Uncommon truths
Is ARP dollar positive?

The US government is embarking on another round of fiscal stimulus. Estimates vary about the likely effect on the economy but we suspect it will boost the dollar over the coming quarters (despite longer term concerns). This has tempered our enthusiasm for commodities and EM assets.

A little more than four years ago (29 January 2017) we asked: Is the GOP tax plan dollar positive? We didn't think so but were confronted by a lot of investors who believed the proposed tax cuts would boost the greenback. Now that President Biden's American Rescue Plan Act of 2021 (ARP) has won congressional approval, we are not detecting the same degree of dollar enthusiasm (though that may be due to a lack of client contact!).

Coming on top of $3.3trn of other COV-19 related fiscal programmes in the last year, this new $1.9trn package is truly astounding. First, it represents around 9% of annualised 2020 Q4 GDP (**Figure 1** shows how the annual flow of ARP net spending compares to other COV-19 programmes). Second, and perhaps more striking, it comes at a time when the US economy is already expected to grow strongly.

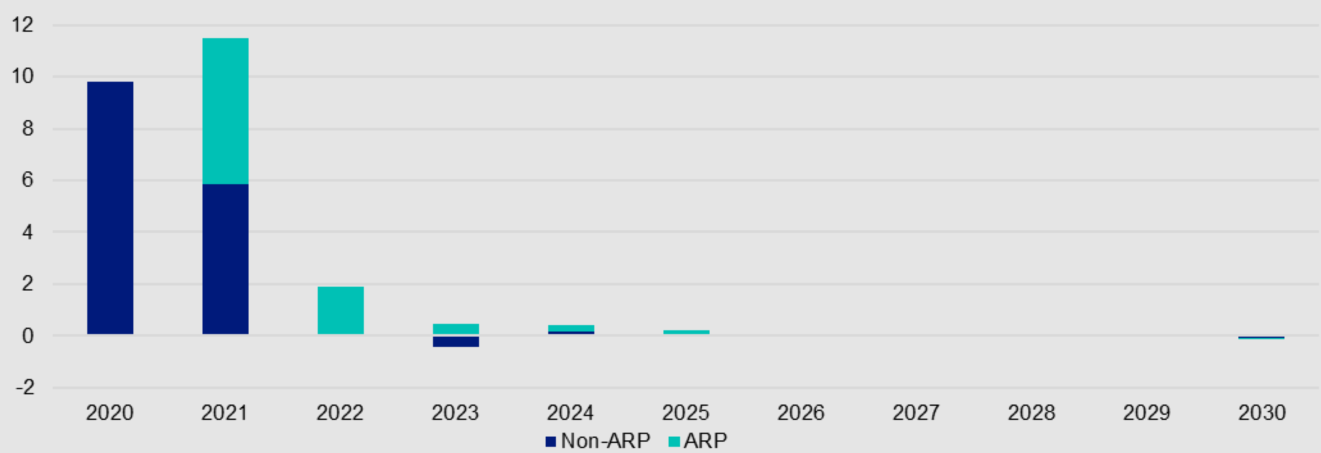
For example, the Brookings Institute reckons that without ARP, US GDP would grow by 4% during 2021 (Q4 to Q4) and by a further 2.5% in 2022. However, they also suggest that over the long-haul, GDP would remain below the pre-pandemic path defined by the Congressional Budget Office (CBO) in January 2020 (with a cumulative loss of GDP of 3% by the end of 2023). They predict that ARP would add a further 4% to real GDP at end-2021 (and 2% at end-2022), taking it 2% above the pre-pandemic path in 2021 Q4 and leaving it above that path over the next two years (by 1% at end-2022 but less at end-2023). Nevertheless, there would still be a cumulative GDP loss of 1% versus the pre-pandemic trend at the end of 2023.

Imagine for a moment that the US economy grows by 8% this year (the above quoted numbers from the Brookings Institute suggest 8% real GDP growth from 2020 Q4 to 2021 Q4, while Moody's Analytics suggested 8% calendar year growth in their analysis of ARP). That sort of growth has to be good for the dollar, doesn't it? For one thing we imagine that it would boost demand for US equities and, for another, we would expect US bond yields to continue rising faster than counterparts elsewhere.

However, opinions vary on the economic impact of ARP. For example, the University of Pennsylvania's Penn Wharton Budget Model (PWBM) reckons the impact will be more limited, with a GDP uplift of only 0.6% in 2021 and a GDP loss of 0.2% in 2022 and 0.3% in 2040 (see here).

