Applied philosophy
Will the sun continue to shine on technology?

The global technology sector has left nearly all other sectors in the dust so far this year. Although we expected the sector to outperform, we have been surprised by how much. A stabilisation in interest rate expectations and the excitement around generative artificial intelligence contributed to a strong re-rating in 2023. Fundamentals may take time to catch up with valuations, but we think the sector's focus on profitability and a supportive macro environment suggest outperformance may continue over the next 12 months.

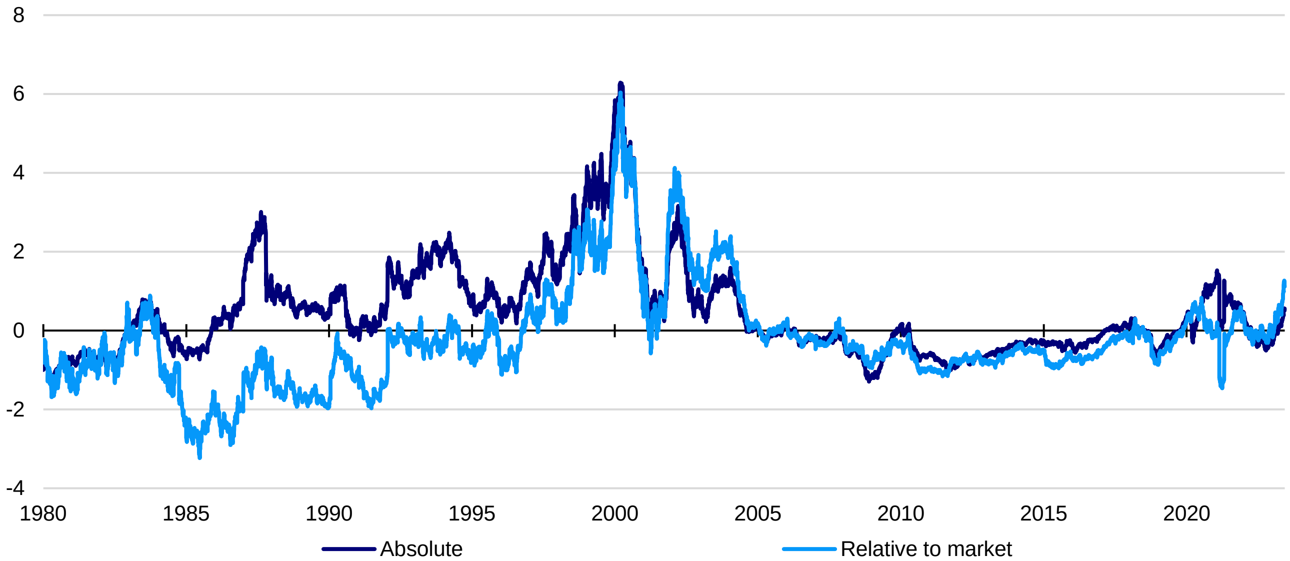
The global technology sector has been the best performer year-to-date by far (**Figure 4**). Even if the outperformance itself has not surprised us, its magnitude certainly has. We anticipated a moderation of the headwind from rising interest rates and that earnings would be resilient, and therefore thought the sector would be well-placed to deliver strong returns. However, we could not have predicted the excitement driven by generative artificial intelligence boosting chipmakers and developers of the most well-known models. In an attempt to look beyond the hype, we analyse the fundamentals of the sector to assess its prospects for the next 12 months.

If annualised, the total returns of the global technology sector so far in 2023 would make it the second best year ever after 1999 (as of 9 June 2023, using the Datastream World Technology index in US dollars). Even if the sector remained at current levels until the end of the year, it would still make the top five, surpassed only by the final two years of the tech bubble (1999 and 1998), the first year of the COVID-19 pandemic (2020) and a year of the US Federal Reserve's target rate falling 350 basis points (1982).

Perhaps the main concern with this rally is that it seems quite narrow, led by a few mega-cap stocks, which may not be sustainable if sentiment turns negative. In fact, the outperformance has been almost entirely driven by the United States and almost two-thirds of the rise in market value can be attributed to the five largest stocks in the Datastream Technology index (Apple, Microsoft, Nvidia, Alphabet and Meta), compared to their 48% share of aggregate market capitalisation. Nevertheless, even an index excluding the top five would have outperformed global equities by 10.6% (as of 9 June 2023 in US dollar terms) suggesting to us that the rally is not as narrow as it seems at first glance (including those five stocks gives an outperformance of 21.5%).

