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DRAFT PENDING APPROVAL

GLOBAL MACRO RESEARCH — WHY CENTRAL BANKS MAY STRUGGLE TO SOLVE THE INFLATION PUZZLE

MAY 2023



OVER THE MONTHS AHEAD, HEADLINES ARE LIKELY TO FOCUS ON MODERATING RATES OF INFLATION AND GROWING HOPES THAT CENTRAL BANKS CAN START TO EASE POLICY. ALTHOUGH WE AGREE THAT THERE IS SIGNIFICANT DOWNWARD MOMENTUM TO INFLATION IN THE SHORT TERM, THE MEDIUM-TERM PICTURE IS LESS CLEAR. IF CENTRAL BANKS CUT TOO EARLY, THEY RISK THE MEDIUM-TERM OUTLOOK AND RAISE THE PROBABILITY THAT INFLATION REMAINS STUBBORNLY STICKY ABOVE CENTRAL BANK TARGETS.

EXECUTIVE SUMMARY

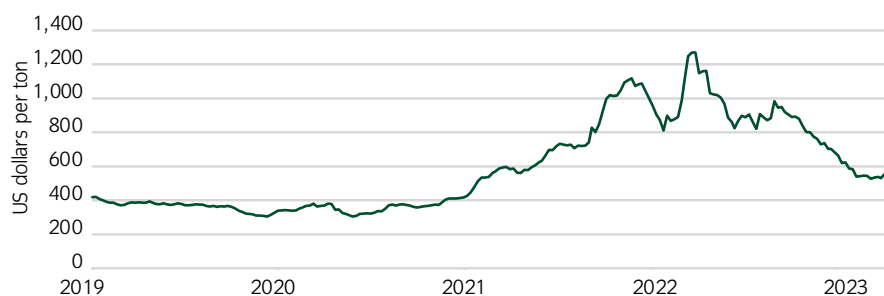
- We highlight six reasons to be positive on the short-term outlook for inflation:
 1. Food prices are moving lower // 3
 2. The energy price spike is over // 3
 3. Shipping costs have returned to pre-pandemic levels // 4
 4. The COVID-related supply chain bottlenecks have dissipated // 4
 5. China's reopening could turbo charge the disinflationary pulse // 5
 6. Manufacturing price pressures are easing // 5
- Service sector inflation is more complicated and tends to be more persistent: // 6
 - There is good news from energy prices
 - But tight labor markets suggest wages will remain a problem
- There is still an open question about inflation persistence: // 8
 - Inflation expectations remain anchored for now
 - But sticky inflation remains a problem
- If growth meaningfully weakens, central banks will be faced with a dilemma, as early cuts may prolong inflationary pressures // 9
- Longer-term inflationary pressures are building, and may make it more difficult to bring inflation back to target on a sustained basis // 10
- Ultimately, if inflation proves to be structurally sticky and economic activity meaningfully weakens, there is a risk that pressure will grow to raise inflation targets // 12

SIX REASONS TO BE POSITIVE ON THE SHORT-TERM OUTLOOK FOR INFLATION

1 FOOD PRICES ARE LOWERING

After moving sharply higher through 2022, global food prices have moderated from their highs. In its March report¹ the Food and Agriculture Organization of the United Nations noted that world food prices had declined by 20.5% from the peak levels seen in March 2022. A normalization in global fertilizer prices is likely to help maintain the disinflationary pressures in the agricultural sector (see Figure 1).

Figure 1: Fertilizer prices have declined significantly from their highs²

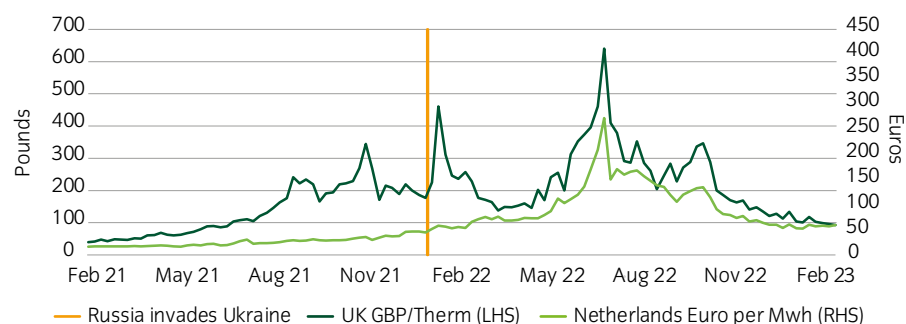


2 THE ENERGY PRICE SPIKE IS OVER

The war in Ukraine continues but the inflationary impact is no longer evident. European gas prices have dropped to below the levels they were trading at before the invasion. As the normalization of energy prices feeds into inflation statistics, UK and European inflation should be the biggest beneficiary.