To be fair, the above mentioned Brookings Institute forecast assumes a slight dip in GDP in mid-2022 and **Figure 1** makes it clear why: with no extension of these programmes, government support is expected to fall from 11.5% of GDP in 2021 to 1.9% in 2022. That is some cliff edge and we agree it is likely to disrupt the economy. However, there are more basic differences between the Brookings and PWBM models concerning assumptions about fiscal multipliers and crowding-out effects. PWBM uses fiscal multipliers from the low end of the CBO range of estimates and assumes the rise in government debt will crowd-out private sector investment.

Figure 1 – US government net spend on Covid-19 programmes as a percent of estimated GDP



Based on US Congressional Budget Office (CBO) estimates of the impact of Covid-related programmes announced since the outbreak of the pandemic, taking account of both spending and revenue impacts. GDP estimates were as provided by the CBO in The Budget and Economic Outlook: 2021 to 2031 (February 2021).
Source: US Congressional Budget Office and Invesco

Invesco

PWBM assumes that fiscal multipliers will be lower this year than last because the economy is closer to potential output than it was during the recession of 2020. They also point out that large parts of the economy are operating at near full capacity, while a smaller segment is virtually closed. We agree that government spending aimed at those parts of the economy at full capacity is likely to have less effect on output and more of an effect on inflation. Hence, we suspect the immediate economic uplift from ARP may be less than suggested by a simple analysis of the data shown in **Figure 1**.

So, with a potential 2021 GDP uplift in the 0.6%-4.0% range (based on the estimates mentioned above), what effect will ARP have on the dollar? We can see reasons why the impact could be negative: first, such economic growth could boost imports and increase the current account deficit, thus increasing the supply of dollars relative to other currencies; second, any rise in US inflation relative to elsewhere should be dollar negative (if the US is to remain competitive); third, the concomitant increase in US government debt (and perhaps overseas debt), could increase the risk premium demanded by investors to hold US treasuries, which could depress the dollar if yields do not rise and, third, the related growth in US money supply could have a depressing effect on the currency -- the 26% y-o-y growth in US M2 in January was exceeded only by the 32% M3 growth in Turkey among the countries we monitor (Turkey's central bank raised its policy rate by two percentage points last week but its head was then fired).

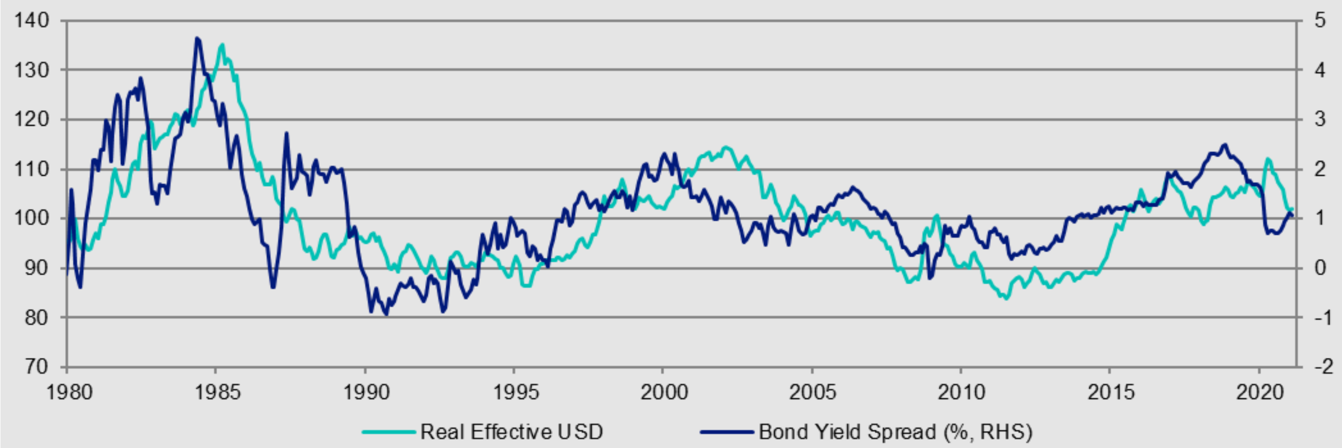
However, we suspect those factors would play out on the dollar over the longer term. What may be more important in the immediate future is the path of yield spreads relative to other countries and we suspect that may be supportive of the greenback. **Figure 2** shows that the 10-year spread versus Germany, Japan and the UK peaked in November 2018 (at about the time of the last Fed rate hike). The spread then narrowed over the next 18 months, though there was a lag before the dollar weakened (as seems usual, based on the evidence in that chart).

