Applied philosophy
Does inflation travel?

Inflation has been a major driver behind financial market returns and we expect that to remain the case in the short term. Trade costs are a significant contributor to the final price of any good with shipping costs its most volatile element. We think that the recent surge driven by pandemic-related disruptions and increased goods demand during lockdowns added to the inflationary impulse. This impact may be receding alongside other factors that could signal lower inflation ahead.

Inflation remains a major driving force behind the movements of financial markets, even if its importance to the overall market narrative may have waned somewhat. Its rise to multi-decade highs has been rapid and every new peak makes us wonder: have we reached the top? We believe that the answer to this question and how monetary and fiscal policy reacts to it will largely determine how markets evolve in the next 12 months.

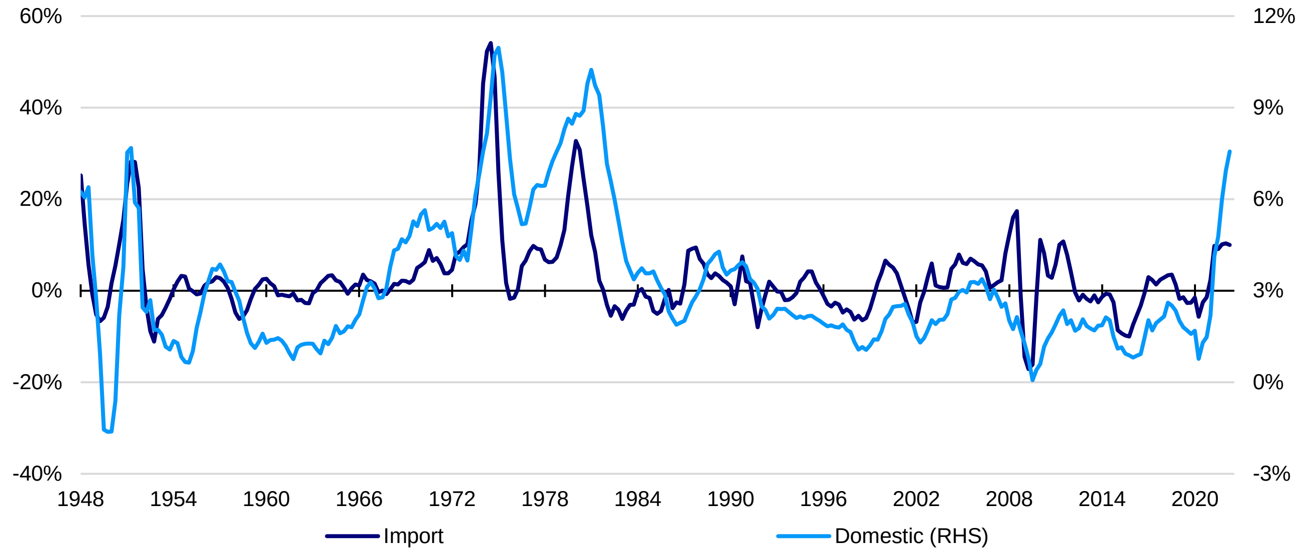
We have written about the topic recently in The causes and course of inflation, where we outlined our views about how demographics, commodity prices, labour markets and monetary policy impacted the current surge. We have rarely had so many factors combine to create an environment that allowed such a rapid rise in inflation. However, we think we can still add another piece to the puzzle by studying how global trade may have contributed to inflation.

Recent events seemed to have conspired against globalisation from the "trade war" between the United States and China, through the COVID-19 pandemic to the war in Ukraine. Even if we believe that these events will not be enough to completely reverse globalisation, they have increased the costs of manufacturing and transporting goods around the world. Unless the global economy enters an environment similar to the first half of the 20th century, we believe that the total value of exports and imports will remain close to its current level at just above half of global GDP.

