25 MAY 2022

Appendix B

LGIM

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Asset Allocation: Macro Update
Leicestershire CC Pension Fund

Tim Armitage – Multi-Asset Fund Manager
James Sparshott – Head of Local Authorities

Growth and inflation mix putting central banks under pressure

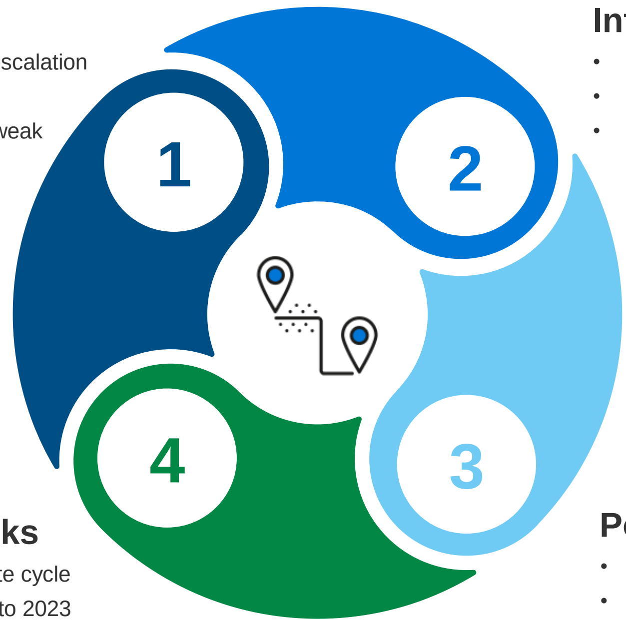
Cyclical risks increasing, with our recession indicators flashing more warning signals, but central bank hands are tied by rampant inflation

Geopolitical uncertainty

- Short-term effect of war and possible escalation
- Long-term impacts widespread
- Volatility elevated, investor sentiment weak

Inflation

- Commodity channel impacted by Russian invasion
- China's COVID lockdowns threaten supply chain again
- Backdrop of tight labour markets and elevated inflation



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Growth and recession risks

- Short-term growth tailwinds, but into late cycle
- Recession risks elevated, especially into 2023
- High uncertainty in outlook, stagflation risk looms

Policy response

- Banks continuing hawkish message
- Scope for significant policy divergence
- Yield curves flirting with inversion

Reassessment of outlook warrants a reduction of risk and selling into strength

 Source: LGIM, as at 12 May 2022.
Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.

Fasten your seatbelts – how bad will the landing be?

The Fed hopes for a soft landing, but with a tight labour market, high inflation and an energy crisis, the chance of success is slim. No debt boom, and modest inflation expectations are the saving grace

Rate Hiking Episode		Change In Fed Funds Effective Rate	Recession Start	Real GDP Drop	Economic Conditions			
Start	End				Unemployment*	Inflation*	Debt Boom	Energy Spike
Sep-65	Nov-66	1.8%	SOFT LANDING		🚩		🚩	
Jul-67	Aug-69	5.4%	Jan-70	-0.6%	🚩			
Feb-72	Jul-74	9.6%	Dec-73	-2.7%				🚩
Jan-77	Apr-80	13.0%	Feb-80	-2.2%		🚩		🚩
Jul-80	Jan-81	10.1%	Aug-81	-2.1%		🚩		🚩
Feb-83	Aug-84	3.1%	SOFT LANDING			🚩		
Mar-88	Apr-89	3.3%	Aug-90	-1.4%			🚩	🚩
Dec-93	Apr-95	3.1%	SOFT LANDING					
Jan-99	Jul-00	1.9%	Jan-22	-0.1%	🚩		🚩	
Jun-04	Jun-06	4.0%	Aug-22	-3.8%			🚩	🚩
Oct-15	Jan-19	2.3%	Mar-20	-10.1%				
Mar-22	?	0.6%	?	?	🚩	🚩		🚩

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Economy is likely running too hot to engineer a soft landing

Source: LGIM, Bloomberg, as at 12 May 2022
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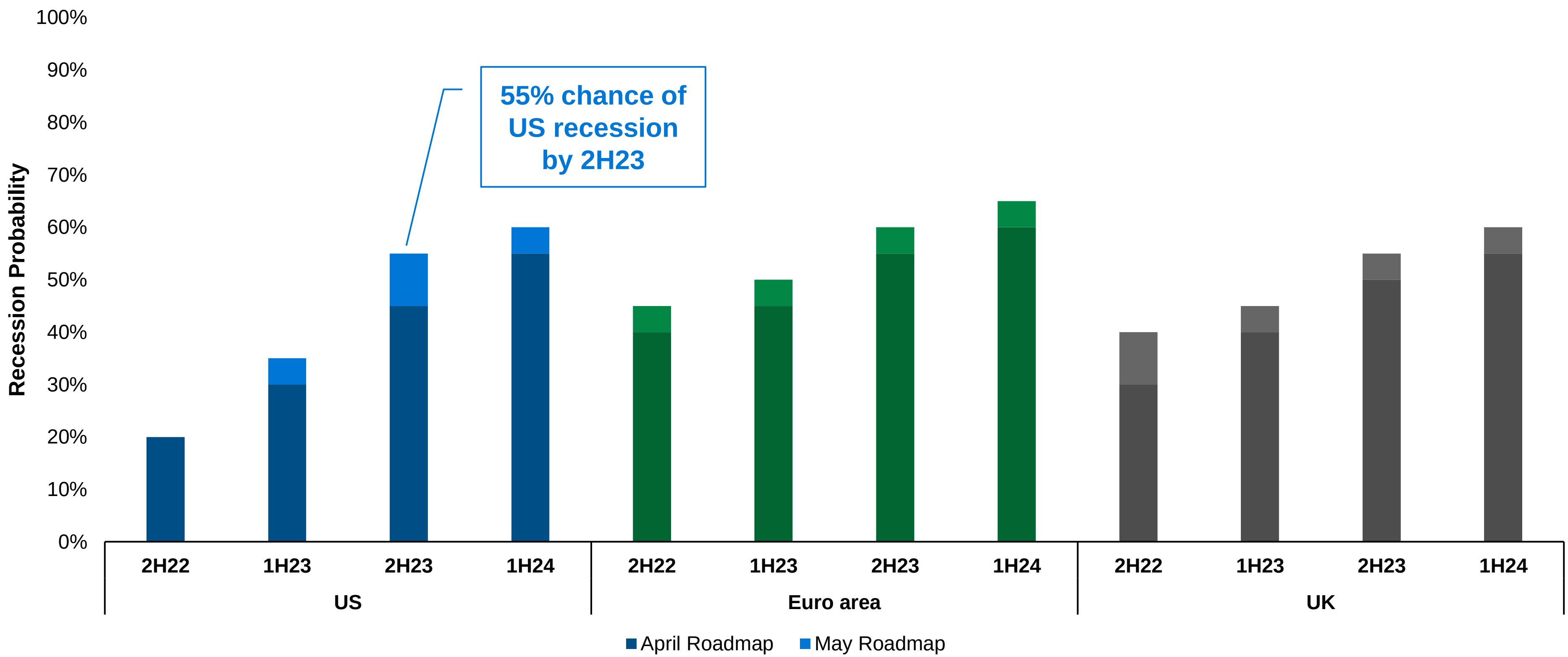
Upping the ante on our recession call

