Uncommon truths
Is there a global monetary crunch?

Recent investor meetings reveal a concern about lower money supply growth and global monetary aggregates support this notion. However, things are not that simple and we are less concerned.

Most of us were surprised on 30 January when Jerome Powell suggested the Fed is already considering the possibility of tapering its balance sheet reductions. He suggested they were starting to believe the "normal" size of the balance sheet was higher than previously thought (it is now around \$4.0trn, having peaked at \$4.5trn in October 2015, up from \$0.9trn at the start of 2008).

It was never clear at which level the balance sheet would settle but the idea that quantitative tightening may soon be over came as a surprise (though as we have mentioned over recent years, central banks do not usually reduce their balance sheets; rather they allow their economies to grow into a bloated balance sheet over several decades, as did the Fed after WW2 – see Pictures of distress).

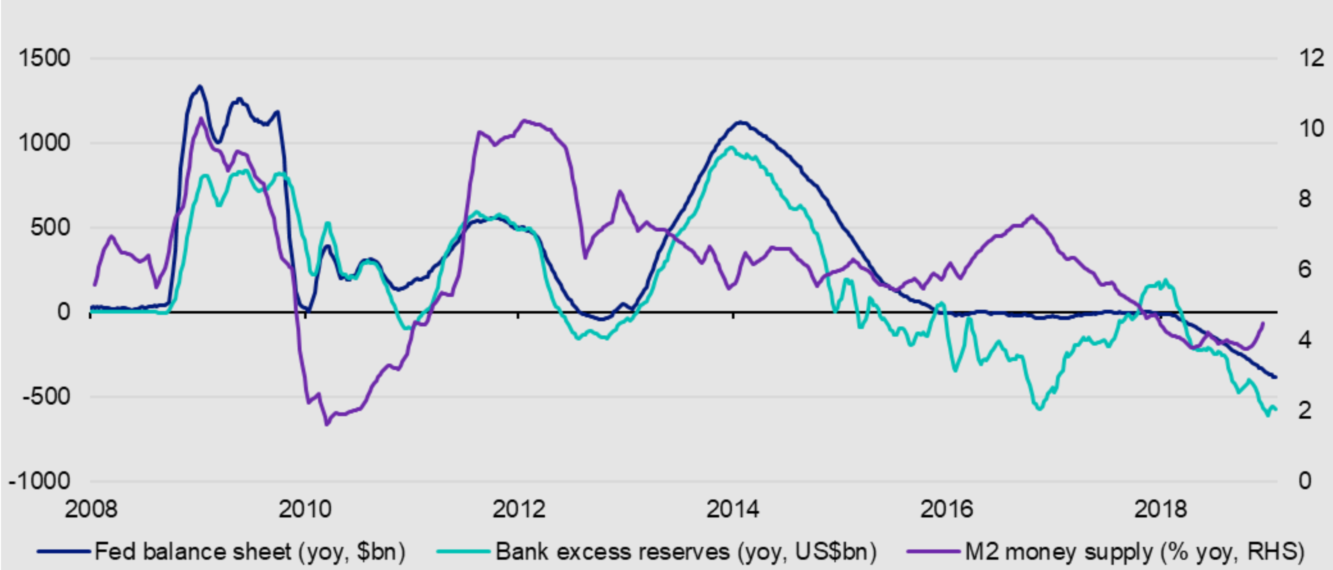
Apart from the timing of the announcement, it was also surprising that the resilience of bank reserves was used as a reason for the change. For sure, such reserves are a liability of the Fed and thus count as part of the balance sheet but **Figure 1** suggests the Fed's balance sheet has broadly moved in line with excess reserves since the start of the financial crisis (banks choose the level of excess reserves).

Put simply, if the banks give their QE receipts (monies received by selling assets to the Fed) straight back to the Fed in the form of excess reserves, they will not be using the funds to boost loans/deposits and there will therefore be no impact on monetary aggregates. When the Fed's balance sheet expands more rapidly than bank excess reserves, a part of the monies spent by the Fed stays within the banking system and can boost money supply growth (see 2008/9, for example). When the reverse is true, there could be a decline in money supply growth (see 2009/10 for example).

What is interesting, given the comments of Jerome Powell, is that bank excess reserves peaked in September 2014 and have been falling since (though not in a straight line). This has certainly been the case since the Fed balance sheet started to decline in a meaningful way. We believe the fact that excess reserves have been falling more rapidly than the Fed's balance sheet, has contributed to an acceleration in money supply growth at various times over recent years, most notably in recent months.

It is hard to know exactly what the Fed expected of bank excess reserves but a glance at **Figure 1** suggests that, given the backdrop of the Fed's balance sheet, there is nothing unusual in the behaviour of the banks. Rather, it feels to us that the Fed was searching for an excuse to signal a more flexible policy approach but chose one that doesn't really add up.

Figure 1 – Fed quantitative policies and the transmission to money supply growth



Note: Weekly data from 1 January 2008 to 29 January 2019. "Fed" is the Federal Reserve System of the United States of America. "Bank excess reserves" are excess reserves held at the Fed by banks. M2 data consists of growth rates interpolated from monthly data.
Source: Datastream and Invesco.

