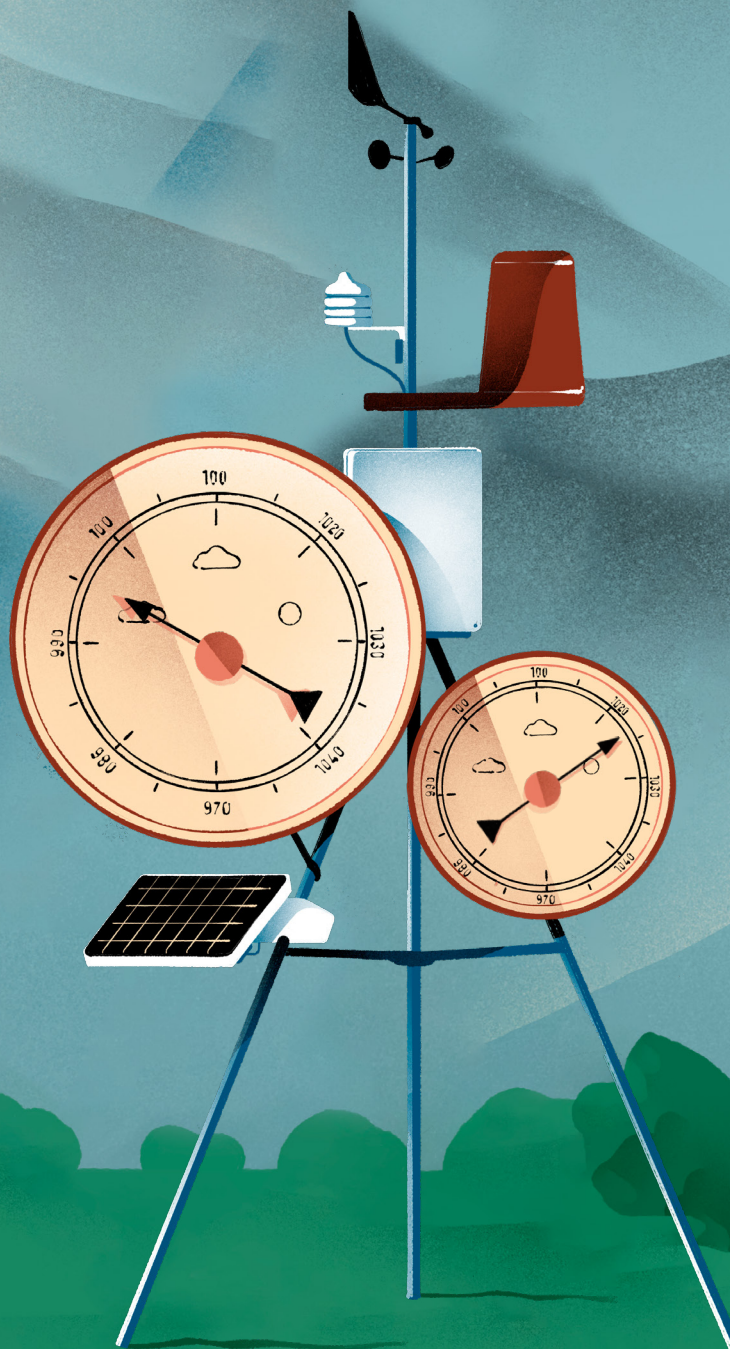




September 2022

# CIO Insights



**Under pressure**  
Economic and investment update



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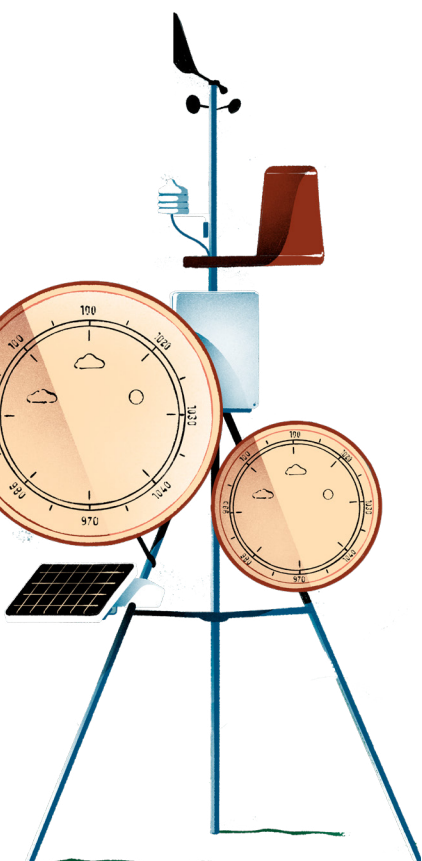
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## Letter to Investors



Christian Nolting  
Global CIO

# Under pressure

It is increasingly fashionable to talk in terms of economic and investment “narratives” – stories used to focus market discussion, for example, around the speed and extent of Fed policy tightening and the likely impact on growth. Such narratives help markets build an (albeit imperfect) consensus on future expectations, blending complex trends into an apparently coherent pattern.

The increased focus on narratives in recent years is easy to understand. Markets have had to rationalise, understand and explain a range of extreme developments around the global financial crisis, the subsequent monetary policy response, Covid and geopolitics. But narratives have their limits, particularly if market consensus is breaking down.

In recent months, for example, market narratives about the likely extent and speed of Fed tightening, and its impact on the U.S. economy, have gone back and forth. In April-June, tightening fears led to significant market losses; hopes of smaller rate rises and less economic damage then helped lift markets in June and July before tough Fed talk pulled them back down again. Markets remain, even more than usual, split between bulls and sceptics.

The underlying issue is that markets are still seeking an accepted diagnosis about the health of the global economy. Complex factors are at play here that do not reduce easily into a simple narrative. Multiple questions remain about the U.S. consumer, European energy dependency, the success of Chinese economic reopening and possible future inflation paths, amongst many other issues: the global economy, like markets, remains under pressure.

Economic uncertainties will keep markets volatile in the short term and we think that both the U.S. and Europe face a period of economic contraction. But if markets start to believe that these recessions are likely to be mild, short-lived and well behind us by mid-2023 (as we expect), then potential further market falls in coming months will eventually be followed by market gains. As usual, markets are likely to anticipate economic reality and, with recovery on the horizon, we forecast low single-digit index earnings growth in most developed equity markets over the next 12 months and lower but still positive returns for emerging market equities.

Inflation narratives may also take time to stabilise. A decline in bond volatility will likely depend on market confidence that inflation in the U.S. and other countries really is falling back (more than provided by limited data so far), solidifying expectations around the future Fed policy path. Market consensus will need to move beyond future headline rates to agreement on likely potential second and third-round inflation effects. And, even if U.S. inflation falls back further, markets need to accept that this is unlikely to prompt the Fed to take a much softer approach: Fed Chair Powell and other FOMC members have been signalling that we face restrictive monetary policy “for some time”. We concur with this view. The ECB, facing obstinately high Eurozone inflation, could also tighten policy further.

I would suggest that there are two main lessons we can take from these shifting narratives.

The first is that, in the real world, few developments fit a simple narrative with a straightforward trajectory and an immediately clear resolution – as some market argumentation would suggest. To state the obvious, we are traversing a demanding and continuously evolving investment landscape, but the direction of travel will become clearer and markets will respond positively. We reiterate the importance of active management and thematic investment on this journey.

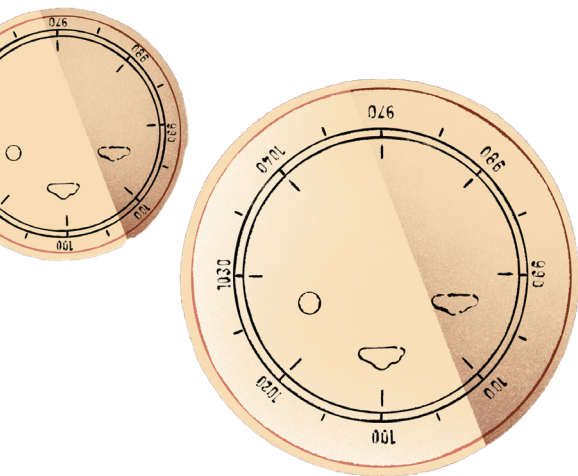
The second lesson is that over-focusing on short-term market narratives is risky – as is simply standing back from the markets and waiting for new narratives to appear. One concern is that if you follow either of these approaches, then you could miss much more significant underlying long-term investment trends – most importantly around ESG issues. Ultimately, these will be central to defining future investment approaches and expectations.

