Uncommon truths

The Aristotle List: 10 improbable but possible outcomes for 2023

It is time to forget central scenarios and think about improbable but possible outcomes. Markets remain volatile, so our list of surprises errs to the positive (these hypothetical predictions are our views of what could happen even if they do not necessarily form part of our central scenario).

Aristotle said that “probable impossibilities are to be preferred to improbable possibilities”, meaning that we find it easier to believe in interesting impossibilities (B52s on the moon, say) than in unlikely possibilities. The aim of this document is to seek those unlikely possibilities -- out-of-consensus ideas for 2023 that I believe have at least a 30% chance of occurring. The concept was unashamedly borrowed from erstwhile colleague Byron Wien, who recently published his 10 surprises for 2023.

I believe the biggest returns are earned (or the biggest losses avoided) by successfully taking out-of-consensus positions. A year ago, the mood was hopeful on the back of strong performance in 2021. Hence, my improbable but possible ideas were biased to the negative side (“S&P 500 finishes the year lower than it started”; “US 10-year treasury yield goes above 2.5%” and “Bitcoin falls below $30,000” were examples of ideas that worked). The mood is now confused (after a difficult 2022) but my list is more hopeful – don’t look for internal consistency, as there is none.

1. US core CPI inflation falls below 4.0%

During presentations and meetings with investors in late-2022, one of the biggest push backs was about my conviction that core inflation will come down noticeably during 2023. Core CPI inflation in the US was 6.0% in November 2022, having peaked at 6.6% in September 2022. I believe that inflation is a cyclical phenomenon for the most part and that the recent bout had its roots in the monetary expansion that occurred during the Covid pandemic. **Figure 1** shows the case of the US, where M2 money supply growth reached 27% year-on-year (yoy) in February 2021. The subsequent collapse to 0% by November 2022 (and possible dip into negative territory) will reduce inflationary pressures over the coming years, in my opinion. US headline CPI inflation peaked at 9.0% in June and had fallen to 7.1% by November. With commodity prices weakening and supply chain problems easing, I think headline inflation will fall below core inflation during the first half of 2023 and then drag core lower. Even better, the latest wage data from the US (for December) suggests that hourly earnings inflation continues to abate, falling to 5.0% yoy from the March peak of 6.8% (and this is before unemployment has risen). Adding in the weakening of the housing market, which should lower shelter inflation, I think that core CPI inflation could fall below 4.0% during 2023. That would be a big (and positive) surprise for many market participants.

2. The Fed panics and reduces rates in late 2023

Given the decline in inflation suggested above, I expect US economic weakness to persuade the Fed to reverse policy direction during the second half of 2023. This would follow the panic tightening of 2022 (after the Fed stayed way too loose for way too long) and could bring one or two rate reductions. This would not be a surprise for financial markets (based on evidence from Fed Funds futures) but is not what the Fed expects.

3. USDJPY falls below 115

Having peaked at around 150 in October 2022 (a 32 year high), USDJPY has since fallen to around 130. This rebound in the yen (fall in USDJPY) was recently aided by the BOJ’s widening of its 10-year bond yield target range (with an upper limit of 0.5%). With Governor Kuroda’s term ending on April 8, this could be the time for the BOJ to end its extremely loose stance

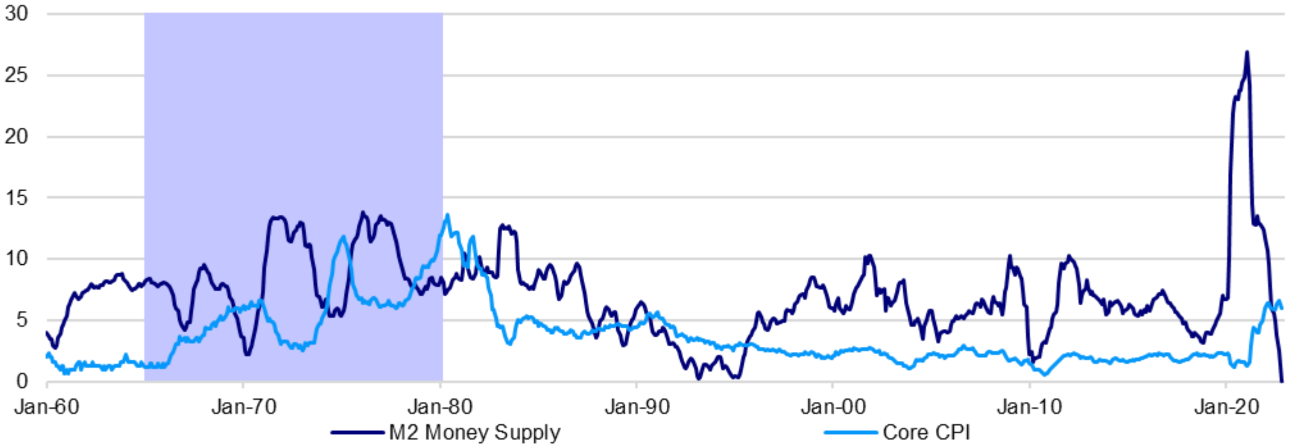


Figure 1 – US money supply growth could turn negative, suggesting a large drop in core inflation (% yoy)