Leaving that to one side, we think it likely that the Fed's quantitative tightening contributed to recent poor investment performance and can therefore understand why financial markets reacted positively to the 30 January press conference.

However, the Fed is not alone – it is one of several big central banks that actively pursued asset purchases via quantitative easing (others were the ECB, the BOE, the SNB and the BOJ). Unfortunately, the only one that continues to buy assets in a meaningful way is the BOJ and it is now buying at a slower rate. Indeed, **Figure 2** shows that the growth of the collective balance sheet of those five central banks (the QE5) has slipped into negative territory (the Fed's reductions are just outweighing the increases of the BOJ).

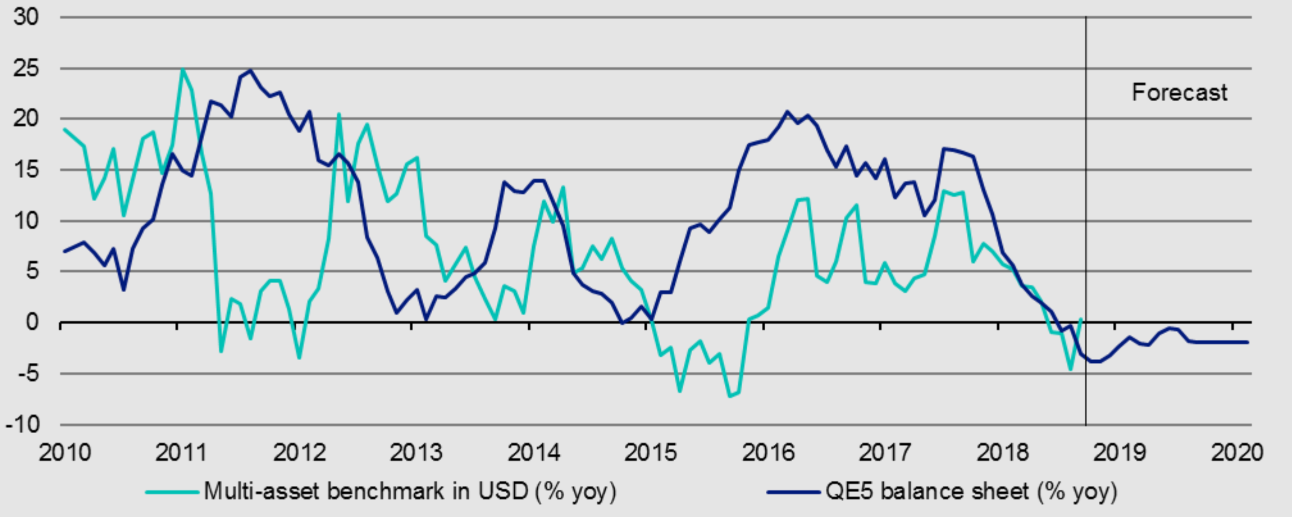
That slippage into quantitative tightening (QT) at the global level has been accompanied by a deterioration in the return earned on global multi-asset portfolios (the return on our multi-asset benchmark was -4.6% during 2018, when measured in US dollars). The evidence contained in **Figure 2** suggests to us that if the Fed sticks with its current plan of reducing the balance sheet by $50bn per month, investors may struggle to generate positive returns (measured in USD).

If the BOJ continues to buy assets at the rate seen during 2018 (well below its stated aim), we believe the Fed would need to taper its balance sheet reduction to a rate of around $25bn per month just to bring aggregate QE5 balance sheet growth to zero; while ending the Fed's QT altogether would allow slight growth (assuming no change in the level of the US dollar over the forecast horizon). Either way, we conclude that financial markets are unlikely to be offered the sort of central bank support seen since 2008, unless and until the global economy slips into recession.

However, widespread quantitative easing is a recent phenomenon and financial markets operated for centuries without the distorting effect of central bank purchases. Though QE has a direct effect on the asset markets in which central banks are actively buying, we believe the broader economic (and financial) effect of their policies is more related to developments in broad monetary aggregates (M3, for example). Put very simply, such aggregates are the sum of cash in circulation and bank deposits (the broader the monetary aggregate, the more it includes less liquid bank deposits). Central banks have a lot of control over high-powered money (M0) but their control over the broader aggregates (M3, say) is blunted by the deposit creating activities of the banking sector.

As can be seen from **Figure 1**, the relationship between Fed balance sheet and M2 money supply is loose. Indeed, the ratio between M2 and the Fed's balance sheet sank from around 8.0 in 2006 to a low of around 2.6 in late 2014. Developed world central banks were literally pushing on a piece of string during and after the global financial crisis, as money they provided to the financial system flowed back to them in the form of bank reserves. QE money had a transitory frictional effect on certain financial markets but the effect on the broader economy was limited because the money did not stay in the economic system.