Christian Nolting

Christian Nolting  
Global CIO



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# 02

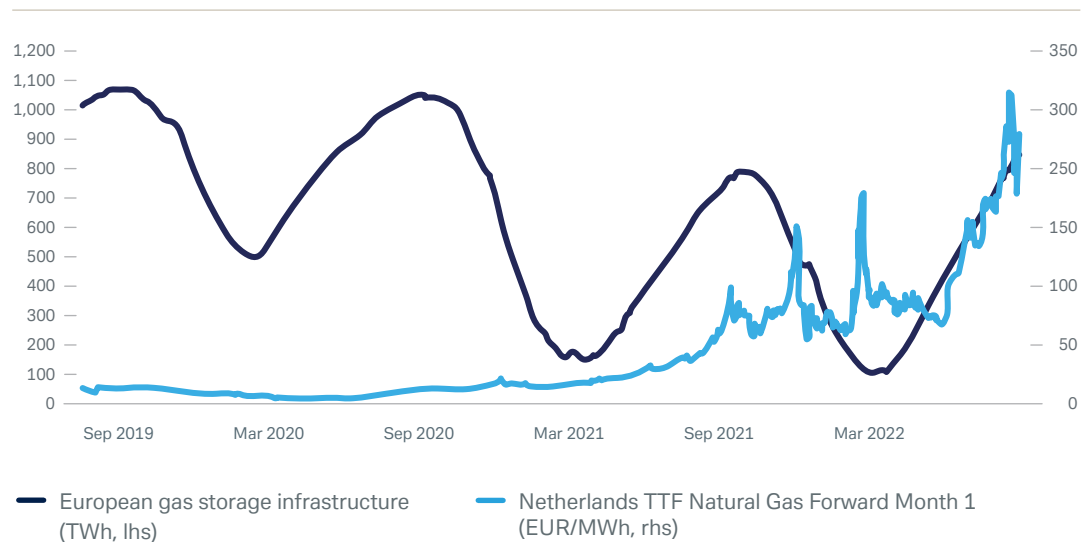
## Eight risks on our radar

Bond market volatility has declined recently, but it remains unusually elevated – driven by inflation trends and central bank policy actions. While investors hope those actions can avert a global recession, the risks of a recession and high inflation in the Eurozone are heightened by the ongoing Russia-Ukraine conflict.

Financial markets are focusing less on a potential military escalation of the conflict but rather on Western sanctions and the prospect of Russian energy-related retaliation. Germany is filling its gas inventories faster than planned, but industry will remain reliant on non-Russian imports to meet its requirements for the coming winter (based on winter 2020/2021 demand). We expect Putin to take actions to keep gas prices high, but not to completely cut off supplies, while also attempting to stoke discord between European countries by providing preferential supply terms to Russia-friendly countries, such as Hungary.

Figure 1: European gas storage and forward price

Source: Bloomberg Finance L.P., Deutsche Bank AG. Data as of August 23, 2022.



The agreement between Ukraine and Russia on agricultural exports is a positive sign, but it is unlikely to resolve global food supply concerns in the near or medium term.

The U.S. midterm elections in November appear likely to deliver a Republican majority in the House of Representatives and a Democrat majority in the Senate. This would make proactive fiscal policy in the event of a U.S. recession more likely than in a scenario of a Republican-dominated Congress, which might in turn provide the Fed with greater scope for monetary policy to fight inflation in 2023.

The recent escalation in U.S.-China tensions following Speaker Pelosi’s visit to Taiwan is not expected to provoke immediate military conflict, but it might impair the performance of semiconductor and automation stocks. A recent preliminary deal on audits may, however, indicate that the likelihood of Chinese stocks being delisted in the U.S. is receding.

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Lockdowns continue to weigh on the Chinese economy and thus also on the global growth outlook. But if the National People's Congress in October re-elects President Xi, as expected, this could be followed by some easing of the zero-Covid policy and a scaling-back of the military threat to Taiwan. Growth and preventing inflation (especially on food) are likely to be the main short-term concerns.

Snap elections in Italy in September could usher in a centre-right coalition, which has proposed the direct election of the President of the Republic and changes to the RRF/NGEU implementation. Some members of the centre-right coalition have expressed harsh criticism of the European Union, so relationships between the new Government and EU leaders could prove challenging.

Climate change is bringing the risk of droughts to large parts of Europe, China and the U.S., accompanied by flooding in other regions. This is another drain on energy supplies not only in China, but especially in Europe.

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The Russia-Ukraine conflict remains centre stage with financial markets focusing on Western sanctions and expecting Russian retaliation aimed at keeping gas prices high.

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# 03

## Macroeconomic and asset class update

### Macroeconomics

Stubbornly high inflation rates and fears of energy supply disruptions have weighed on the economy during the summer months. As a consequence, key leading indicators such as the purchasing managers' indices and consumer sentiment surveys have continued to deteriorate in many countries, sinking to historic lows in some cases. Although the U.S. economy found itself in a technical recession in the first half of 2022 according to an initial assessment, rosy labour market data in particular indicate that a sustained decline in economic output is currently not on the cards. Although labour markets are also in good shape in the Eurozone, the single-currency area does seem to be at greater risk of an imminent mild recession on account of its heavy dependence on energy supplies from Russia. Given the predominantly good Q1 and Q2 GDP numbers, Eurozone growth rates for the full year 2022 should be solid, but they are likely to be much lower in 2023 – as could be the case in the U.S. In China there are signs of a modest recovery – supported by government measures – following the easing of some Covid restrictions.

Figure 2: GDP growth forecasts for 2022 and 2023 (%)

Source: Deutsche Bank AG. Forecasts as of August 18, 2022.

	2022	2023
 U.S.*	1.9	0.7
 Eurozone	3.1	0.7
 Germany	1.5	0.0
 France	2.7	0.6
 Italy	3.4	0.2
 Spain	4.7	1.6
 UK	3.5	-0.2
 Japan	1.5	0.9
 China	3.3	5.3
 India	7.0	6.0
 Brazil	1.5	1.0
 Russia	-6.0	-1.0
 World	3.1	2.8

\* For the U.S., GDP growth Q4/Q4 % is 0.6% in 2022 and 1.1% in 2023.

