

More pain to come from lagging monetary policy impacts

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Executive summary

Last year's aggressive monetary tightening will continue to weigh on the level of GDP for the rest of this year, and the transmission to inflation will be even slower. Barring further deterioration in financial conditions, this supports our baseline view of weak growth in the major advanced economies and sticky core inflation.

Our modelling finds no evidence that the pass-through of monetary policy has sped up recently in contrast to other studies. Our findings are consistent with the lengthening of household and businesses' debt maturity in recent years. However, post-pandemic changes in the labour market may mean that inflation has become more reactive to changes in economic activity when they eventually occur.

But we do find evidence that the impact of monetary policy on growth may have weakened. This likely reflects the lessening influence of monetary policy on wider financial conditions. Recent bank funding turmoil is a good example of the factors that can drive a wedge between the two. But it also likely reflects the interest rate insensitive reopening impetus that is driving this cycle.

The lags associated with monetary policy combined with central banks' focus on current – as opposed to forecast – inflation heightens the risk of sharp policy pivots. If policymakers are impatient to see their impact on growth and inflation, then they could overtighten. Waiting too long to see the impact of policy come through risks a prolonged period of above target inflation.

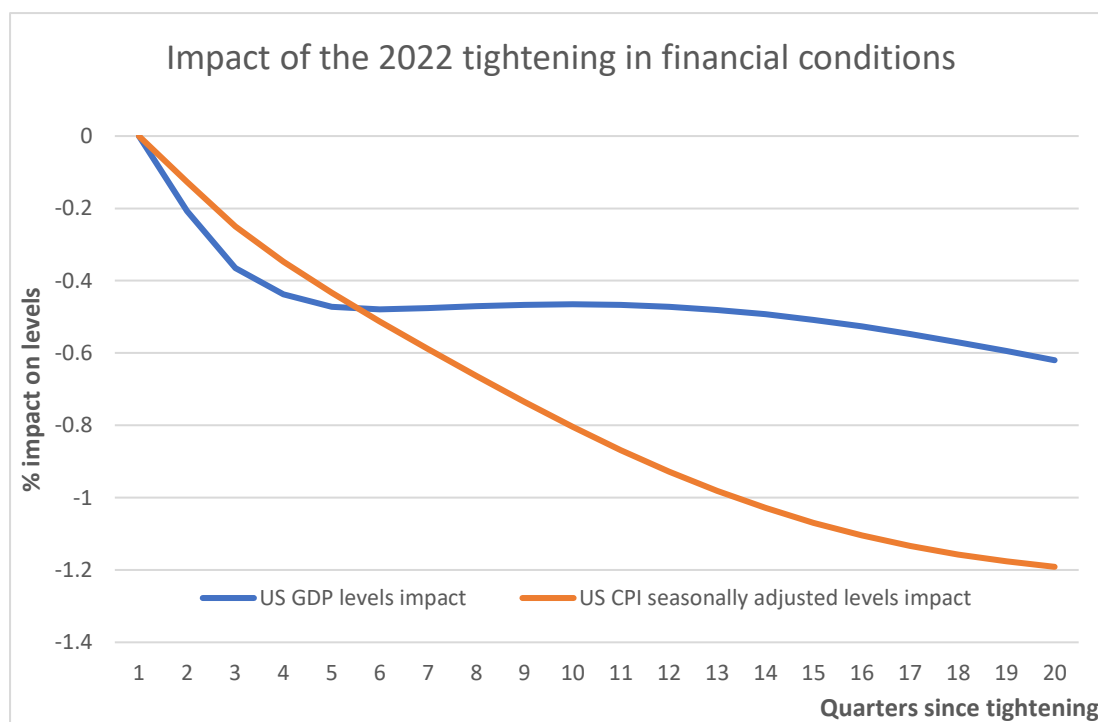
Policymakers face a huge challenge to strike the right balance, especially in light of the recent volatility in markets. But overall, we think near-term core inflation will prove stickier than the market expects due to the long lags associated with monetary policy.

Introduction

How quickly and to what extent monetary tightening feeds into GDP growth and inflation is the central question for the 2023 and 2024 outlook. [Some argue](#) that the pass-through of monetary policy is now much shorter, implying that the impact is already evident in the hard data from the turn of the year. It follows, according to this argument, that the economy must have had more momentum than previously thought such that, unless monetary policymakers tighten more, the economy will not slow down significantly and inflation will remain persistently high.