Although the risk of future energy spikes is far from over, the huge inflationary impulse from the war in Ukraine has dissipated for now, and energy prices are likely to be a disinflationary force in the months ahead.

Figure 2 European gas prices have reverted to pre-invasion levels³



¹ Source: <https://www.fao.org/newsroom/detail/benchmark-for-world-food-commodity-prices-fall-in-march-for-the-twelfth-month-in-a-row/en>

² Source: Insight and Bloomberg. Shows Green Markets North American Fertilizer Price Index. Data as at 14 April 2023.

³ Source: Insight and Bloomberg. Data as of April 14, 2023.

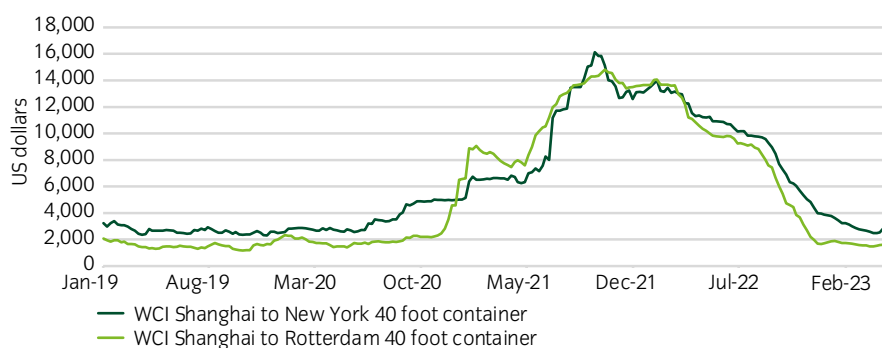


3 SHIPPING COSTS HAVE RETURNED TO PRE-PANDEMIC LEVELS

One industry that was particularly impacted by the pandemic was shipping. A heavy dependence on crew from the developing world, where vaccination rollouts were slow, resulted in staff shortages and a steep rise in global shipping costs. Businesses reliant on bulk orders of goods shipped from Asia and sold at low margins in the West found themselves faced with no choice but to raise prices.

As the impact of the pandemic faded, and newer variants weakened, so the supply of crew increased, and shipping costs started to decline. Shipping rates to Europe have returned to pre-pandemic levels, and shipping rates to the US are now only marginally higher than before the pandemic. This provides considerable relief to global supply chains and goods prices.

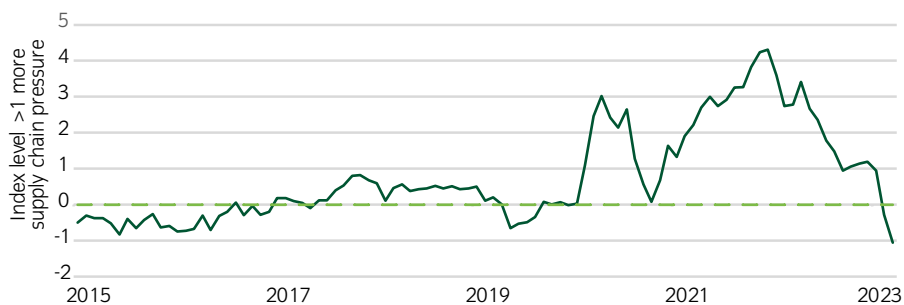
Figure 3: Shipping costs have returned to pre-pandemic levels⁴



4 THE COVID-RELATED SUPPLY CHAIN BOTTLENECKS HAVE DISSIPATED

Normalizing global supply chains already explain some of the easing in inflationary pressures into the end of 2022, but this disinflationary force is likely to continue over 2023 as supply chains continue to loosen, putting downward pressure on margins. The New York Fed global supply chain index suggests that global supply chains have now returned to pre-pandemic levels.

