The Big Picture
Global Asset Allocation 2021 Q2

Quarterly update
From Invesco's Global Market Strategy Office

For professional/qualified/accredited investors only

14 March 2021
Data as of 26 February 2021 unless stated otherwise

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Our preference for cyclical assets with a focus on Europe and emerging markets (EM) has worked well since publication of the 2021 outlook. Should we stick with the same allocations, twist (go even more aggressive) or fold (become more defensive)? Our answer is to stick, with a continued preference for the same set of assets and regions within our Model Asset Allocation. However, we are reducing the allocation to commodities (to Neutral) and adding to government bonds (still Underweight). We also temper the bias towards Europe and EM, while reducing the Underweight to US assets.

Model asset allocation

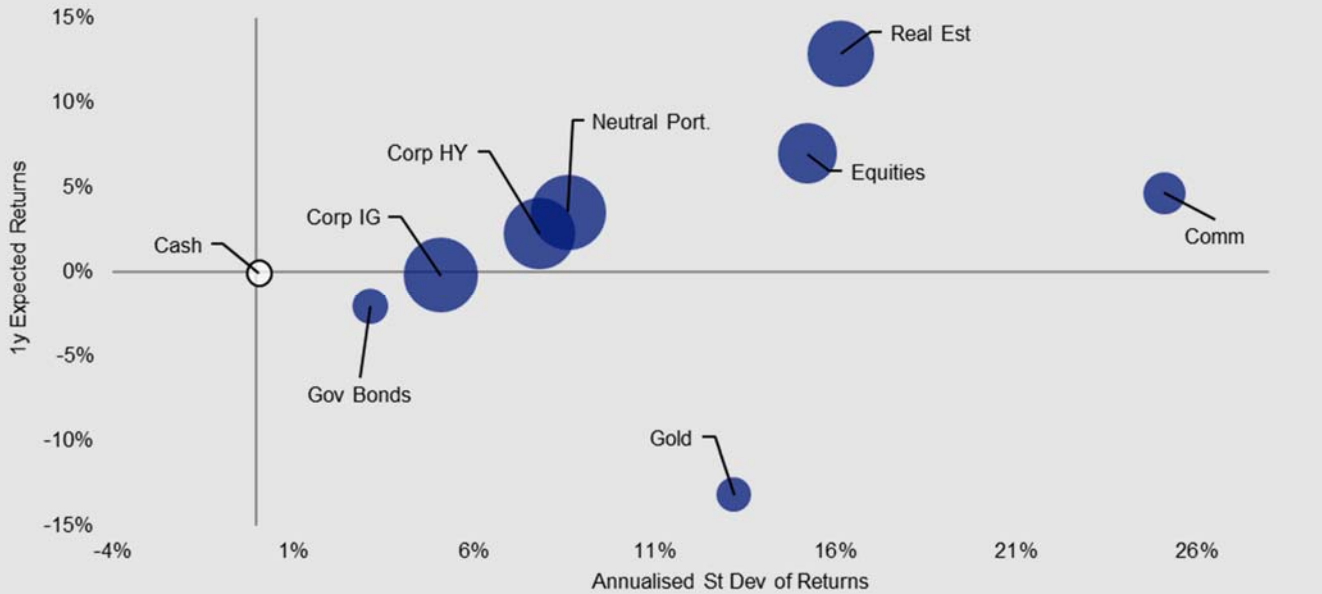
In our view:

- Equities offer good returns as the global economy recovers. We stay at slightly Overweight.
- Real estate has the potential to produce the best returns. We stay at Maximum.
- Corporate high-yield (HY) is favoured among fixed income assets. We remain Neutral.
- Corporate investment-grade (IG) now holds no advantage over cash. We stay at zero.
- Government debt outlook has improved but is still unattractive. We add but remain Underweight.
- Cash returns are low but stable and de-correlated. We stay at Maximum.
- Commodities are supported by the cycle but some are expensive. We reduce to Neutral.
- Gold is threatened by rising yields and a stronger USD. We remain at zero.
- Regionally, we favour Europe and EM (and are Underweight US assets) but less than before

Our best-in-class assets (based on 12m projected returns)

- UK equities
- EM real estate
- US high-yield
- USD cash

Figure 1 – Projected 1-year returns for global assets and neutral portfolio



Based on annualised local currency returns. Returns are projected but standard deviation of returns is based on 5-year historical data. Size of bubbles is in proportion to average pairwise correlation with other assets. Cash is an equally weighted mix of USD, EUR, GBP and JPY. Neutral portfolio weights shown in **Figure 3**. As of 26 February 2021. 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

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Summary and conclusions: Stick, twist or fold?

We stick with the preference for cyclical assets but temper the allocations

Our preference for cyclical assets with a focus on Europe and emerging markets (EM) has worked well since publication of the 2021 outlook. Should we stick with the same allocations, twist (go even more aggressive) or fold (become more defensive)? Our answer is to stick, with a continued preference for the same set of assets and regions within our Model Asset Allocation. However, we are reducing the allocation to commodities (to Neutral) and adding to government bonds (still Underweight). We also temper the bias towards Europe and EM, while reducing the Underweight to US assets.

Vaccines and policy support suggest the global economy will continue to recover

Given the apparent success of vaccine rollouts in the developed world, we believe the global economy will show solid growth in 2021, partly as a function of a rebound from deep recession, partly due to a gradual release of pent-up demand and also due to fiscal support (especially in the US). At the same time, we expect major central banks to continue providing generous support (via low interest rates and asset purchases).

Cyclical assets are easy to favour in this scenario but what could go wrong?

This makes it easy to continue favouring cyclical assets and we could end the analysis there. However, we worry that it may be a little too easy (and consensus) and therefore discuss five ways in which it could go wrong:

- The pandemic doesn't go away and economic disruption continues
- Collateral damage dampens the economic recovery
- Inflation rises and central banks tighten
- Correlation regimes change (especially between equities and bonds)
- A lot of recovery is already in the price

We have become more aggressive in our assumptions (helped by the US fiscal package)

Each of these could lead us to adjust our preferences, usually in a more defensive direction. We think the most likely problem is that markets have priced in a lot of recovery. If we are to remain positive about cyclical assets, we need to become even more aggressive in our assumptions about growth and future spreads/valuation multiples. We are happy to do this, given that we now feel more comfortable about the global recovery (helped recently by news that Congress had approved President Biden's $1.9trn fiscal package), but it has the downside of forcing us to accept that government bond yields will rise more than we previously thought.

Strong growth will bring the risk of central bank tapering over the next 12 months

Underpinning our projections for the next 12 months are the following assumptions:

- Central bank rates remain stable and asset purchases continue but tapering looms
- Yield curves steepen as tapering approaches; US yields rise more than most
- IG and HY spreads approach historical tights and default rates decline
- USD strengthens as bond yield spreads move in its favour
- Equity dividends rebound but yields rise slightly (with bond yields)
- Real estate (REIT) dividends bottom and yields stabilise
- Commodities consolidate recent gains (and gold falls due to rising yields/dollar)

10-year treasury yield to rise to 2.00% and USD to strengthen

The full set of assumptions are shown in **Appendix 4**, while the resultant market targets are shown in **Figure 27** and projected returns for global assets are shown in **Figure 2**. Perhaps the most important forecast is that the 10-year US treasury yield will rise to 2.00% and that consequently the US dollar will strengthen slightly. This suggests to us some recent trends will continue (outperformance of value versus growth, weakness of gold and defensive fixed income assets). However, it also suggests that commodity prices may find it harder to advance from here (especially given that many of them are now expensive, in our view) and that EM assets may face a headwind.

But we expect real estate and equities to perform well

Critically, we do not expect the rise in bond yields to undermine equity markets (we expect a continuation of the positive correlation between equity prices and bond yields witnessed since the turn of the century). Similar thinking permits us to remain optimistic about the outlook for real estate, where yields remain generous compared to other assets. Of course, the rise in yields will penalise government bonds and will dampen returns on investment-grade credit (IG) and high-yield credit (HY), though we suspect credit spreads can tighten further and we expect a decline in default rates. **Figure 1** shows how these assumptions and projections translate into risk-return space for global assets.

Optimisation favours real estate and cash

Not surprisingly, given the information in **Figure 1**, our optimisation process favours cash and real estate and accords zero allocations to gold and IG (see **Figure 29**). More surprisingly, it suggests a zero allocation to commodities, no doubt due to the volatility of the asset class. The results are less clear for other assets and depend on whether we maximise the Sharpe Ratio or returns.

Commodities reduced to Neutral after a rebound

In determining our Model Asset Allocation, we follow the optimisation results where they are clear cut, except that we have chosen to reduce **commodities** to a Neutral 2%, rather than go all the way to zero (see **Figure 2**). Though we feel that commodity prices are high (except agriculture), we suspect the economic cycle may push them higher. We have reduced the energy position to Neutral and industrial metals to zero, while remaining Overweight agriculture and zero allocated to precious metals (**Figure 3** shows the detailed Model Asset Allocation).

We add to government bonds but remain Underweight

The flip side of that reduction to commodities is to add marginally to **government bonds**, while remaining Underweight. Though we remain Overweight EM within the asset class, we have reduced the position (by eliminating the China exposure). This, and the reduction in the UK allocation, enables us to boost the exposure to US treasuries (though we expect US yields to rise the most, we think dollar strength will boost unhedged returns on US bonds). We also raise the exposure to Japanese government bonds, on the assumption that those yields will rise the least.

Cash is favoured among defensive assets

Cash remains our defensive asset of choice (low returns but also low volatility and low correlation to other assets). We think **gold** will struggle in an environment of rising yields and a strengthening dollar and believe that **IG** yields are too low to mitigate against the rise in benchmark government yields (both are zero-weighted).

Real estate is the favoured cyclical asset

Among cyclical assets, we favour real estate and then equities, largely based on valuations. **Real estate** may suffer a loss of demand for office and retail space as a result of Covid-19 but we find the yields to be attractive (a lot of bad news is in the price, in our opinion) and expect growth to resume as economies recover. Even if cash flows bounce less strongly than for equities, yields are high and we expect them to be stable. We remain at the maximum 16% allocation but are boosting the US and Japan positions, while reducing the UK (the latter has outperformed since we last published).

The UK is our favoured equity market

The allocation to **equities** is unchanged at an Overweight 50% but we have reduced Japan and China (we think the latter will continue to suffer as bond yields rise), while the UK is boosted (based on valuations and the exposure to resource and financial stocks).

US HY now preferred

We remain Neutral on **HY** but are now focused entirely on the US rather than Europe (based on the view that dollar strength will help our unhedged positions).

Regional preferences are dampened

From a regional perspective, we remain Overweight European and EM assets and Underweight the US but have reduced the extent of the deviations from neutral.