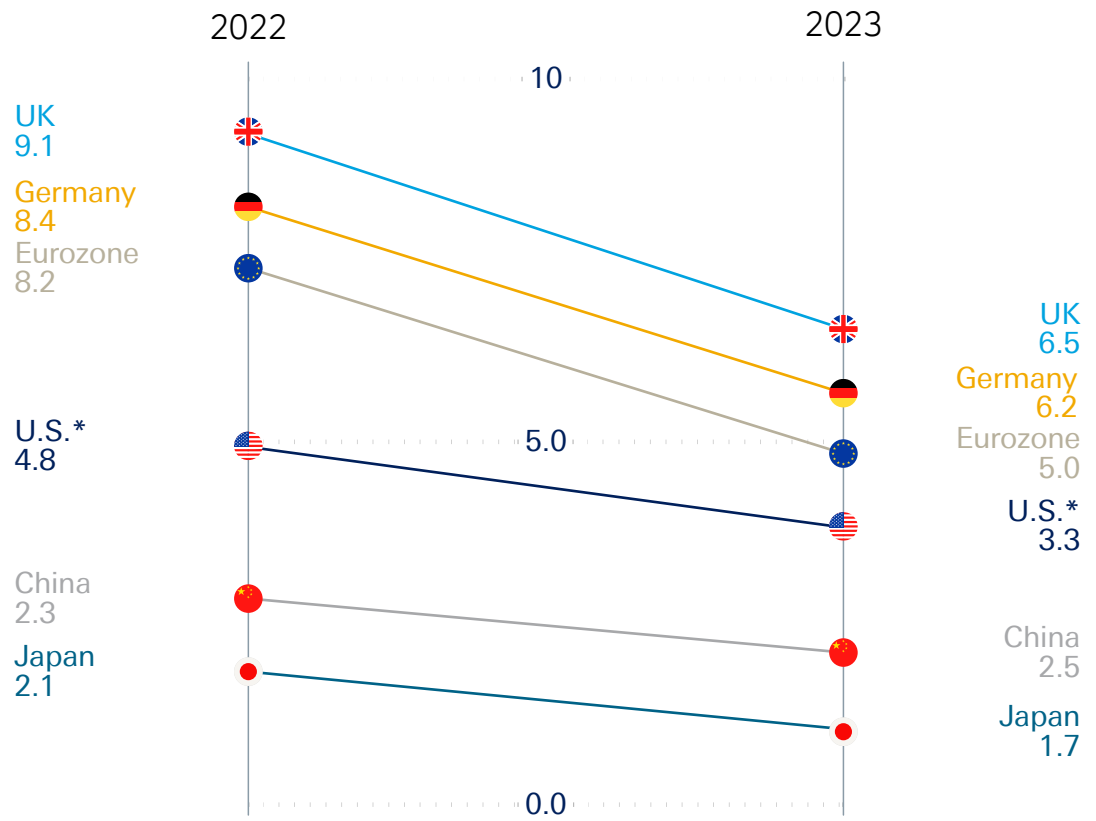
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In several countries there are initial indications of inflation concerns easing due to resolute monetary policy actions and the ending of some supply chain bottlenecks. In the U.S. the YoY consumer price inflation rate fell to 8.5% in July from 9.1% in June. In Europe the annual consumer price inflation rate may continue rising if energy prices do not fall soon.

Figure 3: Consumer price index inflation forecasts for 2022 and 2023 (%)

Source: Deutsche Bank AG. Forecasts as of August 18, 2022.



\* Measure is average core PCE – Dec/Dec is 4.3% in 2022 and 2.6% in 2023; headline PCE (Dec/Dec) is 4.9% in 2022 and 2.8% in 2023 – average headline PCE is 6.0% in 2022 and 3.6% in 2023.

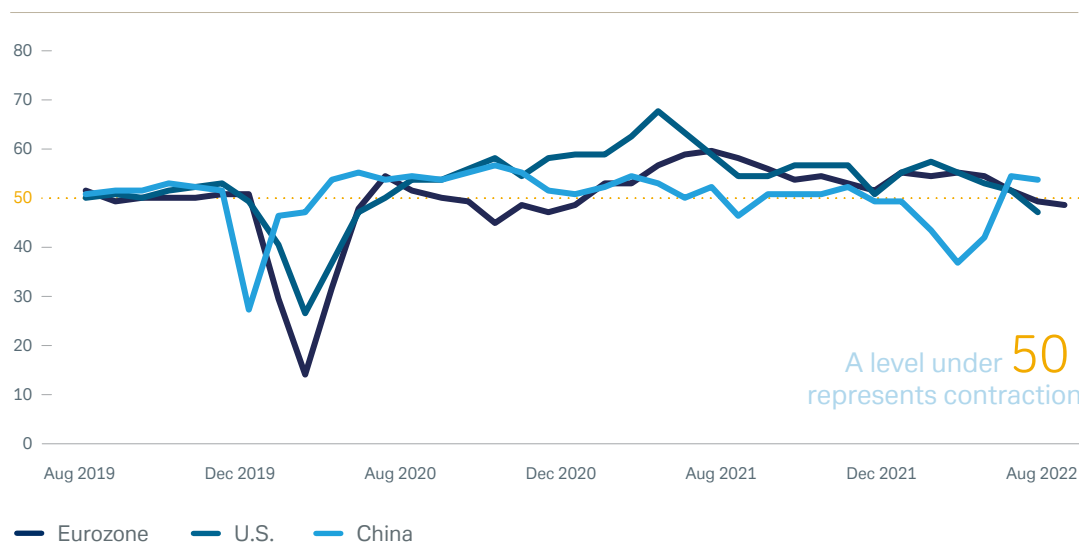
Wages growth has picked up but cannot keep pace with inflation, meaning that households' loss of real purchasing power could dampen consumption in most countries despite government relief packages. In developing countries inflation could also rise a bit further, although the peak will likely be reached in Q1 2023.

Leading indicators reflect worsening business and consumer sentiment, while a decline in real purchasing power could weigh on household consumption.

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Figure 4: Composite purchasing managers index

Source: Bloomberg Finance L.P., Deutsche Bank AG. Data as of August 23, 2022.



## Macroeconomics

Market and portfolio implications:

- Inflation remains a drag on parts of the global economy, but may gradually be peaking
- Larger price movements in markets due in part to greater macroeconomic volatility
- Headwinds for cyclical and rate-sensitive sectors expected to persist



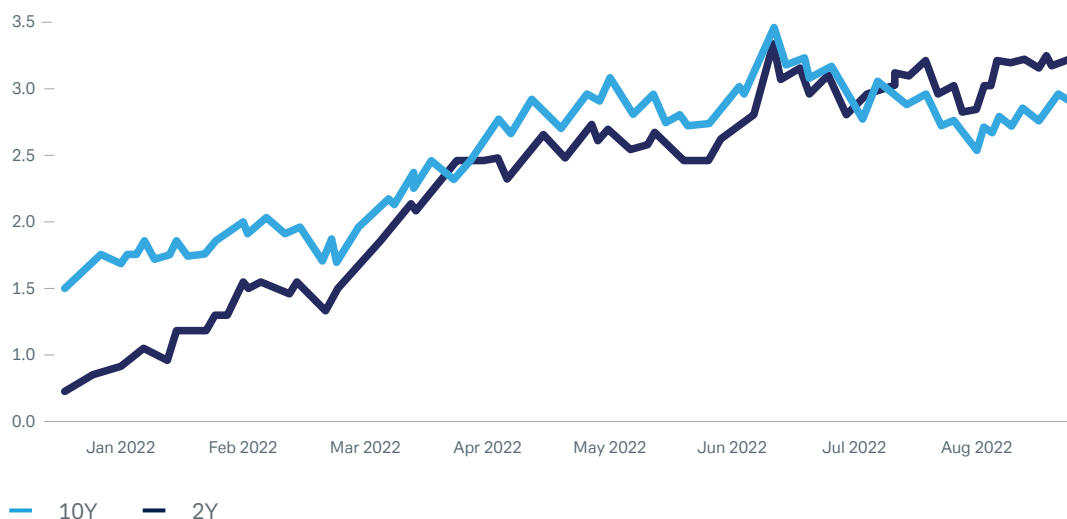
## Fixed income

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The yield on 10-year U.S. Treasuries peaked in mid-June, then fell sharply in July before rising again in August. The decline for Treasuries with shorter maturities was less pronounced in July, causing the yield curve to invert, which many investors regard as a precursor to recession. We forecast that the U.S. economy will enter a mild recession in H1 2023.

Figure 5: U.S. Treasury yields in 2022 (%)

Source: Bloomberg Finance L.P., Deutsche Bank AG. Data as of August 22, 2022.



Whereas growth concerns have been the main driver of falling yields, renewed inflation fears have recently sent U.S. Treasury yields rising again. The MOVE index, which measures fixed income volatility, remains elevated despite falling from a historic high in early July. Market expectations of a quick end to the Fed's tightening cycle and a rate cut next year may prove premature, which could prompt further volatility in government bonds. After the U.S. economy emerges from recession in 2023, longer-term yields on U.S. Treasuries are likely to be higher than their short-term counterparts again.

