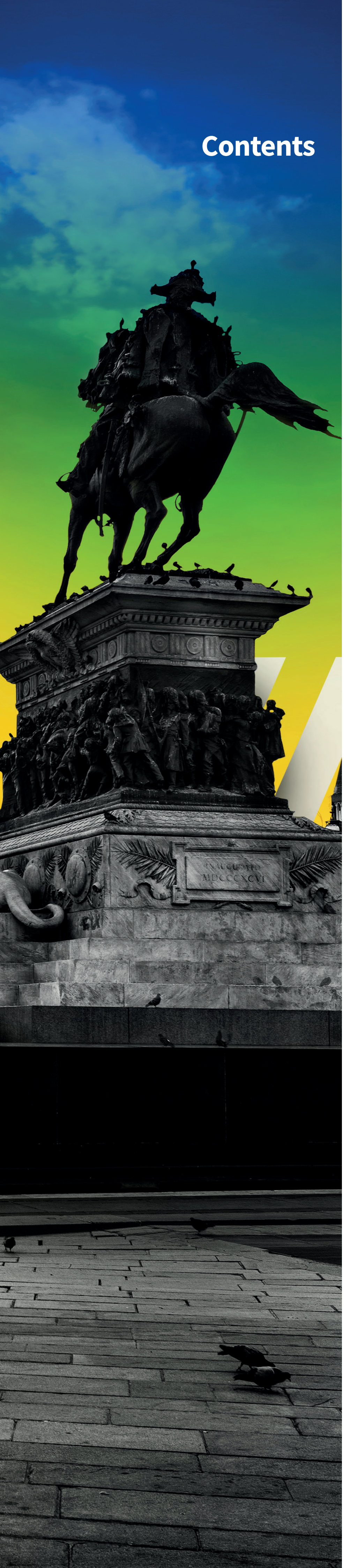
House View Q3 2022

The intelligence that guides our investment decisions

AVIVA INVESTORS



Contents

House View

The Aviva Investors House View document is a comprehensive compilation of views and analysis from the major investment teams.

The document is produced quarterly by our investment professionals and is overseen by the Investment Strategy team. We hold a House View Forum biannually at which the main issues and arguments are introduced, discussed and debated. The process by which the House View is constructed is a collaborative one – everyone will be aware of the main themes and key aspects of the outlook. All team members have the right to challenge and are encouraged to do so. The aim is to ensure all contributors are fully aware of the thoughts of everyone else and that a broad consensus can be reached across the teams on the main aspects of the report.

The House View document serves two main purposes. First, its preparation provides a comprehensive and forward-looking framework for discussion among the investment teams. Secondly, it allows us to share our thinking and explain the reasons for our economic views and investment decisions to those whom they affect.

Not everyone will agree with all assumptions made and of the conclusions reached. No one can predict the future perfectly. But the contents of this report represent the best collective judgement of Aviva Investors on the current and future investment environment.

Executive summary

Inflation fight raises recession risk

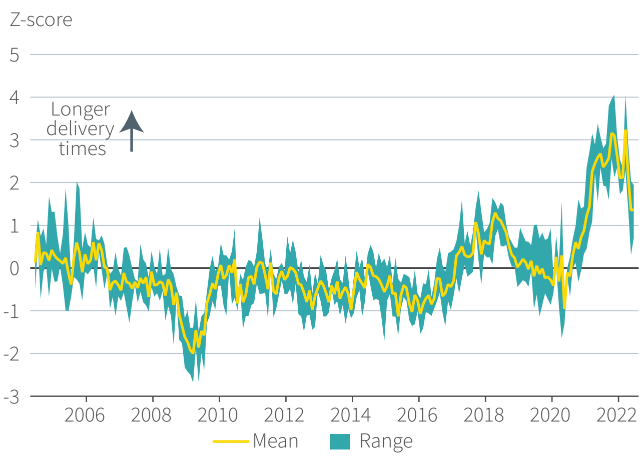
Multi-decade high inflation the dominant global macro factor

The dominant driver of global macroeconomic and financial market developments right now is inflation, and the way central banks are responding to its rise. The impact of COVID lockdowns depressed activity and inflation in 2020. But from mid-2021, a combination of the surprising strength of consumer demand – especially for goods – alongside constrained supply led to an acceleration in the price of global manufactured goods. That was exacerbated by a rapid increase in demand for raw commodities, in particular energy and industrial metals, which were also supply constrained, leading to sharp increases in input costs for businesses and prices for consumers. Many expected these effects on inflation to be temporary. However, inflation continued to build through 2021 and 2022 due to a subsequent series of supply disruptions. These disruptions followed several rounds of COVID-related restrictions on activities globally through to 2021 Q4 and continued through 2022 with China's pursuit of a Zero-COVID Policy (ZCP) and the resulting ongoing lockdowns. This has meant that important components, such as semi-conductor chips that are used in a wide range of manufactured goods, remain difficult to source and are therefore constraining supply (Figure 1). Further supply challenges arose with the Russian invasion of Ukraine in February, and the subsequent sanctions imposed by the West, with uncertainty about future supply from one of the world's largest energy producers.

Constrained supply and limited response to higher prices

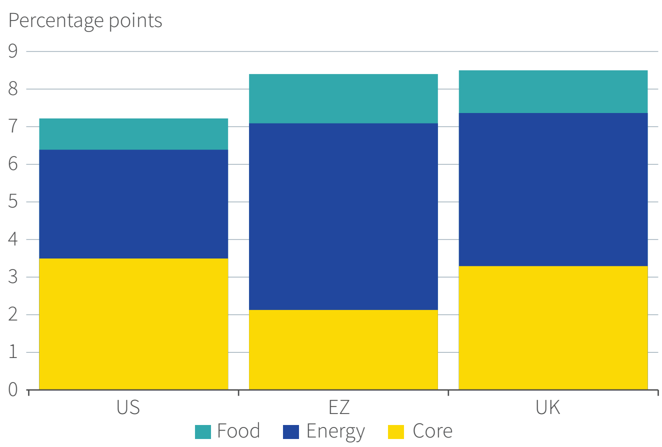
But even outside those areas where there might be explicit supply disruption, rising demand has seen only a limited supply response. That is unusual, as the price signal would usually be sufficient to increase supply and limit further price increases. However, it appears that supply curves have become more inelastic in several areas. For example, commodity producers, especially oil and gas majors, have been restrained in new investment spending outside of renewables for many years. With climate change policies being set to deliver on countries' Net Zero emissions targets set under the Paris Climate Agreement, and reinforced at the Glasgow summit in 2021, project financing has become more challenged and the future of fossil fuels uncertain. But the ability of renewable energy sources to rapidly increase is also constrained, by the need for raw materials, such as copper, where under-investment in new capacity has also been a major issue. In other sectors, such as hospitality and travel, that have enjoyed a rapid recovery on reopening, labour has become a significant challenge. There has been a relatively slow labour market supply response to the strong rise in vacancies and rising wages. In particular, older cohorts and prime-age women have not returned to the workforce as quickly following the COVID lockdowns. These factors have led to the broadening in inflation pressures beyond just energy and other commodities (Figure 2).

Figure 1. **US supplier delivery times**
Supply chains have only recently begun to improve



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 2. **Increase in inflation since start of 2020**
Energy the single largest contributor, but increase in core also shows breadth of increase



Source: Aviva Investors, Macrobond as at 28 June 2022

Inflation tailwinds likely to persist

Some of these supply issues are expected to abate over the next year or so. But others could be more long-lived, and the scope for further supply shocks remains elevated. Indeed, in a recent panel discussion at the ECB Forum on Central Banking, both Federal Reserve Chair Jerome Powell and ECB President Christine Lagarde, suggested that the global economy is facing a very different set of forces to those that led to the low inflation environment of the previous decade – namely globalisation, ageing demographics and technological changes. As we have said in the past, the outlook is for some of those inflation headwinds to become tailwinds, as globalisation slows or goes into reverse, geopolitical risks increase, supply chains shift closer to home, inventory management is adjusted to "just-in-case", rather than "just-in-time" and climate change policies put pressure on commodity prices.

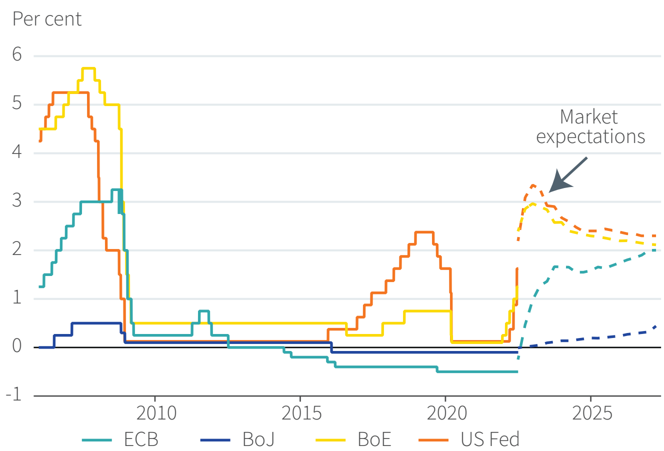
Central banks moving towards restrictive policy stance

The rapid rise in inflation, alongside the changing view around the medium-term drivers, has led central banks to make a rapid reassessment of the stance of monetary policy. The previous mantra of gradualism has been replaced by "expeditious" plans to move policy to a restrictive setting. That has seen the Federal Reserve raise rates in June by 75bps, the largest increase since 1994. However, policy remains accommodative at current levels, and they have indicated that a further 200bps of rate hikes are likely to be delivered by the end of the year, in order to get policy into restrictive territory. Other central banks are also moving quickly, or planning to do so, including those such as the ECB that have not raised rates in over a decade (Figure 3). Many emerging market economies, who face an even greater challenge, and had moved ahead of advanced economy central banks, continue to raise rates rapidly. All the major central banks have been clear, their primary objective at this point is to ensure that price stability returns, as the economic cost of failing to deliver on that would be greater than the short-term impact on activity of a restrictive policy setting.

