



The Big Picture

Cash, credit and real estate

Quarterly update
From Invesco's Global Market Strategy Office

For professional/qualified/accredited investors only

16 September 2020

Data as of 31 August 2020 unless stated otherwise



The Big Picture

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After a short, sharp recession (and more rapid rebound than we expected), the question is whether we are now at the start of a new global cycle? We believe so but expect it to be hesitant as rolling lockdowns are enforced and policy support is removed. At this stage of a new cycle we prefer cyclical assets and favour credit and real estate within our Model Asset Allocation. Among defensive assets we prefer cash. Regionally, we are focused on emerging market (EM), Japanese and UK assets.

Model asset allocation

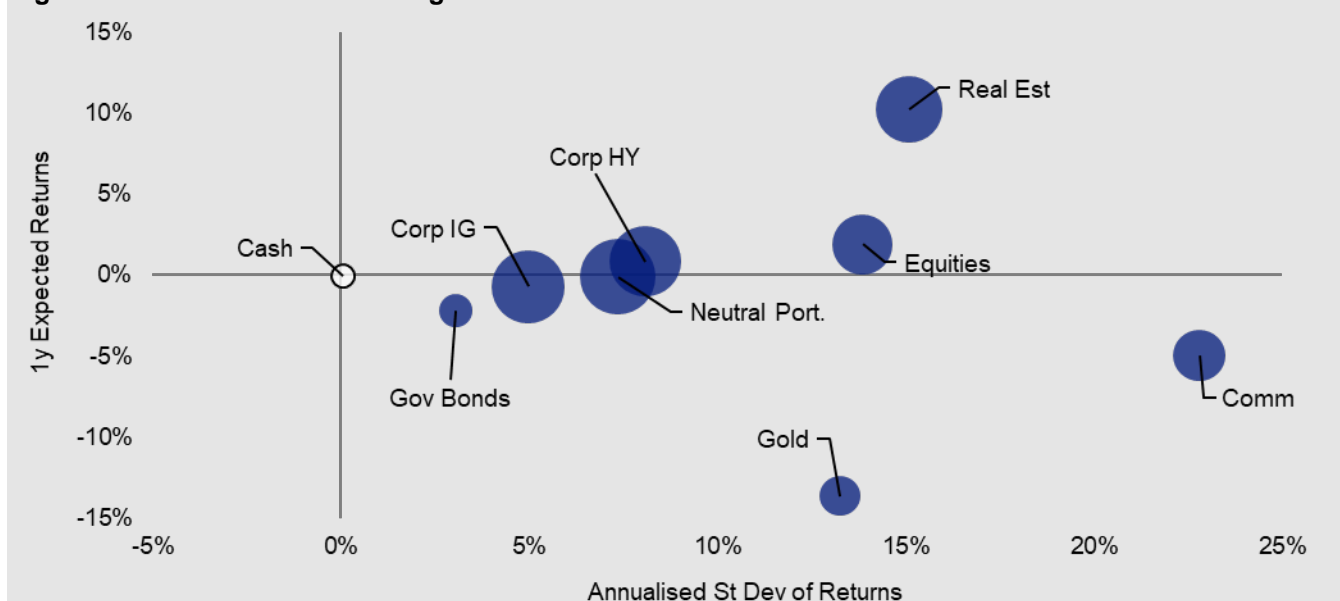
In our view:

- Equities offer limited returns and we prefer other cyclicals. We add but stay Underweight.
- Real estate offers attractive yields but has issues. We take to near the Maximum.
- Corporate high-yield (HY) is among our favourite cyclical assets. We increase to Maximum.
- Corporate investment-grade (IG) preferred to government bonds. We stay at Maximum.
- Government debt will suffer as yield curves steepen. We reduce to further Underweight.
- Emerging markets (EM) is still the sovereign space with the best potential. We stay at Maximum.
- Cash returns are low but stable and de-correlated. We remain at Maximum.
- Gold has priced in a lot of the bad news. We stay at zero.
- Commodities have rallied. We reduce to zero.
- Currency hedges are not needed.

Assets that we consider good value on a long-term basis include:

- EM assets (valuations are relatively attractive; commodity price stability would help)
- Agriculture (prices at multi-decade lows in real terms, relatively non-cyclical)
- Japanese equities and real estate (Japan relatively unaffected by Covid)

Figure 1 – Return versus risk for global assets



Based on projected 12-month local currency returns and a historical covariance matrix (based on the last five years of data). Size of bubbles is in proportion to average historical pairwise correlation with other assets (a hollow bubble implies negative correlation). Cash is an equally weighted mix of USD, EUR, GBP and JPY. Neutral portfolio weights shown in **Figure 2**. As of 31 August 2020. There is no guarantee that these views will come to pass. See Appendices for definitions, methodology and disclaimers.
Source: BAML, MSCI, GSCI, FTSE, Refinitiv Datastream and Invesco Global Market Strategy Office

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We are focused on cash, IG, HY and real estate

Summary and conclusions: Cash, credit and real estate

After a short, sharp recession (and more rapid rebound than we expected), the question is whether we are now at the start of a new global cycle? We believe so but expect it to be hesitant as rolling lockdowns are enforced and policy support is removed. At this stage of a new cycle we prefer cyclical assets and favour credit and real estate within our Model Asset Allocation. Among defensive assets we prefer cash. Regionally, we are focused on emerging market (EM), Japanese and UK assets.

We assume a slower recovery than normal but faster than after GFC

There remain many uncertainties about the future path of the global economy, not least of which will be the path of Covid-19 infections and deaths as the Northern Hemisphere winter approaches (many countries that have relaxed lockdowns are now having to reintroduce restrictions as infections rise). We are assuming a vaccine will go into mass production within our 12-month forecast horizon but doubt that we will see a return to normal behaviour within that timeframe (if nothing else, we believe that working and shopping habits have changed for good). Policy makers have been generous during 2020 and we suspect policy support will diminish within our forecast horizon. There is a risk that further collateral damage (bankruptcies and unemployment) will reveal itself as government support programmes end (we assume a growth path somewhere between a traditional recovery and that seen after the Global Financial Crisis (GFC)). Finally, let's not forget the US presidential election on 3 November 2020, where we expect a change at the White House.

The economic scenario is then turned into expected returns for each asset class and region

Based on this outlook, we have constructed a set of financial market assumptions to enable the generation of 12-month projected returns (**Appendix 4** shows the assumptions, **Figure 34** shows how they convert to market benchmarks and **Figure 2** shows the resultant projected returns for global assets). A simplified description would be that we expect no change in policy rates (though asset purchases may be tapered); a steepening of yield curves; little change in credit spreads (and above average defaults); a rebound in equity earnings and dividends along with a rise in yields; a smaller recovery in real estate cash-flows but stability in yields and a flattening of commodity prices despite further slight weakness in the US dollar.

Returns are expected to be limited by current valuations

Figure 1 puts those projections into risk-reward space. A number of features are worth exploring: first, the projected returns are low or even negative, which is because fixed income yields are low (we expect a rebound) and because we think US equity valuations are stretched (the FANG Plus index has followed our Mania Template); second, we believe that in most cases more risk will be rewarded by more reward; third, cash and real estate stand out on the upside and presumably define opposite ends of the efficient frontier; fourth, gold and broad commodities stand out on the downside.

Most choices are clear cut but that between equities and IG requires judgement

Not surprisingly, given the information in **Figure 1**, our optimisation process favours cash and real estate but also suggests a maximum allocation to corporate high yield credit (HY), as can be seen from **Figure 36**. It should also be little surprise that gold and commodities are zero-weighted in the optimal solutions, while government bonds are Underweighted by a large margin. Where things become difficult is the choice between corporate investment grade credit (IG) and equities: the former is preferred if we maximise returns (subject to a volatility constraint), while the latter is preferred if we maximise the Sharpe Ratio.

Cash, credit and real estate

In determining our Model Asset Allocation, we follow the optimisation results where they are clear cut. In the choice between IG and equities we come down in favour of IG as we usually prefer to maximise returns rather than the Sharpe Ratio and because we suspect equities need a consolidation phase after the strong rebound since March. The allocations to global asset categories shown in **Figure 2** show that we favour cash, credit and real estate.

Cash as the defensive choice

The choice of **cash** as our defensive asset is not hard to explain in a world where we expect low returns on other assets. Projected cash returns may be low but they are reliable (low volatility) and de-correlated to other assets. When returns on other assets are expected to be so low, the opportunity cost of holding cash presents no barrier.

Gold has done a great job this year but we see a reversal of many of the catalysts

More difficult to explain is why we expect negative returns on **gold** when it has been the outstanding performer this year. The answer is simply that we expect a reversal of many of the factors that have supported the yellow metal this year. First, the extreme uncertainty surrounding Covid-19 is abating and the world is returning towards a new normal. Second, we expect tapering of central bank asset purchases, which we think will cause a rise in real government yields. Finally, we expect a change of president in the US, which we think could reduce risk-premia in general and lessen the premium that our model suggests was introduced to gold when it became apparent who had won the 2016 election (see **Figure 27**). Admittedly, we expect the dollar to weaken a bit more (which should help gold) but not enough to counter the negative forces.

HY is taken to the maximum

Among cyclical assets, we favour HY and real estate over equities, largely on valuations. The yield on **HY** is low but spreads versus government bonds are in the middle of their historical range. Though we expect yields to rise with those on government bonds and default rates to be above cyclical averages (6% in the US and 5% in the Eurozone), we think that returns will be slightly positive (and better than on government bonds and IG). Hence, we take HY to the maximum 10% that we allow ourselves.

Real estate is close to the maximum

Real estate shares many features with equities, including its cyclicity. However, it suffers one extra handicap, which is the potential permanent effect of Covid-19 on the demand for office and retail space. This no doubt explains why the asset class has had such a bad year (see **Appendix 2**) but its fortunes have started to improve (judging by the performance of REITS) and we find the yields to be attractive (a lot of bad news is in the price, in our opinion). Even if cash flows bounce less strongly than for equities, those high yields and the possibility of yield compression lead us to expect relatively good returns. We therefore increase real estate to 15% (from 12%), close to the maximum 16%. As shown in **Figure 3**, we prefer non-US markets.

We favour Japanese equities

Though we add to **equities** (from 25% to 30%), we remain Underweighted versus a Neutral 40%. We expect a healthy bounce in earnings and dividends but also fear a rebound in yields in some areas. Among regions, we favour Japan, which is taken to the maximum 6%, while Eurozone stocks are increased to slightly Underweight. We have reduced EM to Underweight and remain well below Neutral in US equities.

IG preferred to government bonds

Among the more defensive fixed income groups, we are reducing **government bonds** from 25% to 15% (well Underweight versus our Neutral 30%). The problem is two-fold: very low yields that we expect to rise. EM is the only region in which we are Overweight government bonds. We remain maximum allocated to **IG**, with historically normal spreads offering some protection against rising government yields. We are Overweight all IG regions except the US, where we are Neutral.

Commodities are reduced to zero after the strong rally in oil and industrial metals.

From a regional perspective, we remain Overweight UK, Japanese and EM assets.

Figure 2 – Expected total returns (annualised, local currency) and Model Asset Allocation*

	Expected 1-year Total Return	Neutral Portfolio	Policy Range	Model Asset Allocation	Position Vs Neutral
Cash & Gold	-6.9%	5%	0-10%	10%	Overweight
Cash	-0.1%	2.5%	0-10%	10%	Overweight
Gold	-13.6%	2.5%	0-10%	0%	Underweight
Government Bonds	-2.2%	30%	10-50%	↓ 15%	Underweight
Corporate IG	-0.7%	10%	0-20%	↑ 20%	Overweight
Corporate HY	0.8%	5%	0-10%	↑ 10%	Overweight
Equities	1.9%	40%	20-60%	↑ 30%	Underweight
Real Estate	10.2%	8%	0-16%	↑ 15%	Overweight
Commodities	-4.9%	2%	0-4%	↓ 0%	Underweight

*This is a theoretical portfolio and is for illustrative purposes only. It does not represent an actual portfolio and is not a recommendation of any investment or trading strategy. Arrows show direction of change in allocations. See appendices for definitions, methodology and disclaimers. There is no guarantee that these views will come to pass. Source: Invesco Global Market Strategy Office

Model asset allocation*

Figure 3 – Model asset allocation (16/09/2020)

	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%	45%			
Government	30%	10-50%	15%			
US	10%		4%			
Europe ex-UK (Eurozone)	8%		2%			
UK	2%		0%			
Japan	8%		5%			
Emerging Markets	2%		4%			
Corporate IG	10%	0-20%	20%			
US Dollar	5%		5%			
Euro	2%		3%			
Sterling	1%		4%			
Japanese Yen	1%		4%			
Emerging Markets	1%		4%			
Corporate HY	5%	0-10%	10%			
US Dollar	4%		8%			
Euro	1%		2%			
Equities	40%	20-60%	30%			
US	24%		14%			
Europe ex-UK	6%		5%			
UK	3%		3%			
Japan	3%		6%			
Emerging Markets	4%		2%			
Real Estate	8%	0-16%	15%			
US	2%		2%			
Europe ex-UK	2%		4%			
UK	1%		3%			
Japan	2%		4%			
Emerging Markets	1%		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 (including effect of hedging)						
USD	49%		38%			
EUR	20%		18%			
GBP	7%		11%			
JPY	15%		21%			
EM	8%		12%			
Total	100%		100%			

*This is a theoretical portfolio and is for illustrative purposes only. It does not represent an actual portfolio and is not a recommendation of any investment or trading strategy. Cash is an equally weighted mix of USD, EUR, GBP and JPY. Currency exposure calculations exclude cash. Arrows show direction of change in allocations. See appendices for definitions, methodology and disclaimers.
Source: Invesco Global Market Strategy Office

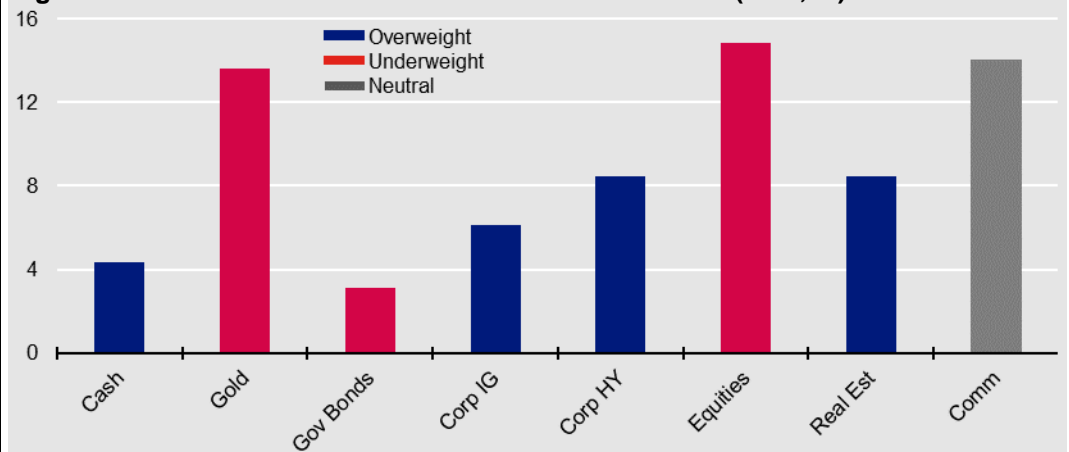
Equities, gold and commodities led the way, along with EM assets

Since we last wrote

Our last quarterly was published as signs were emerging of a global rebound from the Covid-19 recession, which now looks to have been short but sharp (see [Eyes wide shut](#) published on 18 June 2020). Given the uncertainties prevailing at the time, we adopted a bar-bell approach with a mix of cyclical and defensive assets. **Figure 4** shows how global assets have performed over the intervening three months (as of 31 August 2020). Full regional detail is shown in **Appendix 2**.

Figure 4 suggests all assets delivered positive returns, helped by the weakness of the dollar (**Appendix 2** shows local currency returns). For the most part, equity-like assets performed the best (equities, real estate and HY), along with commodities. However, gold was also one of the better performing assets, which is interesting if we are in the early stages of an economic recovery. **Appendix 2** shows that EM and European assets performed the best. We have benefitted from Overweight exposures to real estate, HY, and EM but suffered from being Underweight equities, gold and the Eurozone.