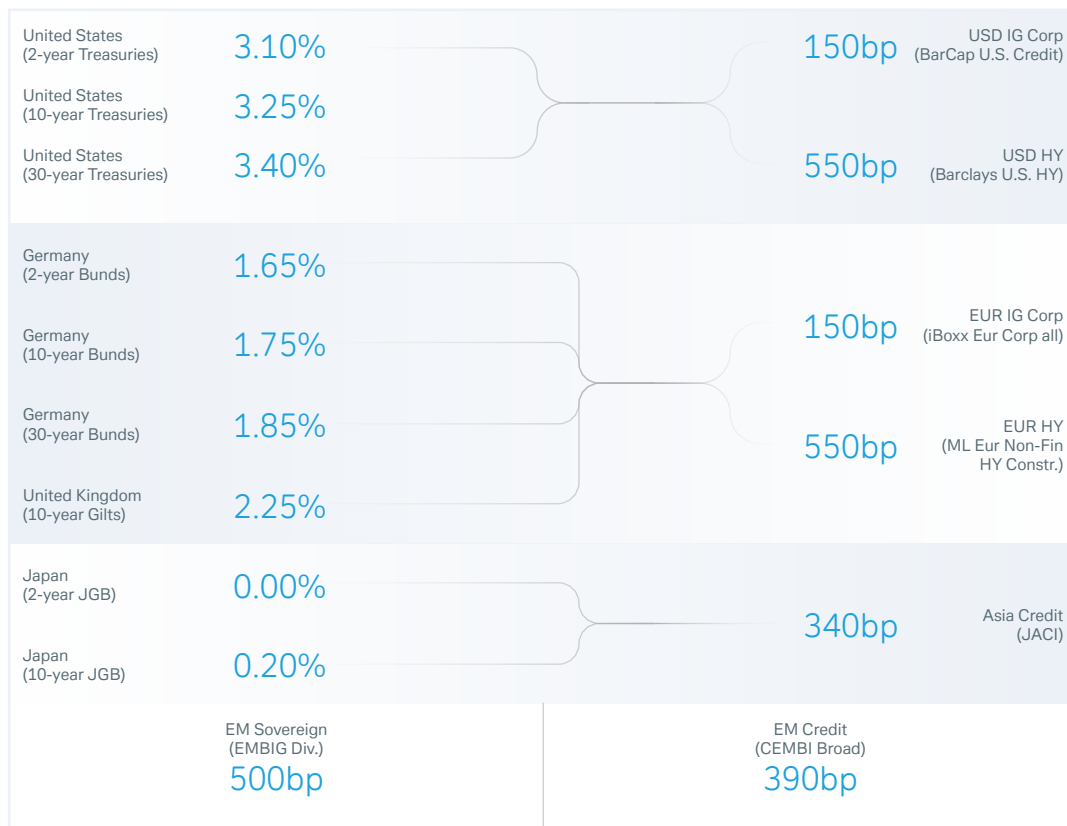
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Yield curve inversion may be a precursor to a mild U.S. recession in H1 2023. Uncertainty around Fed policy could keep fixed income volatility elevated.

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Figure 6: Fixed income forecasts for end-September 2023

Source: Deutsche Bank AG. Forecasts as of August 18, 2022.



In the Eurozone, the next six months will be dominated increasingly by recession fears, particularly given the tail risk of Russia ultimately ending all gas exports to the EU. With inflation still high, however, the ECB may well continue to raise its key interest rates. This will lead to higher yields on Bunds, especially those with shorter maturities, as the markets are only pricing in a moderate rate hike path, which could prove to be wrong if inflation remains well above the ECB's 2% target for a prolonged period. We forecast a mild recession in the Eurozone starting in Q4 2022 and lasting two quarters.

## Government bonds

Market and portfolio implications:

- U.S. Treasuries to remain volatile given ongoing Fed tightening
- Inverted U.S. yield curve signalling a mild recession
- More ECB rate hikes than expected by the market will lead to higher Bund yields

Recent data suggests that U.S. inflation may be peaking and credit market fundamentals are in good shape, partly due to a post-Covid improvement, with the total debt to EBITDA ratio having declined, partly due to a post-Covid improvement, with the total debt to EBITDA ratio having declined for both investment grade (IG) and high yield (HY) issuers. Similarly, the interest coverage ratio in Q1 2022 (latest available data) was at its highest for IG and HY since 2007 and 2008 respectively. This should make U.S. credit more resilient to the economic slowdown and in 12 months spreads should be recovering, thanks to only a mild recession in H1 2023. However, HY spreads are set to come under pressure, as the default rate is expected to rise from its current low level towards its historical average.

Figure 7: Interest coverage ratio riding high

Source: Bloomberg Finance L.P., Deutsche Bank AG. Data as of March 31, 2022 (except for USD IG - as of June 30, 2022). Interest coverage ratio is calculated by dividing company earnings by interest expenses on all outstanding debt.



EUR credit spreads have already widened significantly, pricing in much of the economic slowdown expected following the energy crisis and the ECB's monetary tightening and end to the corporate bond net purchases. Over the next twelve months this pricing is likely to recalibrate, assuming that the recession comes to an end and the region's energy supply chains have been largely reorganised. The ECB's new Transmission Protection Instrument opened the door to purchases of private sector securities, if appropriate, which should help sentiment towards EUR credit. While leverage appears to have peaked in Q1 2022, debt servicing capacity remains above its historic 10-year average for both IG and HY. Nonetheless, EUR HY faces a worsening default environment as the share of distressed bonds is currently on the rise.

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EM corporate spreads have been driven higher by inflationary pressures and geopolitical uncertainty. We expect some of these risks to recede as sentiment recovers from the latest China/Taiwan pessimism. Fundamentals (gross leverage, net leverage and interest coverage) are at 10-year highs, which should offset some of the macro uncertainty, especially with regards to China. Defaults have been concentrated in the Chinese property market, but their impact should be limited as the segment now constitutes less than 3% of China's overall HY market.

## Corporate credit

### Market and portfolio implications:

- IG spreads on a path to recovery post-recession in the U.S and Europe, helped by stronger fundamentals
- HY spreads likely to widen further as default rates climb from current benign levels
- Strong EM corporate fundamentals to at least partially offset the distress from macro slowdown

## Equities (developed markets)

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After a dismal first half of the year, most developed equity markets rebounded, with the S&P 500, STOXX Europe 600 and MSCI Japan significantly off their June lows, driven by declining government bond yields and better-than-expected reported earnings for Q2 that brightened bearish investor sentiment. Light positioning likely accelerated the move.

With Fed Chair Powell's Jackson Hole remarks dashing all hopes of imminent Fed loosening, however, markets have since headed south. We think the downtrend will be maintained over the next few months, as most DM economies continue losing steam and inflation remains elevated in the U.S. and could even accelerate in Europe. In addition, the Japanese economy is bearing the brunt of the country's most severe wave of Covid to date.

We still consider consensus earnings forecasts too optimistic and expect another round of downward revisions, potentially triggered by cautious company guidance during the autumn earnings season. Importantly, we expect index earnings per share (EPS) to hold up significantly better during the slated mild recession than during past economic downturns. Our call for low-single-digit index earnings growth over the next twelve months reflects the enhanced profit stability of digital platform companies, some remaining pent-up demand, and still robust household finances.