Thus, we think it is worth paying attention to how the cost of trade may impact inflation. However, defining the cost of trade is a complex process. According to Anderson and Wincoop (2004)[1], broadly defined trade costs consist of: 1) transportation costs (freight and time); 2) policy barriers (tariff and non-tariff); 3) information costs; 4) contract enforcement costs; 5) costs associated with the use of different currencies; 6) legal and regulatory costs; 7) local distribution costs (wholesale and retail). Their rough estimate of the tax equivalent of all these costs is 170%, which breaks down as follows: 21 percent transportation costs, 44 percent border-related trade barriers, and 55 percent retail and wholesale distribution costs (2.7=1.21*1.44*1.55).

Most of the above are difficult to measure and track through time and therefore we must rely on our assumptions on how they were affected by the pandemic. Although border-related barriers, mostly policy barriers and perhaps related legal and regulatory costs, increased during the Trump presidency for the US and its trading partners, and after Brexit between the European Union and the United Kingdom, we

Figure 1 – United States implicit import price vs domestic deflator (year-on-year change)



Notes: Quarterly data from Q1 1948 to Q2 2022.
Source: Refinitiv Datastream and Invesco

assume that they were not significantly impacted by the COVID-19 pandemic. We have also found distribution costs to be relatively stable at around 45% of revenues between 1997 and 2021 in the US (using value added divided by total sales), which we assume to be similar for most countries.

That leaves us with transportation costs, which have been the most visibly impacted by the pandemic. They were boosted by both the higher demand for goods during lockdowns and by supply disruptions, especially when crews had to self-isolate. This increased not only the price of freight (including surcharges and fees for delays and storage), but also the lead times of getting goods to end customers.

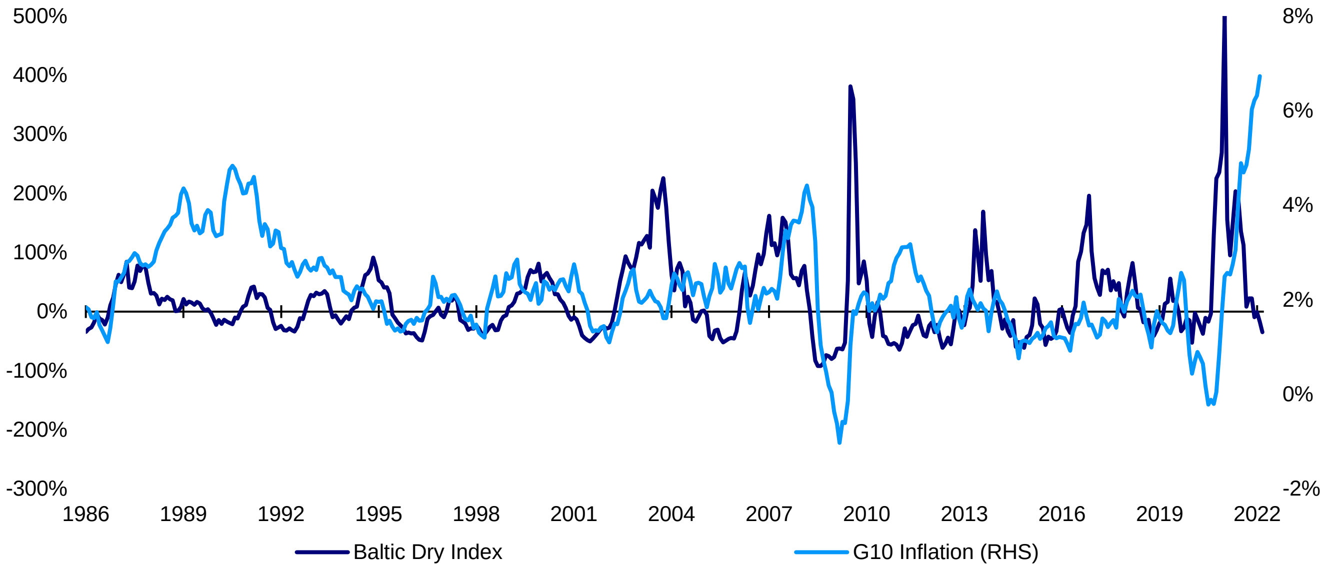
Supply chain disruptions and higher freight costs may have driven import prices higher which, based on our analysis, could have impacted domestic prices of goods. We find that import and domestic price deflators have been correlated and, in many cases, changes in import prices lead changes in domestic or overall prices (see **Figure 1** for an example from the US). Import prices tended to be more volatile in the past than domestic prices and, using the US as an example, that volatility peaked in the 1970s. However, the US seems an outlier in a sense that the post-pandemic rise in domestic prices almost matched the increase in import prices (this was not the case for the Eurozone, Japan or the UK where the domestic deflator remained at a much lower level).

