Uncommon truths

How will we know inflation is not transitory?

US CPI data for April provided a shock but markets appear to have weathered the storm. Maybe the view is that the jump in prices is transitory, so we examine which signs would suggest otherwise.

Was the April jump in US inflation a shock? If so, markets appear to have quickly recovered their poise in what may prove to have been a "transitory" shock.

As a reminder, it was announced on Wednesday that consumer prices increased 0.6% in April, giving a year-on-year (yoy) jump of 4.2%, up from 2.6% in March (the Bloomberg consensus of forecasters pointed to a 3.6% gain). More shocking was the 0.9% gain in core CPI (CPI ex-food & energy), giving a yoy rise of 3.0% (versus 1.6% in March and an expected 2.3%).

There was an immediate increase in the 10-year US treasury yield from 1.61% to 1.67% and a further climb to 1.70% by the end of the day. Interestingly, a decomposition of that yield suggests the inflation component hardly moved during the day. The rise in the nominal yield was explained almost entirely by an increase in the real component (to -0.84%). One interpretation could be that this data didn't really change inflation forecasts but raised fears that it may bring forward Fed tapering of asset purchases.

Despite the publication of similarly strong producer price data the following day, that 10-year yield has since been on a downward path and finished the week at 1.63%. Likewise, the S&P 500 declined by more than 2% on Wednesday but has since rallied to finish the week higher than it was just prior to the CPI data.

Why did markets shrug their shoulders at this "shocking" piece of data? One explanation may be that Fed asset purchases and fiscal generosity have left investors with so much cash that they continue buying no matter what happens. Another is that perhaps this inflation data wasn't the surprise that it seemed. Finally, maybe there is a feeling that the economy is about to slow, thus alleviating inflation pressures.

On the topic of a decelerating economy, there has been a collection of data pointing in that direction. First, there was a disappointing gain of "only" 266k non-farm payrolls in April (1000k expected), while the unemployment rate nudged up to 6.1%; second, retail sales were flat in April, having increased 10.7% in March, and control group sales were down 1.5%; finally, manufacturing production increased only 0.4% in April, after 3.1% in March. Taken by themselves, those numbers don't look too bad but the comparison with earlier months is not great. Maybe the period of exceptional growth is behind us but we suspect the growth will still be enough to see inflation trend higher.

On the question of whether the data was a surprise, we need to look at the numbers themselves and then delve into what is behind them. **Figure 1a** suggests there was a sharp upturn in April, which in some ways was the result of base effects (headline and core indices were falling a year ago).

We can see similar effects in the UK data in **Figure 1b**, with PPI input price inflation leading the way from negative to strong positive terrain, followed closely by output prices. But, that covers only the manufacturing sector and it is hard to see it yet feeding through to consumer price data (though the Bloomberg consensus suggests there will be an uptick in core CPI inflation to 1.3% in April from 1.1% in March, with headline inflation going from 0.7% to 1.4%).

Figure 1a – US consumer price inflation (% yoy)

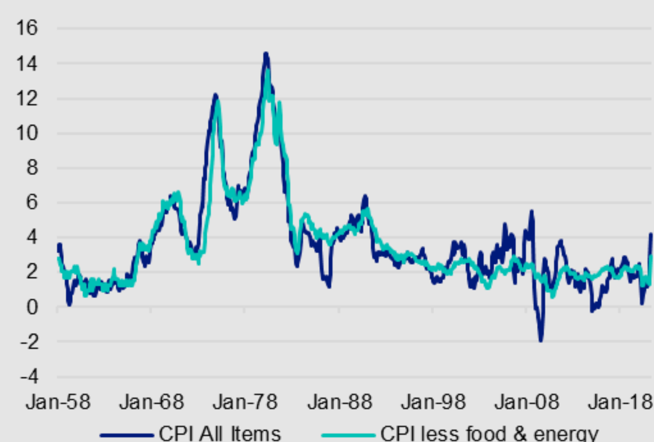
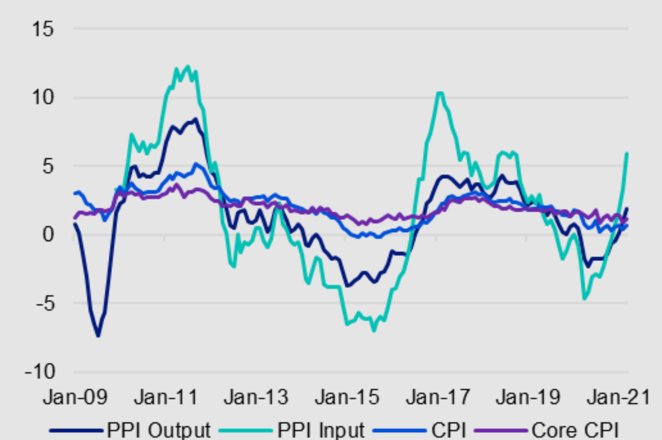


