the contrary, higher inequality completely offsets the demographic effect for both the US, Japan and France: it leaves the savings rate stable in the US and Japan, and slightly above current level in France (*Exhibit 5* for US example).

Overall, the analysis above shows that, at most, the saving rate will remain constant and it is plausible that, with lower global inequality, it will decline. If anything, risks are tilted to an even lower saving rate than we pencil in.

Exhibit 5
Inequality could offset savings rate decline
US saving rate forecasts
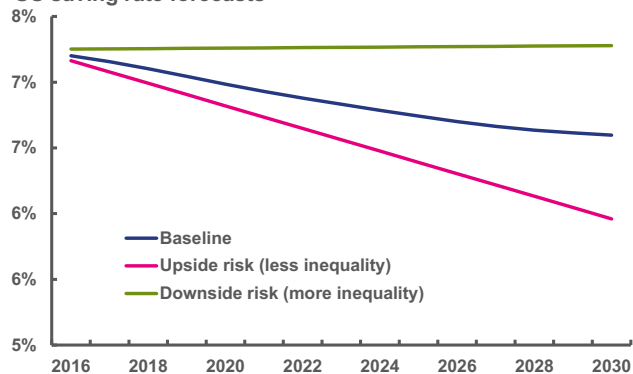
Source: BLS and AXA IM Research

Stuck in secular stagnation? Not quite

Besides savings decline, we believe investment will pick up with growth. This contrasts with the nine-year period following the financial crisis which saw excess saving meeting a lack of investment, aggravating the downward pressure on long term interest rates. In turn, higher growth will make the expression "secular stagnation" much less… trendy than it has been.

To show this, we provide trend growth projections for the next decade, estimating the impact of structural factors, namely ageing population, weakening productivity, and investment capacity. We also run scenarios where new technology developments diffuse in the economies, at a pace correlated to the flexibility of economic structures, lifting trend growth.

2/ Longer recovery for euro area and Japan

### Looking ahead: our central scenario

We estimate trend growth in the next ten years, using a classic decomposition disentangling labour quantity[2], labour quality (distinguishing low, medium and high-skilled workers)[3], capital stock and TFP. Our results are close to international organisations estimates for historical periods (*Exhibit 1*).

The crisis period (2008-2015) saw substantial erosion in growth capacity. As in any large recession, productivity collapsed, especially in the UK and the euro area. Labour growth resisted more in the UK, while it plunged into negative territory in the euro area, dragged down by peripheral countries. The US proved more resilient while Japan growth was severely affected by a drop in investment and in labour growth (0.2%) despite robust productivity, which may be related to a catch up in skills thanks to substantial investment in intangibles (knowledge capital)[4]. Looking ahead, we project each supply factor based on the following assumptions.

Exhibit 6
Population prospects inevitably lowering trend growth
Population growth projections (%)
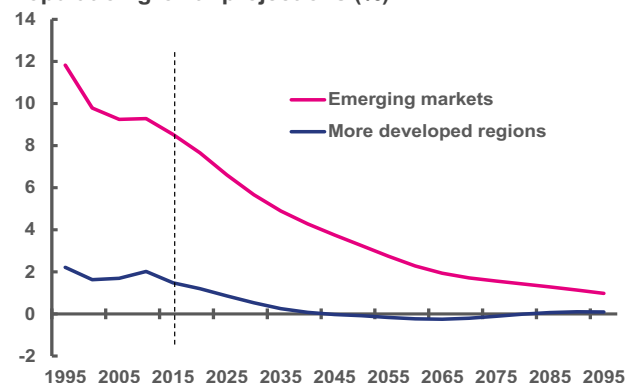
Source: UN projections and AXA IM Research

Labour quantity forecasts are based on UN projections, which show a steady decline in population growth and progressive ageing (*Exhibit 6*). This structural evolution translates into a rise in the dependency ratio (from 41% in 2000 in Europe to 58% in 2025, from 32% to 51% in the US, and from 25% to 51% in Japan[5]) and weighs on labour and output growth. Demographics will impact negatively trend growth until 2050 though at different speeds across

---

[2] We use total hours worked as labour quantity variable

[3] "Projecting economic growth with growth accounting techniques", The Conference Board Global Economic Outlook 2012.

[4] Miyagawa, T. and Hisa, S., "Measurement of Intangible Investment by Industry and Economic Growth in Japan", 2013.

[5] According to UN projections, and calculated as the ratio of people older than 65 to the people aged 35-64.

regions (when growth of population older than 60 will fall back to zero; *Exhibit 7)*. The election of Donald Trump in the US will only impact trend growth marginally through immigration turnaround: should his proposal be fully implemented, population growth would decline further, and weigh on trend growth by about 0.2bp[6]. Faced with uncertainty, we did not factor this in. In the UK, we adjusted the UN projections lower to take into account the Brexit impact on labour mobility.

Exhibit 7
Ageing issue to last until 2050 in DMs
Developed regions, population growth by age (%)
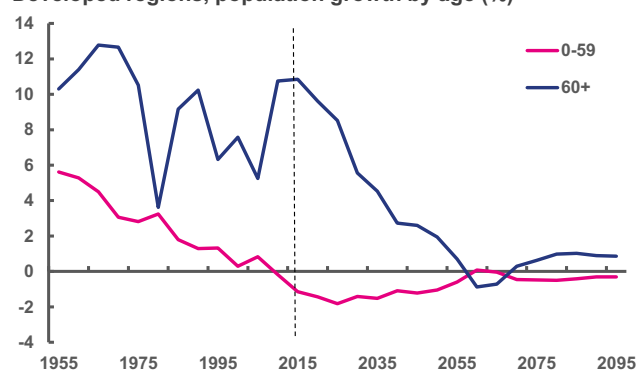
Source: UN projections and AXA IM Research

We expect **labour quality** to improve only marginally: even though the flow of new entrants to the labour market becomes better educated in line with historical observations[7], this has a marginal positive impact on labour quality of the total stock of workers given the proportion between young and older workers, even when factoring for the retiring of less educated older workers.

Investment bounces back, albeit at different pace across countries, in line with diverging recovery momentums: we expect investment to edge up to pre-crisis levels, faster in US than in euro area and Japan (*Exhibit 8*). Regarding the UK, investment-to-capital ratio remains weaker than pre-crisis, in line with our assumption that Brexit negotiations uncertainty will durably weigh on investors' confidence.

Finally, **TFP** accelerates from crisis levels. Indeed, the productivity slump is transitory in our view and relates to hysteresis effects on innovation capacity and diffusion[8]. Moreover, we give little support to the idea that innovation has reached limits and will no longer bring additional productivity gains in the future[9]. Even though new products and services differ greatly from previous innovation waves (e.g. big data, internet, autonomous robots, nanotechnology, 3D printers…), we think that the outburst of new technologies is likely to eventually revive productivity with innovation diffusing and the production process progressively adapting. For instance, data-driven decision making has already

improved productivity by 5% to 6%[10] for firms that use it and autonomous machines may likewise boost productivity further by 30 to 60%[11].

Exhibit 8
Investment level should catch up with pre-crisis levels
Investment to capital ratio (%)

Source: AMECO and AXA IM Research

Looking at individual profiles, the productivity slump should last longer in the euro area, UK and in Japan than in the US, for three reasons. First, as innovation is a positive externality with large entry costs, public investment is often a necessary financing source. This public support will be limited in the euro area, given fiscal space constraints and ongoing structural adjustments in peripheral countries. Second, the euro area and Japan are historically lagging in technology diffusion compared to the US whereas the UK is a close follower[12]. Lastly, we expect Brexit to weigh on the productivity outlook as a consequence of weaker investment.

Thus, we expect TFP to return to pre-crisis pace within five years for the US and within ten years for the euro area and Japan, where we assume larger hysteresis effects, smaller fiscal space, and weaker innovation diffusion. The UK does not reach pre-crisis TFP level (+0.9%) within our projection horizon, but attains a more moderate level equal to the one prevailing in the euro area in the pre-crisis period (+0.7%).

Altogether, the hierarchy of trend growth prevailing before the crisis should remain (*Exhibit 9*), with trend growth prospects overall lower than in the pre-crisis era, at +1.6 in the US, +1.3% in the UK, +1.2% in the euro area and +0.6% in Japan. In general, the rebound in TFP and investment will partly compensate the deteriorating demographics, with ageing making the contribution of labour weaker than ever.

The US would avoid the low-growth trap in our central scenario. However, with worsening demographics and hysteresis effect in the euro area and Brexit affecting the investment and productivity outlook in the UK, we cannot rule out longer recovery period. In Japan, the secular stagnation hypothesis would prevail as trend growth would suffer from worsening demographics and

---

[6] Based on the no migration scenario of the UN.
[7] In Japan for instance, 60% of the 35-54 generation attained tertiary education in 2015, versus 48% twenty years ago (OECD)
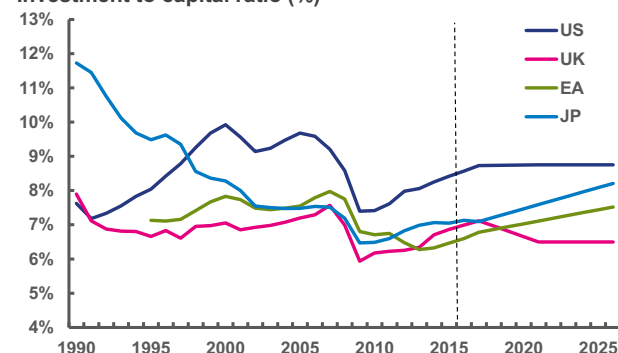[8] OECD, "The future of productivity", 2015.
[9] "Is US economic growth over? Faltering innovation confronts the six headwinds", J. Gordon, NBER, 2012.

[10] Brynjolfsson et al., "Strength in Numbers: How Does Data-Driven Decision-Making Affect Firm Performance?", 2011.
[11] Citigroup-Oxford Martin School, "Technology at Work: The Future of Innovation and Employment", 2015.
[12] OECD, "The future of productivity", 2015.

low private investment (as since the early 1990s), while productivity gains would remain relatively solid.

Exhibit 9
Trend growth in central scenario (2016-2026 average)

in %	Output	Contributions			
		Labour quantity	Labour quality	Capital	TFP
US	1.6	0.1	0.1	0.8	0.5
UK	1.3	0	0.1	0.6	0.5
Euro area	1.2	-0.1	0.2	0.6	0.5
Japan	0.6	-0.4	0.1	0.3	0.5

Source: AMECO, Total Economy Database and AXA IM Research

Upside scenario: the technology boost

We also consider an upside scenario in which innovation boosts very significantly productivity and investment beyond our central scenario (*Exhibit 10*). We assume that this shock speeds up the TFP catch up process described above and leads to an investment boost equivalent to the one observed in the ICT sector in the late 1990s. Consistently with what we observed during the ICT revolution (*Exhibit 11*), we assume that this shock would impact first and most importantly the US and to a lesser extent the UK. Indeed, we assume that the boost in TFP is partly permitted by improving labour and product market regulations in our four regions, with US and UK leading, as suggested by OECD indicators[13]. These more favourable regulatory environments lead to faster adoption of innovation.

This technology shock lifts our estimated trend growth above 2% in the US, while UK, euro area and Japan lag behind at 1.9%, 1.5% and 1.1%, respectively.

Exhibit 10
Trend growth in upside scenario (2016-2026 average)

In %	Output	Contributions			
		Labour quantity	Labour quality	Capital	TFP
US	2.4	0.1	0.1	1.1	1.0
UK	1.9	0	0.1	0.7	1.1
Euro area	1.5	-0.1	0.2	0.7	0.7
Japan	1.1	0.2	0.7	0.5	0.8

Source: AMECO, Total Economy Database and AXA IM Research

Interest rates to rise in the future

We then compute theoretical long-term equilibrium interest rates as the sum of population and technology growth (i.e in line with a Solow framework). By 2021, nominal interest rates should reach 3.45% in the US (assuming trend growth at +1.6%; *Exhibit 12)*. Consistently with our growth scenario presented above, the rise in interest rates will be much slower for Europe and Japan, as we find rates around 2.3% for Germany, 2.5% for the UK and 1% for Japan looking at the same horizon. These theoretical long term interest rates are in line with our in-house forecasts.

---

[13] PMR (Product Market Regulation) and LMR (Labour Market Regulation) indicators

Exhibit 11
ICT impact has been stronger in the US and the UK in the past (1990-2000, annual average growth in %)
Capital services growth (contribution of ICT versus non-ICT)
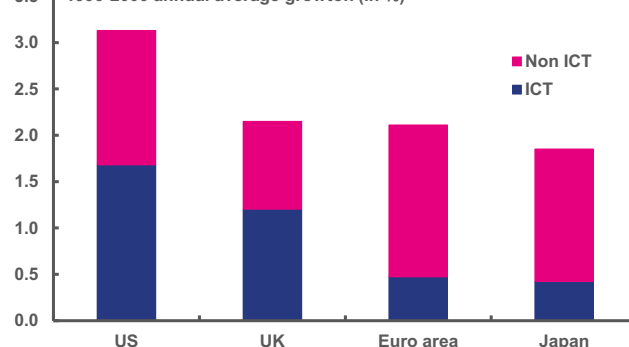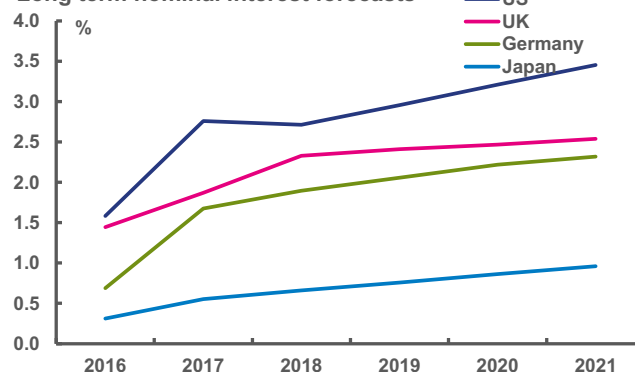

Source: EU Klems, AXA IM Research, 2011

Exhibit 12
Long term equilibrium interest rates to bounce back
Long term nominal interest forecasts

Source: IMF and AXA IM Research

Conclusion

Our analysis finds little support for the secular stagnation hypothesis. Even though fundamentals are weaker in Europe and Japan and they might experience longer recovery period, we do not expect the US to fall in a prolonged low-growth episode. Furthermore, we anticipate a rise in interest rates in the medium term (*Exhibit 13*), confirmed by both our theoretical and global savings analysis.

Exhibit 13
Summary

Factors	Expectations	Impact on		
		growth	rates	savings
Demographics	Ageing to weigh on labour but to increasing de-saving	▼	▲	▼
Human capital	Better education shoul improve labour quality	▲	▲	▲
Investment	Investment to bounce back to pre-crisis level	▲	▲	▲
Innovation	Innovation and catch-up processes should improve productivity	▲	▲	▲
Overall impact		▲	▲	▼

Source: AXA IM Research

Some tailing slack in demand

By Laurent Clavel

- Although we believe growth is set to recover over the next ten years, it will be at different speed because of supply-side differences[14]. This is also because the 2009 crisis created such a large negative shock that some regions are still struggling to get out of it.

- In regions with still a large demand deficit, e.g. Europe, monetary policy is reaching feasible and political limits. Looking forward, further reducing the demand gap will require fiscal policy to play a greater role[15].

- Indicators, including a timely measure of the output gap, labour market slack, and banking sector capacity, reveal that the demand deficit is closed in the US, was closed in pre-Brexit UK, but remains significant in Japan, the euro area and China.

The legacy of the largest negative demand shock since WWII on inflation and savings

From early 2008 to mid-2009, real GDP per capita contracted by 5% to 9% in the main DMs, making this episode the largest negative shock for the US (-6%), the euro area (-7%), the UK (-8%) and Japan (-9%) since WWII. Even though growth rebounded after only four to six quarters, the inelasticity of supply and the depth of the shock meant that most economies kept a negative output gap (also referred to as a demand deficit or production overcapacities, which are really two sides of the same coin) for a long time.

Exhibit 14
After the Global Financial Crisis (GFC), private deleveraging pushed interest rates down
Post-GFC change in credit stock (peak-to-trough)
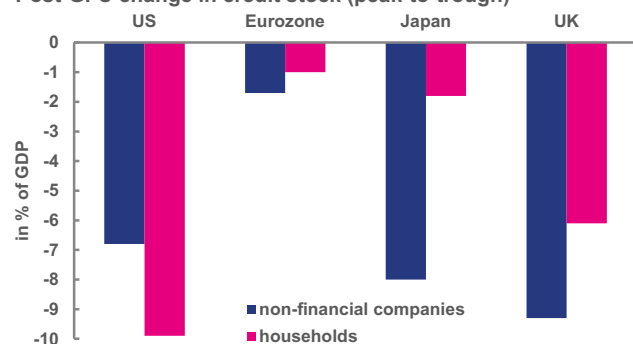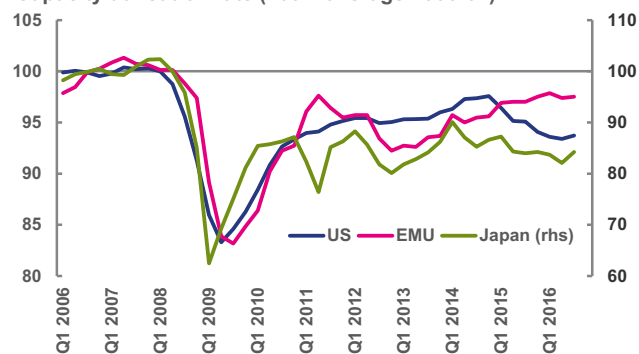

Source: BIS and AXA IM Research

Concretely, the legacy of the global financial crisis exerted a demand-side, downward pressure on interest rates through several channels which lowered real growth, inflation, and/or increased the saving propensity:

- deleveraging: as after any debt-induced crisis, the need to clean up balance sheets (i.e. reduce the stock of debt) and the traumatising experience of funding drying up led companies to reduce their debt stock, hoard cash and more generally increase their savings; this was also true for households in the US and the UK (*Exhibit 14*);

- the sudden stop in economic production led to a rapid (US, UK) and less rapid (Europe) rise in unemployment, which in turn favoured (precautionary) savings increases while limiting wage increases (the Phillips curve);

- this reduced companies' pricing power, limiting their capacity to rebuild margins and therefore their investment capacity;

- some investments in additional productive capacities made prior to the GFC were based on a demand trajectory which proved *ex post* to be largely too optimistic. Many companies were left with productive overcapacities, resulting in a large, partly durable drop in capacity utilisation rates (*Exhibit 15*) that reduced the need for new investments;

Exhibit 15
A long-lasting drop in capacity utilisation reduced the need for new investments
Capacity utilisation rate (100 = average 2006-07)

Source: Fed, EC, METI and AXA IM Research

- observing such an unusually large shock led all economic agents (households, companies, banks…) to re-assess macro risk, and in particular the probability of such unfavourable tail events. Since changes in beliefs endure long after the event itself has passed, it may lead to long-lasting effects on borrowing, investment, employment and output[16].