That yield spread bottomed in April 2020 and has been widening of late. The movement has not been dramatic but it seems to have been enough to halt the decline in the dollar. Indeed, the DXY index is up nearly 3% since its early January low, though that strength does not yet show up in the monthly OECD trade-weighted dollar index shown in **Figure 2** (we use an inflation adjusted version to abstract from currency movements that are simply due to inflation differentials).

The dollar index shown in **Figure 2** is now close to its post-1980 average, so we suspect that in the coming quarters the dollar will be driven more by movements in yield gaps than by valuation considerations. Given that the ARP boost to the US economy in 2021 (whatever the extent) will come on top of what was already expected to be strong growth, we believe US 10-year yields will reach 2.00% this year (and rise faster than yields elsewhere). **Hence, we suspect the dollar will strengthen.**

However, there may be reasons to believe the dollar strength will be limited in magnitude and duration. First, the negatives outlined above could weaken the dollar over the longer term. Second, on current plans, the fiscal boost peaks in 2021 and will be much diminished in 2022 (as already mentioned, both the Brookings Institute and PWBM expect the GDP effect of ARP to turn negative in 2022).

Figure 2 – US dollar and the 10-year bond yield spread



Based on monthly data from January 1980 to February 2021. "Bond yield spread" is US 10-year treasury yield minus the average 10-year government yield in Germany, Japan and the UK. "Real Effective USD" is real (CPI adjusted) trade weighted index of the US dollar, as calculated by the OECD. Past performance is no guarantee of future results. Source: OECD, Refinitiv Datastream and Invesco

Invesco

The PWBM analysis also focuses on the longer-term effect of crowding-out on private sector investment spending. This would normally be a consideration but given that the Fed is facilitating the expansion of government debt by purchases of treasuries, it may not apply this time around. Hence, private sector savings are not being absorbed by government debt. If anything, household savings have been boosted by government payments (and lack of opportunity to spend) and these savings have been partially deployed in the stock market, thus boosting the financing of private sector investment. We wonder if there may be some crowding-in this time around?

Talking of savings rates, in a world of rational expectations, households and businesses may hold on to a portion of their savings knowing that taxation will rise in the future (especially given that President Biden has told them it will). This is another reason for erring on the side of caution when it comes to assessing the GDP boost coming from ARP.

Finally, where does this leave the stability of the US economy and financial system? **Figure 3** shows that US government debt/GDP has reached levels only previously seen during WW2. That is bad but that episode shows the problem can be solved. However, we doubt that the US is about to go through another baby-boom (quite the reverse) and climate change may impose further costs/economic damage (either through mitigation or adaptation). Higher debt may be here to stay (as in many other developed countries).

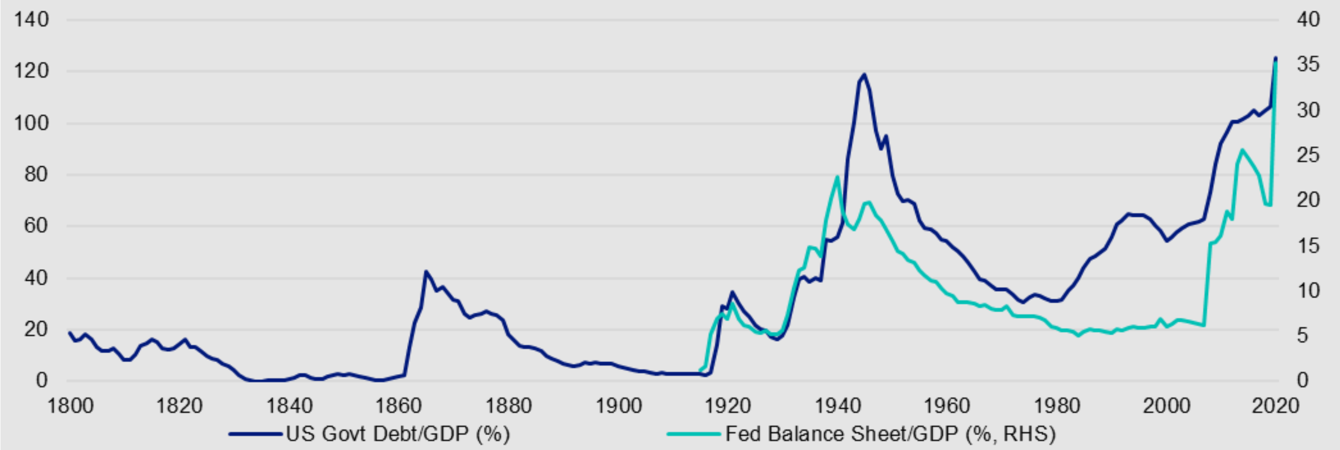
We may be consoled that the US government is not yet in uncharted waters but the same cannot be said for the Fed. As shown in **Figure 3**, the Fed's balance sheet has never been so large, when compared to GDP. The Global Financial Crisis (GFC) had already pushed the Fed's balance sheet to a new high but it had declined in recent years. However, the pandemic has forced the Fed to be even more extreme and this time around it has gone much further than would have been needed to simply finance government debt.