This kind of outperformance inevitably raises concerns about valuations. Short-term returns tend to be driven by changes in multiples, especially around turning points in the market cycle. This is what happened around the late-1990s tech bubble and to a smaller extent in 2020 and 2022. This seems evident in **Figure 1**, where we compare the global technology sector's price-to-earnings ratios to their rolling long-term averages both in absolute terms and relative to the global equity market (using Datastream World indices).

Figure 1 – Global technology sector price-to-earnings ratios compared to averages (z-scores)



Note: **Past performance is no guarantee of future results.** Data as of 9 June 2023. The chart shows price-to-earnings ratios compared to rolling averages for their whole history since 1 January 1980 for the Datastream World Technology index. The benchmark for relative valuations is the Datastream World Total Market Index. The calculations for the averages and standard deviations for z-scores (spreads versus the average divided by standard deviation) shown start on 5 January 1973. Rolling averages are calculated from 5 January 1973 until each data point including the whole history up to and including that date.
Source: Refinitiv Datastream and Invesco Global Market Strategy Office

It is also interesting that despite the talk during COVID-related lockdowns about the technology sector benefitting from the move online, relative valuations diverged from their averages less than absolute valuations, suggesting that the whole market became expensive relative to historical norms at that time. Also, valuations may look somewhat higher than average, but we do not see a significant dislocation from fundamentals at a z-score of 0.5 standard deviations in absolute terms. Relative valuations merit more concern with a z-score of 1.1, although we think that partly reflects the schizophrenic nature of the market this year. On the one hand, long duration sectors, such as technology responded to a moderation in interest rate expectations. On the other hand, sectors more sensitive to short-term cyclical forces (especially energy and banks) have underperformed on concerns about economic growth.

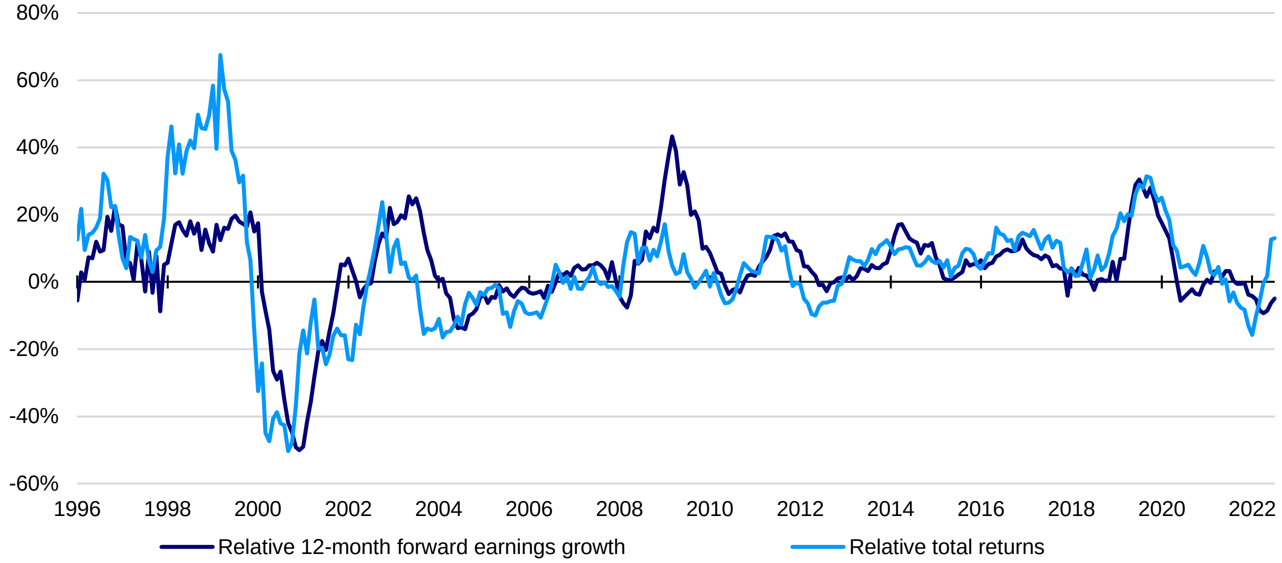
Nevertheless, we do not think the sector is immune to the economic cycle. The pandemic-related lockdowns may have provided the sector with a one-off boost to earnings that temporarily lifted all boats in 2020-2021. By contrast, in 2022, the share prices of many consumer-facing "stay-at-home" stocks returned to pre-pandemic levels as earnings expectations normalised and rising rates contributed to a de-rating.