Weaker disposable income and tighter financial conditions have led to material downgrade to growth outlook

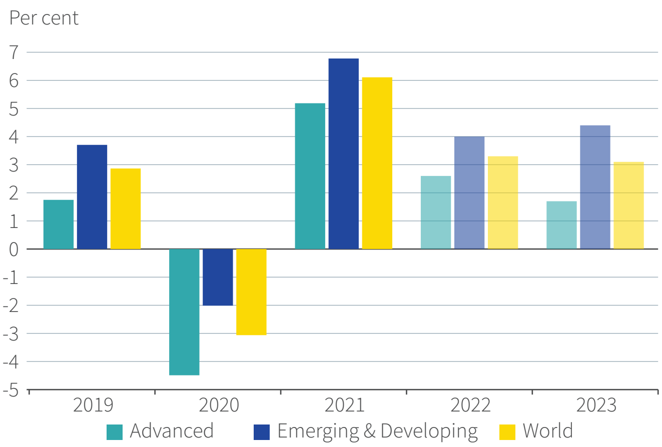
The impact of higher inflation on household real disposable income will be significant this year. Most economies will experience a decline similar to what might be expected in a recession. That said, overall household balance sheets are in a relatively strong position to withstand such a shock, due to the savings accumulated during 2020/21 when income support policies were used to offset the impact of COVID on household income. But just how far households are prepared to utilise those saving buffers given an uncertain outlook is hard to judge. Sentiment readings across all the major economies do not provide much comfort. Alongside the tightening in monetary policy and associated financial conditions, this has led us to revise down our growth projections for both 2022 and 2023. We now expect global growth to be below trend in both years (Figure 4), with the risk of recession rising to close to 50 per cent. That said, we think any such recession would be relatively modest in scale, with little or no financial deleveraging required, and therefore with scope for economies to bounce back quite quickly.

Figure 3. **Policy rates**
Market pricing reflects expectation of further rate increases



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 4. **Global growth projections**
Slowing to below trend



Source: Aviva Investors, Macrobond as at 28 June 2022

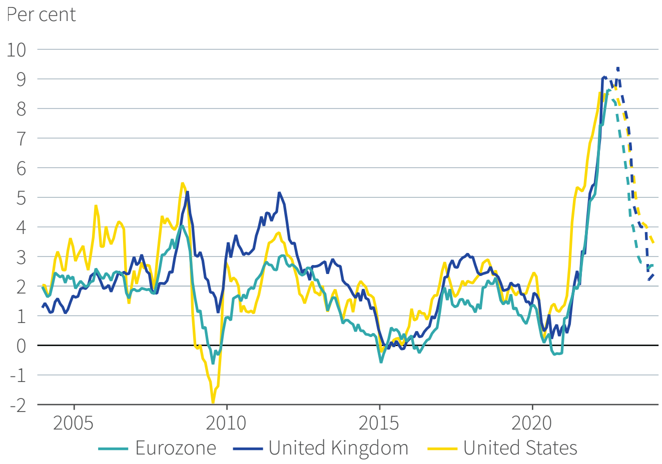
We now expect inflation to peak in most economies during 2022H2, reaching around 10 per cent, before falling back quickly through 2023, albeit remaining above target throughout (Figure 5). For the reasons highlighted above, the risks to inflation remain to the upside in the near term.

Inflation to start declining in late 2022 and through 2023

The new macroeconomic environment, the monetary policy response to it and the changing views on a range of longer-term structural factors have resulted in an extremely challenging year in financial markets. Global rates markets have re-priced sharply in the face of persistently strong inflation, while risk assets, such as global equities and credit have performed particularly poorly. The increase in uncertainty about the outlook has raised both implied and realised volatility across all asset classes. As such we prefer to have relatively light exposure at this time, as reflected in the asset allocation table (Figure 6). We continue to have a preference to be modestly underweight duration, with upside inflation risks outweighing the downside recession risks. However, the tipping point between those two may well be coming closer. Given the sharp fall in equity multiples this year, we prefer a small overweight, apart from in Europe, where the growth risks are more pronounced. That said, we are cognisant of the risks of further downside in equity markets should margins decline meaningfully from here. We prefer to be neutral in credit, where we think pricing of spreads is roughly fair in terms of recession risk. Finally, we prefer to be modestly long the US dollar against the Euro given the relative outlook for the two economies.

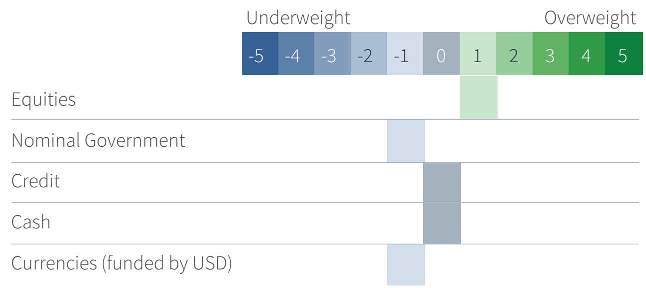
Increased volatility argues for relatively light positioning at this time

Figure 5. **CPI inflation projections**
Peaking in 2022



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 6. **Asset allocation summary**
Currently limited risk appetite



Source: Aviva Investors, Macrobond as at 28 June 2022

Key investment themes and risks

Investment themes

1 Slowing growth
2 Inflation breakout
3 Moving to restrictive
4 Global fragmentation
5 Commodity prices, energy security and decarbonisation

Slowing growth

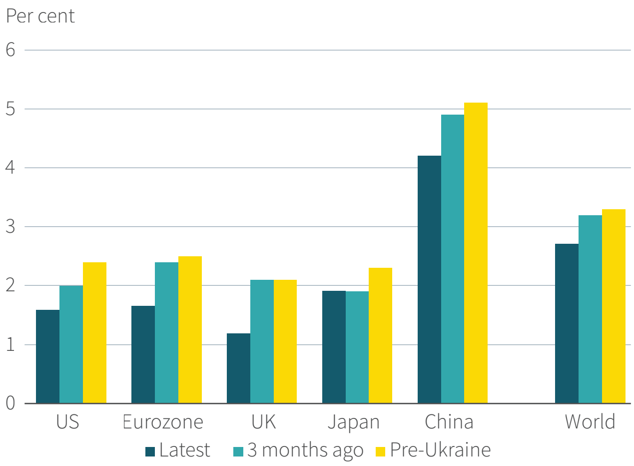
Growth projections are being revised lower everywhere (Figure 7). The combination of much higher inflation, war in Ukraine, ongoing energy (and other commodity) price shock and tighter monetary policy is not a growth-friendly one. Recession risk is elevated, although such an outcome is not yet our central scenario. Moreover, the nature of the risk is subtly different in different geographies as the comparative influence of the drivers listed above varies. There have been supply-side and demand-side drivers in all places, but the balance is different. In broad summary, the additional supply-side shock from the Russian invasion has been felt most in Europe, where energy dependence and trade linkages are greater. The US, by way of contrast, has experienced a greater weight of demand-led inflation, and as a result probably needs more of a slowdown to bring it down again. Policy prescriptions also vary from country to country, although almost all nations are set to tighten monetary policy over the next year.

Recession risks are elevated, but vary in nature

In its June World Economic Outlook, the OECD downgraded its growth forecasts substantially. World GDP is now expected to increase by 3 per cent this year (previously 4.75 per cent) and 2.75 per cent in 2023 (previously 3.25 per cent). Some of the growth numbers for next year now look notably weak: Eurozone 1.6 per cent, US 1.2 per cent and UK 0.0 per cent. Our own growth projections are similar, with outright stagnation risk greatest in the UK and parts of Europe. High inflation is eroding real incomes for households, lowering consumption, elevated uncertainty is hurting investment, while global supply chains continue to be disrupted by post-COVID adjustments, war in Ukraine and China's ill-advised approach to the pandemic. All are acting as hindrances to growth. Whenever growth slows or is deliberately slowed, there are always risks that the slowdown intensifies and becomes self-perpetuating. This is perhaps especially true in a world where information and opinion are shared so quickly and comprehensively. Consumer confidence readings around the world are touching new lows (Figure 8). The recession "meme" is circulating widely: Google Trends indicates that the term is today being used in searches just as much as it was at the peak of the COVID downturn and during the Global Financial Crisis.

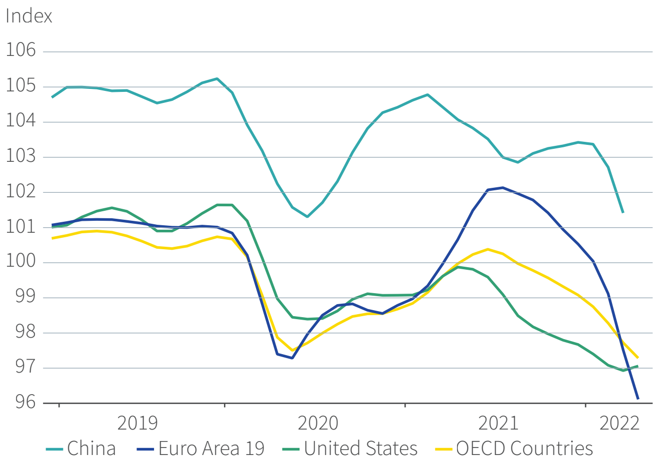
Sentiment measures, especially among households, are very depressed

Figure 7. **Growth is being revised lower again**
GDP growth projections for 2023



Source: Aviva Investors, Macrobond, OECD as at 28 June 2022

Figure 8. **Households are gloomier than during COVID**
OECD consumer confidence, standardised measure



Source: Aviva Investors, Macrobond as at 28 June 2022

But whether recession is evaded or not is hardly the point. Even if it is, the next year or so is going to feel pretty downbeat. Slowing growth is always a worry and concerns over runaway inflation, higher interest rates and war in Ukraine mean risks are biased to the downside. Having said that, there are also good reasons not to overdo the gloom. Unlike previous deep recessions, there are far fewer imbalances today that require painful adjustments, with both household and corporate balance sheets (in aggregate) in very good health by historical standards. The impact of the various supply-side shocks will eventually fade, and inflation should fall back as they do. There is greater risk of overheating in the US, which will require tighter policy for longer, while the unique set of circumstances in China imply that growth there will also be constrained. Overall, the coming 12 to 18 months look likely to be a period of modest growth, and we continue to believe that a globally coordinated recession will be avoided.

Whether recession is avoided or not, the next year or so will feel tough going

Inflation breakout

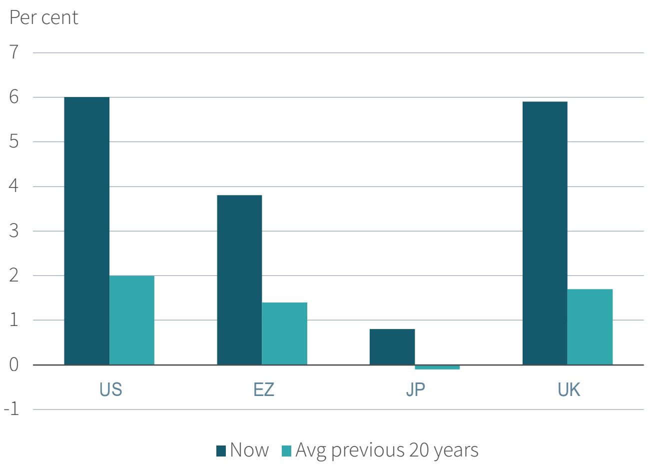
Although it is still a relatively recent phenomenon, high and rising inflation has now been with us for long enough for it to be described as a breakout. There are several well-known reasons for why inflation (almost everywhere) has become detached from the anchors which, with some minor exceptions, had prevailed for much of the last 30 years. And it remains true that many of these – perhaps even most – could unwind over the next year or two, resulting in inflation falling back to "acceptable" levels. However, the recent experience cannot all be put down to one-offs. When economic history eventually documents this period, it is very likely that it will describe central bank actions (or rather, inactions) in the post-GFC period as inadequate or complacent. While there is considerable debate about the future risk of over-zealous monetary tightening resulting in a policy mistake, the more pertinent judgement is probably that it was the earlier policy mistake of not withdrawing extreme policy stimulus more quickly that is the one which will result in any lasting scarring. Yes, energy and other commodity prices, as well as the post-COVID disruptions have driven inflation higher. But it is still the case that the latest "core" rates of inflation are well above the averages that have prevailed for the previous 20 years (Figure 9).

