Uncommon truths

The Aristotle List: 10 improbable but possible outcomes for 2021

It is time to forget central scenarios and think about improbable but possible outcomes. Market sentiment is currently bullish, so our list of surprises has a negative tinge, though we also look for upside (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 2021 that we 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 2021.

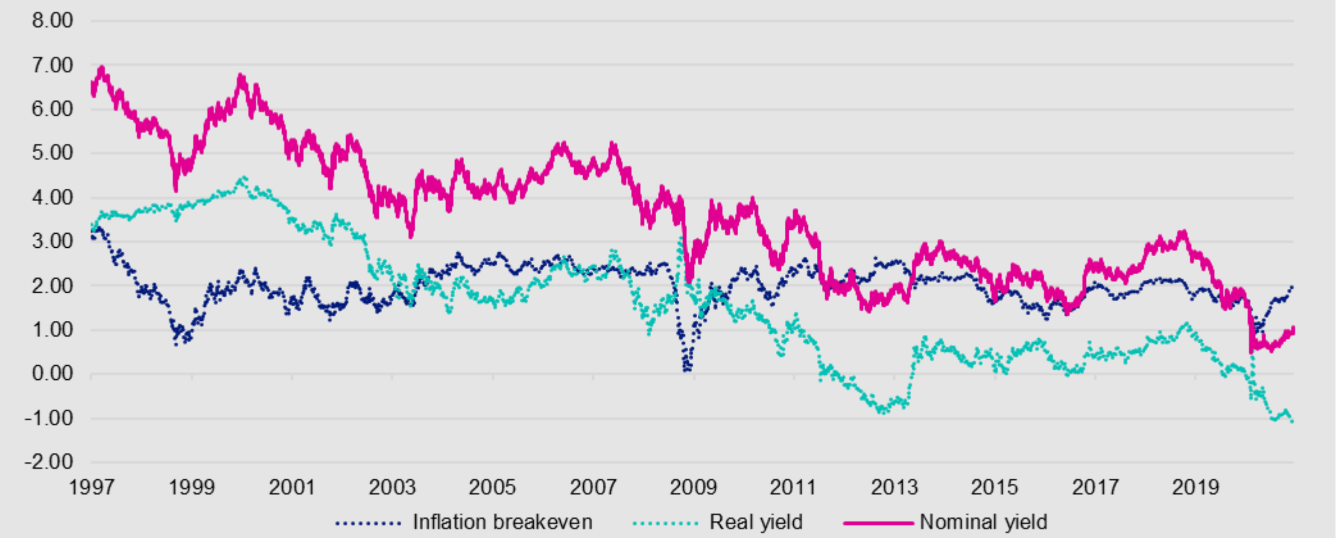
We believe the biggest returns are earned (or the biggest losses avoided) by successfully taking out-of-consensus positions. A year ago, the mood was mixed (and didn't anticipate a global pandemic). Hence, our improbable but possible ideas were disparate ("Joe Biden wins the US presidential election"; "The price of carbon in the EU breaks above €30/t"; "Oil & gas outperforms technology in the US" etc). The mood now seems bullish, so our new list has a bearish tinge – do not expect it to be internally consistent.

1. S&P 500 finishes the year lower than it started
The S&P 500 gained 16% during 2020 (12% in the final quarter) and at 3756 it started 2021 higher than our year-end target of 3600. Not that our targets are infallible but we really had to stretch to justify even that (accepting the current bullish mood, we assumed 10% dividend growth and that the dividend yield would remain at a lowly 1.6% see Outlook 2021). If growth disappoints (due to new lockdowns or collateral damage from 2020, say) or yields rise (due to Fed QE tapering, say), then stocks could be vulnerable.

2. US 10-year treasury yield goes above 2.0%
This would require a doubling of yields, which seems unlikely (our end-2021 forecast is 1.35%). In fact, it seems so unlikely that we think it worth bearing in mind, especially given the possible fallout. What could produce this outcome? We suspect a combination of strong economic growth (supported by the Democrat clean sweep), rising inflation and hints of Fed tapering could do the trick. We think the latter could easily see the inflation-adjusted 10-year yield move back into positive territory (it is currently -1.0% -- see **Figure 1**). We believe this could disrupt financial markets, at least in the short term.