Profit margins also received a boost during the pandemic. Net profit margins based on Refinitiv Datastream aggregates for the sector increased from 11.15% in August 2020 to 16.2% in January 2022 surpassing the previous all-time high of 12.9% in December 2018. However, after Western economies reopened and demand for technology products decreased, that margin reverted to 12% by May 2023 (mostly driven by the digital consumer services subsector dominated by US digital advertising platforms). The software and semiconductor subsectors also contributed to this trend, while the rest of the hardware space held up better.

Companies in the sector responded to narrower margins by reducing their cost base, which we think will help to stabilise margins near current levels. This focus on "self-help", a conversion into a leaner business model that has been adapting to a world with scarcer capital may have contributed to an improvement in sentiment in Q4 2022.

In our view, the biggest threats to technology sector outperformance come from a rise in interest rate expectations driven by sticky inflation and the sharp increase in valuations, which may contribute to a near-term increase in volatility. Economic indicators remain consistent with a slowdown in the global economy and lower long bond yields which we think will benefit the technology sector. Even better, our analysis of previous market cycles suggests that technology performs relatively well in the early stages of market recoveries (see here for more detail). Therefore, based on previous experience, we would expect the technology sector to continue outperforming. Finally, relative 12-month forward earnings expectations seem to be turning (**Figure 2**), which given the strong historical correlation with relative returns, could provide support for our Overweight stance on the sector in our model sector allocation (see **Figure 7**).

Figure 2 – Global technology relative 12-month forward earnings growth and total returns (year-on-year)



Notes: **Past performance is no guarantee of future returns.** Monthly data from December 1995 to June 2023. Data as of 9 June 2023. We use the year-on-year change in IBES consensus weighted average 12-month forward earnings estimates and total returns based on the MSCI All-Country World Information Technology index relative to the MSCI All-Country World index.
Source: Refinitiv Datastream, IBES, Invesco Global Market Strategy Office

Figure 3 – Asset class total returns (%, annualised)