Thanks to an expansionary monetary policy, some of these trends have reversed: the following section looks at the work that remains to be done.

The challenge of extracting the demand side

Estimating the output gap is notoriously difficult because it requires one to split the drop of an economy's real value added into two parts: a temporary or cyclical part

---

[14] Kuhanathan, A. & Renucci, C., "Renewing with higher trend growth", page 7.
[15] Page, D., "The remaining scope for policies", page 15.

[16] Veldkamp et al., "The Tail that Wags the Economy: Belief-Driven Business Cycles and Persistent Stagnation", NBER, 2015.

and a permanent or structural one, which is not directly observable. With a shock as large as the GFC, the task is further complicated by the need to distinguish between the decrease in potential growth (the supply-side slowdown) and the loss in activity level (for example with people emigrating, with a permanent rise in unemployment, or when a productive capacity disappears after a bankruptcy). Concretely, the latter means disentangling the decrease in slope and the drop in GDP level (*Exhibit 16*).

Exhibit 16
The challenge of distinguishing losses in GDP level and in GDP growth/slope

Log of quarterly nominal US GDP and trends
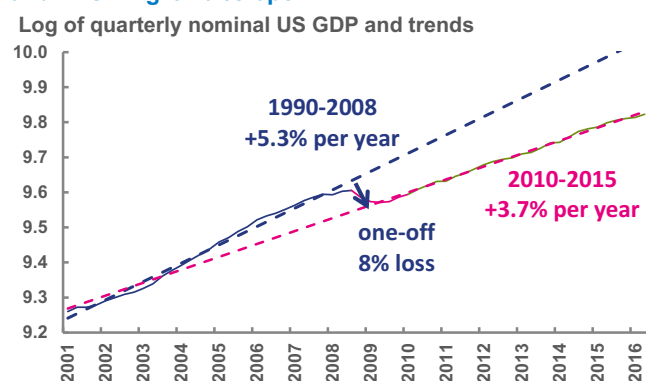
Source: BEA and AXA IM Research

Most techniques used by international organisations rely on statistical filters which unfortunately tend to have large revisions at the end period, of the same order of magnitude as the output gap itself[17]. To avoid this, we built quarterly output gaps for the main DMs using indicators of slack[18,19] which we aggregated with a Principal Component Analysis[20], i.e. with fixed weights. These indicators (investment ratio, bankruptcies, wage tracker, housing prices, recruitment difficulties, capacity utilisation, production bottlenecks, job vacancies…) cover the labour market as well as the various sectors of the economy, and are mainly from business surveys, and therefore largely unrevised over time. Besides, taking into account several indicators limits the risk of a freak move in a single one.

With capacity utilisation rate and the U-6 broad measure of unemployment (which also includes discouraged and marginally attached workers, as well as people employed part time for economic reasons) back to their 2002 level, we find that the US output gap closed in mid-2014 and stands today around 0.4% of GDP, a slightly more optimistic view than that of the IMF (-0.5% in 2016). Similarly, we found the UK output gap had closed by end-2013 and to be around 0.5% now, about 0.5 pp above the IMF or the OECD; this is consistent

with increasing, limited domestic inflationary pressures pre-Brexit (with core inflation at +1.4%yoy in June).

In the euro area, we find an 8-year-old demand deficit of at least 1% of GDP, in line with OECD estimates.

From our direct estimate of the output gap we can derive "short-term potential growth", here defined as the real GDP growth which allows for the demand deficit to remain stable. Our euro area output gap estimate is consistent with a potential growth decreasing from +1.8% before 2008 down to +0.5% post-GFC on average, but with a rising trend looking ahead (*Exhibit 17*). This is consistent with our supply-side analysis of trend growth accelerating up to +1.2% on average over 2016-2026. Looking ahead, this estimate and our forecast of modest growth (+1.4% annually in 2017-18) means the euro area output gap will keep closing but remain negative until 2019.

Exhibit 17
In the short run, EMU potential slowed down post-GFC

Potential growth (EMU)
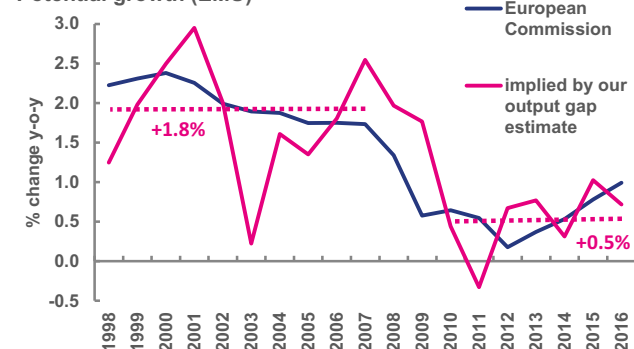
Source: European Commission and AXA IM Research

The case of Japan is more challenging: most ex post studies date the start of the Japanese deflation and its entry in a liquidity trap back to the mid-1990s; since most indicators of capacity underutilisation are not available over such a long time period, we first took a subset of indicators to build an output gap estimate since 1980 and re-scaled it on the 1985-98 "normal cycle" period (according to IMF's estimate). We then extended the set of indicators over the 1997-2016 period; both estimates are consistent with a -1% demand deficit as of mid-2016, in between IMF's and OECD's estimates at respectively -1.5% and 0.1%.

Fading slack will finally unchain inflation

As the Fed has repeatedly stressed in its communication, the US labour market slack is likely to be larger than shown by the unemployment rate. In our view, this is unlikely to constrain wage growth. Indeed, since the 2010 recovery, job creations did not increase as much as the drop in unemployment suggests, i.e. the activity rate went down, partly reflecting "discouraged" unemployed people. The usual relationship between unemployment and wage growth (the Phillips curve) has high statistical significance (R²=60% over 2008-16; *Exhibit 18*) when switching to a broader measure of

---

[17] Orphanides, S. and Van Norden, S,. "The Reliability of Output Gap Estimates in Real Time", August 1999.
[18] OECD, "An Investigation Into Improving The Real-Time Reliability Of OECD Output Gap Estimates", 14 April 2016.
[19] OBR, "Estimating the output gap", 2011.
[20] Choosing wisely the set of indicators, the first principal component is highly correlated with output gap estimates provided by international organisations, which we then use to re-scale the PCA outcome in terms of average and standard-deviation.

labour underutilisation (U-6[21]), suggesting the drop in activity rate has a structural component and wages will start rising before the activity rate picks up.

Exhibit 18
US wage growth lower than unemployment says, in line with a broader measure of labour underutilisation
US Phillips curve (nominal wages)
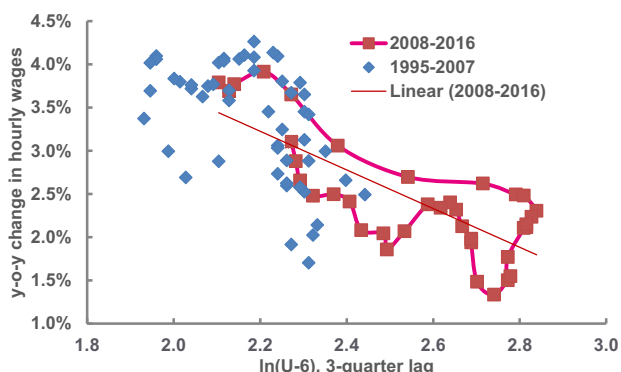
Source: BLS and AXA IM Research

For the euro area, the situation is different: since 2008 the post-GFC rise in unemployment (+5pp, peaking in mid-2013) occurred with a broadly stable participation rate. Wage growth was particularly cyclical in Spain and, to a lesser extent, in Italy, while it persisted in France (around +2%yoy for hourly wages until 2014), reflecting the persistent duality of the labour market.

Banks' weakness adds a deflationary pressure in few euro-area countries

Another legacy from the 2008-09 crisis is the stock of NPL on the balance sheets of banks, especially in Europe. This can lead to credit supply constraints, as a fragile bank is 1) more likely to be chasing non-performing customers than looking for new performing ones and 2) unlikely to accept taking risks. Thanks to the economic recovery and the QE-driven improvement of financing conditions, the share of NPL (in the total stock of loans) peaked at 7% in Q3 2014 in the euro area and is now back to its mid-2011 level (*Exhibit 19*), lagging six years behind the US banking clean-up and still significantly higher than pre-GFC. This aggregate hides a large heterogeneity among EMU countries with complete NPL recovery in core and semi-core countries. Meanwhile, NPL remain elevated in peripheral countries and have only just peaked in Italy, both for households and non-financial companies (*Exhibit 20*). In Japan, the GFC barely led to an increase in NPL (+0.4pp between early 2008 and the late 2009 peak) and the stock is now at an all-time low.

Taking the US post-GFC trajectory or the previous Japanese banking balance sheet clean-up (with a peak in NPL in Q1 2002) as a benchmark, the euro area will have to deal with reducing NPL over the coming four years, at least. This estimate is likely to be on the conservative side, as the relative size of the European banking system (total loans to GDP) makes it harder to deal

with, amplifying the deflationary pressure associated with NPL.
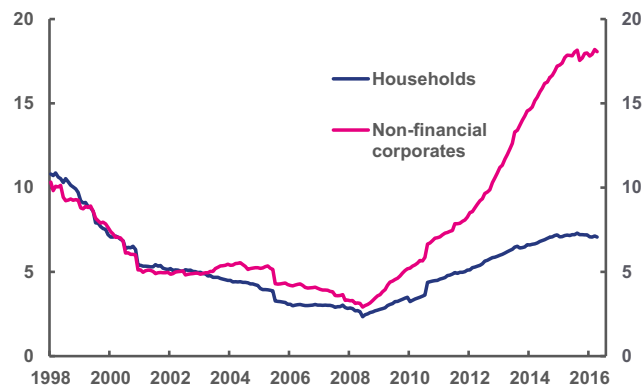
Exhibit 19
EMU NPLs peaked in 2014, six years after the US
Stock of non-performing loans (% of total loans)
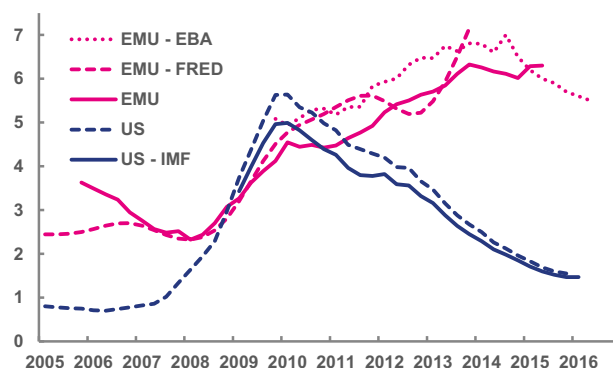
Source: IMF, Federal Reserve Economic Data from St Louis Fed (FRED), EBA and AXA IM Research

Exhibit 20
Italian NPL have barely peaked if at all
Non-performing loans in Italy (in %)

Source: Bank of Italy and AXA IM Research

Finally, the GFC was undoubtedly the result of poor supervision and taking stock of its tremendous impact therefore led to toughen regulation. There is a risk that such a reaction leads to over-regulation of the financial system. Basel II (and III) capital requirements, for example, add some pro-cyclicality to capital charges[22]. In the same vein, reducing the discount rate for institutional investors (in Europe's Solvency 2 via the ultimate forward rate), as already been enacted in the Netherlands or Switzerland, can limit the possibility to invest in riskier assets, which is in contradiction with the objective of expansionary monetary policy to shift investment towards riskier assets (through the search for yield). Overall, NPL and re-regulation may weigh on the capacity of financials to support economic activity, looking ahead.

China is contributing to the global demand-side secular stagnation

Estimating the output gap for emerging economies and China in particular is an even riskier exercise than for

---

[21] For more details, see http://www.bls.gov/lau/stalt.htm

[22] Kashyap, A.K. and Stein, J.C., "Cyclical implications of the Basel II capital standards", Chicago Fed Reserve, 2004

DMs. International organisations, such as the IMF or the OECD, typically refrain from publishing one. Replicating our indicator-based, "direct" estimate of the output gap (see above for main DMs) is also difficult as very few infra-annual indicators of labour or capital underutilisation are available. Taking a simple HP filter and a time-polynomial trend as a benchmark[23], we nevertheless make an attempt to provide an estimate of China's contribution to the demand-driven secular stagnation. We focus on GDP deflator and (core) CPI which are more informative of domestically-induced inflationary pressures than producer prices (which are largely driven by commodity-fuelled input prices). We also find that the ratio between job vacancies and job seekers (available quarterly since 2001 for a sample of the main cities and covering about 40-50% of urban areas) offers a decent, timely proxy for the labour market slack.

Chinese core inflation dropped sharply into negative territory (-2.8%yoy at the August 2009 trough), largely driven by domestic deflationary pressures (with GDP deflator flat versus roughly 8% annually in 2008 and 2010), and the vacancy-to-job-seeker ratio fell by one standard deviation in three months. Summarising these indicators, we find a large, negative output gap in 2009 (-4%) that neither actual GDP (-0.4pp, at +9.2%) nor benchmarks capture. Interestingly, such a large demand shock does call for a strong fiscal response, which the Chinese authorities did provide in 2009. Looking ahead, our direct estimate points to a resilient but stable demand gap in 2015-16, of around 2% of GDP (*Exhibit 21*). Implicitly, this means that Chinese growth is currently at its potential pace and that most of its post-GFC slowdown is structural, a conclusion that simple benchmarks fail to grasp.

Exhibit 21
A stable demand gap means most of China's post-GFC slowdown is structural

Output gap (China)
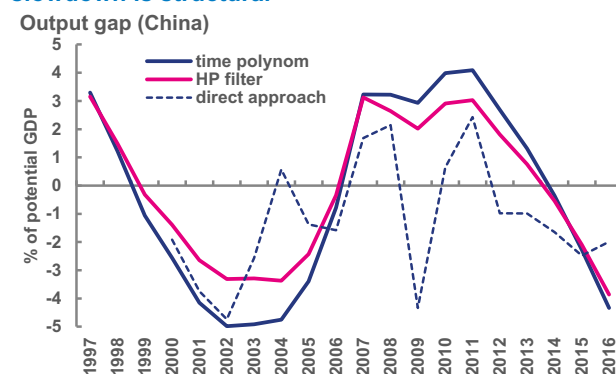
Source: National Bureau of Statistics of China, China's Ministry of Human Resources and Social Security and AXA IM Research

Conclusion

Our analysis shows that demand-side factors, though waning, still weigh on real growth, inflation and interest rates in some regions. Now, a decade after the crash of the US housing bubble that led to the GFC, the US economy seems out of the woods; the UK was in a similar situation pre-Brexit. Conversely, Japan is entering its 25th year of capacity underutilisation (if one excepts a short-lived moment in 2007, at the top of the global credit bubble) and has over time found a steady-state equilibrium of modest growth and low inflation. The euro area is somewhere in between, after eight years of demand deficit: the decrease in NPLs is here a good omen, but remains too sensitive to any shock. Finally, China also has to deal with its own domestic demand deficit.

---

[23] Gerlach, S. and Peng, W., "Output gaps and inflation in Mainland China", BIS Working Paper, February 2006.

The remaining scope for policies

By David Page

- Looking ahead, a lower real neutral rate will increase the probability that central banks face reduced scope for conventional monetary policy.

- Available policy tools including forward guidance, balance sheet expansion (including different asset classes) and modestly negative interest rates should provide sufficient scope to minimise output volatility in the future. We also consider the potential benefits of an increase in central banks' inflation targets.

- Yet stimulus beyond monetary is likely to be required, in case of a downturn before monetary policy returns to a longer-term 'normal'. Fiscal policy is already playing a greater role in some regions and we expect this to increase.

Defining the problem of a lower neutral rate

With rates so low, central banks may find little room for policy manoeuvre when the next slowdown in economic activity occurs.

Historically central banks have lowered policy rates (used to transmit a central bank's monetary policy stance to the real economy), to achieve their inflation targets. But it is unlikely they will be able to use them to the same extent in the next downturn (*Exhibit 22*).

In this note we explore the likely future policy responses to this problem. We consider a range of options, identifying different challenges in different regions, at varying stages in the business cycle and which have different institutional frameworks. We also consider alternatives to monetary policy, including how fiscal policy can be used to support economies and combinations of policies that use elements of both. These are likely to grow in importance over the coming years particularly if downside risks to the macroeconomic outlook begin to materialise.

"I wouldn't start from here …"

As *Exhibit 22* illustrates, central banks may not be significantly constrained by a lower neutral rate – the policy rate at which inflation is stable and GDP is growing at trend. Based on estimates of current neutral rates[24] and inflation targets, most central banks should be able to maintain a moderate amount of conventional monetary policy space. In terms of current inflation targets and estimates of neutral rates, in the US, nominal neutral rates would stand at 2.75%, in the UK and Canada at 3.50%, in the euro area close to 2.25% and in Japan at 2%. Moreover, there is some expectation that neutral

rates may rise modestly over the coming years, as any legacy impact from the financial crisis recedes[25].