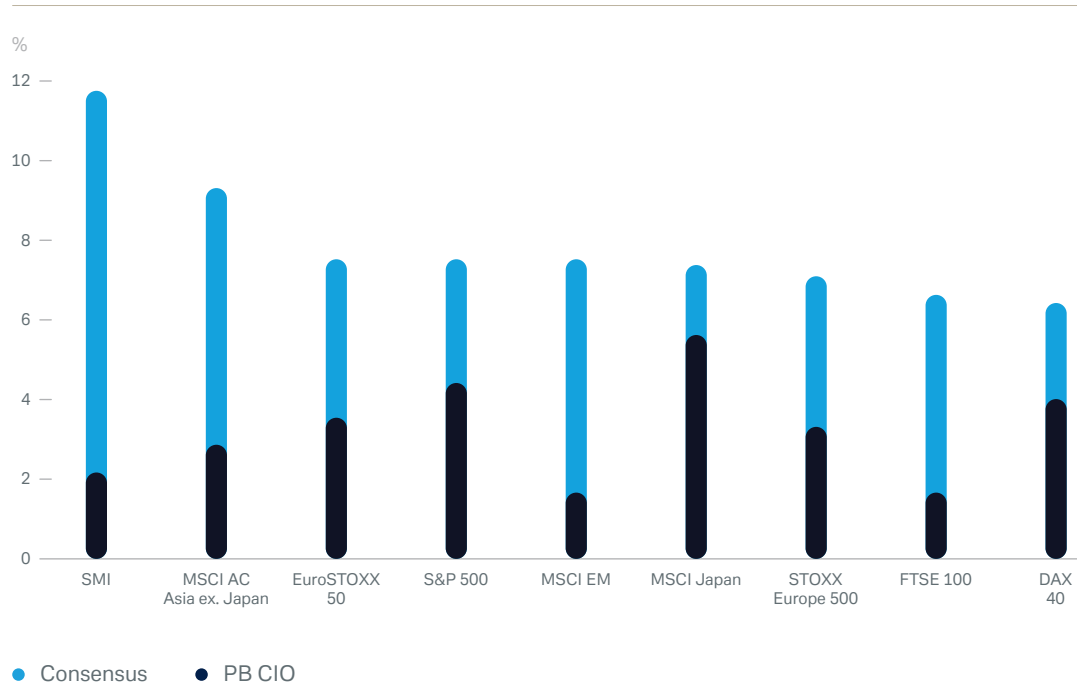
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Most DM economies are likely to remain under pressure, but we expect index earnings per share to hold up better than during past downturns.

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Figure 8: Consensus NTM EPS growth expectations too optimistic

Source: Refinitiv Eikon, Deutsche Bank AG. Data as of August 19, 2022.



We see limited upside for valuations that have recently tracked government bond yields. We forecast terminal rates above current market pricing in Europe and also suspect that the Fed and the ECB may take longer before cutting rates than the market expects. We therefore forecast that bond yields will climb again on both sides of the Atlantic. Also, we think that risk premiums baked into European stocks will remain high due to the risks of energy rationing in winter and renewed Covid outbreaks in China that could delay supply chain improvements.

Our expectations of consensus earnings downgrades and flat valuation multiples leave us with slight upside potential to our updated price targets. However, markets could certainly dip once again over the coming months, creating buying opportunities.

We see limited upside for valuations and market dips in the coming months could create buying opportunities.

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Figure 9: Equity index forecasts for end-September 2023

Source: Deutsche Bank AG. Forecasts as of August 18, 2022.

## Equity index forecasts

 S&P 500	4,200
 DAX	14,400
 EuroStoxx 50	3,750
 Stoxx Europe 600	445
 MSCI Japan	1,250
 SMI	11,150
 FTSE 100	7,350
 MSCI EM	1,030
 MSCI Asia ex Japan	660
 MSCI Australia	1,350

## Developed market equities

### Market and portfolio implications:

- DM equity markets are off their recent lows, but rally should tail off over the next months
- Another round of consensus EPS downgrades and capped valuations due to rising yields leave slight upside on a 12-month horizon
- Medium-term market trajectory is highly uncertain, but a potential setback in Q3/Q4 could create another buying opportunity

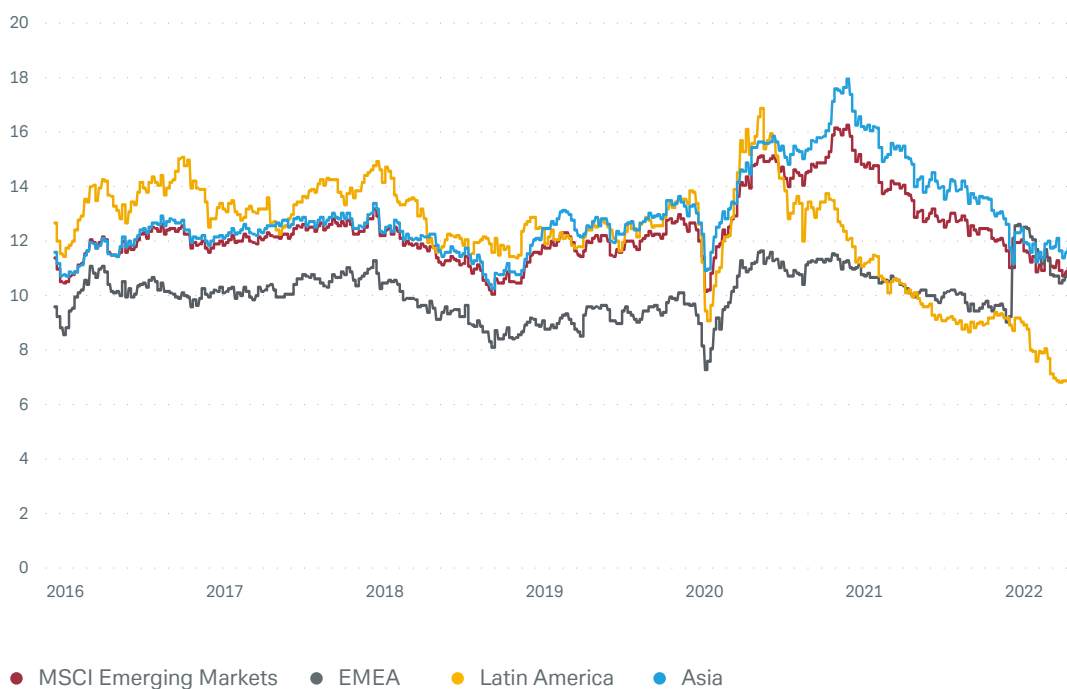


## Equities (emerging markets)

Despite the challenges of rising global commodity prices, inflation, policy rates and bond yields, EM economies have generally posted solid growth, lower inflation than in DMs, and broadly stable trade-weighted exchange rates this year. EM equities (accounting for 11% of global market capitalisation) have shown surprising resilience with limited underperformance against DM equities.

Figure 10: NTM P/E of selected EM equity indices

Source: Refinitiv Datastream. Data as of August 17, 2022.



In LatAm and CEEMEA (i.e. Central and Eastern Europe, Middle East and Africa), mounting inflationary pressures have significantly increased the risk of persistently elevated inflation. This could limit the scope of their central banks to make earlier and deeper rate cuts to stave off mounting recession fears, with prolonged tighter financial conditions ultimately dampening corporate earnings growth and stock valuations. Political uncertainty in countries such as Argentina, Brazil, Peru and Chile is another factor worth mentioning.

In Asian economies, headline inflation has risen more modestly, mainly driven by higher energy and food prices and less persistent ingredients such as real wage gains. Asian economic growth could benefit from accelerating supply chain reallocations in ASEAN and India supporting inbound foreign direct investments and ultimately boosting export capabilities.

China's future recovery path is vitally important, not only because MSCI China covers around one-third of total EM market cap (and 40% of EM Asia), but also because China is undisputedly Asia's most influential trading partner – heavily impacting cyclical Tech and Discretionary heavyweights in South Korean and Taiwanese equity markets that account for 24% of EM market cap.

We expect a U-shaped recovery in China that could gain momentum in 2023, so single-digit upside potential for EM Asia equities should translate into lower but still positive returns for EM equities in general. Key downside risks are slower export growth due to lower-than-expected external demand from DMs, further Covid restrictions in China/Asia, and a worsening Chinese property market.