A working paper from March 2022 by the International Monetary Fund (IMF)[2] concluded that there seems to be a statistically significant and non-negligible impact of a rise in freight costs on inflation. With goods imports amounting to 38% of GDP on average in 2018 and associated freight costs to 7.5% of the value of imported goods this impacts goods prices both directly and indirectly through higher costs borne by producers using more expensive intermediate goods. Their analysis of 46 countries, using the Baltic Dry Index as a proxy for global shipping costs, shows that a one-standard-deviation (21.8 percentage points) increase in global shipping costs typically increases domestic headline inflation by 0.15 percentage points over 12 months. They also found that this effect increases gradually, peaks after 12 months, and reverts six months later. The response is similar for core inflation, but the magnitude of the effect is about one third of the effect on headline inflation.

This implies, based on a trough-to-peak tenfold increase in the Baltic Dry Index (using calendar month averages) between February 2020 and October 2021, that shipping costs may have contributed to a seven percentage-point increase in inflation. This may be an overestimate, but it shows that these costs can have a significant impact on prices due to the high volatility of freight costs. Assuming that past relationships hold, this implies that the impact of freight costs will peak in the autumn of 2022 and will fade out of inflation statistics by the spring of 2023.

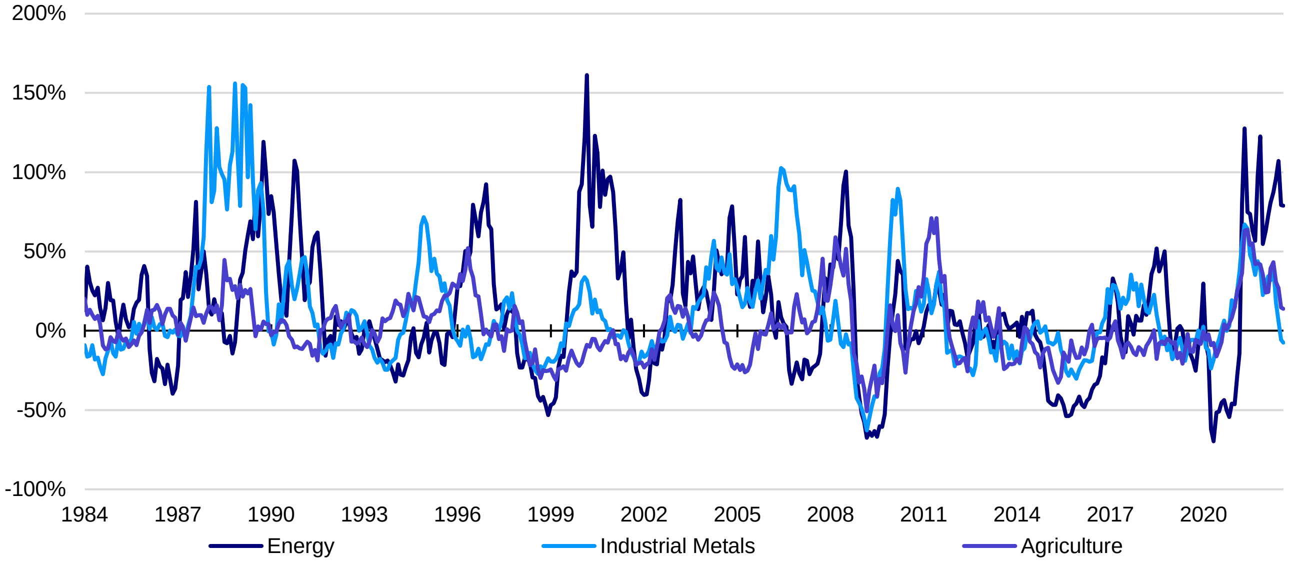
Even if the impact of shipping costs on inflation may be difficult to quantify, **Figure 2** shows that freight costs