Figure 2 – QE5 balance sheet and asset returns



Note: Aggregate balance sheet of Fed, ECB, BOE, BOJ and SNB, in USD. The forecast considers the plans of the Fed and ECB (assuming ECB makes no further asset purchases after December 2018). It is also assumed SNB and BOE make no further purchases and that BOJ continues buying in line with the rate over the last 12 months (less than half the rate of its stated plan). The multi-asset benchmark is a fixed weighted index based on our Neutral asset allocation. From January 2010 to June 2020. Past performance is no guarantee of future results. Source: BOE, Datastream and Invesco

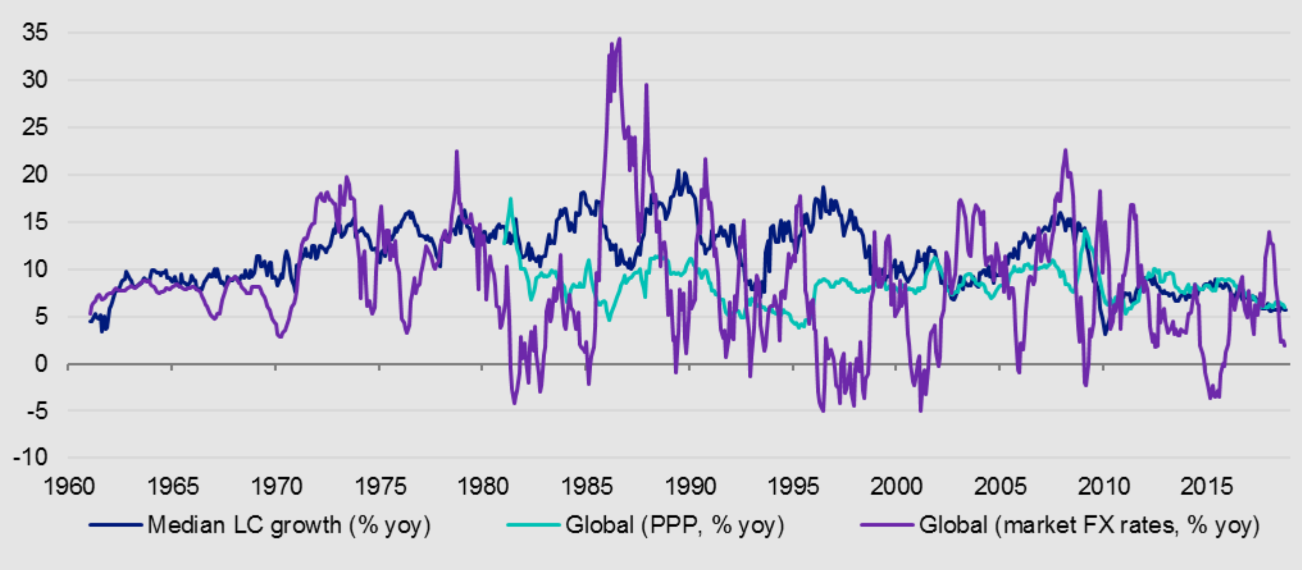
If broad money supply growth is an important driver of nominal GDP growth (it used to look that way but the relationship had become less clear, even before the financial crisis), recent discussions with investors are worrying – there is a belief that global money supply growth is on the wane. Indeed, in this piece written by Andras in November 2018, it was reported that global excess money supply growth (money supply growth less nominal GDP growth) had fallen to zero from above 5% at the start of 2018. Even worse, since the time of the financial crisis, where the excess money supply growth measure has gone, global equity indices have tended to follow. This would seem to add weight to the conclusions we drew from **Figure 2** – that investment returns may be limited over the next year or so.

However, that excess money supply growth analysis and **Figure 2** have one weakness in common – they are expressed in US dollars. Basically, if global aggregates are converted into dollars, they will be influenced by movements in the greenback. For example, if the dollar rises, the USD value of the ECB's balance sheet will fall, even if the balance sheet is stable. Given that the dollar was weakening in the two years to February 2018 and has since strengthened, USD versions of global money supply or the QE5 balance sheet exaggerated the growth during 2016/17 and underestimated it during 2018. To the extent these measures are being compared to asset price indices also expressed in dollars, the conclusions may still be valid but it may distort our understanding of what is happening in local economies and financial markets.

Figure 3 shows the problem: the growth rate of our global money supply aggregate is extremely volatile when national money supply data is converted into US dollars using market exchange rates. This is the sort of measure that most of us would automatically use and it has recently decelerated sharply (leaving growth in the global aggregate below 2% in October 2018, from 14% at the start of that year). If we didn't know better, that would be alarming. But we do know better and suspect that at least part of that deceleration is the result of dollar strength since February 2018.

More comfortingly, if we look at the component local currency country data, the situation is not so dramatic: the median growth rate (across countries) was close to 6% in November 2018, just as it had been at the start of that year. Further, an alternative global aggregate constructed using purchasing power parity (PPP) exchange rates gives similar results (PPP exchange rates are usually more stable than market based versions). Nevertheless, the growth of these more stable aggregates slipped to the 5%-7% range during 2017/18 from the 7%-10% range previously seen for most of the post-financial crisis period. So, the news may be better than suggested by simple aggregates but hardly points to a world economy in rude health.