3. Value outperforms growth
We have said this before (and been wrong). However, if the global economy expands vigorously during 2021 and bond yields rise (as suggested above) then this could be the year that value outperforms growth. In theory, growth stocks are long duration instruments (with much of the value contained in distant years) and should therefore benefit as bond yields fall. **Figure 6** shows how much growth outperformed value in 2020, as bond yields declined. However, the gap closed significantly during the final quarter of the year and we suspect that reversal could last into 2021 if bond yields rise further (helped by Democrat control of Capitol Hill).

Figure 1 – Decomposed US 10-year treasury yield shows that real yield is depressed (%)



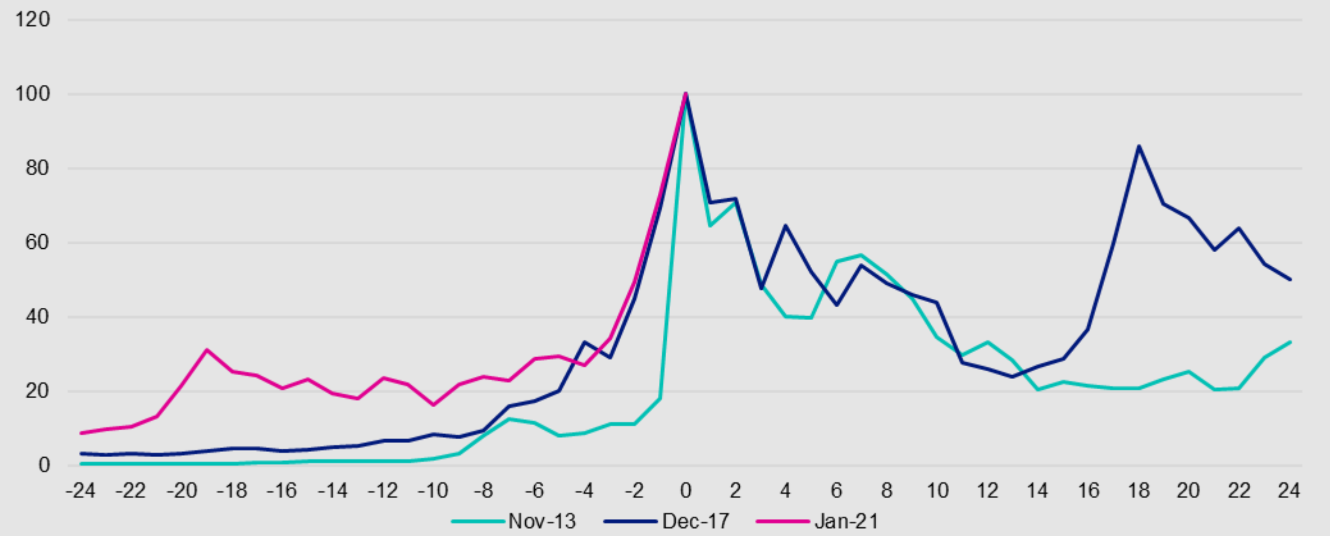
Notes: daily data from 29 January 1997 to 7 January 2021. Past performance is no guarantee of future results.
Source: Refinitiv Datastream and Invesco

4. SNP wins a majority; agitates for independence
UK local elections are due on 6 May 2021, including those for the Scottish parliament. The Scottish National Party (SNP) currently runs a minority government but opinion polls suggest it could win a majority in May (recent polls suggest it could win 50%-60% of constituency votes and 40%-55% of regional votes). SNP leader and First Minister Nicola Sturgeon has made it clear that she intends to press the case for an independence referendum, citing the UK's departure from the EU as a material difference since the last such referendum in September 2014. That referendum rejected independence by a 55% to 45% margin but recent opinion polls suggest the outcome would be different (there were only two opinion polls in 2014 that suggested Scotland would choose independence, whereas every opinion poll since the start of June 2020 suggests it will). The major obstacle to Nicola Sturgeon in the event of an SNP victory would be the intransigence of Boris Johnson (any referendum may need the approval of the UK government). A big SNP majority could strengthen the case for a referendum.