Figure 4 – Global asset class total returns since 29/05/20 (USD, %) *

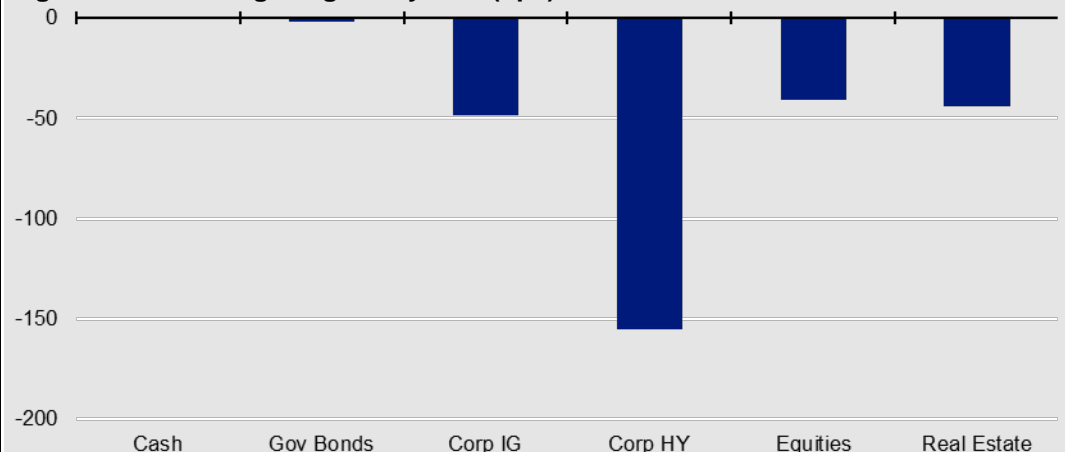


*29/05/20 to 31/08/20. Colours represent model allocations during this period. See appendices for definitions and disclaimers. Past performance is no guarantee of future results. Source: Refinitiv Datastream and Invesco

Credit yields have fallen most

We must now evaluate whether anything has changed that could necessitate a change in our projections and allocations. Asset class yields have fallen, especially HY (see **Figure 5**). In the absence of any other changes this would push us in the direction of cash and government bonds. Of course, many other things have changed, so we must reserve judgement for now.

Figure 5 – 3m change in global yields (bps)



From 29/05/20 to 31/08/20. See appendices for definitions and disclaimers. Past performance is no guarantee of future results. Source: Refinitiv Datastream and Invesco

What do Invesco's 10-year CMAs say?

Taking a step back: focusing on the next decade using Invesco's CMAs

Before worrying about the path out of the Covid-19 recession, we thought it worth stepping back and looking at the long-term prospects. Invesco Investment Solutions recently published their 10-year capital market assumptions (as of 30 June 2020) and we thought it might be interesting to put them into our asset allocation framework and run them through our optimisation process. **Figure 6** shows their projected returns for global asset classes in a range of currency bases (their framework differs from ours, so we have had to adapt some of their categories – for instance, we use their US Treasury Short category to represent cash and precious metals for gold).

Figure 6: Invesco 10-year capital market assumptions (global assets, % ann.)

	USD	EUR	GBP	CHF
Cash & Gold	1.0	-0.2	0.5	-0.1
Cash - US Treasury Short	0.4	-0.7	-0.1	-0.7
Gold	1.6	0.4	1.0	0.5
Government Bonds	1.4	0.2	0.8	0.3
Corporate IG	1.9	0.8	1.4	0.8
Corporate HY - US HY	4.8	3.7	4.3	3.7
Equities	5.1	3.9	4.6	4.0
Real Estate	5.3	4.2	4.8	4.2
Commodities	3.1	2.0	2.6	2.0

Note: Estimates as of 30 June 2020 and based on the 10-year capital market assumptions published by Invesco Investment Solutions in 2020 Long-Term Capital Market Assumptions – Q3 Update. The detailed USD version of the CMAs is reproduced in Appendix 3. The above table uses the geometric expected return version for global asset classes (“gold” is based on the projections for precious metals and the “Cash & Gold” category shows the average of those two assets). These estimates reflect the views of Invesco Investment Solutions, the views of other investment teams at Invesco may differ from those presented here. There is no guarantee that these views will come to pass. Source: Invesco Investment Solutions

HY and equities dominate CMA based optimal portfolios

Not surprisingly, the further we move along the risk spectrum, the higher the projected returns; with one exception: commodities (due to conservative agriculture and precious metals forecasts). Combining those projections with measures of volatility and diversification (our 10-year historical covariance matrices) gives the results shown in **Figure 7**. Though results vary by currency base and depending on what is maximised (Sharpe Ratio or returns), there are some broad themes: HY is always given the maximum allocation, equities and real estate are largely Overweighted, while government bonds, IG and commodities are largely Underweighted.

Figure 7: Optimised global allocations based on Invesco's 10-year CMA projected returns

	Neutral Portfolio	Policy Range	Maximise Sharpe Ratio				Maximise Return			
			USD	EUR	GBP	CHF	USD	EUR	GBP	CHF
Cash & Gold	5%	0-10%	10%	2%	10%	10%	0%	9%	0%	10%
Cash	2.5%	0-10%	10%	0%	10%	0%	0%	7%	0%	2%
Gold	2.5%	0-10%	0%	2%	0%	10%	0%	2%	0%	8%
Government Bonds	30%	10-50%	50%	12%	12%	10%	38%	21%	10%	27%
Corporate IG	10%	0-20%	4%	0%	0%	0%	0%	0%	0%	0%
Corporate HY	5%	0-10%	10%	10%	10%	10%	10%	10%	10%	10%
Equities	40%	20-70%	26%	60%	60%	54%	44%	49%	60%	37%
Real Estate	8%	0-16%	0%	16%	8%	16%	8%	11%	16%	16%
Commodities	2%	0-4%	0%	0%	0%	0%	0%	0%	4%	0%

Note: optimisations are based on the 10-year projected returns published by Invesco Investment Solutions in 2020 Long-Term Capital Market Assumptions – Q3 Update, as shown in **Figure 6** above. Optimisations are performed by the Asset Allocation Research team using our historical 10-year covariance matrices (for each currency). “Gold” is based on the projections for precious metals and the “Cash & Gold” category shows the sum of allocations for those two assets. “Maximise Sharpe Ratio” optimisations are performed by maximising the Sharpe Ratio subject to not violating the constraints implied by the policy ranges shown in the table. “Maximise Return” optimisations are performed by maximising return subject to the policy range constraints but also subject to the standard deviation of returns not exceeding that of the Neutral Portfolio. Though based on the projected returns provided by Invesco Investment Solutions, these optimal allocations do not represent their views, nor those of any other investment team at Invesco. See appendices for definitions, methodology and disclaimers. Source: Invesco Investment Solutions, Invesco

What we know

It is hard to imagine a year with more uncertainty but here is what we consider to be known at this stage:

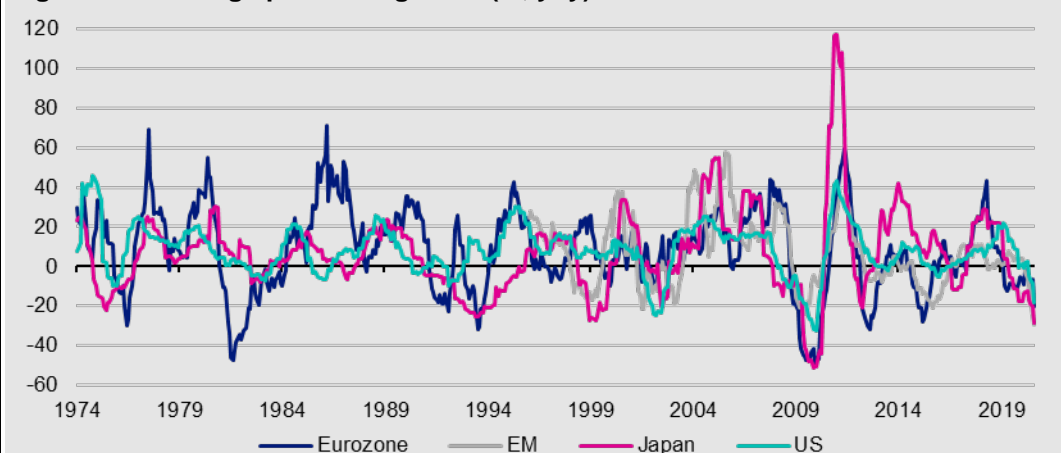
Covid-19 is still with us

A short, sharp recession but the world has changed

Many assets have generated positive returns this year

- With more than 30 million reported cases and deaths approaching one million, Covid-19 has moved into the realms of Asian (1956-58) and Hong Kong (1968-69) flu pandemics, though with much higher case fatality rates (above 3% versus less than 0.2%). Global daily infections and deaths appear to have flattened but infections have been seen to rise in many countries that have eased lockdowns. Case fatality rates have fallen. For more detail see [How far from normal?](#)
- There has been massive policy support. Fiscal measures protected business and household cash flows and prevented sharper rises in unemployment. Central banks helped maintain orderly financial markets (by providing liquidity), helped banks to create loans (by loosening capital requirements) and supported asset values (via asset purchases).
- The global economic downdraft that started in the first quarter of 2020 was the sharpest but shortest in living memory, with April marking the low point of activity.
- Consumer spending in many countries had fully recovered by July but the nature of spending had changed (less travel & leisure, more home entertainment; less high street visits and more internet shopping).
- Working habits have changed: more work from home and less visits to city centres.
- Corporate profits have suffered, though more so in Europe and Japan than in the US and emerging markets (EM), as shown by **Figure 8**. In fact, though S&P 500 sales per share were down 10% yoy in Q2, EPS were down only 7%, which is quite extraordinary (normally we would expect a gearing effect with EPS down more than sales). Though typically cyclical sectors such as oil & gas, basic materials, industrials and financials all suffered EPS declines of more than 20% yoy, there were exceptional outcomes for companies such as Amazon (sales +40% and EPS +97%), which almost seemed made for a global pandemic. Moody's speculative grade default rates increased, reaching 8.4% in the US in July (versus 3.1% a year earlier) and 2.7% in Europe (1.3%).
- Nevertheless, many assets have given positive returns since the start of the year, the obvious exceptions being energy, real estate and non-US developed equities (see **Appendix 2**). Though a weakening dollar has provided a handicap, the stand-out performers year-to-date are gold, US equities and US treasuries.

Figure 8 – Earnings per share growth (% , yoy)



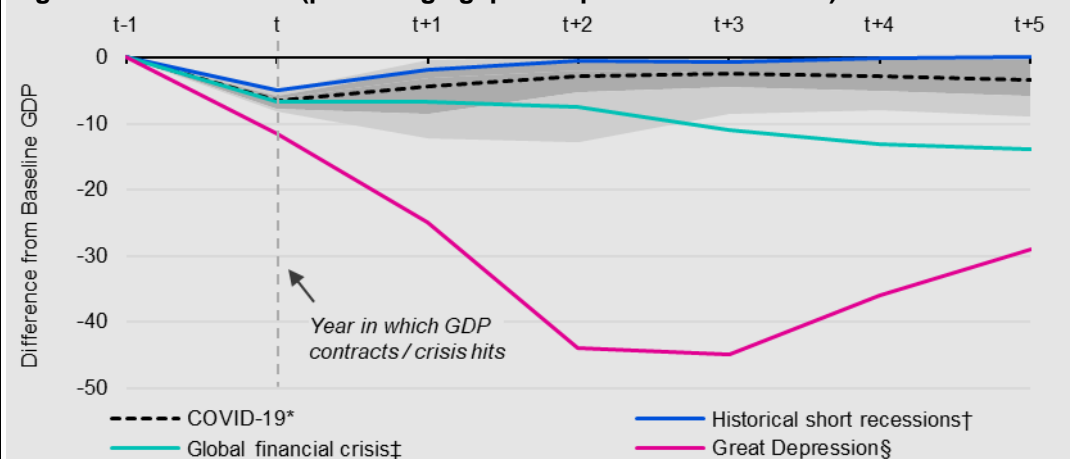
Monthly data from January 1974 to August 2020 (from January 1996 for EM). EPS is earnings per share, based on the Datastream market indices. Source: Refinitiv Datastream and Invesco

A vaccine with a year
A faltering recovery
Less policy support or worries thereof
Biden wins

Our working assumptions for the next 12 months

- A vaccine will be available by this time next year. That will boost morale but we doubt it will come soon enough to prevent Covid-19 presenting health and economic challenges during the coming Northern Hemisphere winter.
- The global economy has bottomed but we expect the growth trajectory to be dampened by collateral damage to certain industries/jobs (including the effect of work from home on city centres and the frictional effect of transferring spending to the regions), as well as the shorter-term effects of lockdowns. Though the downdraft was sharper than for the GFC, we believe we are also seeing a sharper rebound and expect the recovery path over coming years to be between that of the GFC and a typical short recession (see **Figure 9**).
- We expect central banks to remain extremely accommodative, though markets are likely to focus on asset purchase tapering at some stage over the next 12 months.
- Governments are likely to signal the need for tax rises and spending cuts but are unlikely to tighten within our timeframe.
- We assume that Joe Biden wins the US presidential race and believe there is a chance that both the Senate and the House of Representatives could be Democrat.

Figure 9 – Global GDP (percentage gap from pre-recession trend)



*COVID-19 scenario is based on an assessment of scenarios by the Global Market Strategy Office (GMS). Shaded areas represent the range of scenarios, while the dotted line indicates the probability-weighted path according to GMS assigned probabilities. †Historical short recessions – the median of 410 short recessions over the last 200 years – GDP contracted in the prior calendar year (t-1 to t) before recovering to or above trend growth rate in the following year. ‡Median across developed market economies which experienced systemic banking crises from 2007-08. §Great Depression highlights the trajectory of the US experience only in the Great Depression. Data through calendar 2018, except for “Covid-19” where year t is 2020. Source: Oxford Economics, Haver Analytics, Maddison Project Database and Invesco

Risks to those assumptions

The biggest downside risks to the global economy are a combination of a big second wave of Covid-19, no vaccine, more collateral/frictional damage than we are allowing for and premature fiscal tightening. Apart from the potential risk of further recession on cyclical assets, we believe that markets would also be negatively impacted by the eventual tapering of central bank asset purchases. If this happens too quickly (or markets judge it to be too soon), then most assets would suffer. One catalyst could be a sharp rise in inflation.

On the upside (for market psychology), the sooner a viable vaccine goes into production, the better. Also, if the recent decline in case fatality rates proves to be durable, then the need for lockdowns diminishes and, combined with a rapid normalisation of behaviour, this could limit collateral damage, thus allowing a rapid return to the pre-Covid growth path. Even better, under those circumstances, and given all the policy stimulus, the global economy could exceed that pre-Covid path. Finally, from a market perspective, if all of this could occur while central banks continue current asset purchase policies, asset yields and spreads could reach new lows (or multiples reach new highs). A bit more inflation (but enough to cause policy tightening) would be welcomed.

Economic, policy and market cycles

We believe there are three major determinants of asset class returns: the economic cycle, the policy environment and valuations. We think that valuations play a critical role over the long term (5 to 10 years, say) but that cyclical and policy considerations are more important over the near term (including our 12-month horizon).

Start of a new cycle

That is unfortunate, as we can measure valuations but can only guess how economic and policy cycles will unfold. Having gone through a short, sharp recession, our best guess is that the global economy is now in a new expansion phase. Indeed, the rebound appears to have been so swift in some countries that we can debate whether we have simply gone through an external shock and returned to where we were (without the usual cleansing that a recession would bring).

Favours cyclical assets

Luckily, our own analysis of asset class returns throughout economic cycles suggests that broad asset class performance doesn't vary a great deal between expansion phases, with commodities, equities, real estate and HY tending to produce the best returns, though HY often reacts the most rapidly at turning points. Recessions produce a very different ranking, with defensive assets to the fore (see **Figure 10**).

Or has the old cycle yet to end?

Our working assumption is that the global economy is now in the early expansion phase and presume that it will be either early or mid-expansion throughout the 12-month forecast horizon. By itself that would push us to favour cyclical assets, as outlined in **Figure 10**. The only risk is that rather than starting a new cycle we are in still in the process of completing the previous cycle, with the Covid-19 recession acting as a nothing more than a brief hiccup before the real recession begins.