Economy was already in late cycle before the Ukraine invasion

Recession probabilities



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 Source: LGIM, as at 4 May 2022. Recession probabilities show the probability of two consecutive quarters of negative growth occurring in or before the given dates

[1] **Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

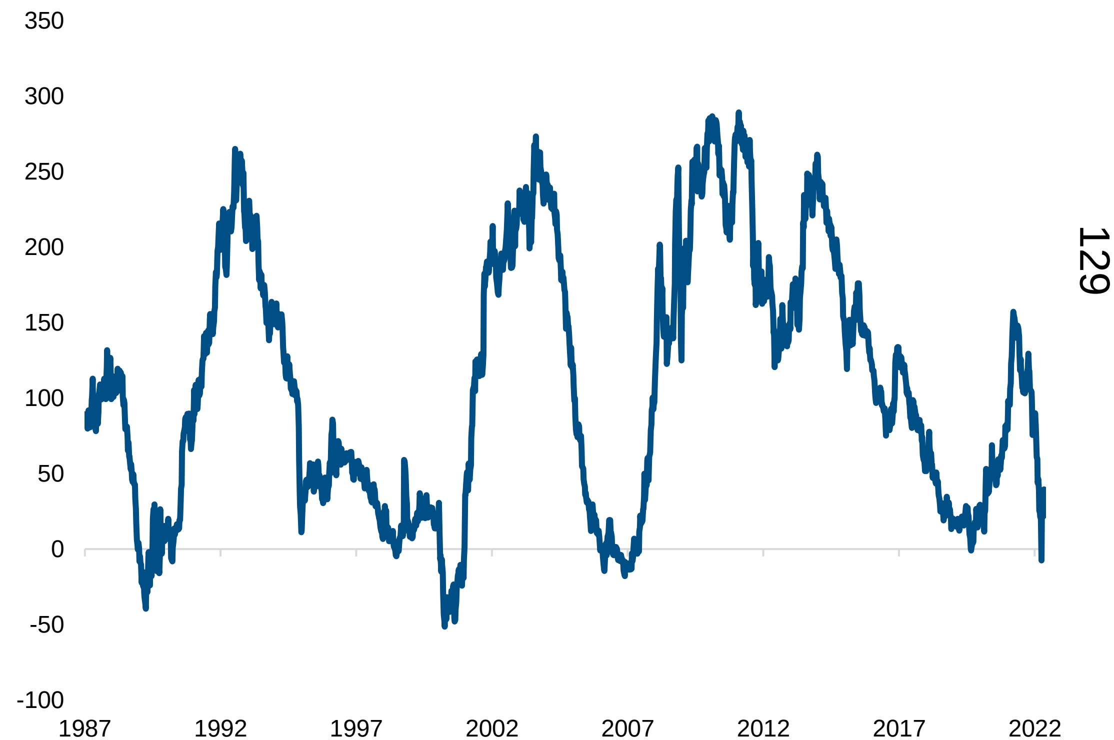
Central banks remain hawkish, yield curve flirting with inversion

We shouldn't expect a uniform reaction from central banks, nor the bond and currency markets. Japanese yen has suffered from domestic yield curve control

Market-implied interest rate expected by end-2022 as at:

	1 January	12 May	Change
	0.8%	2.7%	+1.9%
	0.8%	2.0%	+1.2%
	-0.4%	0.2%	+0.6%
	0.8%	2.8%	+2.0%
	0.0%	0.0%	0.0%

Difference between US 2-year and 10-year treasury yields



Source: LGIM, Bloomberg as at 12 May 2022. Rate hike estimations based on 0.25% hiking increment
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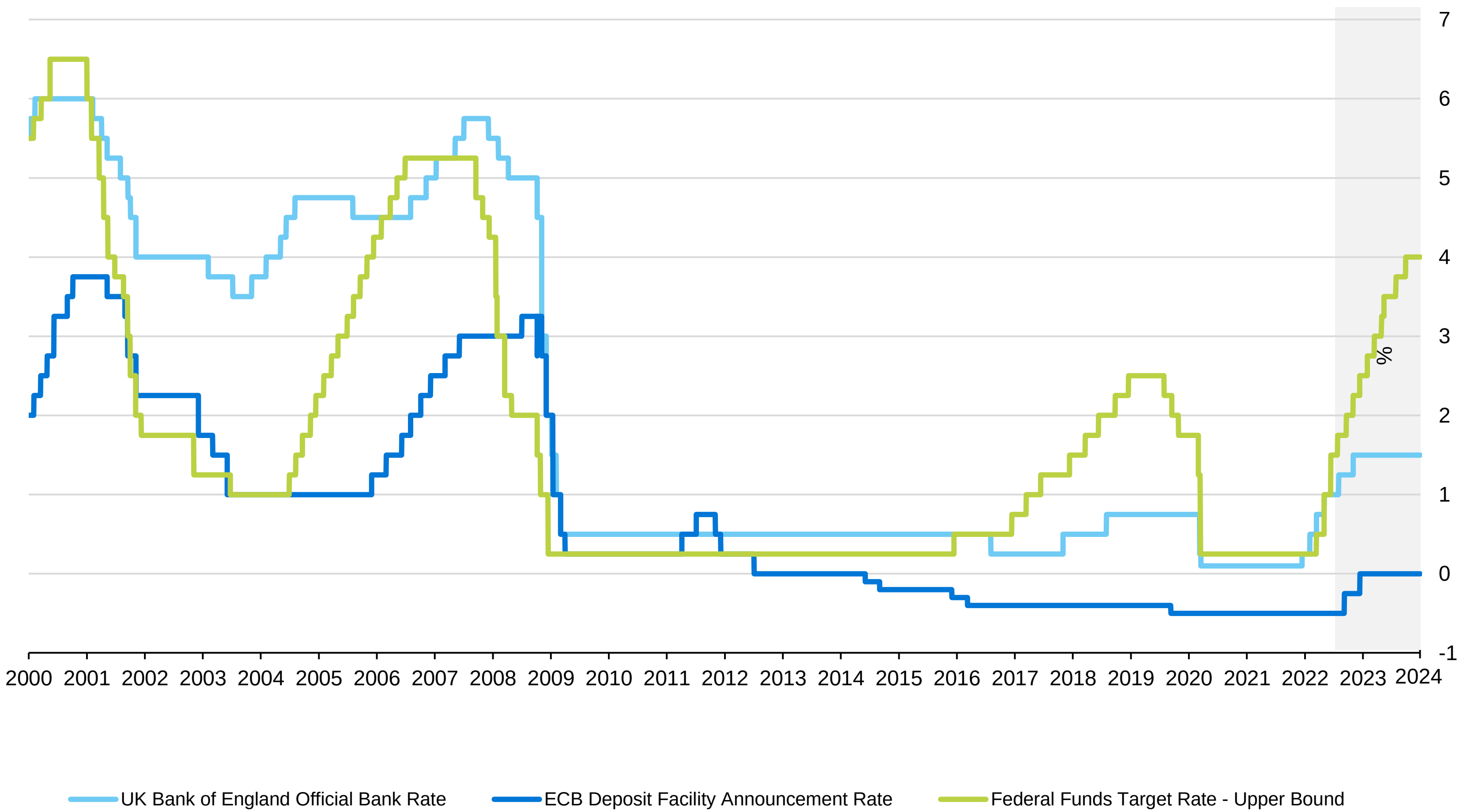
Policy rate differentials could hit new highs

Both the US and UK have become less interest-rate sensitive over time, requiring a more aggressive hiking cycle

Fed, ECB and BoE



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Source: LGIM, Macrobond, as at 13 April 2022

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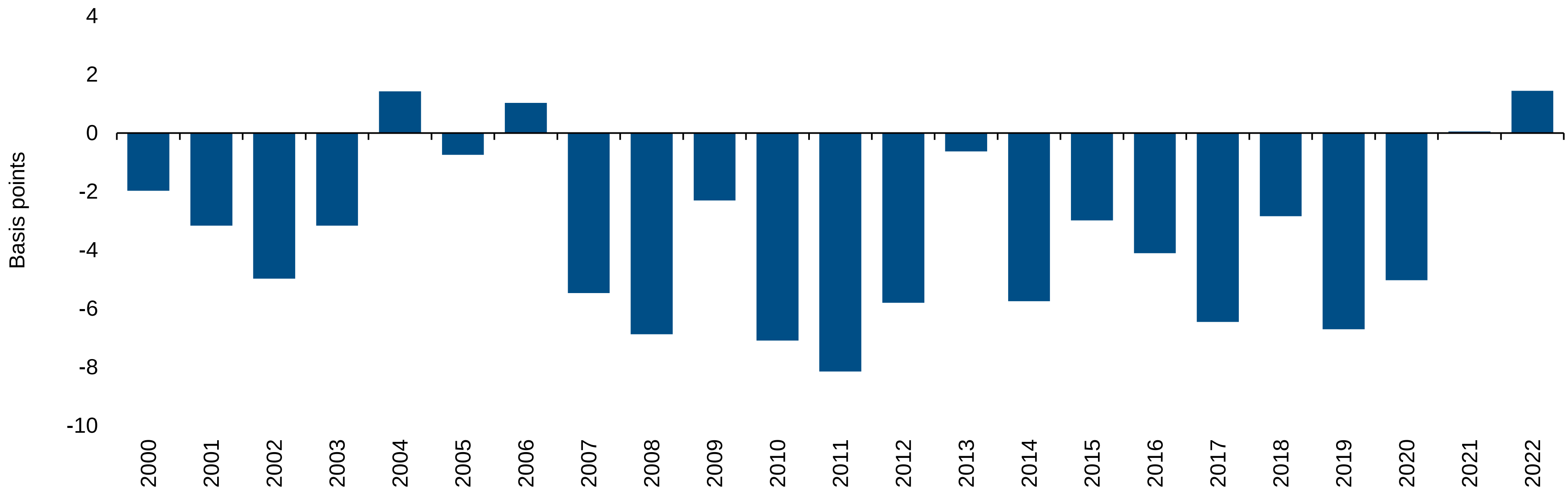
Pressure on the equity-bond correlation