Figure 1b – Measures of UK inflation (% yoy)



Notes: Figure 1a is based on monthly data January 1958 to April 2021. "Figure 1b is based on monthly data from January 2009 to March 2021. PPI is Producer Price Index and CPI is Consumer Price Index.
Source: Refinitiv Datastream and Invesco

Core CPI data from other countries suggests that though the US is not alone in seeing a rise in inflation in April (see Hungary, Mexico, South Korea and Sweden, for example), few have seen such an abrupt move (Colombia and Turkey are examples), while some are still seeing a decline (the Netherlands and Norway, for example). The global situation is less clear than suggested by the US data.

At this stage, it might be worth reminding ourselves why inflation could become an issue. Last July we outlined the problem that could stem from current policy settings and the difficulty of protecting portfolios against inflation (see Inflation: low probability, high impact). If higher money supply growth does fuel inflation, there are few places worse placed the US, where M2 growth reached 27% yoy in February, versus 7% a year earlier (and outstripped only by Turkey among the 28 countries that we monitor). Luckily, monetary growth appears to have peaked in most countries (falling to 24% in March in the US, for example), so the problem may be transitory.

Students of monetary economics will know that, in theory, changes in the rate of money supply growth work first on the real side of the economy (boosting demand and output) and then on inflation. The lags involved are variable but we used to believe it could take 18-24 months to feed through to higher inflation. If that still holds, the current bout of US inflation may be coming too soon for it to be related to the surge in money supply. Rather, we would expect to see the effect of that in late 2021 or early 2022.

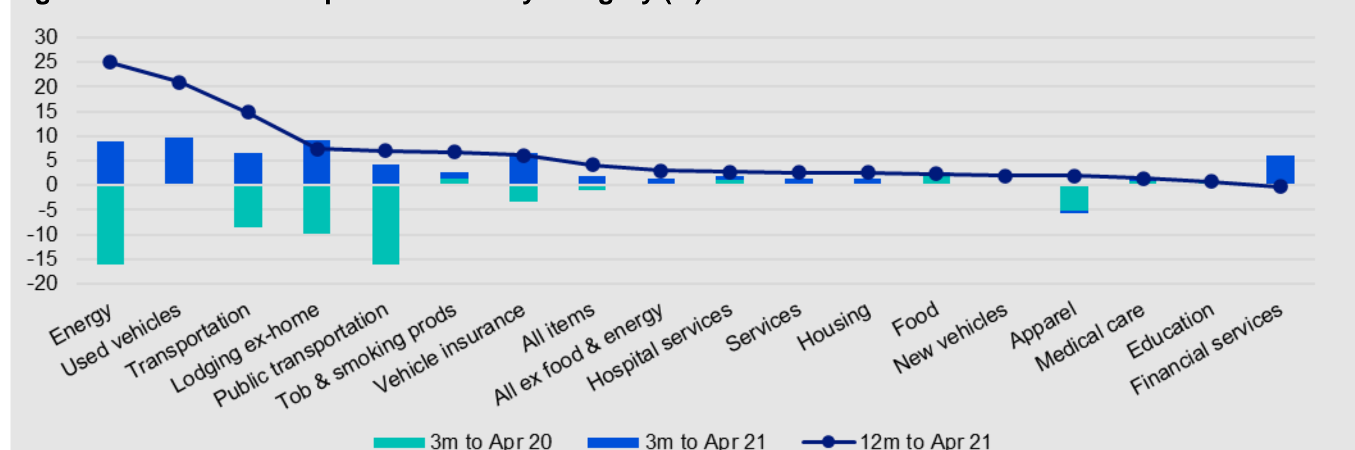
So, why has the consumer price index jumped so much? Part of the explanation is the base effect that comes from the decline in prices at this time last year. **Figure 2** tries to capture this by showing not only the change in prices over the last 12 months but also what happened to prices in the three months to April 2020, as well as the change in prices in the most recent three months. The aim is to show the relative importance of what is happening now versus then.