Figure 10 – Best-in-class assets for each stage of the cycle

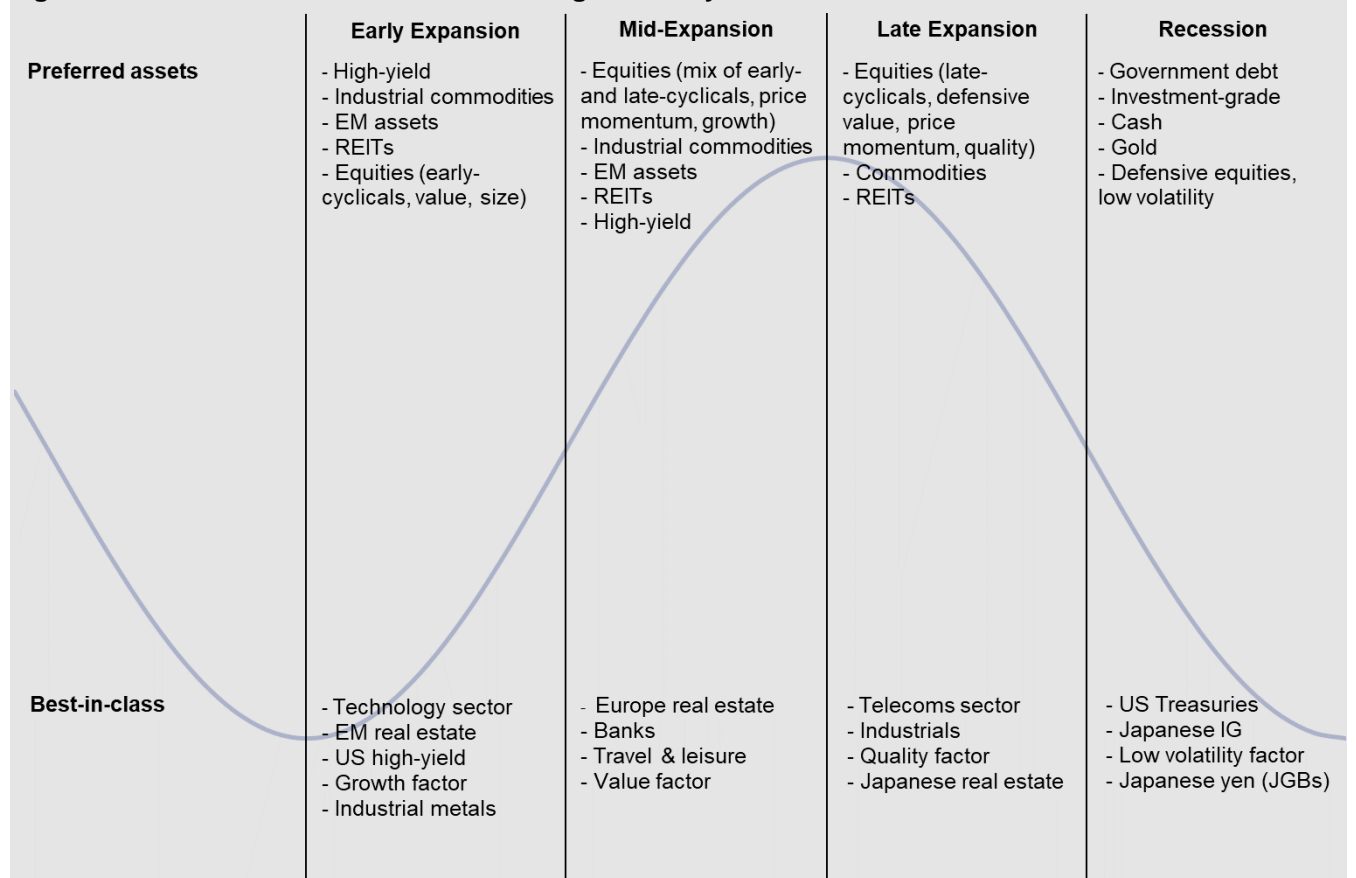
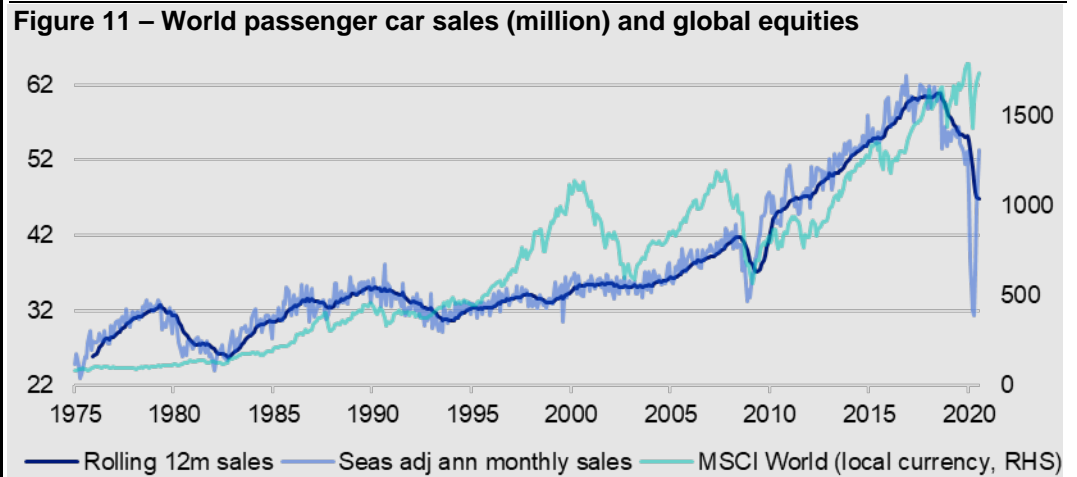


Chart shows our view of which assets have tended to perform better at each stage of the economic cycle ("Preferred assets"), based mainly upon our research published in "Asset allocation in pictures" in November 2017 but also draws upon our research on equity sectors and factors. "Best-in-class" shows our view of which parts of those preferred assets we would favour at each stage of the cycle based on current valuations and projected returns. See appendices for definitions, methodology and disclaimers. Source: Invesco

The global economy was already weakening pre-Covid

Having seen a sharp recovery since the April low in activity, it is difficult to know how steep the future economic path will be. **Figure 11** shows our measure of global auto sales and a number of features are worthy of comment: first, auto sales had been falling since mid-2018 and were on a well-established downward path when Covid-19 struck; second, sales bottomed in April 2020, 41% below the December 2019 level and half of the August 2017 peak (on a seasonally-adjusted basis); third, by July 2020 seasonally-adjusted sales were back to where they were in December 2019 (too few countries have yet reported for August to construct a global estimate for that month).



Note: Monthly data from January 1975 to July 2020 (MSCI World as of 31 August 2020). Based on an aggregation of country sales data from Australia, Austria, Belgium, Brazil, Bulgaria, China, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Malaysia, Mexico, Netherlands, New Zealand, Norway, Panama, Philippines, Poland, Portugal, Romania, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sri Lanka, Sweden, Switzerland, Taiwan, Thailand, Turkey, UK, US, Vietnam. Data exists for all countries since January 2011, prior to which partial global totals are adjusted to compensate for countries that are missing (and to avoid discontinuities in the data). The last month for which data exists for all countries is March 2020. The global total for subsequent months is calculated by assuming that year-on-year growth in the global total is the same as that for those countries for which data exists "Seas adj" indicates the series is seasonally adjusted to smooth the data. Past performance is no guarantee of future results. Source: National data sources, OECD, European Automobile Manufacturers' Association, Refinitiv Datastream, MSCI, Invesco

Have we rebounded to the old downward path or started a new cycle?

This presents a conundrum: have auto sales simply rebounded after an external shock only to continue the pre-existing downtrend or has a new cycle started? The same sort of picture emerges if we look at world exports, which were decelerating prior to the Covid outbreak and for which yoy growth touched a low of -28% in May but had rebounded to -6% in July (according to our own aggregate, measured in SDRs).

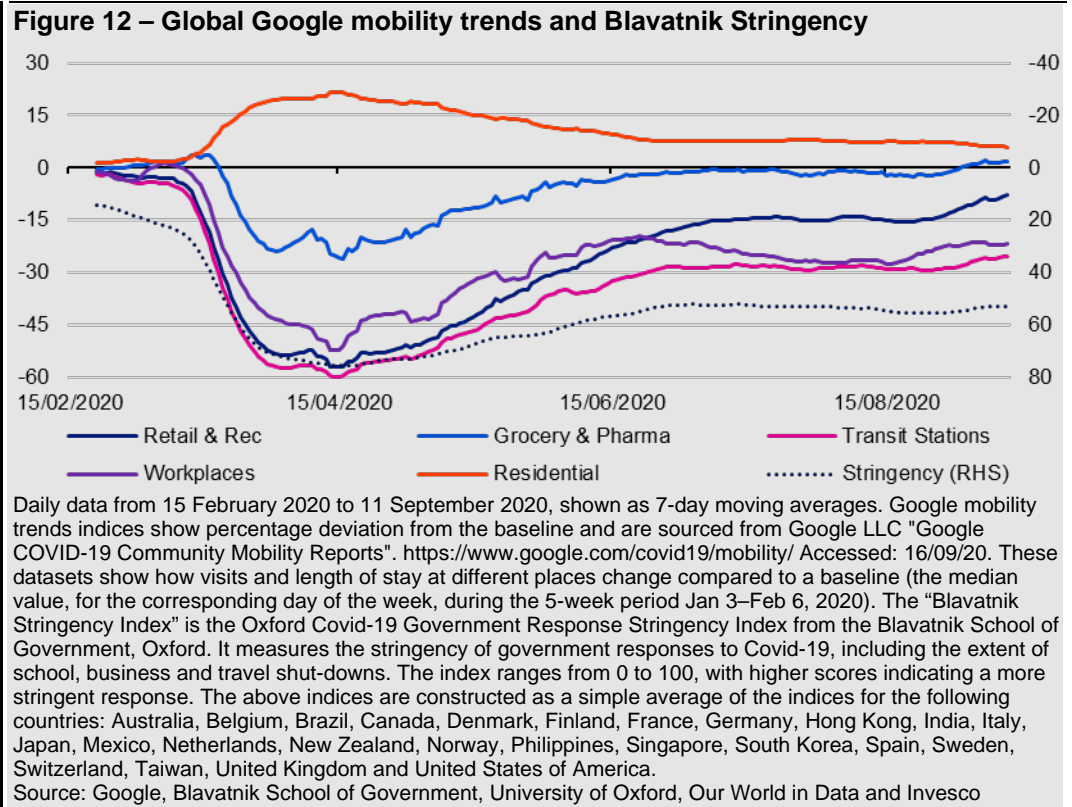
Mobility seems to have flattened....

PMIs painted a confusing picture for August, with some countries seeing improvement (the US, for example) and others seeing a relapse (the Eurozone, for example). One way to get an up to date vision of whether momentum has carried over into August and September is to look at mobility data. **Figure 12** compares Google mobility data to the Blavatnik Stringency Index (note that we have computed a global version of the indices by averaging across a range of countries, as outlined in the footnote to the chart).

....as lockdowns are re-imposed

The stringency of anti-Covid measures appears to have flattened on average over recent months and this coincided with a flattening of economic activity, as represented by mobility around shops and workplaces (we suspect the recent uptick in activity is a reversal of the earlier summer holiday dip and the return to school in many countries).

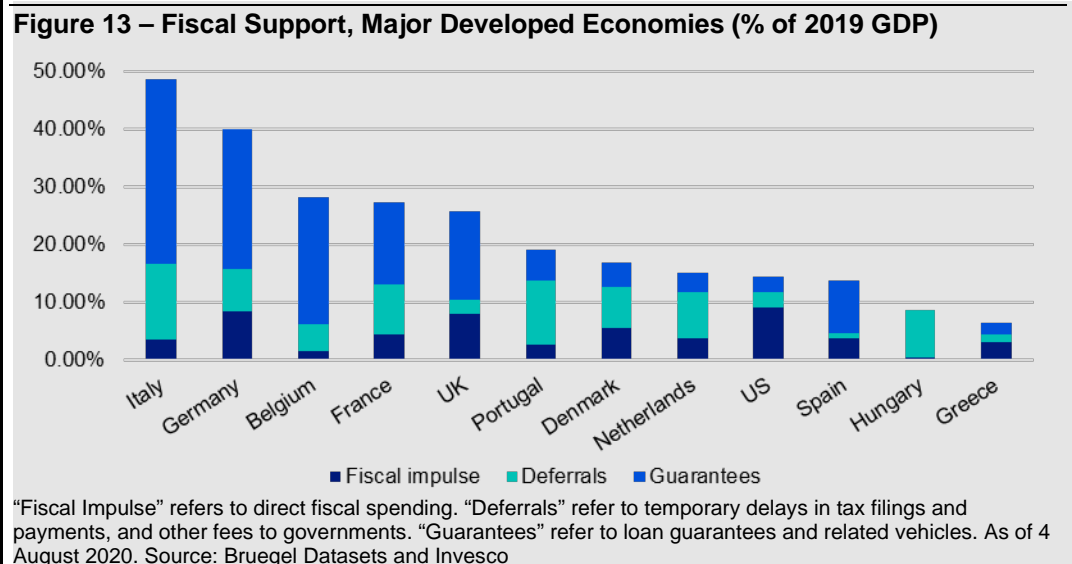
One note of caution in interpreting the data is that the Blavatnik indices take account of the most stringent actions in a country. Hence, the now more localised nature of lockdowns suggests less economic damage for any given level of the index than would have been the case in March, say. The late summer upturn in activity around groceries and retail & recreation outlets may thus be consistent with the flattening of stringency, though the rate of change in activity is admittedly lower than in the April-July period.



When will governments reduce stimulus and then try to fill the debt gap?

One concern over the coming quarters is that the massive amount of government support is likely to be reduced. **Figure 13** shows the extent of the problem, with many governments appearing to have provided more than 20% of 2019 GDP worth of support to their economies. However, in many cases, the bulk of that support has been in the form of loan guarantees (32% of GDP in Italy and 24% in Germany, for example). As important as those guarantees have been, it is unclear to what extent they have been taken up and resultant loans are unlikely to be removed quickly, in our opinion.

More problematic will be the elimination/reduction of deferrals (delayed tax payments, say) and direct spending (employment support schemes, say). This could have a direct effect upon the economy as a result of higher unemployment and reduced cash flows etc. Even worse, governments may need to repair the fiscal damage done this year (for example, the UK Office for Budget Responsibility now reckons that UK government debt will be 106% of GDP in 2020/21, whereas in March it was forecasting 77%).



The US government provided most direct support....

Among the countries shown in **Figure 13**, the US government gave the largest fiscal impulse (estimated at 9% of GDP), with measures including a boost to healthcare spending, direct payments to individuals and job protection payments to companies (initially loans but which would be forgiven if jobs are maintained). Deferrals amounted to another 3% of GDP in the US and consisted mainly of payroll taxes being delayed until 1 January 2021 and student payment suspensions (until 30 September 2020).

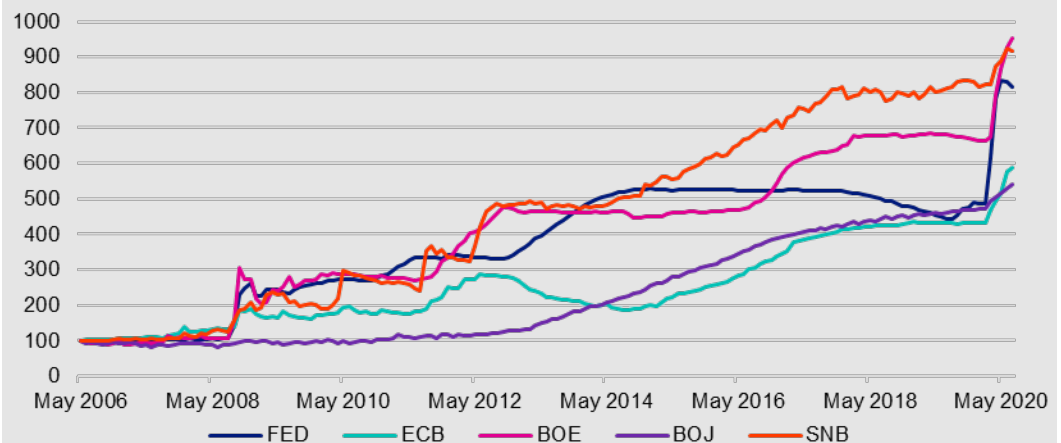
...but when deferrals are added, Italy and Germany have led the way

When summing fiscal impulses and deferrals, the countries that have made the biggest effort are again Italy and Germany, with totals amounting to 15%-17% of GDP. This must have played an important role in protecting economies from even worse downside but will have the opposite effect when such measures are withdrawn or not renewed. Hence, we doubt that the ongoing global upswing will be smooth and wouldn't be surprised to see some faltering over the coming quarters, especially if governments try to raise new taxes or cut spending to control debt too early.

Central banks have supported financial markets

Equally important (perhaps more so for financial markets) has been the support coming from major central banks, especially in the form of asset purchases. **Figure 14** shows the development of major central bank balance sheets since May 2006, since when that of the Fed has grown eight-fold and those of the BOE and Swiss National Bank (SNB) have multiplied nine-fold. Note that it took more than 30 years for the previous nine-fold expansion in the BOE balance sheet (to the level seen in 2006) and that was over a period when inflation was much higher than it has been since 2006.

Figure 14 – Central bank balance sheets in local currency (31/5/2006 = 100)



Note: monthly data from May 2006 to August 2020. As of 7 September 2020.
Source: BOE, Refinitiv Datastream and Invesco

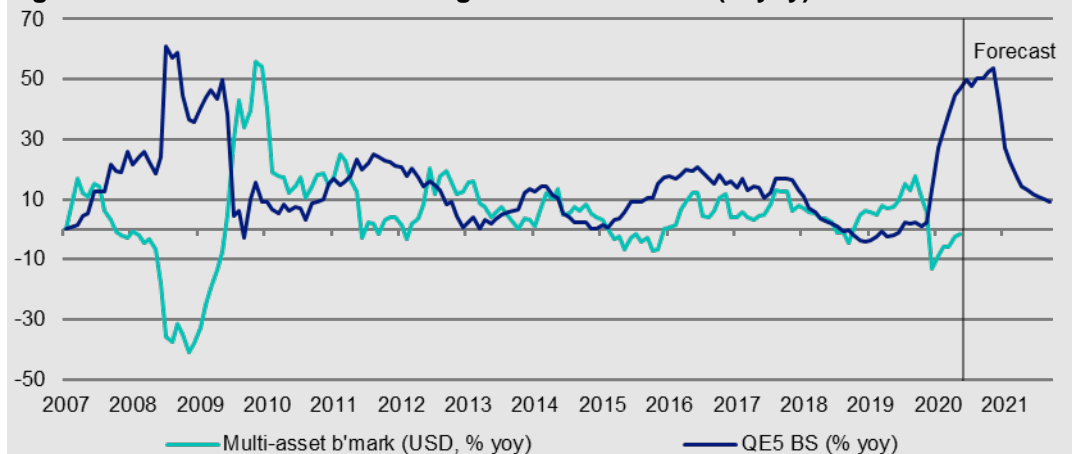
The Fed, BOE and ECB have been the most active

Though the 2020 increase in balance sheets looks dramatic, it is smaller in percentage terms than in 2008-9 (in most cases), as can be seen from **Figure 15**. Nevertheless, there has been sizeable balance sheet expansion, especially at the Fed, BOE and ECB. Given the part played by expanded asset purchase programmes, we suspect central bank actions have played an important role in supporting financial markets since February 2020. This is not just our view, with one interesting academic paper suggesting that Fed actions accounted for one-third of the rebound in the S&P 500 from March to May 2020 (see Putnins T.J.: *From free markets to Fed markets: how unconventional monetary policy distorts equity markets*. University of Technology Sydney, Stockholm School of Economics in Riga).