Between 2010 and 2020 that correlation stood at -0.5. Since the start of 2021 that has been around 0 and turning positive, more reminiscent of the high inflation environments seen in the 50s, 70s and 90s

Average change in yields on days when equities fall more than 1%

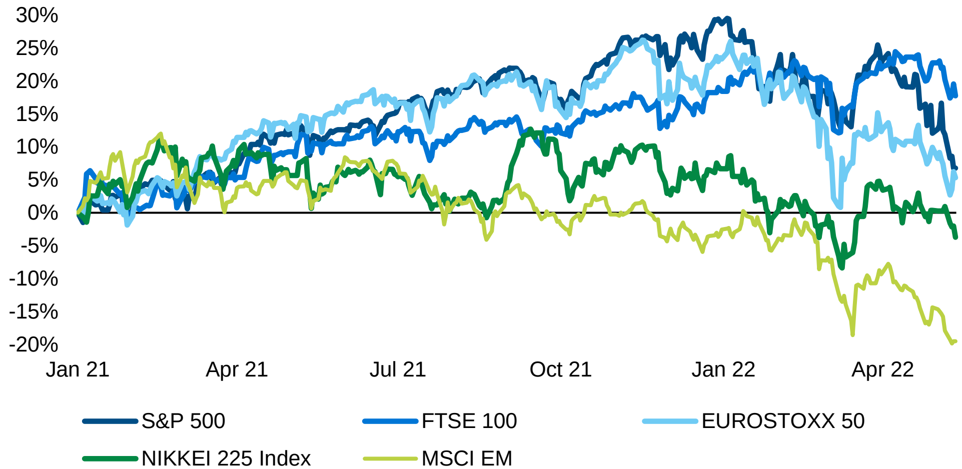


 | Source: LGIM, Bloomberg as at 9 May 2022.

Equity market decline pattern similar before and after invasion

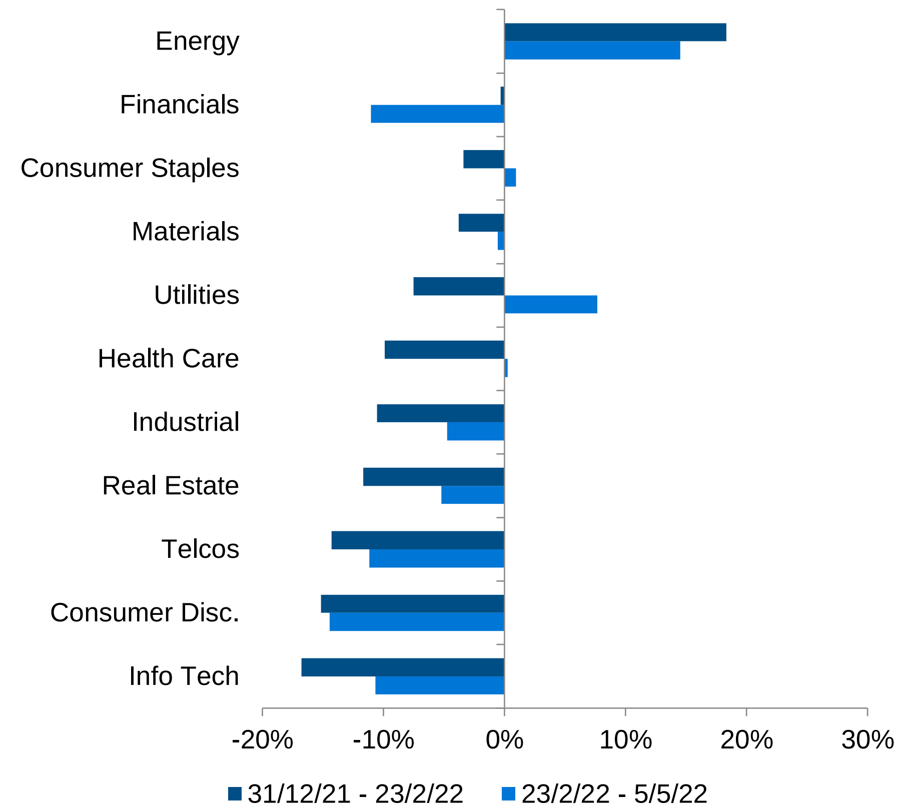
The intertwined risks of higher inflation and the uncertainty surrounding Russia and Ukraine have pushed equities off highs but have only served to amplify pre-existing trends

Global equity benchmark performance



Index return over period[1]	S&P 500	FTSE 100	EUROSTOXX 50	NIKKEI 225 Index	MSCI EM
1 year	-3.9%	9.7%	-5.4%	-6.6%	-22.2%
2 year	38.4%	32.6%	32.3%	33.1%	15.2%
3 year	43.6%	13.9%	16.1%	30.0%	4.8%
4 year	54.7%	10.7%	12.4%	24.5%	-4.7%
5 year	79.7%	20.6%	13.6%	44.7%	13.4%

MSCI World sector performance (31 Dec 2021 – 11 May 2022)



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Source: LGIM, Bloomberg, as at 11 May 2022.