For example, energy prices have increased by 25% in the last 12 months. Those prices were particularly weak a year ago, with a decline of 16% in the three months to April 2020 but have also been rising this year, with a gain of 9% in the last three months. So, the 25% yoy gain in energy prices is part base effect and part current strength and the same can be said for the transportation and hotel (lodging ex-home) categories. On the other hand, the 21% yoy gain in used vehicle prices owes nothing to base effects and everything to current strength (+10% in the last three months, for example). By the way, energy (1.7 percentage points or ppt), used vehicles (0.6 ppt) and non-food & energy commodities (0.9 ppt) account for 3.2 of the 4.2 ppt 12-month gain in the CPI index.

Those base effects should disappear and some other price gains may also prove transitory. For example, pent-up demand for travel is now being released and is likely resulting in a jump in air fares and hotel room rates, for example. Hence, some of the transportation and lodging inflation may fade with time.

More interesting is why used vehicle prices are rising so rapidly, when new vehicle prices are not. We can think of two reasons, both of which are likely to be transitory: first, household savings rates are elevated (partly due to government cheques and partly due to the lack of opportunity to spend) and this may be resulting in a rise in demand for autos, with used vehicles easier to afford. Second, reticence to use public transport after the pandemic may be resulting in the purchase of cheap vehicles for the purpose of travelling to work.

Figure 2 – US consumer price inflation by category (%)



Note: shows the change in consumer prices over the periods specified for a selection of CPI categories: "3m to Apr 20" measures the change in prices in the three months to April 2020; "3m to Apr 21" measures the change in prices in the three months to April 2021; "12m to Apr 21" measures the change in prices in the twelve months to April 2021. Source: Refinitiv Datastream and Invesco

We would expect all of the above transitory factors to be over by the end of the year, in which case inflation would decline unless rapid monetary growth becomes a factor. What signs would tell us that is happening?

It may be instructive to examine the 1960s and 1970s, a period when monetary acceleration is thought to have resulted in higher inflation (with the OPEC price hikes of 1973/74 and 1979/80 adding fuel to the fire). **Figure 3** shows a number of credit and money supply cycles in the late 1960s and early 1970s, with core CPI inflation seeming to follow with a (variable) lag. In the period since then, the money supply and bank credit cycles have been less closely aligned, presumably because other forms of financing have become more popular. Also, any relationship with core inflation is harder to detect (at least to the naked eye).

What is really astounding, though, is the recent divergence between bank credit and money supply growth. Though bank credit expanded in the early stages of the pandemic, presumably as corporations called upon pre-existing credit facilities, the volume of loans has fallen away recently, which could be due to less emergency demand as the economy recovers. M2 on the other hand expanded as the Fed facilitated the increase in government debt held by the public. This could be viewed as a transfer of spending power to the government and may have the same inflationary effect as if bank credit were expanding. However, if the fiscal impulse declines over the coming years, as appears likely (see Is ARP dollar positive?), then a permanent rise in inflation may require faster bank lending growth.