Note: Based on monthly data from January 1960 to November 2022. The shaded area is from January 1965 to January 1980.
Source: Refinitiv Datastream and Invesco

(it still has a policy of quantitative easing). Even if CPI inflation falls back from the recent 3.8%, I believe the central bank should be trying to normalise its policy. If I am right, and with the Fed easing towards year end, the yen could strengthen and I wouldn't be surprised to see USDJPY fall below 115 (which would still leave it well above historical norms in real terms).

4. Boris Johnson makes a comeback as PM

The next UK general election must take place no later than 24 January 2025. Bookmakers' odds currently suggest Keir Starmer (Labour) will be the next Prime-Minister (see oddschecker.com). They also suggest that 2024 is the most likely year for Rishi Sunak to exit 10 Downing Street. That exit could happen in two ways: by losing a general election or upon removal by his own party. Though opinion polls are now more favourable for the Conservatives than at the time of Liz Truss, Labour's lead is still in excess of 20 percentage points (according to polls conducted in early 2023). If this were the result at the next general election, I believe Labour could have a majority of more than 300 seats, with the Conservatives having less than 100 parliamentary seats. If opinion polls do not improve (and Rishi Sunak's performance is hardly encouraging), I doubt that the Conservative Party will wait to the end of this year to replace him. Bizarre as it sounds, were they to depose him, I suspect there is a good chance that Boris Johnson would be chosen by Conservative MPs and party members to be the PM to lead them into the next election (despite the ongoing Commons Privileges Committee investigation into his conduct).

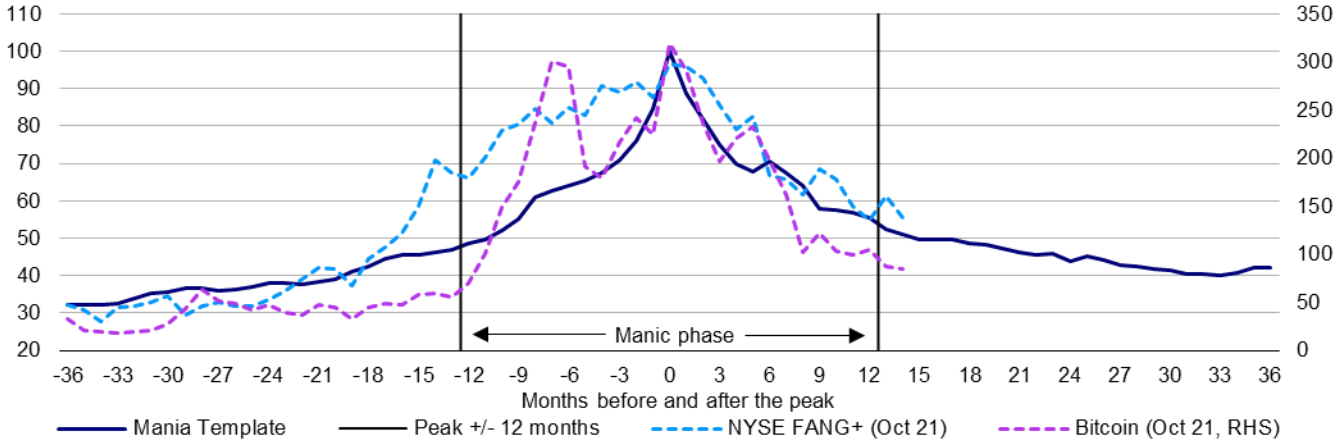
5. Turkey chooses a new president

Recep Tayyip Erdogan has been president of Turkey since 2014 and prior to that was prime minister since 2003. The constitution was amended in 2017 to make Turkey a presidential system. With the abolition of the office of prime minister, the president became the most powerful person within the Turkish government. Were Erdogan to be re-elected in June/July 2023 (the first round of votes seems likely to be on 18 June, with a second round on 2 July, if needed), it would be for his final term as president (there is now a two-term limit of five years each). However, though his AK Party remains the most popular (according to opinion polls) and that Erdogan may receive the most votes in the first round of voting, there appears a possibility that he would lose the second round (based on opinion polls). His problems appear to include a lack of faith in the democratic system (with his machinations front and centre) and economic decline (inflation peaked at 86% in October 2022). Though it is dangerous to count him out, I suspect Erdogan will lose over two rounds, heralding a fundamental change in Turkish politics.