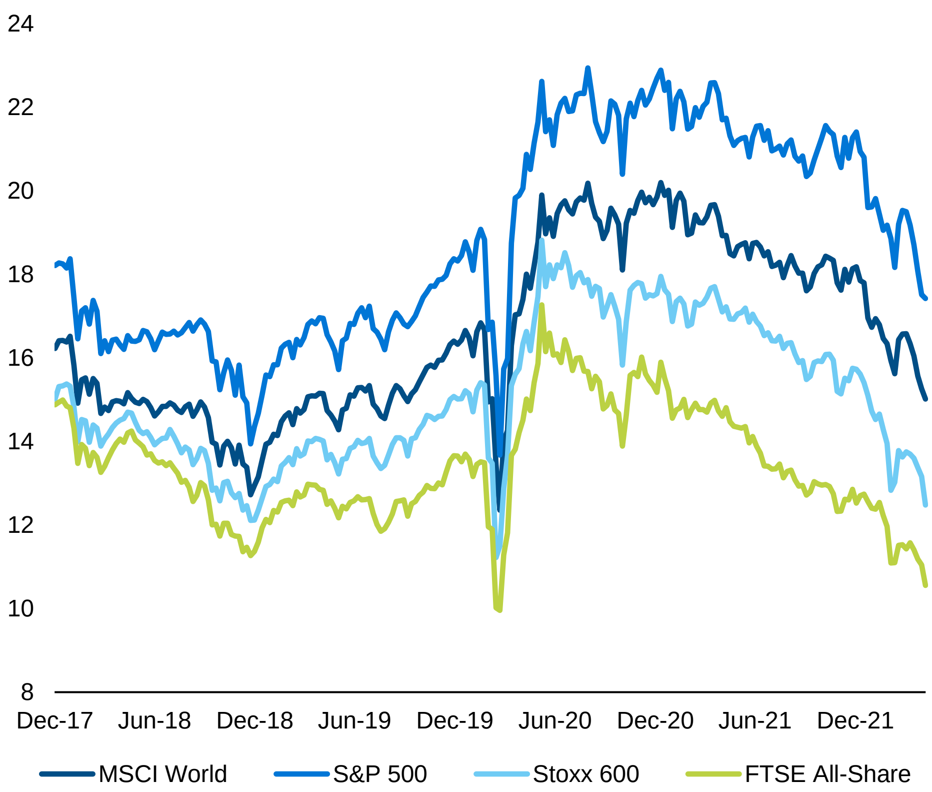
[1] 11 May 2017 to 11 May 2022. Local-currency terms.

Past performance is not a guide to the future. The value of an investment and any income taken from it is not guaranteed and can go down as well as up, you may not get back the amount you originally invested.

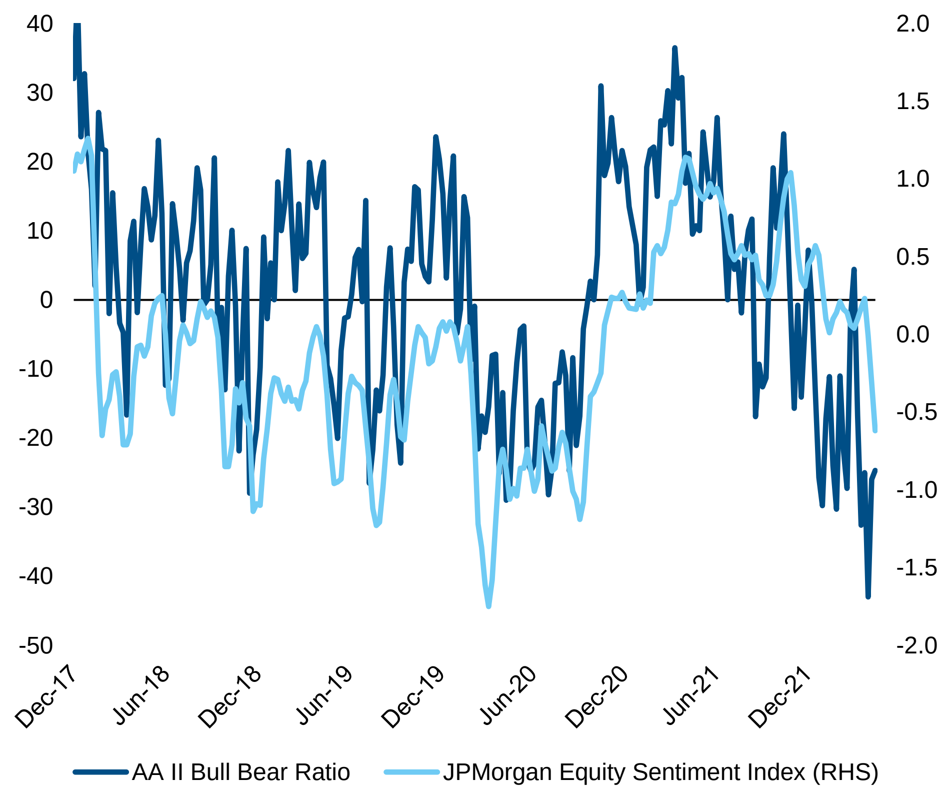
Valuations have softened and investors have turned cautious

Some measures of investor sentiment are reaching extremes that have historically posed attractive entry points, but we are inclined to wait for more panic in markets before buying risk

Equity index forward P/E ratios



Equity sentiment indicators



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Source: LGIM, Bloomberg, as at 12 May 2022.