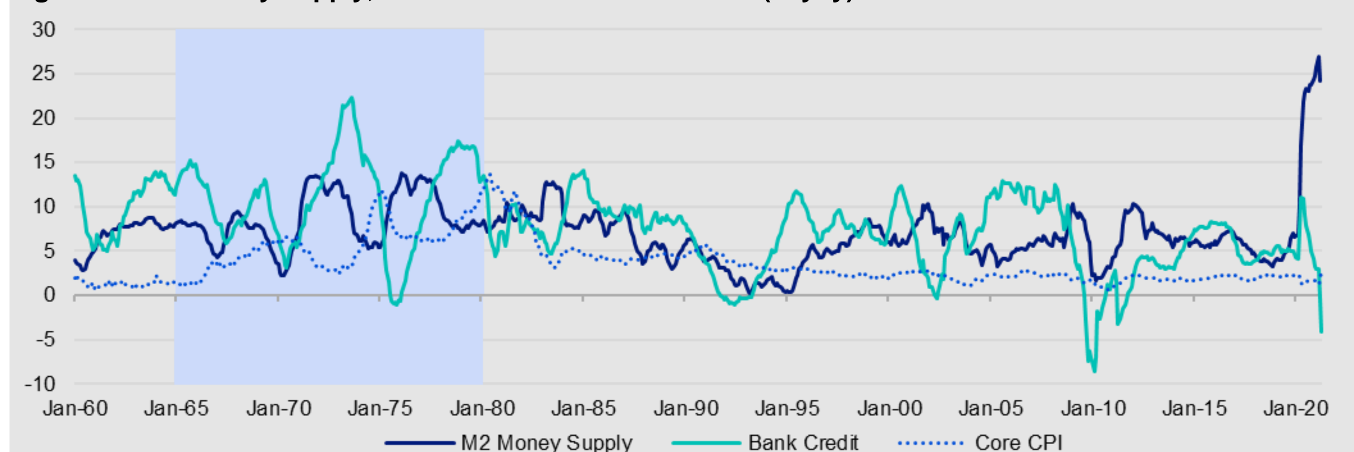
Another interesting aspect of the late 1960s and early 1970s, is the nature of the inflation. At the end of 1972, the main sources of inflation were food and used cars and trucks, with seven non-food-and-energy (non-F&E) CPI categories above the all-item inflation rate. By the end of 1973, it was all about fuel and food with no non-F&E categories above the all-item inflation rate. However, as the oil price shock turned into more generalised inflation, the number of non-F&E groups above the average had risen to seven by the end of 1974 and ten by the end of 1975. There are now many more categories to consider but we think the same pricinciple should apply: if inflation is to prove other than transitory, there should be a generalisation to a broader set of categories (away from energy and those suffering Covid related rebounds).

Finally, to see a permanent rise in inflation, we would expect to see a rise in the price of labour. Hourly earnings growth doubled to 7.8% yoy in the early stages of the pandemic (because low paid jobs were being lost) but had slipped to 1.2% by April 2021. If inflation becomes more generalised, we would expect to see a prolonged acceleration in wages and, critically, in unit labour costs (OECD data suggests that US ULC growth increased from 1.3% in 1965 to 2.5% in 1980, which is not enormous but is suggestive of increasing inflationary pressures). In the early stages of a monetary inspired rise in inflation, we wouldn't be surprised to see a widening of profit margins (as demand rises) but an acceleration in ULC could eventually cause a narrowing of those margins.

In summary, signs that inflation is more than transitory could include an acceleration in bank lending, a broadening of the number of CPI groups experiencing large gains, widening profit margins and an eventual rise in unit labour costs. Unfortunately, our previously referenced work on inflation suggests most assets tend to suffer when inflation is rising (our favoured assets would be commodities, inflation protected bonds, emerging market assets and value versus growth).