Figure 2 – Shipping costs and G10 consumer price inflation since 1986 (year-on-year change)



Notes: Monthly data from May 1986 to July 2022. For the Baltic Dry Index, we show the year-on-year change in the calendar monthly average for each month. The G10 inflation figure is a GDP-weighted average of year-on-year change in consumer price inflation. The index is rebalanced annually using IMF World Economic Outlook data. We use the largest 10 economies by 2020 nominal GDP in US dollars: United States, China, Eurozone, Japan, United Kingdom, India, Canada, South Korea, Russia and Brazil. Inflation data for China is included from 1987, for Russia and Brazil from 1997 and for India from 2012. Source: Refinitiv Datastream, IMF World Economic Outlook, Invesco

Figure 3 – Commodity prices since 1984 (year-on-year change)



Notes: Monthly data from 1st January 1984 to 29th July 2022. We use S&P GSCI commodity total return indices.
Source: Refinitiv Datastream and Invesco

may soon become a disinflationary force. It also highlights how unusual the current situation is: we struggle to find a strong correlation between the year-on-year changes in the Baltic Dry Index and G10 inflation rates before the pandemic.

With so many powerful forces driving inflation higher, it is not unexpected to see multi-decade highs. However, we believe that inflation will peak this year as we expect at least some of these forces to reverse. The high demand for goods seems to be moderating as the world leaves lockdowns behind and services become more important (see here for more on this topic). We also expect demand to moderate as central banks continue tightening and money supply growth falls. The slowdown in demand, or perhaps even a recession, could also lead to lower wage growth in nominal terms (real wage growth is negative in most major economies). Less pandemic-related disruption – in both the shipping industry and in supply chains in general – will also reduce transportation costs and lead times, in our view.

Finally, commodity prices, especially energy, which is another major cost item for shipping companies, and also an important driver of inflation, have fallen from their peaks (**Figure 3**). Although gas prices remain high as Russia limits supply citing technical issues, the recent agreement to ship grain out of Ukraine gives us hope that agricultural commodity prices will continue decreasing. We cannot rule out further supply disruption, but we think that risk is now lower than in the first half of 2022.

However, supply shocks in commodities or goods manufacturing and shipping driving inflation higher remain the main risks to our view. This would necessitate higher policy rates, but long rates would be lower, in our view, because of the enhanced threat of recession and would provide a headwind to short duration fixed income assets, except for inflation-linked bonds. We think that real assets, such as commodities and real estate would most likely outperform including sectors linked to these assets, such as the energy, basic materials and utilities sectors. Financials could suffer if the yield curve remained inverted.

If inflation moderates from current levels and central bank rates peak in the next 12 months, as we expect, we would favour fixed income instruments, especially sovereign and investment grade debt as long as the risk of recession remains high (see our latest The Big Picture). This implies an Underweight stance in most cyclical assets, including equities, high yield debt and commodities. The only risk asset we would keep Overweight is real estate, where yields are sufficiently high to provide downside risk mitigation. Within asset classes, we would prefer long duration (for example growth stocks, or the long end of sovereign curves) over short duration.

References:

1) James E. Anderson and Eric van Wincoop: Trade Costs, Journal of Economic Literature, 2004, 691-751.
2) Yan Carrière-Swallow, Pragyan Deb, Davide Furceri, Daniel Jiménez, and Jonathan D. Ostry: Shipping Costs and Inflation, IMF Working Paper WP/22/61, 2022

Figure 4 – Asset class total returns (%, annualised)