Figure 4: New York Fed global supply chain index⁵



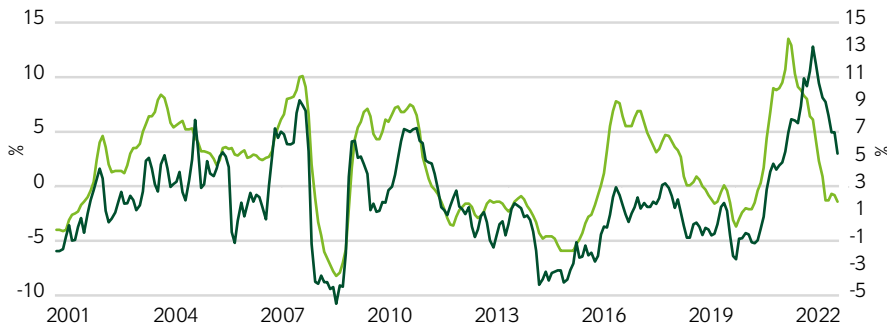
⁴ Source: Insight and Bloomberg. Data as of April 13, 2023.

⁵ Source: Insight and Bloomberg. Data as of March 31, 2023.

5 CHINA'S REOPENING COULD TURBO CHARGE THE DISINFLATIONARY PULSE

Strict COVID lockdowns in key cities such as Shenzhen, Guangzhou and Dalian saw millions of workers confined to their homes, causing production problems across a range of industries, from high tech to consumer goods. As factories reopen, major corporations will have greater visibility on supply. An improving supply picture from China should turbo charge disinflationary pressures. Compounding this impact, China's producer price inflation (PPI) has moved into negative territory, and has historically had a close correlation with US non-durable goods prices (see Figure 5).

Figure 5: China PPI and US goods inflation⁶

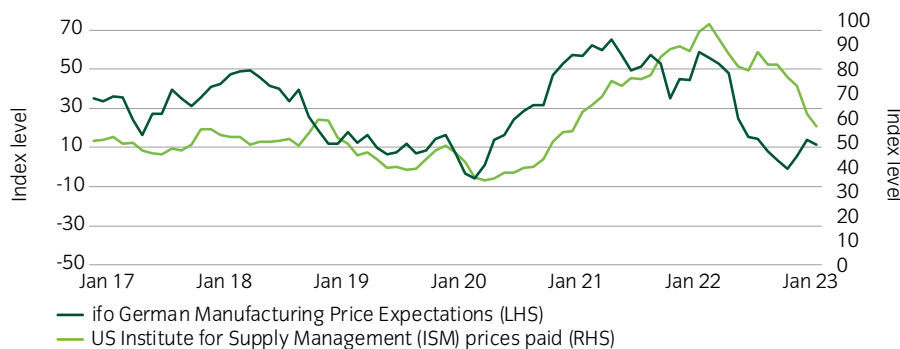


6 MANUFACTURING PRICE PRESSURES ARE EASING

The easing of global supply chain pressures is gradually feeding into the manufacturing sectors of major economies. Survey data shows a clear peak in manufacturing price pressures during 2022.

In the US, survey data from the Institute for Supply Management suggests the majority of manufacturers are now experiencing declining input costs. In Europe, the energy crisis has delayed the impact, but survey data from the Ifo Institute show the number of German companies planning to raise prices is now in decline. A similar trend is apparent across the eurozone and the UK.

Figure 6: Manufacturing price pressures are easing in the US and Europe⁷



⁶ Source: Insight and Bloomberg. Data as of March 31, 2023.

⁷ Source: Insight and Bloomberg. Data as of March 31, 2023.



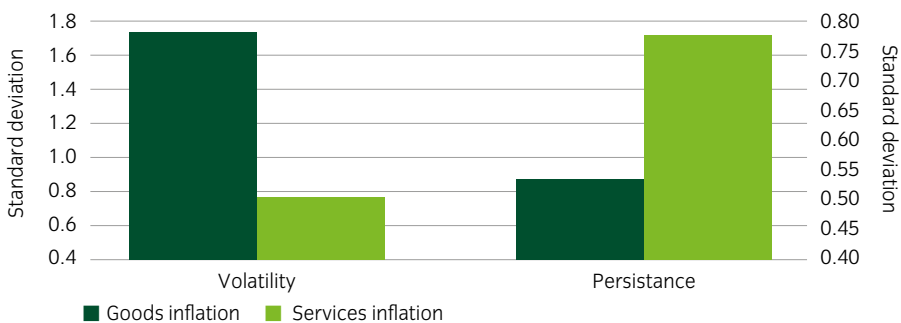


SERVICE SECTOR INFLATION IS MORE COMPLICATED

Traded goods prices, as they are reliant on international factors and input prices, tend to be more volatile than service price inflation, which tends to be based on longer-term trends in wages.