To cross-check our view of a mild downturn and slowly moderating inflation, we modelled the impacts of monetary policy and how they might have changed in the wake of the pandemic (see Box 1 for methodology). In short, we find little evidence that the lags of monetary policy have shortened – we estimate the peak impact on GDP levels occurs only after 12-18 months and much later for prices (**Chart 1**). This supports our view of weak economic growth later in the year in the US and a weak recovery in the UK and eurozone.

Chart 1: The impact of monetary policy on GDP and inflation is still very lagged



Source: Author's calculations

Financial conditions matter

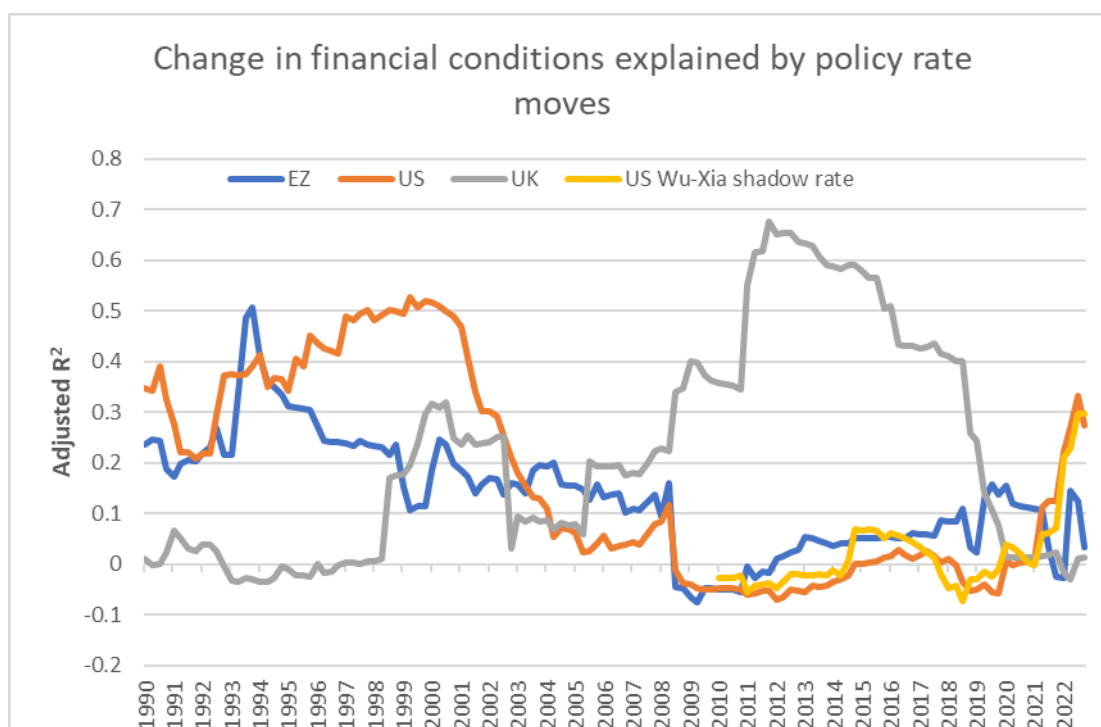
The main way that central banks influence demand and inflation is through broader financial conditions. Tighter monetary policy will have a bigger impact on consumers and businesses the more it pushes up rates across the yield curve and dampens equity markets and leads to domestic currency appreciation.

The feed-through of policy into these broader settings is the first phase of monetary policy pass-through and the focus of those that argue monetary policy is acting more quickly now than it has in the past. While this would certainly make intuitive sense in an era of forward guidance and ongoing asset purchases or sales, at a quarterly frequency it's hard to see a quicker pass-through in the data.

However, what is evident from the data, is that up to the failure of Silicon Valley Bank, how little financial conditions had tightened despite one of the most aggressive monetary tightening cycles in living memory. Our European financial conditions indices have constricted from extremely loose levels in mid 2021 to only mildly restrictive levels. In the US, conditions are slightly tighter, similar to those at the start of the pandemic, but nowhere near the tightening seen in 2008-2009.

Testing this empirically by running 10-year rolling regressions demonstrates that the proportion of movement in broader financial conditions that are explained by movements in the policy rate or broader measures of the monetary policy – such as the Wu-Xia shadow rate in the US – has been falling over the long term. There is some evidence of policy's influence rising more recently (**Chart 2**), but it's more surprising that policy rates haven't had a greater influence on markets given the huge tightening underway.