Data as at 29/07/2022	Index	Current Level/RY	Total Return (USD, %) 1w	1m	QTD	YTD	12m	Total Return (Local Currency, %) 1w	1m	QTD	YTD	12m
Equities												
World	MSCI	638	3.3	5.8	7.0	-14.4	-10.7	3.1	5.9	7.1	-11.7	-6.9
Emerging Markets	MSCI	994	0.4	-1.4	-0.2	-17.6	-20.8	-0.1	-0.9	0.2	-13.4	-15.6
China	MSCI	66	-3.7	-9.8	-9.4	-19.6	-29.4	-3.7	-9.6	-9.3	-18.3	-28.3
US	MSCI	3928	4.2	8.3	9.3	-13.7	-7.4	4.2	8.3	9.3	-13.7	-7.4
Europe	MSCI	1706	2.6	3.2	5.0	-16.4	-15.1	2.3	4.5	6.1	-7.8	-3.0
Europe ex-UK	MSCI	2067	2.5	3.6	5.4	-19.5	-18.7	2.4	5.5	7.0	-11.5	-7.1
UK	MSCI	1086	3.1	1.9	3.7	-5.4	-2.4	2.0	1.5	3.5	5.3	12.1
Japan	MSCI	3208	0.9	5.1	5.7	-15.5	-15.3	-0.8	2.7	4.0	-2.0	3.3
Government Bonds												
World	BofA-ML	1.88	1.3	2.7	2.0	-13.1	-16.4	0.9	2.8	2.1	-7.0	-8.1
Emerging Markets	BBloom	7.51	3.5	4.2	4.4	-23.3	-24.6	3.5	4.2	4.4	-23.3	-24.6
China	BofA-ML	2.58	0.7	0.2	0.2	-3.1	0.2	0.3	0.8	0.8	2.4	4.4
US (10y)	Datastream	2.64	1.2	4.2	3.1	-9.4	-10.2	1.2	4.2	3.1	-9.4	-10.2
Europe	Bofa-ML	1.32	1.6	2.1	1.5	-18.1	-23.4	1.9	5.0	4.1	-8.7	-10.7
Europe ex-UK (EMU, 10y)	Datastream	0.77	1.7	4.5	3.4	-17.4	-23.1	2.0	7.4	6.0	-7.9	-10.4
UK (10y)	Datastream	1.85	1.8	5.2	3.6	-16.5	-21.3	0.7	4.8	3.4	-7.0	-9.6
Japan (10y)	Datastream	0.12	2.2	3.5	2.7	-14.1	-18.5	0.4	1.1	1.1	-0.3	-0.7
IG Corporate Bonds												
Global	BofA-ML	3.85	1.0	3.1	2.7	-13.1	-15.2	1.0	3.6	3.2	-10.2	-11.2
Emerging Markets	BBloom	7.44	2.6	1.0	1.2	-23.1	-26.4	2.6	1.0	1.2	-23.1	-26.4
China	BofA-ML	3.34	0.7	0.2	0.1	-3.0	-0.2	0.3	0.8	0.8	2.5	4.1
US	BofA-ML	4.38	0.8	3.4	2.9	-11.4	-12.2	0.8	3.4	2.9	-11.4	-12.2
Europe	BofA-ML	2.34	0.9	2.2	2.1	-17.6	-22.5	1.3	5.0	4.6	-8.1	-9.7
UK	BofA-ML	3.83	2.1	4.2	3.5	-20.4	-24.4	1.0	3.8	3.3	-11.4	-13.1
Japan	BofA-ML	0.57	1.9	2.7	1.9	-14.6	-18.7	0.1	0.3	0.3	-0.9	-0.9
HY Corporate Bonds												
Global	BofA-ML	8.02	1.6	3.9	4.4	-13.0	-14.0	1.6	4.4	4.9	-10.9	-11.1
US	BofA-ML	7.72	1.4	5.6	6.0	-8.9	-7.7	1.4	5.6	6.0	-8.9	-7.7
Europe	BofA-ML	6.31	0.9	1.3	2.5	-20.0	-23.5	1.2	4.1	5.1	-10.8	-10.9
Cash (Overnight LIBOR)												
US		2.30	0.0	0.1	0.1	0.3	0.4	0.0	0.1	0.1	0.3	0.4
Euro Area		-0.65	0.1	-2.2	-2.6	-10.4	-14.6	0.0	-0.1	-0.1	-0.4	-0.6
UK		0.18	1.4	0.3	-0.1	-10.0	-12.7	0.0	0.0	0.0	0.1	0.1
Japan		-0.09	2.1	2.5	1.9	-13.6	-17.9	0.0	0.0	0.0	-0.1	-0.1
Real Estate (REITs)												
Global	FTSE	1781	3.8	6.1	7.0	-14.0	-10.0	4.2	9.0	9.7	-4.1	4.9
Emerging Markets	FTSE	1352	1.9	-5.2	-5.4	-14.2	-18.8	2.3	-2.5	-3.0	-4.3	-5.3
US	FTSE	3319	5.0	8.5	9.0	-13.3	-3.2	5.0	8.5	9.0	-13.3	-3.2
Europe ex-UK	FTSE	2577	1.3	6.7	10.1	-29.6	-34.0	1.7	9.6	12.9	-21.5	-23.1
UK	FTSE	923	1.4	5.3	9.0	-21.0	-16.7	0.3	4.9	8.8	-12.0	-4.4
Japan	FTSE	2350	3.3	3.8	4.2	-8.4	-16.9	1.5	1.4	2.5	6.3	1.3
Commodities												
All	GSCI	3766	4.5	-3.8	0.0	35.7	42.2	-	-	-	-	-
Energy	GSCI	704	4.2	-4.3	0.3	64.0	73.6	-	-	-	-	-
Industrial Metals	GSCI	1605	4.5	-1.5	0.7	-11.6	-7.8	-	-	-	-	-
Precious Metals	GSCI	1985	2.7	-2.8	-2.2	-4.8	-6.3	-	-	-	-	-
Agricultural Goods	GSCI	540	7.5	-6.6	-3.5	8.2	13.6	-	-	-	-	-
Currencies (vs USD)*												
EUR		1.02	0.1	-2.1	-2.5	-10.1	-14.0	-	-	-	-	-
JPY		133.21	2.1	2.5	1.9	-13.6	-17.8	-	-	-	-	-
GBP		1.22	1.1	0.4	0.2	-10.2	-12.9	-	-	-	-	-
CHF		1.05	1.0	0.4	0.4	-4.1	-4.8	-	-	-	-	-
CNY		6.74	0.1	-0.7	-0.7	-5.8	-4.3	-	-	-	-	-