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	-6.7%	5%	0-10%		10%	Overweight
Cash	-0.1%	2.5%	0-10%		10%	Overweight
Gold	-13.2%	2.5%	0-10%		0%	Underweight
Government Bonds	-2.1%	25%	10-40%	↑	17%	Underweight
Corporate IG	-0.2%	10%	0-20%		0%	Underweight
Corporate HY	2.3%	5%	0-10%		5%	Neutral
Equities	7.0%	45%	25-65%		50%	Overweight
Real Estate	12.8%	8%	0-16%		16%	Overweight
Commodities	4.6%	2%	0-4%	↓	2%	Neutral

*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 (14/03/2021)

	Neutral	Policy Range		Allocation	Position vs Neutral
Cash Equivalents	**5%**	**0-10%**		**10%**	
Cash	2.5%			10%	
Gold	2.5%			0%	
Bonds	**40%**	**10-70%**	↑	**22%**	
Government	25%	10-40%	↑	17%	
US	8%		↑	5%	
Europe ex-UK (Eurozone)	7%			4%	
UK	1%		↓	1%	
Japan	7%		↑	4%	
Emerging Markets	2%		↓	3%	
China**	0.2%		↓	0%	
Corporate IG	10%	0-20%		0%	
US Dollar	5%			0%	
Euro	2%			0%	
Sterling	1%			0%	
Japanese Yen	1%			0%	
Emerging Markets	1%			0%	
China**	0.1%			0%	
Corporate HY	5%	0-10%		5%	
US Dollar	4%		↑	5%	
Euro	1%		↓	0%	
Equities	**45%**	**25-65%**		**50%**	
US	25%			18%	
Europe ex-UK	7%			12%	
UK	4%		↑	7%	
Japan	4%		↓	5%	
Emerging Markets	5%			8%	
China**	2%		↓	2%	
Real Estate	**8%**	**0-16%**		**16%**	
US	2%		↑	4%	
Europe ex-UK	2%			4%	
UK	1%		↓	1%	
Japan	2%		↑	4%	
Emerging Markets	1%			3%	
Commodities	**2%**	**0-4%**	↓	**2%**	
Energy	1%		↓	1%	
Industrial Metals	0.3%		↓	0%	
Precious Metals	0.3%			0%	
Agriculture	0.3%			1%	
Total	**100%**			**100%**	
Currency Exposure (including effect of hedging)					
USD	48%		↑	40%	
EUR	20%		↓	22%	
GBP	7%		↓	10%	
JPY	15%		↑	14%	
EM	9%		↓	14%	
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. **China is included in Emerging Markets allocations. 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

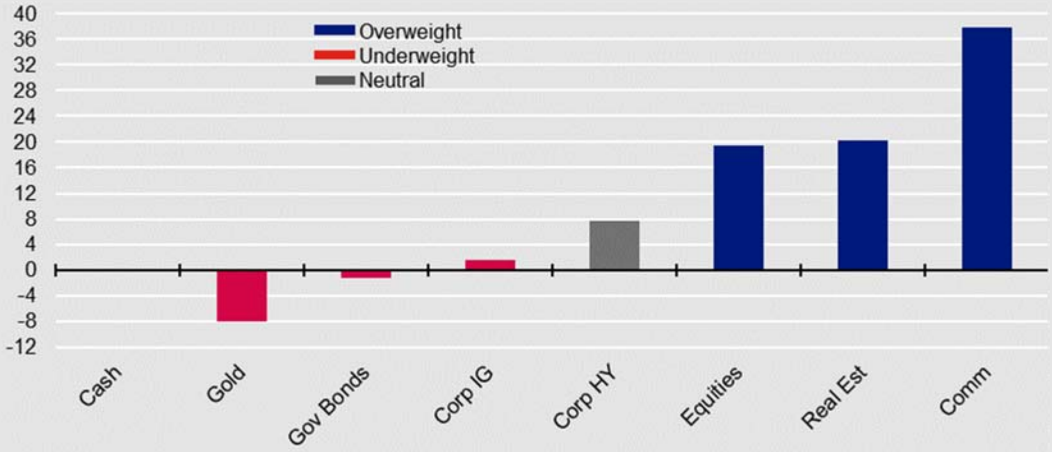
Since we last wrote

When we published our 2021 Outlook we had started to receive good news about vaccines and President Biden had just been elected (see Light at the end of the tunnel published on 19 November 2020). Anticipating further economic recovery in 2021 we favoured cyclical assets (commodities, equities and real estate) and had a regional bias in favour of Europe and EM. **Figure 4** shows how global assets have performed since then (as of 26 February 2021). Full regional detail is shown in **Appendix 2**.

Cyclical assets have outperformed, especially in EM and Europe

Most assets delivered positive returns in USD but returns were particularly strong for commodities (excluding gold), real estate and equities. **Appendix 2** shows that EM and European assets were among the better performers, helped by currency gains. For once, our Model Asset Allocation worked well in the short term.

Figure 4 – Global asset class total returns since 30/10/20 (USD, %) *

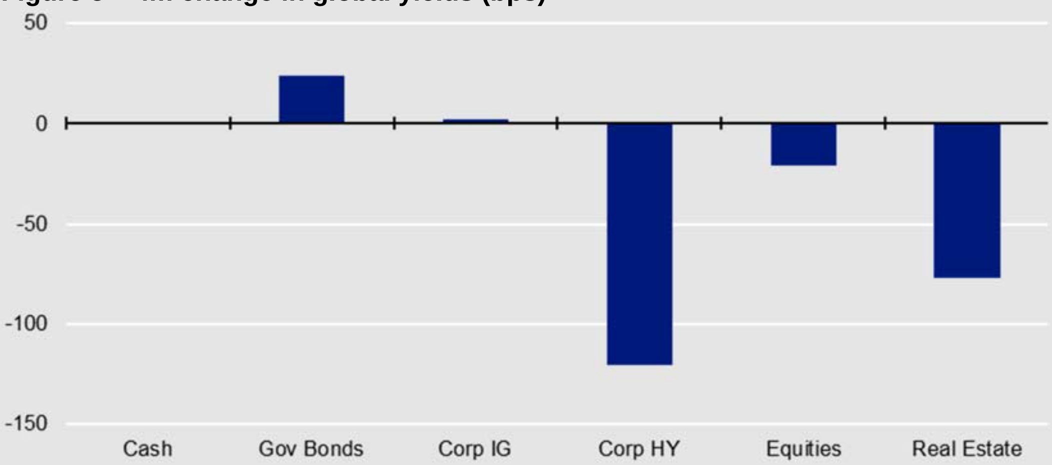


*30/10/20 to 26/02/21. Colours represent model allocations during this period. See appendices for definitions and disclaimers. Past performance is no guarantee of future results. Source: Refinitiv Datastream and Invesco

Yields have moved in favour of defensive assets. Should we fold?

The challenge now is to know whether to stick, twist or fold (to stick with/increase our cyclical bias or to reallocate toward more defensive assets). On one hand, asset class yields have moved in favour of defensive assets (see **Figure 5**) and many assets have now surpassed the end-2021 targets we published in November. However, the faster than expected rollout of vaccines and continued policy support pushes us to continue favouring cyclical assets. While we accept that much of the good news may already be in the price of cyclical assets, we fear that some "defensives" may still face downside risk. We remain bullish but use later sections to explore what could go wrong.

Figure 5 – 4m change in global yields (bps)



From 30/10/20 to 26/02/21. See appendices for definitions and disclaimers. Past performance is no guarantee of future results. Source: Refinitiv Datastream and Invesco

The economic cycle favours cyclical assets

Most economies experienced a dramatic recession in the first half of 2020, followed by an impressive rebound in the second half of the year. Overall, and with few exceptions (such as China), 2020 saw a dramatic decline in GDP and business profits.

We assume that vaccine rollouts will reduce the spread and fatality rate of Covid-19

The recovery that started in the middle of 2020 may have taken a breather (or even reversed) during the Northern Hemisphere winter given the need for further lockdown measures in many countries. Though infections appear to have bottomed in some parts of the world (and even started to rise again in Europe), we are assuming the rollout of vaccines will reduce both the spread of the virus and the hospitalisation and fatality rates among those who become infected (based on evidence from Israel and the UK).

As lockdowns become less common, we expect strong economic growth, which should favour cyclical assets

Hence, we are supposing that broad lockdowns become increasingly rare and that economies can continue their recovery and transition from early to mid-cycle phases. Our research suggests that during the early stages of the economic cycle, assets with cyclical characteristics tend to perform the best (equities, real estate, HY and industrial commodities). **Figure 6** shows a schematic vision of the economic cycle, along with our usual asset preferences for each phase (based on our research into historical asset performance). We also show what we now consider the "best-in-class" from among those preferences, based largely upon our assessment of current valuations.

Risk appetite appears to have normalised

Figure 7 gives an update of Invesco's Global Risk Appetite Cycle Indicator (GRACI), as provided by colleagues in Invesco Investment Solutions. This adds to our conviction that the global economic cycle is heading in the right direction (see the leading indicator summary measure). It also shows that market sentiment has improved markedly since a year ago, as does a glance at the 12-month returns in **Appendix 2**.

Figure 6 – The economic and asset class roller coaster

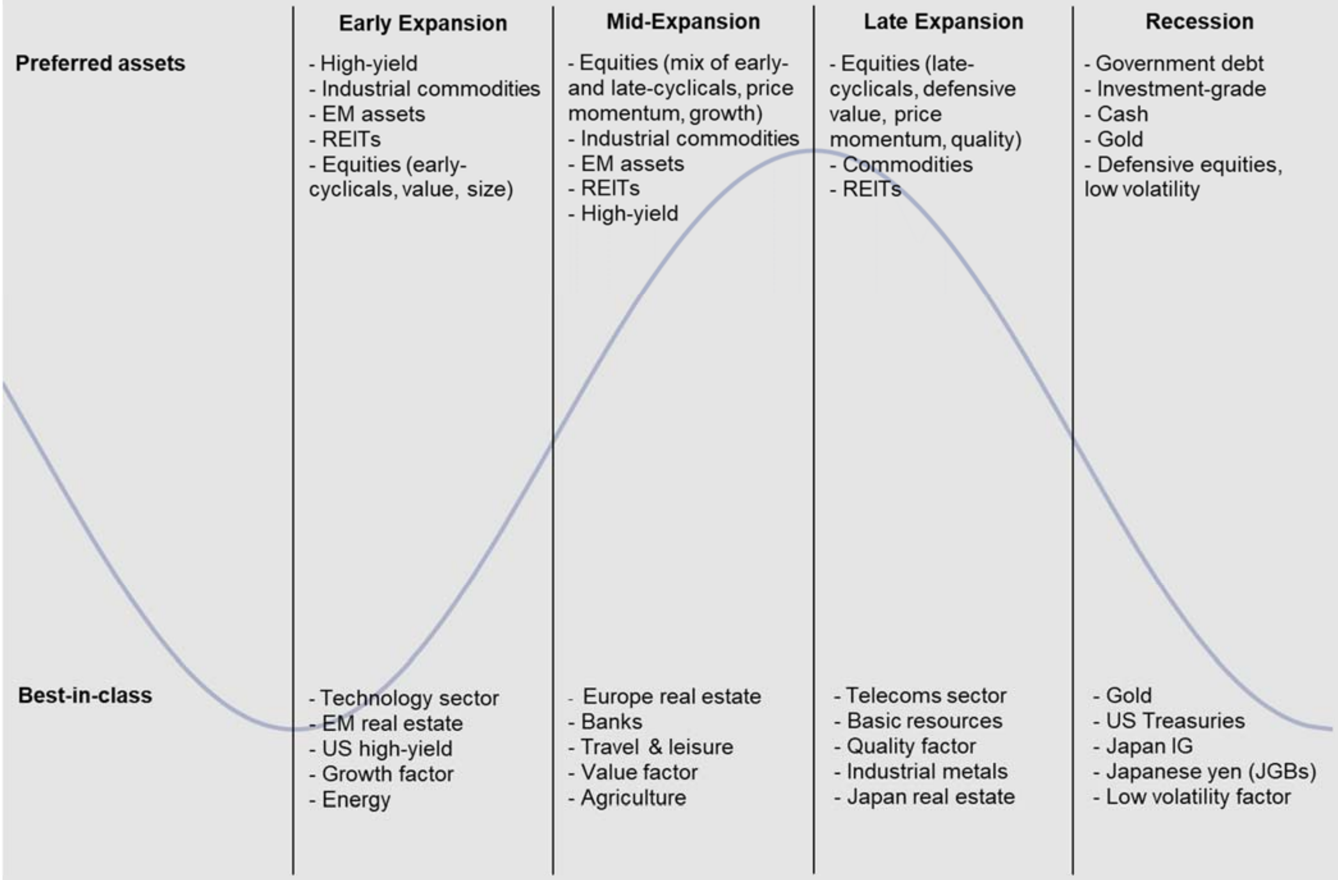
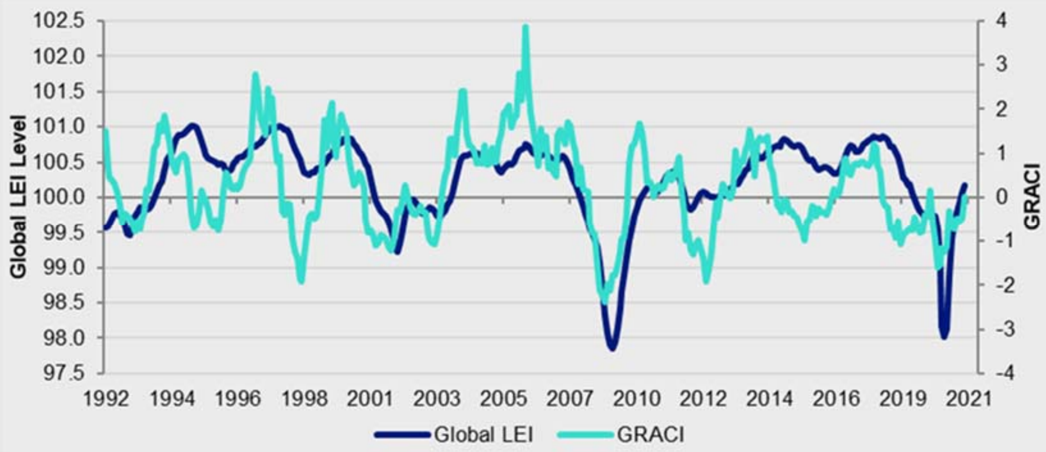