## Emerging market equities

### Market and portfolio implications:

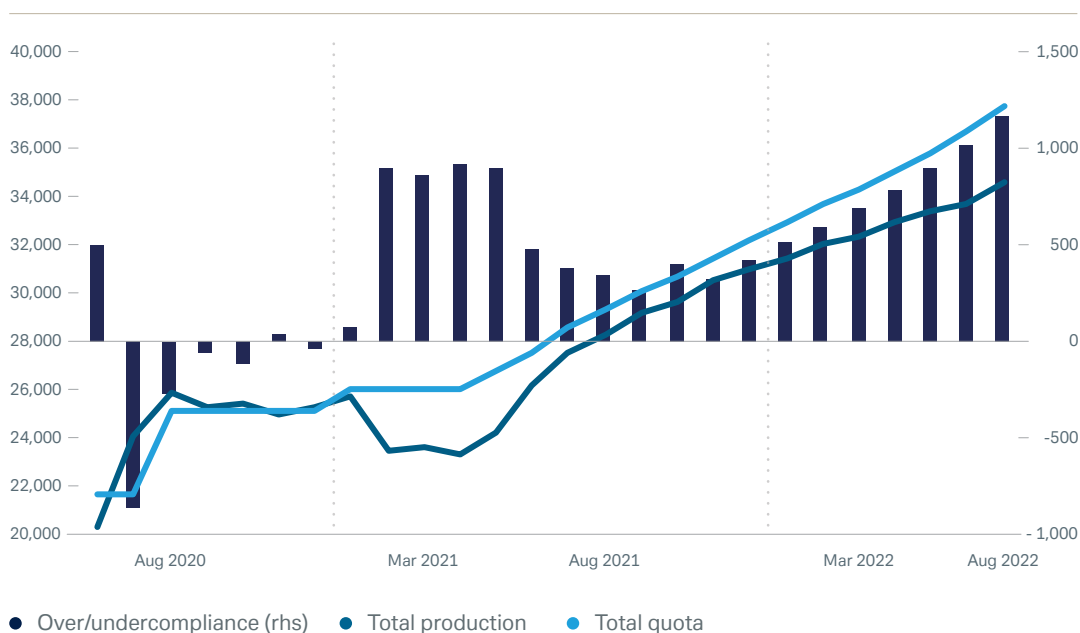
- EM equities surprisingly resilient in H1 2022, but performance gap to DM widening in H2 2022
- LatAm best performing region based on strong energy and materials exposure, but stagflation and political risks should be monitored
- China’s recovery path leading the way for EM Asia ... and beyond

## Commodities

Recession concerns sent the crude oil price below USD 100/b during August with drawdowns from the U.S. strategic petroleum reserves helping to ease supply tightness. Replenishing these reserves will, however, drive up demand in future. Overall global demand for oil is likely to remain elevated as the higher prices of other energy commodities encourage switching to oil for power generation. Also, China’s apparent oil demand data suggests further scope for post-lockdowns demand recovery. OPEC’s continued overcompliance (i.e. underproduction) relative to its agreed output and limited spare capacity makes a significant increase in the group’s output unlikely. While the increased prospect of the Iran nuclear deal being reinstated provides tailwinds, much of the impact is likely to be offset by a reduction in OPEC production quotas. As Russia has maintained high production levels and sold oil to some emerging markets, a strong decline in Russian oil production is no longer expected. Nevertheless, an impending EU and UK ban on insuring ships transporting Russian oil could dent Russia’s oil-exporting capacity and present an upside risk to prices. A potential price cap on Russian crude could also damage Russia’s long-term supply prospects.

Figure 11: Output of non-exempted OPEC members (‘000 barrels per day)

Source: Bloomberg Finance L.P., Deutsche Bank AG. Data as of July 31, 2022. Includes OPEC members covered by current production agreement.



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Base metals corrected significantly in light of the potential macro slowdown. But although the property market in China remains a drag on economic growth, a planned 27% hike in power grid spending in the remainder of this year enhances the outlook for this metals-intensive infrastructure segment in both 2022 and 2023. Grid spending accounts for around 15% of China copper demand. The energy security imperative is already strengthening the case for renewables, boosting the prospects for those industrial metals used as inputs. drag on economic growth, supply from South America will potentially remain under pressure due to social problems and water scarcity.

Central bank rate hikes and a stronger USD have weighed on the gold price. However, we expect this pressure to ease as most of the USD appreciation potential is expected to have already been exhausted and real yields are already in positive territory. Additionally, the continued geopolitical risk environment and elevated central bank bond buying should support the gold price. Figure 12 gives our end-September 2023 forecasts.

Figure 12: Commodity price forecasts for end-September 2023

Source: Deutsche Bank AG. Forecasts as of August 18, 2022.



## Commodities

### Market and portfolio implications:

- Oil prices to remain elevated on stronger Chinese demand as supply tightness continues
- Infrastructure push in China combined with energy security imperative should benefit copper
- Peak in USD strength and limited further rise in real yields should support gold

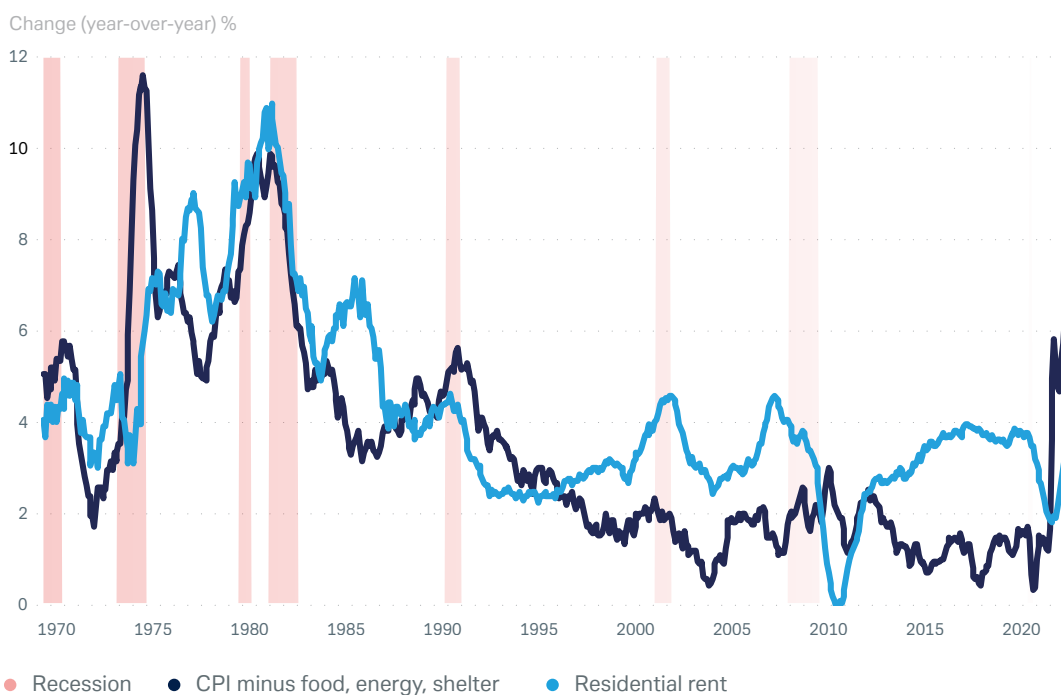
## Real estate

In recent months, the general conditions for both commercial and residential real estate have deteriorated. Rising inflation rates and a slowdown in economic growth have weakened the purchasing power of buyers and investors, while rising interest rates are weighing on valuations. Global real estate markets, however, were largely resilient in the first half of 2022, recording slower but steady price increases. The exception is China which has been suffering from a sluggish economic recovery and real estate developers' debt problems. Although a further slowdown in global price momentum is likely, we expect inflation – a double-edged sword that can dampen demand for space while pushing up rents – declining construction activity and low vacancy rates to counter the above-mentioned headwinds.

We expect the European market to post robust rental growth, but lower property yields and the rising cost of living caused by the energy crisis make the region more vulnerable to monetary tightening. APAC real estate markets are likely to be more resilient and less susceptible to volatility due to lower inflation and yield pressures. We see the greatest value gains in the U.S., where rising rents could outweigh the impact of tightening financial conditions. We remain confident about logistics and residential real estate, particularly in urban areas with limited space, as these segments are well supported by historically low vacancy rates and structural tailwinds such as e-commerce, working from home and favourable demographic shifts. Retail and office spaces, on the other hand, could bear the brunt of these changes, while also being more vulnerable to economic downturns.

Figure 13: Rents vs. inflation in the U.S.

Source: U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, National Bureau of Economic Research. Data as of June 30, 2022.