High inflation cannot all be attributed to special factors; loose monetary policy has also contributed

If energy prices stabilise and if global supply chain disruptions ease, as we expect, then price pressures which have resulted from those earlier trends will fall or even reverse, driving inflation back down again, although this will primarily be a story for 2023. Futures markets don't always get it right, but if they do prove accurate, the oil price will fall below $90 a barrel by the end of next year. On historical patterns, energy prices would then be detracting from overall inflation to the tune of 1 percentage point, rather than adding 4 to 5 percentage points as they are now. That turnaround would on its own be enough to bring inflation back much closer to target. The problem is that recent experience may have let the inflation genie out of the bottle, and that underlying inflation pressures and/or second-round effects take firmer root. There is plenty of evidence that this is happening, especially in the US, where

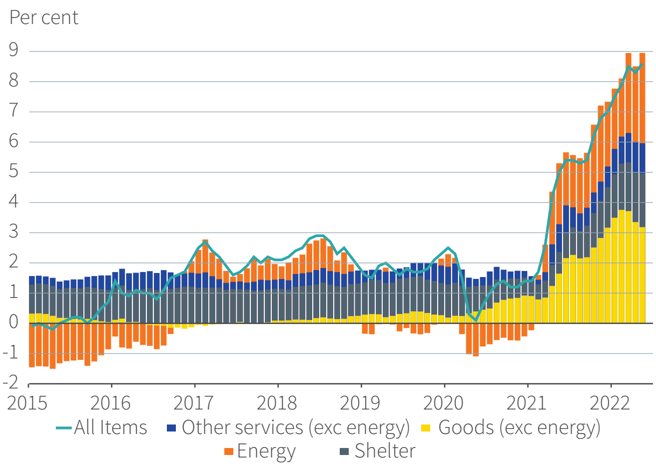
If energy prices moderate, inflation will fall back significantly in 2023

Figure 9. **Core CPI inflation is well above historical averages**
Core CPI inflation: latest vs history



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 10. **US inflation has become broad-based**
US contributions to CPI inflation



Source: Aviva Investors, Macrobond as at 28 June 2022

domestically generated price pressures have become an important part of the overall inflation impulse (Figure 10). It is for this reason that the Fed has adopted such a hawkish stance – they recognise that they need to deliberately slow growth to address the inflation problem. Hence the explicit references to a policy rate move to restrictive territory (see below).

Such "conventional" inflationary overheating is less prevalent in most other developed nations but is far from absent. Labour markets are tight, housing markets are bubbly and as household spending continues to transition back from goods to services, then underlying inflation pressures could start to increase more noticeably. This is the main concern for inflation-fighting central banks. They are only too well aware that if higher inflation becomes more embedded in expectations, then it can be tough to shift. Figure 11 shows recent inflation trends for non-energy goods and services for the Eurozone, although the pattern is broadly similar across all developed (and many developing) nations. It is very early days, but it may be that goods price inflation now moderates if some normality returns, economies reopen more fully and trade flows resume. But services price inflation, largely linked to wage trends, is both less volatile and more sticky. It typically accounts for about half of consumer price index baskets, so if it settles at, for example 3 per cent, then goods price inflation will need to fall to 1 per cent for overall inflation targets to be met. This does not look imminent.

Inflation has become more broad-based in 2022, with services contributing more

Moving to restrictive

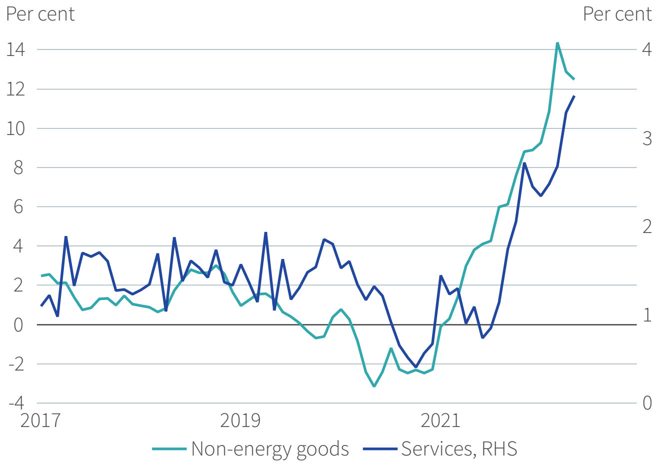
In December 2021 we stated in our 2022 Outlook that it would be sensible and appropriate for financial markets to prepare for tighter monetary policy. At that time such a view was bordering on the controversial, with many market participants and commentators believing that policy rates would be stuck near zero (or even below it) for a while yet. Six months on, virtually all central banks around the world have raised policy interest rates (some significantly) or signalled their intention to do so. Tighter monetary policy is a given. The relevant issue now is how far and how fast hikes are delivered. And given the underlying and dangerous inflation pressures that we have described above, it is far more appropriate to modify the theme to highlight how several central banks – the Fed being the most important – now accept that monetary policy needs to move into restrictive territory to prevent an even worse inflation problem. The adjustment to policy rate expectations so far in 2022 (Figure 12) has been one of the major drivers of recent financial market volatility.

Higher policy rates are widely expected – the issue now is how high they have to go

Moreover, while the concept of the neutral (or equilibrium) interest rate is well-defined in theory, in reality it is much more difficult to pin down. It varies over time (and across countries) and the cold truth is that we, along with central bankers, do not know where exactly it is. The only real-world option is to raise rates until the tightening has the desired impact. Of course, this task is further complicated by the fact that interest rate policy takes a long time to fully affect behaviour. What has become increasingly clear is that the Fed (and presumably quite a few others, including in several EM geographies) now believe they have to move above

Rates are going to have to go beyond neutral in some places, wherever that is

Figure 11. **Services inflation is now on the rise**
Eurozone CPI inflation



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 12. **Assessment of likely tightening has moved up significantly**
Policy rate expectations for end-2022

Source: Aviva Investors, Macrobond as at 28 June 2022

neutral as soon as possible, while at the same time trying to make sure that they do not cause financial markets (or the economy) to collapse. Some have perhaps already moved above neutral. It is not out of the question that, if growth does slow and inflation falls back to target, that modest policy rate cuts are possible within our investment horizon of one to two years. Indeed, that is effectively what financial markets have priced in and also what the Fed has acknowledged as plausible, given their infamous dot plot projections. Hence these show a median forecast of just under 4 per cent for the Fed Funds rate at the end of 2023, in contrast to their "longer run" projection (presumably a decent estimate of where they think "neutral" is) of 2.5 per cent (Figure 13). Forecasting the peak in Fed Funds is difficult enough. To then forecast subsequent cuts might just be a bit too cute.

Having had such an extended period of ultra-low policy interest rates since the Global Financial Crisis, it is perhaps unsurprising that adjusting to a world (the old world) which anticipates policy rates of 1, 2 even 3 per cent or more has not been easy. Looking forward, there is certainly more monetary tightening to come. And with inflation unlikely to move convincingly back towards target until later in 2023, a period of monetary policy restriction is to be expected.

Adjusting after the long period of very low rates was always likely to be difficult

Global fragmentation

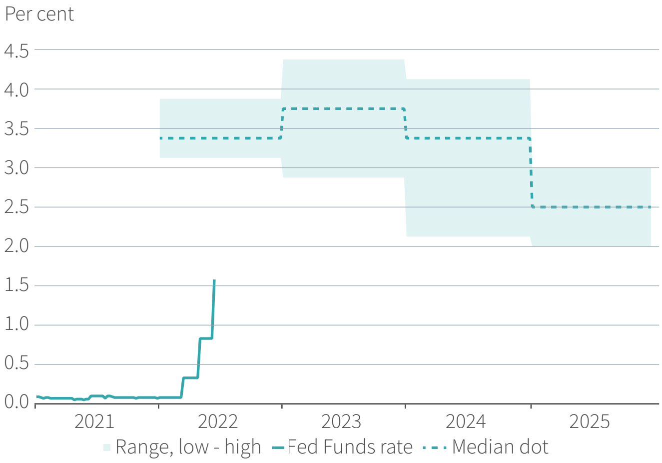
The conflict in Ukraine has refocussed attention more closely on the broader issue of changing political and economic tides around the world. But, seismic as the Russian invasion has been, it is really only the latest example of more deep-rooted trends towards increased nationalism and self-interest that have emerged over the last 10 or 15 years. There are lots of discrete components within these matters and they may progress (or not) at different speeds and in different ways around the world. But they are linked by underlying themes of greater independence, autonomy and self-determination. Over the years we have tried to capture some of the key elements of this theme under broad umbrella headings such as populism or de-globalisation. The blanket term we are adopting now is borrowed from the ECB lexicon: fragmentation; it looks set to influence global politics and economics for years to come. And as it does so, it will impact financial markets too.

Cracks have been growing in the cosy global consensus in recent years...