Service sector inflation tends to be more persistent than goods sector inflation, possibly reflecting a less competitive environment given the lower proportion of services that can be traded internationally.

Figure 7: More persistence, less volatility⁸



There is good news from energy prices

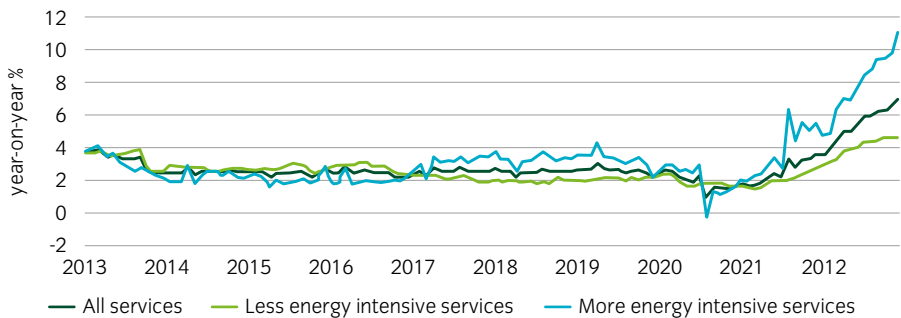
Given the extent of the move in energy prices, the costs of heating, lighting and transportation have all soared. It is likely that an element of service sector inflation will have been impacted by this – but it’s very difficult to judge by how much.

Analysis from Oxford Economics – How indirect effects of energy costs are adding to inflation, published in January 2023 – suggests that in the UK, inflation in more energy intensive services has risen considerably faster than in less energy intensive services.

As energy prices have now moderated, it is likely that inflation in these energy-intensive service sectors will start to moderate relatively quickly. In the eurozone, the ECB have done work to break down the impact on service inflation from both energy and the pandemic.

They concluded that sectors that are both contact-intensive and energy intensive (33% of service sector) account for around 2% of service inflation in January 2023.

Figure 8: Inflation has risen faster in energy-intensive services⁹



⁸ <https://www.bankofengland.co.uk/-/media/boe/files/speech/2021/december/lags-trade-offs-and-the-challenges-facing-monetary-policy-speech-by-ben-broadbent.pdf?la=en&hash=D8CDECB9AFF06D2ACD062C4EEFBC4B20D5343384>

⁹ Source: Oxford Economics, Haver Analytics.

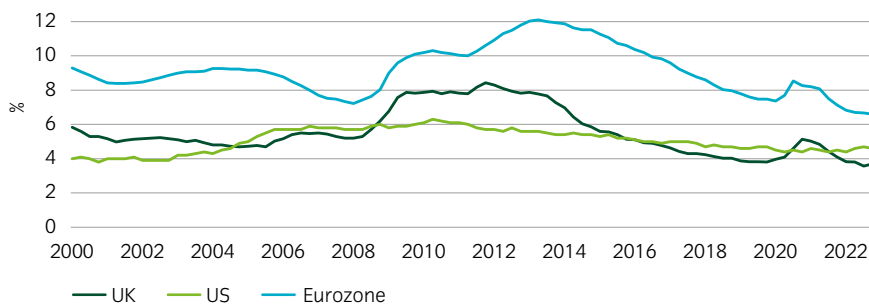
But tight labor markets suggest wages will remain a problem

Despite slowing growth, labor market indicators remain robust and unemployment rates are at historically low levels.

The transmission of tighter monetary policy to the labor market will be crucial in short-circuiting wage expectations, and of course, getting the labor market back to equilibrium. This will be key for monetary policymakers in judging whether the policy stance is appropriate.

Perhaps the most striking thing about the current labor market is the fluid rate at which people are changing job. Rather than becoming unemployed and then employed again with a gap, people are moving from employer to employer and from role to role after much shorter periods of time. This suggests the tightness in labor markets is creating competition for staff and forcing companies to poach from each other – most likely at higher wages.