Chart shows a schematic portrayal of the global economic cycle. The selection of preferred assets is based on our research published in "Asset allocation in pictures" in November 2017. "Best-in-class" shows our view of which parts of those preferred assets we would favour at each stage of the cycle based on current valuations and projected returns. See appendices for definitions, methodology and disclaimers.
Source: Invesco Global Market Strategy Office

Figure 7 – Global risk appetite and the global business cycle



Note: monthly data from January 1992 to February 2021. 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

Invesco's GMS Office continues to favour cyclical assets

It should not be surprising, then, that Invesco's Global Market Strategy Office (GMS) has a strong preference for cyclical assets. **Figure 8** shows the outcome of a survey in which GMS team members (including the authors of this document) expressed their views about relative performance over the next 12 months. Apart from a clear preference for equities, real estate, commodities and HY versus IG, cash equivalents and government debt, the team also favours EM assets. The preference among developed market regions varies by asset class.

Job done but what could go wrong?

Rarely is it so easy to decide what to do (in this case to leave allocations broadly unchanged). However, that same confidence also raises concerns. In particular, it brings the risk of over-complacency and group-think. To make sure we are not falling into that trap, we spend the next section looking at what could go wrong, before then going on to finalise the Model Asset Allocation for the next 12 months.

Figure 8 – The wisdom of the GMS crowd (asset preferences for the next year)

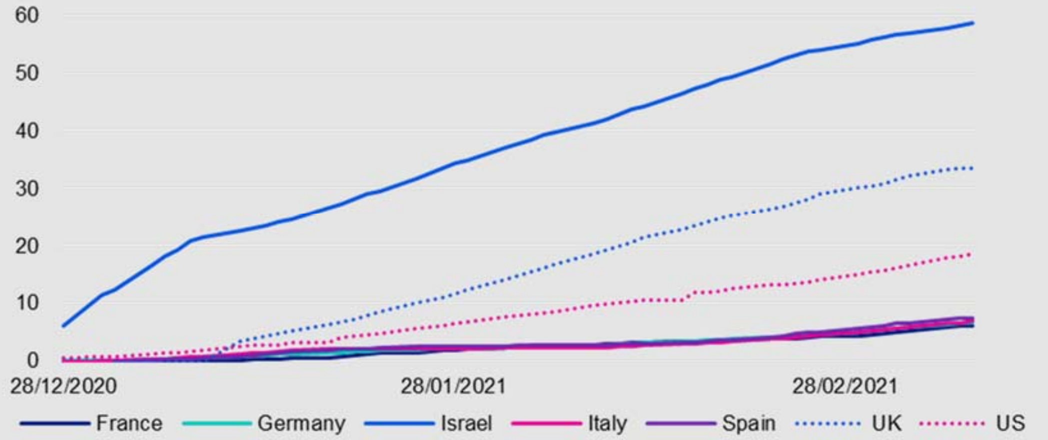
The chart shows the opinions of the Global Market Strategy Office (GMS -- see back cover page for membership) about asset returns over the next 12 months in USD. Each member of the team was asked to give a score from -10 to +10 for each asset (-10 being large underperformance and +10 being large outperformance versus the average of all assets). Those scores are then averaged across members of the team and organised by asset category according to the average score across regions and then ranked within each category. Abbreviations: Cash Eq. is cash equivalents; CTY is commodities; Asia ex-China includes only emerging markets; Ind. Metals is industrial metals; Prec. Metals is precious metals. There is no guarantee that these views will come to pass. Source: Invesco Global Market Strategy Office

What could possibly go wrong #1? The pandemic doesn't go away
We assume that 2021 will see a move toward economic normality, with strong economic and profit growth throughout the year. This relies on the successful control of the Covid-19 pandemic in ways that do not compromise economic growth (vaccines, say).

Vaccines appear to be effective…

Examples of successful vaccine rollouts can be seen in Israel and the UK (see **Figure 9**). Not only have they been quick off the mark, they have also provided good evidence about the effectiveness of the Pfizer and Astra Zeneca vaccines. For example, data from Public Health Scotland suggests that four weeks after the first dose, the reduction in hospitalisations was 85% for Pfizer/BioNTech and 94% for Oxford Astra Zeneca.

Figure 9 – Number vaccinated as % of population



Based on daily data from 28 December 2020 to 10 March 2021. Data shows the number of people given at least one dose of a Covid-19 vaccine expressed as a percent of population.
Source: Our World in Data, Refinitiv Datastream and Invesco

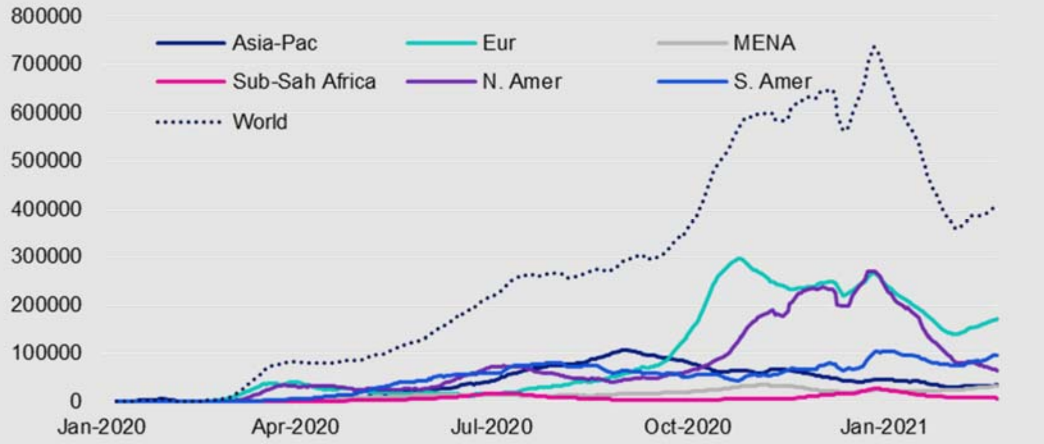
…but the speed of rollout varies across countries and full normalisation may take years…

However, not all countries are in the same place as Israel and the UK. **Figure 9** shows that even among developed countries, there is a big difference in the speed of rollout (partly due to differences in regulatory/procurement policies but also because of differing levels of vaccination scepticism). Even worse, as of mid-February more than 130 countries had yet to receive a dose of any vaccine (according to the United Nations).

…and vaccines may be reducing vigilance

That makes it difficult to believe the global economy will be able to fully normalise during 2021, even before we worry about new variants that could render existing vaccines less effective. Further, and surprisingly, after recent sharp declines in infections, we are now seeing a flattening/increase in the number of cases across a range of regions (see **Figure 10**). Maybe the return to normality will be more difficult than we thought.

Figure 10 – Daily Covid-19 cases (7-day moving average)

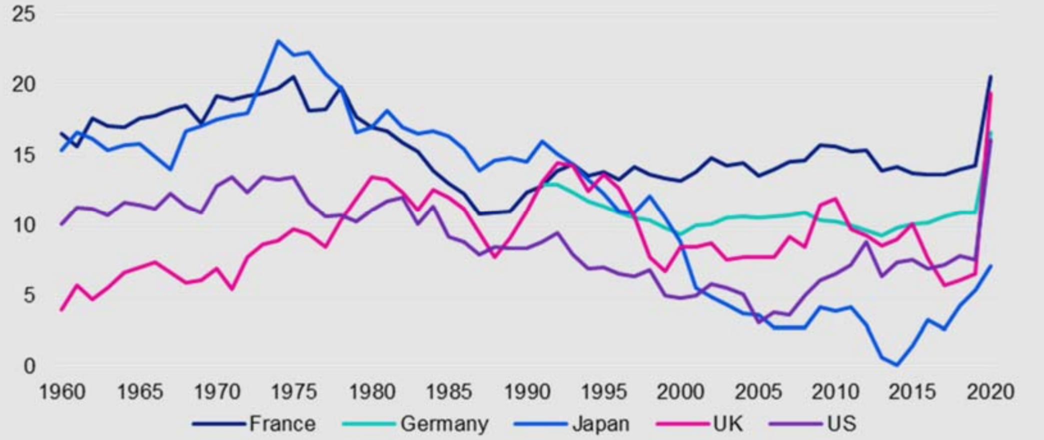


Based on daily data from 23 January 2020 to 10 March 2021.
Source: Reuters and Invesco

High savings rates and pent-up demand

What could possibly go wrong #2? Collateral damage dampens the recovery
We are supposing that high household savings rates are indicative of pent-up demand, some of which we expect to be released during 2021 (see **Figure 11**).