Based on these neutral rates, if central banks are forced to ease policy after a period of economic overheating that has seen policy rates rise to restrictive levels, only the US central bank would reach the lower bound by deploying its average historic response.

The difficulty for central banks occurs if economic deceleration occurs *before* they have returned policy above these new lower neutral rates, as discussed by US Fed Chair Yellen at this year's Jackson Hole conference[26].

She suggested that "in an environment where long-term interest rates are likely to be unusually low" and where there is "little scope to cut" the US policy rate (the federal funds rate), the Fed would only be able to "provide appreciable accommodation". This reflects the reduced scope for conventional policy.

Exhibit 22

Monetary policy becomes more constrained

Historic policy cycles and the neutral rate
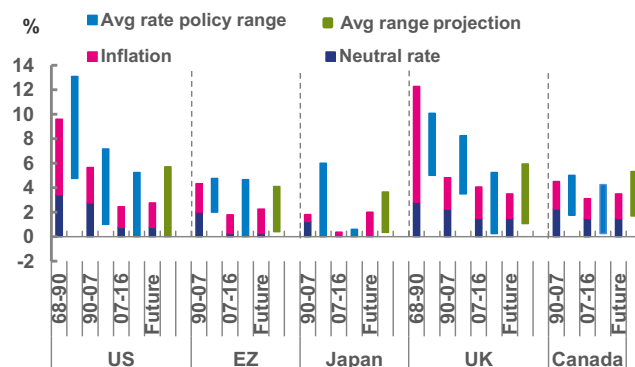
Source: Laubach & Williams, Datastream and AXA IM Research

The difference between providing "appreciable accommodation" and stimulus consistent with unconstrained conventional policy is marked. Moreover, having already started tightening monetary policy, the Fed is one of the developed economy central banks with the most scope for further stimulus from here. The BoE, prior to Brexit arguably also close to tightening monetary policy, is now easing policy. Meanwhile, the ECB and BoJ should keep easing over the next year or so at least.

While central banks may have ample scope to ease conventional policy in 'normal' circumstances in the future, the prospect of establishing such normal market rates over the coming years remains remote.

---

[24] Williams J. et al., "Measuring the natural rate of Interest: International Trends and Determinants", August 2016.

[25] Alimi, M., "Bond term premia set to rise in 2017", page 26

[26] Yellen, J., "The Federal Reserve's Monetary Policy Toolkit: Past , Present and Future", August 2016.

Different regions, different reactions

As well as being at different stages of the economic cycle, varying central banks will also respond differently according to their own institutional frameworks.

The Fed and BoE have effectively ruled out taking policy rates into negative territory. As discussed in Appendix A (*page 36*), there is an open question over the stimulative effect of negative policy rates, beyond currency depreciation, for an economy. However, different institutional features weigh additionally on decisions in the US and the UK. In the US, concerns focus on the impact on money market funds. In the UK, the quick pass through of negative policy rates to commercial banks' profitability caused by the prevalence of low duration floating-rate mortgages is a source of additional concern for the BoE. Both central banks are likely to adopt balance sheet expansion, specifically more QE, as an extension of the policy stimulus spectrum as opposed to a special measure reserved for emergencies. This was reflected both in Yellen's recent comments and the BoE's latest stimulus package.

In Japan and Europe, central banks have been more open to experimenting with lowering rates below zero but have become increasingly less keen to pursue QE. In Japan, the BoJ's ultra-aggressive QE has to date not achieved its inflation target. This has led the bank to shift policies and adopt a 0% yield target (10-year yields), implicitly reducing the pace of QE. In the euro area, the ECB has recently shown little appetite to lower interest rates further from the current level and any need for further stimulus would likely require additional QE.

Exhibit 23 summarises our views of the policies which central banks are likely to pursue. This includes a consideration of policies made "in extremis", which allows that some central bank policy options are politically unpalatable, but may become better than alternative outcomes.

An additional tool could be raising the inflation targets. If a lower real neutral rate threatens to restrict the scope for monetary policy response, an increase in the inflation target can offset this fall, restoring policy flexibility for some central banks. As discussed in Appendix A (*page 36*), we consider the cost of raising the inflation target by 1% point and note that most targets were set pre-financial crisis, when neutral rates were higher. In the US and the UK, this could quickly bolster the firepower of monetary authorities. Such a change poses credibility problems for areas with low inflation and high spare capacity, including Japan and the euro area, limiting the scope for such a change in these areas in the short term.

Exhibit 23
Summary of central bank options by region and circumstance

	Current policy	Likely additional stimulus	Further stimulus 'in extremis'
Fed	• FFR: 0.25-0.50% • Forward guidance: gradual tightening expected • Asset purchases: $4.2tn (stable)	• Forward guidance: dot projections to zero • FFR reduction to 0-0.25% • State-contingent forward guidance • QE expansion in UST	• Forward guidance: dot projections to zero • FFR reduction to 0-0.25% • State-contingent forward guidance • QE expansion in UST, corporate bonds and equity • Increase inflation target • Debt monetisation: only considered in most extreme tail risk
ECB	• Depo rate: -0.4% • Forward guidance: material rate cuts unlikely • QE: €80bn/month • Corporate bond purchases: €29bn since June (€8bn since June)	• Depo rate: -0.5% • Forward guidance: expectation of lower policy for longer • Extend QE, limited by modalities (CAC to 33%, purchase below depo rate) • Corporate bond purchases could accelerate	• State contingent forward guidance • Expansion of QE (abandoning capital keys) • Expansion of universe of corporate purchases and equities
BoJ	• ON call rate: -0.1% • Yield target: 10yr yield 0% • Variable QE ~<Y80tn • Purchases: JGB,s REITS, ETFs • Raised inflation target: overshoot current target	• ON call rate: lower, perhaps towards -0.5% • Yield target: 10yr yield <0% • Variable QE >Y80trn • Extend purchases, more ETF & outright equity purchases • Formal increase in inflation target	• Increased QE • Debt monetisation
BoE	• Bank Rate: 0.25% • Term Funding Scheme • QE: £60bn Gilts/6months • Corporate bonds: £10bn/18 months	• Bank Rate: 0.10% • Extend Term Funding Scheme • QE: £180bn Gilts/18 months • Corporate bonds: £10bn/18 months	• Bank Rate: 0.10% • Extend Term Funding Scheme • QE: further expansion of gilts, corporate bonds and equity • Increase inflation target • Debt monetisation: only considered in most extreme tail risk
PBC	• Deposit Rate: 1.5% • Lending rate 4.35% • Reserve requirement rate: 16.5% • Other liquidity tools: MLF, SLF, PSL, reverse repo	• Liquidity injection via short-term instruments • Forward guidance (around window) • Easing macroprudential measures • RRR and policy rate cuts	• Further cuts to policy rates • Asset purchases (by PBC or via policy banks) • Large FX devaluation

Source: AXA IM Research as of 12/10/2016

Time for fiscal stimulus

Against this backdrop, the presently constrained ability to provide additional stimulus via monetary policy has sharpened focus on fiscal policy. Appendix B (*page 38*) considers different types of fiscal stimulus.

Constraints for fiscal policy aplenty

Fiscal policy is ultimately constrained by concerns of fiscal sustainability. Advanced economy debt levels nearly doubled after the financial crisis. Initially, several developed market economies were deemed to have insufficient fiscal space for further stimulus (the difference between current debt and a level at which usual fiscal restraint would be insufficient to deliver a stable fiscal position[27]). More recently, sharper than usual fiscal adjustments, lower interest rates and an increase in the share of sovereign debt held by central banks have led to a reappraisal of the space for further stimulus.

Yet indebtedness concerns remain. This is particularly the case where economies borrow in foreign currency, exposing domestic debt levels to shifts in foreign currency (e.g. Latin America).

The type of fiscal stimulus is also important. Infrastructure projects and other growth-enhancing projects are likely to be more benignly received than boosts to entitlement spending. Additionally, a credible commitment to long-term fiscal discipline could also assuage market concerns. Credibility of such discipline is enhanced by independent fiscal watchdogs.

Beyond notions of affordability, the benefits of fiscal stimulus will also reflect internal and external economic rebalancing. This depends on the openness and trade elasticities[28] of an economy. Economies more open to international trade tend to have larger automatic stabilisers as insurance against external shocks[29], although they also suffer more 'leakages' through imports.

Overall, in our view, fiscal policy could come to the support of monetary policy but would require a forceful policy commitment to design it appropriately.

Regional expectations

Recently authorities appear to be increasingly considering fiscal policy. In mid-2015, China relaxed restrictions on public lending bodies, which allowed local governments to increase borrowing and spending. In July 2016, the Japanese government announced a fiscal stimulus package with net new announcements totalling 1.5% of GDP over two years.

---

[27] Ostry J.D., Ghosh, A.R., Kim, J.I, Qureshi, S., "Fiscal space", September 2010.
[28] The responsiveness to exports and imports to respond to changes in the exchange rate.
[29] Rodrik, D., "Why do more open economies have bigger governments?", 1998.


Resistance to fiscal stimulus is also fading in the US. The Trump presidency is likely to see a large corporate-focused fiscal stimulus package with some infrastructure spending, worth around 1% of GDP over the coming two years (considering some reluctance to the full implementation of the fiscal package which Trump campaigned on).

The euro area has also seen a *relative* shift in fiscal policy. Euro area governments have enacted more neutral budgets in recent years following a period of austerity in 2011-14. The EC also recently argued for more fiscal support across the euro area. Yet, the EU's Fiscal Compact constrains the use of a fiscal stimulus (*Exhibit 24*).

Exhibit 24
The EU's Fiscal Compact limits the scope for loosening

Fiscal space in main euro area countries (%
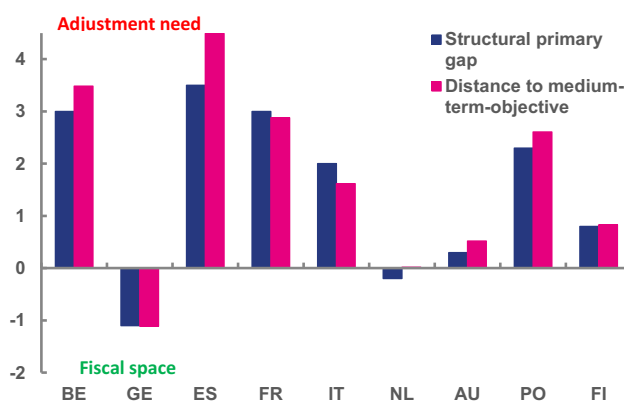
Source: European Commission and AXA IM Research

Across the globe, stimulus is called for but may remain limited in magnitude, reflecting our above concerns.

Co-ordination of policies to the rescue?

Many of the policies discussed can be enhanced through co-ordination. There are several advantages to co-ordinated policy. For one, it magnifies the impact on global aggregate demand, it minimises fiscal 'free-riding' and reduces the chances of bond markets singling out individual countries. Yet, only in extreme circumstances (such as November 2008 when the G20 announced co-ordinated fiscal stimulus from its members), have we ever seen meaningful coordination.

There is also likely to be additional benefit from co-ordinating monetary and fiscal policy. Classically, fiscal policy is seen as lifting interest rates as public money 'crowds-out' private, neutralising some of the fiscal boost. Combining fiscal with expansionary monetary policy can avert such an impact. This is particularly true of asset purchases which create additional fiscal space and assuage concerns, through a buyer-of-last-resort, that capital flight will raise government financing costs.

Coordination of policy is already underway in some economies. The BoJ has adopted a yield targeting approach where monetary policy will in effect be calibrated according to the net issuance of sovereign debt.

Conclusion: What we might expect

The impact of a lower neutral rate reduces the scope for conventional policy easing. In an economy that is operating around equilibrium, central banks may still achieve outcomes consistent with unconstrained rate policy, particularly when policies of forward guidance, balance sheet expansion and possibly marginal negative policy rates can be used to supplement the reduced conventional policy response. However, were additional stimulus required in the near term, banks' abilities to respond look more constrained.

With limited appetite and space for further rate cuts across the world, balance sheet expansion looks likely to continue to play an important role, including an expansion of the universe of assets to be purchased beyond the predominance of government bonds. Balance sheets are also likely to remain larger into the future, a corollary of which should be *relatively* higher policy rates. However, central banks may have to adapt their current operational frameworks to ensure that such a policy does not incur future political restraint.

Some regions may also consider an upward revision to their inflation targets. However, regions with persistently disappointing inflation numbers and output gaps may face credibility issues in achieving such higher targets in the short run.

As monetary policy increasingly struggles to encourage private sector spending, direct public spending could be required. However the space for this remains somewhat limited, particularly across the euro area despite the space created by central bank purchases. Automatic fiscal stabilisers, which mechanically lift and reduce fiscal stimulus in synchronisation with fluctuations in the economic cycle, could also usefully supplement monetary policy.

Several of these policies would be enhanced in combination. Monetary policy would enhance the effectiveness of fiscal policy (this debate was fierce during the implementation of the euro and we would welcome its revival). Global co-ordination would also likely further boost its efficacy.

Financial stability not at risk yet

By Gregory Venizelos

- Risks to financial stability are at the forefront of investors' and central bankers' minds. Somewhat ironically though, these risks may have been exacerbated by the very policies deployed to restore stability in the wake of the GFC, in the first place.

- The key ingredients of the GFC are mostly absent at the current juncture but there are certain elements in financial markets that may be a cause for concern. These include stretched fixed income valuations and constrained market liquidity.

- Given the present environment we are inclined to focus on system-wide leverage (credit gaps), valuations (across assets), credit fundamentals (e.g. US corporates), investor behaviour and downside liquidity risks.

Introduction

Almost a decade after GFC, stability risks have become a key concern for investors, central bankers and politicians alike. There is an irony of circularity in the current state of affairs. Potential market excesses that may pose a threat to financial stability are seen as the outcome of the very monetary policies that were required in order to repair the damage caused by the crisis. Then, the GFC itself was the result of excessive risks that accumulated mostly undetected and ultimately destabilized the financial system to the brink of destruction.

We can think of financial stability as the ability of markets and institutions to withstand shocks and still continue to fulfil their rudimentary functions, such as intermediating capital, managing risks and arranging and clearing payments.

In this note, we advocate the use of the New York Fed's approach for establishing a monitoring framework. This structure can act as an early warning system of the key drivers that can undermine financial stability. We also discuss the relationship between monetary policy and financial stability, a subject of extensive analysis and debate. Furthermore, we contrast the GFC experience against factors which may pose risks to financial stability going forward.

## Financial stability monitoring framework

A systematic approach is required to effectively monitor financial stability risks. There are certain indicators that can be considered key culprits for speculative bubbles and subsequent crises. The ECB President, for example, tends to allude to excessive asset price appreciation combined with leverage as a key acid test for the presence of asset bubbles (so none seen currently). Credit growth is another. Indeed, literature on early warning signals for financial excesses has found that faster and/or greater credit growth increases the

likelihood and/or severity of the crisis that may follow (*Exhibit 25*).

Exhibit 25
Probability of a crisis as a function of credit growth
Crisis probability vs credit growth
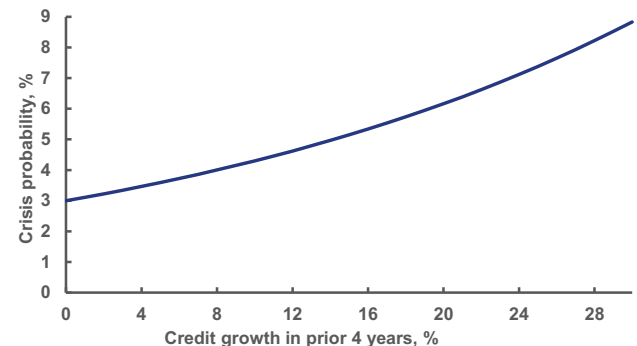
Source: IMF and AXA IM Research

That said, the source of financial instability may not be necessarily obvious, especially to unseasoned observers. Moreover, market participants tend to post-rationalise excesses, often qualitatively. This was the case with the new earnings 'normal' in the run-up to the dot com crisis and the new paradigm of efficient distribution of risk across the financial system (Greenspan doctrine) preceding the GFC. Perhaps the Achilles heel in market perceptions right now is that ultra-low/negative yields are justifiable during secular stagnation. Such misperceptions, often qualitative in nature, need to be countered quantitatively and systematically. Lastly, a systematic approach to monitoring financial stability is required because market indicators may lose their relevance as market structures change. Such an example is the Libor-OIS spread. This was once a key gauge of the health of the interbank market but it is less relevant today, given that banks' dependence on interbank funding has dropped markedly post-GFC.

With such considerations in mind we have adopted the matrix approach recommended by the New York Fed in a recent paper[30]. The basic premise of the approach is that one needs to monitor a number of types of vulnerabilities across the different market sectors and groups of market agents. We distinguish four types of vulnerabilities, specifically (i) pricing of risk (valuations), (ii) maturity and liquidity transformation, (iii) leverage and (iv) system complexities and interconnectedness. These four types of vulnerability, of course, manifest themselves across different market sectors/agents, such as asset markets, the banking sector, the shadow banking industry and the non-financial sector (*Exhibit 26*).