Figure 3 – Global money supply growth depends on how you measure it



Note: monthly data from January 1960 to November 2018. Based on an aggregation of broad money supply aggregates (usually M3) for the following countries: Australia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Czech Republic, Denmark, Eurozone, Hungary, Iceland, India, Indonesia, Israel, Japan, Mexico, New Zealand, Norway, Poland, Russia, South Africa, South Korea, Sweden, Switzerland, Turkey, United Kingdom and United States. "Median LC growth" shows the median growth rate among all countries, when measured in local currency. "Global (market FX rates)" is based on an aggregation of national money supplies, using market exchange rates to convert to US dollars. "Global (PPP)" is based on an aggregation of national money supplies using purchasing power parity (PPP) exchange rates to convert to US dollars (PPP exchange rates are those which equalise spending power across countries and are usually more stable than market exchange rates). Source: OECD, Oxford Economics, Datastream and Invesco.

Of course, global aggregates hide a lot of variation across countries. Countries experiencing a significant deceleration over recent years include: Australia, Denmark, Indonesia, Sweden and the UK. The year-on-year growth of Danish M3 sank to -3.2% in December 2018 and has been sporadically negative since mid-2016. Also, though there has not been a deterioration of late, Japanese M3 growth is just above 2%, despite the best efforts of the BOJ.

On the other hand, there has been a marked acceleration in the broad money aggregates of Hungary and Russia (to above 12%) and that could be a precursor to future inflation and instability.

Because monetary aggregates are the result of the interaction between demand and supply for money, we can never be certain about why growth rates are changing. If it is because there is a lot of demand for credit, an acceleration in money supply growth could be accompanied by rising interest rates. Conversely, if it is due to the central bank trying to increase the supply of money/credit, interest rates could fall.

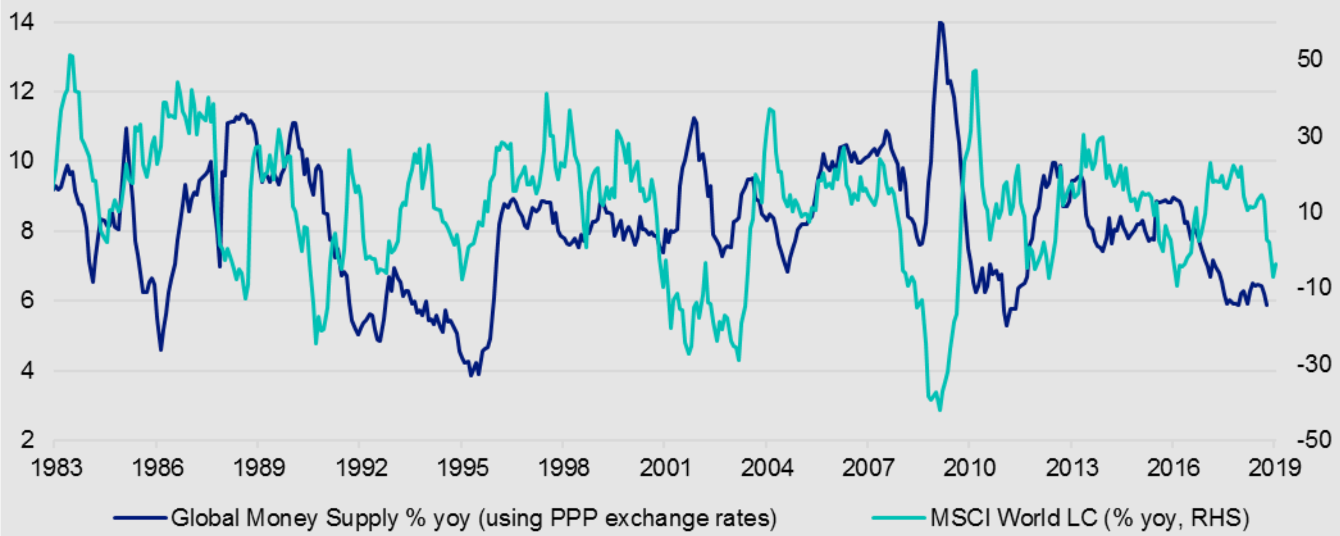
Hence, blind observation of changes in money supply growth without looking behind the numbers could lead to faulty conclusions. We feel that the lack of monetary growth since the financial crisis has been more the result of a lack of demand for credit, than lack of supply (though perhaps both have played a role at various points in time). We see the current low rates of growth as reflecting both that lack of demand for credit and the reduced level of nominal GDP growth (income is reckoned to be one of the determinants of the demand for money). We do not view it as being the result of tight monetary policies. We are therefore concerned by what this says about background economic conditions but do not view it as symptomatic of a monetary crunch, with all its negative connotations.

As investors, what we really care about is the relationship between money supply growth and future asset returns. **Figure 4** shows the relationship with the MSCI World Index (measured in local currency) -- the best we can say is that the relationship is complex! In the post-financial crisis period, it appears that equity market performance has lagged the growth of monetary aggregates (where money supply growth has gone, equity returns have tended to follow).

This may be a concern given the monetary deceleration noted over recent years but it could be argued that was reflected in the poor equity market performance of 2018. So long as monetary growth does not deteriorate any further, we think it possible that global equity benchmarks can advance from here but that returns to investment will be limited. We continue to believe that equity and real estate assets will outperform fixed income counterparts during 2019 but much of the upside may already be behind us.