As we have stressed in previous House Views, momentum in global integration had already been slowing noticeably in recent years – even reversing in some cases – after decades of continuous increases. But since 2008, governments and companies have wrestled with a global financial crisis, an existential Eurozone disaster, growing revolt against open borders, Trump's trade war and a global pandemic. Attitudes have changed and are likely to change further. Strains in global supply chains have escalated worryingly since the pandemic (Figure 14). As the leader in the Economist (June 18th-24th issue) highlights, "the lodestar of globalisation was efficiency. Companies located where costs were lowest, while investors deployed capital where returns were highest. Governments aspired to treat firms equally,

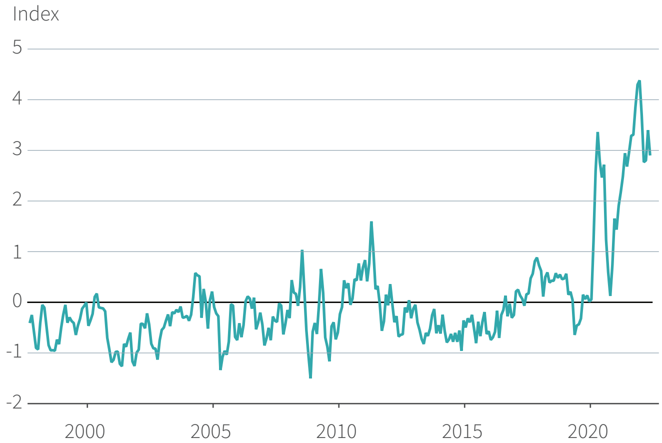
...leading to a change in attitudes regarding openness and globalisation

Figure 13. **The Fed expects to move well above neutral**
FOMC assessment of policy rate



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 14. **Attitudes towards openness are changing**
Global supply chain pressures have intensified



Source: Aviva Investors, Macrobond, Bloomberg as at 24 March 2022 regardless of their nationality, and to strike trade deals with democracies and autocracies alike". Openness was the name of the game. Webs of intricate global supply chains developed, and ever leaner just-in-time inventory management became the norm. But as the KOF Swiss Economic Institute reports, indices of globalisation are peaking out (Figure 15). It remains to be seen whether recent events tip the world into more outright de-globalisation or whether, as the free-market Economist advocates, globalisation can be reinvented. Any new type of globalisation looks set to be based more on security than efficiency, with companies endeavouring to do business with reliable counterparties in countries with which your government is friendly. The danger is that such approaches could descend into protectionism, government interference and, arguably, higher inflation.

It seems inevitable that there will be moves towards home-shoring and a more just-in-case approach to inventories. To the extent that globalisation was a key part in the emergence of low inflation in the 1980s, 1990s and 2000s, any changes in this direction look likely to support a generally higher inflation impulse around the world. If supply shocks do now become as common as demand shocks, then inflation is also likely to be more volatile, meaning that investors may demand higher risk premia to compensate.

Globalisation contributed to lower inflation; could this now start to reverse?

More generally, the changing global mood may also be reflected in a different direction for politics and social attitudes. Populism, Trump and Brexit were all examples of this. The liberal Swedish think-tank, Timbro, compiles various indices of populism around Europe. The political right is rising steadily in support and representation (Figure 16). The recent rejection in France of Macron's centrist government at the parliamentary level, and the alarming rise of the far right (even if it is not as extreme as it was), is another sign of these forces.

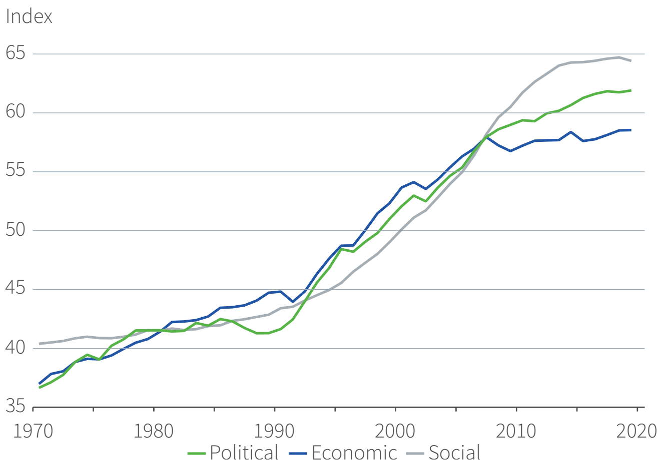
Forces of populism and nationalism continue to bubble under the surface in many places

Commodity prices, energy security and decarbonisation

The conflict in Ukraine has continued to put upward price pressure on several global commodities, most notably energy, which is contributing significantly to the current outbreak of high inflation around the world. Although Russia and Ukraine actually account in aggregate for only about 2 to 3 per cent of global GDP, and also of global trade, their relative importance is greater in certain areas (Figure 17 & Figure 18). It is also true that the "shock" of the invasion and the disruption which it has caused have had a disproportionate effect on some prices. There is now a risk of severe food shortages in many developing economies if wheat exports, in particular, are badly affected. More generally, and as we said three months ago, events in Ukraine have refocussed attention very strongly on the issues of energy security in general, dependence on Russia in particular, but also on the whole subject of energy transition away from fossil fuels. Between March and June, various sanctions have been imposed on Russia, and Europe has agreed an embargo on coal imports from August and sea-borne oil imports from next year. The dependence on imported gas is more difficult, with Russia needing the

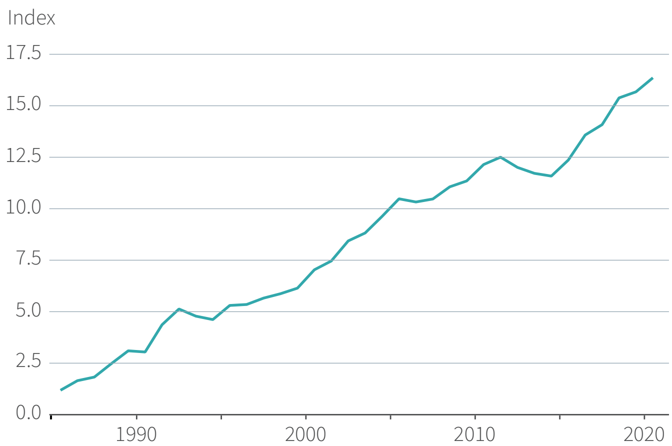
The conflict in Ukraine has many implications for fossil fuels usage, energy security and the green transition

Figure 15. **Indices of globalisation have stopped rising**
World, social & political indicators, globalisation indices, total



Source: Aviva Investors, Macrobond, KOF as at 28 June 2022

Figure 16. **Right-wing populism still on the up**
Based on election results and polling



Source: Aviva Investors, Macrobond, Timbro as at 28 June 2022 revenue and Europe needing the product, at least until they can find alternatives. Longer term, European dependence will be reduced, but now there is an uncomfortable rapprochement.

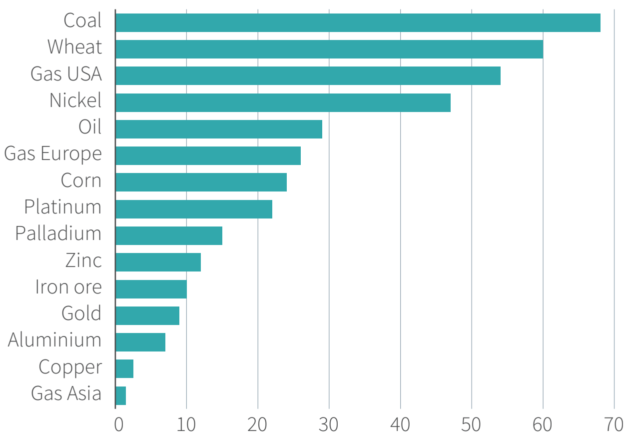
It looks likely that the Russian invasion will accelerate the energy transition, even if there are some perverse short-term increases in reliance on older fossil fuel sources – and nuclear – while adjustments are made. One major concern here is that massive investment will be needed to help the longer-term transition and the adoption of new technologies for renewable energy including wind, water and solar. Even if accelerated, these adaptations are neither quick nor cheap. In the interim, there is every prospect of at least some energy prices staying high or moving higher still, sustaining the present inflation impulse and providing ongoing support to that theme for longer. Eventually, households and businesses should be able to benefit from lower costs of electricity generation from renewable sources, but that moment looks a long way off. Most believe that the high costs of energy transitions are a price worth paying, but that does not make the process any less financially painful, especially at a time when everyone is feeling the pinch anyway.

Greater use of renewable energy sources should eventually lead to lower prices, but the transition will be neither cheap nor immediate

Historical parallels are often dangerous, but the current energy upset does bear some comparison to the twin crises in the 1970s. Those events inflicted short-term pain but led to far-reaching changes to the energy industry that were in the end beneficial. Today, short-term pain is certain and here already. Those longer-term aspirations are hugely appealing and, we hope, realistic. But they will not inevitably be achieved. Governments are being pulled both ways – ease and speed the transition but keep prices low. They will not all do the right thing. Some may prioritise short-term relief through increased fossil fuel production or distorting subsidies, potentially exacerbating the climate crisis. Some global political cooperation is probably warranted, but that is no guarantee that it will be forthcoming. The green transition remains a laudable ambition. Recent events may both help and hinder, but care needs to be taken to ensure that macroeconomic policy adapts dynamically to present circumstances and continues to smooth the path to cleaner energy and less pollution.

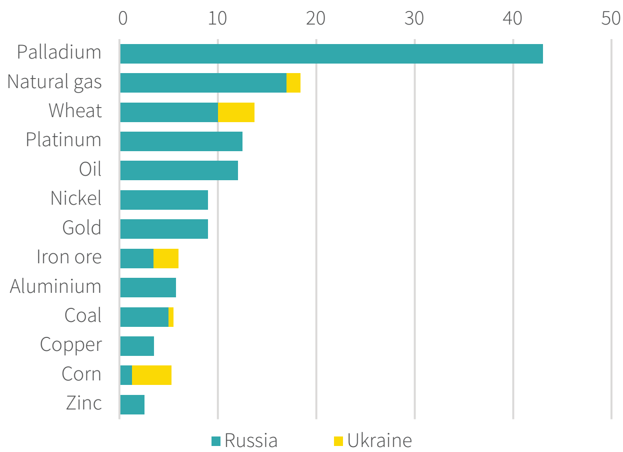
Energy transitions in the past meant short-term pain, but longer-term benefits; we hope for the same payoff this time

Figure 17. **Commodity prices have surged this year**
% change from January 2022 average



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 18. **Russian production is important in some key areas**
% share of world trade in 2020



Source: Aviva Investors, Macrobond as at 28 June 2022

Risks

Inflation problems deepen

Many would argue that inflation is already out of control, but it could still get a lot worse. The risk of even more damaging inflation outcomes than the misfortunes we have already seen has probably not been higher any time in the last 30 or 40 years. The almost unique confluence of factors that have pushed inflation higher – COVID pandemic, energy price spike, global supply-demand imbalances, war in Europe – may persist for a while yet, as we have described elsewhere. And the longer that high inflation hangs about, the greater the danger that it becomes ever more entrenched in the minds of households, companies and investors. Inflation expectations underpin a large number of key behaviours and if these become unanchored, then inflation can swiftly spiral alarmingly. The most important of these linkages is that between wages and prices. If workers attempt to respond to high consumer price inflation with escalating wage demands, while companies protect margins from increasing wage costs by raising prices, then all the elements are in place for destructive wage price spirals.