## Real estate

### Market and portfolio implications:

- Headwinds for global real estate markets have intensified in the past quarter
- Slowing price dynamics but accelerating rents
- Favour segments with structural tailwinds, low vacancy rates and inflation-indexed leases

## FX

After the Fed accelerated monetary tightening with 75 basis point rate hikes in June and July, the USD rose to a 20-year high, both according to the DXY index and against the EUR, with further gains in August. However, the Fed's action stoked market fears of a recession. The ECB's larger-than-expected first rate hike of 50 basis points failed to provide a strong tailwind for the EUR as markets continue to price a risk premium into the currency due to the sharp rise in electricity and natural gas prices in Europe. We assume that by Q3 2023 the U.S. and Europe should have emerged from recession and we believe that the market is pricing in ECB interest rate hikes too defensively. Support should come from further fiscal relief in the Eurozone. We therefore expect the EUR to recover against the USD by end-September 2023 to EUR/USD 1.05.

The widening of yield differentials between Japan and the U.S. plunged the JPY to a 24-year low. Monetary policy is likely to remain key for the JPY, and due to a possible weakening of economic momentum in the U.S. in H1 2023 we see modest appreciation potential for the JPY until September 2023 to USD/JPY 130.

Continued high inflation due to energy price cap adjustments, serious post-Brexit labour market problems and potential interruptions in electricity imports could send the UK economy sliding into recession. The policies of the incoming British Prime Minister are a source of forecasting uncertainty. The GBP seems likely to remain under pressure with the GBP/USD trading at 1.20 in September 2023.

Figure 14: FX forecasts for end-September 2023

Source: Deutsche Bank AG. Forecasts as of August 18, 2022.

EUR vs. USD	1.05
USD vs. JPY	130
EUR vs. JPY	137
EUR vs. GBP	0.88
EUR vs. CHF	1.00
GBP vs. USD	1.20
USD vs. CNY	6.95

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High U.S. bond yields are negative for CNY. Capital outflows out of China are still possible. Problems in the housing market and the dynamic zero-Covid policy could put the brakes on any possible appreciation of the CNY. We expect the CNY to trade a little weaker against the USD in September 2023.

## FX

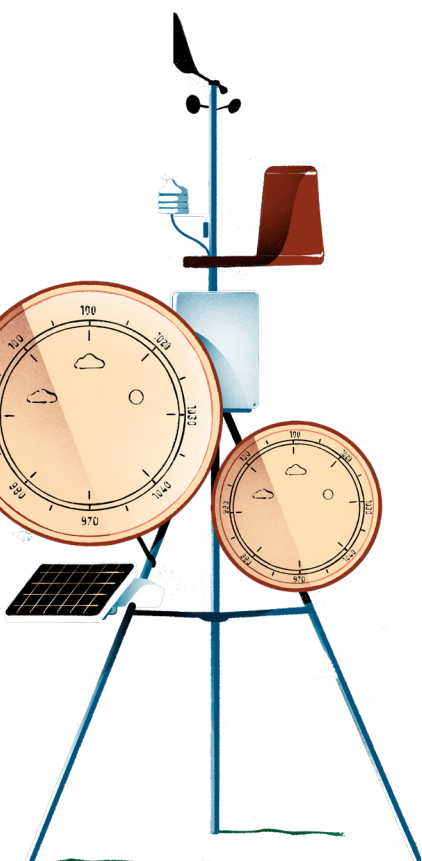
Market and portfolio implications:

- USD may be near its peak for this year, with a risk premium priced into the EUR
- JPY should benefit from a narrowing yield differential in the medium term, but the risk of recession could put pressure on the GBP
- CNY likely to continue to depreciate slightly against the USD

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Recent Fed tightening saw the USD climb to a 20-year-high but stoked market fears of a recession, while energy issues are weighing on the EUR.

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# 04

## Key investment themes



### ESG

ESG investing has moved into a new third phase characterised by a degree of consolidation and reorientation. Achieving consensus on ESG definitions and conceptual issues such as risk will be key to this new phase, as will an emphasis on disclosure. Investors want to be sure that ESG investments are making a material difference to the world we live in.



### Blue economy

Investor focus on the blue economy will continue in the run-up to the COP27 in November. We need to manage ocean development in a sustainable way that does not prejudice its ability to act as a climate change regulator. Technological advances in some areas (e.g. maritime transport) will be accompanied by financial innovation (e.g. “blue carbon” credits).



### Hydrogen

In addition to environmental concerns, high energy prices and fossil fuel supply issues (e.g. in Germany) are currently supporting hydrogen power development. Recent U.S. tax changes should also encourage growth in its green hydrogen industry. Hard-to-decarbonise industries (chemicals, steel), long-haul transport and electricity storage offer many potential uses.



### Water

Recent water shortages and river lows in many regions remind us of the threat that climate change poses to water supply, at the same time as demand is rising due to population growth, urbanisation and higher living standards in emerging economies. Traditional views around water use, investment and financing will need to be broadened to enable the acceptance of more innovative approaches.



### Resource stewardship

More sophisticated ESG methodology and a growing focus on “nature as capital” will encourage increased interest in resource stewardship. Effective management of natural resources has to be accompanied by efficient production and recycling of manufactured goods as we move towards a circular economy.



### Artificial intelligence (AI)

The AI investment landscape is likely to keep changing as technology demonstrates its problem-solving ability across multiple sectors (healthcare, mobility, fintech etc.) and the regulatory response tries to keep up. Momentum will only increase as artificial general intelligence (“deep AI”) comes closer.



## Industry X.0 (including 5G)

Digitally-driven radical reinvention of industrial and other processes (Industry X.0) continues, irrespective of investors' varying short-term sentiment towards technology stocks. 5G internet will have multiple impacts on manufacturing, agriculture and services sectors, including entertainment (e.g. computer gaming).



## Cyber security

Cyber security attacks appear to have risen sharply in recent months and pose a major threat to financial services and many other sectors. The Russia/Ukraine war has underlined the potential dangers. Advance in AI and other related technologies mean that techniques will change, with an increasing focus on cost.



## Healthcare and MedTech

The coronavirus pandemic may be contained for now, but it continues to put multiple stresses on many healthcare systems, encouraging changes in how medical support is delivered. Budget constraints will remain, but technology will offer a way forward in many areas. Venture capital and other investment remain high in anticipation of change.



## Infrastructure

Concerns have broadened out from traditional physical infrastructure to include digital, energy and water infrastructure. Substantial infrastructure investment needs will prompt new financing approaches with an increased interest in resilience, possibly through encouraging a more diverse approach.



## Millennials and Generation Z

These two groups' intertwined political and policy views (as voters and legislators) will remain important, particularly at a time when issues such as taxation levels and pension provision are under discussion. Consumption patterns may be changing, for example around tech, but remain important for long-term investment such as housing.



## Smart Mobility

Smart mobility across various transport modes (public, private and shared) will be driven by environmental concerns and high energy prices. Connectivity and real-time information provision (e.g. through 5G and GPS) will be key to new and innovative approaches, not necessarily focused on electric cars.



## Appendix 1

# Macroeconomic forecasts

	2022 Forecast	2023 Forecast
<b>GDP growth rate (%)</b>		
U.S.*	1.9	0.7
Eurozone (of which)	3.1	0.7
Germany	1.5	0.0
France	2.7	0.6
Italy	3.4	0.2
Spain	4.7	1.6
UK	3.5	-0.2
Japan	1.5	0.9
China	3.3	5.3
India	7.0	6.0
Brazil	1.5	1.0
Russia	-6.0	-1.0
World	3.1	2.8
<b>Consumer price index inflation (%)</b>		
U.S.**	4.8	3.3
Eurozone	8.2	5.0
Germany	8.4	6.2
UK	9.1	6.5
Japan	2.1	1.7
China	2.3	2.5

\*For the U.S., GDP growth Q4/Q4 % is 0.6% in 2022 and 1.1% in 2023.