Unless stated otherwise, all data as of 10 February 2019.

Figure 4 – Global money supply growth and global equities



Note: monthly data from January 1983 to January 2019 (as of 31 January 2019). Based on an aggregation of broad money supply aggregates (usually M3) for the following countries: Australia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Czech Republic, Denmark, Eurozone, Hungary, Iceland, India, Indonesia, Israel, Japan, Mexico, New Zealand, Norway, Poland, Russia, South Africa, South Korea, Sweden, Switzerland, Turkey, United Kingdom and United States. "Global Money Supply" is based on an aggregation of national money supplies using purchasing power parity (PPP) exchange rates to convert to US dollars (PPP exchange rates are those which equalise spending power across countries and are usually more stable than market exchange rates). "MSCI World LC" is the local currency version of MSCI's World equity total return index.
Source: MSCI, OECD, Oxford Economics, Datastream and Invesco.

Figure 5 – Asset class total returns

Data as at 08/02/2019		Current	Total Return (USD, %)					Total Return (Local Currency, %)				
	Index	Level/RY	1w	1m	QTD	YTD	12m	1w	1m	QTD	YTD	12m
Equities												
World	MSCI	489	-0.5	4.7	7.4	7.4	0.1	-0.1	4.9	7.3	7.3	2.7
Emerging Markets	MSCI	1036	-1.3	6.2	7.3	7.3	-8.4	-0.9	5.9	6.4	6.4	-4.1
US	MSCI	2581	0.1	5.5	8.5	8.5	7.1	0.1	5.5	8.5	8.5	7.1
Europe	MSCI	1561	-1.6	2.7	5.2	5.2	-8.1	-0.4	3.2	5.6	5.6	-0.5
Europe ex-UK	MSCI	1825	-2.0	1.9	4.5	4.5	-9.3	-0.8	3.2	5.8	5.8	-1.8
UK	MSCI	1102	-0.4	4.8	6.9	6.9	-5.0	0.7	3.1	5.2	5.2	2.7
Japan	MSCI	3027	-2.1	0.4	3.1	3.1	-10.5	-1.8	1.5	3.1	3.1	-10.1
Government Bonds												
World	BofA-ML	1.25	-0.3	0.4	0.6	0.6	-0.1	0.2	0.8	0.8	0.8	3.0
Emerging Markets	JPM	6.52	-1.0	2.5	4.6	4.6	-4.1	0.0	1.6	1.9	1.9	5.1
US (10y)	Datastream	2.63	0.6	1.1	1.0	1.0	4.5	0.6	1.1	1.0	1.0	4.5
Europe	Bofa-ML	0.82	-1.2	0.6	0.5	0.5	-5.0	0.1	1.7	1.4	1.4	2.8
Europe ex-UK (EMU, 10y)	Datastream	0.08	-0.4	0.9	1.2	1.2	0.0	0.8	1.9	2.1	2.1	8.2
UK (10y)	Datastream	1.15	-0.2	2.8	2.9	2.9	-1.2	0.9	1.1	1.2	1.2	6.8
Japan (10y)	Datastream	-0.03	-0.3	-0.6	0.4	0.4	1.1	0.1	0.4	0.4	0.4	1.5
IG Corporate Bonds												
Global	BofA-ML	3.16	0.1	2.0	2.2	2.2	-0.6	0.5	2.2	2.2	2.2	2.0
US	BofA-ML	3.97	0.6	2.4	2.5	2.5	2.3	0.6	2.4	2.5	2.5	2.3
Europe	BofA-ML	1.13	-0.7	1.0	0.7	0.7	-6.7	0.5	2.0	1.6	1.6	1.0
UK	BofA-ML	2.83	-0.5	4.1	4.2	4.2	-5.2	0.7	2.4	2.5	2.5	2.5
Japan	BofA-ML	0.39	-0.3	-0.9	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.6
HY Corporate Bonds												
Global	BofA-ML	6.72	-0.1	2.3	4.1	4.1	0.6	0.2	2.4	4.3	4.3	2.1
US	BofA-ML	7.08	0.2	2.2	4.9	4.9	3.1	0.2	2.2	4.9	4.9	3.1
Europe	BofA-ML	4.38	-1.1	1.2	1.4	1.4	-8.8	0.1	2.2	2.4	2.4	-1.3
Cash (Overnight LIBOR)												
US		2.38	0.0	0.2	0.3	0.3	2.0	0.0	0.2	0.3	0.3	2.0
Euro Area		-0.47	-1.1	-1.0	-1.3	-1.3	-7.9	0.0	0.0	-0.1	-0.1	-0.4
UK		0.68	-1.0	1.9	1.6	1.6	-6.4	0.0	0.1	0.1	0.1	0.6
Japan		-0.08	-0.2	-0.9	-0.2	-0.2	-1.0	0.0	0.0	0.0	0.0	-0.1
Real Estate (REITs)												
Global	FTSE	1899	0.7	8.1	11.0	11.0	12.5	1.9	9.2	12.0	12.0	21.7
Emerging Markets	FTSE	2247	0.2	9.4	10.5	10.5	-4.2	1.5	10.5	11.5	11.5	3.7
US	FTSE	3054	2.0	10.2	13.0	13.0	24.5	2.0	10.2	13.0	13.0	24.5
Europe ex-UK	FTSE	3418	-2.3	3.7	7.5	7.5	3.2	-1.1	4.7	8.5	8.5	11.7
UK	FTSE	1354	-0.7	7.5	11.0	11.0	-4.5	0.4	5.7	9.2	9.2	3.2
Japan	FTSE	2653	-1.3	3.0	4.8	4.8	6.3	-1.0	4.0	4.8	4.8	6.8
Commodities												
All	GSCI	2395	-1.6	3.1	8.7	8.7	-5.4	-	-	-	-	-
Energy	GSCI	435	-2.4	4.8	13.5	13.5	-4.6	-	-	-	-	-
Industrial Metals	GSCI	1245	-0.1	4.6	4.8	4.8	-11.3	-	-	-	-	-
Precious Metals	GSCI	1560	-0.3	2.1	2.6	2.6	-1.1	-	-	-	-	-
Agricultural Goods	GSCI	355	-0.9	-0.7	1.6	1.6	-8.6	-	-	-	-	-
Currencies (vs USD)*												
EUR		1.13	-1.1	-1.0	-1.2	-1.2	-7.5	-	-	-	-	-
JPY		109.74	-0.2	-0.9	-0.1	-0.1	-0.9	-	-	-	-	-
GBP		1.29	-1.1	1.7	1.6	1.6	-7.5	-	-	-	-	-
CHF		1.00	-0.4	-1.9	-1.9	-1.9	-6.4	-	-	-	-	-
CNY		6.74	0.0	1.6	2.0	2.0	-6.2	-	-	-	-	-