Figure 9: Unemployment rates are low¹⁰



The importance of labor costs as a proportion of total costs, especially in the service sector, means that wage inflation is deeply inter-connected with price inflation. The staggered, infrequent (especially in Europe) and decentralized nature of wage setting means that it is likely to take several years for wages to adjust fully to the inflation that has already occurred.

This wage adjustment process could put upward pressure on price inflation over the next two or three years even as long-term inflation expectations remain well anchored and ultimately the long-term behavior of wages were unaffected by the inflation shock.

The effect of tight labor markets can be seen in wage growth.

Wage growth is probably past its peak and likely to slow through the year, in part due to falling inflation expectations. This is likely to be more apparent in the US and UK rather than the Eurozone given the previously mentioned tendency of staggered and infrequent wage reviews.

But the tightness in labor markets, as reflected by the unemployment rate and the jobs-workers gap, continues to imply a significant risk of wage growth not falling sufficiently to return core inflation to target sustainably over the medium term. A loosening in the labor market is required to bring wage growth down sustainably. This would comfort central banks that they have done enough, and that inflation will return and remain at target.

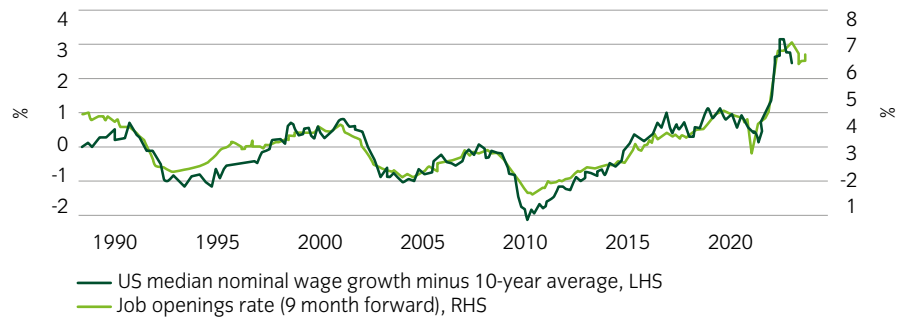
A tight labor market and moderating wage growth may not be sufficient for central banks as they would fear they are in an unstable equilibrium. As a consequence, central banks will be focused on the need to keep rates high for some time to allow for a weakening in the economy as they will remain concerned about a re-start of inflation in the future given the strength in the labor market.

¹⁰ Source: Macrobond. Data as of March 31, 2023





Figure 10: Labor market tightness remains an issue¹¹



THERE IS STILL AN OPEN QUESTION ABOUT INFLATION PERSISTENCE

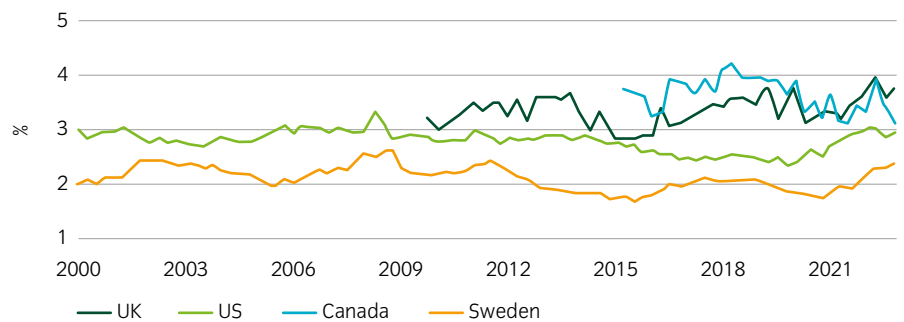
Household expectations are anchored – for now

Central Banks believe that a key task of monetary policy is to make sure inflation expectations align with their inflation target. Although recent surveys show household expectations are elevated, this is not surprising given current levels of spot inflation. This suggests that as inflation moderates, so household expectations should also subside.

Longer-term expectations suggest that household expectations remain anchored for now and central banks will take comfort that the downward sloping term structure of inflation expectations suggests that consumers continue to perceive the current spike in inflation fading over time.

The notable exception is the UK suggesting the risk of inflation persistence is greater with high inflation expectations impacting decision making.

Figure 11: Household inflation expectations¹²



But sticky inflation remains a concern

Sticky Price Consumer Price Indices are calculated from a subset of goods and services included in the CPI that change price relatively infrequently. Given their infrequent price change, they are thought by many investors to incorporate expectations about future inflation to a greater degree than prices that change on a more frequent basis.