5. Iran elects a hard-line president but improves relations with the US
The Middle East throws up a number of potential powder kegs: Israel's fourth parliamentary election in two years is due in March, at a time when support from its closest ally may fade (with the change of administration in the US); Russia holds legislative elections in September which could see it become more active in the Middle East (Syria and Lebanon) to distract from domestic issues, while Iran is due to elect a new president on June 18. It seems likely that Iran will choose a hard-line president (Parviz Fattah, Saeed Mohammad or Hossein Dehghan, assuming that Mahmoud Ahmadinejad is blocked from standing again). All three have links to the IRGC (Islamic Revolutionary Guards Corps) and such an outcome would put all three organs of power (judiciary, parliament and presidency) in the hands of those trusted (selected) by Supreme Leader Khamenei. This would ensure that his hard-line vision persists after his death ("Second Phase of the Islamic Revolution"). All these developments provide a worrying backdrop in a region neglected by the US over the last decade. It would be easy to imagine a worsening of the relationship between the US and Iran, leading to some form of conflict (Dehghan and Fattah have been blacklisted by the US and the EU). However, the real surprise would be if a Biden presidency, with the help of the EU, manages to rekindle the 2015 nuclear deal. We think this could depress the price of oil but may also reduce risk premia on many assets.

6. Bitcoin falls below $10,000 during 2021
Talking of shrinking risk premia, we recently published a model for Bitcoin based on US bond yields and the dollar, similar to what we do for gold (see The builder's guide to Bitcoin). The price was then around $20,000 and our model based fair value was (and still is) around $9,000. It has since approached $40,000 and some suggest it can go much higher (J.P. Morgan recently suggested $146,000). We are not experts but this looks and feels like another Bitcoin bubble. Indeed, the mass marketing of Bitcoin reminds us of the activity of stockbrokers in the run up to the 1929 crash (as brilliantly described in John Kenneth Galbraith's The Great Crash, 1929). **Figure 2** compares recent Bitcoin bubbles and suggests that, when it comes, the descent can be abrupt (note it assumes Bitcoin is now peaking). We would not be surprised to see the price fall below $10,000 at some stage in 2021.

Figure 2 – Bitcoin's repeating bubbles (price in USD indexed to 100 at peak of each cycle)



Note: monthly data showing the price of Bitcoin in the 24 months before and after recent peaks (November 2013, December 2017 and January 2021, as of 7 January 2021 and assuming that is the peak). Horizontal axis shows the number of months before and after each peak. Past performance is no guarantee of future results. Source: Bloomberg, Refinitiv Datastream and Invesco.

Invesco

7. South African government debt outperforms

This is carried over from last year and the logic remains the same (though currency weakness scuppered our plans in 2020). The 10-year government yield was 8.78% on 8 January 2021, compared to a CPI inflation rate of 3.2% in November 2020. We believe this offers an interesting cushion against the risk of currency losses, especially given that the South African rand is reasonably valued, in our opinion (based on the BIS Broad Effective CPI Based Index, it is currently 15% below the average since the start of this century).

8. Kenyan stocks 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. Examples are rare, with the Nairobi SE 20 the closest that we can find right now. According to Bloomberg, and after the index fell by 30% in 2020, the dividend yield on the Nairobi SE 20 is 7.6% and the historical P/E is 8.7x (falling to 4.9x if we use consensus 2022 earnings estimates). The choice of Kenya allows us to re-emphasise our belief that Africa will be the real story of this century (see 21st Century Portfolio). Kenyan GDP growth has been above 5% for most of the last 10 years (though dipping to -5.7% YoY in 2020 Q2), with inflation in the 4%-7% range since mid-2017 (5.6% in December 2020). There are, however, some issues: general government deficit to GDP ratios have been in the 5.0%-8.5% range since 2012, which has pushed gross government debt from 39% of GDP in 2013 to 63% in 2020 (according to IMF estimates). This has been accompanied by sizeable current account deficits (4.5% of GDP in 2019) and the currency depreciated by 8% versus USD in 2020 (having been relatively stable since the end of 2015).

9. EU carbon goes above €50 per tonne

In last year's list we suggested EU carbon would finally break above €30 (it did, even in a recession year, and is now around €35). Climate change is the ultimate externality and we think internalising the problem via pricing mechanisms has a big role to play (see 21st Century Portfolio). The EU carbon allowance scheme is one such solution, where the right to emit carbon can be bought and sold, thus leaving it to the market to set the most efficient way to reduce emissions (the number of allowances is reduced over time). The Stern Review (2006) calculated the social cost of carbon to be $85 per tonne and we suspect it has increased since then. With the UN Climate Change Conference (COP26) due in November, and the global economy expected to rebound, we suspect EU carbon may exceed €50/t during 2021.