The longer the current inflation spike lasts, the greater the danger it becomes more entrenched

A convincing case can perhaps be made that this is already happening in some places – the US being the prime example. And that is why it is the Fed that is acting most aggressively and signalling the greatest hawkishness. They know they need to slow demand and try to prevent additional inflationary dislocation. But overall, it remains the case that medium-term inflation expectations are still reasonably well-behaved in most places and that wage inflation does not look likely to explode higher. Even in the US, high inflation is expected to be temporary – the influential University of Michigan survey records one-year expectations at over 5 per cent, but the five-year measure at “only” 3 per cent. In Europe, expectations have risen too but only to around 2.75 per cent over the next year (Figure 19 & Figure 20). There is still a reassuring faith that central banks will be able to rein inflation in. The risk is that they fail in this endeavour and that the inflation anchor is lost. The grim history of the 1970s and 1980s shows that it can be a very long and difficult grind to get it back.

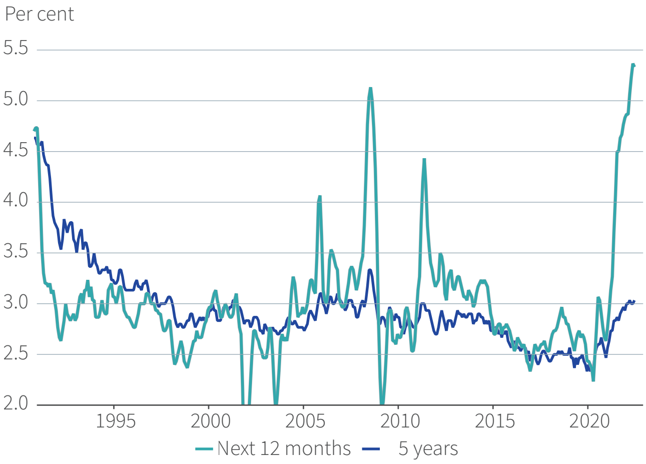
Crucially, inflation expectations are still reasonably contained – but this faith could dwindle

Fiscal sustainability

During the pandemic it was quickly accepted that expansive fiscal policy was the right thing to do. We would go further and argue that it was absolutely essential. It was already coming back into vogue before COVID struck, with even the fiscally conservative US getting in on the act, first with Trump’s many initiatives and subsequently with Biden and the new Democratic administration. In COVID times, unhindered fiscal policy did most of the heavy lifting and arguably prevented the downturn morphing into the next Great Depression. But despite this, the rules of fiscal sustainability have not been rewritten. Without delving into the minutiae of the algebra of prudence, the key comparison was that the real rate of interest (which

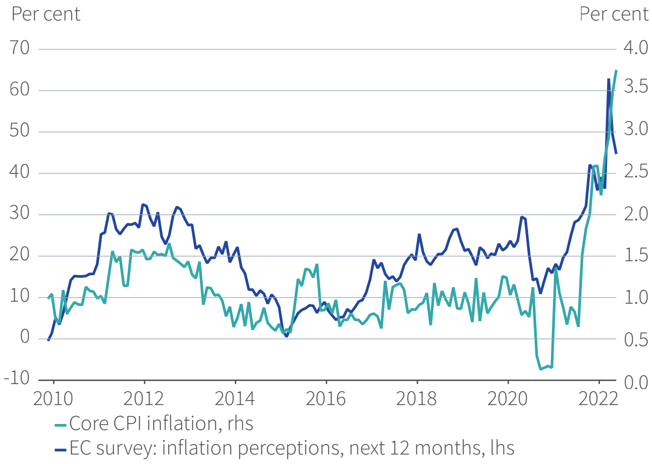
Fiscal policy came back into vogue during COVID, but debt sustainability is still relevant

Figure 19. **Longer-term inflation expectations are still contained**
US: expected inflation rates



Source: U Michigan; Aviva Investors, Macrobond as at 28 June 2022

Figure 20. **European inflation expectations up sharply…**
…but still much lower than recorded CPI inflation



Source: Aviva Investors, Macrobond as at 28 June 2022

governments pay on their debt) fell well below the growth rate of the economy. It was this that provided the latitude for fiscal largesse. High inflation also helps – indeed that is really why real interest rates have stayed low.

However, growth is now slowing and (nominal) interest rates are rising. If central banks are successful in getting inflation back under control, then the issue of fiscal sustainability could come back. It has already done so in a number of emerging markets; now there are fears that such worries could return in the developed market universe, especially Italy. Sri Lanka is in a fiscal mess and has defaulted on a multi-million dollar foreign debt repayment. When real rates move above underlying economic growth rates, countries must run primary budget surpluses to keep public finances under control. Italy has net public debt exceeding 140 per cent of GDP and currently pays a little under 3.5 per cent on its 10-year bond. Public debt-to-GDP ratios are high in several European countries (Figure 21). They are projected to fall, but it would not need much to change for debt dynamics to verge onto an explosive path. As the IMF has pointed out, even with more enlightened approaches to policies, a credible medium-term fiscal framework will still be needed everywhere. COVID and now the war already meant that any equilibrium the world had achieved was fragile at best. It would not take much to change the delicate balance on fiscal sustainability for many countries.

Some countries are already encountering painful fiscal realities, while for others that remains a threat

Global hard landing

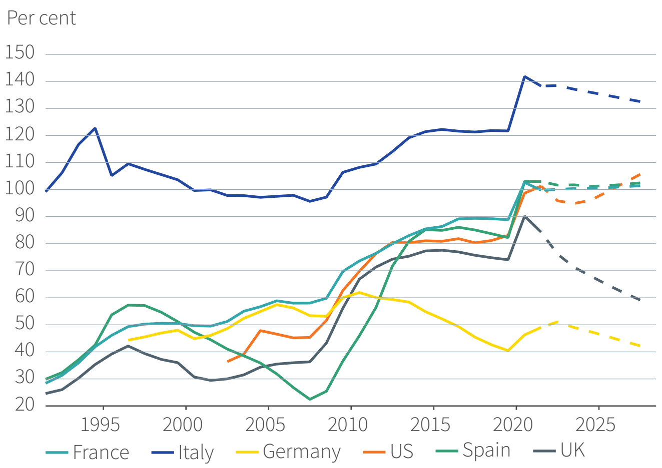
As with inflation and China policy mistakes, there are elements of this risk which have already materialised. Growth has slowed in many places and is set to slow further over at least the rest of this year. Whenever that happens, but especially so when monetary policy is being actively and aggressively tightened, there are risks that the growth deceleration picks up speed, feeds on itself and a "hard landing" ensues. Those risks have increased further over the last three months (Figure 22) in most parts of the world, boosted by higher rates, an escalation of parts of the energy price shock, the ongoing impact of war in Ukraine, the inflation squeeze on real incomes and worries about the effect of the zero-COVID policy in China. On the upside, the world economy does not have anything like scale of vulnerability from over-leveraged private sector balance sheets which characterised and intensified the Global Financial Crisis. And banks are well-capitalised and following much stricter lending standards.

Global imbalances and/or excesses are less marked than in the past, but the unique set of negative drivers has increased the risk of a hard landing in places

Every crisis is different of course, and there is evidence of froth in some areas: crypto-currencies are an obvious example – but hopefully of very limited overall macroeconomic significance. Bubbly real estate markets are perhaps more of a concern, although higher borrowing rates should help take the steam out, without undermining them excessively. The biggest concern is probably stubbornly high inflation which would oblige global central banks to keep the hiking pressure on, or even increase it to deliberately slow demand growth. Arguably hard landings in the past have almost been necessary in order to address inflation problems properly. We do not believe current conditions merit economic pain such

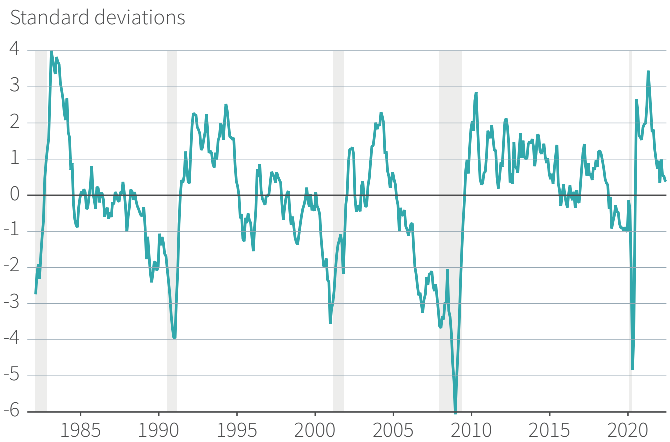
Some places will need a period of much slower demand growth to tame inflation

Figure 21. **Public debt is high almost everywhere**
IMF net public debt as % of GDP and projections



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 22. **Downturn risk rising, but not yet alarming**
US: composite leading indicator of recession



Source: Aviva Investors, Macrobond as at 28 June 2022

as the Volcker remedies of the early 1980s. But with inflation currently so high, it is entirely understandable that such comparisons are being made. Today's Fed is not really projecting such an outcome, but they are saying unemployment will rise (Figure 22). It is very rare that they do this and is probably as close as they will come to a "hard landing" scenario. Hard landings can happen because they have to, or because central banks make policy misjudgements. Both are possible in today's circumstances.

China policy mistakes continue

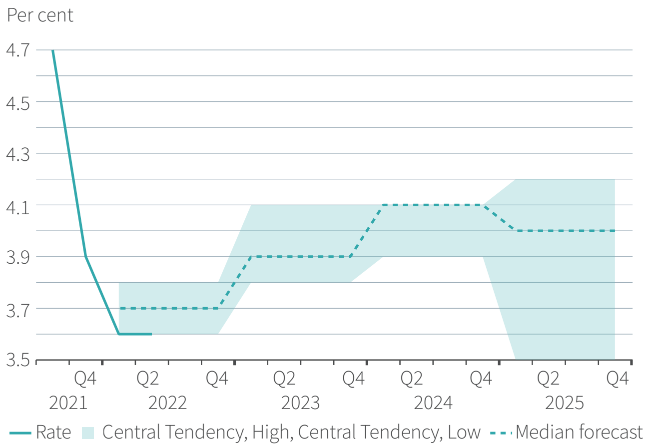
Several accidents and errors have already hit China's economy in the past 6-12 months, so in important aspects this risk – delineated in previous House Views – has become a reality. Yet, it remains possible that going forward, actions taken by policymakers to alleviate the damage are ineffective or, worse, that new plans or decisions hurt confidence or cause further distress. This may play out in (i) how frequently, for how long, and where "dynamic" Zero-COVID Policy is applied, (ii) how aid to banks, corporates, households and local governments is meted out, (iii) whether regulatory adjustments or Common Prosperity are put on hold or not, (iv) decisions made with respect to currency or debt markets, and (v) geopolitics and trade, in particular the unbounded support for Russia as it becomes an international pariah.