This does not look good and may be cause for concern about the future stability of the US economy, financial system and the dollar. But, the value of the dollar also depends upon what is happening elsewhere and there is at least one central bank that appears to be even more extreme than the Fed: The Bank of England. Though UK government debt is "only" around 100% of GDP (it reached 235%-240% during the Napoleonic and second world wars), the BOE balance sheet, which had previously peaked at 19%-20% of GDP in the 1730s and in 1946, went above 20% as a result of the GFC and increased from 26% in 2019 to 44% in 2020. So, the BOE appears to have been more extreme than the Fed in its reaction to the pandemic and, like the Fed, has exceeded what was needed to finance the UK government. It may be no consolation in absolute terms but in relative terms the Fed is not the worst offender.

Coming back to the idea that the dollar may be supported by ARP over the coming quarters, what could be the consequences? First, we think it may favour unhedged fixed income investments in the US (we remain unhedged in our Model Asset Allocation – see **Figure 7**). Second, we suspect it may temper the rise in commodities (we recently reduced to Neutral) and further depress gold. Third, that, along with the effect on dollar debt financing costs, may temper the enthusiasm for emerging market currencies and debt (we recently reduced our EM allocations). Finally, it may help non-US equity markets (which we favour in our Model Asset Allocation), via translation effects.

Unless stated otherwise, all data as of 18 March 2021

Figure 3 – US government debt and the Fed's balance sheet



Based on annual data from 1800 to 2020.
Source: Federal Reserve Bank of St. Louis, Gresham's Law, Global Financial Data, Refinitiv Datastream and Invesco