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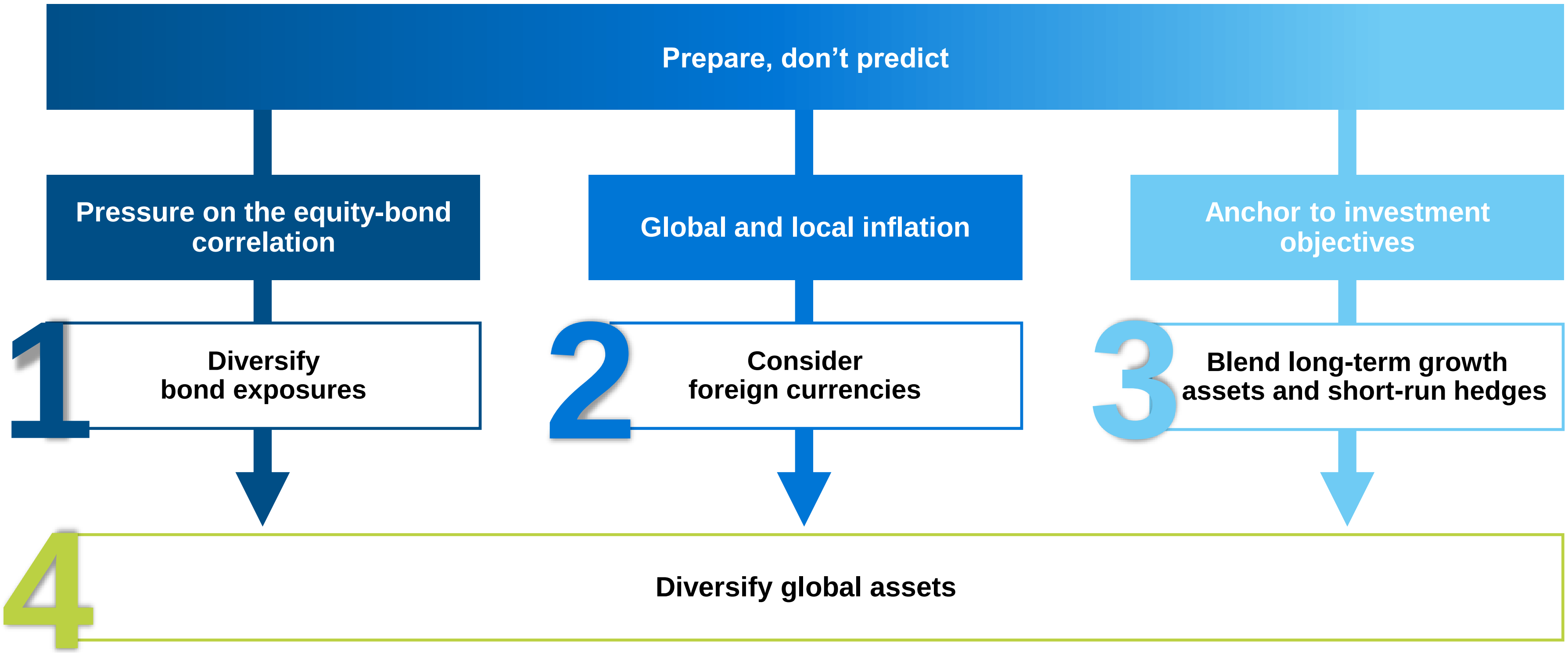
Four steps we're taking to navigate inflation



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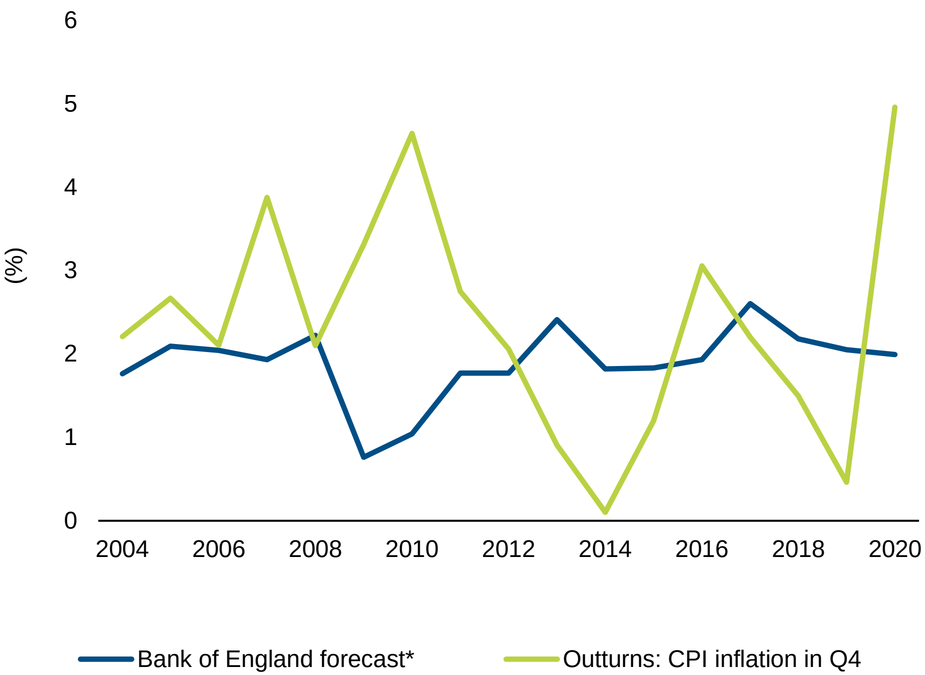
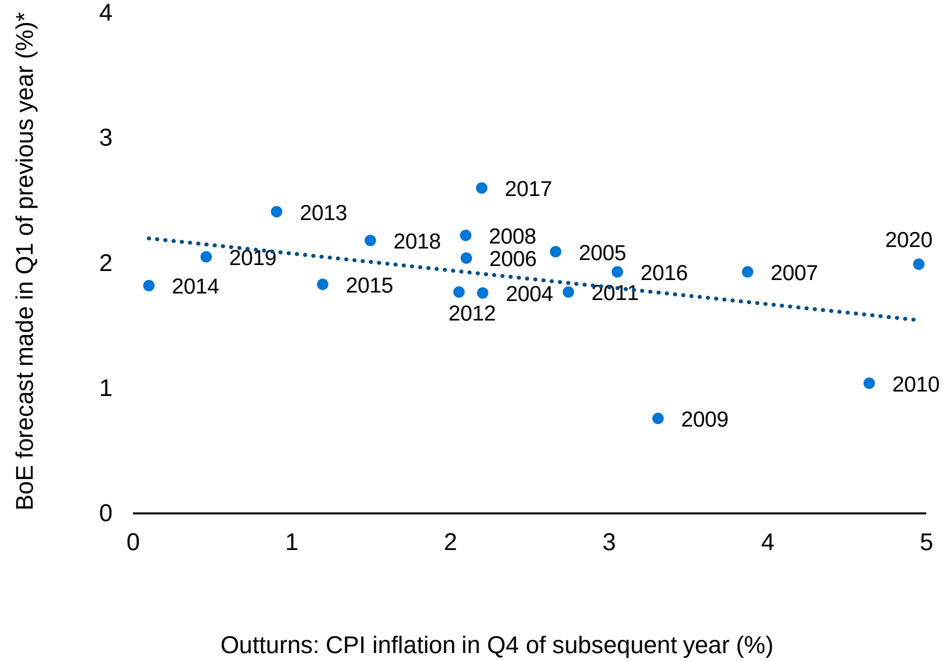
Source: LGIM, as at 9 March 2022. **It should be noted that diversification is no guarantee against a loss in a declining market. Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