Chart 2: Monetary policy moves explain less and less of the movement in financial conditions



Source: Author's calculations

Reasons for this long-term trend aren't clear. Financial stability concerns will have played a significant role in determining financial conditions between 2007 and 2010, as they are doing now, but this can't really explain the long-run trend. At the same time, financial conditions indices (FCI) remain highly correlated with coincident and forward-looking indicators of the economy suggesting that markets pay attention to fundamentals directly as well as policymakers' interpretation of those fundamentals.

Repeating this empirical exercise for the components of our FCI reveals that it is fixed-income markets – the government curve and credit spreads – that seem to have become less responsive. This is consistent with the widely noted divergence between credit spreads and economic fundamentals. At the same time, movements in the equity market remain very responsive to changes to the discount rate, as do house prices, compounding the lack of influence for policy rates.

Fixed-income markets may have become empirically less responsive due to the rise in verbal guidance from central bankers; the glut of international capital relative to available supply of sovereign debt; or markets reacting more to fundamental economic data as uncertainty around the economic outlook has risen. But whatever the reason, it emphasises the need to look at broader financial conditions to assess the impact of monetary tightening, particularly in economies that rely heavily on market-based funding for firms.

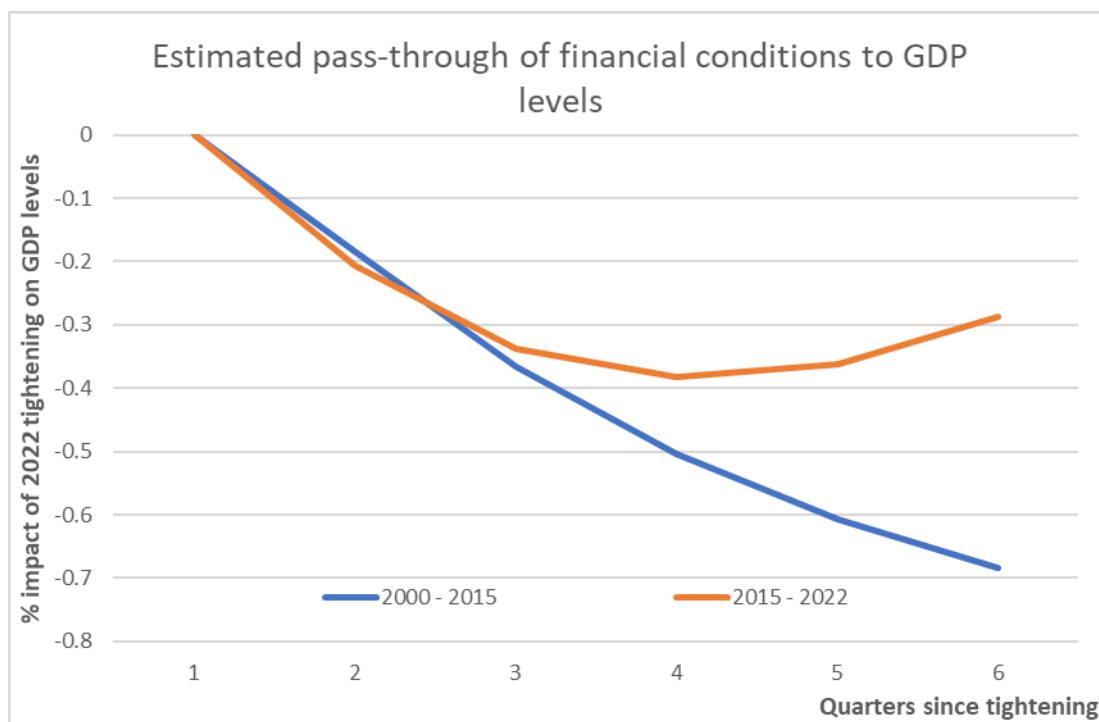
It takes time for financial conditions to have even a small impact

Assessing the impact and timing of changes in financial conditions on the economy is crucial to the outlook. Only by understanding the influence of monetary tightening can we judge whether the economy has been resilient because of its underlying momentum or because we are yet to see the full force of policy exert itself. To do this we estimated a Bayesian VAR model – in line with the best practice in the literature – over a variety of advanced economies and time periods.