Figure 4 – Asset class total returns

Data as at 18/03/2021	Index	Current Level/RY	Total Return (USD, %) 1w	1m	QTD	YTD	12m	Total Return (Local Currency, %) 1w	1m	QTD	YTD	12m
Equities												
World	MSCI	673	-0.2	-0.6	4.6	4.6	70.8	-0.2	-0.2	5.3	5.3	65.1
Emerging Markets	MSCI	1347	-0.7	-5.3	4.7	4.7	75.4	-0.9	-4.7	5.8	5.8	68.5
China	MSCI	113	-1.3	-10.6	4.5	4.5	64.4	-1.3	-10.4	4.6	4.6	62.8
US	MSCI	3802	-0.8	-0.7	4.0	4.0	70.1	-0.8	-0.7	4.0	4.0	70.1
Europe	MSCI	1921	0.4	2.6	4.9	4.9	70.6	0.7	3.9	6.9	6.9	52.7
Europe ex-UK	MSCI	2404	0.4	2.4	4.0	4.0	74.0	0.7	4.2	7.2	7.2	58.5
UK	MSCI	1103	0.6	3.1	8.1	8.1	59.7	0.8	3.2	6.0	6.0	34.8
Japan	MSCI	4048	3.8	-0.5	5.1	5.1	62.0	4.3	2.5	10.9	10.9	62.8
Government Bonds												
World	BofA-ML	0.50	-0.9	-2.4	-5.1	-5.1	4.5	-0.7	-1.3	-3.3	-3.3	0.3
Emerging Markets	BBloom	4.51	-0.5	-3.9	-6.8	-6.8	25.2	-0.5	-3.9	-6.8	-6.8	25.2
China	BofA-ML	3.15	0.0	0.0	1.1	1.1	8.1	0.2	0.4	0.5	0.5	0.1
US (10y)	Datastream	1.73	-1.8	-4.0	-6.6	-6.6	-2.1	-1.8	-4.0	-6.6	-6.6	-2.1
Europe	Bofa-ML	-0.01	-1.0	-1.9	-5.1	-5.1	15.1	-0.7	-0.6	-2.6	-2.6	4.6
Europe ex-UK (EMU, 10y)	Datastream	-0.31	-0.9	-1.9	-5.1	-5.1	10.9	-0.6	-0.7	-2.6	-2.6	0.7
UK (10y)	Datastream	0.91	-1.5	-2.5	-4.2	-4.2	17.8	-1.3	-2.4	-6.1	-6.1	-0.5
Japan (10y)	Datastream	0.11	-0.4	-3.1	-5.9	-5.9	-0.5	0.0	-0.1	-0.7	-0.7	-0.1
IG Corporate Bonds												
Global	BofA-ML	1.82	-0.9	-2.7	-4.3	-4.3	15.8	-0.8	-2.3	-3.7	-3.7	11.7
Emerging Markets	BBloom	3.85	-0.1	-2.0	-1.7	-1.7	29.7	-0.1	-2.0	-1.7	-1.7	29.7
China	BofA-ML	4.06	-0.1	-0.1	1.3	1.3	9.9	0.1	0.4	0.7	0.7	1.7
US	BofA-ML	2.37	-1.1	-3.3	-5.1	-5.1	13.4	-1.1	-3.3	-5.1	-5.1	13.4
Europe	BofA-ML	0.47	-0.6	-1.7	-3.4	-3.4	19.7	-0.3	-0.5	-0.9	-0.9	8.7
UK	BofA-ML	1.98	-1.5	-2.3	-3.0	-3.0	34.4	-1.3	-2.2	-4.9	-4.9	13.5
Japan	BofA-ML	0.41	-0.4	-2.8	-5.2	-5.2	0.0	0.0	0.1	0.0	0.0	0.4
HY Corporate Bonds												
Global	BofA-ML	4.84	-0.4	-1.2	-0.2	-0.2	29.6	-0.4	-1.0	0.2	0.2	27.0
US	BofA-ML	5.02	-0.7	-1.3	0.0	0.0	26.6	-0.7	-1.3	0.0	0.0	26.6
Europe	BofA-ML	2.98	-0.4	-1.3	-1.3	-1.3	39.8	-0.1	-0.1	1.3	1.3	27.0
Cash (Overnight LIBOR)												
US		0.08	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Euro Area		-0.58	-0.6	-1.5	-2.6	-2.6	8.5	0.0	0.0	-0.1	-0.1	-0.6
UK		0.04	-0.5	-0.4	1.8	1.8	19.9	0.0	0.0	0.0	0.0	0.1
Japan		-0.09	-0.4	-3.0	-5.2	-5.2	-0.9	0.0	0.0	0.0	0.0	-0.1
Real Estate (REITs)												
Global	FTSE	1887	1.6	4.5	6.7	6.7	53.2	1.9	5.8	9.5	9.5	39.2
Emerging Markets	FTSE	2082	2.9	5.4	5.9	5.9	32.5	3.2	6.7	8.7	8.7	20.4
US	FTSE	3089	1.9	5.5	10.4	10.4	61.4	1.9	5.5	10.4	10.4	61.4
Europe ex-UK	FTSE	3516	-1.0	1.2	-6.2	-6.2	57.2	-0.8	2.5	-3.7	-3.7	42.8
UK	FTSE	1398	0.4	3.0	4.4	4.4	58.0	0.7	3.1	2.4	2.4	33.3
Japan	FTSE	2848	3.5	2.7	9.3	9.3	50.7	4.0	5.8	15.4	15.4	51.4
Commodities												
All	GSCI	2254	-4.9	-0.9	14.0	14.0	53.5	-	-	-	-	-
Energy	GSCI	327	-8.5	-1.1	22.5	22.5	68.0	-	-	-	-	-
Industrial Metals	GSCI	1547	0.3	1.6	10.5	10.5	52.9	-	-	-	-	-
Precious Metals	GSCI	2025	0.6	-2.5	-7.9	-7.9	20.5	-	-	-	-	-
Agricultural Goods	GSCI	424	-1.0	-2.1	5.9	5.9	40.8	-	-	-	-	-
Currencies (vs USD)*												
EUR		1.19	-0.6	-1.4	-2.5	-2.5	9.2	-	-	-	-	-
JPY		108.90	-0.4	-3.0	-5.2	-5.2	-0.8	-	-	-	-	-
GBP		1.39	-0.2	-0.1	2.0	2.0	18.5	-	-	-	-	-
CHF		1.08	-0.3	-3.4	-4.5	-4.5	4.4	-	-	-	-	-
CNY		6.51	-0.2	-0.3	0.3	0.3	8.3	-	-	-	-	-