6. NYSE FANG+ falls again during 2023

Last year I spoke of Bitcoin falling below $30,000 during 2022, having peaked at around $68,000 in 2021. Another asset that had broadly followed our mania template was the set of 10 growth stocks that make up the NYSE FANG+ index (see **Figure 2**). That mania template suggests a 45% loss is typical in the 12 months after the peak of a typical financial bubble. The monthly data used in **Figure 2** suggests the NYSE FANG+ decline has broadly followed that template (Bitcoin's decline was more dramatic, as had been its ascent, thus necessitating the use of a different scale). The template also suggests that bubbles typically deflate for a further two years, with a further decline of 20%-30%. Expecting the NYSE FANG+ index to register another year of losses may seem brave, especially if bond yields decline during 2023 (as we expect). However, given that bubbles are usually associated with an abundant supply of credit (and that was certainly the case in 2021), the fact that US money supply growth is now virtually zero, suggests to me that bubbles may continue deflating.

Figure 2 – Bursting bubbles



Note: **past performance is not a guide to future returns**. Based on monthly data. See appendix for construction methodology of "Mania template". "Bitcoin" and "NYSE FANG+" are constructed using the hypothesis that the 31 October 2021 level was the peak (month zero) and the final datapoint is for December 2022 (as of 30 December 2022). NYSE FANG+ is an equally weighted index designed to represent a segment of the US technology and consumer discretionary sectors. Source: Refinitiv Datastream and Invesco.

7. Ukraine government debt outperforms

After a number of years at the bottom of the return league tables, Turkish government bonds came out top in 2022 (see 2022 in review). The yield on 10-year USD denominated Turkish Government bonds is currently 8.9% (as of 5 January), compared to 3.7% for the US, 6.1% for Brazil and 5.9% for Mexico. That is a high yield but not as high as the 19.9% available in Argentina (on bonds subject to New York law). Even that pales in comparison with the 33.9% yield available on 10-year USD denominated Ukrainian government bonds. The risks are obvious but I doubt that other countries would allow Ukraine to default and suspect that these bonds may generate high (if risky) returns.

8. Pakistan stocks to outperform major indices

In our search for exotic stock market opportunities, we usually look for the holy grail of a dividend yield that exceeds the price/earnings ratio. Current examples include Brazil, Chile, Colombia, Hungary, Ghana, Kenya and Romania. Another example is Pakistan, where, after a 9% index decline in 2022, the current KSE-100 price/earnings ratio is 4.3 and the dividend yield is 10.2% (changing to 3.3 and 10.7%, respectively, based on consensus 2023 forecasts, according to Bloomberg, as of 5 January 2023). Usually, whenever valuation metrics are at such levels it is because earnings and dividends are expected to decline. However, those consensus estimates suggest the opposite, which is even more encouraging, especially compared to the more elevated valuation ratios applied to neighbouring Indian stocks (**Figure 3** shows how expensive Indian stocks have become).

9. Chinese stocks outperform despite Covid woes

Having moved away from its zero-Covid policy China may suffer as other countries did during the early stages of the pandemic, with the difference that China is partially vaccinated and that therapeutic treatments now exist for those who fall ill. I suspect this will lead to pressure on hospitals (as it did elsewhere) and will require periodic lockdowns (as was the case elsewhere). Painful as it may be at times, these steps had to be taken at some stage and, as seen in other countries, something like normality beckons over the next year or so. Despite concerns about Covid, Chinese stocks have performed well in recent months and I suspect that will continue throughout 2023. For one thing, Chinese stocks have lower valuation ratios than elsewhere, with a cyclically adjusted PE ratio of 14.7 at end-2022 compared to 30.8 in the US and 37.6 in India and its own historical average of 25.9 (see **Figure 3**). For another, China effectively had a recession in early 2022 and its central bank is easing, suggesting economic momentum could be better than in the US and Europe. I think broad Chinese stock indices could outperform global indices during 2023.