10. France wins UEFA EURO 2020

Despite football coming home (at least for the semi-final and final stages of the EURO 2020 tournament, now being played in 2021) and England being the bookmaker's second favourite (see oddschecker.com), it is hard to see them progressing beyond the semi-finals (where we think they will lose to the Netherlands). We reckon that France will beat Belgium (the bookies favourite) in the other semi-final and go on to win the tournament on Sunday 11 July (the same weekend on which they won their first World Cup in 1998).

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 31 December 2020.

Figure 3 – The price of carbon in the European Union (€ per tonne)

Notes: daily data from 22 April 2005 to 7 January 2021. Based on the ICE ECX EUA Daily Futures Contract, which shows the price of buying EU allowances (EUA) on the European Climate Exchange (ECX). One unit gives the right to emit one tonne of carbon. Past performance is no guarantee of future results. Source: Refinitiv Datastream and Invesco.

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Figure 4 – Asset class total returns (% annualised)

Data as at 31/12/2020	Index	Current Level/RY	Total Return (USD, %) 1y	3y	5y	10y	Total Return (Local Currency, %) 1y	3y	5y	10y
Equities										
World	MSCI	646	16.8	10.6	12.9	9.7	14.8	10.6	12.3	10.7
Emerging Markets	MSCI	1291	18.7	6.6	13.2	4.0	19.5	8.5	13.0	7.0
China	MSCI	108	29.7	9.2	15.2	7.8	28.3	8.8	15.1	7.8
US	MSCI	3668	21.4	15.1	15.7	14.1	21.4	15.1	15.7	14.1
Europe	MSCI	1840	5.9	4.2	7.4	5.9	-1.7	3.3	6.2	6.9
Europe ex-UK	MSCI	2320	11.6	6.4	9.1	7.0	2.1	5.2	6.6	7.8
UK	MSCI	1031	-10.4	-2.3	2.7	3.1	-13.2	-2.7	4.2	4.5
Japan	MSCI	3855	14.9	6.4	9.0	6.8	9.2	3.4	5.8	9.4
Government Bonds										
World	BofA-ML	0.23	9.2	4.7	4.5	2.4	4.9	3.7	3.1	3.5
Emerging Markets	BBloom	3.88	6.9	6.1	9.0	9.0	6.9	6.1	9.0	9.0
China	BofA-ML	3.11	9.4	5.0	3.0	4.2	2.7	5.2	3.1	4.2
US (10y)*	Datastream	0.91	12.6	7.2	4.9	4.8	12.6	7.2	4.9	4.8
Europe	BofA-ML	-0.22	14.5	5.2	5.4	3.9	5.1	4.5	3.0	4.8
Europe ex-UK (EMU, 10y)*	Datastream	-0.58	13.4	4.7	5.9	4.2	4.0	4.1	3.4	5.1
UK (10y)*	Datastream	0.24	10.0	5.0	3.6	4.2	6.6	4.6	5.1	5.6
Japan (10y)*	Datastream	0.02	5.2	3.4	4.0	-0.4	-0.1	0.5	0.9	2.0
IG Corporate Bonds										
Global	BofA-ML	1.43	10.3	5.9	6.2	4.5	7.7	5.7	5.6	5.1
Emerging Markets	BBloom	3.62	12.3	9.7	12.4	10.2	12.3	9.7	12.4	10.2
China	BofA-ML	4.08	9.8	4.9	2.5	4.6	3.1	5.1	2.7	4.5
US	BofA-ML	1.85	9.8	7.0	6.7	5.6	9.8	7.0	6.7	5.6
Europe	BofA-ML	0.34	11.9	3.2	5.4	3.0	2.6	2.5	3.0	3.9
UK	BofA-ML	1.46	12.2	6.0	5.1	5.5	8.7	5.7	6.7	7.0
Japan	BofA-ML	0.41	5.5	3.4	3.7	-1.8	0.3	0.5	0.6	0.6
HY Corporate Bonds										
Global	BofA-ML	4.81	8.0	5.9	8.5	6.6	6.3	5.7	8.1	6.9
US	BofA-ML	4.98	6.2	5.9	8.4	6.6	6.2	5.9	8.4	6.6
Europe	BofA-ML	3.19	12.0	4.0	7.6	5.4	2.8	3.3	5.1	6.4
Cash (Overnight LIBOR)										
US		0.08	2.2	1.7	1.1	0.6	2.2	1.7	1.1	0.6
Euro Area		-0.60	-2.7	1.7	-1.9	-2.5	-0.5	-0.5	-0.4	0.0
UK		0.03	4.6	2.9	-2.7	-1.5	0.7	0.5	0.5	0.5
Japan		-0.12	0.8	2.4	1.9	-1.5	-0.1	-0.1	0.0	0.0
Real Estate (REITs)										
Global	FTSE	1777	-9.2	2.0	5.0	5.9	-16.7	1.3	2.5	6.9
Emerging Markets	FTSE	1972	-16.8	-2.0	7.7	2.3	-23.7	-2.6	5.2	3.3
US	FTSE	2812	-9.6	2.6	3.8	7.8	-9.6	2.6	3.8	7.8
Europe ex-UK	FTSE	3754	2.6	4.8	9.1	7.9	-5.9	4.1	6.6	8.9
UK	FTSE	1350	-13.3	-1.2	-1.8	5.6	-15.9	-1.5	-0.3	7.1
Japan	FTSE	2623	-9.8	5.5	3.8	4.0	-14.3	2.5	0.6	6.6
Commodities										
All	GSCI	1977	-23.7	-8.2	-1.9	-8.8	-	-	-	-
Energy	GSCI	267	-46.3	-16.7	-6.2	-12.7	-	-	-	-
Industrial Metals	GSCI	1399	14.8	-1.1	7.9	-3.5	-	-	-	-
Precious Metals	GSCI	2199	23.0	11.7	11.1	1.4	-	-	-	-
Agricultural Goods	GSCI	400	14.9	1.7	-2.3	-7.0	-	-	-	-
Currencies (vs USD)*										
EUR		1.22	8.9	0.6	2.4	-0.9	-	-	-	-
JPY		103.26	5.2	3.0	3.1	-2.4	-	-	-	-
GBP		1.37	3.2	0.3	-1.5	-1.3	-	-	-	-
CHF		1.13	9.3	3.2	2.5	0.5	-	-	-	-
CNY		6.53	6.7	-0.1	-0.1	0.1	-	-	-	-