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

Invesco

Figure 5 – World equity sector total returns relative to market (%)

Data as at 18/03/2021	Global				
	1w	1m	QTD	YTD	12m
Energy	**-3.5**	**3.7**	**4.2**	**4.2**	**-5.1**
Basic Materials	**0.0**	**2.4**	**3.2**	**3.2**	**19.2**
Basic Resources	-0.2	1.6	4.3	4.3	27.6
Chemicals	0.3	3.6	1.8	1.8	9.9
Industrials	**0.6**	**4.1**	**1.9**	**1.9**	**6.0**
Construction & Materials	0.5	5.0	3.1	3.1	6.4
Industrial Goods & Services	0.6	3.9	1.7	1.7	6.0
Consumer Discretionary	**0.3**	**-1.1**	**-0.6**	**-0.6**	**11.1**
Automobiles & Parts	1.1	-1.0	2.8	2.8	53.6
Media	-0.2	3.1	3.2	3.2	12.2
Retailers	-0.7	-4.7	-5.3	-5.3	-2.3
Travel & Leisure	1.7	7.0	6.3	6.3	12.5
Consumer Products & Services	0.5	-1.6	-0.8	-0.8	11.8
Consumer Staples	**1.3**	**0.6**	**-5.2**	**-5.2**	**-18.7**
Food, Beverage & Tobacco	1.4	1.3	-4.3	-4.3	-17.3
Personal Care, Drug & Grocery Stores	1.2	-0.6	-6.9	-6.9	-21.2
Healthcare	**0.4**	**-3.6**	**-5.3**	**-5.3**	**-14.7**
Financials	**0.8**	**5.5**	**7.2**	**7.2**	**1.7**
Banks	1.4	7.2	10.3	10.3	1.4
Financial Services	0.5	2.1	4.3	4.3	7.2
Insurance	-0.1	5.7	4.0	4.0	-4.8
Real Estate	**1.5**	**2.8**	**-0.3**	**-0.3**	**-14.6**
Technology	**-1.4**	**-6.4**	**-2.1**	**-2.1**	**12.5**
Telecommunications	**1.5**	**2.3**	**0.3**	**0.3**	**-12.8**
Utilities	**0.2**	**-0.2**	**-6.6**	**-6.6**	**-18.4**

Notes: Returns shown are for Datastream sector indices versus the total market index. Past performance is no guarantee of future results.
Source: Refinitiv Datastream and Invesco

Invesco

Figure 6a – US factor index total returns (%)

Data as at 18/03/2021	Absolute					Relative to Market				
	1w	1m	QTD	YTD	12m	1w	1m	QTD	YTD	12m
Growth	-0.8	-0.8	5.8	5.8	105.1	-0.2	-1.0	1.1	1.1	23.5
Low volatility	1.8	1.7	1.2	1.2	45.0	2.3	1.5	-3.2	-3.2	-12.7
Price momentum	-0.5	-0.3	6.2	6.2	70.4	0.1	-0.4	1.5	1.5	2.6
Quality	1.3	4.5	10.1	10.1	84.2	1.9	4.3	5.3	5.3	10.9
Size	0.9	12.1	23.4	23.4	147.2	1.5	11.9	18.0	18.0	48.8
Value	1.1	12.2	26.0	26.0	156.5	1.7	12.0	20.4	20.4	54.4
Market	-0.6	0.2	4.6	4.6	66.1					
Market - Equal-Weighted	0.2	4.7	10.4	10.4	84.0					