Notes: *The currency section is organised so that in all cases the numbers show the movement in the mentioned currency versus USD (+ve indicates appreciation, -ve indicates depreciation). Past performance is no guarantee of future results. Please see appendix for definitions, methodology and disclaimers.
Source: Datastream and Invesco

Figure 6 – Equity sector total returns relative to local market (%)

Data as at 08/02/2019	US					Europe				
	1w	1m	QTD	YTD	12m	1w	1m	QTD	YTD	12m
Oil & Gas	**-3.0**	**-2.4**	**1.5**	**1.5**	**-9.1**	**0.8**	**0.0**	**1.6**	**1.6**	**13.5**
Materials	**-1.7**	**-3.7**	**-3.6**	**-3.6**	**-12.5**	**-1.5**	**0.9**	**0.5**	**0.5**	**-2.4**
Basic Resources	-0.8	-1.5	-0.1	-0.1	-19.2	-1.5	4.4	4.5	4.5	1.9
Chemicals	-2.2	-5.0	-5.3	-5.3	-10.9	-1.4	-1.3	-2.1	-2.1	-5.0
Industrials	**1.5**	**4.1**	**4.8**	**4.8**	**-4.7**	**-0.9**	**0.0**	**0.5**	**0.5**	**-3.2**
Construction & Materials	1.6	1.1	4.4	4.4	-15.3	-0.4	1.1	0.5	0.5	-5.1
Industrial Goods & Services	1.5	4.1	4.9	4.9	-4.6	-1.0	-0.3	0.5	0.5	-2.7
Consumer Discretionary	**-0.4**	**-3.1**	**-0.2**	**-0.2**	**0.2**	**-2.3**	**-0.2**	**1.0**	**1.0**	**-5.7**
Automobiles & Parts	-2.8	1.2	5.0	5.0	-17.7	-6.9	-3.1	-1.7	-1.7	-23.6
Media	-0.2	0.1	3.5	3.5	-3.2	-1.5	-1.8	-1.5	-1.5	8.4
Retail	-0.5	-5.0	-2.0	-2.0	4.4	0.1	2.7	5.1	5.1	6.6
Travel & Leisure	0.4	0.1	-0.9	-0.9	1.2	0.7	0.8	0.7	0.7	-3.7
Consumer Staples	**1.0**	**-1.0**	**-2.0**	**-2.0**	**-3.5**	**1.1**	**2.7**	**1.2**	**1.2**	**3.9**
Food & Beverages	0.4	-1.6	-2.2	-2.2	-4.4	1.3	2.8	1.7	1.7	10.1
Personal & Household Goods	1.8	2.3	1.7	1.7	-4.3	1.0	2.6	0.8	0.8	-0.2
Healthcare	**-1.0**	**-1.9**	**-3.8**	**-3.8**	**5.7**	**2.0**	**-0.5**	**-0.6**	**-0.6**	**14.2**
Financials	**-1.6**	**0.3**	**-0.4**	**-0.4**	**-9.9**	**-0.6**	**-1.5**	**-1.1**	**-1.1**	**-12.3**
Banks	-1.5	0.5	2.0	2.0	-14.0	-0.7	-3.9	-2.8	-2.8	-22.3
Financial Services	-1.3	-0.2	-0.6	-0.6	-11.7	-1.7	-0.7	0.1	0.1	-4.9
Insurance	-0.7	2.5	0.6	0.6	-4.6	-0.1	1.3	0.2	0.2	1.7
Real Estate	1.3	4.0	3.1	3.1	14.2	-0.3	2.0	3.3	3.3	8.8
Technology	**1.8**	**3.1**	**1.3**	**1.3**	**4.9**	**1.5**	**3.4**	**2.0**	**2.0**	**1.7**
Telecommunications	**-0.4**	**-2.1**	**1.3**	**1.3**	**-4.0**	**-1.2**	**-8.3**	**-9.6**	**-9.6**	**-3.7**
Utilities	**2.0**	**-0.4**	**-2.7**	**-2.7**	**13.5**	**-0.1**	**1.5**	**1.3**	**1.3**	**21.2**