Figure 11 – Household savings rates (%)



Based on annual data from 1960 to 2020 (using OECD forecast for the latter). Data shows net savings rate for household and non-profit organisations (except for France and UK which are gross savings rates).
Source: OECD, Refinitiv Datastream and Invesco

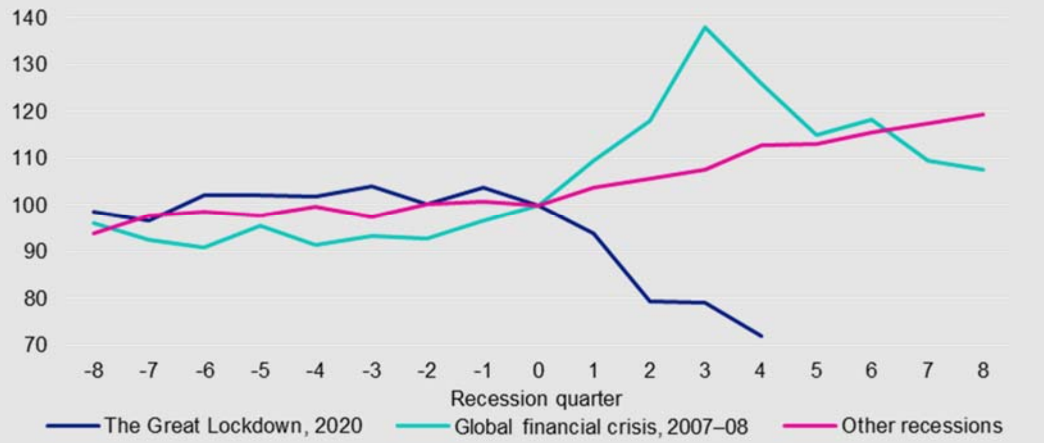
The release of pent-up demand may be partial and gradual

However, there are reasons why the release of pent-up demand may be slow. First, **Figure 11** suggests that savings rates were on the up in many countries before the pandemic struck, so may not fall back to pre-pandemic levels. Second, the history of recent decades suggests that changes in savings behaviour tend to be gradual. Although there was a sharp rise in savings rates in 2020, the decline could be gentler as households worry about future pandemic related shocks, find overseas travel is restricted and worry about future tax hikes.

What happens when government support ends?

More fundamentally, what will happen when governments scale back the support provided to businesses and households over the last year? Amazingly, the IMF suggested in the January 2021 update to its World Economic Outlook that bankruptcies declined during the Coronavirus recession (**Figure 12**). This is a big contrast to what usually happens during recessions and may portend a rise in business failures once government support ends. As a further example, UK unemployment was “only” 1.74m in November 2020 but 4.7m were on furlough in January, some of whom are likely to become unemployed when the job support scheme ends in September.

Figure 12 – Bankruptcies in recessions (indexed to 100 in pre-recession quarter)

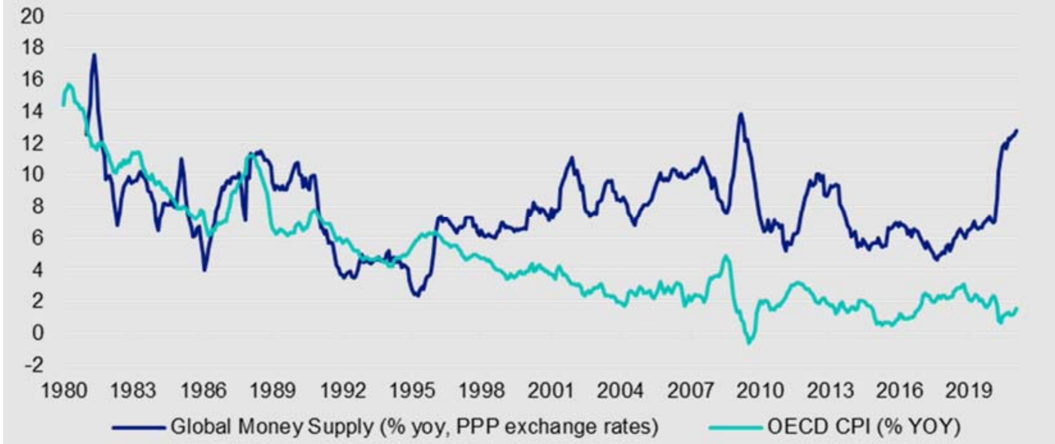


Notes: quarterly data from 13 countries with varying coverage during 1990:Q1-2020:Q3. Quarter 0 is the last pre-recession quarter. For the Great Lockdown, quarter 0 is 2019:Q4. For the Global financial crisis, quarter 0 is the country-specific peak of real GDP during 2007-08. Other recessions are country specific and identified by two consecutive quarters of negative growth during 1990-2006 and 2009-19. Source: CEIC, national authorities and IMF staff calculations (taken from the IMF World Economic Outlook Update January 2021)

Could central bank policies lead to higher inflation?

What could possibly go wrong #3? Inflation rises and central banks tighten
Expansive central bank policies have generated a rapid acceleration in monetary aggregates, as shown in **Figure 13**. Though the relationship between money supply growth and inflation has been distant in recent decades, such a change in the monetary environment naturally leads to concern about the potential for accelerating prices.

Figure 13 – Global money supply growth and inflation



Note: monthly data from January 1980 to January 2021. 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). OECD CPI is the consumer price index for the OECD group of countries.
Source: MSCI, OECD, Oxford Economics, Refinitiv Datastream and Invesco

If so, there are few places to hide (even gold has been negatively correlated to inflation expectations since the GFC)

We expect a technical jump in year-on-year headline inflation rates in the second quarter of this year due to the collapse in oil prices a year earlier. However, that should be transitory and we are talking here about the risk of something more sustained and substantial, with core OECD CPI inflation rising into the 3%-5% range, say. Such an outcome would likely provoke a reaction from central banks and we suspect it would bring the risk of market dislocations. Unfortunately, our research suggests that few assets perform well when inflation is rising (see here) and even gold has tended to be negatively correlated to inflation since the GFC (see our gold model in **Figure 14**).

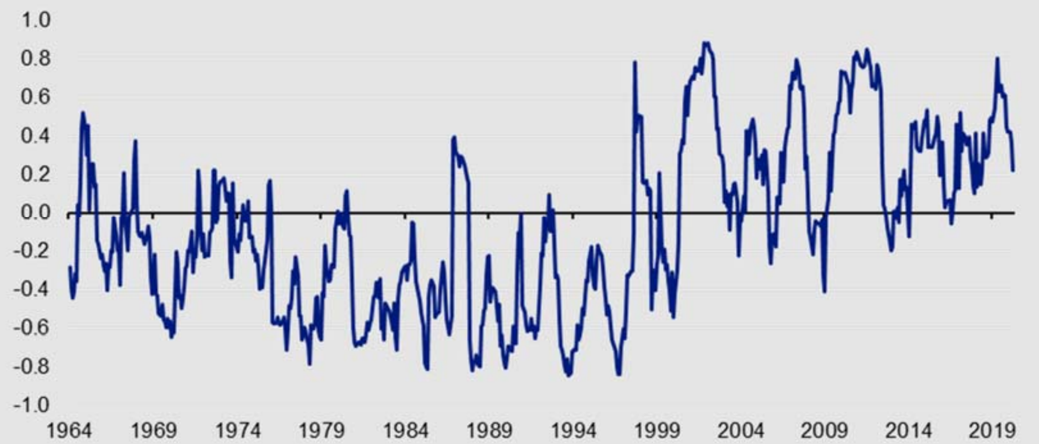
Figure 14 – Gold versus model predicted values (USD per ounce)

Monthly data from January 2003 to February 2021 (as of 26 February 2021). 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

Will equity prices continue to rise along with bond yields?

What could possibly go wrong #4? Correlation regimes change
We are implicitly assuming that equity-like asset prices will rise with bond yields as economies recover. This is supported by the fact that US equity prices have been positively correlated to treasury yields for most of this century (see **Figure 15**).

Figure 15 – Correlation between US equities and bond yields



Notes: based on monthly data (month-end) from December 1964 to February 2021. Correlation at each moment is calculated as the correlation between monthly percent changes in the S&P 500 and the US 10-year treasury yield, over the previous 12 months. As of 26 February 2021. Past performance is no guarantee of future results. Source: Refinitiv Datastream and Invesco

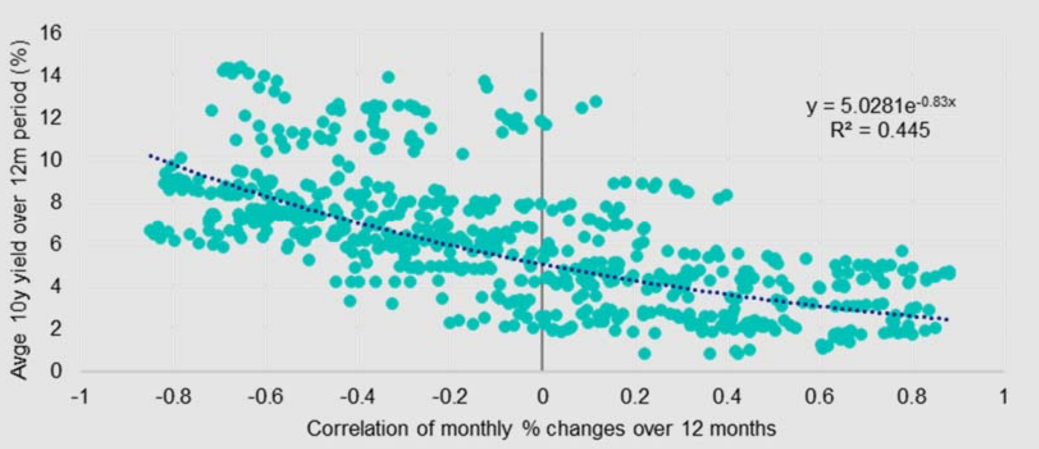
That correlation has been largely positive in recent decades but is variable

This may seem paradoxical and was certainly not the experience of the latter decades of the previous century. It seems that equity markets have recently been more focussed on the growth that accompanies rising bond yields than on the multiple-contracting effects of a rise in discount rates. However, **Figure 15** shows that the correlation between equities and bond yields is variable and there have been short periods this century when it has turned negative. The faster that yields rise, the more likely would be a reversion to negative correlation, in our opinion.

A change in the correlation regime unlikely until 10-year treasury yield approaches 5%

However, we suspect that would be temporary and we are more interested in what could spark a permanent change in the correlation regime. One answer may be contained in **Figure 16**. Though far from perfect, it seems there is a negative relationship between the equity/bond yield correlation and the level of bond yields. This seems to suggest that the higher the bond yield, the more likely it is that rising bond yields will be associated with falling equity prices. Based on the fitted trendline, we believe a permanent switch in the correlation regime is unlikely until the 10-year treasury yield approaches 5%.

Figure 16 – Correlation between US equities and bond yields vs level of bond yield

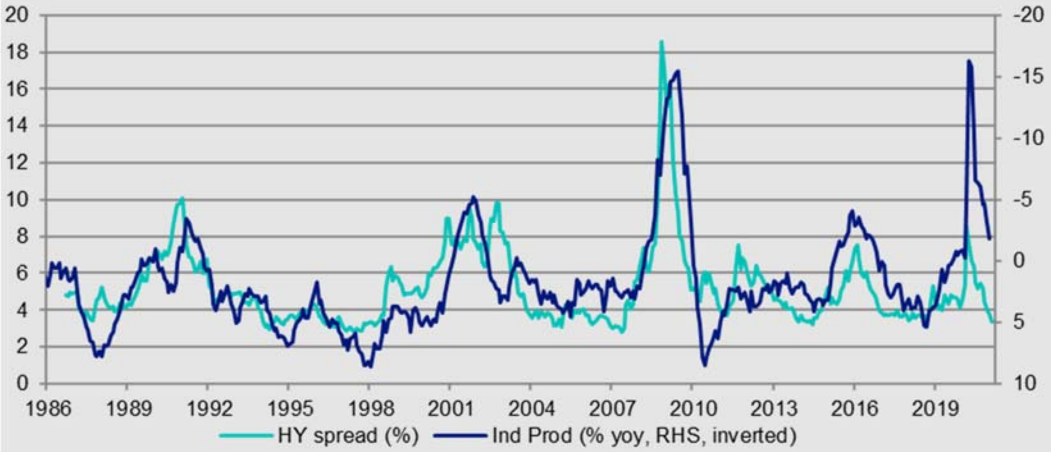


Notes: based on monthly data (month-end) from December 1964 to February 2021. Correlation at each moment is calculated as the correlation between monthly percent changes in the S&P 500 and the US 10-year treasury yield, over the previous 12 months. The equation shows the details of the fitted trendline. As of 26 February 2021. Past performance is no guarantee of future results. Source: Refinitiv Datastream and Invesco

Valuations may limit returns

What could possibly go wrong #5? A lot is already in the price
Appendix 2 shows that yield remains elusive among fixed income assets. Even worse, the yields on equity regions now appear to be below historical norms (prices are up and dividends are down), while real estate yields have fallen to historical norms (on average). Cyclical momentum is important but valuations can impose a limit on returns.