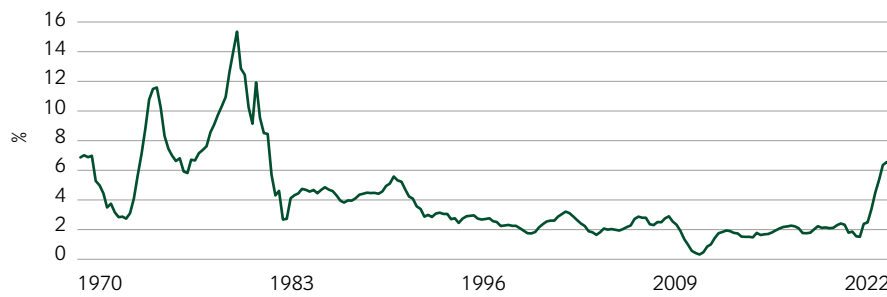
While a sticky price may not be as responsive to economic conditions as a flexible price, it may do a better job of incorporating inflation expectations. Since price setters understand that it will be costly to change prices, they will want their price decisions to account for inflation over the periods between their infrequent price changes.

This could exacerbate central bank concerns that inflationary trends are not a transitory issue.

¹¹ Source: BNY Mellon Investment Management, Macrobond. Data as of February 21, 2023.

¹² Source: BofA Global Research.

Figure 12: Atlanta Fed- sticky CPI¹³



CENTRAL BANKS ARE FACED WITH A DILEMMA

Monetary policy operates with a lag...

Studies broadly agree that impact on growth peaks after two to three quarters, and the impact on the level of GDP peaks after approximately five quarters. The ECB estimates that, on average, inflation declines by around 0.3 percentage points and output by 1 percentage point at the peaks of the respective impacts. The range of estimates is large in terms of peak/total impact and lags.

It should be noted that Europe is behind in terms of the transmission of tighter monetary policy, as the tightening started later than in the US and UK. Most of the impact of the tightening of policy by the ECB is expected to materialize during 2023.

MPC member Ben Broadbent estimated a similar impact on growth in the UK. In October 2022 he estimated that if UK rates reached 5.5% (as priced by the market at the time), the cumulative impact on GDP of the entire hiking cycle would be just under 5% – of which only around one quarter has already come through.

Figure 13: ECB: Economic impact of 100bp monetary policy¹⁴

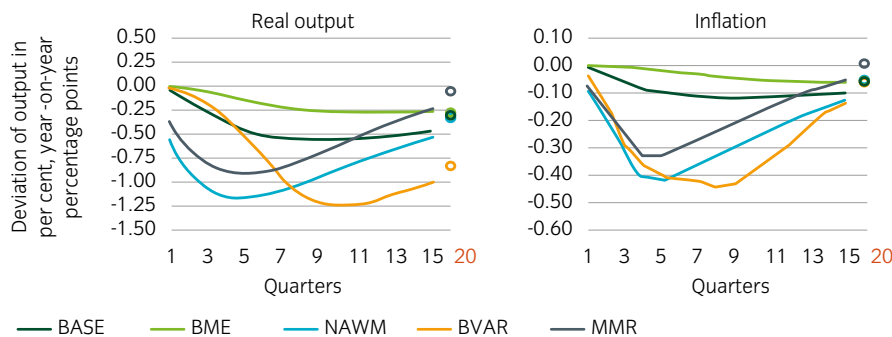
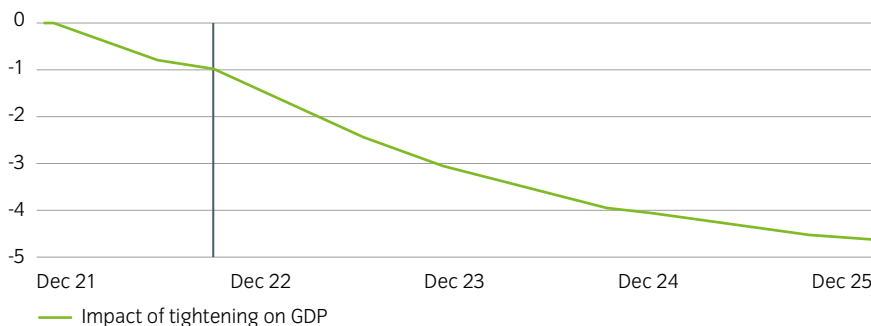


Figure 14: BoE: Cumulative impact on GDP if rates reached 5.5%¹⁵



¹³ Source: Insight and Bloomberg. Data as of March 31, 2023.