Data as at 09/06/2023		Current	Total Return (USD, %)					Total Return (Local Currency, %)				
	Index	Level/RY	1w	1m	QTD	YTD	12m	1w	1m	QTD	YTD	12m
Equities												
World	MSCI	667	0.6	2.7	3.7	11.5	7.1	0.4	3.2	4.0	11.5	7.6
Emerging Markets	MSCI	1002	1.9	2.3	1.8	5.9	-2.9	1.7	2.3	2.1	6.0	-0.5
China	MSCI	62	1.8	-2.1	-7.6	-3.3	-13.2	1.9	-1.6	-7.1	-2.4	-12.3
US	MSCI	4083	0.4	4.7	4.9	13.0	8.7	0.4	4.7	4.9	13.0	8.7
Europe	MSCI	1891	-0.2	-2.5	1.0	11.9	10.9	-0.6	-1.0	1.3	10.2	9.6
Europe ex-UK	MSCI	2334	-0.3	-2.5	0.9	13.1	12.8	-0.7	-0.6	1.6	12.3	11.0
UK	MSCI	1135	0.4	-2.6	1.7	7.9	5.0	-0.4	-2.3	-0.1	3.2	4.6
Japan	MSCI	3536	2.2	3.9	7.2	14.1	11.7	2.0	7.3	12.3	20.5	15.9
Government Bonds												
World	BofA-ML	3.09	0.0	-1.8	-2.0	0.9	-3.7	-0.2	-0.6	-0.9	1.7	-2.9
Emerging Markets	BBloom	7.97	0.8	0.6	0.4	3.4	2.0	0.8	0.6	0.4	3.4	2.0
China	BofA-ML	2.50	-0.5	-2.1	-2.0	0.0	-2.3	0.2	0.6	1.6	2.4	4.1
US (10y)	Datastream	3.75	-0.4	-1.6	-1.6	2.6	-2.4	-0.4	-1.6	-1.6	2.6	-2.4
Europe	Bofa-ML	3.10	-0.1	-1.5	-1.0	2.8	-3.3	-0.4	0.3	0.0	2.0	-4.3
Europe ex-UK (EMU, 10y)	Datastream	2.38	-0.3	-1.9	-1.2	3.9	-4.4	-0.5	-0.1	-0.2	3.1	-5.3
UK (10y)	Datastream	4.24	0.2	-3.0	-3.5	2.3	-12.1	-0.6	-2.7	-5.2	-2.2	-12.3
Japan (10y)	Datastream	0.44	0.0	-3.2	-5.0	-2.5	-1.6	-0.2	0.0	-0.5	3.0	2.2
IG Corporate Bonds												
Global	BofA-ML	5.22	0.0	-0.9	-0.6	2.8	-0.8	-0.2	-0.4	-0.4	2.4	-0.9
Emerging Markets	BBloom	7.78	0.4	-0.2	0.1	3.4	0.5	0.4	-0.2	0.1	3.4	0.5
China	BofA-ML	3.30	-0.6	-2.3	-2.0	0.0	-3.3	0.1	0.5	1.6	2.5	3.1
US	BofA-ML	5.57	-0.2	-0.5	-0.8	2.6	-0.5	-0.2	-0.5	-0.8	2.6	-0.5
Europe	BofA-ML	4.27	0.2	-1.8	-0.3	3.1	-0.7	-0.1	0.0	0.7	2.3	-1.7
UK	BofA-ML	6.19	0.6	-2.0	-0.5	4.9	-7.6	-0.2	-1.7	-2.2	0.3	-7.9
Japan	BofA-ML	0.73	0.2	-2.8	-4.2	-3.9	-3.9	0.0	0.3	0.3	1.5	-0.2
HY Corporate Bonds												
Global	BofA-ML	8.77	0.5	0.5	0.9	4.6	2.4	0.4	0.9	1.1	4.3	2.2
US	BofA-ML	8.63	0.3	0.8	1.2	4.9	2.7	0.3	0.8	1.2	4.9	2.7
Europe	BofA-ML	7.36	0.9	-0.5	0.9	5.5	3.3	0.6	1.4	2.0	4.7	2.3
Cash (Overnight LIBOR)												
US		5.07	0.1	0.4	1.0	2.1	3.7	0.1	0.4	1.0	2.1	3.7
Euro Area		3.22	0.4	-1.7	-0.3	1.6	2.7	0.1	0.3	0.6	1.2	1.4
UK		4.47	1.1	0.0	2.8	5.8	3.7	0.1	0.4	0.8	1.8	3.0
Japan		-0.03	0.4	-3.0	-4.7	-6.0	-3.7	0.0	0.0	0.0	-0.1	-0.1
Real Estate (REITs)												
Global	FTSE	1550	1.1	-0.4	0.6	1.4	-7.8	0.8	1.4	1.6	0.6	-8.7
Emerging Markets	FTSE	1274	2.8	-3.1	-1.7	-4.1	-9.1	2.5	-1.3	-0.7	-4.9	-10.0
US	FTSE	2890	1.1	0.8	1.0	3.7	-4.5	1.1	0.8	1.0	3.7	-4.5
Europe ex-UK	FTSE	2022	2.5	1.6	1.6	-3.4	-23.3	2.2	3.5	2.6	-4.2	-24.1
UK	FTSE	722	-1.0	-1.3	3.6	5.1	-21.6	-1.8	-1.0	1.9	0.5	-21.8
Japan	FTSE	2128	1.1	-1.5	2.8	-0.2	-6.0	0.9	1.7	7.6	5.5	-2.4
Commodities												
All	GSCI	3200	0.0	-1.2	-3.7	-8.5	-25.5	-	-	-	-	-
Energy	GSCI	529	-0.7	-1.9	-5.3	-13.4	-34.5	-	-	-	-	-
Industrial Metals	GSCI	1566	1.1	-3.7	-7.2	-6.6	-15.3	-	-	-	-	-
Precious Metals	GSCI	2225	0.7	-3.9	-0.3	7.1	6.5	-	-	-	-	-
Agricultural Goods	GSCI	548	1.0	0.2	-1.6	-2.0	-14.9	-	-	-	-	-
Currencies (vs USD)*												
EUR		1.07	0.4	-1.9	-0.8	0.4	1.3	-	-	-	-	-
JPY		139.35	0.4	-3.0	-4.7	-5.9	-3.6	-	-	-	-	-
GBP		1.26	0.8	-0.3	1.7	4.6	0.3	-	-	-	-	-
CHF		1.11	0.6	-1.5	1.2	2.3	8.5	-	-	-	-	-
CNY		7.13	-0.6	-2.9	-3.6	-3.2	-6.1	-	-	-	-	-