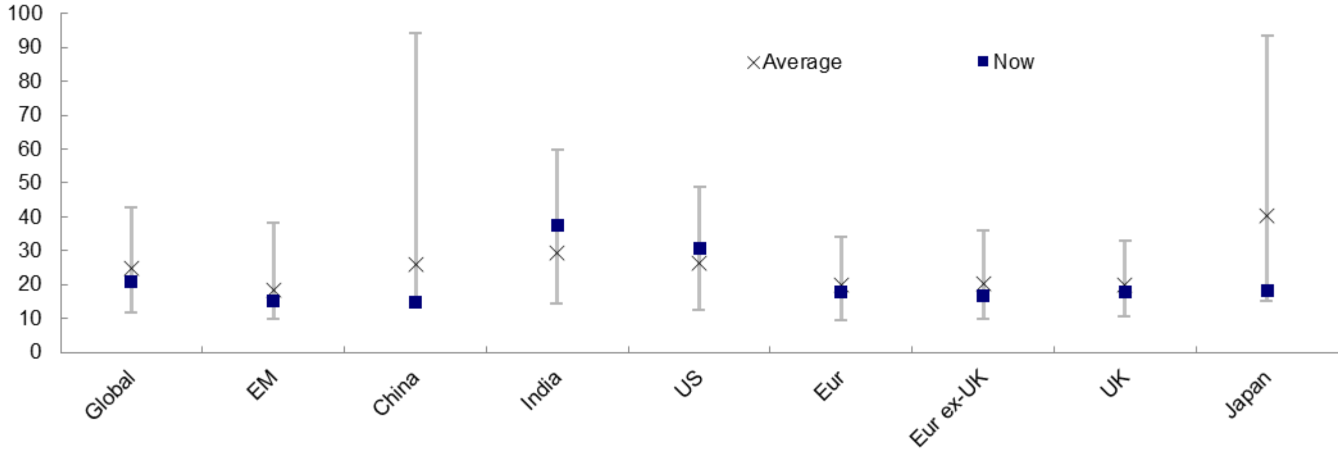
10. Ireland wins Rugby World Cup 2023

This year's Rugby World Cup is being played in September/October in France. Bookmakers seem to favour hosts France and perennial favourites New Zealand (see oddschecker.com). Looking at the pools and potential pathways through the competition, I suspect the final will be between France and Ireland, with the latter having the edge as the weight of expectation proves too much for the home team.

As a gift for the new year, we offer **Figures 4, 5** and **6** which show long term performance data across assets, sectors and factors.

Unless stated otherwise, all data as of 30 December 2022

Figure 3 – China's cyclically adjusted price/earnings ratio is lower than elsewhere



Note: Cyclically adjusted price/earnings ratio uses a 10-year moving average of earnings. Based on daily data from 3 January 1983 (except for China from 1 April 2004, India from 31 December 1999 and EM from 3 January 2005), using Datastream indices. As of 30 December 2022. Source: Refinitiv Datastream and Invesco

Figure 4 – Asset class total returns (% annualised)