Unless stated otherwise, all data as of 14 May 2021

Figure 3 – US money supply, bank credit and core inflation (% yoy)



Based on monthly data from January 1960 April 2021. Bank credit consists of loans and leases provided by commercial banks. The shaded area is from January 1965 to January 1980. Source: Refinitiv Datastream and Invesco

Figure 4 – Asset class total returns

Data as at 14/05/2021	Index	Current Level/RY	Total Return (USD, %) 1w	1m	QTD	YTD	12m	Total Return (Local Currency, %) 1w	1m	QTD	YTD	12m
Equities												
World	MSCI	699	-1.5	0.7	4.1	9.0	49.7	-1.5	0.2	3.2	9.4	44.9
Emerging Markets	MSCI	1308	-3.0	-2.0	-0.5	1.9	48.7	-2.8	-2.9	-1.6	2.4	41.5
China	MSCI	103	-3.1	-4.9	-4.0	-4.4	30.3	-3.1	-5.0	-4.2	-4.4	28.9
US	MSCI	4036	-1.4	0.8	4.9	10.6	50.1	-1.4	0.8	4.9	10.6	50.1
Europe	MSCI	2025	-0.4	3.6	7.3	11.8	55.0	-0.5	1.9	3.9	11.9	37.7
Europe ex-UK	MSCI	2533	-0.5	3.3	7.0	10.9	57.9	-0.4	1.7	3.4	12.1	41.4
UK	MSCI	1164	0.0	4.6	8.0	14.7	45.4	-0.8	2.3	5.8	11.3	25.9
Japan	MSCI	3787	-3.3	-3.9	-2.5	-0.9	31.6	-2.5	-3.5	-3.5	5.1	34.5
Government Bonds												
World	BofA-ML	0.54	-0.7	0.1	1.1	-4.7	1.1	-0.5	-0.4	-0.2	-3.3	-2.8
Emerging Markets	BBloom	4.38	-0.3	1.6	3.7	-3.9	16.2	-0.3	1.6	3.7	-3.9	16.2
China	BofA-ML	3.01	0.5	2.2	2.9	3.5	10.6	0.1	0.7	1.0	1.9	0.3
US (10y)	Datastream	1.63	-0.4	0.2	1.7	-5.1	-6.9	-0.4	0.2	1.7	-5.1	-6.9
Europe	Bofa-ML	0.16	-0.9	-0.1	1.2	-5.0	12.5	-0.8	-1.5	-1.9	-4.2	0.3
Europe ex-UK (EMU, 10y)	Datastream	-0.12	-1.0	0.1	1.6	-4.8	8.2	-0.9	-1.3	-1.6	-4.0	-3.6
UK (10y)	Datastream	0.89	0.0	1.8	2.1	-2.9	9.0	-0.8	-0.4	0.0	-5.8	-5.6
Japan (10y)	Datastream	0.08	-0.8	-0.3	1.2	-6.0	-2.5	0.0	0.0	0.2	-0.4	-0.4
IG Corporate Bonds												
Global	BofA-ML	1.76	-0.5	0.5	1.7	-2.7	9.6	-0.5	-0.1	0.6	-2.7	5.4
Emerging Markets	BBloom	3.77	-0.1	1.1	1.8	-0.1	19.2	-0.1	1.1	1.8	-0.1	19.2
China	BofA-ML	3.92	0.5	2.0	2.7	3.5	11.7	0.1	0.5	0.8	1.8	1.3
US	BofA-ML	2.23	-0.5	0.1	1.2	-3.4	5.7	-0.5	0.1	1.2	-3.4	5.7
Europe	BofA-ML	0.51	-0.5	0.9	2.9	-1.9	18.2	-0.5	-0.5	-0.4	-1.1	5.4
UK	BofA-ML	1.93	-0.1	2.0	2.5	-1.2	20.3	-0.9	-0.3	0.3	-4.2	4.2
Japan	BofA-ML	0.40	-0.8	-0.3	1.1	-5.4	-1.3	0.0	0.1	0.2	0.2	0.9
HY Corporate Bonds												
Global	BofA-ML	4.66	-0.2	0.8	1.8	1.7	22.5	-0.2	0.5	1.1	1.8	19.6
US	BofA-ML	4.79	-0.3	0.4	1.1	2.0	20.1	-0.3	0.4	1.1	2.0	20.1
Europe	BofA-ML	2.98	-0.3	1.4	3.7	1.2	31.5	-0.2	0.0	0.5	2.0	17.2
Cash (Overnight LIBOR)												
US		0.06	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Euro Area		-0.58	-0.2	1.3	3.4	-0.8	11.7	0.0	0.0	-0.1	-0.2	-0.6
UK		0.04	0.9	2.3	2.3	3.1	15.3	0.0	0.0	0.0	0.0	0.0
Japan		-0.09	-0.7	-0.4	1.2	-5.6	-2.0	0.0	0.0	0.0	0.0	-0.1
Real Estate (REITs)												
Global	FTSE	1940	-1.8	1.3	4.2	10.4	42.5	-1.7	-0.1	0.9	11.3	27.0
Emerging Markets	FTSE	1962	-3.2	-3.1	-4.4	0.1	16.1	-3.1	-4.4	-7.4	1.0	3.5
US	FTSE	3235	-1.5	3.2	6.1	16.3	53.6	-1.5	3.2	6.1	16.3	53.6
Europe ex-UK	FTSE	3748	-0.2	2.3	9.3	1.4	44.7	-0.1	0.9	5.9	2.3	29.0
UK	FTSE	1505	-0.8	4.2	8.3	12.8	58.1	-1.6	1.9	6.1	9.5	36.9
Japan	FTSE	2761	-3.6	-3.0	-1.4	6.5	25.2	-2.8	-2.7	-2.3	12.9	28.0
Commodities												
All	GSCI	2471	-1.6	5.5	10.1	25.0	72.5	-	-	-	-	-
Energy	GSCI	358	0.6	4.3	10.4	34.1	101.4	-	-	-	-	-
Industrial Metals	GSCI	1718	-2.5	9.0	12.6	22.8	70.5	-	-	-	-	-
Precious Metals	GSCI	2141	0.3	6.0	7.6	-2.7	7.2	-	-	-	-	-
Agricultural Goods	GSCI	480	-7.3	9.3	13.3	20.1	63.3	-	-	-	-	-
Currencies (vs USD)*												
EUR		1.21	-0.2	1.4	3.5	-0.6	12.4	-	-	-	-	-
JPY		109.36	-0.7	-0.4	1.2	-5.6	-1.9	-	-	-	-	-
GBP		1.41	0.8	2.2	2.1	3.1	15.5	-	-	-	-	-
CHF		1.11	0.0	2.4	4.7	-1.8	8.0	-	-	-	-	-
CNY		6.44	-0.1	1.4	1.8	1.4	10.2	-	-	-	-	-