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

Figure 4 – Global equity sector total returns relative to market (%)

Data as at 09/06/2023	Global				
	1w	1m	QTD	YTD	12m
Energy	**0.6**	**-3.0**	**0.1**	**-7.1**	**-12.1**
Basic Materials	**0.5**	**-3.9**	**-5.3**	**-6.6**	**-8.4**
Basic Resources	1.1	-4.6	-5.4	-7.1	-6.3
Chemicals	-0.2	-3.0	-5.0	-6.0	-11.1
Industrials	**0.4**	**-0.3**	**-1.2**	**-1.5**	**2.9**
Construction & Materials	0.8	-1.0	1.1	4.0	7.4
Industrial Goods & Services	0.3	-0.1	-1.5	-2.2	2.3
Consumer Discretionary	**0.9**	**0.8**	**-0.4**	**6.6**	**3.7**
Automobiles & Parts	5.4	11.3	4.1	21.0	-4.2
Media	2.1	1.8	-1.9	5.4	7.6
Retailers	-0.1	1.4	0.4	2.4	-0.5
Travel & Leisure	-0.1	-1.6	0.2	5.0	11.8
Consumer Products & Services	-0.6	-5.1	-4.2	4.0	10.5
Consumer Staples	**-0.9**	**-5.8**	**-4.2**	**-8.3**	**-1.3**
Food, Beverage & Tobacco	-0.9	-5.9	-4.1	-7.4	-0.8
Personal Care, Drug & Grocery Stores	-0.8	-5.4	-4.3	-9.9	-2.4
Healthcare	**-0.8**	**-3.9**	**-1.5**	**-8.6**	**-0.7**
Financials	**0.6**	**-0.6**	**0.3**	**-7.0**	**-1.8**
Banks	0.8	-0.5	0.7	-7.8	-4.2
Financial Services	0.6	1.0	0.3	-5.1	-0.2
Insurance	-0.1	-3.1	-0.4	-8.1	2.0
Real Estate	**0.3**	**-2.8**	**-3.3**	**-8.8**	**-14.2**
Technology	**-1.2**	**8.3**	**6.3**	**21.5**	**10.7**
Telecommunications	**0.1**	**-4.0**	**-5.7**	**-4.6**	**-7.7**
Utilities	**0.6**	**-4.1**	**-2.4**	**-8.2**	**-4.8**

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 5a – US factor index total returns (%)

Data as at 09/06/2023	Absolute					Relative to Market				
	1w	1m	QTD	YTD	12m	1w	1m	QTD	YTD	12m
Growth	0.1	3.1	1.1	12.8	9.7	-0.3	-1.4	-3.6	0.0	0.7
Low volatility	0.3	-1.5	0.4	-0.1	3.3	-0.1	-5.8	-4.4	-11.5	-5.1
Price momentum	0.8	1.0	0.8	0.7	2.5	0.4	-3.4	-4.0	-10.8	-5.9
Quality	1.0	3.4	0.2	6.9	6.1	0.6	-1.1	-4.5	-5.2	-2.6
Size	1.9	3.6	-1.6	1.5	-3.0	1.5	-0.9	-6.2	-10.0	-10.9
Value	2.0	3.5	-0.6	-2.7	-6.5	1.6	-1.1	-5.3	-13.7	-14.1
Market	0.4	4.6	5.0	12.8	8.9					
Market - Equal-Weighted	1.0	2.1	0.4	3.3	2.4					