Data as at 30/12/2022		**Current**	**Total Return (USD, %)**				**Total Return (Local Currency, %)**			
	Index	**Level/RY**	**1y**	**3y**	**5y**	**10y**	**1y**	**3y**	**5y**	**10y**
Equities										
World	MSCI	605	-18.0	4.5	5.8	8.6	-15.7	5.6	6.7	10.0
Emerging Markets	MSCI	956	-19.1	-2.4	-1.0	1.8	-14.6	0.4	1.7	5.0
China	MSCI	64	-20.3	-7.5	-4.4	2.6	-19.1	-7.3	-4.3	2.8
US	MSCI	3640	-19.7	7.6	9.3	12.6	-19.7	7.6	9.3	12.6
Europe	MSCI	1732	-14.4	2.0	2.5	5.2	-8.1	3.6	4.6	7.6
Europe ex-UK	MSCI	2116	-17.1	2.5	3.0	6.1	-12.3	3.7	4.9	8.2
UK	MSCI	1075	-4.7	0.5	1.0	3.1	6.9	3.4	3.4	6.2
Japan	MSCI	3139	-16.3	-0.5	0.6	5.9	-4.1	6.0	3.8	10.5
Government Bonds										
World	BofA-ML	3.06	-17.8	-5.8	-2.6	-1.2	-13.1	-3.8	-1.1	0.8
Emerging Markets (USD)	BBloom	7.99	-22.9	-7.3	-2.3	1.7	-22.9	-7.3	-2.3	1.7
China	BofA-ML	2.72	-5.2	4.1	3.6	3.0	3.3	4.0	4.9	4.1
US (10y)	Datastream	3.83	-16.9	-3.1	-0.1	0.6	-16.9	-3.1	-0.1	0.6
Europe	Bofa-ML	3.14	-23.0	-7.5	-4.3	-1.3	-18.2	-5.9	-2.0	0.8
Europe ex-UK (EMU, 10y)	Datastream	2.56	-25.3	-8.7	-5.1	-1.8	-20.7	-7.2	-2.9	0.3
UK (10y)	Datastream	3.67	-28.8	-9.6	-5.2	-2.4	-20.1	-6.9	-2.9	0.6
Japan (10y)	Datastream	0.41	-14.8	-6.9	-3.3	-3.1	-2.4	-0.8	-0.2	1.1
IG Corporate Bonds										
Global	BofA-ML	5.15	-16.4	-3.7	-0.8	0.8	-14.5	-3.1	0.0	1.8
Emerging Markets (USD)	BBloom	7.97	-22.0	-5.7	-0.3	3.3	-22.0	-5.7	-0.3	3.3
China	BofA-ML	3.58	-6.2	3.7	3.2	3.0	2.3	3.5	4.5	4.1
US	BofA-ML	5.51	-15.3	-2.8	0.5	2.0	-15.3	-2.8	0.5	2.0
Europe	BofA-ML	4.22	-19.0	-5.9	-4.0	-1.3	-14.0	-4.4	-1.7	0.8
UK	BofA-ML	5.71	-28.2	-7.9	-3.9	-0.8	-19.4	-5.3	-1.6	2.2
Japan	BofA-ML	0.91	-14.9	-6.7	-3.2	-3.7	-2.5	-0.5	-0.1	0.5
HY Corporate Bonds										
Global	BofA-ML	9.01	-13.2	-1.7	0.9	3.2	-11.8	-1.2	1.4	3.7
US	BofA-ML	8.97	-11.2	-0.2	2.1	3.9	-11.2	-0.2	2.1	3.9
Europe	BofA-ML	7.67	-16.6	-3.6	-2.2	1.0	-11.5	-2.0	0.2	3.2
Cash (Overnight LIBOR)										
US		4.32	1.7	0.7	1.2	0.8	1.7	0.7	1.2	0.8
Euro Area		1.90	-5.4	-1.9	-2.7	-2.4	0.0	-0.4	-0.4	-0.3
UK		3.47	-9.0	-2.1	-1.6	-2.4	1.5	0.6	0.6	0.5
Japan		-0.08	-12.3	-6.1	-3.1	-4.2	-0.1	-0.1	-0.1	0.0
Real Estate (REITs)										
Global	FTSE	1556	-23.5	-5.0	-0.1	3.5	-18.7	-3.4	2.3	5.7
Emerging Markets	FTSE	1359	-12.0	-14.2	-6.5	-0.5	-6.5	-12.8	-4.3	1.6
US	FTSE	2827	-24.7	-0.7	3.0	6.1	-24.7	-0.7	3.0	6.1
Europe ex-UK	FTSE	2161	-40.6	-14.2	-6.7	1.8	-36.9	-12.8	-4.5	4.0
UK	FTSE	753	-39.3	-12.1	-5.7	0.7	-31.9	-9.5	-3.5	3.7
Japan	FTSE	2165	-14.4	-7.4	0.6	1.1	-2.0	-1.3	3.9	5.5
Commodities										
All	GSCI	3496	24.5	10.2	6.5	-3.3	-	-	-	-
Energy	GSCI	611	39.6	6.7	5.7	-5.4	-	-	-	-
Industrial Metals	GSCI	1676	-7.6	10.8	2.9	0.7	-	-	-	-
Precious Metals	GSCI	2078	0.4	5.2	5.7	-0.3	-	-	-	-
Agricultural Goods	GSCI	559	11.4	17.2	8.1	-2.7	-	-	-	-
Currencies (vs USD)**										
EUR		1.07	-5.5	-1.5	-2.3	-2.1	-	-	-	-
JPY		131.13	-12.2	-6.0	-3.0	-4.1	-	-	-	-
GBP		1.20	-10.9	-2.8	-2.3	-2.9	-	-	-	-
CHF		1.08	-1.2	1.6	1.1	-0.1	-	-	-	-
CNY		6.90	-7.6	0.4	-1.2	-1.0	-	-	-	-

Notes: **Past performance is no guarantee of future results.** *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). Please see appendix for definitions, methodology and disclaimers. Source: Refinitiv Datastream and Invesco

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

Data as at 30/12/2022	**Global**			
	1y	**3y**	**5y**	**10y**
Energy	**45.3**	**0.1**	**-1.6**	**-5.3**
Basic Materials	**12.4**	**5.7**	**0.5**	**-1.7**
Basic Resources	21.4	9.4	2.5	-3.0
Chemicals	1.8	1.2	-2.2	-1.4
Industrials	**1.7**	**-0.1**	**-0.6**	**0.6**
Construction & Materials	-2.9	-0.9	-2.8	-2.2
Industrial Goods & Services	2.3	0.0	-0.2	1.1
Consumer Discretionary	**-14.8**	**-4.2**	**-2.9**	**-0.7**
Automobiles & Parts	-30.6	1.2	-4.1	-2.0
Media	-23.4	-10.4	-5.4	-1.9
Retailers	-14.2	-4.2	-0.9	0.1
Travel & Leisure	3.4	-8.7	-6.0	-1.8
Consumer Products & Services	-8.5	-0.4	-1.1	0.5
Consumer Staples	**15.6**	**-0.6**	**-2.3**	**-1.1**
Food, Beverage & Tobacco	17.8	-0.1	-1.2	-1.6
Personal Care, Drug & Grocery Stores	11.4	-1.6	-0.9	-0.6
Healthcare	**8.4**	**2.9**	**3.9**	**3.8**
Financials	**10.3**	**-0.6**	**-0.9**	**-0.8**
Banks	12.3	-2.4	-3.6	-2.9
Financial Services	1.3	1.3	2.3	2.6
Insurance	22.2	1.5	0.6	1.7
Real Estate	**-7.4**	**-8.3**	**-4.7**	**-3.8**
Technology	**-21.6**	**3.4**	**6.0**	**6.9**
Telecommunications	**3.2**	**-3.5**	**-3.6**	**-3.8**
Utilities	**17.6**	**1.0**	**2.0**	**-0.7**