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

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

Data as at 29/07/2022	Global				
	1w	**1m**	**QTD**	**YTD**	**12m**
Energy	**2.9**	**-1.7**	**-1.4**	**42.6**	**49.2**
Basic Materials	**1.4**	**-4.5**	**-3.5**	**1.6**	**-4.8**
Basic Resources	2.1	-5.9	-4.3	3.5	-6.2
Chemicals	0.5	-2.7	-2.5	-0.8	-2.6
Industrials	**0.7**	**3.1**	**2.7**	**-2.0**	**-5.3**
Construction & Materials	0.0	2.2	1.4	-6.6	-7.0
Industrial Goods & Services	0.8	3.2	2.9	-1.3	-5.1
Consumer Discretionary	**-0.2**	**4.0**	**4.2**	**-8.8**	**-10.9**
Automobiles & Parts	1.1	7.0	7.7	-6.9	2.7
Media	-1.4	4.4	4.4	-22.7	-25.2
Retailers	-0.7	4.4	4.6	-6.4	-11.3
Travel & Leisure	-0.2	0.8	0.7	-4.2	-9.8
Consumer Products & Services	-0.3	2.5	2.6	-11.5	-15.4
Consumer Staples	**-1.6**	**-2.8**	**-3.3**	**9.8**	**9.3**
Food, Beverage & Tobacco	-1.0	-2.7	-3.2	12.2	11.5
Personal Care, Drug & Grocery Stores	-2.7	-2.8	-3.5	5.3	5.1
Healthcare	**-1.8**	**-2.0**	**-2.7**	**3.4**	**1.6**
Financials	**-0.3**	**-1.8**	**-1.9**	**2.6**	**4.7**
Banks	-0.9	-3.1	-2.8	4.3	7.2
Financial Services	0.9	2.5	2.3	-1.8	-0.3
Insurance	-0.9	-5.8	-6.7	6.1	7.4
Real Estate	**0.2**	**-0.9**	**-1.5**	**-1.0**	**-1.9**
Technology	**0.3**	**1.8**	**2.6**	**-12.5**	**-8.5**
Telecommunications	**-3.0**	**-5.8**	**-6.2**	**3.7**	**-2.2**
Utilities	**1.4**	**0.1**	**-1.0**	**14.2**	**17.1**