---

[30] Adrian, T., Covitz, D. and Liang, N.J., "Financial Stability Monitoring", Federal Reserve Bank of NY Staff Reports, June 2014

Exhibit 26
A matrix approach for monitoring financial stability risks across market sectors and vulnerabilities

	Risk premia / market pricing	Liquidity/maturity mismatch	System wide Leverage	Complexity & Interconnectedness
Banking sector	- Risk taking x-asset - Lending standards	- Funding ratios - Interbank funding - Collateral encumbrance	- Capital ratios - Leverage rations - VaR measures	- Impact of a counterparty failure - Replacement cost/risk of derivative hedges - Systemic risk premia
Shadow bank Financial markets	- Securities issuance - Hedging premia	- Money market funds - Specialty products (eg ABCP, CDPC) - Repo market risks, like rehypothecation	- Tranched risk - Product innovation - Regulatory arbitrage - Ratings arbitrage	- Central counterparty clearing - Bilateral OTCs
Non Financial sector	- Issuance quality - Covenant standards	- S/T funding risk - Debt/revenue mismatch (hard vs local currency)	- Credit gap - Debt to GDP - Debt to equity/earnings - Residential/Commercial LTV/DTI	- Supply chain disruption (eg JP auto chip maker)
Asset markets investors	Valuations - Equities - Rates - Credit - Alternatives	- Carry trades - ETF volumes - Prime broker lending - Pension fund gaps	- Real money cash buffer - Hedge fund leverage - Exchange margins	- Positioning/herding behaviour - Counterparty linkages - Derivatives exposures

Source: BAML and AXA IM Research

Appropriate metrics and indicators within each cell of the matrix can help us monitor financial stability risks. Going forward we will be populating the cells of this matrix with our preferred indicators. Our leaning currently is to focus on system-wide leverage (credit gaps, namely credit growth over GDP), pricing of risk (across assets), credit fundamentals (US corporates in particular), investor behaviour (*Exhibit 27*) and downside liquidity risks (ability of the market to manage heavy and prolonged selling flows).

Exhibit 27
Stock and flow of investor positioning is a key metric

*Source: State Street*

Central banks and financial stability

The concern currently is that ultra-loose monetary policy is stoking bubbles across asset classes, particularly in fixed income assets. The counter argument is that ultra-loose policy is necessitated by the subpar growth and inflation backdrop. It is therefore up to macro and microprudential tools to keep an eye on financial stability risks and act accordingly. This includes close supervision of banking sector activities, an inevitable outcome of the banks' negligence in US mortgage lending standards, which was a key contributor to the GFC.

A key aim for central banks is to be able to distinguish between desirable and undesirable credit expansions.

Providing credit for technological innovation and productivity enhancement is a case of the former, even if potentially painful to individual investors who might have backed the wrong horse. Providing credit for speculation on the property market is a case of the latter, as it could lead to misallocation of resources and lower productivity growth[31]. One way of supressing speculative credit growth is by raising the price of risk in normal times in order to reduce vulnerability to shocks. This does however pose a headwind to growth during these normal times (*Exhibit 28*).

Exhibit 28
Tighter regulation raises the price of risk (p) in normal times (s=0) to reduce the vulnerability (V) to shocks (s)
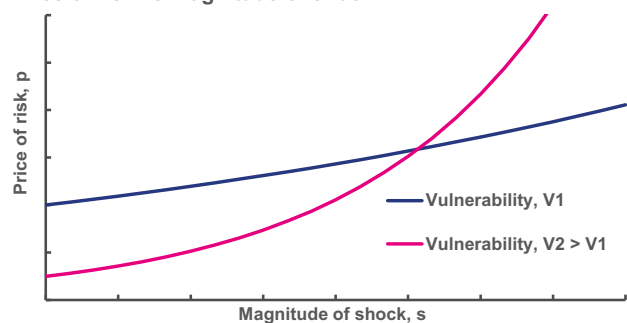

Source: NY Fed and AXA IM Research

One way or the other, financial stability has inevitably crept into central banks' thought process. This can be implemented either at an implicit level, as is the case with the US Fed in what has been referred to in the recent past as 'Bernanke's market collar'. Or it can be implemented at an explicit level, as is the case with the Prudential Regulation Authority (PRA) within the BoE. Both Swiss and Swedish central banks have been directly involved too in the introduction of macroprudential measures.

---

[31] P. Praet's speech, "Financial cycles and monetary policy", European Central Bank, 31 August 2016

Fed Chair Janet Yellen's warning in May 2014 about excesses in leveraged finance is an apt example of central bank macroprudential intervention at a qualitative level. Interestingly enough, this coincided with the post-GFC lows in credit spreads (*Exhibit 29*). This warning was a departure from the past and a sign that the Fed may be adopting more of a 'lean' vs 'clean' doctrine (i.e. lean against the creation of a bubble rather than clean up after a bubble has burst). Experience gained during the GFC was arguably instrumental to that effect. In contrast, no such warning by the Fed was forthcoming during excessive LBO activity in the first half of 2007 and leveraged finance markets were also affected particularly badly post-Lehman.

Exhibit 29
Chair Yellen's warning on excessive leverage in May 2014 coincided with the post GFC spread lows
High Yield (HY) credit spreads

Source: BAML and AXA IM Research
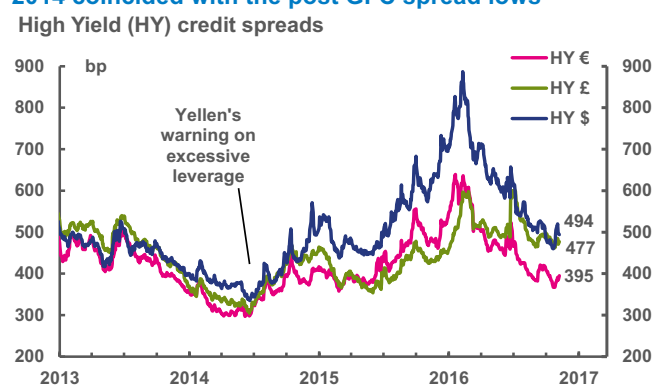
What to look out for

Every crisis differs in structure and magnitude. The most recent one and arguably the most systemic one in generations, was characterised by three key features – a very large asset class in trouble (namely outsized losses in mortgages), highly leveraged banks holding a lot of this asset class, and finally highly leveraged investors who were running material maturity and liquidity mismatches.

Fast forward to today and the above three conditions mostly do not apply, aside from some instances of liquidity mismatch, as was the case with UK real estate funds, which resulted in redemption restrictions shortly after the UK Brexit vote on 23 June. A key concern currently is the valuations across fixed income, given the ultra-low/negative rate regime that prevails globally. This certainly poses the risk of a sudden repricing in rates (VaR shock) with self-fulfilling selling aggravating mark to market losses. Still, there is a distinction to be made between a VaR shock and the deluge of actual losses of principal that swept through structured finance markets in 2007-08 and reverberated through the financial system because of excessive investor leverage and high risk multipliers due to synthetically recreated exposures.

The next bout of financial instability may well be triggered by unforeseen factors, in a similar fashion that markets were blindsided by the build-up of excesses in US mortgages in 2006-07. Not to mention that even if we can detect its drivers, timing the onset of a crisis is not a trivial undertaking. Case in point – the great structured credit unwind, a risk that was widely discussed since early 2006, took more than two years to materialise. The structured credit juggernaut of 2006-08 is a good example where a timely 'lean' by central banks e.g. raising bank capital requirements on credit default swaps might have reduced the damage to the system which followed the Lehman bankruptcy.

Exhibit 30
Volatility has remained subdued for prolonged periods
Volatility across assets

Source: Bloomberg and AXA IM Research
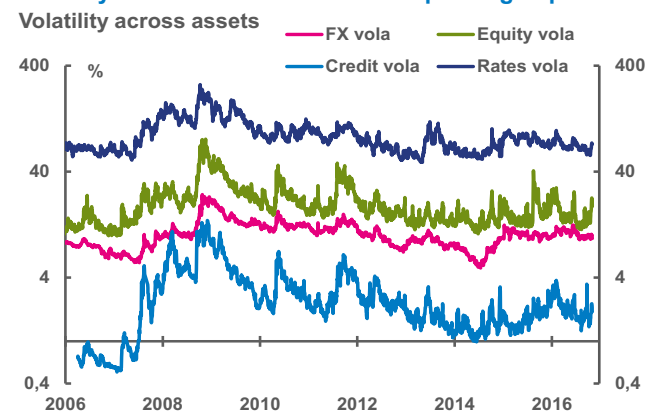
Presently a number of factors have the potential to undermine financial stability. Often, these are the result of unintended consequences, stemming either from central bank policies or changes in regulatory regimes. These factors include:

− Central bank QE programmes have succeeded in their initial objectives of reflating asset prices. Paradoxically, stretched valuations are now a prime investor concern and this raises a material risk of financial losses when QE support ceases. In a sense, there is currently a trade-off between lower day to day volatility (*Exhibit 30*) and higher tail risks.

− Acute scarcity in safe assets resulting from super accommodative monetary policy globally is exacerbating herding behaviour by investors. This is evident in the high correlation across assets as sentiment switches between risk-on and risk-off regimes. This can exacerbate market momentum in both directions.

− Stringent regulations discourage bank trading desks from maintaining high levels of inventories (too capital intensive). Equally, fear of VaR shocks makes market makers unwilling to 'step in' when pricing dislocations appear. This therefore compromises the ability of the market to absorb investor selling during risk-off episodes.

− High speed algorithmic trading can potentially cause outsized price moves even amid reasonable liquidity conditions although we do not yet appear to have definite evidence of their potential role as a systemic threat[32]. We have witnessed three such 'flash crashes' in recent years: in US equity indices in May 2010, in US Treasuries in October 2014 and just recently in sterling in October 2016.

---

[32] BIS Quarterly Review, September 2016

The impact of central bank corporate purchases on secondary market liquidity is an interesting point. While many market participants have been concerned that the 'crowding out' effect would damage market liquidity, evidence so far suggests that, while adverse, the impact has been limited. Actually, anecdotal evidence suggests that market makers have raised their appetite to hold inventory to a degree, in the knowledge that a buyer of last resort is present. So some give-up in day-to-day liquidity is perhaps a price worth paying for having downside liquidity protection, although such a 'fire exit' provision by central bank asset purchases is yet to be tested.

Arguably, with QE policy undergoing a shift towards withdrawal, the risk of a correction in risk premia across assets (e.g. a reversal of the high correlation herding behaviour into fixed income) is bound to create very adverse market liquidity conditions. The key question in such scenario is whether the associated market repricing can be hedged timely and effectively. The trade-off between the insurance of 'carrying' such a hedge, on one hand, and bleeding performance over protracted periods due to its cost, on the other, is not often attractive to investors. To that extent, central banks may be captive in underpinning risk premia until the ultra-accommodating policies of the past few years are ultimately withdrawn.

Beyond market-centric factors like above, we have also been witnessing certain, arguably structural, changes that can pose financial stability risks.

- Sovereign debt purchases, combined with regulatory rules on liquidity and a deterioration in ratings, have reduced the pool of quality assets. Such lack of collateral may not only impact the functioning of repo markets but it may also push safe asset seekers (especially at long maturities) towards riskier holdings.

Exhibit 31
Negative rates globally – a malaise?
Share of sovereign bond markets with negative yields
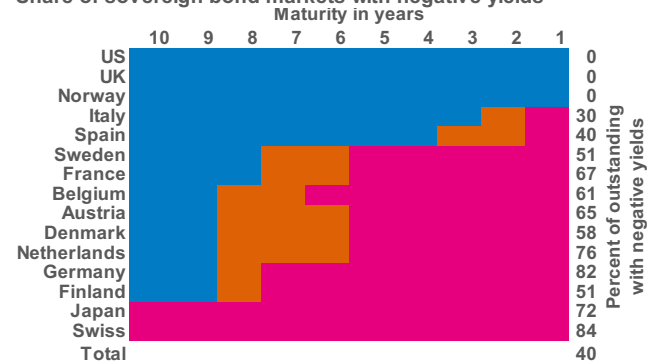
Source: IMF and AXA IM Research

- Then there is the matter of negative rates and bank profitability. While there may be exceptions to the rule, it is generally accepted that low/negative yields and flat yield curves are harmful to bank earnings. While this is not a financial systemic risk per se, because of abundant liquidity buffers and windows, if negative yields become entrenched and a persistent drag on earnings, it weakens banks' resilience. In turn, concerns about the ability of banks to generate capital organically on a sector-wide basis would limit

their ability to finance the economy and therefore hamper growth and reflation. Indeed, recent work has suggested that there exists a 'reversal rate', below which further easing becomes counterproductive and thus represents an effective lower bound for monetary policy[33].

- The low rates regime is a major headache for pension funds and insurers as well. Firstly, it widens funding gaps and increases asset/liability mismatches by supressing discount factors and boosting the value of liabilities. Secondly, it creates a self-reinforcing dynamic, whereby maturity extension in order to address the problem lowers long-term yields and supresses discount factors further, exacerbating insolvency concerns.

- Returning to banks, capital adequacy concerns re-emerged amid the sector's recovery and resolution regime directive (BRRD) which came into force in January 2016. This dictates that state capital injections to banks cannot take place without bank bond holders sharing the burden (bail-in). While it has been a handy 'stick' for banks to improve their capital position on the run up to its introduction, BRRD has been arguably introduced too early for certain areas in the euro area where their banking sectors are weaker. As such issues surface, contagion across bank risk premia can become a systemic problem if left unchecked.

- Central clearing counterparties (CCP) also attract concerns as a potential risk to financial stability. While an extensive topic in its own right, well capitalised CCPs with an effective fee model (the opposite to what happened with AIG during the GFC) can help contain the potential losses that might arise in a bank liquidation scenario, thus reducing systemic risks. In addition, the prioritisation of OTC derivative contracts as senior to normal loss absorbing capital, helps reduce the systemic risk of a bank/counterparty failure.

- Another key point of focus is the risk that a multitude of regulatory regimes and sets of rules become counterproductive due to unintended consequences, like excessive overlap, conflicting requirements, presenting headwinds to growth, or barriers of entry to new/innovative market entrants. This are exactly the kind of issues that the Capital Market Union's (CMU) objective call for evidence launched in Q4 2015 is meant to address.

- Lastly, we ascribe a small risk to the pre-election rhetoric of President-elect Trump, regarding a modern day reintroduction of the Glass Steagall act to separate commercial form investment banking.

---

[33] B. Cœuré's speech, "Assessing the implication of negative interest rates, European Central Bank, 28 July 2016

EMs: carry over DMs to prevail to a small extent

By Manolis Davradakis

- EMs have caught up considerably with DM economic development over the past thirty years and while the pace of this convergence has eased, growth rates are however likely to remain elevated.

- EM external surpluses are gradually disappearing but will remain sustainable thanks to a stronger home bias of EM investors. Protectionist policies from the US may accelerate that trend. External debt nevertheless makes EM sensitive to shocks on their currency.

- Reduced external surpluses and higher saving ratios will reduce EMs' demand for safe assets, lessening some of the pressure on DM rates.

- Altogether, EMs will keep offering a carry reward over DMs but to a lesser extent than before the GFC.

EMs are not growing as fast as they did

EMs have converged fast towards DMs over the past three decades. EMs' GDP per capita in US$ PPP climbed from 15% of the US in the 1990s to 26% in the 2000s and 44% in the past five years. Asia progressed the most, from 21% of the US in the 1990s to 60% today. However the convergence speed of EMs towards DMs is declining, as should be expected (*Exhibit 32*)[34].

Exhibit 32
EMs development distance from DMs has increased
Number of years needed to converge to the G7 level of development at different periods

Source: IMF and AXA IM Research

Looking forward, we expect EM potential growth rates to be around +5%, significantly below the 6.5% average of 2000-07. The largest drop is for EM Asia (+6.5% down

from +8% prior to the GFC and Central and Eastern Europe - CEE (+3% down from +5% pre-GFC), while Latin America (LatAm) potential growth decreased from +3.5% in the 2000s to less than 3% today.

EM external surpluses deteriorate…

Meanwhile, EM exports have been slowing with global trade post GFC[35], deteriorating EM external balances (*Exhibit 33*). Weak commodity prices since mid-2014 have also contributed to the deterioration in macroeconomic balances of EM commodity exporters. The recent US election and trade policy proposals of the new Trump administration add another layer of uncertainty about the extraverted growth models of many EMs.

Exhibit 33
EM macroeconomic balances have deteriorated
External and internal imbalances in EMs
(5-year average, values in reverse)
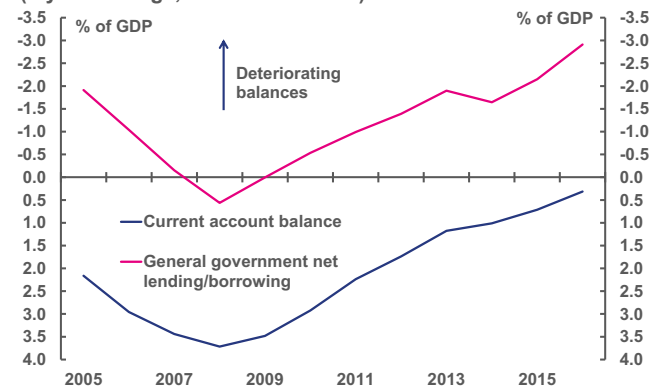
Source: IMF and AXA IM Research

…lessening EM contribution to the global saving glut

Deteriorating external balances have two main consequences, namely lower savings rates, but also lower investment, albeit by a more modest magnitude. The gross saving rates in Asia have fallen from 43% of GDP in 2007 to 41% post-GFC. In LatAm it has dropped from 18% to 21% and in CEE from 21% to 25%.

Lower saving rates will also depress, to a lesser extent, the investment rate which together will ensure a deterioration in the current account. Using World Bank projections[36] we estimate that current account imbalances will be more acute by 2030 for the CEEMEA region followed by LatAm and Asia. This deterioration will reduce the demand for safe assets from EMs in general and CEEMEA/LatAm in particular.

Overall, this suggests EMs will progressively contribute less to the global saving glut. In the decade prior to the GFC, EMs running large current account surpluses were

---

[34] We calculate the number of years that EMs need to reach a G7 level of economic development by solving for n the following equation Y^{EM} x $(1+g^{EM})^n = Y^{G7}$ x $(1+g^{G7})^n$, where Y^{EM} (Y^{G7}) stands for the GDP per capita in PPP US$ in EM (G7), g^{EM} (g^{G7}) stands for the growth rate of the Y^{EM}(Y^{G7}) and n stands for the number of years. Solving for n answers "in how many years could EMs reach G7 if both had the GDP per capita increasing at the observed rate?" We perform this exercise for the various EM regions using the period averages for 2002-2007 and 2010-2015 in order to avoid the GFC recession. Annual data were retrieved from the IMF.