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

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

Data as at 14/05/2021	Global				
	1w	1m	QTD	YTD	12m
Energy	**1.5**	**3.0**	**-0.2**	**4.4**	**-9.0**
Basic Materials	**-0.4**	**5.1**	**6.2**	**8.9**	**18.3**
Basic Resources	-0.8	7.2	9.7	12.9	27.3
Chemicals	0.2	2.4	1.7	3.8	7.8
Industrials	**-0.2**	**1.1**	**1.2**	**2.8**	**5.5**
Construction & Materials	0.0	2.5	2.3	5.5	9.3
Industrial Goods & Services	-0.2	0.9	1.0	2.4	5.0
Consumer Discretionary	**-1.4**	**-3.8**	**-2.9**	**-4.5**	**2.6**
Automobiles & Parts	-2.7	-7.4	-7.9	-6.3	33.9
Media	-2.4	-6.1	-6.3	-8.5	-0.6
Retailers	-1.3	-2.8	-1.3	-5.4	-8.3
Travel & Leisure	-0.6	-4.0	-5.2	-2.0	0.8
Consumer Products & Services	-0.9	-1.9	0.4	-1.9	7.9
Consumer Staples	**1.9**	**2.7**	**1.2**	**-3.1**	**-12.2**
Food, Beverage & Tobacco	2.0	3.5	2.7	-1.5	-10.3
Personal Care, Drug & Grocery Stores	1.7	1.2	-1.5	-6.1	-15.9
Healthcare	**0.9**	**1.3**	**0.3**	**-4.2**	**-15.1**
Financials	**1.5**	**4.1**	**3.1**	**8.8**	**10.2**
Banks	2.1	4.8	2.7	11.0	11.9
Financial Services	0.8	3.3	3.9	7.0	9.7
Insurance	1.2	3.3	3.0	6.3	6.9
Real Estate	**-0.4**	**-0.1**	**-0.7**	**-0.1**	**-9.0**
Technology	**-1.6**	**-4.9**	**-2.5**	**-3.5**	**6.3**
Telecommunications	**0.8**	**2.7**	**0.3**	**-0.2**	**-9.3**
Utilities	**1.1**	**0.3**	**-0.5**	**-4.5**	**-12.0**