Notes: showing annualised returns. We use a sector classification created by merging the two main systems used by Standard & Poor's (S&P) for the US and STOXX for Europe. We have decided to classify our 10 top level industries using categories that most closely resemble the Global Industry Classification Standard (GICS) and at the level below that (super sectors) we are using the Industry Classification Benchmark (ICB). The former is used for the S&P 500 index and the latter for the STOXX 600, our benchmark indices. The two systems overlap in most cases and the only material difference seems to be in the consumer sectors. Therefore, we define consumer staples as the aggregate of personal & household goods and food & beverage, while consumer discretionary includes automobiles & parts, media, retail and travel & leisure. For the rest, we assume 100% overlap for the corresponding top-level sectors. Past performance is no guarantee of future results.
Source: Datastream and Invesco

Figure 7 – Model asset allocation

	Neutral	Policy Range	Allocation	Position vs Neutral	Hedged	Currency
Cash	**5%**	**0-10%**	**10%**			
Cash	2.5%		10%			
Gold	2.5%		0%			
Bonds	**45%**	**10-80%**	**44%**			
Government	30%	10-50%	20%			
US	10%		14%			
Europe ex-UK (Eurozone)	8%		0%			
UK	2%		2%			
Japan	8%		0%			
Emerging Markets	2%		4%			
Corporate IG	10%	0-20%	16%			
US Dollar	5%		10%			
Euro	3%		2%			
Sterling	1%		2%			
Japanese Yen	1%		2%			
Corporate HY	5%	0-10%	8%			
US Dollar	4%		8%			
Euro	1%		0%			
Equities	**45%**	**20-70%**	**40%**			
US	25%		8%			
Europe ex-UK	7%		13%			
UK	4%		4%			
Japan	4%		8%			
Emerging Markets	5%		7%			
Real Estate	**3%**	**0-6%**	**6%**			
US	1%		2%			
Europe ex-UK	1%		1%			
UK	0.5%		1%			
Japan	0.5%		0%			
Emerging Markets	0%		2%			
Commodities	**2%**	**0-4%**	**0%**			
Energy	1%		0%			
Industrial Metals	0.3%		0%			
Precious Metals	0.3%		0%			
Agriculture	0.3%		0%			
Total	**100%**		**100%**			
Currency Exposure						
USD	49%		47%			
EUR	21%		18%			
GBP	8%		10%			
JPY	14%		11%			
EM	7%		14%			
Total	**100%**		**100%**			

Notes: This is a theoretical portfolio and is for illustrative purposes only. See the latest The Big Picture document for more details. It does not represent an actual portfolio and is not a recommendation of any investment or trading strategy.
Source: Invesco

Figure 8 – Model sector allocations

	US		Europe		Preferred
	Neutral	Invesco	Neutral	Invesco	Region
Oil & Gas	**5.1%**	**Overweight**	**6.8%**	**Neutral**	**US**
Materials	**2.3%**	**Neutral**	**6.7%**	**Underweight**	**US**
Basic Resources	0.3%	Underweight	3.0%	Neutral	Europe
Chemicals	2.0%	Neutral	3.7%	Underweight	US
Industrials	**11.8%**	**Underweight**	**13.3%**	**Underweight**	**US**
Construction & Materials	0.4%	Neutral	2.7%	Underweight	US
Industrial Goods & Services	11.4%	Underweight	10.7%	Underweight	US
Consumer Discretionary	**15.6%**	**Underweight**	**9.9%**	**Overweight**	**Europe**
Automobiles & Parts	0.6%	Underweight	3.0%	Overweight	Europe
Media	2.5%	Overweight	2.0%	Underweight	US
Retail	9.7%	Underweight	3.3%	Overweight	Europe
Travel & Leisure	2.8%	Overweight	1.7%	Overweight	US
Consumer Staples	**7.5%**	**Overweight**	**16.6%**	**Overweight**	**Europe**
Food & Beverage	3.4%	Neutral	7.3%	Overweight	Europe
Personal & Household Goods	4.2%	Overweight	9.4%	Overweight	Europe
Healthcare	**14.1%**	**Neutral**	**13.2%**	**Underweight**	**US**
Financials	**17.8%**	**Neutral**	**20.0%**	**Overweight**	**Europe**
Banks	5.6%	Neutral	10.6%	Overweight	Europe
Financial Services	5.8%	Underweight	2.0%	Overweight	Europe
Insurance	3.5%	Neutral	5.6%	Overweight	Europe
Real Estate	2.9%	Overweight	1.8%	Underweight	US
Technology	**20.5%**	**Underweight**	**4.6%**	**Underweight**	**US**
Telecommunications	**2.1%**	**Overweight**	**3.9%**	**Overweight**	**Europe**
Utilities	**3.2%**	**Underweight**	**5.0%**	**Underweight**	**Europe**