The first point to emerge from the analysis is uncontroversial, but probably needs restating in the current climate: **monetary policy takes at least 12-18 months for the peak impact on GDP levels to occur** and five years for the peak impact on price levels (**Chart 1**). While the timing and scale does vary by country, the phasing of the impact tends to be pretty slow, with only 50% of the impact occurring until at least three quarters after the initial shock in the US – and even later in other countries.

Second, **there is little evidence that the pass-through of financial conditions to the economy has sped up recently**, as some claim. Re-estimating our models for a more recent time period shows a pretty similar pass-through over the first three quarters at least and certainly no statistically significant differences (**Chart 3**).

Chart 3: Monetary policy still takes time to take its toll



Source: Author's calculations

This result is intuitive when you consider that the initial confidence effects of monetary policy are unlikely to have changed, but the composition of debt – central to medium-term impacts – has changed materially. Having had an extended period of low rates after 2008-2009 and the taste of a hiking cycle between 2015 and 2019 in most advanced economies, firms and households have minimised refinancing risk by extending their debt maturity and fixing rates at low levels.

In 2007, US-listed companies had about a quarter of their debt maturing within two years. Now, that is just 12% (**Chart 4**). For households, the largest aggregate source of debt is mortgages and in almost all advanced economies the proportion of variable mortgages has fallen substantially over the past 15 years. In the US, adjustable-rate mortgages made up 45% of loan applications in 2005 – today they make up 15%. In the UK, too, initial variable-rate mortgages made up 71% of the stock of mortgages in 2012 and only 16% in 2022. In those economies that have not seen a shift toward fixed-rate debt – such as Sweden and Canada – the impact of this tightening cycle on the economy and the housing market is far more significant. In both economies, we expect sizable contractions in 2023 as a whole, in contrast to the US, UK, and eurozone.

Chart 4: US corporate debt maturity has lengthened considerably

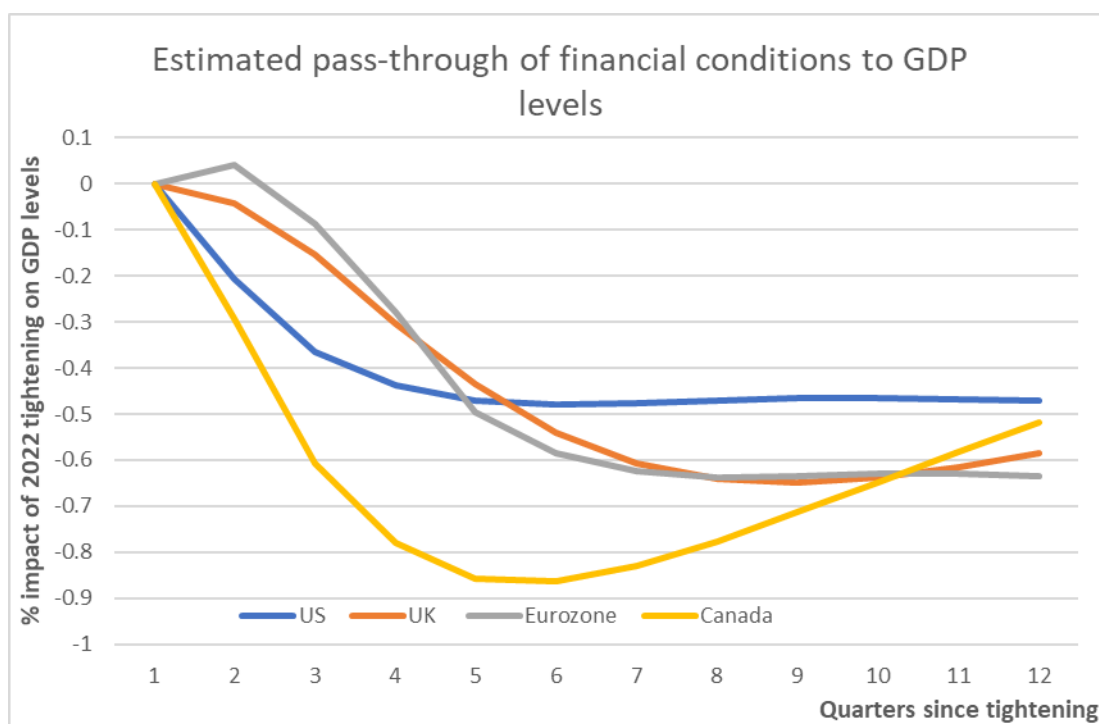


Source: Author's calculations using S&P data

A recent Bank for International Settlements study suggests that the impact on consumer spending to rising rates is five times greater – and more immediate – when most mortgages are variable rather than fixed-rate loans. Coupled with the fact that household debt as a proportion of income is now lower in most advanced economies than it was in the late 2000s, this confirms the case for a weaker pass-through of monetary policy in the near term.