[35] Davradakis, M., "EMs trade engine has lost power", AXA IM Research, 22 March 2016.

[36] The World Bank, "Global Development Horizons : Capital for the Future - Saving and Investment in an Interdependent World", 15 May 2013.

investing their foreign exchange reserves into safe assets, primarily in DM, therefore contributing to the global saving glut (*Exhibit 34*). With the drop in their current account balance, EMs stopped contributing to the increase in demand for assets.

Exhibit 34
More stable demand for safe assets
AAA/AA central government securities vs Global FX reserves and QE holdings
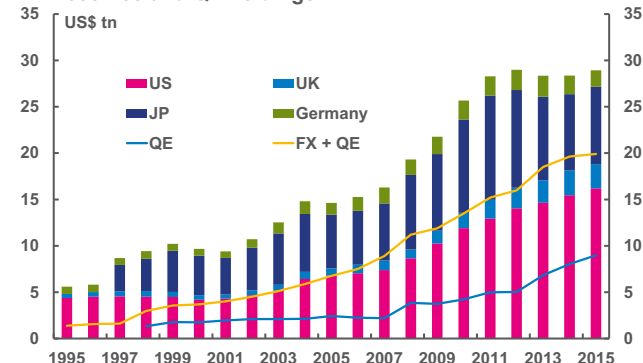
Source: Bloomberg, BIS, IMF and AXA IM Research

EM external balances will remain sustainable

Even though we expect EM external balances to deteriorate, they are likely to remain sustainable. First, capital flows from DMs are expected to remain strong. Second, significant macroprudential regulation in EMs, where stringency accelerated, starting even before the GFC (*Exhibit 35*), is further ring fencing domestic EM capital markets and increasing confidence of EM-based investors for their home capital markets. Fears to financial stability as a result of significant EM currency fluctuations post-GFC also drove several major EMs to either ponder more capital controls (China and Malaysia) or to impose higher transaction taxes (Brazil), both of which reinforced the home bias of EM investors at the risk of impeding financial liberalisation.

Exhibit 35
Stringer macroprudential environment in EMs
Macroprudential index in EMs
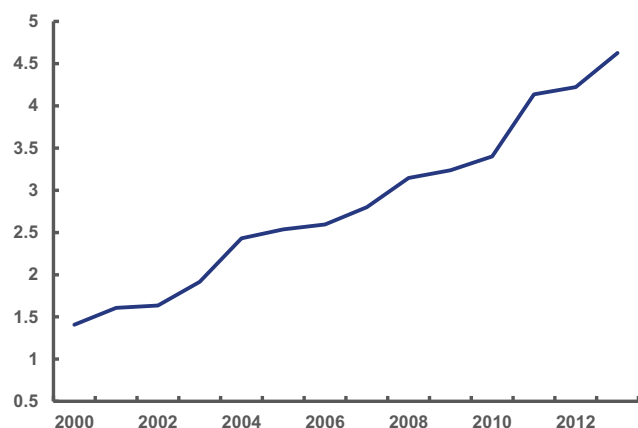
Note: the higher the index, from 0 to 5, the greater the stringency.
Source: IMF[37] and AXA IM Research

Third, even though EM corporate leverage has increased, it remains lower than that for DM. EM corporate leverage rose from 50% of GDP in 2007 to 74% in 2014, with the increase being more pronounced in some EMs relative to others. For comparison, credit to non-financial corporations in advanced economies accelerated from 84% of GDP in 2007 to 87% in 2014. Corporate leverage increased the most in China, (25pp of GDP); Turkey (23pp); Chile (20pp) and Brazil (15pp) during 2007-2014, while it declined among CEE. Besides, corporate debt held by non-residents accounts for more than one-fourth of total corporate debt in a number of emerging market economies, making them susceptible to exchange rate and foreign currency funding risks. In India, for example, non-residents hold 30% of total debt; 35% in Turkey; 52% in Mexico; 61% in Poland and 72% in Hungary. Of these economies only Hungary and Poland have a significant portion of their external funding by affiliates and direct investment rather than portfolio flows making them less sensitive to foreign currency shocks. The IMF has concluded[38] that in the event that borrowing costs increase by 25% and earnings of EM corporates drop by 25%, EM corporates, holding 35% of the total outstanding EM corporate debt, would become insolvent. EM corporates in Turkey, India and Brazil are the chief suspects.

Exhibit 36
Less likely EM capital to leave towards DMs
Capital at steady state per region
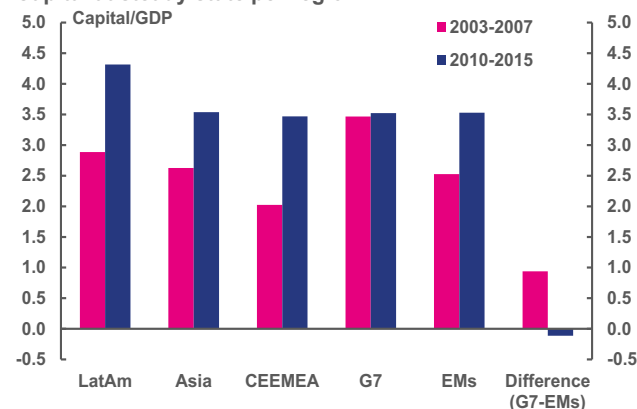
Source: Feenstra et al. (2015) and AXA IM Research

Finally, EM-based investors used to invest abroad pre-GFC to get a higher risk-adjusted return because the capital intensity (the ratio of capital stock to GDP at steady state) was lower in EMs relative to DMs[39]. Since the GFC, EM potential capital deepening has increased (*Exhibit 36*), reaching levels similar to DMs. This further reduces the appetite of EM-based investors to look for higher investment returns abroad.

EM relative carry reward over DMs will remain but decline

Despite less favourable demographics and a convergence slowdown, EM GDP growth will remain

---

[37] Cerutti, E., Claessens, S. and Laeven, L., "The use and effectiveness of macroprudential policies: new evidence", IMF Working Paper, March 2015.

[38] International Monetary Fund, "Global Financial Stability Report", April, 2014.
[39] Lucas, R., "Why doesn't capital flow from rich to poor countries?", The American Economic Review, May 1990.

higher than that for DMs while the expected deterioration in EM macroeconomic imbalances heralds a relatively higher EM credit risk premium. This suggests we should continue to expect a higher return on capital in EM when adjusting for the higher volatility EMs encompass (*Exhibit 37*), assuming the most drastic anti-trade promises made during the US election campaign will not materialise.

Conversely, the significant deepening of EM capital markets post-GFC implies that the liquidity premium included in the EM carry reward should be lower. Indeed, IMF's broad based index of financial development has doubled between 2000 and 2015 in EMs with the large part of the increase materializing post-GFC. EM financial development index (0.25) is within the 0.4-0.7 interval in which financial development has a positive effect on economic growth[40]. Overall EMs are expected to benefit from further capital market deepening with declining liquidity premium.

Lower carry reward for EMs vs DMs

Real GDP growth differential between EMs and G7, adjusted for uncertainty*
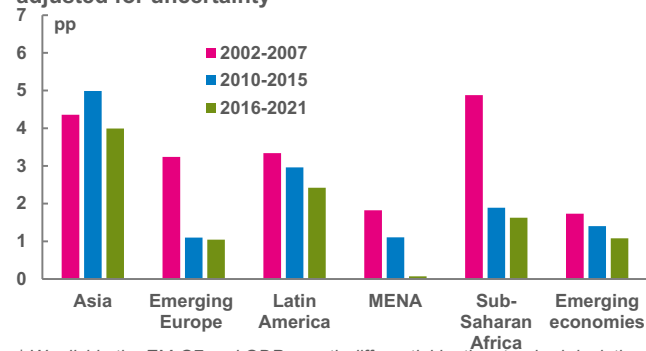
* We divide the EM-G7 real GDP growth differential by the standard deviation of the EM real GDP growth, mimicking a Sharpe ratio

Source: IMF and AXA IM Research

---

[40] Sahay et al., "Rethinking financial deepening: stability and growth in emerging markets", IMF Staff Discussion Note 08, May 2015.

Bond term premia set to rise in 2017

By Maxime Alimi

- Breaking down ultra-low interest rates show they are driven by both low short-term interest rate expectations and a very low term premium.

- The largest part of the decline since 1980 relates to secular factors (economic growth, inflation and changes to the savings/investment balance). The most recent move lower was centred on the term premium and driven by monetary policy.

- The 10-year US term premium has recently risen back closer to fundamentals: we expect it to rise further in the near term.

- In the medium term (five years), our baseline scenario implies the term premium will again reach 40bps, well above its current level, but well below its historical average (90bps since 2008, 135bps since 1991).

From risk-free rates to rate-free risks

Ultra-low interest rates are puzzling from two angles: they reflect a negative term premium, and they reflect common movements across the world, nearly independently from the underlying fundamentals.

Long-term bond yields can handily be decomposed into two components that can help understand and anticipate future rate developments: expected short-term risk-free rates and a term premium. While the first is simply driven by monetary policy expectations over the period considered, the second aims at compensating investors for duration risk, i.e. the risk of interest rates going higher over the period and the associated opportunity cost for reinvesting. Using a methodology developed at the New York Fed[41], we have replicated and expanded the decomposition of rates into their two components for the four largest markets: US Treasuries, German Bunds, UK gilts and Japanese JGBs.

Today, both components of long-term interest rates are unusually low. Secular stagnation fears have led to very limited expectations of Fed funds normalisation, although this has turned somewhat since the US election. In Europe and Japan, such prospects are still remote. More puzzling is the evolution of term premia in the G4 (*Exhibit 38*). Based on our analysis, current 10-year bond yields are consistent with negative or zero-term premia, reflecting the oddity that investors must pay to take interest rate risk.

Empirical studies have found that the long-term decline in interest rates is driven by both components of long-
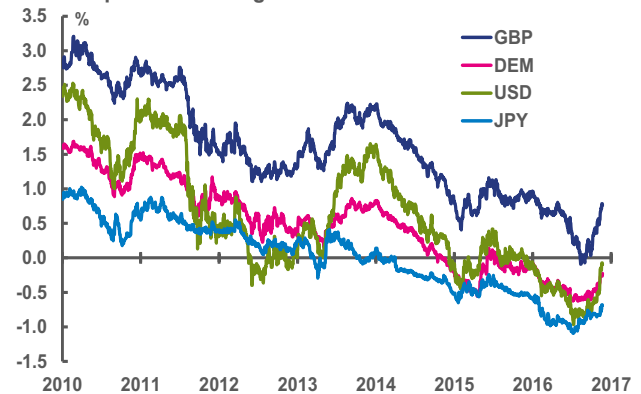
term interest rates[42]. Still, the decline since 2010 has been mostly driven by the term premium.

Exhibit 38
Negative term premia across markets since 2015
G4 term premia on 10Y government bonds

Source: Bloomberg and AXA IM Research

The rising interconnectedness across markets is also striking. The role of global factors has been well documented by the IMF and others, especially for long-dated bonds. We think that there is more to consider beyond the traditional explanations for these movements[43]. Traditional explanations include international capital mobility, raising global determinants of inflation and a more common framework of inflation targeting, making long-term expectations converge. In the next section, we look at the role of unconventional monetary policy in keeping term premia at low levels across the developed world.

Central banks' creature

Since 2008, central banks have consecutively cut policy interest rates to zero, introduced forward guidance and launched large asset purchase programmes. More recently, the ECB and the BoJ have set negative rates, with the latter introducing yield curve targeting. The fast-expanding literature on the impact of QE on bond yields is showing a significant effect across markets, even though initial conditions appear to matter (*Exhibit 39*).

A key question about the QE channel is whether the stock or the flow of purchases matters most. The 2013 'taper tantrum' in the US suggests that the flow is important, as a surprise announcement about reducing purchases led to a large re-pricing of the premium, from 0 to 100bps over three months. However, the US term premium subsequently fell to new lows, even as the Fed

---

[41] Adrian, T., Crump, R., and Moench, E., "Pricing the term structure with linear regressions", Journal of Financial Economics, October 2013.

[42] For example, Rachel, L. and Smith, T., "Secular drivers of the global real interest rate", Bank of England Staff Working Paper 571, December 2015 find that the long-term decline in interest rates is driven by both components of long-term interest rates and suggest that about two thirds of the decline since the late 1980s are attributable to secular factors (economic growth and changes to the savings/investment balance) that largely preceded the GFC.

[43] "Perspectives on global real interest rates", IMF World Economic Outlook Chapter 3, April 2014.

indeed ended its asset purchases. In the meantime, the BoJ and the ECB stepped up their own purchases. An acceleration of the decline in global term premia occurred around the launch of the ECB's programme in late 2014. The strong correlation between monetary policy and term premia looks in line with the intuition of a demand shock for government bonds.

Exhibit 39
Large impact of QE programmes across the G4

Effect of QE purchases on 10Y bond yields (normalised to 10% of GDP)	Impact (*in bps*)
United States	74
Germany	43
United Kingdom	51
Japan	21

Source: Peterson Institute and AXA IM Research

Our work on spillovers across bond markets provides some confirmation[44]. Since 2013, as the prospects of QE arose in Japan and Europe, the spillovers from these markets to the US bond market have been on the high side of the historical norm, although by no means prevalent. Conversely, we find that the US bond market continues to heavily influence its foreign peers. While the impact of European and Japanese QE can be important drivers of Treasuries over short episodes, we think it is far more likely that the US market will remain the primary factor in determining global term premia going forward.

Overall, our analysis shows that the decline in interest rates since 2010 is clearly driven by monetary policy, and in particular through the term premium. This finding is important to form a judgement about future interest rates in DMs, but also for EM, where research shows that changes in the US term premium have more impact on local rates than changes in US short-term interest rate expectations[45].

Scarce and useful

There are at least two additional avenues of explanation for negative term premia. The first is the scarcity of safe assets. Despite large debt issuances from governments since the GFC, broad-based rating downgrades have reduced the quantity of top-rated paper globally. Rachel and Smith (2015) estimate that the stock of DM government debt rated AAA or AA fell from about US$40tn in 2011 to just above US$30tn now. Meanwhile, the demand for safe assets has risen strongly, first from emerging markets in the 2000s, then in the DM for regulatory reasons (capital, collateral, for banks and insurers) since the crisis. In addition, the EM official sector appears to have increased the duration of its safe assets as reserves grew over time.

A second explanation for the increased attractiveness of bonds is the increasingly negative correlation between bond returns and equities observed since the late 1990s. Financial theory suggests a premium for assets offering counter-cyclical diversification benefits. This intuition is confirmed by more sophisticated analysis[46]. The idea that bonds have become hedges against bad financial outcomes and therefore command a premium is also supported by IMF work[47]. The latter analysis shows that term premia are primarily determined by three global factors: global inflation (level), global growth (slope) and a third factor (curvature) called the 'long-run risk factor', related to future financial and economic instability.

Looking ahead

Taking stock of the above analysis, we built a model for the 10-year US Treasury term premium. Following work from Adrian et al.[48], our model of the US term premium is based on:

- Two cyclical variables reflecting the state of the economy, the US unemployment rate and the leading index from the Economic Cycle Research Institute (ECRI);
- A variable accounting for monetary policy uncertainty, the Merrill Lynch Move index (measuring options-implied expected volatility across maturities of the yield curve);
- A proxy of global QE, measured as the ratio of total government debt owned by the G4 central banks;
- A measure of scarcity, the bid-to-cover ratio for US 10-year Treasury auctions;
- A measure of rates positioning, the US Commodity Futures Trading Commission's net non-commercial positions on 10-year Treasuries.

The model is estimated on weekly data starting from 2008 to 2016: a limited timeframe aiming at isolating the post GFC regime of higher regulation and safe asset demand. The model does a decent job at capturing the overall trend since 2008, although it appears more stable than the actual term premium. This feature proves useful to detect excessive moves in the term premium, and as a result, likely reversions.

Currently, the model suggests a fair value of -20bps, in line with the current value post-correction (*Exhibit 40*).

---

[44] Kuhanathan, A., "Volatility spillovers in the G4 bond markets", AXA IM Research, 11 October 2016.
[45] Albagli, E. et al., "Channels of US monetary policy spillovers into international bond markets", Central Bank of Chile Working Paper 771, November 2015.

[46] Campbell, J. et al., "Inflation bets or deflation hedges? The changing risks of nominal bonds", Harvard Business School Working Paper 09-088, January 2013.
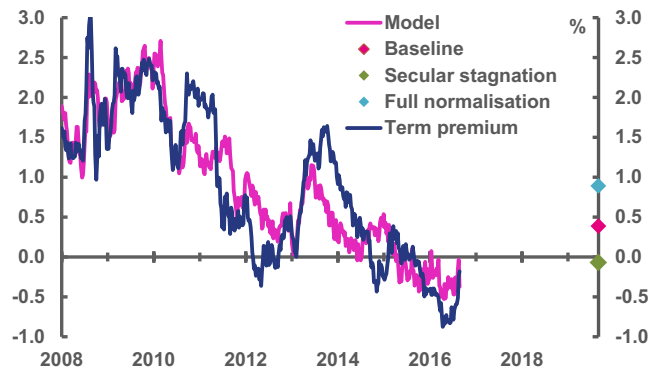[47] Abbritti, M. et al., "Global factors in the term structure of interest rates", IMF Working Paper 13/223, November 2013.
[48] Adrian, T. et al., "Do Treasury term premia rise around monetary tightening?", Liberty Street Economics, April 2013.

Exhibit 40

Term premia to rise in the medium term

USD term premium projections

Source: Various sources and AXA IM Research

We then worked to identify a long-run target for the term premium. We first set the unemployment rate, the ECRI index and the Move index at their historical long-term averages, and then define three scenarios depending on the outlook for global QE.