Parts of this risk have already materialised; but that does not mean that more – and different – policy mistakes cannot be made

The two main 'known unknowns' are real estate and ZCP. The property market recession has been worse than expected, with developer defaults continuing and activity falling off. This has created a new problem, as falling land sales mean that local government revenues and their financing vehicles have become cash-starved, though special local bond quotas have been raised to plug the gap. Mounting debt problems would most likely be borne by SOEs and state banks, and the losses ultimately would be backstopped by the government; much slower growth and Japanification seem more likely than a classic sovereign debt crisis. China's COVID experience in the face of Omicron has been very different (Figure 24) and eradication efforts have been a disaster for economic activity in Q2; in the near term (H2 and into 2023), the risk is that more outbreaks will cause new lockdowns, and a policy "defeat" is unacceptable for President Xi ahead of the October Party Congress. What new policy directions on regulatory, social and international affairs emerge in Xi's third term are unpredictable, but it won't be the status quo.

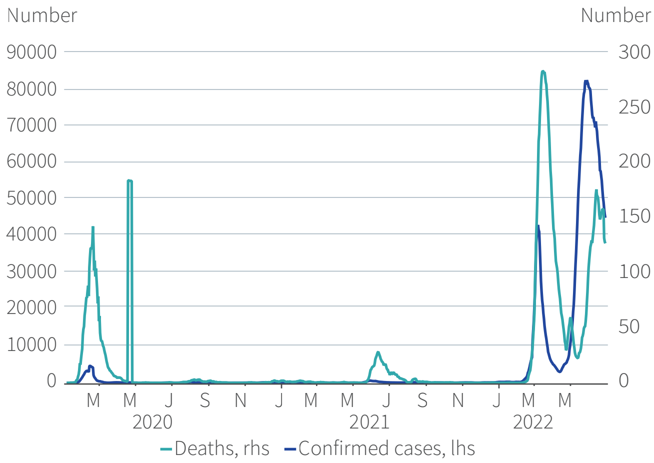
The Zero-COVID Policy looks certain to hurt activity recurrently, and Xi cannot afford to admit an error of approach

Figure 23. **The US Fed's projections highlight downside risks**
Federal Reserve unemployment rate projections



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 24. **China's latest COVID waves have been far worse**
China COVID cases and deaths, 7-day moving average



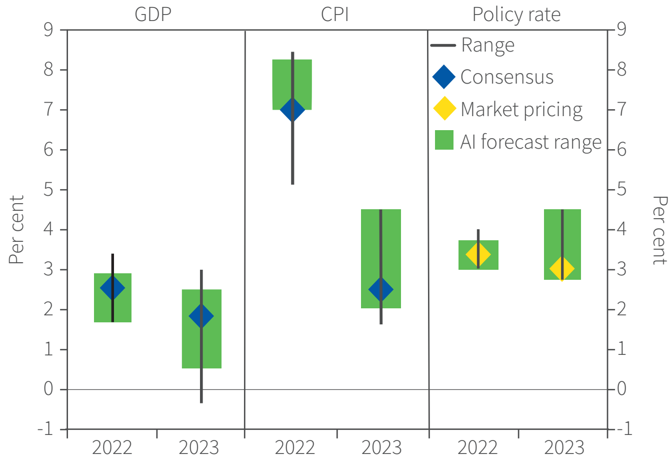
Source: Aviva Investors, Macrobond as at 28 June 2022

Macro forecasts charts and commentary

US

Inflation rose further over the past three months, to the fastest pace in over 40 years. Energy was the dominant factor, as global wholesale prices surged higher amid the ongoing conflict in Ukraine. However, core inflation also remained stubbornly high, as prices in the service sector increased more rapidly, reflecting strong demand and labour supply shortages. We expect inflation will rise further in the near term, before falling back steadily through 2023. The ongoing inflationary impulse led the Federal Reserve to embark on a rapid tightening of policy, most recently raising policy rates by 75bps. With the focus on bringing inflation down, we expect policy to move into restrictive territory in the coming months. Final domestic demand in the US remains robust. However, with the inflationary backdrop, alongside a rapid re-pricing in rate expectations and sharp falls in asset prices, we have marked down growth for 2022 and 2023 to below trend, and judge that the risk of recession (albeit likely mild in nature) within the next 18 months is now close to 50 per cent.

Figure 25. **US**

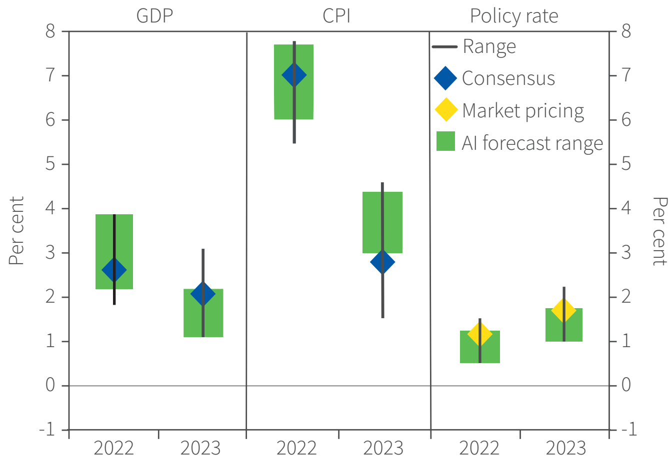


Source: Aviva Investors, Macrobond as at 28 June 2022

Eurozone

The short-term outlook continues to be dominated by the supply-side shock emanating from the conflict in Ukraine. Growth has slowed and risks are clearly to the downside, especially if Russian energy supply is further restricted or if sanctions are increased. But the Eurozone economy has also shown some resilience, perhaps because there was more "catch-up" to come through following the Omicron disruptions at the end of last year. The other main driver of prospects is high and – in some cases – still rising inflation which is squeezing household real incomes significantly and pushing consumer sentiment to all-time lows. The ECB has had another bout of clumsy messaging but is poised to raise policy rates slowly and steadily. Whether they will push rates up to the 1 per cent projected for end-2022 by markets looks less certain.

Figure 26. **Eurozone**

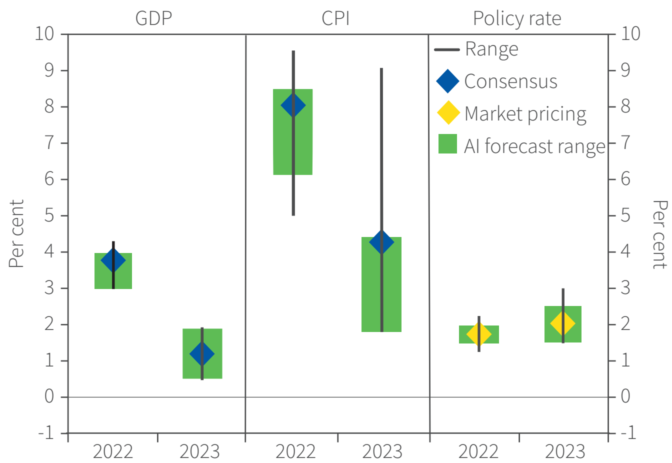


Source: Aviva Investors, Macrobond as at 28 June 2022

UK

The combination of the highest inflation for 40 years, sharply slowing growth, war in Europe and political turmoil is not conducive to the emergence of a feel-good factor. And although we continue to believe that a global recession can be avoided, that threat appears most credible in the UK. Q2 is an almost certain negative and the outlook for Q3 (and beyond) is not good. Confidence is hitting new lows and Britain's exports have not picked up in line with the post-COVID recovery in global trade flows – Brexit effect? The Bank of England is torn between acting "forcefully" to tame inflation and adding to the growth headwinds and economic pain. For now its anti-inflation credentials are driving policy decisions, but that could change in H2 as growth slows further.

Figure 27. **UK**

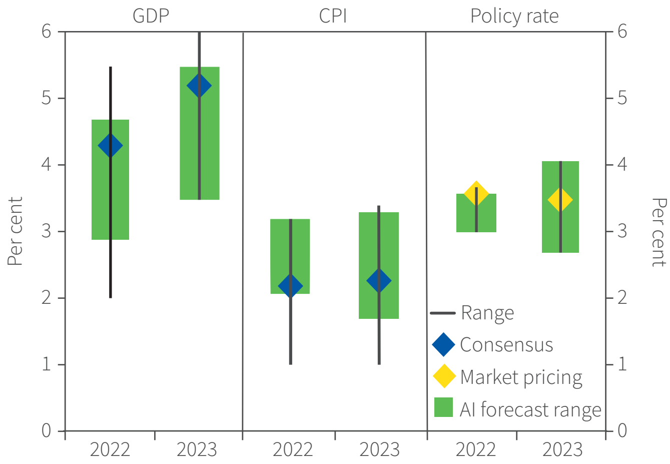


Source: Aviva Investors, Macrobond as at 28 June 2022

China

A series of policy errors has damaged growth, but little will change ahead of the 20th Party Congress in October, when President Xi will break with precedent and stay for a third term. Zero-COVID Policy will remain indefinitely, but is doomed: lockdowns seem inevitable, although a disastrous Q2 will mostly reverse, leading to a big rebound in Q3. China's policymakers are now focused on cushioning the damage from the property market downturn, with defaults and pressure on local government finances being countered with stimulus, particularly expanding infrastructure. Measures include tax refunds, subsidies, and special local bonds for rail, roads, and power projects. PBOC rate cuts will be small, and CNH weakness will continue, as inflation remains low – the only way the 5.5 per cent GDP growth target will be reached is by moving the goalposts. China's ties to Russia, and ESG concerns will likely lead to sanctions and outflows.

Figure 28. **China**

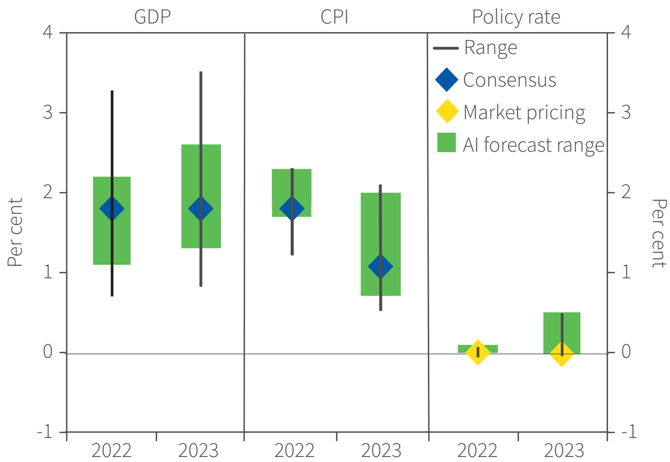


Source: Aviva Investors, Macrobond as at 28 June 2022

Japan

In Japan, "Living with COVID" has finally begun, begetting a tailwind from services for growth, boosted by travel subsidies. Exports are at strong levels but no longer increasing, and manufacturing – particularly autos – is hampered by supply chain issues. These should improve in H2, but there is two-sided risk given China's policy error and adherence to ZCP. PM Kishida's "New Capitalism" is an effort to boost productivity and Green Investment; in the short term, a weak currency can boost growth and large-cap equities, as well as household wealth given offshore portfolio holdings. The BoJ continues to largely ignore 2 per cent inflation and a trend in core inflation close to 2 per cent, as it is just 0.8 per cent y/y. Change to YCC could happen soon and would lead to higher yields and some yen strength, but this may only happen at the end of Kuroda's term in early 2023, leaving the BoJ an outlier and the yen vulnerable.