We doubt central banks will be so supportive over the next 12 months

On that basis, we think it is reasonable to assume that more support has been given to US and European assets, than those of elsewhere. **Figure 15** shows that we expect major central banks to be less expansionary in 2021, with balance sheet growth returning to more normal levels by the end of that year. This implies a reduced rate of asset purchases (tapering), though not actual tightening such as rate hikes or balance sheet shrinkage.

Figure 15 – QE5 balance sheet and global asset returns (% yoy)

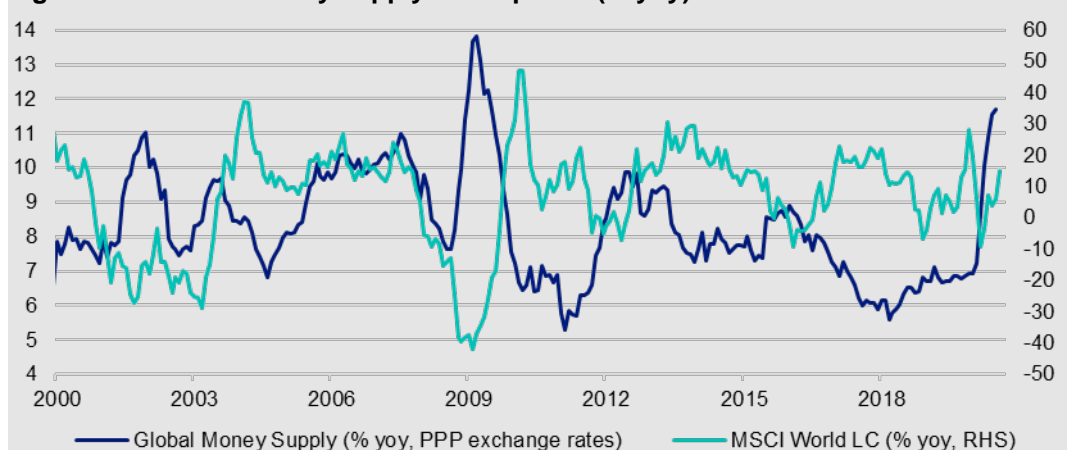


Note: QE5 BS is the aggregate balance sheet of Fed, ECB, BOE, BOJ and SNB in USD, rebased to 100 in May 2006. Forecast considers asset purchase plans of the central banks but ignores other sources of growth. The Fed has announced unlimited purchases, which we assume occur as follows: \$120bn per month during the rest of 2020, \$60bn per month during 2021 H1 and \$30bn per month during 2021 H2. The ECB has announced plans to purchase €1.1 trillion of assets in 2020 and to continue purchases during 2021 H1: we assume \$130bn per month until June 2021, with a halving of that rate thereafter. The BOJ has announced a doubling of the rate of ETF purchases: we assume \$45bn asset purchases per month in 2020 and \$30bn per month in 2021. The BOE has announced £200bn of purchases (we assume they occur smoothly during 2020, with a halving of the rate in 2021). The SNB has announced no plan but we assume \$10bn per month in 2020, with a halving of those rates in 2021. The multi-asset benchmark is a fixed weighted index based on the Neutral asset allocation of Invesco's Asset Allocation Research team. From May 2007 to December 2021. As of 31 August 2020. Past performance is no guarantee of future results.
Source: BOE, Refinitiv Datastream and Invesco

Asset purchase tapering could handicap markets but strong money supply growth could be a support

The question is whether that tapering will pose a threat to markets. The answer to that depends upon how one interprets the recent **Figure 15** disconnect between balance sheets and asset returns: will asset returns eventually catch up with balance sheets or did the explosion in balance sheets simply prevent a 2008-9 style decline in asset values? **Figure 16** shows that global money supply growth has jumped sharply, suggesting central bank actions are having an impact that could eventually feed through to the real economy, inflation and stock markets. Turkey (+43% yoy) and the US (+23%) lead the way, but many other countries have broad money supply growth above 10%.

Figure 16 – Global money supply and equities (% yoy)



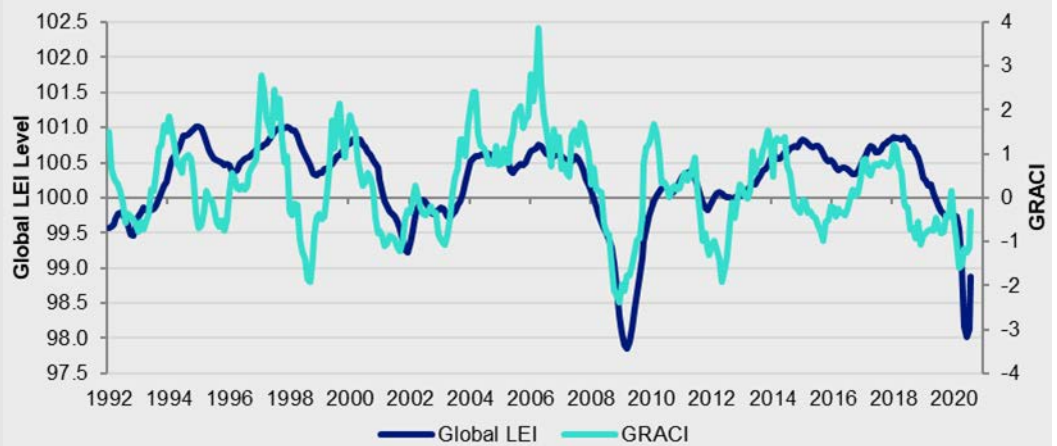
Note: monthly data from January 1983 to August 2020 (July 2020 for money supply). Based on an aggregation of broad money supply aggregates (usually M3) for the following countries: Australia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Czech Republic, Denmark, Eurozone, Hungary, Iceland, India, 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. Past performance is not a guide to future returns.
Source: MSCI, OECD, Oxford Economics, Refinitiv Datastream and Invesco.

Invesco's IIS team confirms that risk appetite continues to improve

From economics to financial markets

The above evidence suggests to us that economic activity has bottomed and we are inclined to believe that a new cycle has started (though not without doubts). We presume that governments prevented a much worse economic outcome and that central banks helped avert a financial meltdown but will now provide less support. When it comes to financial markets, **Figure 17** confirms that risk appetite is improving. It shows the Global Risk Appetite Cycle Indicator (GRACI) provided by Invesco's Investment Solutions (IIS) team, which is a summary measure of the performance of riskier versus safer asset classes and suggests a recovery of sentiment.

Figure 17 – Global risk appetite and the global business cycle

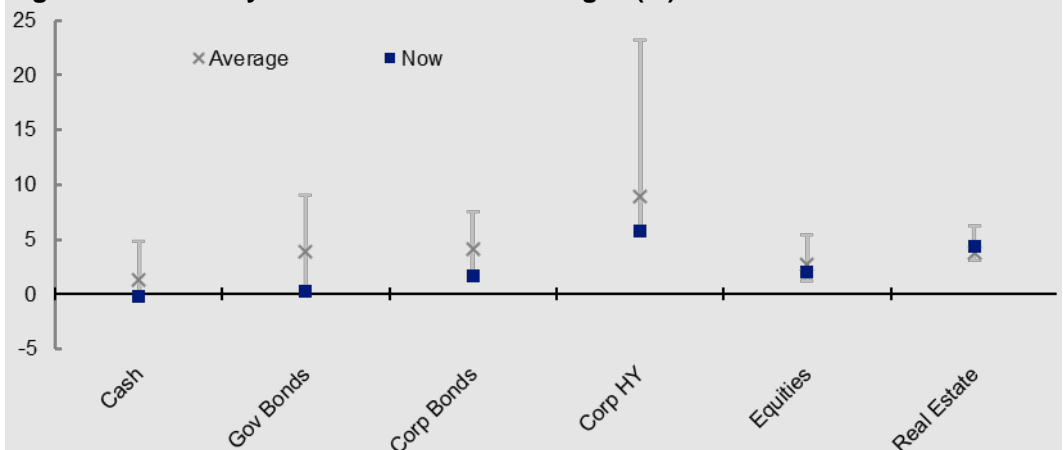


Note: monthly data from January 1992 to August 2020 (as of 31 August 2020). Both Global LEI (Leading Economic Indicator) and GRACI (Global Risk Appetite Cycle Indicator) are provided by Invesco Investment Solutions (IIS). Global LEI is a weighted average of leading indicators for 23 countries (both developed and emerging). GRACI is a measure of relative risk-adjusted performance between riskier and safer asset classes (it measures how much investors have been rewarded, on average, for taking an incremental unit of risk in global financial markets on a trailing medium-term basis). A rising index signals improving market sentiment and vice-versa. Past performance does not guarantee future results.
Source: Federal Reserve, BEA, Moody's, Invesco Investment Solutions

Low yields limit potential returns, with HY, real estate and EM yields the most elevated

Central bank support and improving sentiment may have produced good returns over recent months but could limit potential. **Figure 18** shows that yields on global fixed income assets are at historical lows, with equity yields also below historical norms. The only asset class offering higher yields than normal (real estate) has clear fundamental issues as a result of the drive to work from home. **Appendix 1** shows the full regional detail and suggests to us that emerging market assets continue to be relatively attractive.

Figure 18 – Global yields within historical ranges (%)



Start dates are cash 1/1/01; govt bonds 31/12/85; corp bonds 31/12/96; corp HY 31/12/97; equities 1/1/73; real estate (REITs) 18/2/05. See appendices for definitions, methodology and disclaimers. As of 31 August 2020.
Source: Refinitiv Datastream and Invesco

US treasury yields have never been so low

Figure 19 shows that US treasury yields have never been so low, not during the Great Depression nor during WW2 when the Fed was setting yields. This is not a good starting point, especially as returns over the medium term are highly correlated to yield (and if held to maturity they are in line with the yield to maturity at the time of purchase).

Figure 19 – US 10-year yields since 1790 (%)

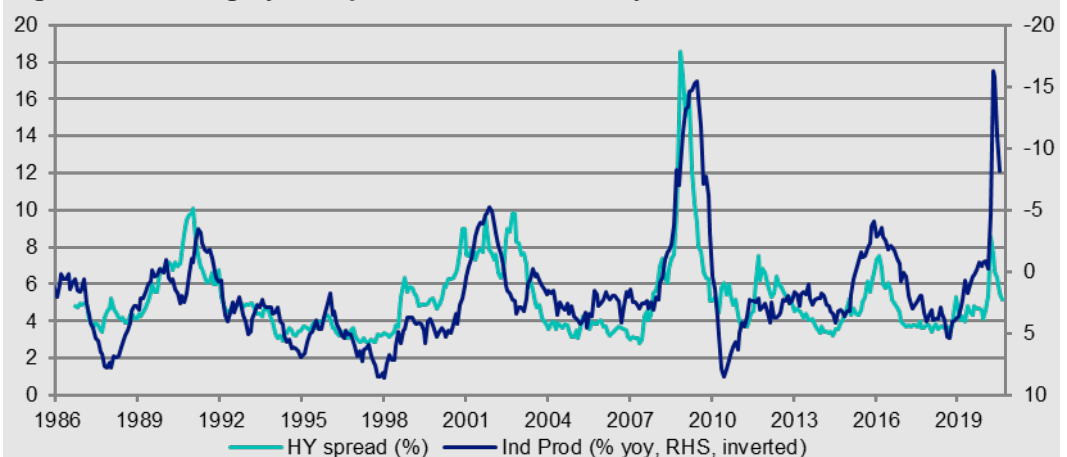


Data is monthly, from December 1790 to August 2020 (as of 31 August 2020). Past performance is no guarantee of future results. Source: Global Financial Data, Refinitiv Datastream and Invesco

HY and IG spreads are at historical norms and we prefer credit to government debt

Figure 20 suggests that US HY spreads (versus treasury yields) are in the middle of the historical range, so HY yields are only this low (**Figure 18**) because government yields are at record lows. Though HY yields are low in absolute terms, which naturally limits potential returns (especially given the recessionary uptick in defaults), there still appears to be a reasonable (if smaller) cushion versus government yields. Given that we have reasonable confidence in the economic cycle, we would expect HY to outperform government debt over the next year. A similar analysis of US IG spreads gives the same conclusion – that IG spreads are in the middle of their historical range, suggesting to us that IG will be more remunerative than government debt over the next year.

Figure 20 – US high-yield spread and the economy



Note: Monthly data from January 1986 to August 2020 (as of 31 August 2020). “HY spread” is the difference between the yield on the BAML US High-Yield Corporate Index and that on the 10-year US treasury. “Ind Prod” shows the year-on-year percentage change in US industrial production. Past performance is no guarantee of future results. Source: BAML, Global Financial Data, Refinitiv Datastream and Invesco

We prefer EM debt

The same applies to EM government debt spreads, which are now back within historical norms (see **Figure 21**). Though the best returns may already have been seen (see the 3-month returns in **Appendix 2**), we believe a new economic cycle will render current EM spreads enough to produce higher returns than on DM debt over the next 12 months. As with credit markets, it is possible that bouts of volatility will occur within that 12-month period but overall, we continue to believe that spreads are wide enough.

Figure 21 – EM hard currency government yield spread (%)



Note: Monthly data from February 2003 to August 2020 (as of 31 August 2020). Yield spread is the yield-to-worst on the Bloomberg Barclays EM USD Aggregate 7-10 Year Index minus the yield on 10-year US treasury notes. Past performance is no guarantee of future returns.
Source: Barclays Bloomberg, Refinitiv Datastream and Invesco.

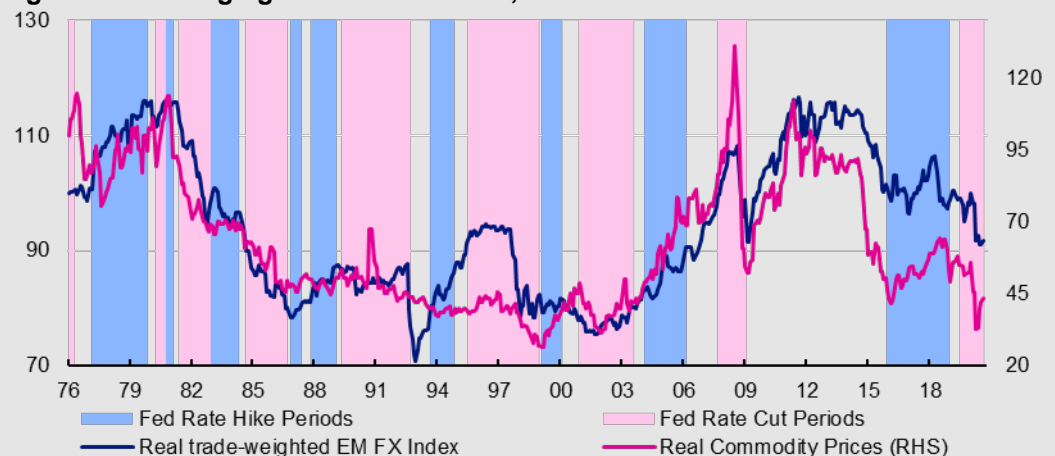
EM currencies are driven more by commodities than the Fed

While on the topic of emerging markets, it is worth looking at currencies to make sure they are not under threat. It is widely believed that EM currencies are driven by Fed policy but we believe otherwise. **Figure 22** shows our own index of EM currencies, expressed in real trade weighted terms versus the US dollar. We detect no systematic relationship with Fed tightening and loosening periods. Rather, the dominant influence seems to be commodity prices, which makes sense given that many EM countries export raw materials.

We think EM currencies are reasonably valued

On that basis, it should come as no surprise that EM currencies weakened during the pandemic panic, when commodity prices were in retreat. However, raw material prices have since recovered some of the lost ground and EM currencies have stabilised. Given that commodity prices are no longer in a bubble, and that EM currencies are in the middle of their historical range, we see no immediate threat to these currencies, unless the world goes into a second severe recession, which we think unlikely (though not impossible).