1. Full normalisation implies that central banks' holdings of government debt (as a share of the total stock) return to their 2007 level. That would bring back the term premium to 90bps.

2. Secular stagnation implies that QE as it stands continues through 2017, and then central banks' holdings are held constant. That leaves the term premium close to its current level at -30bps.

3. Our baseline scenario is that QE continues through 2017 but central banks stop reinvesting maturing investments from 2018. This would bring the term premium back to 30bps in five years.

Equity risk premia to remain above normal

By Varun Ghotgalkar

- During historical episodes of economic stagnation and low real interest rates, a meaningful upward shock in the ERP can be observed.

- Several determinants which are highly relevant in today's environment help justify a higher premium. These include a re-pricing of tail risks, earnings quality, investor landscape and valuation methods.

- Drawing from our macro scenarios highlighted earlier in this publication[49], we believe developed market ERPs will remain around their current level, even though higher than their historical average.

- A reflation scenario with higher yields and greater economic uncertainty strengthens the case for active management of equity investments.

Past lessons: Japan & the Great Depression

The ERP refers to the excess returns expected by investors over the risk-free rate to compensate for the greater risk associated with equities due to subordination in the capital structure as well as the volatile prices and income stream[50]. History tells us that the ERP typically rises and takes a long time to normalise in scenarios comparable to secular stagnation.

Japan is often cited as the poster child for secular stagnation. A persistent upward trend in the Japanese ERP can be observed since the bubble burst in the late 1980s. *Exhibit 41* illustrates this shock using averages over five-year time frames since the late 1980s. The Japanese case, although good for illustration, is indeed unique in light of Japan's excessive valuation bubble in the 1980s and its macro-economic circumstances.

Exhibit 41
A secular rise in the Japanese equity risk premium
Japan - implied equity risk premium
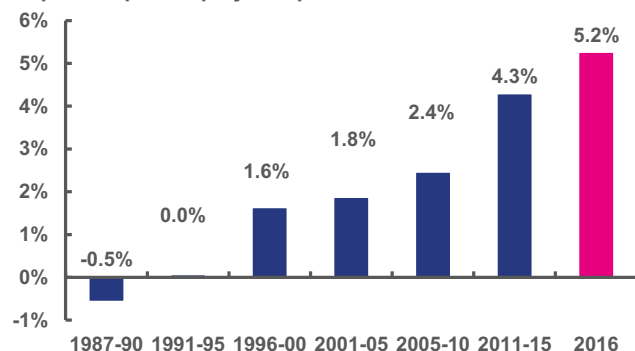
Source: Data stream, Bloomberg and AXA IM Research

In the US, the upward ERP shock spanning the 1930s and 1940s (when the economy witnessed stagnation and

negative real rates) is well documented. The ERP is estimated to have peaked from 3-5% to over 10% before it began stabilising in the 1950s, in the post war boom[51].

Current determinants for a high ERP

The required rate of return (RRR) for equities is driven by three main factors: i) the price of risk, ii) the uncertainty in corporate fundamentals and iii) the expected return of other asset classes[52]. Therefore, we think an environment of sustained low growth, low interest rates and higher risk perceptions entails elevated ERPs. The following determinants should impact the ERP going forward.

Re-pricing of tail events. Investors are attributing a higher probability to tail risks given the increased frequency and impact of economic shocks recently. "Ownership experience", created by extreme events, tends to persist in investors' mindsets, as the experience from the Great Depression confirmed. The "GFC legacy"[53] has left investors searching for crisis around every corner. *Exhibit 42* shows the structural increase in option-implied fear indicators since 2008, attesting that anxiety of extreme portfolio drawdowns has not dissipated.

Exhibit 42
GFC legacy = more fear among investors
S&P 500 option implied fear indicators (6 MMA)
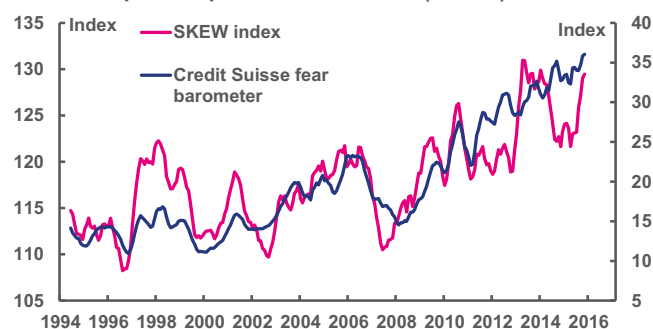
Source: Bloomberg, CBOE, Credit Suisse and AXA IM Research

Structural deterioration of earnings quality. Lower global growth and higher macro-economic uncertainty translate into less visibility for future earnings, leading investors to demand a higher premium for risk assets. Also, if monetary policy is less able to stabilise business cycles as it has to use the second- or third-best tools, corporate earnings volatility should be expected to rise. Robust correlation has been established between the equity risk premium and irregularity in the real economy[54].

Lift from traditional valuation approaches. Implied ERPs can move up due to lower interest rates and/or higher growth expectations. The steady increase in ERPs

---

[49] See Renucci, C., Kuhanathan, A., Renewing with higher trend growth, page 7
[50] L'Hoir, M. and Madeira, J., "The "true" value of the equity risk premium", AXA IM Research, 18 July 2013.

[51] Blanchard, O., "Movements in the Equity Premium", Massachusetts Institute of Technology, BPEA, Feburary1993.
[52] L'Hoir, M., "A too elevated discount rate supports equity valuations", AXA IM Research, December 2014.
[53] Clavel, L., "Some tailing slack in demand", page 11.
[54] Damodaran, A., "ERP: Determinants, Estimation and Implications", NYU Stern School of Business, March 2012.

since the early 2000s is partly explained by the downward trend in rates. This trend has accelerated since 2010-11, a period of notably low or even declining earnings growth and exceptionally low interest rates. While the ERP has been increasing, the RRR (the sum of the ERP and bond yields) has not[49]. As argued in previous research, the decline in bond yields has not translated one-to-one into the RRR, but partly offset by a rise in the ERP[51] (*Exhibit 43*). Discount rates have declined and growth expectations were revised downwards, although with a lag and lower magnitude, leading to a rise in the ERP[55]. Going forward, if this proves correct, the moderate rise in bond yields that we expect implies downward pressures on the ERP.

Exhibit 43
Lower bond yields partly offset by rising ERP
United States: RRR composition
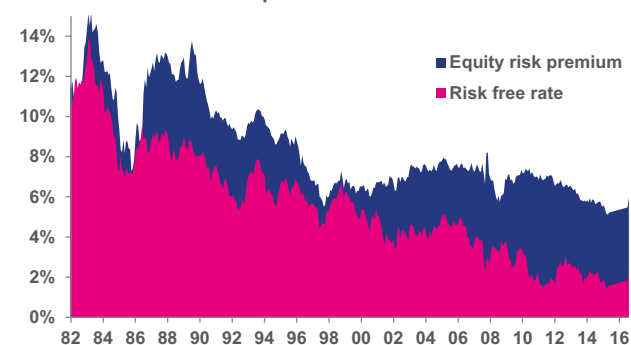
Source: Data stream, Bloomberg and AXA IM Research

Changes in the investor base. Population growth has declined, especially in developed economies due to low fertility rates and ageing of the baby-boom cohort[49]. Evolution in the investor landscape reflecting changing demographics, with an ageing population, increases the importance of pension funds and insurance companies and the preference for current consumption. This implies higher risk aversion[56] and more long debt and short equity asset allocations, which, in turn, supports a rise in the ERP.

Top down outlook for ERPs and markets

Given the broad range of estimation methods, the ERP remains one of the most contested quantities in finance. We rely on the mean of two market implied estimates in this note: (1) a three stage dividend discount framework using market prices and consensus growth forecasts; (2) an adjusted 'Fed model' which looks at the gap between the earnings yield for equities and the real risk-free bond yield. In the US, the implied ERP at 3.6% is now close to historical averages, and has been the most stable among major advanced economies. Implied ERP in the euro area of 5.5% is higher than its historical average. Japanese implied ERPs at 4.8% are well above their long-term average. Intuitively, this is in line with prevailing regional investors' risk perceptions.

Going forward, considering the factors described above, our base case suggests that ERP in these economies will stabilise at these elevated levels, more so for the euro area and Japan, for an extended period of time before any signs of mean reversion, consistent with the broad trend observed since 2015 (*Exhibit 44*).

Exhibit 44
Historical market implied and forecasted ERPs
Equity risk premiums in the US and Euro area
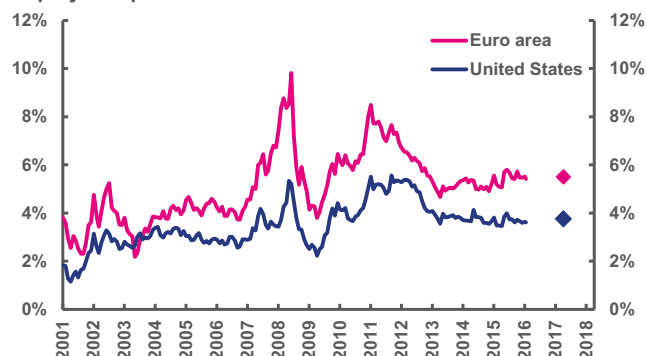
Source: Data stream, Bloomberg and AXA IM Research

Exhibit 45
US and euro area equity market scenarios (2016-2026)

Macro scenarios	United States		Euro area	
	Central	Upside	Central	Upside
Real growth	1.6%	2.4%	1.2%	1.5%
10 year bond yields	3.4%	4.5%	2.1%	3.1%
Equity risk premium	3.6%	3.0%	5.5%	4.3%
Annualized RRR	7.0%	7.5%	7.6%	7.4%

Source: Datastream, Bloomberg and AXA IM Research

Exhibit 45 illustrates the ERPs and RRRs for the US and euro area in our central and upside macro scenarios[49]. In terms of price impact, a higher premium, all else constant implies a drop in intrinsic value. As that is just one part of the equation, other factors are at play, namely bond yields and growth prospects. The central scenario is characterised by lower growth, lower bond yields and higher ERPs, although more so for the euro area than the US. In the upside "techno-optimist" scenario driven by an innovation boost, growth accelerates, bond yields rise and ERPs move lower. We expect that this surprise would impact first and most importantly the US, and to a lesser extent the euro area. The impact of the Trump administration on the US ERP is not yet clear in our view.

Lastly, a secular stagnation-like environment would entail a search for income and new investment alternatives, requiring a more active approach in order to identify pockets of opportunity. Conversely, a stronger growth outlook on the back of reflation and rising yields and higher uncertainty also imply differentiated equity performances. Owning equities for generating income would enhance the need for differentiation and assessing the sustainability of cash flows. Investment in new regions and sectors would require some additional know-how.

[55] Duarte, F. and Rosa, C., "The Equity Risk Premium: A Review of Models", Federal Reserve Bank of New York, February 2015.
[56] Bakshi, G. and Chen, Z., "Baby Boom, Population Aging, and Capital Markets", Journal of Business, Volume 67, April 1994.

The EM investment case is still strong

*By Aidan Yao and Honyu Fung*

- DM investors have under-allocated in EM assets, relative to the latter's shares in the global economy and financial markets.

- But EM assets have generated excess returns over DMs', more than compensating for the extra volatility.

- Barring extreme policies from the Trump administration, EM assets should continue to provide excess returns, thanks to a relatively better growth profile and attractive valuation, while offering diversification benefits.

- However, not all EMs are rated equal and individual markets are subject to idiosyncratic risks. Being selective will be critical to successful investing.

EM deserves more attention

With near-zero, or even negative, interest rates on government bonds and expensive valuation from equity to credit, investors in the developed world are facing a difficult time in generating risk-adjusted returns for their portfolios. This situation could get worse, if DM economies struggle to fend off secular stagnation, which may further undermine corporate earnings and keep aggregate interest rates at low levels. Investing in DM, in other words, is likely to remain challenging for the foreseeable future.

Exhibit 46
EM is no longer a trivial part of the global economy
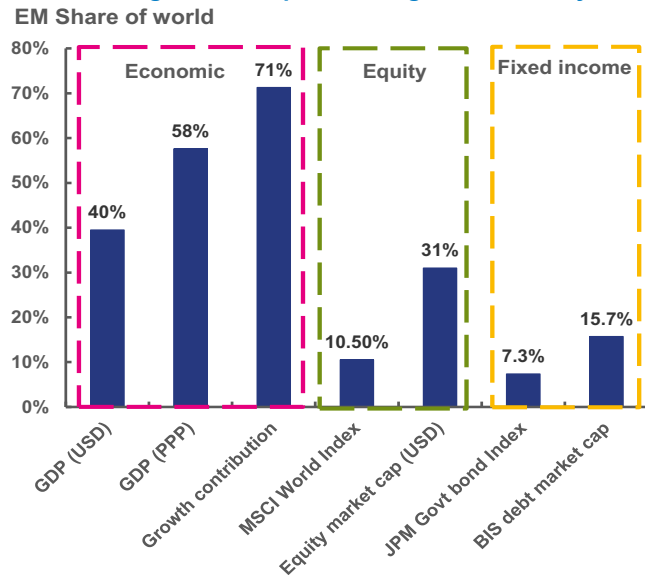
Source: Bloomberg, BIS, IMF and AXA IM Research – As of 10 November 2016

In searching for alternative risk premia, investors have started to venture down the risk curve into less liquid assets, such as real estate, and outside their home markets into EM assets. For many DM investors, investing in EMs is not new – the first wave of portfolio

investment occurred as early as the 1980's.[57] But despite the long history of investing, the actual share of EM assets in an average DM portfolio remains very low: about 3% to 4% for equities and less than 1% for bonds.[58] These weights pale in comparison with EM's shares in the global economy and financial system today (*Exhibit 46*). Hence, from the perspective of constructing a well-diversified global portfolio, DM investors have fallen markedly short in their EM allocation.

EM offers more bang for the buck

This discrepancy could be driven by a number of factors –namely home bias and risk aversion on the investor side, and insufficient market access as well as a lack of financial depth on the EM part. However, for the more adventurous investors, who did make a move into these exotic markets, their risk-taking has generally been rewarded. *Exhibit 47* shows that the MSCI EM equity index has generated more-than-double the return of the DM index since 2000. Similarly, the average EM fixed income portfolio has earned 50pp of excess return over DM's (307% vs. 257%). Granted, EM assets have exhibited more volatility but the Sharpe Ratios (lower chart of *Exhibit 47*) suggest that investors' risk-taking has been more favourably remunerated, with the exception of the past three years.
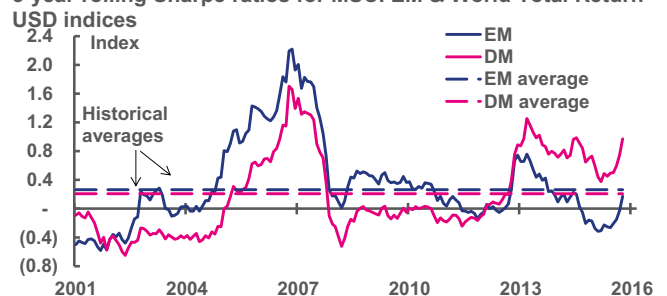
Exhibit 47
EM remunerates investors' risk-taking
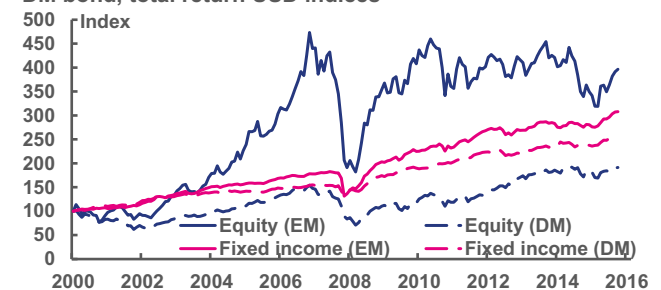
Note: Sharpe ratio calculation for before 2005 uses price-level indices due to data limitation of the return series.
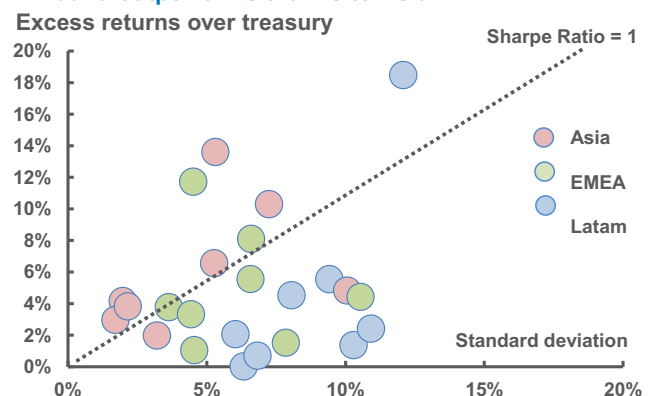*Source: Bloomberg, BAML and AXA IM Research*

[57] Mobius, M., "A Quarter Century of Emerging-Markets Investing", Franklin Templeton Investments, 11 June 2014.
[58] Oey, P., "What is your Emerging-Markets Allocation?", Morningstar Advisor, 9 October 2014.

Picking the right market is also important in EM investing. This appears to be particularly critical, when it comes to bond investing, given that the lion's share of EM's outperformance has been generated by Asia in recent years (*Exhibit 48)*. It highlights the importance of selectivity and the fact that alpha generation can be rewarding for those equipped with the right skills and expertise. We think this is set to become more important going forward, given the way that EMs are evolving, with some markets moving from frontier to emerging (especially in Africa), and some completing the transition into DMs (in Asia for example).