Inflation has proven impossible to forecast

Despite spending £37 million per annum on monetary analysis and the MPS, BoE inflation forecasts have negatively correlated with reality for the last 16 years

The BoE's inflation forecasting record (2004-2020)





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Source: LGIM as at 31 January 2022. Evaluating Forecast Performance, Independent Evaluation Office, Bank of England, November 2015.

*Mean of MPC forecast under market interest rate assumption from Q1 the previous year. **Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

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Don't throw the bond baby out with the inflation bathwater

Bonds have been one of the most reliable assets to protect against recession risks

Change in yields during recessions

US recession start dates	S&P drawdown (%)*	Change in 10yr yields*	BBB-AAA spread change (bp)*
Jan-20	-23%	-24	90
May-23	-13%	-40	46
Oct-26	-16%	-26	17
Aug-29	-80%	-30	464
May-37	-42%	-20	186
Feb-45	-8%	-18	7
Nov-48	-12%	-9	23
Jul-53	-8%	-82	24
Aug-57	-16%	-105	51
Apr-60	-6%	-94	12
Dec-69	-21%	-59	61
Nov-73	-36%	-67	127
Jan-80	-7%	-170	109
Jul-81	-13%	-355	106
Jul-90	-14%	-94	57
Mar-01	-28%	-123	15
Dec-07	-49%	-268	256
Feb-20	-19%	-120	87
Whole sample			
Average	-23%	-95	97
Median	-16%	-75	59
Post-WWII			
Average	-19%	-129	77
Median	-15%	-100	59

* Change from peak within the 6 months prior to recession start to recession trough, calculated on a month-end basis.

Source: Robert Shiller, Bloomberg

5 lessons for bond investors in inflation environments

1. **Maintain exposure for protection in recessions**
2. **Global diversification offers advantages**
3. **Seek out high starting yield**
4. **Don’t fight flattening yield curves**
5. **Brace for more volatility**

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Source: LGIM, Bloomberg, Robert Shiller, as at 28 February 2022. **Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

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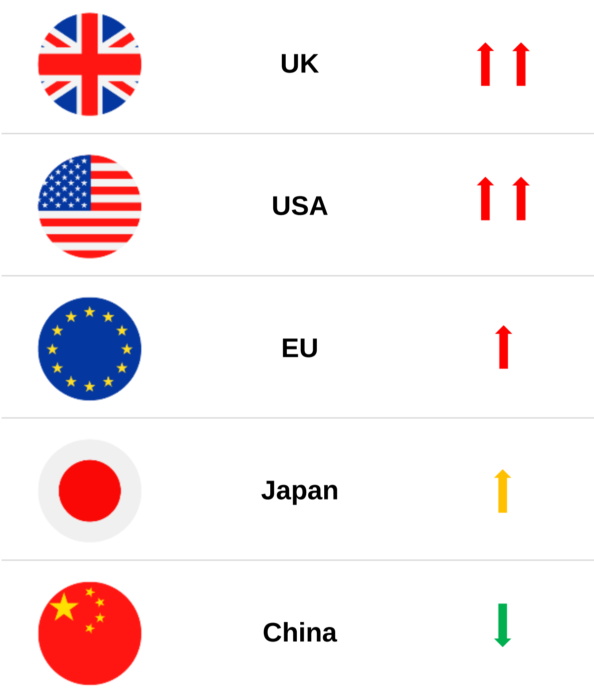
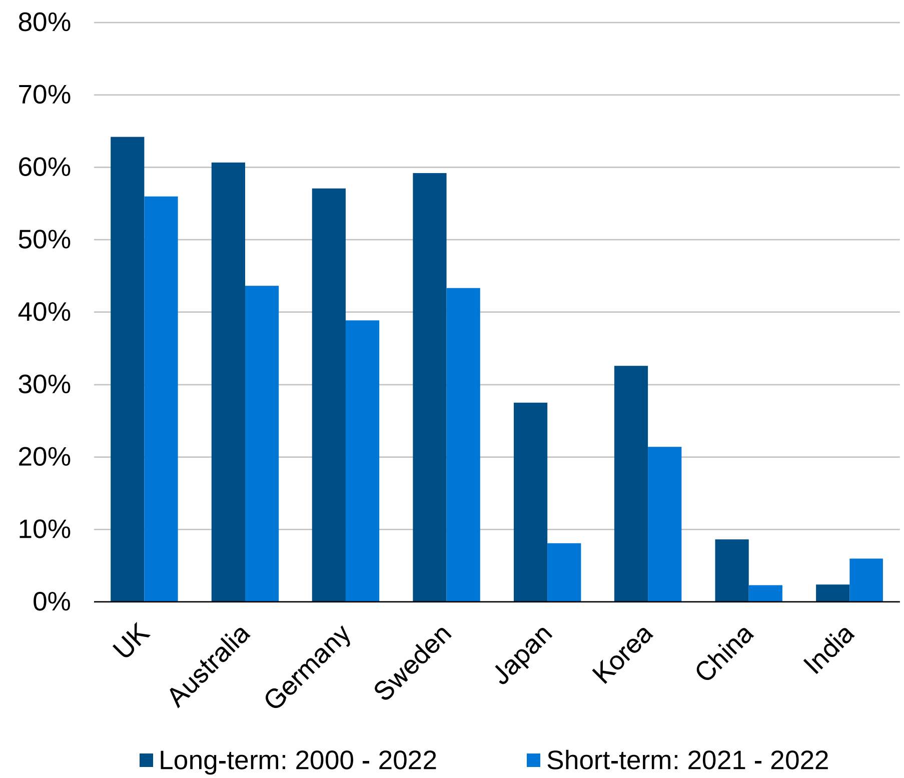
Finding ports in inflationary storms