Figure 22 – Emerging market currencies, commodities and the Fed

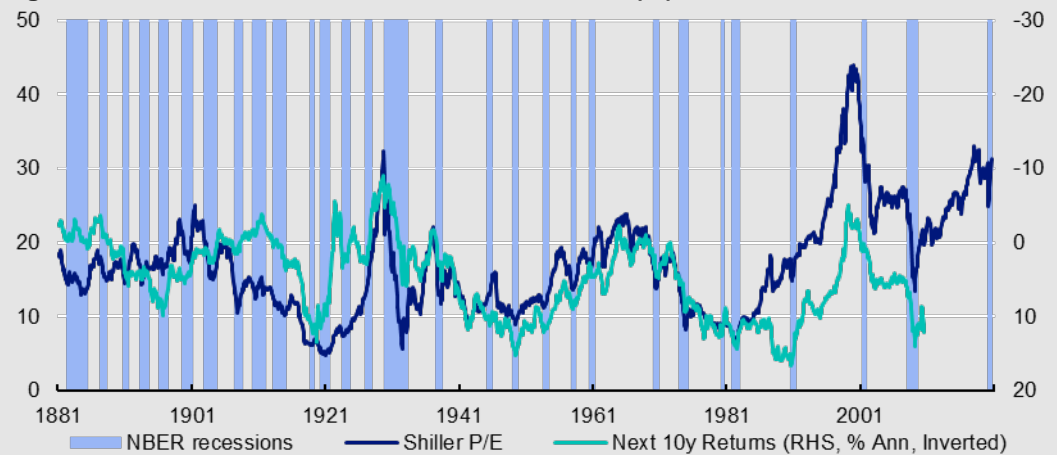


Note: monthly data from January 1976 to August 2020. Real trade-weighted EM FX index is a trade weighted average of national currencies versus US dollar (trade weights are based on total trade flows for each country). There are 18 currencies in the EM basket – those of China, Brazil, South Korea, Mexico, Singapore, India, Russia, Poland, Thailand, Turkey, Czech Republic, Malaysia, Indonesia, Hungary, Philippines, South Africa, Chile and Nigeria (ordered by size of trade flows). Real adjustments use national CPI indices versus that of the US. Real commodity price index is based on the S&P GSCI Commodity Spot Price Index, adjusted by the US CPI index. All indices rebased to 100 as of January 1976. As of May 2020. Past performance is no guarantee of future returns.
Source: IMF, OECD, Oxford Economics, S&P GSCI, Bloomberg L.P., Refinitiv Datastream and Invesco.

Equities appear relatively expensive, especially in the US

If we suspect that one cyclical asset class (commodities) is close to the valuation lows of recent decades (judged by real prices), what about equities? As already mentioned, the yield on global equities is below historical norms (**Figure 18**), though **Appendix 2** shows that the problem is largely in the US (and the UK). Judging equity valuations in the middle of an earnings and dividend recession is difficult which is why we prefer to focus on cyclically adjusted measures such as the Shiller PE. **Figure 23** shows that the S&P 500 Shiller PE initially fell when the recession started (the NBER dates the start as February 2020) but then rebounded quickly and was around 31 at the end of August. Based on the evidence in that chart, this is not a starting point from which healthy long-term returns have been earned (no matter what happens in the short term).

Figure 23 – S&P 500 Shiller PE and future returns (%)



Monthly data from January 1881 to August 2020 (as of 31 August 2020). NBER recessions are periods of US economic recession as defined by the US National Bureau of Economic Research. Past performance is no guide to future returns. See appendices for definitions and disclaimers. Source: Federal Reserve Bank of St. Louis, NBER, Robert Shiller and Invesco

Are there any bubbles?

Overvaluations are one thing but bubbles are another (and more dangerous). It seems hard to imagine that equities are in a bubble, given the slump in prices at the start of the pandemic. In order to judge this, we have dusted off our Mania Template, first introduced in May 2019 and constructed using fifteen historical market manias (see [The shape of a bubble](#)). As seen from **Figure 24**, asset prices typically double during the last 12 months of a mania, with an exponential element (prices typically increase by 40% in the last three months). Note also the near symmetry, with the downward path mirroring the upward phase once the bubble bursts.

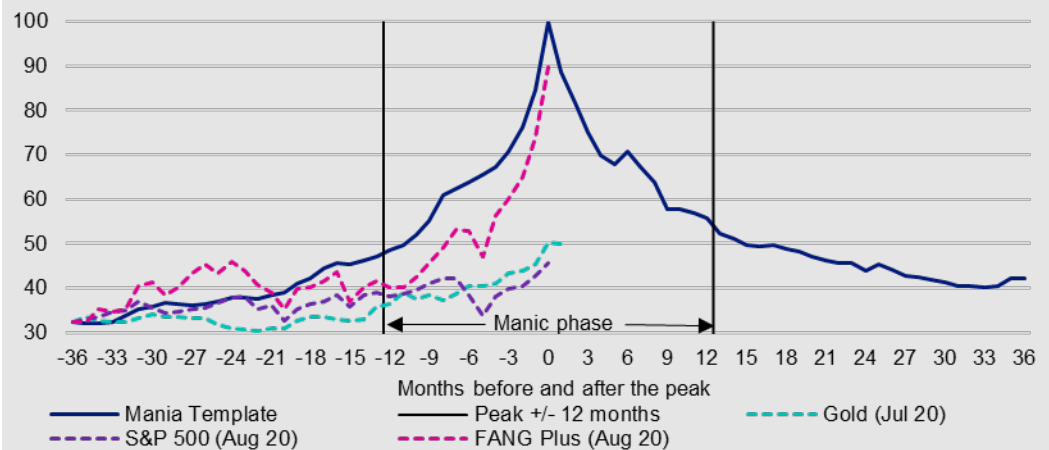
FANG stocks look like a bubble...

In **Figure 24** we compare several assets to that template. Among major asset groups, we may feel that the S&P 500 and gold are expensive (see later sections) but they do not appear to be manic. However, this does not mean that sub-groups within US equities are not in a bubble. For instance, we show the NYSE FANG-Plus index of stocks, many of which are perceived to have benefitted from the pandemic. This index appears to have been following our Mania Template over recent months, which at the very least gives us pause for thought.

...which could have wider implications

As is always the case when a mania occurs, there are good reasons for believing that FANG Plus component companies will perform well. The trends which were already favouring them have been accentuated by Covid-19 – internet shopping and work from home, say. However, in any mania there comes a point when sentiment (and fear of missing out) pushes prices above what can be justified and we worry that this may have already happened with FANG Plus stocks. If this were a small part of the US equity market, we could shrug off those concerns. However, the market capitalisation of the FANG Plus index is around 22% of that of the S&P 500 (as of 8 September 2020), so any significant downside to that index could drag down the overall market. The concentration of such stocks in the US could turn from a blessing to a curse. As we are seeing in early September, other markets may escape the worst of any such downside but will not go unscathed.

Figure 24 – Where are the bubbles?

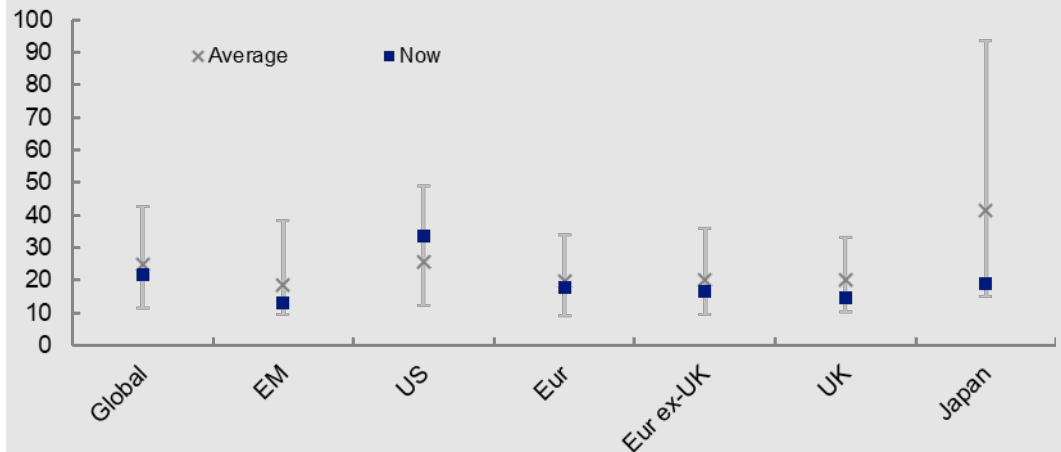


Note: based on monthly data. See appendix for construction methodology of “Mania template”. “S&P 500”, and “FANG Plus” are constructed using the hypothesis that the 31 August 2020 level was the peak (month zero), while “Gold” uses 31 July 2020 as the peak. NYSE FANG Plus is an equally weighted index designed to represent a segment of the US technology and consumer discretionary sectors. See appendix for further details of asset composition. Past performance is not a guide to future returns. Source: Refinitiv Datastream and Invesco.

Non-US equity markets continue to look cheaper

Luckily, the CAPEs of other equity markets are not as elevated as that of the US, neither in absolute terms nor relative to their own histories (see **Figure 25**). On this basis, we believe that non-US markets offer more potential over the long term, though we think all markets will be challenged over the next 12 months by an insipid bounce in dividends (due to the stop-start economic cycle that we expect) and the fact that yields are already quite low.

Figure 25 – Historical ranges for equity CAPEs

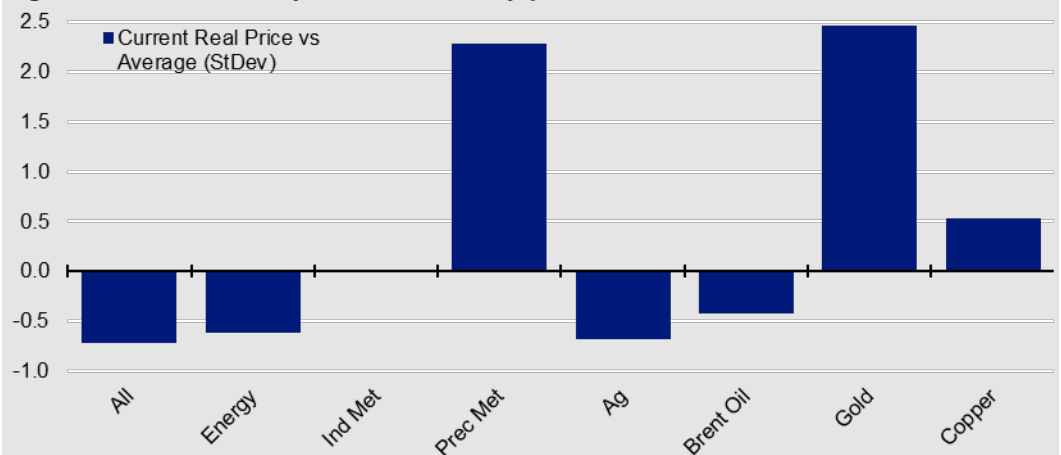


Note: CAPE = Cyclically Adjusted Price/Earnings and uses a 10-year moving average of earnings. From 1983 (except for EM from 2005). As of 31 August 2020. Source: Refinitive Datastream and Invesco

We think real estate assets offer attractive yields, especially in EM and Japan

Judging by the yield on REITS (see **Appendix 1**), real estate assets remain among the most conservatively valued (especially in Japan and EM). There is clearly a risk that some categories of real estate will suffer from rental holidays in the short term (whether voluntary or imposed) and that some will suffer a decline in demand over the medium to long term (high streets have suffered another blow during this crisis and demand for office space could be less than expected if the shift to working from home proves more than temporary). However, low financing costs (interest rates) could help and some categories of real estate could be more in demand than ever (warehousing for home delivery services, for example). Though we anticipate less of a rebound in dividends than for equities (and we suspect yields will stay higher for longer (see assumptions in **Appendix 4**), the growth that we expect, added to relatively generous yields, suggests to us that 12-month returns on real estate will be higher than on other assets.

Figure 26 – Inflation adjusted commodity prices versus historical norms



Note: inflation adjustment is done using US consumer prices. Abbreviations: “Ind Met” is industrial metals, “Prec Met” is precious metals and “Ag” is agriculture. Historical ranges start on: All and Ag 31/12/69; Energy 31/12/82; Ind Met 3/1/77; Prec Met 2/1/73; Brent 1/6/87; gold 1/1/74; copper 1/1/74. As of 31 August 2020. See appendices for definitions, methodology and disclaimers. Source: GSCI, Refinitiv Datastream and Invesco

Commodities appear cheap except for precious metals

We complete our tour of asset classes with commodities. **Figure 26** suggests the commodity asset class is cheaper than usual but with a big contrast between precious metals and other commodity groups. Gold, and more recently silver, has been in demand as a so-called “safe haven”, helped by the fact that the opportunity cost of holding it (real treasury yields) is negative. We also believe that gold was boosted by the outcome of the US presidential election in 2016, a belief supported by the successful addition of a “president dummy” to our econometric model for gold (see **Figure 27**).

Gold has done a great job but we think it has priced-in a lot of fear

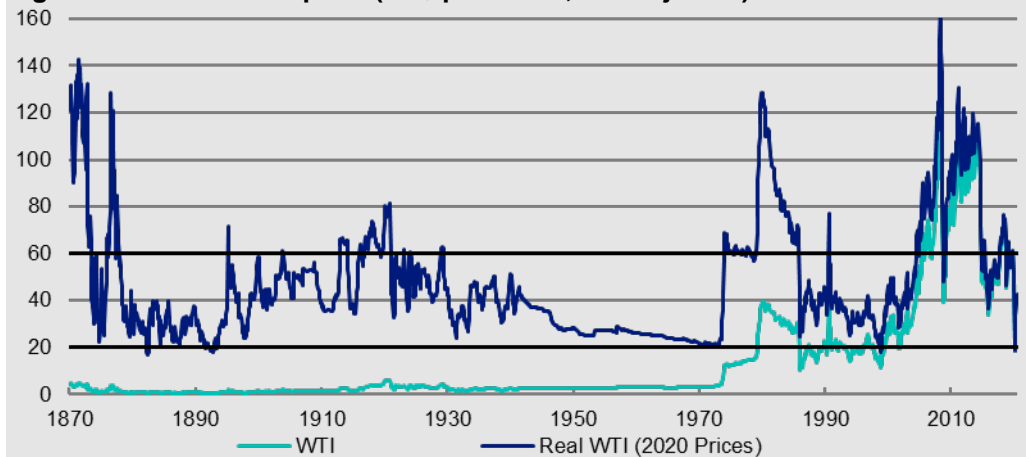
As well as being expensive compared to its own history and to other commodities, gold is expensive compared to our model “fair value” of \$1800 (based on bond yields and the dollar and including a \$200 boost from the “president dummy” -- see **Figure 27**). Reasons for owning gold include fear of a return to some form of gold standard (see [Could gold reach \\$7000?](#)) and/or a sharp rise in inflation (see [Inflation: low probability; high impact](#)). However, our view is that a lot of fear is already in the price and we expect gold to fall to \$1700 in 12 months as bond yields rise and despite a further small decline in the US dollar (see our forecasts in **Figure 33**). We also suspect it could fall even more were there a change of president in the US due to the loss of the risk premium first introduced after the November 2016 election.

Figure 27 – Gold versus model predicted values (USD per ounce)



Monthly data from January 2003 to August 2020 (as of 31 August 2020). Gold is modelled as a function of real 10-year US Treasury yield, 10-year US inflation breakeven and trade-weighted USD. “Pre-2007 Model” is based on data from 31 January 1997 to 31 December 2006. “Post-2007 Model” is based on data from 31 January 2007 to 30 April 2020. “President dummy” is a dummy variable that was set at zero prior to November 2016 (when President Trump was elected) and one thereafter. There is no guarantee that these views will come to pass. Source: Refinitiv Datastream and Invesco

Figure 28 – Real US oil price (US\$ per barrel, CPI adjusted)



Monthly data since January 1870. As of 31 August 2020. WTI is West Texas Intermediate. Real WTI is calculated by dividing the price of WTI by an index of US consumer prices. Past performance is no guarantee of future results. Source: Global Financial Data, Refinitiv Datastream, Invesco

Oil is where we would expect over the long term

Oil has been extremely volatile this year but is now back to the middle of the \$20-\$60 range (in today's prices) that has prevailed for most of the period since 1870 (see **Figure 28**). Other things being equal, this is where we would expect it to be over the long term. We suspect the recent dip in prices to below \$20 could mark the end of the bear market that started in 2011 (see [Is oil cheap at \\$20?](#)). However, the history of the last 150 years suggests that, after bottoming, the price tends to languish in the \$20-\$40 range for some time (in today's prices). So, even if the global economy is starting a new cycle, we are loath to predict that oil will stay much above \$40 over the next 12 months, especially with the ongoing downward pressure on demand coming from climate change concerns (we predict \$40 in 12 months).