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

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

Data as at 14/05/2021	Absolute					Relative to Market				
	1w	1m	QTD	YTD	12m	1w	1m	QTD	YTD	12m
Growth	-1.9	0.3	13.5	13.5	68.2	-0.6	-1.0	1.6	1.6	13.1
Low volatility	-0.5	4.3	11.2	11.2	38.2	0.9	3.0	-0.5	-0.5	-7.1
Price momentum	-2.2	2.0	10.9	10.9	44.8	-0.8	0.7	-0.8	-0.8	-2.6
Quality	-1.1	3.5	20.0	20.0	67.3	0.2	2.2	7.4	7.4	12.5
Size	-0.7	6.2	32.3	32.3	117.1	0.6	4.8	18.4	18.4	46.0
Value	0.2	7.4	36.9	36.9	118.5	1.5	6.0	22.6	22.6	46.9
Market	-1.3	1.3	11.7	11.7	48.7					
Market - Equal-Weighted	-0.9	3.4	18.4	18.4	68.1					

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 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 14/05/2021	Absolute					Relative to Market				
	1w	1m	QTD	YTD	12m	1w	1m	QTD	YTD	12m
Growth	-2.2	-0.3	14.4	14.4	61.5	-1.8	-2.3	1.7	1.7	16.1
Low volatility	0.1	1.6	9.1	9.1	27.8	0.5	-0.4	-3.1	-3.1	-8.2
Price momentum	-2.4	-1.5	6.8	6.8	36.9	-1.9	-3.5	-5.1	-5.1	-1.6
Quality	0.0	2.5	13.6	13.6	58.0	0.5	0.5	0.9	0.9	13.5
Size	-1.0	0.8	14.1	14.1	66.6	-0.6	-1.3	1.4	1.4	19.7
Value	0.8	3.4	23.1	23.1	84.4	1.3	1.3	9.4	9.4	32.5
Market	-0.4	2.1	12.5	12.5	39.1					
Market - Equal-Weighted	-0.8	1.2	12.0	12.0	49.2					

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

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

Figure 8 – Model allocation for global sectors

	Neutral	Invesco		Preferred Region
Energy	**6.1%**	**Underweight**	↓	**US**
Basic Materials	**4.5%**	**Neutral**	↑	**Europe**
Basic Resources	2.5%	Neutral	↑	Europe
Chemicals	2.0%	Neutral		US
Industrials	**12.9%**	**Neutral**		**US**
Construction & Materials	1.6%	Neutral		Europe
Industrial Goods & Services	11.3%	Neutral		US
Consumer Discretionary	**16.2%**	**Overweight**		**US**
Automobiles & Parts	2.8%	Underweight		Japan
Media	1.3%	Overweight		US
Retailers	5.8%	Neutral	↑	US
Travel & Leisure	2.2%	Overweight		US
Consumer Products & Services	4.0%	Overweight		EM
Consumer Staples	**6.3%**	**Overweight**		**Japan**
Food, Beverage & Tobacco	4.1%	Overweight		Japan
Personal Care, Drug & Grocery Stores	2.2%	Underweight		Europe
Healthcare	**9.8%**	**Underweight**		**Europe**
Financials	**14.7%**	**Neutral**		**Japan**
Banks	7.4%	Underweight	↓	Japan
Financial Services	3.8%	Overweight		US
Insurance	3.4%	Neutral		Europe
Real Estate	**3.4%**	**Overweight**		**EM**
Technology	**18.9%**	**Overweight**		**US**
Telecommunications	**4.0%**	**Neutral**		**Europe**
Utilities	**3.2%**	**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

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.

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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