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

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

Data as at 30/12/2022	Absolute				Relative to Market			
	1y	3y	5y	10y	1y	3y	5y	10y
Growth	-21.4	12.3	13.0	14.2	-3.8	4.2	3.2	1.3
Low volatility	-0.6	12.5	13.0	15.2	21.7	4.3	3.2	2.2
Price momentum	-5.6	11.5	10.1	13.8	15.5	3.4	0.7	0.9
Quality	-10.6	10.4	9.9	13.5	9.4	2.5	0.4	0.7
Size	-10.1	8.3	7.4	11.8	10.1	0.5	-1.9	-0.9
Value	-5.6	10.8	8.0	12.7	15.5	2.8	-1.3	-0.1
Market	-18.3	7.8	9.4	12.8				
Market - Equal-Weighted	-11.4	9.2	9.1	12.6				

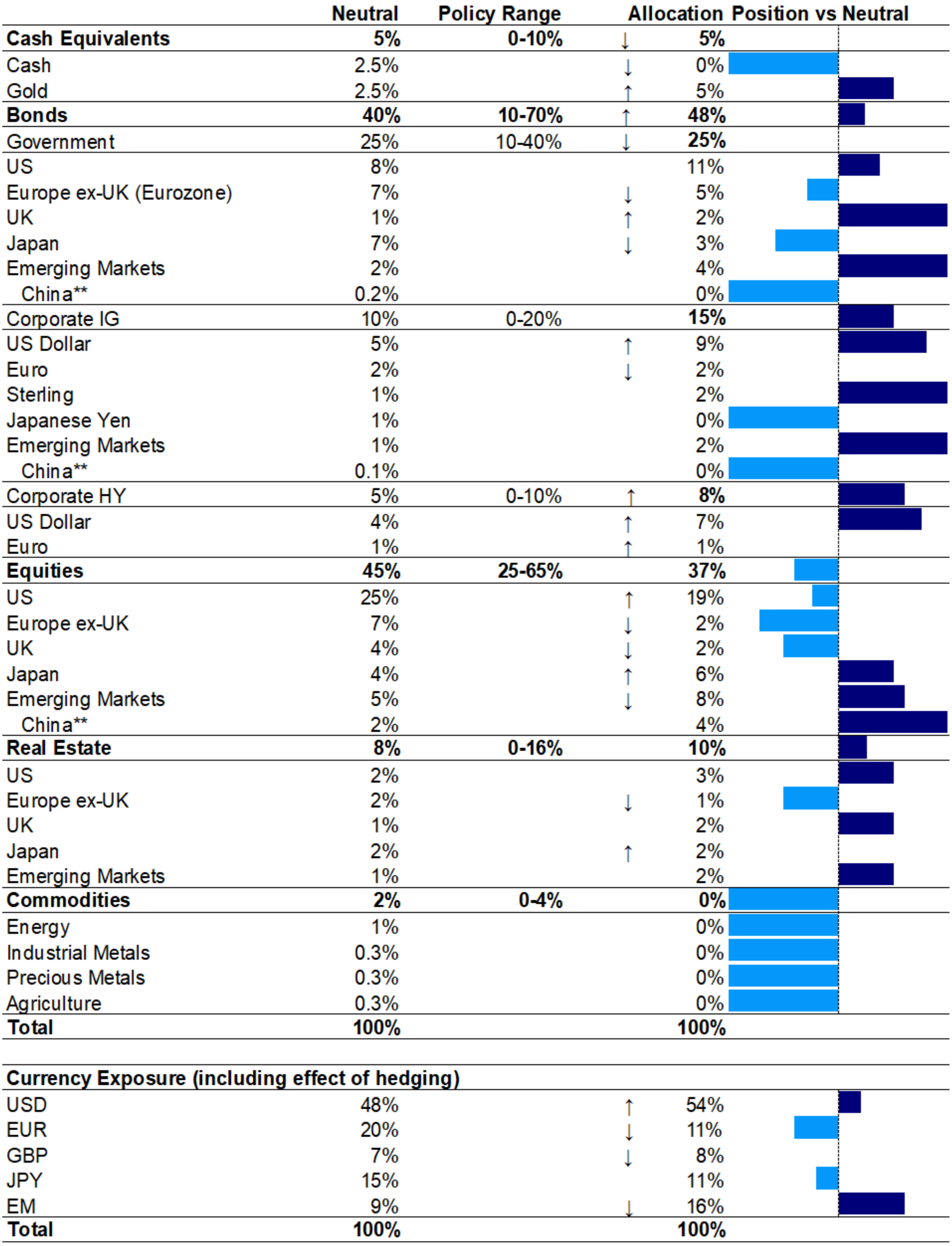
Notes: **Past performance is no guarantee of future results**. All indices are subsets of the S&P 500 index, they are rebalanced monthly, use data in US dollars and are equal-weighted. Growth includes stocks in the top third based on both their 5-year sales per share trend and their internal growth rate (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.
Source: Refinitiv Datastream and Invesco