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 (% annualised)

Data as at 31/12/2020	Global			
	1y	**3y**	**5y**	**10y**
Energy	**-33.6**	**-15.0**	**-8.7**	**-9.8**
Basic Materials	**7.3**	**-2.2**	**2.0**	**-5.0**
Basic Resources	10.9	-1.4	6.3	-8.6
Chemicals	3.1	-3.8	-1.0	-1.7
Industrials	**-0.8**	**-1.1**	**0.8**	**0.3**
Construction & Materials	-2.6	-4.6	-2.4	-2.9
Industrial Goods & Services	-0.5	-0.5	1.3	0.8
Consumer Discretionary	**10.7**	**2.8**	**1.0**	**2.4**
Automobiles & Parts	36.6	2.2	0.2	0.6
Media	4.4	3.3	-0.2	3.1
Retailers	15.8	8.0	3.5	4.0
Travel & Leisure	-14.5	-6.2	-4.3	-0.5
Consumer Products & Services	13.4	2.8	2.3	2.9
Consumer Staples	**-7.4**	**-5.7**	**-4.1**	**-0.7**
Food, Beverage & Tobacco	-9.4	-5.0	-5.0	-1.1
Personal Care, Drug & Grocery Stores	-3.8	-1.2	-3.2	0.3
Healthcare	**3.0**	**4.8**	**-0.3**	**5.0**
Financials	**-15.5**	**-6.4**	**-3.8**	**-2.6**
Banks	-21.6	-11.2	-6.3	-5.4
Financial Services	-6.0	0.4	1.0	1.6
Insurance	-13.8	-5.2	-3.3	-0.3
Real Estate	**-16.9**	**-5.4**	**-4.5**	**-2.3**
Technology	**29.2**	**16.0**	**12.9**	**8.6**
Telecommunications	**-4.7**	**-4.0**	**-5.3**	**-2.8**
Utilities	**-6.6**	**0.0**	**-1.0**	**-3.1**