Figure 29. **Japan**

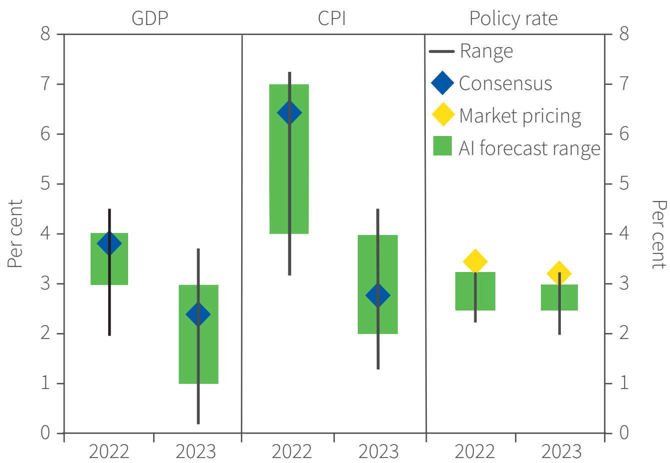


Source: Aviva Investors, Macrobond as at 28 June 2022

Canada

The recovery in Canada has been stronger and faster than initially expected. Significant tightening in the labour market has pushed unemployment to a record low of 5.1 per cent. Wage growth has picked up and is broadening across sectors but remains negative in real terms. Pressure for further wage rises is unlikely to abate any time soon. Inflation is very high, increasingly broad-based and therefore the primary focus for the BoC. The BoC has hiked 125bps so far in 2022 with the market pricing nearly 200bps of further hikes before year end. High levels of debt make for a difficult balancing act for the BoC, increasing the risk of recession if the economy is more sensitive to rate rises than expected.

Figure 30. **Canada**



Source: Aviva Investors, Macrobond as at 28 June 2022

Global market outlook and asset allocation

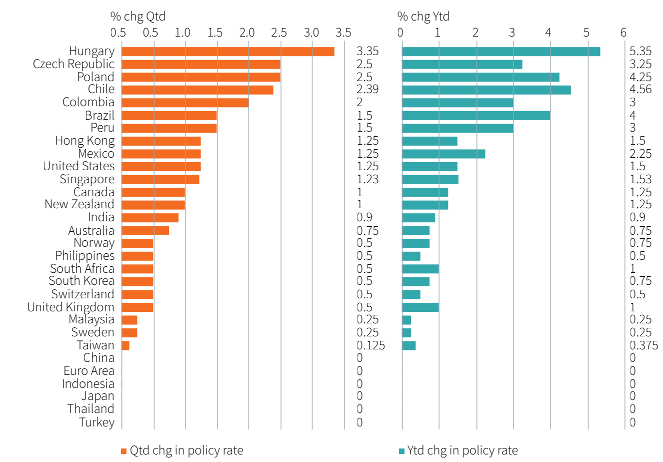
- **High inflation and China's policy errors have added to the mix of slowing growth and more aggressive central bank tightening**
- **Recession risk is rising, yet central banks are focused on fighting inflation, leading to higher real yields, flatter yield curves, and tighter financial conditions – and extraordinary volatility**
- **Valuations have become more attractive, but the macro environment remains challenging for credit and equities, and skewed toward downside risks**
- **We remain in a strong dollar environment, especially against the Euro, Yen and Asian FX, where central banks are out-of-sync with the Fed; other EM currencies are building up carry**

Multiple shocks and large risks have increased volatility in financial markets

Economies and markets have experienced a sequence of shocks in recent months, as several of our House View risks have materialised. Demand for goods has slowed a little, but remains robust. Meanwhile, demand for services has rebounded before supply chains and labour markets had fully healed, adding to the upward inflation impulse. The Russian invasion of Ukraine has exacerbated the energy price shock, and added risk premia to energy prices more generally. It has also disrupted some agricultural and fertiliser markets, creating a global food crisis in some areas. China's property market remains in recession, while a failure to provide effective vaccines alongside rigid adherence to Zero COVID Policy has damaged growth and disrupted supply chains further, stoking prices. Inflation peaks have been pushed later and higher, forcing central banks to respond. The balance for them has shifted from supporting growth to trying to tame inflation. After the extended period of ultra-loose monetary policy, the change to an aggressive synchronised hiking cycle (Figure 31) has been stark.

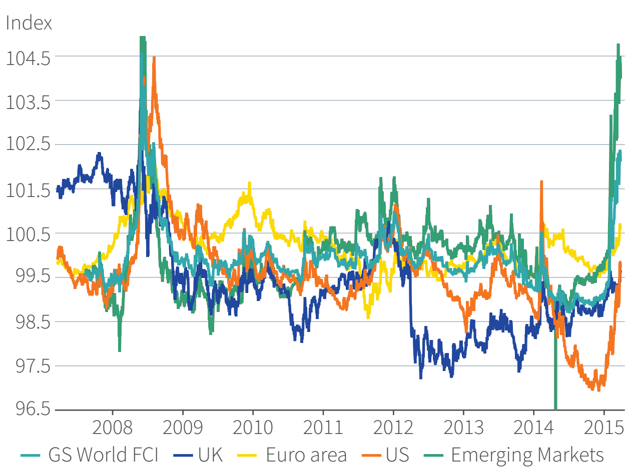
Rate hikes have been and are likely to continue to be larger and faster than the last two hiking cycles. Advanced economies and Asia remain in the early stages of the hiking cycle, while Eastern Europe and Latin America are arguably nearer the end of the tightening phase. The economic slowdown is now sharper, and a global hard landing is a growing risk, especially with China's policy errors all too likely to continue. Financial conditions (Figure 32) have tightened rapidly but are unlikely to have peaked. Further tightening will weigh on activity and may cause negative feedback loops. Commodities may deliver an actual supply shock (particularly European gas disruption), rather than just a price shock that reduces real disposable incomes. Finally, discretionary spending negative wealth effects may make households more conservative in consumption and businesses less willing to invest.

Figure 31. **A synchronised global hiking cycle**



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 32. **Goldman Sachs financial condition indices**



Source: Aviva Investors, Macrobond as at 28 June 2022Goldman Sachs, The higher and more volatile inflation regime is driving a higher and more volatile regime in rates markets. Central banks continue to focus on inflation even as recession risks grow, with many delivering significant hikes over the last quarter and with more expected (Figure 31). The ECB and the BoJ are yet to participate, but the ECB has clearly signalled the start of policy normalisation very soon. The market is currently pricing around 150bps of hikes in the Eurozone this year which would take the policy rate to 1 per cent. This anticipated rapid pace of normalisation as well as some clumsy messaging by the ECB led to a marked increase in fragmentation fears, with the spread between the yield on 10-year Italian government bonds to German peaking at just over 240bps in June. The ECB used an ad-hoc meeting to introduce an anti-fragmentation tool (with details to follow in late July), highlighting the precarious position central banks are in, needing to tighten policy rapidly whilst trying to maintain economic and financial stability.

Rate hikes have moved into higher gear, but it is too early to position for a pause or reversal

As markets are now much closer to fully pricing rate-hiking cycles, investors have just begun to think about the potential cutting cycle that could follow as recession risks grow. However, with central banks focused on inflation, positioning now for any such a turn in policy direction feels premature. Additional fiscal support remains an upside risk to both the growth and inflation outlook. Significant uncertainty around both economic outcomes and policy reactions means high levels of volatility within the rates market is likely to continue.

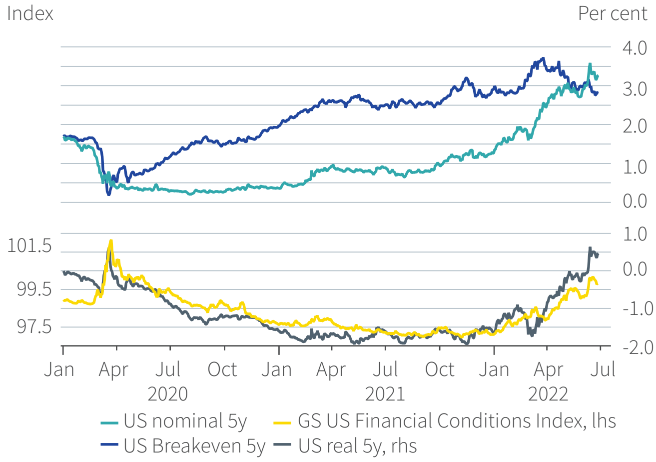
BoJ policy and Japanese rates stand in stark contrast to the rest of the G10. Policy divergence has driven a roughly 17 per cent depreciation of the yen versus the US dollar and a nearly 13 per cent depreciation in real effective exchange rate terms. While still low by international standards, inflation in Japan is now high relative to its own history and pressure on the currency shows no signs of abating. The extent to which the BoJ can maintain such a significant divergence in policy is being called into question and we prefer to underweight Japanese government bonds.

The strong momentum for higher real yields is likely to continue creating a challenging backdrop for risk assets

Financial conditions need to tighten further to bring inflation under control. In the first quarter of this year the move higher in real yields was predominantly driven by the move in nominal yields. Over the last quarter we have seen real yields move more convincingly higher, driven by both higher nominals and declining breakevens (Figure 33). As inflation measures peak and recession risks grow, moves in real yields are likely to continue to be driven by both nominal and breakevens, generating more momentum in real yields. A strong upward move in real yields is likely to be a challenging environment for risk assets. Credit remains challenged and is more strongly correlated to risk assets than changes in rates (Figure 34). The previous negative correlation of spreads and yields is unlikely to resume until central bank tightening is decisively finished, and flat yield curves have historically been associated with elevated credit spreads. While fundamentals are currently supportive, the credit market remains exposed to a rising real rate environment and should a recession materialise – and with it, increased defaults and downgrades – then a further significant correction is likely.