This result is also replicated in our analysis which sees a higher degree of pass-through for Canada and the European economies compared with the US, reflecting higher debt to income ratios (**Chart 5**). Impacts in European economies are found to be larger in the long term, which may reflect the slower pass-through of policy via bank lending (which is a larger part of the funding mix in Europe) as well as medium-term debt maturity. The US has probably the longest debt household debt maturity with 30-year fixed rate mortgages forming the majority of borrowing but over the first 3 years of pass through this is unlikely to mature, limiting the size of pass-through.

Chart 5: Monetary policy impacts vary substantially by country



Source: Author's calculations

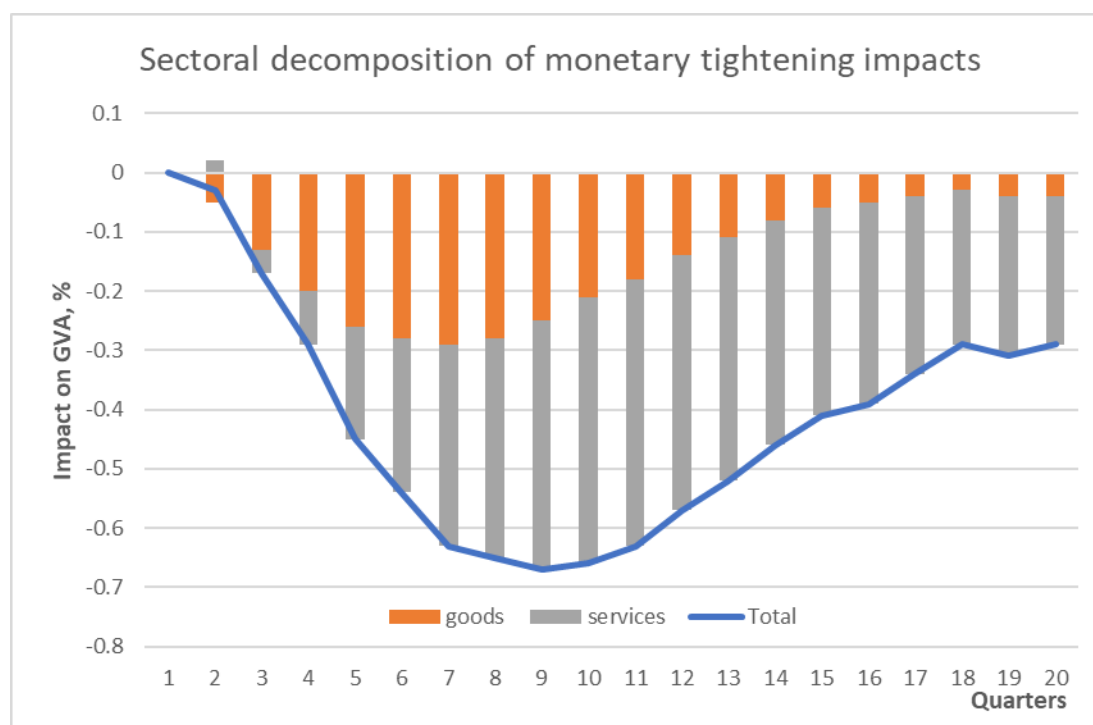
Finally, the relatively small impact of monetary tightening on the economy is an important point to consider for the outlook. It is often implied that monetary policy is hugely impactful on growth and inflation (as well as being quick to act), but as our estimates show, even the current tightening cycle would be better described as a headwind to growth rather than the only factor determining the outlook. That is largely down to the small impact movements in policy rates have had on financial conditions. We estimate that historically a 100bps rise in policy rates might have knocked around 1% off of GDP. But in 2022, despite policy rates rising by between 250bps and 400bps in advanced economies, financial conditions only deteriorated by 0.5 standard deviation which implies a hit to growth of only 0.5%. That is a huge dent to the impact of monetary policy thanks to a weakening influence on financial conditions. But it does echo our previous work which suggested that the effects of policy rate movements on the economy (so both phases of pass-through combined) were limited.