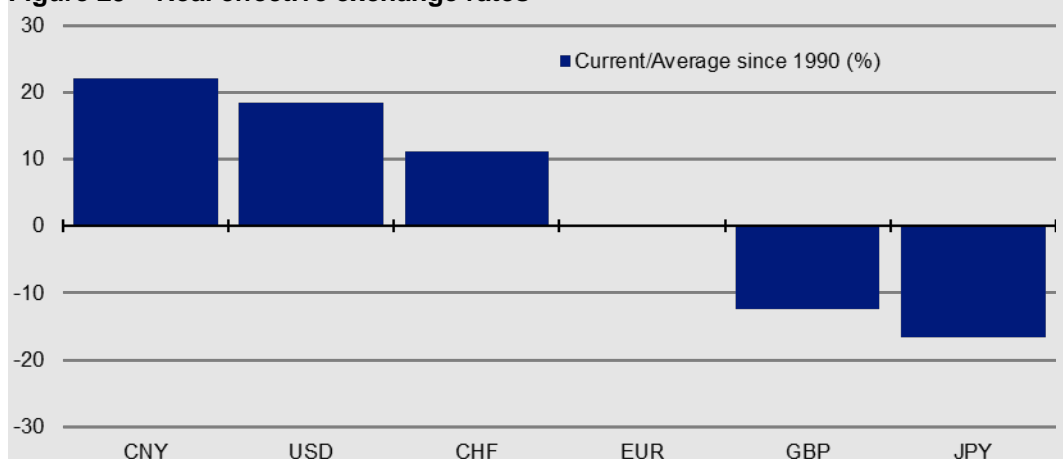
USD has been expensive for some time and recent depreciation is due to yield gaps) in our opinion)

Commodities are often believed to be driven by the US dollar and weakness in the greenback has been a feature of recent months. We have often commented that the dollar looks expensive in real effective terms and it remains so when compared to historical norms (see **Figure 29**). Hence, we expected the dollar to weaken over the medium term and the catalyst for the recent depreciation seems to have been an unfavourable movement in yield spreads (see **Figure 30**).

We expect a bit more dollar weakness but not much

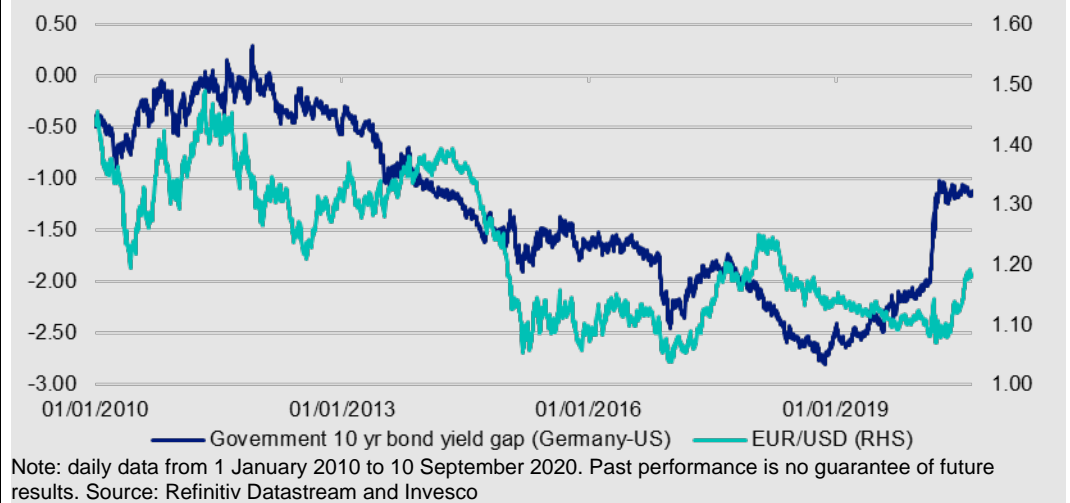
That weakening of the dollar seems to have come from another delayed response to the shift in yield gaps. Interestingly, the yield gap versus Germany has been stable since early May, so although we think there may be more momentum in the downward movement of the dollar, we suspect most of the weakness is behind us (as outlined in **Figure 34**, we forecast EUR/USD to be 1.24 in 12 months).

Figure 29 – Real effective exchange rates*



*Currency indices measured against a trade-weighted basket of currencies and adjusted for inflation differentials. As of 31 August 2020. Source: OECD, Refinitiv Datastream and Invesco

Figure 29 – EUR/USD and yield gaps



Sterling has rebounded because it is seen as a “risk-on” asset (in our opinion)

Sterling has also been in the news, having climbed from a recent low of 1.15 versus USD on 19 March to a peak of 1.34 on 1 September. That 16.5% appreciation is impressive but is more to do with the weakness of the dollar than the strength of sterling (the pound strengthened only 5.9% against the euro over the same period). Nevertheless, sterling has made some progress, which we believe is more to do with general market dynamics than relief about the Brexit process (we think sterling is treated as a risky asset that suffers during “risk-off” periods such as experienced in March).

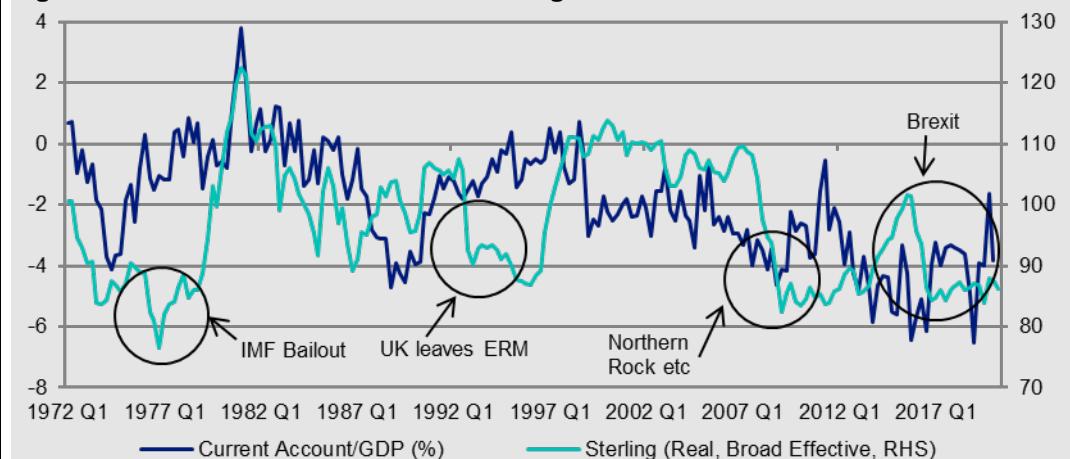
The lack of a trade deal with the EU (among other factors) could weaken the pound

In broad trade-weighted terms, sterling has still not recovered from the Brexit shock, though one consolation is that the UK’s current account deficit appears to have shrunk to around 4% of GDP (see **Figure 31**). Given that the UK has had a bad pandemic (high mortality rate and a big GDP decline – see [How far from normal?](#)), we doubt the BOE can tighten policy enough to counter the downward pressure on sterling stemming from that current account deficit and ongoing Brexit uncertainty (a no-deal end to the UK-EU transition period looks increasingly likely). Sterling may be stable against the dollar but we expect it to weaken against other currencies (see **Figure 34**).

The Japanese yen remains our favourite defensive currency

If the UK has had a bad pandemic, the opposite is true for China and Japan. We suspect this could be more supportive of the Chinese yuan than the Japanese yen, even though **Figure 29** suggests the yuan is expensive and the yen is cheap. This is because we believe China has more scope for policy tightening. We still view the yen as a so-called “safe haven” and would expect it to strengthen the most during “risk-off” periods.

Figure 31 – UK current account and sterling



A change of US president still seems probable

A word about the US election

US elections take place on 3 November, with the decision about who will be the next president receiving the most attention. We have felt for some time that there would be a change of president (see [10 surprises for 2020](#) published in January) and now feel even more confident in that view, based on analyses of opinion polls (by FiveThirtyEight and 270toWin, for example) and the fact that it is difficult for an incumbent president to be re-elected in a recession year.

Our own analysis of opinion polls suggests the gap between candidates widened in favour of Joe Biden during the nominating conventions (in the second half of August), reaching a peak of around 10 percentage points (as measured by our 10-day moving average – see **Figure 32**). The gap has since narrowed but remains around seven percentage points, which is better than the widest lead enjoyed by Hilary Clinton in the post-convention run-up to the 2016 election.

Opinion polls suggest little comparison with 2016

Figure 32 shows that there is little comparison between what opinion polls are saying now and what they said in 2016. The lead held by Joe Biden has consistently been higher than that held by Hillary Clinton. Interestingly, the opinion polls taken just before the 2016 election suggested that Hillary Clinton had a roughly two percentage point advantage which turned out to be her margin of victory in the popular vote. Unfortunately, that was not enough to overcome the inherent advantage held by Republicans in the college voting system (only Republicans have won the college vote while losing the popular vote).

We presume the wider the popular vote victory, the more likely it is to translate into college vote success. If opinion polls are a good guide this time around (and supposing there is no dramatic change in what they say about the advantage held by Joe Biden), we think a Biden victory is the most likely outcome, the only question being the margin of success.

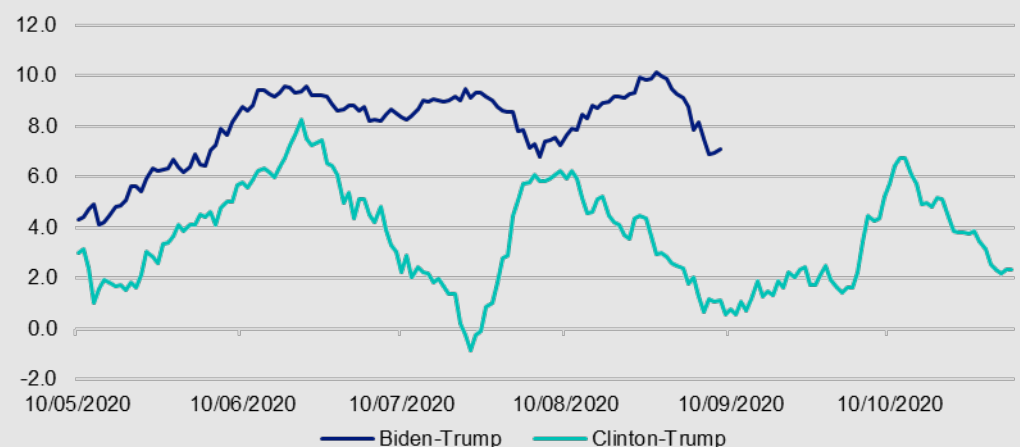
Gold may be a casualty

We have already identified one asset class that could be impacted by the election outcome -- gold. The behaviour of the yellow metal seemed to change at the time of the 2016 election, moving to a premium to what our model suggested it should be (we presume because of concern about the geopolitical fallout). If our interpretation is correct, a change of president could depress the price of gold (effectively signalling a decline of risk premia).

Democrats are bad for stocks. Really?

However, discussions with investors suggest a fear that a Democrat president would be bad for the stock market but we think this is something of a myth.

Figure 32 – US presidential election opinion polls (10-day moving averages) *



*The chart compares opinion polls in 2020 (Biden-Trump) with those of 2016 (Clinton-Trump), using 10-day moving averages of published polls (if more than one poll was taken on a given day, an average was taken across those polls). The dates shown on the axis are for 2020, with 2016 data arranged so that the 2016 election date (November 8) coincides with the 2020 election date (November 3). 2016 data is from 6 May to 7 November. 2020 data is from 1 May to 8 September. Source: 270towin, Wikipedia and Invesco.

Admittedly, stocks have done quite well during the current presidency, with an annualised gain in the S&P 500 of 11.7% (from 20 January 2017 to 31 August 2020). This is around three times the annualised gain since 1853 (see **Figure 33**) but is lower than during the presidencies Bill Clinton (15.2%) and Barrack Obama (13.9%). In fact, **Figure 35** reveals that stocks have done better under Democrat presidents (annualised 5.2%) than under Republicans (3.5%).

Congress could turn Democrat

Just as important is what happens in Congressional elections which take place at the same time, with all 435 House of Representatives seats and 35 of 100 Senate seats being contested. The House is currently controlled by the Democrats and looks as though it will continue to be so after the elections (see the analysis by 270toWin, for example). The Senate is currently controlled by the Republicans (53 to 47) and it is difficult to know if that will change after the elections (23 of the 35 seats being contested are currently Republican). The race looks to be extremely tight, with the analysis of 270toWin suggesting it could give a split Senate, in which the Vice President has the casting vote.

Democrat presidents working with a friendly Congress have not been bad for stocks in the past

Hence, we believe there is a real possibility that both the White House and Congress could be controlled by the Democrats next year. Is that a cause for concern, given the current rhetoric from the Republicans about Joe Biden opening the doors to a socialist regime. History suggests that equity market returns have been higher when Democrat presidents have been faced by a hostile Congress but it has been far from a disaster when they have worked with a friendly Congress (see **Figure 33**).

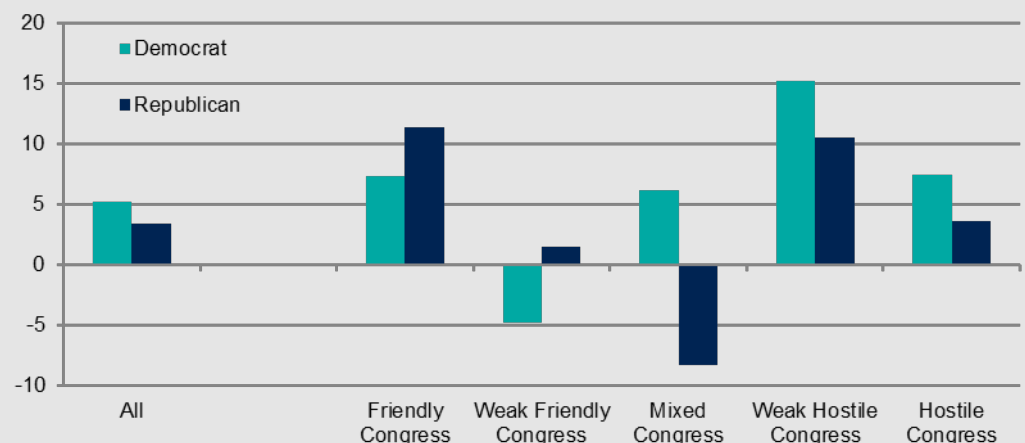
There may be threats but...

We are more sanguine than many when it comes to a change of president, especially considering the potential for a return to a more conventional way of interacting with the world and perhaps a reduction of risk premia. This is not to say there would not be challenges under a Biden presidency, with profits (minimum wage/corporate tax) and share buybacks (capital gains tax) under threat. However, in the context of a stock market that is so expensive, these are perhaps the least of our worries and a reduction of share buyback activity may be one route to improving US productivity (by encouraging businesses to focus on real, rather than financial, engineering).

...plenty of sectors could benefit

More positive may be a more relaxed attitude to fiscal deficits and a potential boost to healthcare providers, consumer stocks (higher minimum wage), aerospace & defence (defence spending) and housebuilders and construction (infrastructure spending). On the negative side, proposals to cap drug prices could harm pharmaceutical stocks.

Figure 33 – US equity gains during US presidencies since 1853 (% annualised) *



*Based on the S&P 500 index since 1957 and comparable indices as derived by Robert Shiller prior to that (see details in Appendix). The analysis starts at the beginning of the presidency of Franklin Pierce on 04 March 1853 and ends on 31 August 2020. "Friendly Congress" is when both houses are of the same party as the president; "Weak Friendly Congress" is when both houses support the President for most of his full term; "Mixed Congress" is when both parties have an equal stake in Congress; "Weak Hostile Congress" is when both houses are predominantly against the president and "Hostile Congress" is when both houses are against the president throughout his term. Past performance is no guarantee of future results. Source: 270towin, Robert Shiller, Global Financial Data, Bloomberg, Refinitiv Datastream, Wikipedia and Invesco.

	Market forecasts
An uneven recovery	So, in summary, we believe the global economy is in a new growth phase but suspect the recovery will be uneven due to measures to combat the spread of Covid-19 and eventual fiscal and monetary tightening.
No central bank rate hikes but asset purchases could be tapered	We do not expect central banks to raise interest rates within our 12-month forecast horizon (see Figure 34), though we expect tapering of asset purchases within that timeframe (or at least that markets will speculate about it). Nevertheless, we expect yield curves to steepen and longer maturity bond yields to rise, which we think will limit the return potential on fixed income assets.
Limited equity index upside	Though we envisage a rebound in corporate earnings and dividends, we suspect a lot of that is already in the price (we expect dividend yields to rise in many regions). Hence, we see limited upside potential for broad equity indices over the coming 12 months, with the best prospects in Japan and the UK.
Gold downside possible	Gold has been in a league of its own this year but we believe the price is now extended and we think downside is likely if bond yields rise, as we expect. We believe the downside could be aggravated if there is a change of president in the US.
Limited potential in oil and copper	Many other commodities have rebounded after weakness earlier in the year. Though we do not believe prices are as extended as for gold, we see limited upside potential for important commodities such as oil and copper, given that prices are where we would expect over the medium term and the faltering economic recovery that we envisage.
Further downside in the dollar and sterling volatility	Finally, we see some further downside in the US dollar, mainly as a catch-up to past movement in yield spreads. However, we consider that most of that move has already happened and see limited further dollar depreciation. Sterling volatility is expected to continue as a result of Brexit concerns (and poor economic performance during the pandemic) but we suspect it will be largely stable versus the dollar over the next year.