Figure 17 – US high yield spread and industrial production



Note: monthly data from January 1986 to February 2021 (as of 26 February). HY spread is the yield on the ICE BofA US High Yield Index minus the US 10-year treasury yield.
Source: Global Financial Data, Refinitiv Datastream and Invesco.

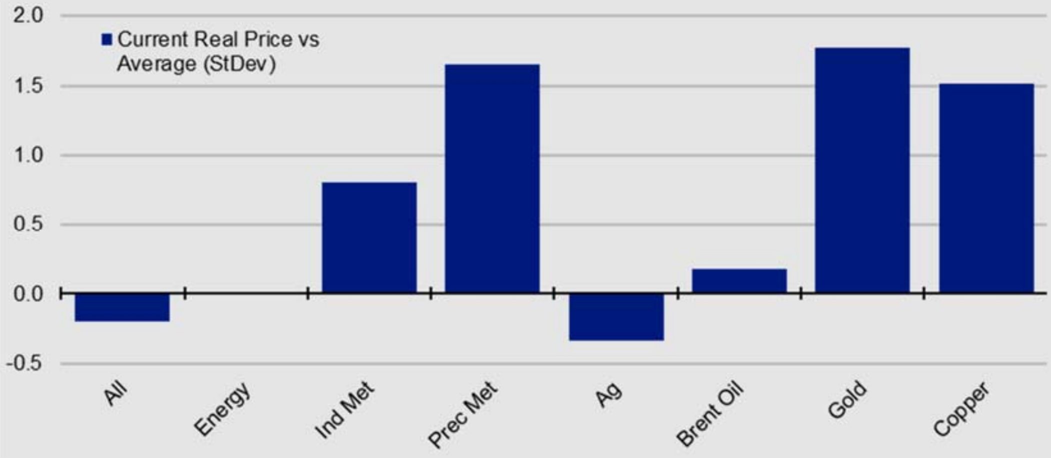
The scope for narrowing of HY spreads now seems limited

Figure 5 showed that HY has seen most dramatic decline in yields in recent months and **Figure 17** puts this into a longer historical perspective. Even though the US economy is still in recovery mode (industrial production is down versus a year ago), the HY spread is close to historical lows. The historical relationship between those two variables suggests spreads should be more generous than they are but we would expect defaults to decline as the recovery progresses (though **Figure 12** showed the unusual nature of this recession). Spreads may narrow further but the scope seems limited.

Commodities are a mixed bag

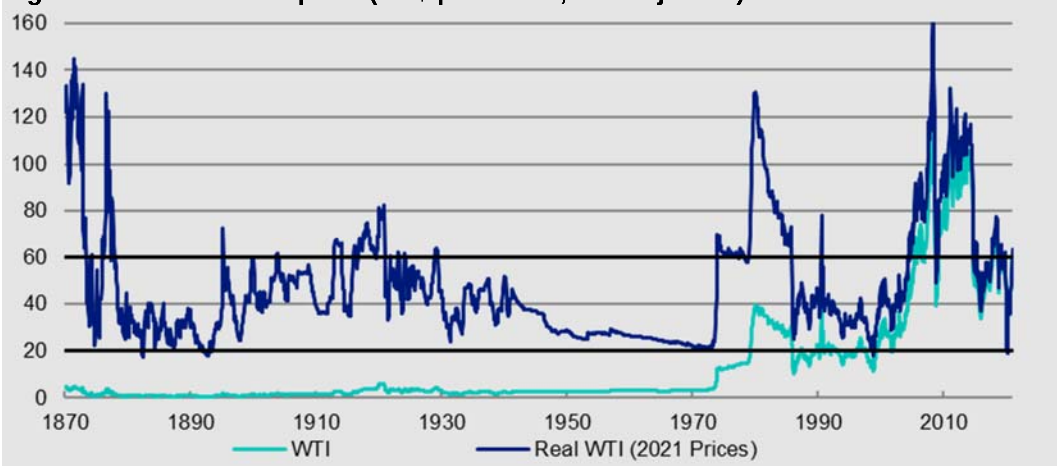
Commodities have also done very well, except for precious metals. Nevertheless, **Figure 18** suggests that commodity prices are broadly in line with the norms of recent decades, when expressed in real (CPI adjusted) terms. There are, however, three problems: first, there are differences across commodity groups (agriculture is the only group cheaper than normal, whereas metals are more expensive); second, a longer historical perspective may disagree and, third, this gives no comparison to other assets.

Figure 18 – Commodity prices deflated by US CPI versus historical norms



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 26 February 2021. See appendices for definitions, methodology and disclaimers.
Source: GSCI, Refinitiv Datastream and Invesco

Figure 19 – Real US oil price (US$ per barrel, CPI adjusted)



Monthly data since January 1870. As of 26 February 2021. 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 and Invesco

Oil may appear cheap compared to recent bubbles but not in the context of longer history

Figure 19 shows a 150-year perspective for US oil. Though WTI seems reasonable in the context of prices seen in the last 20 years, the longer history shows the abnormality of those recent decades (they contained a bubble that we think was inspired by the rapid development of China and other EM countries). Over the full period since 1870, the price of WTI has tended to be in the $20-$60 range when expressed in today's prices and periods above that range tend to be short lived (as new supply comes on stream).

The long-term prospects for oil appear limited

It is less than a year since WTI went negative (not visible in the chart because it is based on monthly data) and it has since made a remarkable recovery to above $60. Bearing in mind the history and the long term need for the world to reduce carbon emissions, we doubt that the current positive momentum in the price of oil will go much further.

Are commodities cheap or US equities expensive?

When it comes to comparisons with other assets, the answer may depend upon which asset is chosen. **Figure 20** shows the long-term comparison with US equities. We would expect equities to outperform over the long haul, which indeed has been the case (note the logarithmic scale). However, there are long ebbs and flows in that relationship, with equities having had the upper hand since mid-2008. Maybe that outperformance has reached its limit, in which case commodities may now outperform US equities. However, that may tell us more about US equities than it does about commodities.

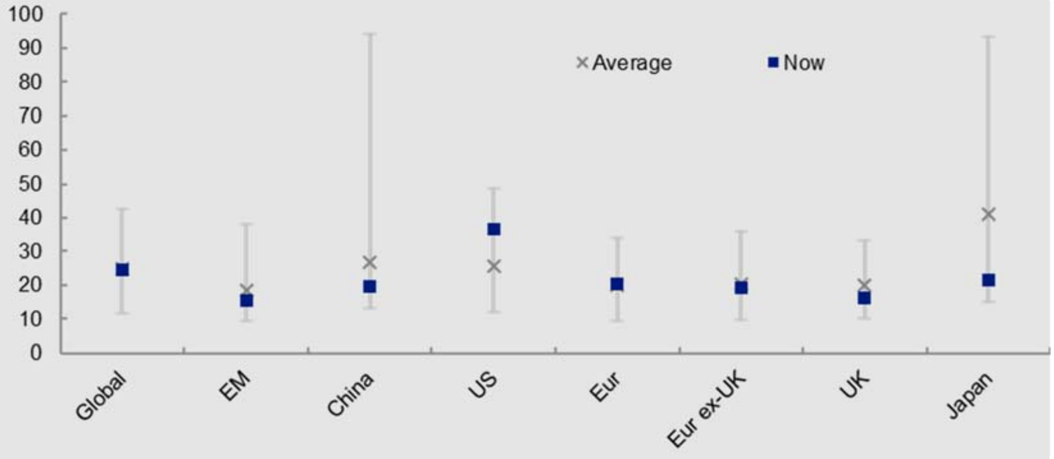
Figure 20 – Commodities versus US equities since 1914

Note: monthly data from September 1914 to February 2021 (as of 26 February). The left-hand axis is logarithmic. "Equities" is a total return index for US equities based on data from Robert Shiller (see Appendices for detail) and "CTY" is a total return index based on the Reuters CRB index until December 1969 and the S&P GSCI index thereafter. "10 yr MA" is a 10-year moving average. "Equities/CTY vs trend" shows the percentage deviation of the Equities/CTY index from its 10-year moving average. Past performance is no guarantee of future results. Source: Reuters CRB, S&P GSCI, Robert Shiller, Refinitiv Datastream and Invesco

US equities appear expensive compared to other regions...

Indeed, US equities would appear more expensive than counterparts elsewhere, both in absolute terms and relative to its own history (see **Figure 21**). Hence, commodities may not appear so cheap when compared to non-US equity markets.

Figure 21 – Historical ranges for CAPEs



Note: CAPE = Cyclically Adjusted Price/Earnings and uses a 10-year moving average of earnings. Based on daily data from 3 January 1983 (except for China from 1 April 2004 and EM from 3 January 2005), using Datastream indices. As of 26 February 2021. Source: Refinitiv Datastream and Invesco

…and previous supports (falling bond yields and weakening dollar) have now reversed

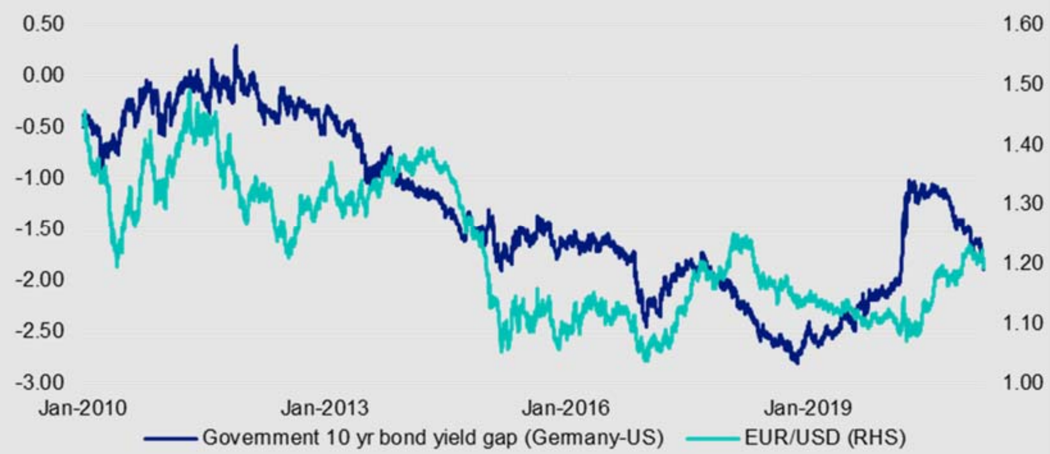
The US equity market has benefitted from its concentration in technology and other growth sectors. This is particularly useful when bond yields are falling, which we believe boosts the fair-value of high growth companies relative to others. The fact that US government yields fell relative to other countries in recent years also depressed the dollar, in our view (see **Figure 22**), which may have added to US stock market outperformance in local currency terms (via the translation effect on overseas earnings).