Put another way, consider only the impact via the housing market – a key channel for the UK monetary policy transmission. In 2007 the stock of mortgage debt was around 20% higher than the level of nominal consumption. In 2023 they are broadly equal. This implies that for a given increase in the effective mortgage rate, the impact on consumer spending is 17% lower now than it was in 2007. When you factor in the much slower speed of transmission from policy rates to the effective mortgage rate due to fixed rate deals, which gives households time to compensate, it is clear that monetary policy will be less effective nowadays (at least in the first few years of tightening).

But monetary policy's weakening power is also likely to be the result of the pattern of growth in this cycle. Our sectoral decomposition of the impact of monetary tightening shows that it is the GVA of the goods sector which is most impacted initially, with the impact on the services sector coming later.

In the context of the current monetary tightening, happening at a point when the reopening boost to the economy and supply constraints remain very strong, it is not surprising that the initial effects of monetary tightening are hard to detect. For example, in the eurozone services spending has driven approximately 70% of the cumulative GDP gains since the end of 2021 despite only accounting for roughly 30% of GDP. With the impact of higher rates coming through on this important driver of growth with a greater lag (**Chart 6**), it is completely intuitive that the impact of policy might be dulled at least initially.

Chart 6: Sectoral decomposition of the impact of 100bps monetary tightening



Source: Author's calculations

This emphasises the importance of the current banking-related turmoil in markets if it persists. Eventually, it could have an impact on credit conditions and the supply of credit to the real economy, with material consequences for growth. Up to now, the relative impact of the real income squeeze and inventory cycle adjustment on growth must have been high if the growth slowdown attributed to monetary tightening (around 0.5ppts) is quite modest.

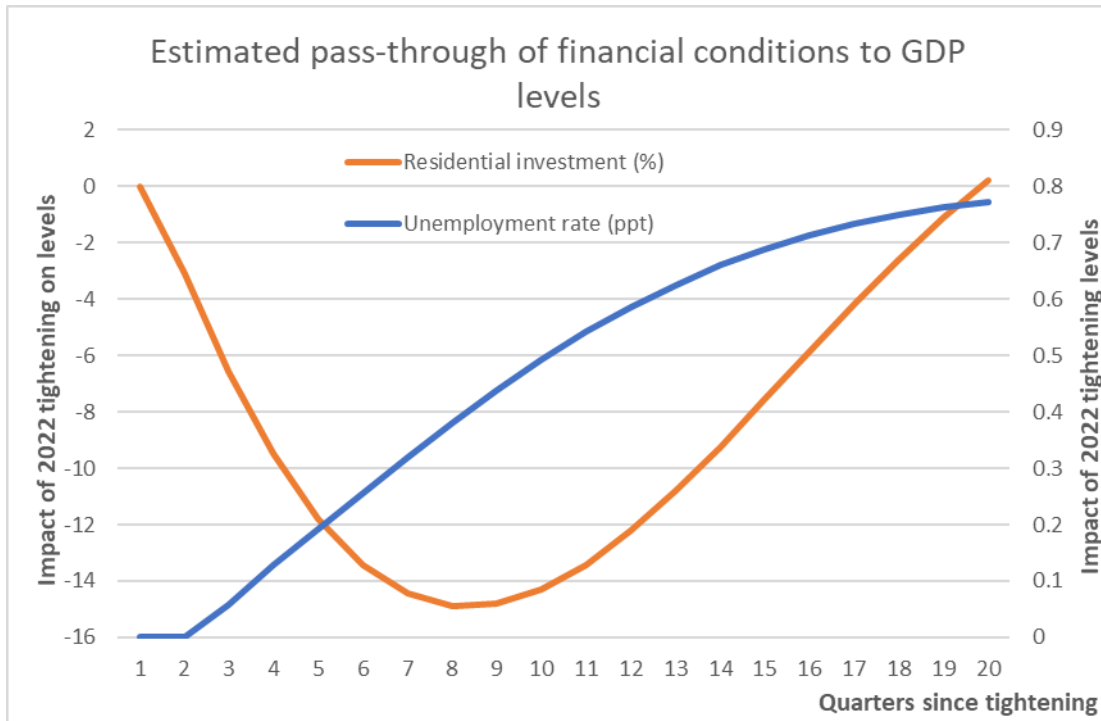
Implications for the outlook

These results broadly confirm the shape of our baseline forecast. In the US and Europe where private sector debt hasn't risen substantially, a modest impact and long lags argue for a weak outlook into the second half of the 2023. As we have argued previously, the tightening in bank lending standards and credit conditions suggests further impacts on growth from the monetary tightening to come. In Canada, Sweden and other economies with highly indebted private sectors, the growth outlook is materially worse.