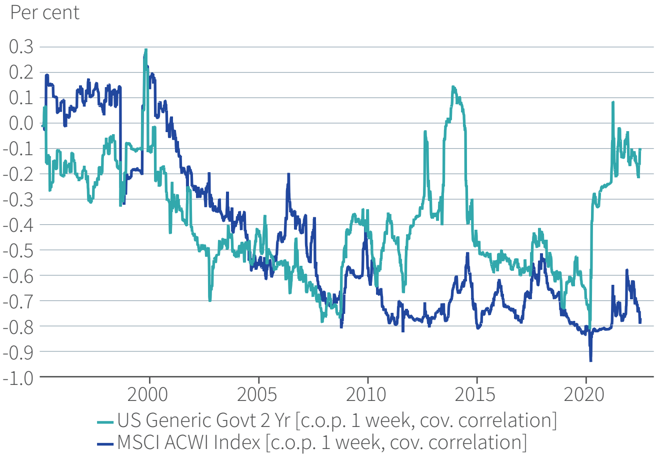
The Fed and risk aversion benefit the dollar, but EM central banks have moved aggressively and some currencies have already weakened substantially

Figure 33. **Real yields driving financial conditions tighter**
US nominal, breakeven and real yields



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 34. **US HY credit correlation to US 2y & global equity**
Rolling correlation of weekly change



Source: Aviva Investors, Macrobond as at 28 June 2022

For currencies, risk aversion and rate differentials have been important drivers of dollar strength, particularly against the Euro and Yen, and we expect them to continue. Although the ECB is now on the cusp of hiking rates, they will not keep pace with the Fed; the yen (see above), Asia FX and the overvalued CNH are more vulnerable. The DXY Dollar Index has strengthened considerably since the Global Financial Crisis, but it is unlikely to turn until the rate-hiking cycle has run its course, and the index is still 15 per cent below its 2000-01 peak. In other G10 countries, faster hikes should provide some protection for countries like Australia, Canada, Norway, Sweden and Switzerland – but Euro weakness will weigh on the dollar crosses. For emerging markets, rate hikes have belatedly rebuilt a real rate cushion in many countries (Figure 35). High carry and favourable terms of trade movements have helped Latin America deliver decent returns, and Central and Eastern European currencies (excepting basket cases like Russia and Turkey) are also being aided by hawkish central banks, though high inflation equates to low real rates, and the G10 rate hikes remain a headwind.

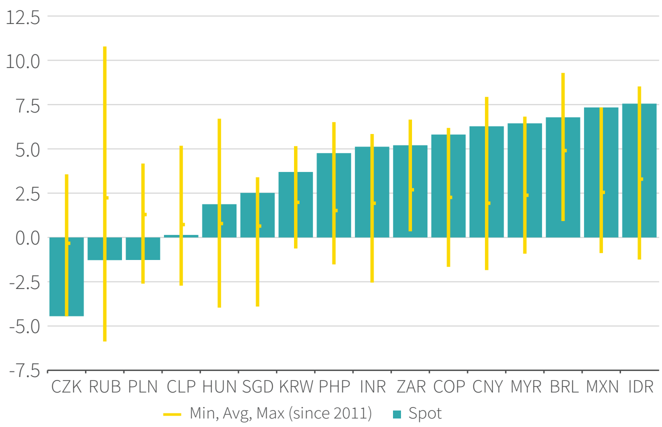
Markets are moving back to a pre-GFC regime of higher real rates and lower P/Es

However, what is helpful for getting currencies and inflation under control is not a benign environment for risky assets, and that includes equities. Historically, there has been a negative relationship between real rates and forward price-earnings ratios. Post GFC this relationship weakened but it looks to be re-established now, with the de-rating this year consistent with the rise in real rates (Figure 36). Since mid-2021, our view on equities has evolved from considerably overweight, to a more moderate position and our preference currently is to be only modestly overweight. As noted above, the sell-off in equities this year has driven valuations down to more attractive levels. Moreover, while the risks of recession have clearly increased, the strength of household and corporate balance sheets should mean that any such recession is relatively mild. So while there remain significant challenges for equity markets over the coming months (eg see below on margin pressures), we have not moved to outright defensive.

Long-term valuations are better, but margins and earnings are at risk in this stage of the cycle

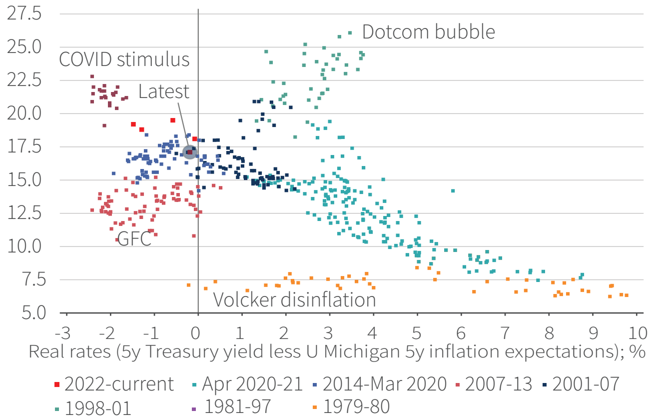
As real rates and credit spreads rise, together with inflation and wages, margin compression is likely unless sputtering demand picks up again: very strong trailing and projected earnings are vulnerable. We favour those firms and sectors with pricing power, but in many cases, there is a struggle to keep up with rising costs and other expenses. Our positive structural outlook is reflected in our actual allocation and informed by quantitative signals that suggest negative sentiment is already pervasive, but we are tilted towards sectors that are defensive or have already priced in a large chance of recession. High P/E countries and sectors may need to compress more, given the above considerations: tech and growth look to be challenged. Europe has re-priced downwards but remains an underweight. Finally, as with credit spreads, if the risk of hard landing rises or seems imminent, drawdowns can continue. Eventually, there will be a turn in inflation and an improvement in growth projections instead of the steady negative revisions, which can set up an environment for a concurrent bond and equity rally (as in 1995 and 2019) but we are probably several quarters away from such a prospect.

Figure 35. **Many emerging markets have hiked aggressively and built a sizeable real rate premium**
2y real govt bond spread to US



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 36. **Rising real rates look likely to depress P/Es**
Forward P/E and real rates



Source: Aviva Investors, Macrobond as at 28 June 2022

Figure 37. **Asset allocation**

	Underweight										Overweight
	-5	-4	-3	-2	-1	0	1	2	3	4	5
Equities							1				
US							1				
Europe					-1						
UK							1				
Japan							1				
Pacific Basin ex Japan							1				
Emerging markets						0					
Nominal Govt					-1						
United States					-1						
United Kingdom						0					
Germany						0					
France						0					
Italy						0					
Japan					-1						
Canada						0					
Australia						0					
Credit						0					
US Investment Grade						0					
European Investment Grade						0					
Asian Investment Grade						0					
UK Investment Grade						0					
EUR High Yield						0					
US High Yield						0					
Emerging Govt (Hard Currency)						0					
Emerging Govt (Local Currency)						0					
Alternatives						0					
Cash						0					
Currencies (vs USD)					-1						
GBP						0					
EUR					-1						
JPY						0					
CAD						0					
AUD						0					
EM FX						0					

The weights in the Asset Allocation table only apply to a model portfolio without mandate constraints. Our House View asset allocation provides a comprehensive and forward-looking framework for discussion among the investment teams.

Source: Aviva Investors, Macrobond as at 28 June 2022

Contact us

Aviva Investors
St Helen's, 1 Undershaft
London EC3P 3DQ
+44 (0)20 7809 6000

www.avivainvestors.com

THIS IS A MARKETING COMMUNICATION

Important information

Except where stated as otherwise, the source of all information is Aviva Investors Global Services Limited (AIGSL). Unless stated otherwise any views and opinions are those of Aviva Investors. They should not be viewed as indicating any guarantee of return from an investment managed by Aviva Investors nor as advice of any nature. Information contained herein has been obtained from sources believed to be reliable, but has not been independently verified by Aviva Investors and is not guaranteed to be accurate. Past performance is not a guide to the future. The value of an investment and any income from it may go down as well as up and the investor may not get back the original amount invested. Nothing in this material, including any references to specific securities, assets classes and financial markets is intended to or should be construed as advice or recommendations of any nature. Some data shown are hypothetical or projected and may not come to pass as stated due to changes in market conditions and are not guarantees of future outcomes. This material is not a recommendation to sell or purchase any investment.

In Europe this document is issued by Aviva Investors Luxembourg S.A. Registered Office: 2 rue du Fort Bourbon, 1st Floor, 1249 Luxembourg. Supervised by Commission de Surveillance du Secteur Financier. An Aviva company. In the UK Issued by Aviva Investors Global Services Limited. Registered in England No. 1151805. Registered Office: St Helens, 1 Undershaft, London EC3P 3DQ. Authorised and regulated by the Financial Conduct Authority. Firm Reference No. 119178. In Switzerland, this document is issued by Aviva Investors Schweiz GmbH.

In Singapore, this material is being circulated by way of an arrangement with Aviva Investors Asia Pte. Limited (AIAPL) for distribution to institutional investors only. Please note that AIAPL does not provide any independent research or analysis in the substance or preparation of this material. Recipients of this material are to contact AIAPL in respect of any matters arising from, or in connection with, this material. AIAPL, a company incorporated under the laws of Singapore with registration number 200813519W, holds a valid Capital Markets Services Licence to carry out fund management activities issued under the Securities and Futures Act (Singapore Statute Cap. 289) and Asian Exempt Financial Adviser for the purposes of the Financial Advisers Act (Singapore Statute Cap.110). Registered Office: 1Raffles Quay, #27-13 South Tower, Singapore 048583. In Australia, this material is being circulated by way of an arrangement with Aviva Investors Pacific Pty Ltd (AIPPL) for distribution to wholesale investors only. Please note that AIPPL does not provide any independent research or analysis in the substance or preparation of this material. Recipients of this material are to contact AIPPL in respect of any matters arising from, or in connection with, this material. AIPPL, a company incorporated under the laws of Australia with Australian Business No. 87 153 200 278 and Australian Company No. 153 200 278, holds an Australian Financial Services License (AFSL 411458) issued by the Australian Securities and Investments Commission. Business Address: Level 27, 101 Collins Street, Melbourne, VIC 3000 Australia

The name "Aviva Investors" as used in this material refers to the global organization of affiliated asset management businesses operating under the Aviva Investors name. Each Aviva investors' affiliate is a subsidiary of Aviva plc, a publicly- traded multi-national financial services company headquartered in the United Kingdom. Aviva Investors Canada, Inc. ("AIC") is located in Toronto and is registered with the Ontario Securities Commission ("OSC") as a Portfolio Manager, an Exempt Market Dealer, and a Commodity Trading Manager. Aviva Investors Americas LLC is a federally registered investment advisor with the U.S. Securities and Exchange Commission. Aviva Investors Americas is also a commodity trading advisor ("CTA") registered with the Commodity Futures Trading Commission ("CFTC"), and is a member of the National Futures Association ("NFA"). AIA's Form ADV Part 2A, which provides background information about the firm and its business practices, is available upon written request to: Compliance Department, 225 West Wacker Drive, Suite 2250, Chicago, IL 60606

321472 - 30/06/2023