Notes: All indices are subsets of the S&P 500 index, they are rebalanced monthly, use data in US dollars and are equal-weighted. Growth includes stocks in the top third based on both their 5-year sales per share trend and their internal growth rate (the product of the 5-year average return on equity and the retention ratio); Low volatility includes stocks in the bottom quintile based on the standard deviation of their daily returns in the previous three months; Price momentum includes stocks in the top quintile based on their performance in the previous 12 months; Quality includes stocks in the top third based on both their return on invested capital and their EBIT to EV ratio (earnings before interest and taxes to enterprise value); Size includes stocks in the bottom quintile based on their market value in US dollars. Value includes stocks in the bottom quintile based on their price to book value ratios. The market represents the S&P 500 index. Past performance is no guarantee of future results.
Source: Refinitiv Datastream and Invesco

Figure 6b – European factor index total returns relative to market (%)

Data as at 18/03/2021	Absolute					Relative to Market				
	1w	1m	QTD	YTD	12m	1w	1m	QTD	YTD	12m
Growth	-0.1	3.4	6.6	6.6	94.9	-0.8	-0.3	-0.7	-0.7	24.5
Low volatility	0.4	2.3	3.7	3.7	46.7	-0.3	-1.4	-3.4	-3.4	-6.3
Price momentum	-0.1	-0.5	4.6	4.6	75.3	-0.7	-4.0	-2.6	-2.6	11.9
Quality	0.3	2.7	7.3	7.3	86.0	-0.4	-1.0	-0.1	-0.1	18.8
Size	-0.3	4.7	9.4	9.4	96.7	-0.9	0.9	1.9	1.9	25.6
Value	1.6	11.5	18.4	18.4	100.6	0.9	7.5	10.2	10.2	28.1
Market	0.7	3.7	7.4	7.4	56.6					
Market - Equal-Weighted	0.4	3.8	7.7	7.7	70.3					

Notes: All indices are subsets of the STOXX 600 index, they are rebalanced monthly, use data in euros and are equal-weighted. Growth includes stocks in the top third based on both their 5-year sales per share trend and their internal growth rate (the product of the 5-year average return on equity and the retention ratio); Low volatility includes stocks in the bottom quintile based on the standard deviation of their daily returns in the previous three months; Price momentum includes stocks in the top quintile based on their performance in the previous 12 months; Quality includes stocks in the top third based on both their return on invested capital and their EBIT to EV ratio (earnings before interest and taxes to enterprise value); Size includes stocks in the bottom quintile based on their market value in euros; Value includes stocks in the bottom quintile based on their price to book value ratios. The market represents the STOXX 600 index. Past performance is no guarantee of future results.
Source: Refinitiv Datastream and Invesco

Invesco

Figure 7 – Model asset allocation

	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%**	

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

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Figure 8 – Model allocation for global sectors

	Neutral	Invesco	Preferred Region
Energy	**5.8%**	**Neutral**	**US**
Basic Materials	**4.3%**	**Underweight ↓**	**Europe**
Basic Resources	2.4%	Underweight	Europe
Chemicals	1.9%	Neutral ↓	US
Industrials	**12.8%**	**Neutral ↓**	**US**
Construction & Materials	1.6%	Neutral	Europe
Industrial Goods & Services	11.3%	Neutral ↓	US
Consumer Discretionary	**16.5%**	**Overweight ↑**	**Japan**
Automobiles & Parts	2.7%	Underweight	Japan
Media	1.4%	Overweight ↑	US
Retailers	6.1%	Underweight ↓	EM
Travel & Leisure	2.1%	Overweight ↑	US
Consumer Products & Services	4.2%	Overweight ↑	Japan
Consumer Staples	**6.6%**	**Overweight**	**Europe**
Food, Beverage & Tobacco	4.3%	Overweight	Europe
Personal Care, Drug & Grocery Stores	2.3%	Underweight	Europe
Healthcare	**10.3%**	**Underweight ↓**	**Europe**
Financials	**13.7%**	**Neutral**	**EM**
Banks	6.3%	Neutral	EM
Financial Services	4.1%	Overweight	US
Insurance	3.2%	Neutral ↑	Europe
Real Estate	**3.4%**	**Overweight**	**EM**
Technology	**19.0%**	**Overweight**	**US**
Telecommunications	**4.2%**	**Neutral**	**Europe**
Utilities	**3.4%**	**Neutral**	**Europe**

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

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Appendix

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.

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Definitions of data and benchmarks for Figure 4

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 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, except for in emerging markets where we use the Barclays Bloomberg emerging markets corporate US dollar bond index.

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

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