Notes: These are theoretical allocations which are for illustrative purposes only. They do not represent an actual portfolio and are not a recommendation of any investment or trading strategy. See the latest Strategic Sector Selector for more details.
Source: Datastream and Invesco

Definitions of data and benchmarks (for Figure 5)

Sources: we source data from Datastream unless otherwise indicated.

Cash: returns are based on a proprietary index calculated using the Intercontinental Exchange Benchmark Administration overnight LIBOR (London Interbank Offer Rate). The global rate is the average of the euro, British pound, US dollar and Japanese yen rates. The series started on 1st January 2001 with a value of 100.

Gold: London bullion market spot price in USD/troy ounce.

Government bonds: Current levels, yields and total returns use Datastream benchmark 10-year yields for the US, Eurozone, Japan and the UK, and the Bank of America Merrill Lynch government bond total return index for the World and Europe. The emerging markets yields and returns are based on the JP Morgan emerging markets global composite government bond index.

Corporate investment grade (IG) bonds: Bank of America Merrill Lynch investment grade corporate bond total return indices.

Corporate high yield (HY) bonds: Bank of America Merrill Lynch high yield total return indices

Equities: We use MSCI benchmark gross total return indices for all regions.

Commodities: Goldman Sachs Commodity total return indices

Real estate: FTSE EPRA/NAREIT total return indices

Currencies: Global Trade Information Services spot rates

Authors

Paul Jackson
Head of EMEA ETFs' Research
T. +44 (0)20 3370 1172
E. paul.jackson@invesco.com

András Vig
Multi-Asset Strategist
T. +44 (0)20 3370 1152
E. andras.vig@invesco.com

Investment strategies involve numerous risks. The calculations and charts set out herein are indicative only, make certain assumptions and no guarantee is given that future performance or results will reflect the information herein. Past performance is not a guarantee of future performance.

The Directors of Invesco do not guarantee the accuracy and/or the completeness of any data included herein and we shall have no liability for any errors, omissions, or interruptions herein. We make no warranty, express or implied, as to the information described herein. All data and performance shown is historical unless otherwise indicated. Investors should consult their own business, tax, legal and accounting advisors with respect to this proposed transaction and they should refrain from entering into a transaction unless they have fully understood the associated risks and have independently determined that the transaction is appropriate for them. In no way should we be deemed to be holding ourselves out as financial advisers or fiduciaries of the recipient hereof and this document is not intended to be "investment research" as defined in the Handbook of the UK Financial Conduct Authority.

Invesco, and our shareholders, or employees or our shareholders may from time to time have long or short positions in securities, warrants, futures, options, derivatives or financial instruments referred to in this material. As a result, investors should be aware that we may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

This document is provided by Invesco UK Services Limited, Perpetual Park, Perpetual Park Drive, Henley-on-Thames, Oxfordshire, RG9 1HH, authorised and regulated by the Financial Conduct Authority, Invesco Asset Management S.A., 18, rue de Londres, 75009 Paris, France, authorised and regulated by the Autorité des marches financiers, Invesco Asset Management Deutschland GmbH, An der Welle 5, 60322- Frankfurt/M., Germany, Invesco Asset Management (Schweiz) AG, Talacker 34, 8001 Zurich, Switzerland, and Invesco Asset Management Limited, Perpetual Park, Perpetual Park Drive, Henley-on Thames, Oxfordshire RG9 1HH, UK Authorised and regulated by the Financial Conduct Authority.

In the US by Invesco Capital Management LLC, 3500 Lacey Road, Suite 700, Downers Grove, IL 60515.

In Canada by Invesco Canada Ltd., 5140 Yonge Street, Suite 800, Toronto Ontario, M2N 6X7. Terms and Conditions for Canadian investors can be seen here.

This document is issued in the following countries:

- in Hong Kong by Invesco Hong Kong Limited景順投資管理有限公司, 41/F, Champion Tower, Three Garden Road, Central, Hong Kong. This document has not been reviewed by the Securities and Futures Commission.
- in Singapore by Invesco Asset Management Singapore Ltd, 9 Raffles Place, #18-01 Republic Plaza, Singapore 048619.
- in Taiwan by Invesco Taiwan Limited, 22F, No.1, Songzhi Road, Taipei 11047, Taiwan (0800-045-066). Invesco Taiwan Limited is operated and managed independently.
- In Japan by Invesco Asset Management (Japan) Limited, Roppongi Hills Mori Tower 14F, 6-10-1 Roppongi, Minato-ku, Tokyo 106-6114: Registration Number: The Director – General of Kanto Local Finance Bureau(Kin-sho) 306; Member of the Investment Trusts Association, Japan and the Japan Investment Advisers Association