USD is gaining support from widening spreads but it isn't cheap

Now that bond yields are rising, we would expect the US equity market to be handicapped by its large weighting in growth sectors. Further, the fact that US yields are rising faster than those of other countries (and have been doing so for nearly a year) suggests to us that the dollar might be bottoming and could strengthen (see **Figure 22** for the example of EUR/USD, noting the delayed response from yield gap to currency over recent years). That could further dampen the performance of US equities relative to other markets via the effect on earnings.

Having said that, we don't believe the dollar is cheap. **Figure 23** shows that in real effective terms it is about 10% more expensive than usual over recent decades.

Figure 22 – EUR/USD and bond yield gap

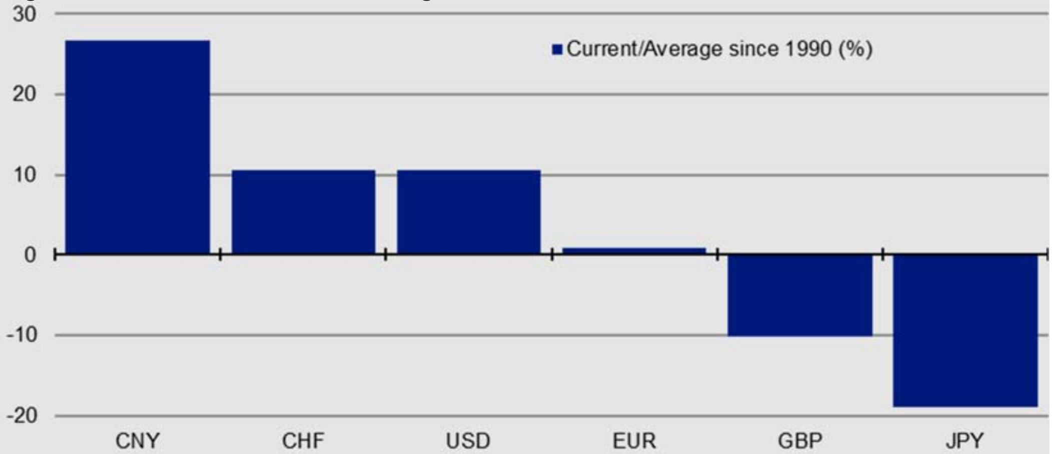


Based on daily data from 1 January 2010 to 5 March 2021. Past performance is no guarantee of future results. Source: Refinitiv Datastream and Invesco

JPY could get even cheaper if the "risk-on" mood prevails

We suspect that could limit potential USD upside, except for versus the Chinese yuan which appears to be more expensive than the dollar. At the other end of the spectrum is the Japanese yen, which remains the cheapest among major currencies on this metric. However, in a "risk-on" environment, we assume the yen could get even cheaper.

Figure 23 – Real effective exchange rates*



*Currency indices measured against a trade-weighted basket of currencies and adjusted for inflation differentials. As of 26 February 2021. Source: OECD, Datastream and Invesco

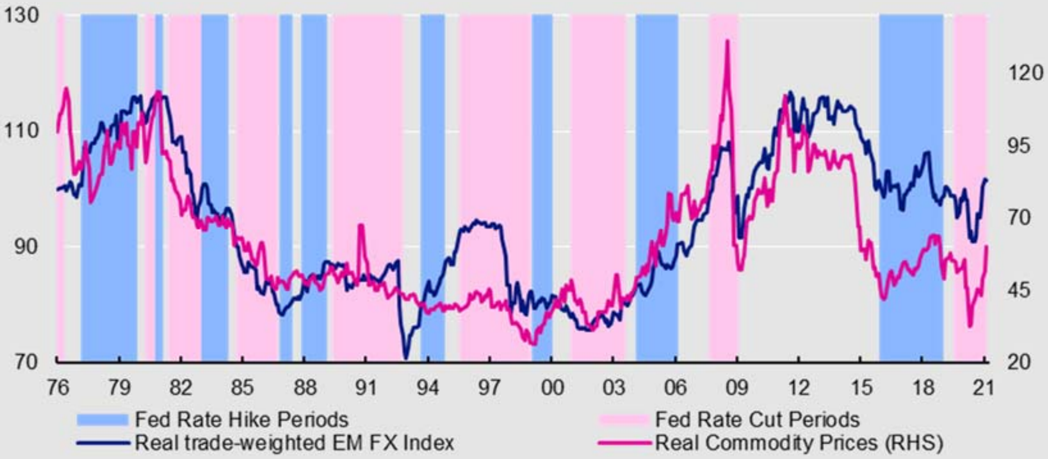
An appreciating dollar could dampen commodity prices and EM assets

If the dollar does strengthen, that could also dampen commodity prices. Note that the gold model shown in **Figure 14** includes the trade weighted dollar as an explanatory variable. The damage inflicted upon gold in recent months by the rise in treasury yields has been offset to some extent by the weakening of the dollar. That support from the dollar may now be reversing.

It may also favour unhedged exposure to US fixed income and real estate assets

A strengthening dollar would tilt the odds in favour unhedged allocations to US assets with no overseas exposure (fixed income and real estate, say). Equally, it could make life more difficult for EM assets, partly because of the effect on commodity prices but also due to the effect on dollar denominated debt servicing costs. Our index of EM currencies has rebounded sharply in recent months (+12% since June 2020 – see **Figure 24**), in line with the rise in commodity prices, but further progress may be difficult.

Figure 24 – Emerging market currencies, commodities and the Fed



Note: monthly data from January 1976 to February 2021. 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 26 February 2021. Past performance is no guarantee of future returns.
Source: IMF, OECD, Oxford Economics, S&P GSCI, Bloomberg L.P., Refinitiv Datastream and Invesco.

Invesco's 10-year CMAs have been published

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

Before considering projections for the next year, it may be instructive to use longer term return projections as a guide. Invesco Investment Solutions have just published their 10-year capital market assumptions. **Figure 25** 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). A more detailed version showing regional detail is contained in Appendix 3.

Figure 25: Invesco 10-year capital market assumptions (global assets, % ann.)

	USD	EUR	GBP	CHF
Cash & Gold	1.3	-0.3	0.6	-0.2
Cash - US Treasury Short	0.5	-1.0	-0.2	-0.9
Gold	2.0	0.5	1.3	0.6
Government Bonds	1.5	0.1	0.8	0.1
Corporate IG	1.5	0.0	0.8	0.1
Corporate HY - US HY	3.1	1.6	2.4	1.7
Equities	6.4	4.9	5.7	5.0
Real Estate	9.0	7.5	8.3	7.6
Commodities	3.8	2.3	3.1	2.4

Note: Estimates as of 31 December 2020 and based on the 10-year capital market assumptions published by Invesco Investment Solutions in Long-Term Capital Market Assumptions (February 2021). The 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

Real estate and equities dominate 10-year CMA based optimal portfolios

Not surprisingly, the further we move along the risk spectrum, the higher the projected returns. There is one exception: commodities. The latter is the only cyclical asset class that hardly features in the optimal solutions (see **Figure 26**). Though results vary by currency base and depend on what is maximised (Sharpe Ratio or returns), there are some broad themes: real estate is maximised in all cases, while IG, HY and commodities are mainly zero allocated; equities are usually Overweight, while government bonds are mainly Underweighted. The combination of cash and gold is largely Overweight but the preference for cash or gold varies (they are never present at the same time). Let's see how shortening the time horizon and allowing for the cycle impacts the conclusions.

Figure 26: 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%	8%	10%	10%	0%	7%	0%	10%
Cash	2.5%	0-10%	10%	0%	10%	0%	0%	0%	0%	0%
Gold	2.5%	0-10%	0%	8%	0%	10%	0%	7%	0%	10%
Government Bonds	25%	10-40%	40%	11%	19%	10%	34%	23%	10%	13%
Corporate IG	10%	0-20%	0%	0%	0%	0%	0%	0%	0%	0%
Corporate HY	5%	0-10%	2%	0%	0%	0%	0%	0%	5%	0%
Equities	45%	25-65%	32%	65%	55%	64%	50%	54%	65%	61%
Real Estate	8%	0-16%	16%	16%	16%	16%	16%	16%	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 Long-Term Capital Market Assumptions (February 2021), as shown in **Figure 25** 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 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 (as shown in **Figure 3**). 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

Underlying assumptions revised up

Projections for the next year

Though we got the direction right in most cases, many of our end-2021 projections have already been surpassed. This leaves us with the choice of revising up our projections or sticking with the original forecasts. Given that we now have more faith in the recovery, we have chosen to revise up our cycle-based assumptions such as bond yields and equity indices. We are also now more optimistic about the US dollar.

Underpinning our projections for the next 12 months are the following assumptions:

- Central bank rates remain stable and asset purchases continue but tapering looms
- Yield curves steepen as tapering approaches; US yields rise more than most
- IG and HY spreads approach historical tights and default rates decline
- USD strengthens as bond yield spreads move in its favour
- Equity dividends rebound but yields rise slightly (with bond yields)
- Real estate (REIT) dividends bottom and yields stabilise
- Commodities consolidate recent gains (and gold falls due to rising yields/dollar)

10-year treasury yield rises to 2.00% and dollar strengthens

The assumptions behind our projections are laid out in **Appendix 4**, while **Figure 27** shows how they translate into market targets. Perhaps the single most important forecast is that the 10-year US treasury yield will rise to 2.00% (based largely on an increase in the real yield as Fed tapering approaches). As seen already this year, this could have a number of important implications: stronger dollar, underperformance of growth stocks (and markets heavily biased to that factor), downward pressure on gold, a tempering of enthusiasm for other commodities and renewed doubts about the ability of EM countries to finance their debt burdens.

We like cyclical assets but see less upside potential than four months ago

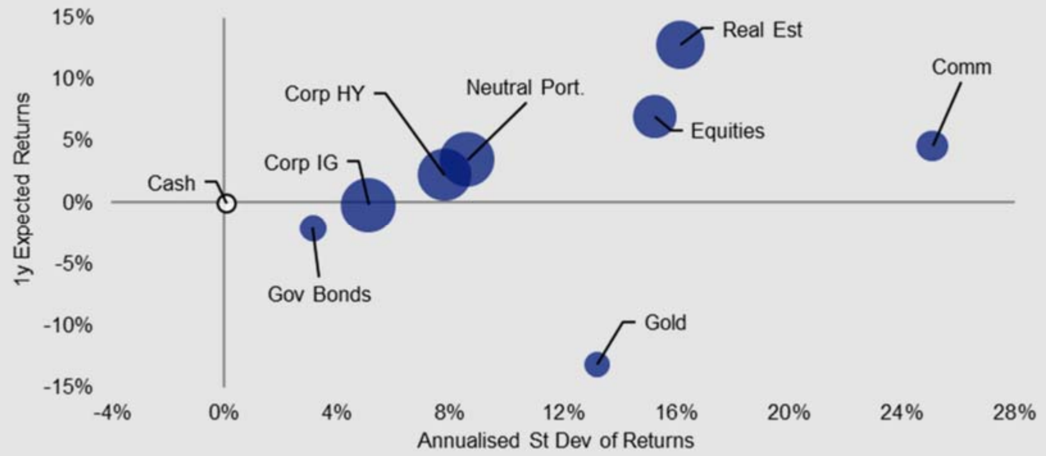
Though we believe the cycle will favour equity-like assets, we find that many of them require heroic assumptions to see them going higher. For example, though we expect a dividend rebound in the US, the dividend yield is extremely low and unless we assume it stays there, the projected returns will be limited (hence the small upside that we forecast for the S&P 500). Though we still imagine upside for cyclical assets, we believe the potential is less than it was when we published the 2021 outlook four months ago.