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 5b – European factor index total returns relative to market (%)

Data as at 09/06/2023	Absolute					Relative to Market				
	1w	1m	QTD	YTD	12m	1w	1m	QTD	YTD	12m
Growth	-0.1	-0.1	-0.8	9.5	3.4	0.3	0.5	-2.9	-1.2	-5.4
Low volatility	-0.7	-2.4	1.5	10.0	7.5	-0.2	-1.9	-0.6	-0.7	-1.8
Price momentum	-0.2	0.1	1.1	4.6	0.0	0.2	0.7	-1.0	-5.7	-8.6
Quality	0.1	-1.1	-2.6	5.9	-1.3	0.5	-0.5	-4.6	-4.4	-9.7
Size	0.3	0.1	0.4	6.5	-0.6	0.7	0.7	-1.6	-4.0	-9.1
Value	0.7	1.0	2.0	7.3	0.5	1.1	1.6	-0.1	-3.2	-8.2
Market	-0.4	-0.5	2.1	10.9	9.4					
Market - Equal-Weighted	-0.1	-0.3	1.4	9.1	3.1					

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 6 – 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%**		**48%**	
Government	25%	10-40%		**25%**	
US	8%		↑	12%	
Europe ex-UK (Eurozone)	7%			5%	
UK	1%			2%	
Japan	7%		↓	2%	
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%		↓	6%	
Euro	1%		↑	2%	
Equities	**45%**	**25-65%**	↓	**34%**	
US	25%		↓	12%	
Europe ex-UK	7%		↑	5%	
UK	4%		↑	5%	
Japan	4%		↓	4%	
Emerging Markets	5%			8%	
China**	2%			4%	
Real Estate	**8%**	**0-16%**	↓	**8%**	
US	2%			3%	
Europe ex-UK	2%			1%	
UK	1%			2%	
Japan	2%		↓	1%	
Emerging Markets	1%		↓	1%	
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%		↓	45%	
EUR	20%		↑	18%	
GBP	7%		↑	14%	
JPY	15%		↓	10%	
EM	9%		↓	15%	
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 7 – Model allocations for Global sectors

	Neutral	Invesco	Preferred Region
Energy	**7.5%**	**Underweight**	**EM**
Basic Materials	**4.5%**	**Underweight**	**Europe**
Basic Resources	2.6%	Underweight	Europe
Chemicals	1.9%	Neutral	Europe
Industrials	**13.0%**	**Neutral**	**Japan**
Construction & Materials	1.6%	Underweight	US
Industrial Goods & Services	11.5%	Neutral	Europe
Consumer Discretionary	**14.7%**	**Overweight**	**Europe**
Automobiles & Parts	2.7%	Neutral	Europe
Media	1.1%	Neutral	Japan
Retailers	4.7%	Overweight	Europe
Travel & Leisure	2.2%	Underweight	EM
Consumer Products & Services	4.0%	Overweight	Europe
Consumer Staples	**6.5%**	**Overweight**	**US**
Food, Beverage & Tobacco	4.3%	Overweight	US
Personal Care, Drug & Grocery Stores	2.2%	Overweight	US
Healthcare	**10.0%**	**Overweight**	**US**
Financials	**15.0%**	**Underweight**	**Japan**
Banks	7.2%	Underweight	EM
Financial Services	4.9%	Underweight	EM
Insurance	2.9%	Neutral	Europe
Real Estate	**3.0%**	**Neutral**	**EM**
Technology	**18.8%**	**Overweight**	**US**
Telecommunications	**3.5%**	**Neutral**	**Europe**
Utilities	**3.6%**	**Underweight**	**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

Definitions of data and benchmarks for Figure 3

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). From 1st January 2022, we use the Refinitiv overnight deposit rate for the euro, the British pound and the Japanese yen. 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 Bloomberg Barclays emerging markets aggregate government bond index.

Corporate investment grade (IG) bonds: Bank of America Merrill Lynch investment grade corporate bond total return indices. The emerging markets yields and returns are based on the Bloomberg Barclays emerging markets aggregate corporate 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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Data as of 9 June 2023 unless stated otherwise.

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