¹⁴ Source: ECB. Note: ECB model is the "BASE" model.

¹⁵ Source: Bank of England.





... meaning central banks have a complex pay-off to consider

Globally, with unemployment low and even falling and headline inflation rising, it was relatively easy for central banks to deliver a hawkish message on the need to tackle inflation, despite a worsening forecast outlook for economic growth. As the deacceleration in headline inflation gathers pace in the next few months, it is likely to coincide with a softening in labor markets and a rise in the unemployment rate as the lagged impact of monetary policy starts to come through.

2023 is likely to be a more challenging time for central bank communication.

Communicating a need for a tight monetary policy because core inflation was a concern is more of a challenge. Central banks may find themselves under increasing political pressure to stop any further policy tightening and even relax policy as headline inflation moderates from recent extreme levels to one that is closer to target.

Figure 15: Falling inflation, rising unemployment¹⁶

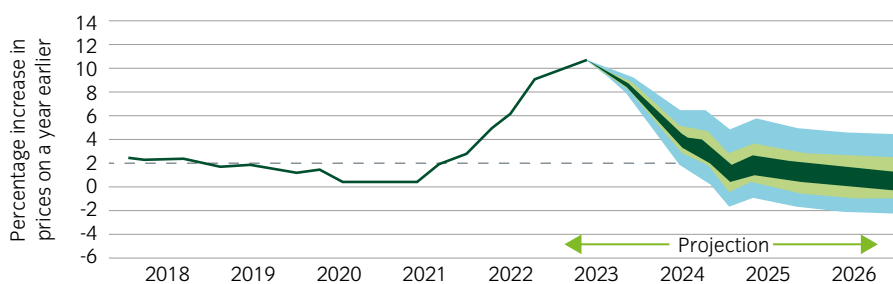
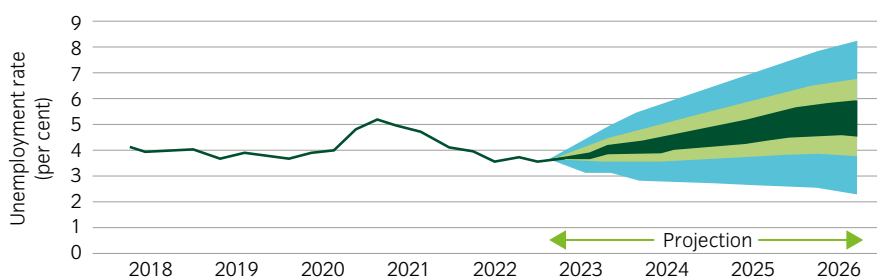


Figure 16: Falling inflation, rising unemployment¹⁷



LONGER-TERM INFLATIONARY PRESSURES ARE BUILDING

The deglobalization problem

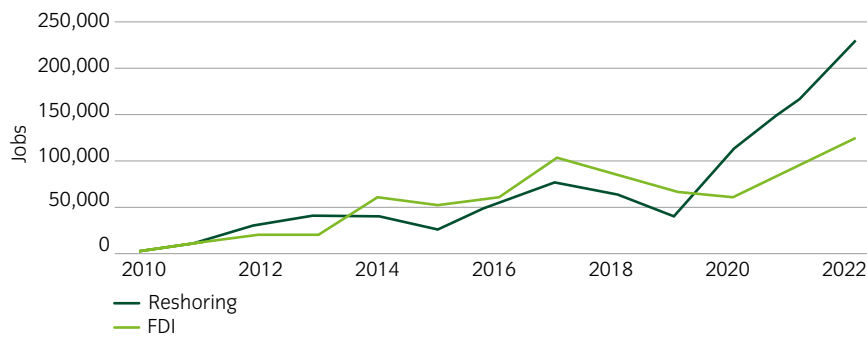
The rapid breakdown of global supply chains that occurred during the pandemic, and the realignment of global politics after the war in Ukraine are likely to see a deeper re-assessment of production models.