One of the challenges with gauging the growth outlook is the range of conflicting messages from different sectors, but these too can be explained by the differing pace of transmission. Typically, housing and commercial property are quickest to react to higher rates, and the recent data continue

to paint a gloomy picture. In contrast, we estimate the pass-through to the labour market to be very slow with not much impact on the unemployment rate seen within the first year (**Chart 7**). Arguably, this tallies very well with what we continue to observe in the economic data at the moment.

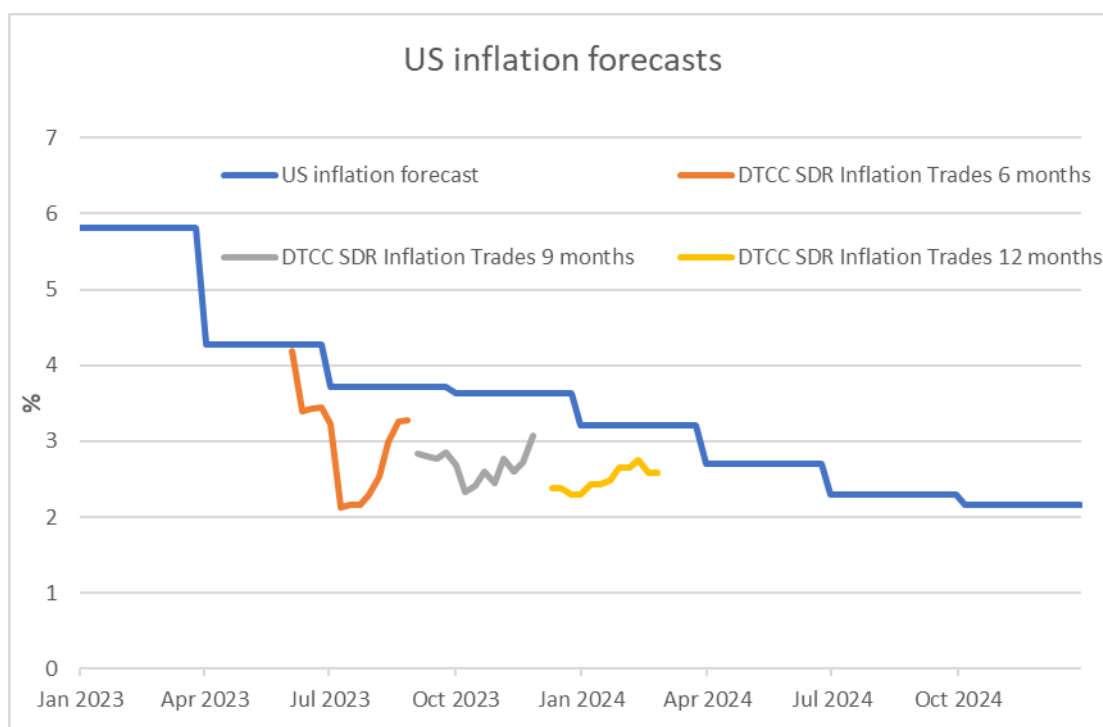
Chart 7: Monetary policy affects housing first, the labour market much later



Source: Author's calculations

As we have noted, the lags with respect to the inflation impact are also much longer, and this is consistent with our forecast for sticky inflation in 2023, at least compared with market pricing (Chart 8). Eventually, we do see inflation turning much weaker but not until later in 2024 and 2025. That leaves scope for monetary policy to be tightened further in the months ahead as inflation proves stubborn and growth weakens only modestly from here.