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

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

Data as at 29/07/2022	Absolute					Relative to Market				
	1w	1m	QTD	YTD	12m	1w	1m	QTD	YTD	12m
Growth	4.7	11.1	11.9	-18.1	-9.4	0.4	2.6	2.5	-6.4	-4.5
Low volatility	3.8	3.5	3.5	-2.5	5.7	-0.5	-4.4	-5.3	11.5	11.5
Price momentum	5.1	3.8	4.3	-9.8	-1.4	0.7	-4.2	-4.5	3.1	4.0
Quality	2.4	7.7	8.4	-10.7	-3.8	-1.8	-0.6	-0.8	2.1	1.4
Size	2.6	6.9	8.0	-6.1	-2.1	-1.6	-1.3	-1.1	7.4	3.2
Value	2.4	6.6	7.7	-2.5	3.7	-1.8	-1.5	-1.4	11.6	9.3
Market	4.3	8.3	9.2	-12.6	-5.1					
Market - Equal-Weighted	4.0	8.0	8.7	-9.4	-3.0					

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

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

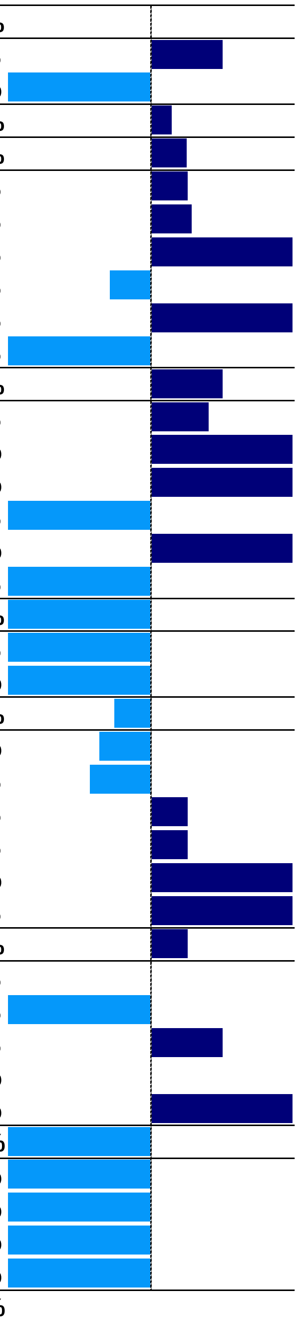
Data as at 29/07/2022	Absolute					Relative to Market				
	1w	1m	QTD	YTD	12m	1w	1m	QTD	YTD	12m
Growth	4.0	13.5	15.1	-23.3	-19.7	1.0	7.0	6.8	-16.7	-17.6
Low volatility	1.8	4.2	5.4	-3.6	-0.6	-1.2	-1.9	-2.2	4.7	1.9
Price momentum	2.8	3.2	4.5	-20.8	-19.8	-0.2	-2.8	-3.0	-13.9	-17.7
Quality	3.8	9.4	11.3	-11.5	-8.9	0.9	3.1	3.2	-3.9	-6.6
Size	3.4	11.2	13.1	-16.7	-15.6	0.4	4.8	5.0	-9.5	-13.4
Value	2.6	4.0	6.6	-9.2	-2.4	-0.3	-2.0	-1.0	-1.4	0.1
Market	3.0	6.1	7.8	-7.9	-2.5					
Market - Equal-Weighted	2.8	7.5	9.1	-13.7	-11.2					