At the same time, a focus on decarbonisation and more sophisticated assessments of corporate carbon footprints, are likely to decrease the appeal of long-distance transportation for goods in future. This means that the lower costs and efficiency of globalized, just-in-time supply chains may no longer be a model that works as effectively for many multinationals as it did in the past.

^{16, 17} Source: Bank of England Monetary Policy Review.

These factors have led to a sharp increase in the number of US jobs being created from corporates reshoring production from abroad. As a result, we may be at the start of a longer-term trend which sees the disinflationary force of globalization gradually give way to the more inflationary force of deglobalization.

Figure 17: US jobs created from reshoring are now in excess of those from FDI¹⁸

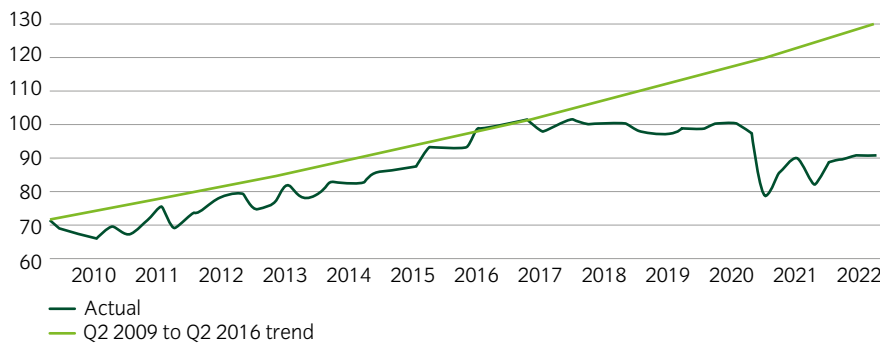


In the UK, Brexit remains an issue

The House of Lords Economic Affairs Committee in its report “Where have all the workers gone?”¹⁹, published in December 2022 noted that:

“Changes to the structure of migration have had an impact on vacancies, which recently hit record high levels. In recent years many EU workers, who filled lower paid roles (especially in sectors like agriculture and hospitality), have left the UK. In numerical terms, their departure has been counterbalanced by the arrival of non-EU workers, who were granted visas under the new immigration system which prioritises skilled workers. This has contributed to a mismatch within the labor force, accentuating vacancies and labor shortages in certain sectors.”

Figure 18: UK business investment relative to trend²⁰



¹⁸ Source: Macrobond. Data as of January 31, 2023.

¹⁹ <https://committees.parliament.uk/committee/175/economic-affairs-committee/news/175197/early-retirement-and-our-ageing-population-are-causing-labor-shortages-says-lords-report/>

²⁰ Source: Financial Times.



CONCLUSION

Inflation has peaked globally and is widely expected to decline over the course of 2023. Although welcome news for the world's central banks there is still significant uncertainty ahead. In our view, there is a significant difference between the short-term and medium-term outlooks, and there is significant uncertainty as to how central banks will react to each. Ultimately this will come down to four key questions, the answers to which will become clearer in the months ahead:

- 1. How low can inflation go in the short-term?** At the start of this paper, we outlined six reasons to be positive on the short-term outlook for inflation. Some of these factors have significant momentum and there is a scenario in some countries where headline measures of inflation could turn negative.
- 2. Will central banks move too quickly?** Major central banks are approaching the end of their tightening cycles to various degrees. Faced with inflation potentially rapidly converging with target in some cases, pressures are likely to build to ease rates. This is likely to be exacerbated if economic data proves softer than expected.
- 3. Where will inflation normalize to in the medium term?** As the disinflationary factors we have outlined fade, inflation will normalize and establish a new pattern. We believe it is unlikely that inflation will revert to the low levels experienced in recent decades. With globalization turning to deglobalization, the longer-term outlook for inflation has deteriorated, and there are various other factors that could compound this. In part, the medium-term outlook will also depend on how central banks react over the next 12-18 months. Cutting too early will likely result in inflation normalizing at a higher rate than if central banks maintain their focus.
- 4. How will central banks react if political pressures grow?** If inflation proves to be structurally sticky above central bank targets in the medium term, then central banks will have to maintain rates at restrictive levels, and this will have consequences for growth. A period of sub trend growth may be the acceptable pay-off to keep inflationary pressures in check, but this becomes more complex if growth weakens more meaningfully. There is a risk that political pressures grow and that inflation targets are potentially increased to accept higher levels of inflation.

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