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

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

Data as at 31/12/2020	Absolute				Relative to Market			
	1y	3y	5y	10y	1y	3y	5y	10y
Growth	30.4	19.5	16.5	15.3	10.1	4.7	1.1	1.2
Low volatility	16.0	14.6	15.1	15.5	-2.0	0.4	-0.1	1.4
Price momentum	20.1	12.1	11.7	13.0	1.4	-1.8	-3.0	-0.7
Quality	13.2	10.5	13.6	13.7	-4.4	-3.2	-1.4	-0.1
Size	6.0	6.3	10.8	11.6	-10.5	-6.9	-3.8	-2.0
Value	2.5	3.7	10.5	11.2	-13.4	-9.2	-4.1	-2.4
Market	18.4	14.2	15.2	13.9				
Market - Equal-Weighted	12.8	10.4	13.0	12.7				

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 (% annualised)

Data as at 31/12/2020	Absolute				Relative to Market			
	1y	3y	5y	10y	1y	3y	5y	10y
Growth	23.5	15.3	12.0	13.3	25.3	10.8	6.5	5.6
Low volatility	1.3	7.6	8.1	12.5	2.9	3.4	2.8	4.8
Price momentum	16.8	10.5	10.9	13.5	18.6	6.1	5.5	5.8
Quality	5.8	6.7	7.3	10.9	7.4	2.4	2.0	3.4
Size	3.5	7.8	7.5	8.8	5.1	3.5	2.2	1.4
Value	-9.3	-1.4	3.4	5.8	-7.9	-5.3	-1.6	-1.4
Market	-1.5	4.1	5.1	7.3				
Market - Equal-Weighted	2.1	5.2	6.5	8.4				

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%**	↓	**20%**	
Government	25%	10-40%		15%	
US	8%		↓	2%	
Europe ex-UK (Eurozone)	7%		↑	4%	
UK	1%		↑	2%	
Japan	7%		↓	3%	
Emerging Markets	2%			4%	
China**	0.2%			1%	
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%		↓	4%	
Euro	1%		↓	1%	
Equities	**45%**	**25-65%**	↑	**50%**	
US	25%		↑	18%	
Europe ex-UK	7%		↑	12%	
UK	4%		↑	6%	
Japan	4%			6%	
Emerging Markets	5%		↑	8%	
China**	2%			3%	
Real Estate	**8%**	**0-16%**	↑	**16%**	
US	2%		↑	3%	
Europe ex-UK	2%		↑	4%	
UK	1%			3%	
Japan	2%		↓	3%	
Emerging Markets	1%		↑	3%	
Commodities	**2%**	**0-4%**	↑	**4%**	
Energy	1%		↑	2%	
Industrial Metals	0.3%		↑	1%	
Precious Metals	0.3%			0%	
Agriculture	0.3%		↑	1%	
Total	**100%**			**100%**	
Currency Exposure (including effect of hedging)					
USD	48%		↓	36%	
EUR	20%		↑	23%	
GBP	7%		↑	12%	
JPY	15%		↓	13%	
EM	9%		↑	15%	
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	**6.0%**	**Neutral**	**US**
Basic Materials	**4.1%**	**Neutral**	**Europe**
Basic Resources	2.2%	Underweight	Europe
Chemicals	1.9%	Overweight	US
Industrials	**12.6%**	**Underweight**	**US**
Construction & Materials	1.6%	Neutral ↑	Europe
Industrial Goods & Services	11.1%	Overweight ↑	US
Consumer Discretionary	**16.3%**	**Underweight**	**Japan**
Automobiles & Parts	2.3%	Underweight	Japan
Media	1.3%	Underweight	US
Retailers	6.9%	Neutral	EM
Travel & Leisure	2.0%	Underweight	Japan
Consumer Products & Services	3.9%	Neutral	Japan
Consumer Staples	**7.0%**	**Overweight**	**Europe**
Food, Beverage & Tobacco	4.5%	Overweight	Europe
Personal Care, Drug & Grocery Stores	2.5%	Underweight ↓	US
Healthcare	**10.9%**	**Neutral**	**Europe**
Financials	**12.8%**	**Neutral**	**EM**
Banks	5.8%	Neutral ↓	EM
Financial Services	3.8%	Overweight ↑	US
Insurance	3.2%	Underweight	Japan
Real Estate	**3.7%**	**Overweight**	**Europe**
Technology	**18.9%**	**Overweight**	**US**
Telecommunications	**4.2%**	**Neutral**	**US**
Utilities	**3.5%**	**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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