Chart 8: Our inflation forecasts are above current market pricing



Source: Author's calculations using Macrobond

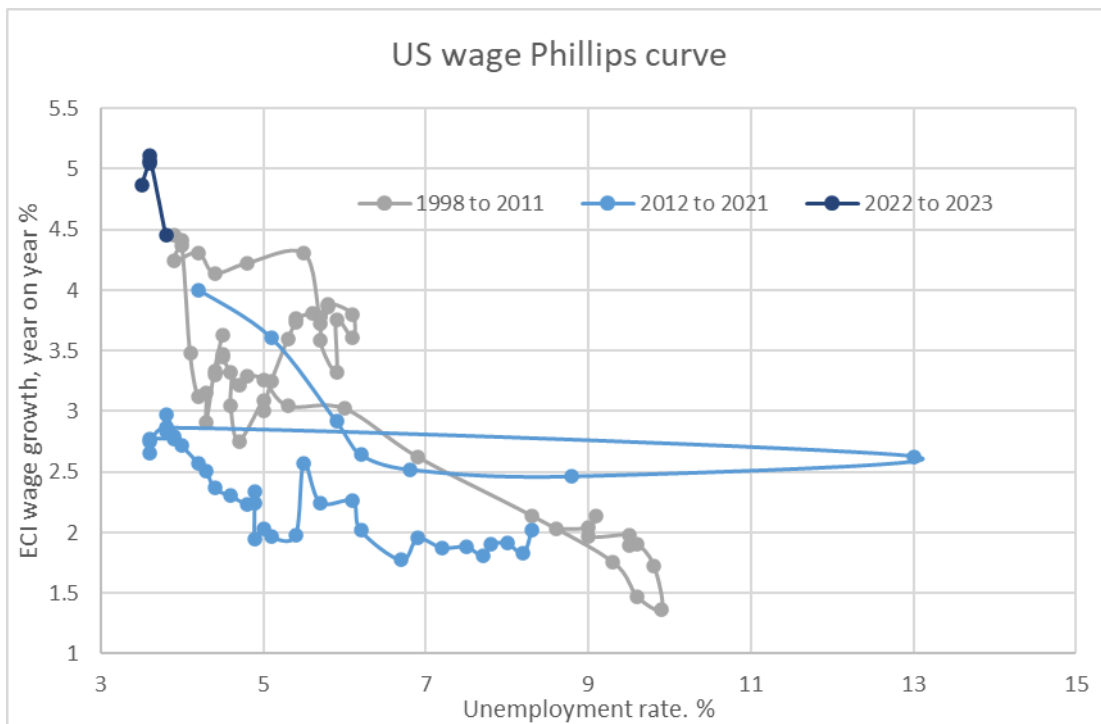
Could this time be different?

Like all empirical analysis, we have estimated average relationships that we can observe in historical data, and therefore a key caveat is the extent to which relationships may have changed very recently. Overall, we think that the sample periods for our estimation represent a relatively accurate guide to the immediate future, but we must also consider where they may evolve.

The most obvious challenge is that the pandemic and subsequent period of high inflation has brought about changes to the drivers of growth as well as the functioning of the labour market which may alter the pass-through of monetary policy. While changes in the pattern of demand will normalise over time, the changes in the labour market are more uncertain.

Specifically, the slope of the Phillips curve (**Chart 9**) – which is crucial to the effectiveness of monetary policy – may have changed. It is too early to draw definitive conclusions, but the curve may have shifted (moving upward) due to higher inflation expectations or it could have pivoted to a steeper part of the curve (an extension of the blue line), reflecting binding supply constraints.

Chart 9: Has the Phillips curve moved?



Source: Haver Analytics

Understanding the reasons for any shift are key to understanding the implications. If the movement is a shift, reflecting higher inflation expectations, then it would argue for less of an impact from tighter policy and ultimately stickier inflation including via higher wages. However, if the movement is a pivot to a higher part of the same curve, then it could reflect a heightened sensitivity of wages to labour supply constraints. In that world, inflation would prove more susceptible (eventually) to monetary tightening.

Overall, the risks to our inflation forecast seem relatively balanced. But they do highlight the uncertainty in which policymakers are operating. That poses huge challenges for setting policy appropriately, especially given the lags associated with policymakers' main tool, which remain very long.

Methodology: Estimating monetary policy pass-through

We estimate vector auto regressions for the US, Canada, the UK and eurozone from 2000 to the end of 2022. The sample is deliberately restricted to inflation targeting regimes. We estimate a range of specifications but here we report the results from the Bayesian VAR with shrinkage priors between 0.5 and 1. The results are broadly robust to different specifications and movements in the estimation period.

The models include GDP levels, seasonally adjusted inflation levels, financial conditions indices, inflation expectations, oil prices and (exogenously) world demand in a country's export markets. This is in line with the functional form recommended by the BIS' recent meta-analysis of empirical studies of pass-through.

The financial conditions indices are constructed using the first principal components of government curve, equity prices, house prices, money supply, broad trade weighted FX rates. Crucially we ensure that the level of rates as well as spreads are covered. This is important to make sure that the cost of funding as well as the perception of credit risk is incorporated into the model. The financial conditions indices used in this work correlate closely with our published FCI estimates.