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

Data as at 30/12/2022	Absolute				Relative to Market			
	1y	3y	5y	10y	1y	3y	5y	10y
Growth	-30.8	4.9	7.6	10.5	-22.9	1.3	2.5	2.6
Low volatility	-7.7	4.6	7.1	11.3	2.8	1.0	2.1	3.3
Price momentum	-22.8	2.0	4.2	10.8	-13.9	-1.5	-0.8	2.9
Quality	-17.6	3.0	4.6	9.4	-8.1	-0.5	-0.3	1.6
Size	-23.3	-1.0	3.2	7.3	-14.5	-4.4	-1.6	-0.3
Value	-9.4	3.5	3.3	8.0	1.0	-0.1	-1.6	0.3
Market	-10.3	3.5	4.9	7.7				
Market - Equal-Weighted	-18.7	0.5	3.0	7.6				

Notes: **Past performance is no guarantee of future results.** 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.
Source: Refinitiv Datastream and Invesco

Figure 7 – Model asset allocation



	Neutral	Policy Range		Allocation	Position vs Neutral
Cash Equivalents	**5%**	**0-10%**	↓	**5%**	
Cash	2.5%		↓	0%	
Gold	2.5%		↑	5%	
Bonds	**40%**	**10-70%**	↑	**48%**	
Government	25%	10-40%	↓	**25%**	
US	8%			11%	
Europe ex-UK (Eurozone)	7%		↓	5%	
UK	1%		↑	2%	
Japan	7%		↓	3%	
Emerging Markets	2%			4%	
China**	0.2%			0%	
Corporate IG	10%	0-20%		**15%**	
US Dollar	5%		↑	9%	
Euro	2%		↓	2%	
Sterling	1%			2%	
Japanese Yen	1%			0%	
Emerging Markets	1%			2%	
China**	0.1%			0%	
Corporate HY	5%	0-10%	↑	**8%**	
US Dollar	4%		↑	7%	
Euro	1%		↑	1%	
Equities	**45%**	**25-65%**		**37%**	
US	25%		↑	19%	
Europe ex-UK	7%		↓	2%	
UK	4%		↓	2%	
Japan	4%		↑	6%	
Emerging Markets	5%		↓	8%	
China**	2%			4%	
Real Estate	**8%**	**0-16%**		**10%**	
US	2%			3%	
Europe ex-UK	2%		↓	1%	
UK	1%			2%	
Japan	2%		↑	2%	
Emerging Markets	1%			2%	
Commodities	**2%**	**0-4%**		**0%**	
Energy	1%			0%	
Industrial Metals	0.3%			0%	
Precious Metals	0.3%			0%	
Agriculture	0.3%			0%	
Total	**100%**			**100%**	
Currency Exposure (including effect of hedging)					
USD	48%		↑	54%	
EUR	20%		↓	11%	
GBP	7%		↓	8%	
JPY	15%			11%	
EM	9%		↓	16%	
Total	**100%**			**100%**	

Notes: **China is included in Emerging Markets allocations. 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 allocations for Global sectors