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

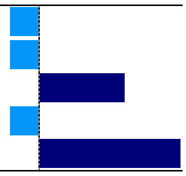
Figure 7 – Model asset allocation

	Neutral	Policy Range		Allocation
Cash Equivalents	**5%**	**0-10%**	↓	**5%**
Cash	2.5%		↓	5%
Gold	2.5%			0%
Bonds	**40%**	**10-70%**	↑	**45%**
Government	25%	10-40%	↑	**30%**
US	8%		↑	10%
Europe ex-UK (Eurozone)	7%		↑	9%
UK	1%		↑	2%
Japan	7%		↑	5%
Emerging Markets	2%		↑	4%
China**	0.2%		↓	0%
Corporate IG	10%	0-20%	↓	**15%**
US Dollar	5%		↓	7%
Euro	2%			4%
Sterling	1%			2%
Japanese Yen	1%		↓	0%
Emerging Markets	1%			2%
China**	0.1%		↓	0%
Corporate HY	5%	0-10%	↓	**0%**
US Dollar	4%		↓	0%
Euro	1%			0%
Equities	**45%**	**25-65%**	↓	**40%**
US	25%			16%
Europe ex-UK	7%		↓	4%
UK	4%		↓	5%
Japan	4%		↓	5%
Emerging Markets	5%			10%
China**	2%		↑	4%
Real Estate	**8%**	**0-16%**	↑	**10%**
US	2%		↑	2%
Europe ex-UK	2%		↓	0%
UK	1%		↑	2%
Japan	2%			2%
Emerging Markets	1%			4%
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%**

Position vs Neutral



Currency Exposure (including effect of hedging)			
USD	48%	↑	38%
EUR	20%	↓	18%
GBP	7%	↑	12%
JPY	15%		13%
EM	9%		20%
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	**8.2%**	**Underweight**	**US**
Basic Materials	**4.3%**	**Neutral**	**Europe**
Basic Resources	2.4%	Neutral	Europe
Chemicals	1.9%	Neutral	US
Industrials	**12.3%**	**Neutral**	**US**
Construction & Materials	1.5%	Neutral	EM
Industrial Goods & Services	10.8%	Neutral	US
Consumer Discretionary	**13.9%**	**Neutral**	**US**
Automobiles & Parts	2.8%	Underweight	Europe
Media	0.9%	Overweight	US
Retailers	4.8%	Neutral	US
Travel & Leisure	1.9%	Underweight	US
Consumer Products & Services	3.5%	Neutral	Japan
Consumer Staples	**6.7%**	**Overweight**	**US**
Food, Beverage & Tobacco	4.4%	Overweight	US
Personal Care, Drug & Grocery Stores	2.3%	Overweight	US
Healthcare	**10.5%**	**Overweight**	**US**
Financials	**15.2%**	**Underweight**	**Japan**
Banks	7.5%	Underweight	Japan
Financial Services	4.9%	Underweight	Japan
Insurance	2.8%	Underweight	US
Real Estate	**3.5%**	**Overweight**	**EM**
Technology	**18.0%**	**Overweight**	**EM**
Telecommunications	**3.8%**	**Neutral**	**Japan**
Utilities	**3.7%**	**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 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 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

Factor index definitions

We focus on relatively large-cap stocks, as we suspect that most investors will be conscious of liquidity constraints when implementing such strategies. We have chosen six factors, that we think cover the classic definitions used by most investors. We aim to capture roughly a fifth of the market in each of our factor indices using the historical constituents of the STOXX 600 since August 1999 and the S&P 500 since September 1989, with monthly rebalancing. All our rankings are based on data in euros for Europe and in US dollars for the US. All factor indices are equal-weighted. We use the following definitions:

Growth: stocks in both the top third based on their 5-year sales per share trend and the top-third based on their internal growth rate (the product of the 5-year average return on equity and the retention ratio).

Low volatility: stocks in the bottom quintile based on the standard deviation of their daily returns in the previous three months.

Price momentum: stocks in the top quintile based on their performance in the previous 12 months.

Quality: stocks in both the top third based on their return on invested capital and the top third based on their EBIT to EV ratio (earnings before interest and taxes to enterprise value). This follows Joel Greenblatt's "magic formula" from his 2005 book: The little book that beats the market.

Size: stocks in the bottom quintile based on their market value.

Value: stocks in the bottom quintile based on their price to book value ratios.

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Data as of 29th July 2022 unless stated otherwise.

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