Exhibit 48
EM bond outperforms thanks to Asia
Excess returns over treasury

Source: Bloomberg, BAML and AXA IM Research – As of 10/11/2016
Note: Asia, EMEA and Latam include IG and HY (1yr, 3yr, 5yr, 10yr)

Apart from the solid standalone performance, a key benefit for considering EM assets for a DM investor is diversification. There is a long-standing literature in portfolio investment supporting global diversification on both theoretical and practical grounds. However, some recent research, since the 2000s,[59] has casted doubts over the diversification benefit, as EM markets have become more correlated with DMs.

Exhibit 49
China becomes the centre of gravity for EMs
Equity market correlation between the EM and DM, EM and China
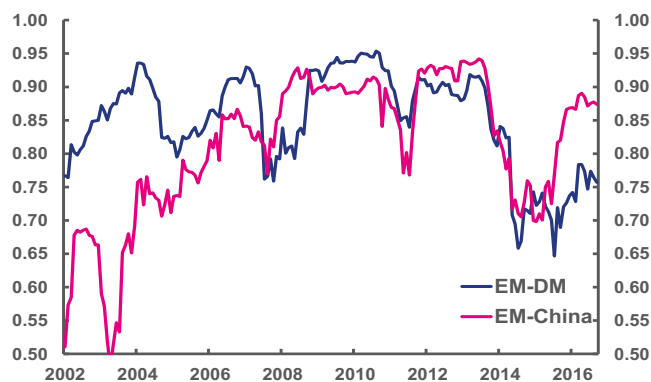
Source: Bloomberg and AXA IM Research

Our (more up-to-date) analysis of equity market correlation shows that the co-movements between EM and DM peaked in 2010, and have since fallen to around early 2000 levels (*Exhibit 49)*. At the same time, EM's

correlation with China has picked up strongly since 2015, as the latter quickened its pace of financial market liberalisation and integration. Tighter co-movements within emerging markets (vis-à-vis China), and more decoupling from DMs, has in fact strengthened the case of diversification for a DM investor.

## EMs make a strong investment case

But past performance does not guarantee future results. The key issue, of course, is whether this performance can continue going forward, given the very uncertain outlook for the global economy. For DM investors, the question is more specific – should they start investing, or increase their allocation, in EM assets, as yields in their home markets are depressed by sluggish economic growth and central bank policies?

We think the answer is yes on three fronts. First, risk diversification stands as a compelling argument, as we expect the trend described above to continue. The rise of China will likely forge further economic and financial integration within EMs, reducing their correlation with the DMs. Second, economic prospects are stronger in EMs. This is supported by generally better demographics and the potential for further growth catch-up (*Exhibit 50)*.[60] Improved official credibility, for central banks and governments, and greater financial market liberalization would also help to attract capital flows into EMs over the long run.

Exhibit 50
EM boasts brighter economic fundamentals

Dependency ratio and average annual growth for different regions (%)
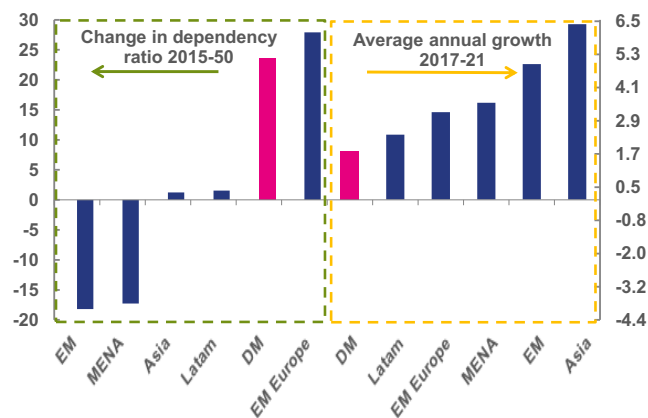
Source: IMF, UN and AXA IM Research – As 10 November 2016

Lastly, financial markets have not re-rated EM assets, particularly equities, as much as DM's since the GFC. *Exhibit 51* shows equity P/E and P/B, both current and forward-looking, are significantly lower in EMs, while dividend yields are at par. Reinforcing the valuation argument, our current estimates of EM ERP – excess return over the risk-free rate implied by market prices – are not only higher than the US market, but also their

---

[59] Das, S.R. and Uppal, R. (2004), "Systemic risk and international portfolio choice", The Journal of Finance, 59(6), 2809-2834.

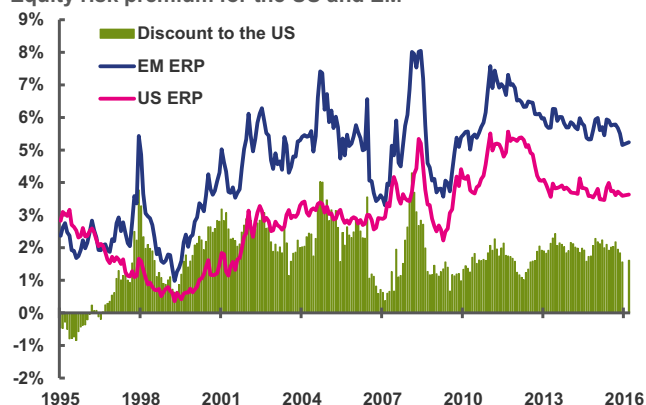[60] Davradakis, M., "EMs: carry over DMs to prevail to a small extent", page 23.

historical average. EM assets are, therefore, attractive from a valuation standpoint.

Exhibit 51

EM assets are more attractive on valuations

Equity risk premium for the US and EM

	PE	PE fwd	PB	PB fwd	Div	Div fwd
DM	22.3	15.4	2.2	2.0	2.6%	2.7%
EM	15.6	12.0	1.6	1.4	2.5%	2.8%
Asia	15.1	12.3	1.6	1.4	2.3%	2.5%
Latam	38.4	14.0	1.8	1.6	2.6%	3.0%
Europe	9.8	7.1	0.9	0.7	4.2%	4.8%
EMEA	11.6	9.7	1.4	1.2	3.4%	4.0%

Source: Bloomberg, Datastream and AXA IM Research

Be aware of risks

Despite what seems to be a compelling case for investing in EMs, doing so is not without risks. The new Trump administration's stance on international trade partially jeopardises the growth models of some EM. There is also a chance that capital outflows leave the asset class. Another key unknown is whether EM can truly decouple from DM. Without the economic decoupling, EM assets will lose their fundamental appeal. And without the financial decoupling, the diversification benefit will fade as well. Even if EM economies can continue to outperform DMs, good economic performance may not always translate to strong market returns – think Chinese equities. Other factors, such as financial liberalisation, market reforms and establishing rule of law, all need to move in the right direction to align the market performance with the real economy.

Finally, EM is a large and diverse world, with countries of vastly different macro fundamentals and risk profiles. Many of which face idiosyncratic problems, such as high debt levels, aging populations, political instability and insufficient reforms. Appropriately changing their economic models to adopt to the new normal world – such as successful reforms in China and seeking alternative growth engines for the commodity producers for example – will be critical to sustaining EM's continuous economic convergence and maintaining them as a source of excess returns. Ultimately, some will succeed in this transition, while others may fail. This makes selectivity crucial for successful investing.

Time for yielding core property to be back in investor's periscope

By Justin Curlow

- Property markets are in a mature phase of the cycle with total returns driven by income rather than capital growth.

- Income/Net operating Income (NOI) performance of prime assets outperforms following a downturn and current yield spread can absorb an initial interest rate rise.

- Institutional property allocations are below target levels so weight of capital targeting the asset class to remain.

- It is time to anticipate cycle peak by shifting allocations towards more defensive, income focused strategies.

Property markets in mature phase of cycle

Following seven years of expansion, global property markets are firmly entrenched in the mature phase of the cycle (*Exhibit 52*). In this context, property level returns are shifting from being capital value growth driven, stemming from falling cap rates/property yields, towards recurring cash-flow/NOI/income driven.

Excessive leverage or an overly aggressive supply response are the usual culprits to trigger a correction phase, but these characteristics are notably absent in the current cycle with few exceptions (notably some key global cities which have led in the recovery to date such as New York, San Francisco and London). This is expected to lead to a demand-led downturn, and these have historically been milder than adjustment phases triggered by excessive leverage or oversupply.

Regardless of the depth of the next adjustment phase, the best quality properties tend to outperform immediately following a downturn. This is driven by the fact that this is the time in the cycle when tenants have a clear upper hand in leasing negotiations and, as a result, landlords owning the best located properties with the highest specifications stand the best chance to maintain occupancy and the all-important resilient income stream.
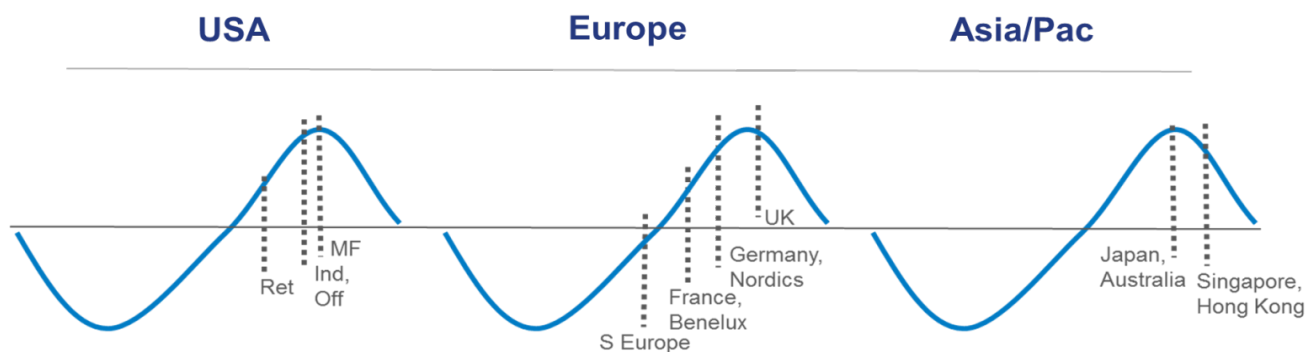
With this in mind, it is important for property investors to differentiate between prime and secondary assets in terms of asset quality, location and tenant covenant strength as the gap has narrowed over the past few years in line with the broadening market recovery. While it is extremely difficult to call the exact peak of the cycle, it is clearly fast approaching and may even have been reached in some markets. As a result, it would behove investors to place a premium on prime assets which will likely outperform during a downturn and avoid secondary property altogether.

When central banks remove the punch bowl

Real estate has been a key beneficiary of the lower for longer macro environment which has characterised much of the developed world since the GFC. As global central banks experimented with quantitative easing – and more recently negative interest rates – the resultant vacuum of yielding investments has driven many asset allocators to increase their property allocation targets.

The Fed was the first to start its tightening cycle initially with its tapering announcement that triggered the infamous 'taper tantrum' bond market response. More recently, the rumours of the ECB considering to taper its asset purchases led to a similar – albeit more modest – response in the financial markets. During these periods the listed real estate sector was a notable market underperformer given the negative consequences of rising interest rates on property companies' balance sheets and real estate valuations.

In addition to potentially lower levels of asset purchases (the BoE, ECB and BoJ are currently injecting about US$200bn/month), property market values are also at risk of the looming rising interest rates which have begun in the US and are expected to continue in the near future. However, it is not just the timing of the rate hikes but more importantly the total number and the impact on the long end of the yield curve which is relevant for property pricing.

Exhibit 52
Global property occupancy cycle positioning

Source: AXA IM – Real Assets

Nearly all global property markets are experiencing historical high yield spreads relative to their domestic 10-year government bonds despite the fact that their nominal levels are at record lows. Even when taking into account the looming central bank tightening and subsequent rises expected over the next five years – as measured by the current 5y forward rate of the 10-year government bond – most markets will continue to have a property yield spread which is at or above their long-term average levels (*Exhibit 53*).

Exhibit 53
Global prime office property pricing – Q3 2016

Global prime office property pricing - Q3 2016
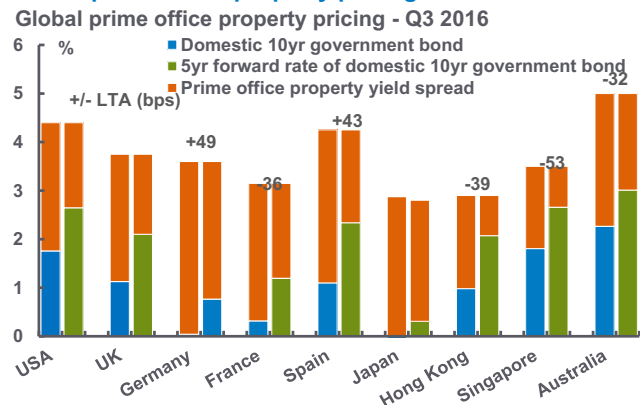
Note: data as of Q3 2016 except Asia property yields
Source: CBRE, RCA, PMA, Bloomberg, AXA IM – Real Assets

Investor allocations remain below target

Institutions across the globe continue to increase their target portfolio allocations to property as the asset class continues to screen well versus equities and bonds. Preqin estimate there is currently US$225bn[61] of dry-powder already allocated but waiting to be invested in real estate. When combined with the fact that average property allocations are currently circa 100bps below target levels[62], this weight of capital should also help mitigate the degree of pricing adjustment in the next correction phase as the property yield spread remains elevated.

While the private real estate markets take time to put this capital to work in an ever competitive transactional market, the listed real estate space continues to grow and offer investors willing to consider a 360 degree approach to portfolio allocations a way to put money to work more efficiently.

Portfolio construction in this context – time to shift focus back to yielding assets

The current low growth, low rate and yield environment will inevitably come to an end when central banks begin raising rates. Depending upon how smoothly this process occurs and is anticipated by the financial markets the ensuing great rotation could very well trigger the next economic downturn—if it is disorderly. Regardless of how this ultimately plays out, real estate, and particularly income driven core property, can play an important stabilising role in multi-asset portfolios.

While property is expected to continue to screen well versus other asset classes, it is time to become more risk averse in anticipation of the cyclical peak and as capital value growth becomes more elusive. Investors should begin shifting allocations from pro-cyclical development/value add strategies as they complete and reinvest proceeds towards more defensive, income focused core direct equity and listed real estate (*Exhibit 54*)[63].

Another way to incorporate this shift in allocations is through build-to-core strategies targeting yield-on-cost premia of 150bps over standing assets, as they should continue to provide an attractive risk-return proposition given the high level of obsolescence in many markets and subsequent pent-up demand for modern stock. Regardless of acquisition method, core property should form the foundation of a property allocation. Holding direct, unleveraged core properties affords owners the ability to control their own destiny with the asset. In addition, these assets tend to outperform during correction phases as they generate the majority of total return performance from recurring income.

Exhibit 54
Proposed allocations through the cycle to target an 8% average portfolio level return
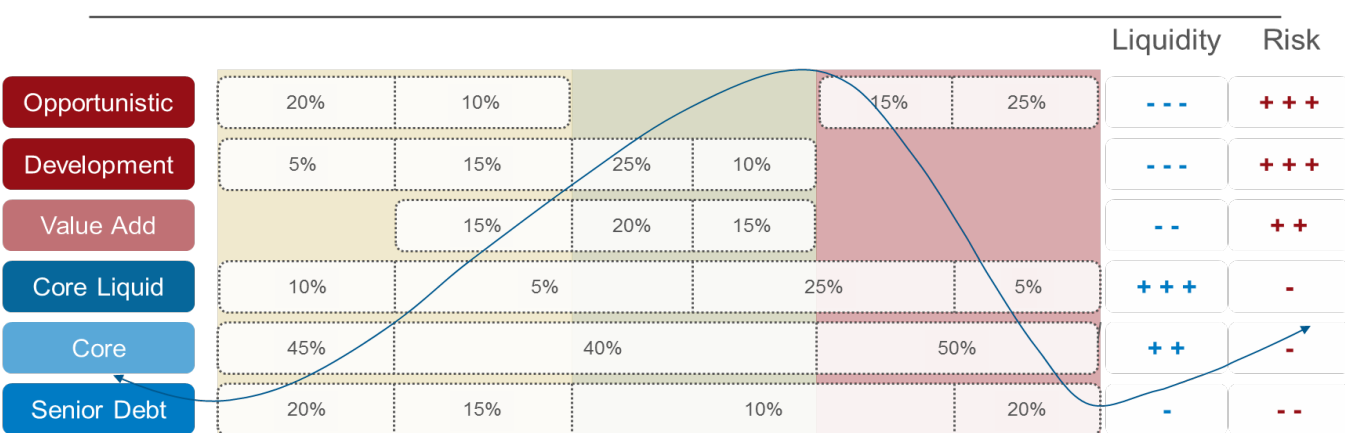
Source: AXA IM – Real Assets

---

[61] Preqin Quarterly Update: Real Estate Q3 2016

[62] Cornell & Hodes Weill 2016 Institutional Real Estate Allocations Monitor

[63] Curlow, J., "Investor Thinking: Applying a 360 degree approach to property allocations", AXA IM RE Strategic Directions, June 2016

Apendix A – The Central Bank Toolkit

By David Page

Even in a world of lower interest rates, central banks possess an array of tools to ease financial conditions.

Conventional policy

Most global central banks will still have significant scope to provide conventional policy easing. With inflation targets as they currently stand, nominal neutral rate policy is likely to settle between 2-3.5% for developed economy central banks. For most central banks in the future, conventional interest rate cuts will remain the first response to economic deceleration. There is more of a debate about where such cuts should end.

Deeply negative policy rates

The exchangeability of cash and commercial bank reserves at par leaves central banks unable to pursue deeply negative nominal interest rate policy. To do so would likely prompt a substitution of reserves (remunerated at a negative rate) for cash (remunerated at zero) at the cost of storage, security and insurance. If commercial banks are compelled to hold reserves their own balance sheets would likely suffer as they struggled to pass negative interest rates onto customers. As such, deeply negative rates would likely be insufficiently passed on, spark a rise in cash holdings and result in tighter credit conditions, reducing any stimulus they deliver.

Central banks could adopt policies to end the zero rate remuneration of cash. Several methods have been suggested to create an 'exchange rate' for cash below par, which would allow deeply negative rates[64]. However, such moves appear politically untenable. A future cashless society may provide similar opportunities. However, such a future seems far enough ahead to be beyond even our extended period of consideration.