Figure 34 – Market forecasts

		Current (31/8/20)	Forecast 12-month
Central Bank Rates	US	0.25	0.25
	Eurozone	-0.50	-0.50
	China	4.35	4.35
	Japan	-0.10	-0.10
	UK	0.10	0.10
10yr Bond Yields	US	0.68	1.25
	Eurozone	-0.43	0.00
	China	3.05	3.50
	Japan	0.05	0.10
	UK	0.27	0.60
Exchange Rates/US\$	EUR/USD	1.19	1.24
	USD/CNY	6.85	7.00
	USD/JPY	105.91	104.00
	GBP/USD	1.34	1.35
	USD/CHF	0.90	0.88
Equity Indices	S&P 500	3500	3400
	Euro Stoxx 50	3273	3250
	FTSE A50	15726	15600
	Nikkei 225	23140	25500
	FTSE 100	5964	6050
Commodities (US\$)	Brent/barrel	45	40
	Gold/ounce	1968	1700
	Copper/tonne	6698	7000

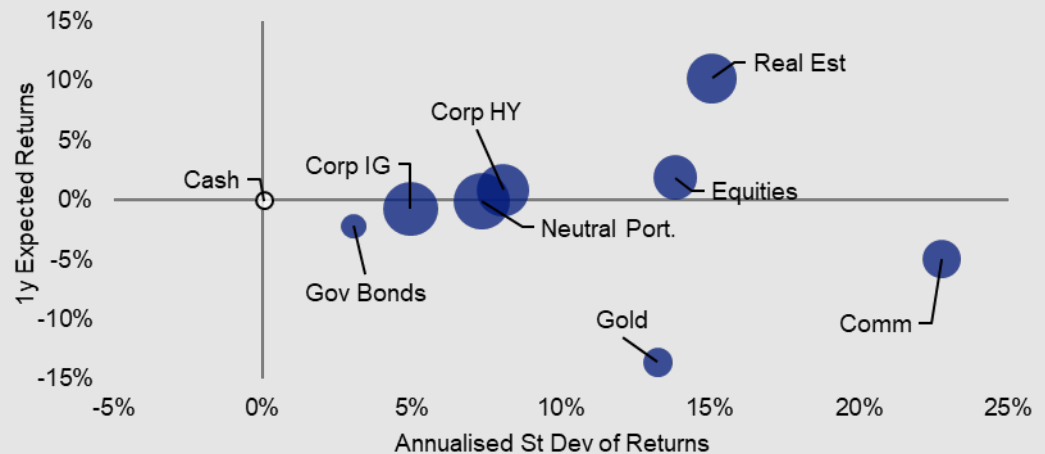
Notes: There is no guarantee that these views will come to pass. See Appendices for definitions, methodology and disclaimers. Source: Datastream and Invesco

Limited returns envisaged

Model Asset Allocation: Cash, credit and real estate

Though it feels like the early stages of a new economic cycle (to us), we do not expect vigorous growth beyond the Q3 rebound. On that basis, the recent rise in many asset prices makes it difficult to imagine big immediate gains, as shown by our projections in **Figure 35**.

Figure 35 – Return versus risk for global assets



Based on projected 12-month local currency returns and a historical covariance matrix (based on the last five years of data). Size of bubbles is in proportion to average historical pairwise correlation with other assets (a hollow bubble implies negative correlation). Cash is an equally weighted mix of USD, EUR, GBP and JPY. Neutral portfolio weights shown in **Figure 36**. As of 31 August 2020. There is no guarantee that these views will come to pass. See Appendices for definitions, methodology and disclaimers. Source: BAML, MSCI, GSCI, FTSE, Refinitiv Datastream and Invesco Global Market Strategy Office

Gold and commodities appear out of step

Though projected 12-month returns are negative in many cases, the overall pattern of returns is what we would expect (with more volatility associated with better returns). The big exceptions are gold and commodities, where the risk-return trade-off is unattractive (based on our projections). This framework allows a balancing of risk and reward (we optimise for global asset class weights and then manually allocate across the regions within each asset class). The optimiser is useful but judgement is the final ingredient.

The optimiser favours cash, credit and real estate

The optimised allocations are shown in **Figure 36**. As usual, we will focus on the “Max Return” outcome, as we find the “Sharpe Ratio” version often gives conservative outcomes. However, this time they are in broad agreement, except for when it comes to the choice between IG and equities. We have decided to go with the “Max Return” suggestion to favour IG, given our fear of a correction in equities after a strong rebound.

Figure 36 – Optimised allocations for global assets (using local currency returns)

	Neutral Portfolio	Policy Range	Projected Returns	Optimisations		Model Asset Allocation*
				Sharpe Ratio	Max Return	
Cash & Gold	5%	0-10%	-6.9%	10%	10%	10%
Cash	2.5%	0-10%	-0.1%	10%	10%	10%
Gold	2.5%	0-10%	-13.6%	0%	0%	0%
Govt Bonds	30%	10-50%	-2.2%	10%	15%	↓ 15%
Corporate IG	10%	0-20%	-0.7%	5%	20%	↑ 20%
Corporate HY	5%	0-10%	0.8%	10%	10%	↑ 10%
Equities	40%	20-60%	1.9%	49%	29%	↑ 30%
Real Estate	8%	0-16%	10.2%	16%	16%	↑ 15%
Commodities	2%	0-4%	-4.9%	0%	0%	↓ 0%

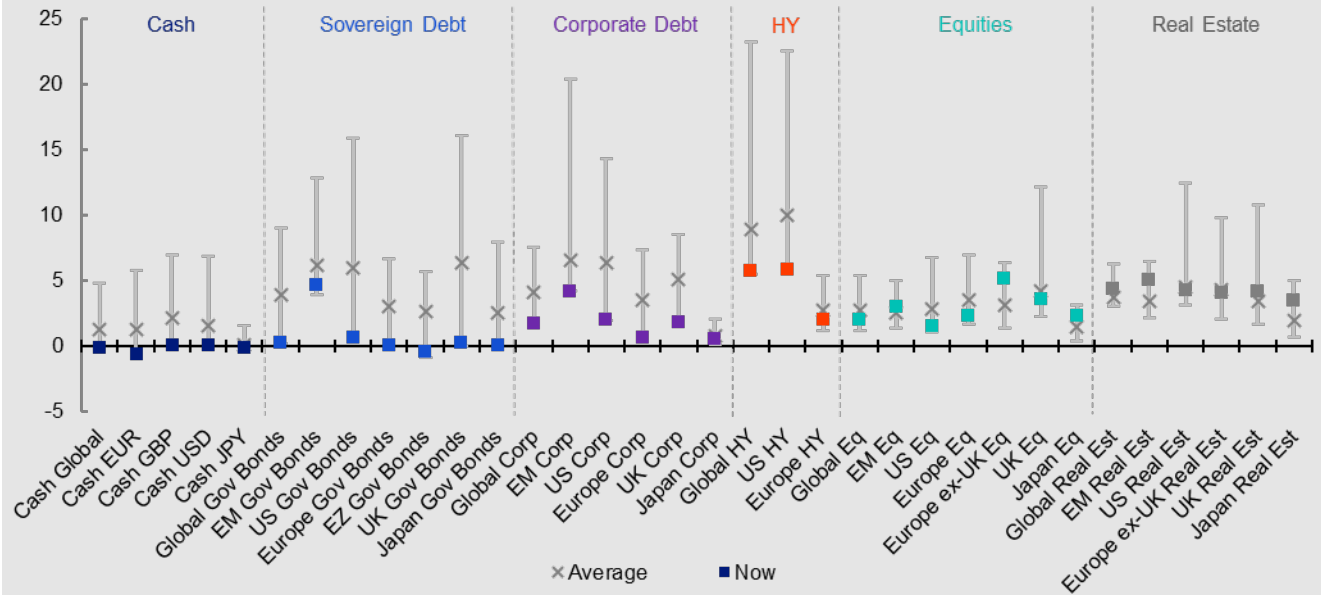
Notes: Based on local currency returns (for both the one-year projected returns and five-year historical covariance matrix). Cash is an equally weighted mix of USD, EUR, GBP and JPY. “Sharpe Ratio” shows the results of maximising the Sharpe Ratio. “Max Return” maximises returns while not exceeding the volatility of the Neutral Portfolio. *This is a theoretical portfolio and is for illustrative purposes only. It does not represent an actual portfolio and is not a recommendation of any investment or trading strategy. See appendices for definitions, methodology and disclaimers. Source: Invesco

Credit favoured over government debt and EM preferred to DM	Though our allocation to bonds is at the Neutral 45%, we favour cyclical over defensive assets, with maximum allocations to credit (both IG and HY) and emerging markets in both government and IG segments (Figure 3 shows the regional detail). This implies a sizeable Underweight allocation to developed market government debt (with reduced positions in the US and UK and a small addition in the Eurozone).
IG and HY are at maximum allocations	We are Overweight all regions in IG (except the US which we have reduced to Neutral). Within HY , we have increased positions and are maximum allocated to both the US and Eurozone. Though credit (both IG and HY) will suffer as government bond yield rise, we believe it will offer better returns, with spreads roughly in the middle of the historical range. This is true for HY even though we expect defaults to be slightly higher than historical norms over the next 12 months (see assumptions in Appendix 4).
Slightly overweight equity-like assets (prefer real estate and HY to equities)	Among equity-like assets we are Overweight HY and real estate but Underweight equities. Though we expect a stronger rebound in dividends/rentals for equities than for real estate (because of the challenges posed by work-from-home – see Appendix 4), we find the yield on real estate to be more appealing, which is why we expect higher returns on that asset class over the next 12 months (see Figure 36).
Real estate boosted to near maximum	We have increased the real estate allocation from 12% to 15%, taking it close to the maximum 16%. We are Overweight all regions except the US, where we are Neutral. Nevertheless, we have decreased allocations to our former favourites (EM and Japan) and have boosted UK and Eurozone positions, where we see more scope for a rebound in dividends and/or yield compression (see assumptions in Appendix 4).
Equities increased but still Underweight (especially in US): Japan preferred	Though we remain Underweight equities , we have boosted the allocation from 25% to 30% (versus a Neutral 40%). We are now more confident than in June that there will be a rebound in earnings/dividends within our 12-month timeframe and are more worried about the effect of rising yields on government bond returns. Across regions, we expect the best 12-month return on Japanese equities – there may be less scope for dividends to rebound (as they didn't fall a great deal) but nor do we expect the rise in equity yields that we foresee elsewhere. We therefore move Japanese equities to the maximum 6% allocation. We also expect better returns in the Eurozone and UK markets than in the US and have boosted the former (though remain slightly Underweight) and remain Neutral in the UK. Given the concerns expressed earlier about US equity valuations and the possibility there is a bubble in FANG Plus stocks, we remain Underweight US equities. Finally, we have reduced EM equities to Underweight (from Neutral), having seen a strong bounce over the last three months (Appendix 2) and believing that yields need to rise (which will balance the rebound in dividends – see Appendix 4).
Cash preferred to gold as the defensive option	Gold has performed very well this year (see precious metals in Appendix 2) and we can see how it could perform well in a scenario where central banks lose control. However, barring such an extreme outcome, we see limited upside potential from here and can imagine downside in scenarios where economies recover and bond yields rise (which is what we expect). We also believe a change of president in the US could reduce the demand for gold as a defence against geopolitical risks. We thus remain zero weighted and prefer cash as our defensive option (cash is at the maximum 10% allocation).
Commodities reduced to zero after a good run	After the strong rally in non-gold commodities over recent months, we are reducing the broad commodity allocation from the Neutral 2% to zero (having been at the maximum 4% between March and June).
Overexposed to GBP, JPY and EM.	Looking at the summary currency exposures shown in Figure 3 we remain overexposed to sterling, the Japanese yen and emerging markets. This is a natural consequence of our regional asset preferences. We are very underexposed to the US dollar and just below Neutral the euro. In terms of direction of change, the USD allocation has decreased largely due to reductions in government debt and IG, euro exposure is up due to additions in all asset classes and yen currency exposure is up due to the additions to equities and IG. We remain committed to EM assets but overall exposure is down due to reduced equity and real estate allocations.

Appendices

Appendix 1: Global valuations vs history

Regional yields within historical ranges



Notes: As of 31 August 2020. Past performance is no guarantee of future results. See appendices for definitions, methodology and disclaimers. Source: Bloomberg Barclays, BofAML, FTSE, JP Morgan, Refinitiv Datastream, Invesco

Appendix 2: Asset class total returns

Data as at 31/08/2020	Index	Current Level/RY	Total Return (USD, %)				Total Return (Local Currency, %)			
			3m	YTD	12m	5y*	3m	YTD	12m	5y*
Equities										
World	MSCI	585	15.4	5.1	17.1	10.8	13.2	4.4	15.2	10.7
Emerging Markets	MSCI	1101	19.7	0.7	14.9	9.1	18.0	4.6	16.4	10.0
US	MSCI	3385	16.5	11.4	23.8	14.7	16.5	11.4	23.8	14.7
Europe	MSCI	1652	12.6	-5.3	6.0	4.6	4.6	-10.1	-3.0	4.6
Europe ex-UK	MSCI	2077	14.5	-0.3	10.6	6.3	6.5	-6.7	1.4	5.0
UK	MSCI	935	6.5	-19.4	-7.7	-0.3	-1.6	-20.3	-16.0	2.6
Japan	MSCI	3341	5.9	-1.4	10.6	6.2	4.3	-3.8	10.5	3.4
Government Bonds										
World	BofA-ML	0.28	3.1	6.8	4.6	4.0	0.0	4.2	1.6	3.1
Emerging Markets (USD)	BBloom	4.70	9.8	2.8	5.4	8.3	9.8	2.8	5.4	8.3
US (10y)	Datastream	0.68	0.0	14.5	11.0	5.3	0.0	14.5	11.0	5.3
Europe	Bofa-ML	0.03	8.9	9.1	8.7	4.0	1.3	2.4	0.1	2.6
Europe ex-UK (EMU, 10y)	Datastream	-0.43	7.2	9.1	5.5	4.8	-0.3	2.4	-2.9	3.4
UK (10y)	Datastream	0.27	7.0	6.7	12.6	2.2	-1.2	5.6	2.4	5.0
Japan (10y)	Datastream	0.05	1.3	2.0	-2.7	3.9	-0.3	-0.4	-2.8	1.1
IG Corporate Bonds										
Global	BofA-ML	1.68	6.1	6.7	7.7	5.3	3.7	5.0	5.0	5.1
Emerging Markets (USD)	BBloom	4.20	9.2	6.4	11.2	10.5	9.2	6.4	11.2	10.5
US	BofA-ML	2.04	4.0	6.9	7.5	6.1	4.0	6.9	7.5	6.1
Europe	BofA-ML	0.65	10.7	6.9	7.6	3.9	2.9	0.3	-0.9	2.6
UK	BofA-ML	1.86	10.9	5.2	14.1	3.1	2.4	4.1	3.7	6.0
Japan	BofA-ML	0.52	1.7	2.2	-0.9	3.2	0.1	-0.3	-1.0	0.5
HY Corporate Bonds										
Global	BofA-ML	5.73	8.5	2.0	5.8	6.4	6.9	0.8	4.1	6.2
US	BofA-ML	5.84	6.9	0.8	3.7	6.3	6.9	0.8	3.7	6.3
Europe	BofA-ML	4.08	13.1	4.5	8.4	5.2	5.2	-2.0	-0.2	3.9
Cash (Overnight LIBOR)										
US		0.08	0.0	0.3	0.9	1.2	0.0	0.3	0.9	1.2
Euro Area		-0.58	7.4	6.1	8.0	0.8	-0.1	-0.4	-0.6	-0.4
UK		0.05	8.3	1.0	10.4	-2.3	0.0	0.2	0.4	0.4
Japan		-0.09	1.8	2.5	0.3	2.7	0.0	-0.1	-0.1	-0.1
Real Estate (REITs)										
Global	FTSE	1645	8.5	-17.0	-12.0	4.3	0.9	-22.1	-19.0	2.9
Emerging Markets	FTSE	1914	9.3	-20.2	-4.4	8.3	1.6	-25.1	-12.0	6.9
US	FTSE	2606	7.5	-17.4	-16.0	4.1	7.5	-17.4	-16.0	4.1
Europe ex-UK	FTSE	3309	12.8	-9.9	0.2	6.9	4.9	-15.4	-7.8	5.5
UK	FTSE	1104	11.2	-21.0	3.4	-4.5	2.7	-21.8	-6.0	-1.8
Japan	FTSE	2468	3.5	-16.0	-14.2	2.3	1.9	-18.0	-14.3	-0.4
Commodities										
All	GSCI	1792	14.1	-30.9	-23.8	-8.4	-	-	-	-
Energy	GSCI	248	17.9	-50.0	-43.8	-14.5	-	-	-	-
Industrial Metals	GSCI	1257	20.4	3.2	5.7	3.9	-	-	-	-
Precious Metals	GSCI	2313	14.6	29.3	28.7	10.8	-	-	-	-
Agricultural Goods	GSCI	323	7.7	-7.3	3.3	-6.6	-	-	-	-
Currencies (vs USD)**										
EUR		1.19	7.5	6.5	8.6	1.3	-	-	-	-
JPY		105.91	1.8	2.6	0.4	2.7	-	-	-	-
GBP		1.34	8.3	1.1	9.9	-2.7	-	-	-	-
CHF		1.11	6.4	7.1	9.6	1.4	-	-	-	-
CNY		6.85	4.2	1.7	4.5	-1.4	-	-	-	-

Notes: *Five-year returns are annualised. **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.