\*\* Measure is average core PCE - Dec to Dec is 4.3% in 2022 and 2.6% in 2023; headline PCE (Dec/Dec) is 4.9% in 2022 and 2.8% in 2023 - average headline PCE is 6.0% in 2022 and 3.6% in 2023

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## Appendix 2

# Asset class forecasts

### Bond yield and spread forecasts for end-September 2023

United States (2-year Treasuries)	3.10%
United States (10-year Treasuries)	3.25%
United States (30-year Treasuries)	3.40%
USD IG Corp (BarCap U.S. Credit)	150bp
USD HY (Barclays U.S. HY)	550bp
Germany (2-year Schatz)	1.65%
Germany (10-year Bunds)	1.75%
Germany (30-year Bunds)	1.85%
United Kingdom (10-year Gilts)	2.25%
EUR IG Corp (iBoxx Eur Corp all)	150bp
EUR HY (ML Eur Non-Fin HY Constr.)	550bp
Japan (2-year JGB)	0.00%
Japan (10-year JGB)	0.20%
Asia Credit (JACI)	340bp
EM Sovereign (EMBIG Div.)	500bp
EM Credit (CEMBI Broad)	390bp

### FX forecasts for end-September 2023

EUR vs. USD	1.05
USD vs. JPY	130
EUR vs. JPY	137
EUR vs. GBP	0.88
EUR vs. CHF	1.00
GBP vs. USD	1.20
USD vs. CNY	6.95

### Equity index forecasts for end-September 2023

United States (S&P 500)	4,200
Germany (DAX)	14,400
Eurozone (Euro Stoxx 50)	3,750
Europe (Stoxx 600)	445
Japan (MSCI Japan)	1,250
Switzerland (SMI)	11,150
United Kingdom (FTSE 100)	7,350
Emerging Markets (MSCI EM)	1,030
Asia ex Japan (MSCI Asia ex Japan)	660
Australia (MSCI Australia)	1,350

### Commodity forecasts for end-September 2023

Gold (USD/oz)	1,875
Copper (USD/t)	9,500
Crude Oil (Brent Spot, USD/b)	100

Forecasts as of August 18, 2022.

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# Glossary

The [Bank of England \(BoE\)](#) is the UK central bank.

[Brent](#) is a grade of crude oil used as a benchmark in oil pricing.

[Bunds](#) are longer-term bonds issued by the German government.

The Composite [PMI \(Purchasing Managers Index\)](#) tracks business trends by measuring the activity level of purchasing managers in both the manufacturing and service sectors.

[Congress](#) is the bicameral federal legislature of the United States, comprising the House of Representatives and the Senate.

[COP27](#) is the 27th United Nations Climate Change Conference, scheduled to be held in Egypt in November 2022.

The [DAX](#) is a blue-chip stock-market index consisting of the 40 major German companies trading on the Frankfurt Stock Exchange; other DAX indices include a wider range of firms.

[Democrats](#) is short for the Democratic Party in the U.S., one of the two major parties.

[Earnings per share \(EPS\)](#) are calculated as a company's net income minus dividends of preferred stock, divided by the total number of shares outstanding.

The [European Central Bank \(ECB\)](#) is the central bank for the Eurozone.

An [emerging market \(EM\)](#) is a country that has some characteristics of a developed market in terms of market efficiency, liquidity and other factors, but does not meet all developed market criteria.

[EUR](#) is the currency code for the euro, the currency of the Eurozone.

The [EuroStoxx 50 Index](#) tracks the performance of blue-chip stocks in the Eurozone and includes the super-sector leaders in terms of market capitalisation.

The [Eurozone](#) is comprised of 19 European Union member states that have adopted the euro as their common currency and sole legal tender.

The [Fed funds rate](#) is the interest rate at which depository institutions lend overnight to other depository institutions.

The [Federal Reserve \(Fed\)](#) is the central bank of the United States. Its [Federal Open Market Committee \(FOMC\)](#) meets to determine interest rate policy.

The [FTSE 100](#) index tracks the performance of the 100 major companies trading on the London Stock Exchange.

[GBP](#) is the currency code for the British pound/sterling.

[Government bonds](#) are issued by a government to support government spending, mostly in the country's domestic currency and are backed by the full faith of the government.

[Headline PCE \(personal consumption expenditure\) inflation](#) tracks price changes in a basket of goods and services designed to cover all the expenditures typically made by consumers, whereas [core PCE](#) – the Federal Reserve's preferred inflation metric – excludes some volatile components. In the U.S., food and energy are excluded from core PCE inflation.

[High yield \(HY\)](#) bonds are higher-yielding bonds with a lower credit rating than investment-grade corporate bonds, Treasury bonds and municipal bonds.

# Glossary

An [investment grade \(IG\)](#) rating by a rating agency such as Standard & Poor's indicates that a bond is seen as having a relatively low risk of default.

[JPY](#) is the currency code for the Japanese yen, the Japanese currency.

[Midterms](#) are general elections held near the midpoint of a president's four-year term of office for seats in both the House and Senate chambers of the United States Congress.

The [MOVE \(Merrill Lynch Option Volatility Estimate\)](#) Index is a yield curve-weighted index of the normalised implied volatility on 1-month Treasury options.

The [MSCI Asia ex Japan Index](#) captures large- and mid-cap representation across 2 of 3 developed market countries (excluding Japan) and 8 emerging-market countries in Asia.

The [MSCI Australia Index](#) measures the performance of 60 large and mid-cap stocks that constitute approximately 85% of the free float-adjusted market capitalisation in Australia.

The [MSCI EM Index](#) captures large- and mid-cap representation across 23 emerging markets countries.

The [MSCI Japan Index](#) measures the performance of 259 large and mid-cap stocks that account for about 85% of Japanese market capitalisation.

The [NASDAQ index](#) is a market capitalisation-weighted index of around 3,000 equities listed on the Nasdaq exchange.

The [National Bureau of Economic Research](#) founded in 1920 in the U.S. conducts and disseminates non-partisan economic research.

[NextGenerationEU \(NGEU\)](#) is a major EU recovery plan, based around grants and loans, running from 2021-2023. It aims to make Europe greener, more digital, more resilient and more able to adapt to current and future challenges.

The [non-exempt members of OPEC](#) are Iran, Libya and Nigeria and they are not subject to the [OPEC+](#) production agreement.

[NTM](#) stands for next twelve months in the context of earnings and thus price/earnings ratios.

The [Organization of the Petroleum Exporting Countries \(OPEC\)](#) is an international organization with the mandate to "coordinate and unify the petroleum policies" of its 12 members. The so-called "[OPEC+](#)" brings in Russia and other producers.

[Price/earnings \(P/E\)](#) ratios measure a company's current share price relative to its earnings per share.

[Real rates](#) adjust changes of values for factors such as inflation.

The [Recovery and Resilience Facility \(RRF\)](#) is a key instrument of the NextGenerationEU recovery plan, financing reforms and investments in Member States since the start of the pandemic in February 2020 until the end of 2026.

[Risk premia](#) refer to the return in excess of the risk-free rate of return that an investment is expected to yield. It is a form of compensation to investors for tolerating the extra risk.

The [S&P 500 Index](#) includes 500 leading U.S. companies capturing approximately 80% coverage of available U.S. market capitalization.

The [Stoxx Europe 600](#) is a broad-based index that tracks the performance of 600 companies of various sizes from 17 European countries.

The [Swiss Market Index \(SMI\)](#) includes 20 large and mid-cap stocks.

## Glossary

A **spread** is the difference in the quoted return on two investments, most commonly used in comparing bond yields.

A **strategic asset allocation** process involves setting preferred allocations for asset classes on a medium to long-term time horizon.

**TOPIX** stands for the Tokyo Stock Price Index, a free-float adjusted market capitalisation-weighted index.

The **Transmission Protection Instrument** unveiled by the ECB in July is a new bond purchase scheme aimed at helping more indebted Eurozone countries and preventing financial fragmentation within the currency bloc by ensuring the smooth transmission of the ECB's monetary policy stance.

**Treasuries** are bonds issued by the U.S. government.

A **U-shaped recovery** is so-called because major measures of economic performance, such as employment, GDP, and industrial output, take on the shape of the letter "U" when charted as the economy gradually emerges from recession.

**USD** is the currency code for the U.S. dollar.

**Volatility** is the degree of variation of a trading-price series over time.

**Yield** is the income return on an investment referring to the interest or dividends received from a security and is usually expressed annually as a percentage based on the investment's cost, its current market value or its face value.

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