Negative policy rates

There is more debate about whether a central bank should cut policy rates a little below zero. Around Europe several central banks have taken policy modestly below zero, to around -0.5% without obvious ill effect.

Policy modestly below zero appears to impose too small a cost to prompt wholesale flight to cash, suggesting the costs of cash holdings are higher, or that there are other benefits to keeping deposits in the system (ease of payments, for example). Commercial banks have also been able to withhold passing on negative rates to retail customers, who may find cash withdrawal easier. This implies some erosion of bank capital, threatening tighter credit standards. However, this impact may have been mitigated by other policy actions either inflating commercial banks asset prices, or subsidised their access to wholesale funding.

The lower bound that constrains central banks may thus not be 'zero'. Central banks may thus be able to extend stimulus by cutting policy rates further below zero. Such policies have had a marked effect on currencies. However, while few obvious adverse effects have materialised in Europe, there is an ongoing debate as to the stimulativeness of such policies beyond the FX impact. At best, negative policy rates provide only modest scope, by definition, for additional stimulus.

Forward guidance

Forward guidance provides a method of lowering future market rates. Central banks have always provided some form of forward guidance, hinting at policy biases with the view of influencing behaviour without adjusting policy. Since the crisis, central banks have adopted ever more formal means of guidance to credibly commit themselves to future monetary policy, with the aim of lowering longer-term interest rates. Such guidance began with time commitments, initially qualitative, becoming ever more specific. More recently, both the Fed and the BoE used state contingent policies, promising to keep rates low until a given economic condition (unemployment in each case) was achieved.

Balance sheet expansion

Central banks have also provided stimulus and lower longer-term market rates by expanding their balance sheets. This involves the creation and transfer of reserves from the central bank to the private sector.

The ECB and BoE have used short duration instruments to expand their balance sheets. These included the ECB's long-term repo operations, targeted repo operations and more recently the BoE's Term Funding Scheme (similar to the Funding for Lending Scheme, which had fiscal not monetary backing). These schemes have been aimed at easing funding conditions for commercial banks, with increasing conditionality on banks boosting lending.

More prevalent has been the purchase of long duration assets – quantitative easing. This policy was first used by the BoJ in 2001, but since the financial crisis has become widespread. The policy focus is beyond the commercial banking system and works through multiple channels. In a crisis, purchases provide liquidity and can ease difficult market conditions. Asset purchases also provide a useful signalling effect, ruling out policy rate changes for the period ahead. QE also has an impact through 'portfolio distribution', as asset sellers seek to reinvest the cash raised from sales, encouraging investment up the credit/maturity spectrum, impacting a broader range of yields. Primarily this is seen working

---

[64] Agarwal, R. and Kimball, M., "Breaking through the zero lower bound", IMF, 23 October 2015.

through the non-bank private sector, but recent research suggests a similar effect through the banking system[65].

Asset purchases can be conducted through a range of instruments. Since the crisis, central banks have predominantly bought government bonds, but have also purchased mortgage bonds, corporate bonds, real estate investment trusts (REITS) and equity Exchange-Traded funds (ETFs). There is scope for central banks to further broaden the universe of assets they purchase, which would enable further balance sheet expansion in the future. Moreover, with some central banks committed to holding their balance sheets at elevated levels until rate increases are underway, this is likely to maintain stimulus in the economy for the longer-term, thus requiring a *relatively* higher level of interest rate policy.

Debt monetisation & helicopter money

Debt monetisation and helicopter money are terms used somewhat interchangeably for a permanent increase in the money supply base. This differs from the balance sheet expansion policies above which are reversible, albeit with a long-term commitment. Debt monetisation provides a permanent, interest free loan to the government. This can then be used to finance public spending. Alternatively, helicopter money[66] encourages private spending. The latter is a colourful illustration of central bank's ability to create money. Debt monetisation has been used throughout history and is a powerful way of creating fiscal space to allow fiscal stimulus.

Operational frameworks

In practice, balance sheet policy is more difficult in a world where central banks pay interest on reserves. The exchangeability of cash for reserves means that as interest rates return to neutral in the future, central banks (governments) could find the cost of remunerating reserves (income to commercial banks) to be greater than the income it receives from its assets[67].This could create political tensions and constrain a central bank from running a permanently larger balance sheet in an attempt to keep policy rates higher. This may result in changes to central banks' operating frameworks.[68]

Raising the inflation target

The problem of a lower real neutral rate can also be reduced with a higher inflation target. Central banks care about the level of the real interest rate relative to the real neutral rate. But they control this via adjustment of nominal interest rates[69], which means the expected inflation rate is important. A central bank (or government[70]) can offset the depressing effect of a lower neutral rate by raising its inflation target. There is little evidence to suggest that inflation targets below 5% would prove damaging either in themselves or via the associated higher inflation volatility.

This has been a policy discussion for a while, with Olivier Blanchard (the then IMF chief economist) suggesting raising inflation targets to 4% in 2010. More recently Fed Chair Yellen mentioned this in her latest Jackson Hole speech. Moreover, central banks have already practiced a loose form of this: the BoE looks set to 'look through' the expected near-term increase in inflation; the BoJ has committed to let inflation "overshoot" its target.

Variations in this policy could see central banks adopt price level targets, where a bank is committed to targeting inflation on average – formalising, for example, the BoJ's recent plans to 'overshoot' its target. Banks could also adopt nominal GDP targets, which allow banks to target a variable pace of inflation dependent on the pace of economic growth. However, both policies would pose a challenge to public understanding.

Macroprudential regulation

Since the financial crisis, central banks have increasingly employed additional regulatory tools to bolster financial stability. Central banks have the scope to consider variation of such policy to ease financial conditions. The BPC uses active adjustment of macroprudential tools as part of its policy toolkit. The BoE also reduced its capital requirements (the counter-cyclical capital buffer) in the wake of the Brexit referendum to enhance banks' lending abilities. However, we do not expect developed market central banks to undertake a wholesale easing of regulatory standards to boost short-term activity prospects.

---

[65] Christensen, J. H. E. and Krogstrup, S., "A Portfolio Model of Quantitative Easing", Peterson institute for International Economics
[66] So-called because of central banks' ability to print banknotes and helicopter drop them into the economy, from Friedman, M. "The Optimum Quantity of Money", 1969.
[67] In the extreme case of debt monetisation, this can be addressed by the central bank purchasing a specific government issued non-marketable, perpetual zero coupon bond, to make a permanent interest free loan to the government
[68] New Zealand, Norway and Japan all use different operational frameworks based on marginal not average reserve remuneration, although this may create additional pressures for the commercial banks in the future.

[69] The Fischer equation defines nominal interest rates as real rates plus inflation expectations.
[70] In many regions central banks are set a mandate of achieving price stability, but define price stability themselves. Hence these banks have the ability to adjust their inflation targets. This framework is not universal. For example, the UK government sets a numeric inflation target of 2% for the BoE's marginal propensity to consume (MPC) to achieve.

Appendix B – The Fiscal Toolkit

By David Page

Contra-cyclical spending can be either discretionary or automatic.

Discretionary stimulus is policy chosen in response to a slowdown and can take several forms. Large infrastructure investments are often advocated, investing in assets that will provide long-term returns for the economy. Such spending likely has a number of positives. From a demand-side, it increases total expenditure, directly lifting GDP. This can often have multiplier effects beyond stimulating supply-chain investments, potentially removing longer-term growth pessimism and boosting household incomes and hence spending. It can also result in supply-side improvements, leading to faster productivity growth, raising long-term growth prospects and hence raising the neutral interest rate. Fiscal policy can thus increase the expansionary effect of a given stance of monetary policy.

Yet spending projects can take a long while to plan and implement. Governments can provide stimulus more quickly by lowering tax rates. These policies can be less effective as they rely on subsequent household or corporate spending decisions. However, they can lift activity more quickly and avert slowdown, avoiding associated costs, including unemployment (further spending and potentially hysteresis effects) and corporate losses (lack of investment, liquidation).

Fiscal stimulus can also be delivered more quickly through automatic stabilisers. Discretionary measures take time to identify and respond to a slowdown. Automatic stabilisers increase or decrease government net revenues as economic activity adjusts.

Automatic stabilisers can have unintended long-term consequences. Unemployment benefits can contribute to long-term unemployment (by reducing its cost); variation of marginal tax rates can distort spending decisions. So automatic stabilisers have to be considered that are efficient. These may include cyclical investment tax deductions, current year corporate tax payment alignment, automatic transfers to local governments, and cyclical adjustments to unemployment payments.

Appendix C – Country forecasts

US (% and pp)	2015	2016*	Consensus	2017*	Consensus	2018*
GDP	**2.6**	**1.6**	*1.5*	**2.1**	*2.2*	**1.9**
Private consumption	3.2	2.6	*2.6*	2.8	*2.4*	2.0
Public consumpt.	1.8	0.8		1.1		2.7
Investment	4.0	0.3	*-0.4*	0.3	*3.0*	1.8
Net trade (contrib)	-0.7	0.0		-0.2		0.0
Inventories (contrib)	-0.1	-0.2		-0.1		0.0

EMU (% and pp)	2015	2016*	Consensus	2017*	Consensus	2018*
GDP	**2.0**	**1.6**	*1.6*	**1.5**	*1.3*	**1.5**
Private consumption	2.2	1.6	*1.6*	1.4	*1.4*	1.6
Public consumpt.	1.6	1.8		1.0		0.6
Investment	2.9	2.9	*2.5*	1.9	*2.1*	2.3
Net trade (contrib)	0.3	-0.1		0.1		0.1
Inventories (contrib)	-0.5	-0.1		0.0		0.0

Germany (% and pp)	2015	2016*	Consensus	2017*	Consensus	2018*
GDP	**1.5**	**1.7**	*1.8*	**1.4**	*1.3*	**1.6**
Private consumption	1.9	1.7	*1.7*	1.6	*1.4*	1.4
Public consumpt.	2.8	4.1		2.0		1.6
Investment	1.1	1.9	*2.0*	0.9	*1.6*	2.1
Net trade (contrib)	0.1	-0.2		0.0		0.1
Inventories (contrib)	-0.5	-0.2		0.0		0.0

France (% and pp)	2015	2016*	Consensus	2017*	Consensus	2018*
GDP	**1.2**	**1.3**	*1.3*	**1.3**	*1.2*	**1.6**
Private consumption	1.5	1.5	*1.5*	1.4	*1.3*	1.6
Public consumpt.	1.4	1.6		0.8		0.4
Investment	0.9	2.7	*3.4*	1.2	*1.9*	3.1
Net trade (contrib)	-0.3	-0.6		0.0		-0.1
Inventories (contrib)	0.1	0.1		0.1		0.0

Italy (% and pp)	2015	2016*	Consensus	2017*	Consensus	2018*
GDP	**0.6**	**0.9**	*0.8*	**1.0**	*0.7*	**0.9**
Private consumption	1.5	1.4	*1.2*	1.1	*0.9*	0.8
Public consumpt.	-0.6	0.7		0.6		0.4
Investment	1.1	2.1	*1.7*	1.4	*1.3*	2.1
Net trade (contrib)	-0.4	0.0		0.1		0.0
Inventories (contrib)	0.0	-0.4		-0.1		0.0

Spain (% and pp)	2015	2016*	Consensus	2017*	Consensus	2018*
GDP	**3.2**	**3.1**	*3.1*	**2.2**	*2.2*	**2.1**
Private consumption	2.9	3.2	*3.3*	2.4	*2.3*	1.9
Public consumpt.	2.0	0.5		-0.1		0.6
Investment	6.0	4.1	*4.1*	2.6	*3.5*	2.8
Net trade (contrib)	0.0	0.3		0.3		0.3
Inventories (contrib)	0.1	0.1		0.0		0.0

Japan (% and pp)	2015	2016*	Consensus	2017*	Consensus	2018*
GDP	**0.5**	**0.7**	*0.6*	**1.3**	*0.9*	**1.3**
Private consumption	-1.2	0.4	*0.4*	0.5	*0.8*	1.0
Public consumpt.	1.2	1.7		2.4		2.0
Investment	0.3	0.6	*0.5*	1.5	*1.1*	1.5
Net trade (contrib)	0.4	0.2		0.3		0.1
Inventories (contrib)	0.5	-0.1		0.0		0.0

UK (% and pp)	2015	2016*	Consensus	2017*	Consensus	2018*
GDP	**2.2**	**2.0**	*2.0*	**0.9**	*1.1*	**0.8**
Private consumption	2.6	2.8	*2.7*	1.0	*1.2*	0.7
Public consumpt.	1.5	1.0		0.6		0.5
Investment	3.4	1.7	*0.6*	0.3	*-1.1*	0.9
Net trade (contrib)	0.0	-0.7		1.2		0.9
Inventories (contrib)	-0.8	0.0		-0.6		-0.1

Source: AXA IM Research

These projections are not necessarily a reliable indicator of future results

Appendix D – 2017 Calendar of events

Month	Date	Event
Jan	19-Jan	ECB meeting
	30-31 Jan	BoJ meeting
Feb	01-Feb	Fed FOMC meeting
	02-Feb	BoE meeting
	03-Feb	EU summit in Malta
March	--	EU summit in Rome (60th anniversary of Rome treaties)
	09-Mar	ECB meeting
	14-15 Mar	Fed FOMC meeting
	15-16 Mar	BoJ meeting
	15-Mar	Netherlands general elections
	16-Mar	BoE meeting
April	23-Apr	French presidential elections: first round
	26-27 Apr	BoJ meeting
	27-Apr	ECB meeting
May	02-03 May	Fed FOMC meeting
	07-May	French presidential elections: secound round
	11-May	BoE meeting
June	08-Jun	ECB meeting
	11-18 Jun	French legislative elections
	13-14 Jun	Fed FOMC meeting
	15-16 Jun	BoJ meeting
	15-Jun	BoE meeting
July	--	Indian presidential elections
	07-08 Jul	G20 summit in Hamburg
	19-20 Jul	BoJ meeting
	20-Jul	ECB meeting
	25-26 Jul	Fed FOMC meeting
August	03-Aug	BoE meeting
September	07-Sep	ECB meeting
	14-Sep	BoE meeting
	19-20 Sep	Fed FOMC meeting
	20-21 Sep	BoJ meeting
October	--	German Federal elections
	--	Elections in Czech Republic
	--	Communist Party of China's Party Congress
	--	General elections in Chile
	--	Legislative elections in Argentina
	26-Oct	ECB meeting
	30-31 Oct	BoJ meeting
	31 Oct - 1er Noc	Fed FOMC meeting
November	02-Nov	BoE meeting
December	12-13 Dec	Fed FOMC meeting
	14-Dec	ECB meeting
	14-Dec	BoE meeting
	20-21 Dec	BoJ meeting

Source: AXA IM Research

Abbreviation glossary

1Q11	first quarter of 2011
1H11	first half of 2011
[Lhs]	left hand scale (graph)
[Rhs]	right hand scale (graph)
a.r.	annualised rate
ABS	Asset-backed security
AMECO	EC's annual macroeconomic database
AQR	Asset Quality Review
BAML	Bank of America Merrill Lynch
Bn	Billion
BEA	US Bureau of Economic Analysis
BoE	Bank of England
BoJ	Bank of Japan
bp(s)	basis point(s)
BIS	Bank for International Settlements
BLS	US Bureau of Labor Statistics
CBOE	Chicago Board Options Exchange
CEE	Central and Eastern Europe
CEEMEA	Central and Eastern Europe/Middle East/Africa
CLO	collateralised loan obligation
CPI	Consumer price index
DM	Developed market
EBA	European Banking Authority
EBITDA	earnings before interest, taxes, depreciation, and amortization
EC	European Commission
ECB	European Central Bank
EM	Emerging market
EMU	European Monetary Union
EPFR	Emerging Portfolio Fund Research, Inc.
EPS	Earnings per share
ERP	Equity risk premium
ESM	European Stability Mechanism
ETF	Exchange-Traded fund
€	Euro
FFR	Fed fund rate
FOMC	Federal Open Market Committee
GBP	Pound Sterling
GDP	Gross Domestic Product
GFC	Global Financial Crisis
HKD	Hong Kong dollar
HP filter	Hodrick-Prescott filter
HY	High Yield
ICT	information and communications technology
IG	Investment Grade
IIF	Institute of International Finance
INSEE	French National Institute of Statistics and Economic Studies
IMF	International Monetary Fund
ISM	Institute of Supply Management
JGB	Japanese Government Bonds

£	Pound Sterling
LatAm	Latin America
LBO	Leveraged buy-out
LTRO	Long Term Refinancing Operation
MBS	Mortgage-backed security
METI	Japan's Ministry of Economic Trade and Industry
mom	month on month
n.s/a	non-seasonally adjusted
NIO	Net operating Income
NPL	non-performing loans
NFIB	National Federation of Independent Business
OECD	Organisation for Economic Cooperation and Development
OIS	Overnight indexed swap
OMT	Outright Monetary Transactions
P/B	price-to-book ratio
P/E	price/earnings
PBC	People Bank of China
PCE	personal consumption expenses
PEG	price/earnings to growth
PMI	Purchasing Manager Index
pp	percentage point
PPI	Producer price index
PPP	purchasing power parity
QE	Quantitative easing
QQE	Quantitative and qualitative easing
qoq	quarter on quarter
RMB	renminbi chinois (yuan)
RRR	Required rate of return
s/a	seasonally adjusted
SMEs	Small and medium size enterprises
SMP	Securities Markets Programme
SWF	Sovereign Wealth fund
TFP	total factor productivity
TLTRO	Targeted Longer Term Refinancing Operation
tr	Trillion
UN	United Nations
USD	US dollar
US$	US dollar
¥	Yen
yoy	year on year
ytd	year to date
ZIRP	Zero interest rate policy

Our Research is available on line: **http://www.axa-im.com/en/research**

DISCLAIMER

www.axa-im.com