Appendix 3: Invesco 10-year Capital Market Assumptions (USD version)

	Asset Class	Index	Expected geometric return	Expected arithmetic return	Expected Risk	Arithmetic return to risk ratio
			%	%	%	
Fixed Income	US Treasury Short	BBG BARC US Treasury Short	0.4	0.4	1.5	0.28
	US Treasury Intermediate	BBG BARC US Treasury Intermediate	0.6	0.7	4.6	0.15
	US Treasury Long	BBG BARC US Treasury Long	1.0	1.6	11.6	0.14
	US TIPS	BBG BARC US TIPS	1.1	1.2	5.6	0.22
	US Bank Loans	CSFB Leverage Loan Index	5.2	5.6	8.6	0.65
	US Aggregate	BBG BARC US Aggregate	1.4	1.5	5.9	0.26
	US Inv Grd Corps	BBG BARC US Investment Grade	1.8	2.1	7.6	0.28
	US MBS	BBG BARC US MBS	1.6	1.8	6.6	0.27
	US Preferred Stocks	BOA ML Fixed Rate Pref Securities	3.3	4.0	12.5	0.32
	US High-Yield Corps	BBG BARC US High Yield	4.8	5.3	10.2	0.52
	US Intermediate Municipals	BOA ML US Municipal (3Y-15Y)	2.4	2.6	6.0	0.43
	US High-Yield Municipals	BBG BARC Municipal Bond High Yield	3.2	3.5	8.7	0.41
	Global Aggregate	BBG BARC Global Aggregate	1.6	1.8	6.7	0.26
	Global Aggregate-Ex US	BBG BARC Global Aggregate- Ex US	1.6	2.1	10.2	0.20
	Global Treasury	BBG BARC Global Treasuries	1.4	1.7	8.4	0.20
	Global Sovereign	BBG BARC Global Sovereign	1.9	2.1	6.8	0.31
	Global Corporate	BBG BARC Global Corporate	1.9	2.2	7.7	0.29
	Global Inv Grd	BBG BARC Global Corporate Inv Grd	1.9	2.2	7.8	0.28
	Eurozone Corporate	BBG BARC Euro Aggregate Credit - Corporate	1.6	2.4	13.5	0.18
	Eurozone Treasury	BBG BARC Euro Aggregate Government - Treasury	1.4	2.1	12.4	0.17
	Asian Dollar Inv Grd	BOA Merrill Lynch ACIG	2.1	2.4	8.4	0.29
	Asian Dollar High Yield	BOA Merrill Lynch ACHY	6.9	8.5	18.9	0.45
	EM Aggregate	BBG BARC EM Aggregate	3.5	4.4	13.3	0.33
	EM Aggregate Sovereign	BBG BARC EM Sovereign	4.0	4.7	12.5	0.38
	EM Aggregate Corporate	BBG BARC EM Corporate	3.4	4.4	14.5	0.30
	EM Corporate IG	BBG BARC EM USD Aggregate - Corporate -IG	2.2	2.5	8.3	0.31
Equities	World Equity	MSCI ACWI	5.1	6.4	17.1	0.38
	World Ex-US Equity	MSCI ACWI Ex-US	5.6	7.2	19.0	0.38
	US Broad	Russell 3000	4.8	6.3	17.6	0.36
	US Large Cap	S&P 500	4.7	6.0	16.8	0.36
	US Mid Cap	Russell Midcap	5.4	7.1	19.7	0.36
	US Small Cap	Russell 2000	6.1	8.5	22.9	0.37
	MSCI EAFE	MSCI EAFE	4.8	6.4	18.8	0.34
	MSCI Europe	MSCI Europe	5.0	6.7	18.9	0.35
	Eurozone	MSCI Euro X UK	4.5	6.4	19.9	0.32
	UK Large Cap	FTSE 100	6.5	8.4	20.3	0.41
	UK Small Cap	FTSE Small Cap UK	7.3	10.1	25.7	0.39
	Canada	S&P TSX	4.6	6.5	20.5	0.32
	Japan	MSCI JP	3.8	6.2	22.7	0.27
	Emerging Market	MSCI EM	7.4	10.2	25.3	0.40
	Asia Pacific Ex JP	MSCI APXJ	7.0	9.8	25.5	0.39
	Pacific Ex JP	MSCI Pacific X JP	5.9	8.7	25.2	0.34
Alternatives	US REITs	FTSE NAREIT Equity	7.1	8.7	18.9	0.46
	Global REITs	FTSE EPRA/NAREIT Developed Index	5.3	6.9	18.7	0.37
	Global Infrastructure	Dow Jones Brookfield Global Infrastructure Composite	4.5	5.6	15.0	0.37
	Hedge Funds	HFRI HF Index	5.9	6.2	8.8	0.71
	Commodities	S&P GSCI	3.1	5.7	23.9	0.24
	Agriculture	S&P GSCI Agriculture	-1.4	0.8	21.5	0.04
	Energy	S&P GSCI Energy	5.4	11.2	37.3	0.30
	Industrial Metals	S&P GSCI Industrial Metals	2.9	5.5	24.1	0.23
Precious Metals	S&P GSCI Precious Metals	1.6	3.2	18.7	0.17	

Notes: Estimates as of 30 June 2020, as published in 2020 Long-Term Capital Market Assumptions – Q3 Update. These estimates reflect the views of Invesco Investment Solutions, the views of other investment teams at Invesco may differ from those presented here. There is no guarantee that these views will come to pass. TIPS = treasury inflation protected securities, MBS = mortgage backed securities. For notes on methodology see Appendix 8.

Source: Invesco Investment Solutions

Appendix 4: Key assumptions

Key assumptions for 1-year projected returns

	US	Eurozone/ Europe ex-UK	UK	Japan	EM	China
Central bank rates (%)	0.25	-0.50	0.10	-0.10	-	4.35
Sovereign spreads vs rates (bps)	100	100	80	25	-	-
Corporate IG spreads vs sovereign (bps)	150	50	140	35	-	-
Corporate HY spreads vs sovereign (bps)	525	400	-	-	-	-
Corporate HY default rates (%)	6.0	5.0	-	-	-	-
Corporate HY recovery rates (%)	43	50	-	-	-	-
Equities dividend growth (%)*	10.0	15.0	10.0	5.0	15.0	10.0
Equities dividend yield (%)*	1.7	3.0	3.8	2.2	2.8	2.0
Real estate dividend growth (%)*	5.0	5.0	5.0	0.0	5.0	-
Real estate dividend yield (%)*	4.3	4.0	4.0	3.3	5.0	-

Notes: *assumptions for Europe ex-UK. One-year assumptions are based on our analysis of how current values compare to historical norms (assuming some degree of reversion to the mean, except where our analysis suggests historical norms are unlikely to be a guide to the future), adjusted for our view about the development of the economic and financial market cycles over the next year in each region.

There is no guarantee that these views will come to pass.

Source: Invesco

Appendix 5: Methodology for asset allocation, expected returns and optimal portfolios

Portfolio construction process

The optimal portfolios are theoretical and not real. We use optimisation processes to guide our allocations around “neutral” and within prescribed policy ranges based on our estimations of expected returns and using historical covariance information. This guides the allocation to global asset groups (equities, government bonds etc.), which is the most important level of decision. For the purposes of this document the optimal portfolios are constructed with a one-year horizon.

Which asset classes?

We look for investibility, size and liquidity. We have chosen to include: equities, bonds (government, corporate investment grade and corporate high-yield), REITs to represent real estate, commodities and cash (all across a range of geographies). We use cross-asset correlations to determine which decisions are the most important.

Neutral allocations and policy ranges

We use market capitalisation in USD for major benchmark indices to calculate neutral allocations. For commodities, we use industry estimates for total ETP market cap + assets under management in hedge funds + direct investments. We use an arbitrary 5% for the combination of cash and gold. We impose diversification by using policy ranges for each asset category (the range is usually symmetric around neutral).

Expected/projected returns

The process for estimating expected returns is based upon yield (except commodities, of course). After analysing how yields vary with the economic cycle, and where they are situated within historical ranges, we forecast the direction and amplitude of moves over the next year. Cash returns are calculated assuming a straight-line move in short term rates towards our targets (with, of course, no capital gain or loss). Bond returns assume a straight-line progression in yields, with capital gains/losses predicated upon constant maturity (effectively supposing constant turnover to achieve that). Forecasts of corporate investment-grade and high-yield spreads are based upon our view of the economic cycle (as are forecasts of credit losses). Coupon payments are added to give total returns. Equity and REIT returns are based on dividend growth assumptions. We calculate total returns by applying those growth assumptions and adding the forecast dividend yield. No such metrics exist for commodities; therefore, we base our projections on US CPI-adjusted real prices relative to their long-term averages and views on the economic cycle. All expected returns are first calculated in local currency and then, where necessary, converted into other currency bases using our exchange rate forecasts.

Optimising the portfolio

Using a covariance matrix based on monthly local currency total returns for the last 5 years and we run an optimisation process that maximises the Sharpe Ratio. Another version maximises Return subject to volatility not exceeding that of our Neutral Portfolio. The optimiser is based on the Markowitz model.

Currency hedging

We adopt a cautious approach when it comes to currency hedging as currency movements are notoriously difficult to accurately predict and sometimes hedging can be costly. Also, some of our asset allocation choices are based on currency forecasts. We use an amalgam of central bank rate forecasts, policy expectations and real exchange rates relative to their historical averages to predict the direction and amplitude of currency moves.

Appendix 6: Definitions of data and benchmarks

Sources: we source data from Refinitiv 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 values in the market forecast table (figure 33) use Datastream benchmark 10-year yields for the US, Eurozone, Japan and the UK and the Thomson Reuters China benchmark 10-year yield for China. Historical and projected yields and returns (figures 1, 2, 5, 18, 35 and 36) are based on Bank of America Merrill Lynch government bond indices with historical ranges starting on 31st December 1985 for the Global, Europe ex-UK, UK and Japanese indices and 30th January 1978 for the US. The emerging markets yields and returns are based on the Barclays Bloomberg emerging markets sovereign US dollar bond index with the historical range starting on 28th February 2003. The same indices are used to construct Appendix 1.

Corporate investment grade (IG) bonds: Bank of America Merrill Lynch investment grade corporate bond indices with historical ranges starting on 31st December 1996 for the Global, 31st January 1973 for the US dollar, 1st January 1996 for the euro, 31st December 1996 for the British pound, and 6th September 2001 for the Japanese yen indices. The emerging markets yields and returns are based on the Barclays Bloomberg emerging markets corporate US dollar bond index with the historical range starting on 28th February 2003.

Corporate high yield (HY) bonds: Bank of America Merrill Lynch high yield indices with historical ranges starting on 29th August 1986 for the US dollar, and 31st December 1997 for the Global and euro indices.

Equities: We use MSCI benchmark indices to calculate projected returns and calculate long-term total returns with historical ranges starting on 31st December 1969 for the Global, US, Europe ex-UK, UK and Japanese indices, and 31st December 1987 for the emerging markets index. Equity index valuations (figures 5 and 25 and Appendix 1) are based on dividend yields and price-earnings ratios using Datastream benchmark indices with historical ranges starting on 1st January 1973 for the Global, US, Europe ex-UK and Japanese indices, on 31st December 1969 for the UK index and 2nd January 1995 for the Emerging Markets index.

Real estate: We use FTSE EPRA/NAREIT indices with historical ranges starting on 29th December 1989 for the US, Europe ex-UK, UK and Japanese indices, 18th February 2005 for the Global index, and 31st October 2008 for the Emerging Markets index.

Commodities: Goldman Sachs Commodity Index with historical ranges starting on 31st December 1969 for the All Commodities and Agriculture indices, 31st December 1982 for the Energy index, 3rd January 1977 for the Industrial Metals index, and 2nd January 1973 for the Precious Metals index. We refer to oil & gas and industrial metals as industrial commodities.

US Shiller PE and Earnings Per Share (EPS): the Shiller PE is a price to earnings ratio constructed by dividing price by the average EPS in the previous 10 years (with both numerator and denominator adjusted for inflation). It is what is commonly known as a cyclically adjusted PE ratio. It is constructed by US academic Robert Shiller. We also use the raw EPS data from his database to calculate EPS momentum on a 3m/3m basis (the percentage change in the latest three months versus the previous three months). Data is monthly from 1881 (source Robert Shiller – see [here](#)). EPS momentum data since June 1973 is derived from S&P 500 index and PE data sourced from Datastream.

US stock/equity index: we have calculated a total return index for broad US stocks based on index and dividend data from US academic Robert Shiller and Datastream. The index prior to 1926 is Robert Shiller's recalculation of data from Common Stock Indexes by Cowles & Associates (see [here](#)). From 1926 to 1957, the Shiller data is based on the S&P Composite Index and thereafter is based on the S&P 500 as we know it today.

Definitions of data and benchmarks for Appendix 2

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 and the Barclays Bloomberg emerging markets corporate US dollar bond total return index for emerging markets.

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

Appendix 7: Methodology, data and benchmarks for Mania Template (Figure 24)

The Mania Template is based on monthly data during 15 historical manias, sourced from Refinitiv Datastream unless stated otherwise. For each mania, the relevant asset price is indexed to 100 at the peak (month zero) and is shown over the three years before and after that point. The template shows the average of the 15 manias at each point in time. The 15 manias are (with peak month and source):

- 1) UK equities during the South Sea Bubble -- an index that is an unweighted average of the prices of Bank of England, East India Company and South Sea Company (Jun 1720, Global Financial Data);
- 2) UK equities -- an index of UK stocks (including industrials but excluding banks, insurance and bridge stocks) calculated by Hayek as provided by Rostow and Schwartz in *The Growth and Fluctuation of the British Economy* (Jul 1864, GFD);
- 3) US oil -- West Texas Intermediate oil price (US\$/barrel), from *The Derrick's Handbook of Petroleum* (Sep 1876, GFD);
- 4) US oil -- West Texas Intermediate oil price (US\$/barrel), from *The Derrick's Handbook of Petroleum* (Dec 1895, GFD);
- 5) US equities -- S&P Composite Index (Sep 1929, Robert Shiller);
- 6) US bank stocks -- S&P 500 Diversified Banks calculated by Standard & Poor's based on historical price data (Sep 1929, GFD);
- 7) US wheat -- US Wheat #2 Cash Price (US\$/bushel) from The Chicago Board of Trade (Jan 1974, GFD);
- 8) Gold -- bullion price on the London Bullion Market (US\$/ounce) provided by ICE Benchmark Administration Ltd. (Sep 1980);
- 9) Nikkei index (Dec 1989);
- 10) Greek bank stocks -- Datastream Banks Index for Greece (Sep 1999);
- 11) NASDAQ Composite (Feb 2000);
- 12) Miami house prices (Feb 2007, FHFA index);
- 13) China A-shares -- China A-DS Market Index calculated by Datastream (Oct 2007);
- 14) US oil -- West Texas Intermediate oil price (US\$/barrel), 40-degree API, f.o.b. Cushing Oklahoma (Jun 2008, GFD);
- 15) Bitcoin -- USD to Bitcoin on the Bitstamp exchange, from Thomson Reuters (Nov 2013, data to Jul 2011 from Bloomberg).

"S&P 500", "FANG Plus" and "Gold" are indexed to start at the same level as the "Mania Template" (i.e. in month -36) and are sourced from Refinitiv Datastream.

Appendix 8: IIS Capital Market Assumptions methodology (Figure 6 & Appendix 3)

We show a summary of the Capital Market Assumptions produced by Invesco's Investment Solutions team (IIS) and this is a summary of their methodology.

Invesco Investment Solutions (IIS) employ a fundamentally based "building block" approach to estimating asset class returns. Estimates for income and capital gain components of returns for each asset class are informed by fundamental and historical data. Components are then combined to establish estimated returns. This is a summary of key elements of the methodology used to produce long-term (10-year) and medium term (5-year) estimates.

Fixed income returns are composed of: the average of the starting (initial) yield and expected yield for bonds, estimated changes in valuation given changes in the Treasury yield curve, roll return which reflects the impact on the price of bonds that are held over time, and a credit adjustment which estimates the potential impact on returns from credit rating downgrades and defaults.

Equity returns are composed of: a dividend yield, calculated using dividend per share divided by price per share, buyback yield, calculated as the percentage change in shares outstanding resulting from companies buying back or issuing shares, valuation change, the expected change in value given the current Price/Earnings (P/E) ratio and the assumption of reversion to the long-term average P/E ratio, and the estimated growth of earnings based on the long-term average real GDP per capita and inflation.

Alternative returns are composed of a variety of public versus private assets with heterogeneous drivers of return given their distinct nature. They range from a beta driven proxy to public markets or a bottom up, building block methodology like that of fixed income or equities, depending whether they are more bond like or stock like.

Volatility estimates for the different asset classes are derived using rolling historical quarterly returns of various market benchmarks. Given that benchmarks have differing histories within and across asset classes, volatility estimates of shorter-lived benchmarks are normalised to ensure that all are measured over similar time periods.

For the full Capital Market Assumptions methodology, please contact the IIS team.

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