While we accept its difficult to predict inflation, global diversification could offer exposure to different dynamics

10-year bond yield changes since end 2020



Proportion of risk[1] explained by US Treasuries



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[1] ESS/TSS in a regression of changes in local yields on changes in US 10 year yields = correlation coefficient squared.
Source: Bloomberg LP, LGIM, as at 22 March 2022.

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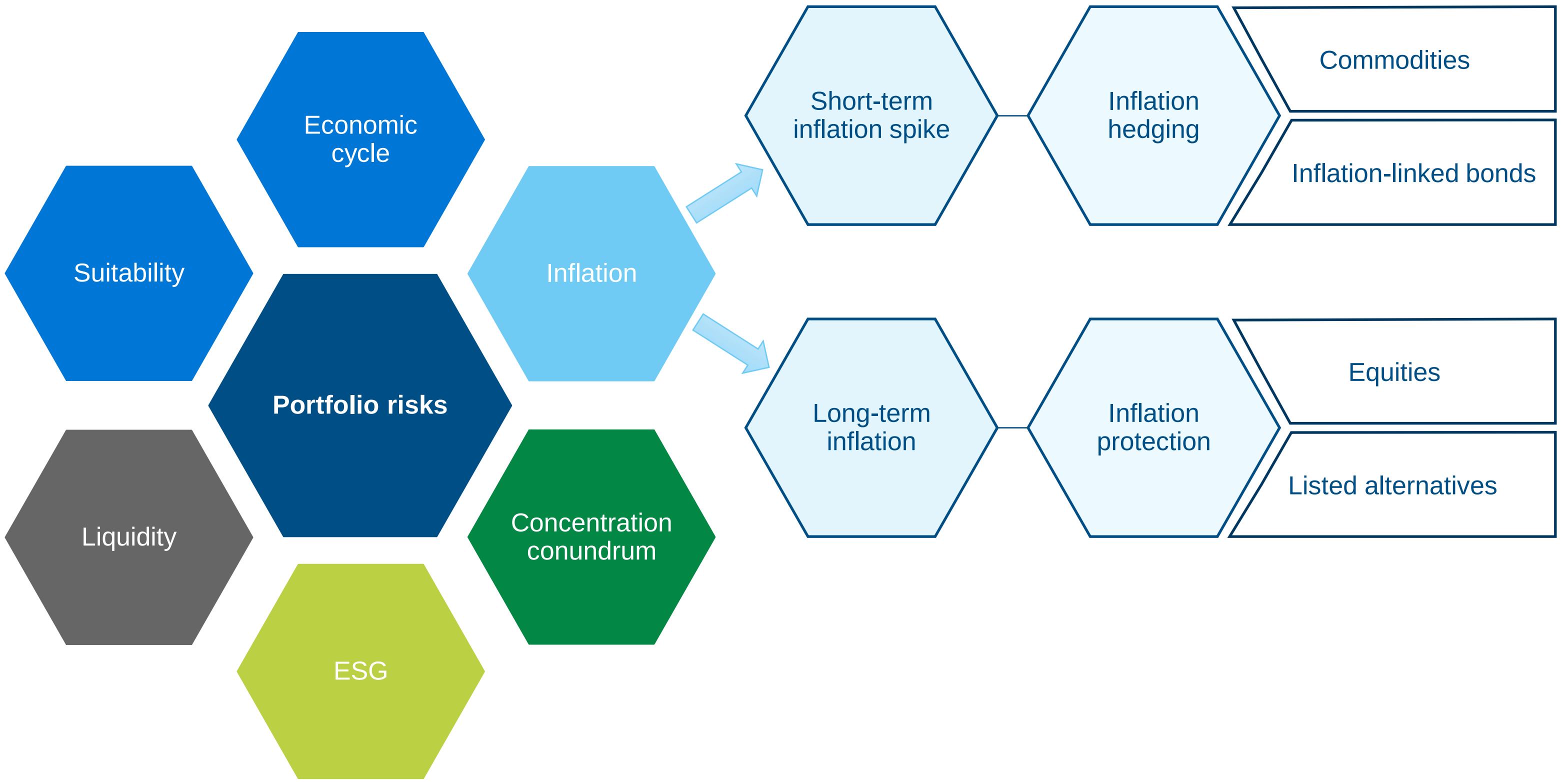
Don’t lose sight of your objectives

Inflation may be the topic du jour, but remember the other risks that your portfolio faces



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Source: LGIM as at 28 February 2022.

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