Figure 27 – Market forecasts

		Current (26/2/21)	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	1.45	2.00
	Eurozone	-0.29	0.10
	China	3.29	3.50
	Japan	0.16	0.15
	UK	0.86	1.10
Exchange Rates/US$	EUR/USD	1.21	1.15
	USD/CNY	6.48	6.80
	USD/JPY	106.60	112.00
	GBP/USD	1.39	1.35
	USD/CHF	0.90	0.98
Equity Indices	S&P 500	3811	3900
	Euro Stoxx 50	3636	4000
	FTSE A50	18317	19000
	Nikkei 225	28966	29000
	FTSE 100	6483	7300
Commodities (US$)	Brent/barrel	66	70
	Gold/ounce	1727	1500
	Copper/tonne	9139	9750

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

Figure 28 – Projected 12m return versus risk for global assets



Based on local currency returns. Returns are projected but standard deviation of returns is based on 5-year historical data. Size of bubbles is in proportion to average pairwise correlation with other assets. Cash is an equally weighted mix of USD, EUR, GBP and JPY. Neutral portfolio weights shown in **Figure 3**. As of 26 February 2021. 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

We expect real estate to be the most remunerative asset

Our own return projections are roughly in line with the GMS rankings shown in **Figure 8**, with the best returns expected on equities, real estate, commodities and HY (see **Figure 28**). However, we are more optimistic on real estate as we believe that elevated REIT yields will mitigate against the upward pressure from bond yields. Conversely, we expect rising government yields to result in negative government debt returns and a near-zero return on IG credit. The anticipated rise in US treasury yields, along with an associated appreciation of the US dollar, leads us to predict negative returns on gold.

Optimisation helps to balance risk and reward (cyclical assets and cash are preferred)

Trying to construct a diversified multi-asset portfolio on the back of those returns requires more than simply choosing the assets expected to perform the best: after all, we may be wrong. We use an optimisation process to help us do that and **Figure 29** shows the results. There is a preference for cyclical assets, while cash is the diversifier of choice.

We reduce commodities and add to government bonds

We largely follow the suggestions of the optimiser when they are clear: we continue to be maximum allocated to real estate and cash, and zero allocated to IG and gold within our Model Asset Allocation. However, we have only reduced commodities to a Neutral 2% (and not to the zero suggested by the optimiser). Elsewhere, we maintain an overweight allocation to equities and an underweight allocation to government bonds (though we add a small amount to the latter, given recent underperformance). We have maintained the neutral allocation to HY.

Figure 29 – Optimised allocations for global assets (using local currency returns)

	Neutral Portfolio	Policy Range	Projected Returns	Optimisations Sharpe Ratio	Optimisations Max Return		Model Asset Allocation*
Cash & Gold	5%	0-10%	-6.7%	10%	10%		10%
Cash	2.5%	0-10%	-0.1%	10%	10%		10%
Gold	2.5%	0-10%	-13.2%	0%	0%		0%
Govt Bonds	25%	10-40%	-2.1%	10%	25%	↑	17%
Corporate IG	10%	0-20%	-0.2%	0%	0%		0%
Corporate HY	5%	0-10%	2.3%	3%	10%		5%
Equities	45%	25-65%	7.0%	61%	39%		50%
Real Estate	8%	0-16%	12.8%	16%	16%		16%
Commodities	2%	0-4%	4.6%	0%	0%	↓	2%

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 Global Market Strategy Office

Model Asset Allocation: stick, twist or fold?

We stick with the preference for cyclical assets but tone it down

Believing that the global economy will grow strongly in 2021, we are sticking with our preference for cyclical assets. However, we fear that a lot of good news is already in the price and, as already suggested in **Figure 29**, we have reduced the allocation to commodities (to Neutral), while adding to government bonds (though remaining Underweight). Those changes are small in nature but we have made a number of regional changes within various asset classes (see **Figure 3** for the full regional detail).

Industrial commodities reduced

Though we favour cyclical assets, we worry that some **commodities** are now expensive. Hence, we have reduced the allocation from the maximum allowed 4% to a Neutral 2%. This is done by reducing the allocations to energy (to a Neutral 1%) and industrial metals (to zero). We maintain the zero allocation to precious metals and the Overweight allocation to agriculture, which we think is the only commodities group that looks cheap.

Government bonds increased slightly after recent weakness

The flipside is that we have boosted the allocation to **government bonds** from 15% to 17% (Underweight versus the neutral 25%). We have added to the US position (though remain Underweight), despite the concern that yields will rise more than elsewhere (we suspect the dollar will appreciate and we are unhedged). We are also adding slightly to the position in Japan because we expect yields to remain depressed by BOJ policies, though again we remain Underweight. After the rebound in sterling in recent months, the UK position is reduced to Neutral. Though we continue to like EM debt, we are reducing the extent of the Overweight (by eliminating the allocation to China).

More focus on US within HY credit

Among other fixed income groups, we remain zero allocated to **IG** credit and Neutral in **HY** credit. Given the expectation of dollar appreciation, we are now focused entirely on US HY and have reduced Europe to zero.

Real estate unchanged but UK reduced after strong rebound

The **real estate** allocation remains at the maximum 16% but the allocations to the US and Japan have been boosted (to further Overweight), while that to the UK is reduced (to Neutral). The UK was the best performing real estate market since we last published (judged by REITS), especially when currency movements were considered (see **Appendix 2**). Our favoured markets are now EM, Europe ex-UK and Japan.

Equities unchanged but China and Japan reduced; UK increased

The allocation to **equities** also remains unchanged (at an Overweight 50%). After the strong performance during 2020 and the importance of technology stocks, we have reduced the allocation to China to Neutral (while leaving the overall EM allocation unchanged and still Overweight). We have also reduced the allocation to Japan, while increasing that to the UK (both remain Overweight). Though the UK has been the best performing market over the last four months (**Appendix 2**), we think it has the best potential over the next 12 months (helped by valuations and the large weighting of resource related and financial sectors). We remain Underweight US equities due to our belief that they are extended from a valuation perspective and that technology and other growth sectors will struggle as bond yields rise.

Cash is the diversifier of choice

Cash remains our diversifier of choice and is our favourite among cash equivalents. Though policy rates are extremely low (and negative in some cases), the lack of volatility and low correlation to other assets explains why it is favoured by our optimisation processes (see **Figures 28** and **29**). We remain at the maximum 10% allocation.

Gold will struggle under our scenario

Gold performed extremely well during 2020 but we suspect it will decline as bond yields and the dollar rise (as we expect). We remain zero-weighted.

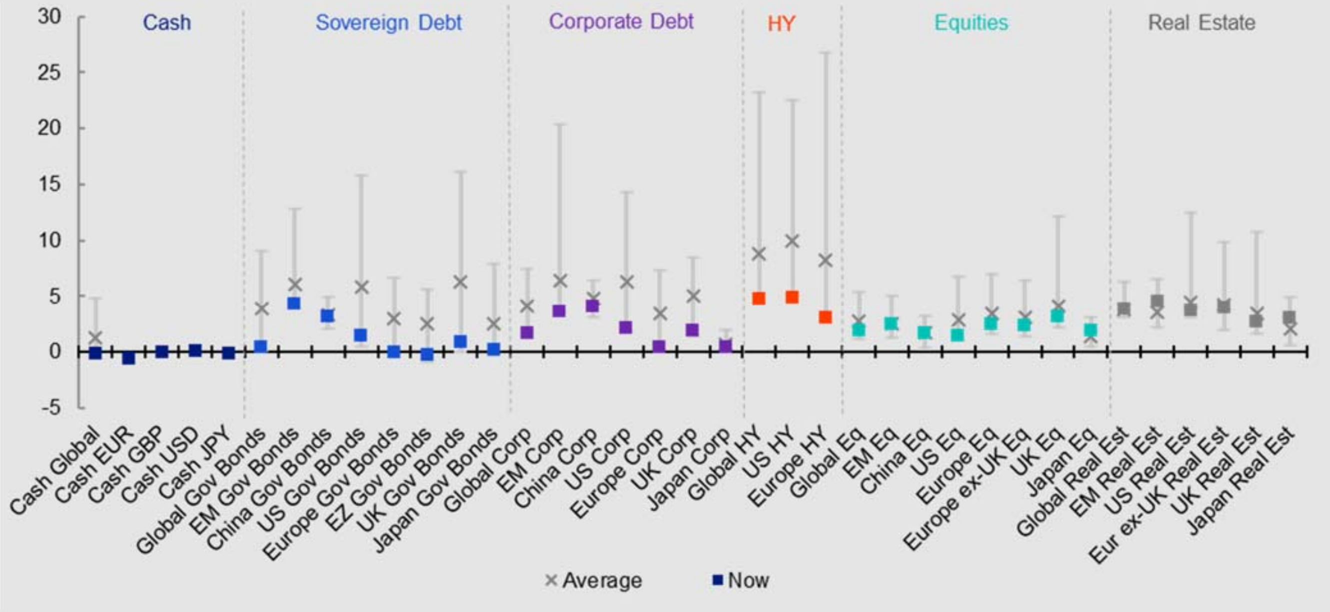
Europe and EM favoured but less so; US exposure increased

When it comes to regional exposures, **Figure 3** shows that our Model Asset Allocation favours regions that we think have most to gain during an expansionary phase of the global economy: EM and Europe (including the UK). However, we have reduced the extent of those Overweight positions in favour of US exposures, where we have reduced the Underweight (we expect the dollar to appreciate slightly but are wary of US equities). We continue with the policy of not hedging currency exposures – the dollar strength that we expect is not enough to justify such action, in our opinion.