	Neutral	Invesco	Preferred Region
Energy	**8.3%**	**Underweight**	**US**
Basic Materials	**4.3%**	**Neutral**	**Europe**
Basic Resources	2.4%	Neutral	Europe
Chemicals	1.9%	Neutral	Japan
Industrials	**12.4%**	**Neutral**	**US**
Construction & Materials	1.5%	Underweight ↓	US
Industrial Goods & Services	10.9%	Neutral	US
Consumer Discretionary	**14.5%**	**Neutral**	**US**
Automobiles & Parts	3.0%	Underweight	Europe
Media	1.0%	Overweight	US
Retailers	5.0%	Neutral	US
Travel & Leisure	1.9%	Underweight	US
Consumer Products & Services	3.5%	Overweight ↑	Europe
Consumer Staples	**6.7%**	**Overweight**	**US**
Food, Beverage & Tobacco	4.4%	Overweight	US
Personal Care, Drug & Grocery Stores	2.2%	Overweight	US
Healthcare	**10.4%**	**Overweight**	**US**
Financials	**15.5%**	**Underweight**	**Japan**
Banks	7.6%	Underweight	Japan
Financial Services	5.0%	Underweight	EM
Insurance	2.9%	Underweight	US
Real Estate	**3.3%**	**Overweight**	**EM**
Technology	**17.4%**	**Overweight**	**US**
Telecommunications	**3.5%**	**Neutral**	**Japan**
Utilities	**3.8%**	**Underweight**	**US**

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 ICE BofA government bond total return index for the World and Europe. The emerging markets yields and returns are based on the Bloomberg emerging markets sovereign US dollar bond index.

Corporate investment grade (IG) bonds: ICE BofA investment grade corporate bond total return indices, except for in emerging markets where we use the Bloomberg emerging markets corporate US dollar bond index.

Corporate high yield (HY) bonds: ICE BofA 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

Methodology, data and benchmarks for Mania Template (Figure 2)

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

1) UK equities during the South Sea Bubble -- an index that is an unweighted average of the prices of Bank of England, East India Company and South Sea Company (Jun 1720, Global Financial Data);

2) UK equities -- an index of UK stocks (including industrials but excluding banks, insurance and bridge stocks) calculated by Hayek as provided by Rostow and Schwartz in The Growth and Fluctuation of the British Economy (Jul 1864, GFD);

3) US oil -- West Texas Intermediate oil price (US$/barrel), from The Derrick's Handbook of Petroleum (Sep 1876, GFD);

4) US oil -- West Texas Intermediate oil price (US$/barrel), from The Derrick's Handbook of Petroleum (Dec 1895, GFD);

5) US equities -- S&P Composite Index (Sep 1929, Robert Shiller);

6) US bank stocks -- S&P 500 Diversified Banks calculated by Standard & Poor's based on historical price data (Sep 1929, GFD);

7) US wheat -- US Wheat #2 Cash Price (US$/bushel) from The Chicago Board of Trade (Jan 1974, GFD);

8) Gold -- bullion price on the London Bullion Market (US$/ounce) provided by ICE Benchmark Administration Ltd. (Sep 1980);

9) Nikkei index (Dec 1989);

10) Greek bank stocks -- Datastream Banks Index for Greece (Sep 1999);

11) NASDAQ Composite (Feb 2000);

12) Miami house prices (Feb 2007, FHFA index);

13) China A-shares -- China A-DS Market Index calculated by Datastream (Oct 2007);

14) US oil -- West Texas Intermediate oil price (US$/barrel), 40-degree API, f.o.b. Cushing Oklahoma (Jun 2008, GFD);

15) Bitcoin -- USD to Bitcoin on the Bitstamp exchange, from Thomson Reuters (Nov 2013, data to Jul 2011 from Bloomberg).

“Bitcoin” and “NYSE FANG+” are indexed to start at the same level as the “Mania Template” (i.e. in month -36) and are sourced from Refinitiv Datastream.

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Authors

Paul Jackson Global Head of Asset Allocation Research Telephone +44(0)20 3370 1172 paul.jackson@invesco.com London, EMEA	András Vig Multi-Asset Strategist Telephone +44(0)20 3370 1152 andras.vig@invesco.com London, EMEA

Global Market Strategy Office

Kristina Hooper Chief Global Market Strategist kristina.hooper@invesco.com New York, Americas	Brian Levitt Global Market Strategist, Americas brian.levitt@invesco.com New York, Americas
Talley Léger Investment Strategist, Equities talley.leger@invesco.com New York, Americas	Ashley Oerth Senior Investment Strategy Analyst ashley.oerth@invesco.com London, EMEA
Arnab Das Global Market Strategist arnab.das@invesco.com London, EMEA	Adam Burton Senior Economist adam.burton@invesco.com London, EMEA
Paul Jackson Global Head of Asset Allocation Research paul.jackson@invesco.com London, EMEA	András Vig Multi-Asset Strategist andras.vig@invesco.com London, EMEA
David Chao Global Market Strategist, Asia Pacific david.chao@invesco.com Hong Kong, Asia Pacific	Thomas Wu Market Strategies Analyst, Asia Pacific thomas.wu@invesco.com Hong Kong, Asia Pacific
Tomo Kinoshita Global Market Strategist, Japan tomo.kinoshita@invesco.com Tokyo, Asia Pacific	Cyril Birks Global Thought Leadership Intern cyril.birks@invesco.com London, EMEA

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