Appendices

Appendix 1: Global valuations vs history

Regional yields within historical ranges



Notes: As of 26 February 2021. Past performance is no guarantee of future results. See appendices for definitions, methodology and disclaimers. Source: Bloomberg Barclays, BofAML, FTSE, Refinitiv Datastream, Invesco

Appendix 2: Asset class total returns

Data as at 28/02/2021		Current	Total Return (USD, %)				Total Return (Local Currency, %)			
	Index	Level/RY	4m	YTD	12m	5y*	4m	YTD	12m	5y*
Equities										
World	MSCI	657	19.9	1.9	30.9	14.8	18.5	2.3	27.8	14.4
Emerging Markets	MSCI	1339	21.9	3.9	36.5	15.7	20.0	4.9	34.8	15.3
China	MSCI	115	12.2	6.3	43.3	20.5	11.8	6.2	41.7	20.3
US	MSCI	3720	18.1	1.7	34.1	17.4	18.1	1.7	34.1	17.4
Europe	MSCI	1854	23.8	1.0	20.9	9.5	18.1	1.4	10.1	8.0
Europe ex-UK	MSCI	2323	22.8	0.3	24.7	11.1	18.3	1.5	13.3	8.9
UK	MSCI	1061	27.3	3.4	9.2	4.8	17.7	1.1	-0.2	4.7
Japan	MSCI	3873	17.8	0.5	28.9	11.7	20.0	3.7	27.3	10.4
Government Bonds										
World	BofA-ML	0.48	-1.3	-3.7	2.3	2.7	-2.7	-2.9	-1.7	1.8
Emerging Markets (USD)	BBloom	4.33	1.8	-5.3	0.3	7.2	1.8	-5.3	0.3	7.2
China	BofA-ML	3.13	5.0	1.4	8.4	3.3	1.2	0.2	0.2	3.0
US (10y)	Datastream	1.45	-4.5	-4.3	0.1	2.9	-4.5	-4.3	0.1	2.9
Europe	Bofa-ML	0.01	1.9	-3.3	9.9	4.3	-2.2	-2.5	-0.6	2.0
Europe ex-UK (EMU, 10y)	Datastream	-0.29	0.8	-3.5	7.0	4.0	-3.3	-2.7	-3.2	1.7
UK (10y)	Datastream	0.86	2.6	-3.5	5.9	2.8	-5.1	-5.7	-3.2	2.7
Japan (10y)	Datastream	0.16	-2.9	-4.3	-1.4	1.2	-1.0	-1.2	-2.6	0.0
IG Corporate Bonds										
Global	BofA-ML	1.69	1.6	-2.6	5.4	5.5	0.0	-2.5	2.2	4.9
Emerging Markets (USD)	BBloom	3.65	5.6	-0.4	9.1	12.0	5.6	-0.4	9.1	12.0
China	BofA-ML	4.07	4.9	1.7	10.0	2.9	1.1	0.5	1.7	2.6
US	BofA-ML	2.16	-0.1	-3.2	2.5	5.8	-0.1	-3.2	2.5	5.8
Europe	BofA-ML	0.48	4.5	-1.7	11.5	4.8	0.2	-0.9	0.9	2.5
UK	BofA-ML	1.89	7.5	-2.0	11.3	5.8	-0.6	-4.2	1.7	5.7
Japan	BofA-ML	0.45	-1.8	-3.3	0.5	1.5	0.1	-0.2	-0.7	0.4
HY Corporate Bonds										
Global	BofA-ML	4.73	7.7	0.5	10.2	8.9	6.7	0.6	8.1	8.4
US	BofA-ML	4.84	6.7	0.7	8.6	8.8	6.7	0.7	8.6	8.8
Europe	BofA-ML	3.08	10.7	0.2	16.6	8.1	6.2	1.0	5.5	5.7
Cash (Overnight LIBOR)										
US		0.08	0.0	0.0	0.1	1.2	0.0	0.0	0.1	1.2
Euro Area		-0.59	2.0	-1.2	10.3	1.5	-0.2	-0.1	-0.6	-0.5
UK		0.04	7.0	1.9	8.1	0.5	0.0	0.0	0.1	0.4
Japan		-0.08	-1.7	-3.1	3.5	1.3	0.0	0.0	-0.1	-0.1
Real Estate (REITs)										
Global	FTSE	1827	20.2	3.1	1.6	6.6	15.4	3.9	-8.0	4.2
Emerging Markets	FTSE	2039	14.3	3.6	-2.7	10.6	9.7	4.4	-11.9	8.2
US	FTSE	2943	21.6	5.0	2.2	5.7	21.6	5.0	2.2	5.7
Europe ex-UK	FTSE	3482	14.6	-7.2	0.6	8.2	10.0	-6.5	-8.9	5.9
UK	FTSE	1177	24.9	2.9	4.3	2.4	15.5	0.6	-4.7	2.4
Japan	FTSE	2769	20.0	6.2	2.1	4.3	22.3	9.6	0.9	3.1
Commodities										
All	GSCI	2294	37.8	16.1	8.4	2.6	-	-	-	-
Energy	GSCI	335	61.1	25.5	-9.6	1.0	-	-	-	-
Industrial Metals	GSCI	1559	23.4	11.4	39.3	9.9	-	-	-	-
Precious Metals	GSCI	2023	-6.6	-8.0	11.3	6.2	-	-	-	-
Agricultural Goods	GSCI	434	24.6	8.5	32.0	0.1	-	-	-	-
Currencies (vs USD)**										
EUR		1.21	3.7	-1.1	9.5	2.1	-	-	-	-
JPY		106.60	-1.8	-3.1	1.4	1.1	-	-	-	-
GBP		1.40	8.1	2.3	9.5	0.1	-	-	-	-
CHF		1.10	0.9	-2.5	6.3	1.9	-	-	-	-
CNY		6.48	3.4	0.8	8.0	0.2	-	-	-	-

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	0.5	0.5	1.5	0.35
	US Treasury Intermediate	BBG BARC US Treasury Intermediate	0.7	0.8	4.5	0.18
	US Treasury Long	BBG BARC US Treasury Long	0.8	1.4	11.5	0.12
	US TIPS	BBG BARC US TIPS	1.1	1.2	5.6	0.22
	US Bank Loans	CSFB Leverage Loan Index	4.3	4.7	8.5	0.55
	US Aggregate	BBG BARC US Aggregate	1.4	1.6	5.9	0.27
	US Inv Grd Corps	BBG BARC US Investment Grade	1.3	1.6	7.6	0.21
	US MBS	BBG BARC US MBS	1.6	1.8	6.6	0.28
	US Preferred Stocks	BOA ML Fixed Rate Pref Securities	2.7	3.4	12.5	0.28
	US High-Yield Corps	BBG BARC US High Yield	3.1	3.6	10.2	0.35
	US Intermediate Municipals	BOA ML US Municipal (3Y-15Y)	2.2	2.4	6.0	0.40
	US High-Yield Municipals	BBG BARC Municipal Bond High Yield	2.3	2.6	8.6	0.31
	Global Aggregate	BBG BARC Global Aggregate	1.7	1.9	6.5	0.30
	Global Aggregate-Ex US	BBG BARC Global Aggregate- Ex US	1.8	2.3	9.9	0.23
	Global Treasury	BBG BARC Global Treasuries	1.5	1.9	8.1	0.23
	Global Sovereign	BBG BARC Global Sovereign	1.3	1.5	6.6	0.22
	Global Corporate	BBG BARC Global Corporate	1.7	2.0	7.5	0.27
	Global Inv Grd	BBG BARC Global Corporate Inv Grd	1.5	1.8	7.6	0.23
	Eurozone Corporate	BBG BARC Euro Aggregate Credit - Corporate	1.5	2.3	13.2	0.18
	Eurozone Treasury	BBG BARC Euro Aggregate Government - Treasury	1.4	2.1	12.1	0.18
	Asian Dollar Inv Grd	BOA Merrill Lynch ACIG	2.0	2.3	8.1	0.28
	Asian Dollar High Yield	BOA Merrill Lynch ACHY	5.9	7.5	18.2	0.41
	EM Aggregate	BBG BARC EM Aggregate	2.7	3.5	12.8	0.27
	EM Aggregate Sovereign	BBG BARC EM Sovereign	1.6	1.9	8.0	0.24
	EM Aggregate Corporate	BBG BARC EM Corporate	1.3	1.5	5.5	0.27
	EM Corporate IG	BBG BARC EM USD Aggregate - Corporate -IG	1.7	1.8	4.8	0.38
Equities	World Equity	MSCI ACWI	6.4	7.8	17.1	0.45
	World Ex-US Equity	MSCI ACWI Ex-US	7.5	9.1	19.0	0.48
	US Broad	Russell 3000	5.8	7.3	17.6	0.41
	US Large Cap	S&P 500	5.6	6.9	16.8	0.41
	US Mid Cap	Russell Midcap	6.5	8.3	19.7	0.42
	US Small Cap	Russell 2000	8.2	10.5	23.2	0.46
	MSCI EAFE	MSCI EAFE	6.6	8.2	18.8	0.44
	MSCI Europe	MSCI Europe	6.8	8.4	18.9	0.44
	Eurozone	MSCI Euro X UK	6.2	8.0	19.9	0.40
	UK Large Cap	FTSE 100	8.7	10.5	20.3	0.52
	UK Small Cap	FTSE Small Cap UK	10.1	13.0	25.9	0.50
	Canada	S&P TSX	7.7	9.6	20.5	0.47
	Japan	MSCI JP	5.9	8.2	22.7	0.36
	Emerging Market	MSCI EM	9.2	11.9	25.3	0.47
	Asia Pacific Ex JP	MSCI APXJ	8.4	11.2	25.4	0.44
	Pacific Ex JP	MSCI Pacific X JP	9.1	14.3	35.5	0.40
Alternatives	US REITs	FTSE NAREIT Equity	9.6	11.2	18.7	0.60
	Global REITs	FTSE EPRA/NAREIT Developed Index	9.0	10.5	18.5	0.57
	Hedge Funds	HFRI HF Index	6.3	6.7	8.7	0.77
	Commodities	S&P GSCI	3.8	6.3	23.8	0.27
	Agriculture	S&P GSCI Agriculture	-0.5	1.7	21.5	0.08
	Energy	S&P GSCI Energy	6.0	11.7	37.2	0.31
	Industrial Metals	S&P GSCI Industrial Metals	3.6	6.3	24.0	0.26
	Precious Metals	S&P GSCI Precious Metals	2.0	3.6	18.6	0.19

Notes: Estimates as of 31 December 2020, as published in Long-Term Capital Market Assumptions (February 2021). 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.
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)	150	100	100	25	-	-
Corporate IG spreads vs sovereign (bps)	100	25	100	20	-	-
Corporate HY spreads vs sovereign (bps)	350	250	-	-	-	-
Corporate HY default rates (%)	3.5	3.5	-	-	-	-
Corporate HY recovery rates (%)	43	50	-	-	-	-
Equities dividend growth (%)*	10.0	20.0	20.0	10.0	20.0	10.0
Equities dividend yield (%)*	1.5	2.6	3.4	2.1	2.7	1.8
Real estate dividend growth (%)*	10.0	10.0	10.0	5.0	15.0	-
Real estate dividend yield (%)*	3.8	4.0	3.0	2.8	4.6	-

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 Global Market Strategy Office

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 1 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 27) 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, 4, 5, 28 and 29) are based on Bank of America Merrill Lynch government bond indices with historical ranges starting on 31 December 1985 for the Global, Europe ex-UK, UK and Japanese indices, 30 January 1978 for the US and 31 December 2004 for China. 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 28 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 31 December 1996 for the Global, 31 January 1973 for the US dollar, 1 January 1996 for the euro, 31 December 1996 for the British pound, 6 September 2001 for the Japanese yen and 31 December 2004 for the China 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 28 February 2003.

Corporate high yield (HY) bonds: Bank of America Merrill Lynch high yield indices with historical ranges starting on 29 August 1986 for the US dollar, and 31 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 31 December 1969 for the Global, US, Europe ex-UK, UK and Japanese indices, 31 December 1987 for the emerging markets index and 31 December 1992 for the China index (figures 1, 2, 28 & 29). Equity index valuations (figures 4, 5, 21 and Appendix 1) are based on dividend yields and price-earnings ratios using Datastream benchmark indices with historical ranges starting on 1 January 1973 for the Global, US, Europe ex-UK and Japanese indices, 31 December 1969 for the UK index, 2 January 1995 for the Emerging Markets index and 26 August 1991 for the China A-Shares index.

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

Commodities: Goldman Sachs Commodity Index with historical ranges starting on 31 December 1969 for the All Commodities and Agriculture indices, 31 December 1982 for the Energy index, 3 January 1977 for the Industrial Metals index, and 2 January 1973 for the Precious Metals index. “Industrial commodities” is oil & gas and industrial metals.

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 1 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 China, the World and Europe. The emerging markets yields and returns are based on the Barclays Bloomberg emerging markets sovereign US dollar 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

Definitions of data and benchmarks for long term US equity index (Figure 20)

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.

Appendix 7: IIS Capital Market Assumptions methodology (Figure 25 and 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 heterogenous 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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