The inflation outlook: What's changed?

US stimulus makes a sustainable, gradual inflation rise more likely

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Key points

- Detailed inflation outlooks last year forecast subdued inflation in 2020 and 2022, with a short-lived bounce in 2021. For most economies we stick to that view.
- In the US, the outlook has changed following huge fiscal stimulus, bringing forward the prospect of recovery. The Federal Reserve has also changed its inflation target.
- Faster US growth would close the output gap sooner. This will drive inflation higher, but 'cyclical' price pressures constitute just 40% of the inflation basket with healthcare, housing and other price components making up the rest. We forecast PCE core inflation to close 2021 at 1.8%, 2022 at 2.0% and 2023 at 2.3%.
- Changes to the Fed's reaction function should also lift inflation expectations adding further upside risks. We see inflation rising more quickly than the Fed and expect policy tightening in 2023, ahead of the Fed's outlook.
- Outside the US, spare capacity, stable energy prices and a softening dollar should subdue inflation. Emerging markets face larger upside risks given greater food price exposure and the risks of sharp currency drops.

Most economies' reaction to virus unchanged

As economies around the globe begin a tentative path of re-opening – supported in some areas by vaccines, but in others by adaptations to more permanent social distancing restrictions – economic growth looks set to rebound. Moreover, as the anniversary of steep price drops arrives, both in energy and beyond, these base effects will drive annual inflation rates higher, a rise that may be exaggerated over the coming quarters by a quicker rebound in demand from some areas, against potential supply bottlenecks in other areas where disruption lingers. This is set to drive a rebound in inflation rates across most economies over 2021.

However, adjustments to these price-level and short-term disruption events are not the foundation of self-sustaining inflation pressure. In the following, we consider the outlook for medium-term inflation pressures.

We begin with a review of the inflation outlooks we published last year[1]. We forecast inflation for four key economies for 2020, expecting inflation in the US to average 0.8% (the actual average was 1.2%), in the Eurozone 0.4% (0.3%), in the UK 0.8% (0.9%) and in Japan 0.1% (0.0%). We suggested that inflation would rebound in each in 2021, but we now increase our forecasts for this year to 2.3% in the US (from 1.7%), 1.1%

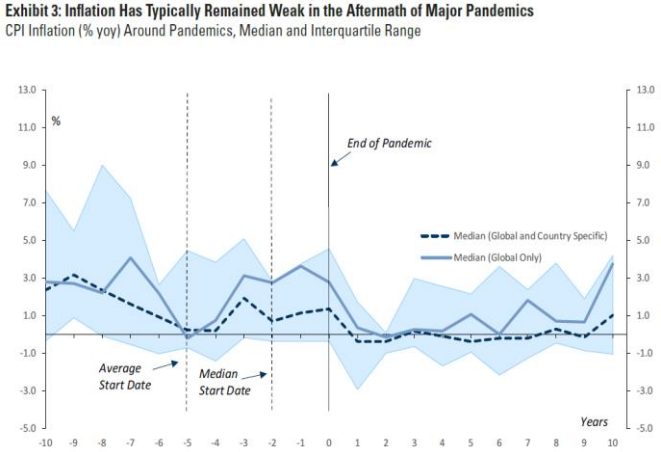
[1] Page, D.,"COVID-19 update: A disinflationary shock, Parts I & II", AXA IM Research, July 2020.

for the Eurozone (0.7%), 1.9% in the UK (1.5%) and -0.3% in Japan (-0.1%). We had also guided that inflation would likely be below central bank targets in each region for 2022, which we still consider likely.

Much of the framework described last July is still relevant to our current outlook. We argued that pandemics – different from wars – have not historically resulted in inflationary periods. Primarily this is because, in extremis, they have increased capital per worker (through workforce reduction), lowering unit labour costs[2]. Exhibit 1 illustrates how others have also made this point.

We also dismissed the risks of an inflationary surge reflecting the large growth in broad money supply, arguing that this was not a signal of rising spending intentions, but central bank policy. Finally, we argued that all economies at the time were expected to see more spare capacity – larger output gaps – over the forecast horizon and that this would continue to keep inflationary pressures subdued.

Exhibit 1: Price movements after previous pandemics

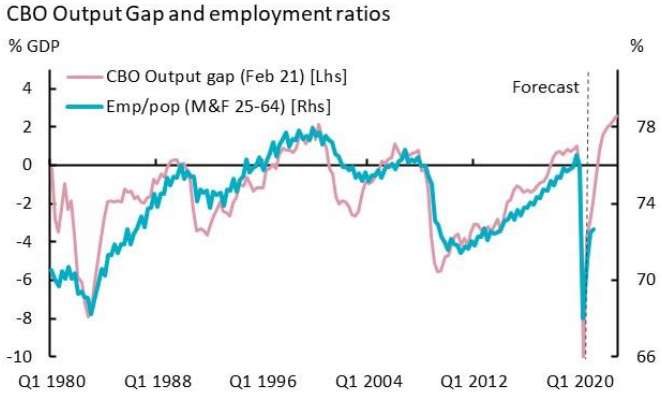


Source: Goldman Sachs, Bank of England, March 2021

Since then, this outlook has only changed materially in the US. First, the Federal Reserve (Fed) changed its inflation target in August last year. The Fed now targets average inflation of 2%; will actively aim for a "moderate" overshoot of inflation in the coming years; and will set policy based on actual, rather than anticipated inflation. Second, the election of President Joe Biden and Democrat control of Congress has facilitated two large fiscal stimuli in the past six months totalling 13% of GDP[3], with a further, tax-funded, $2.3tn spending programme additionally under consideration. This stimulus has materially increased our outlook for US expansion in 2021 (we now forecast 6.9% versus 4.5% at the end of last year) and have accordingly brought forward the point at which the US economy should eliminate its spare capacity – we now forecast this by the end of this year.

US stimulus to result in quicker recovery

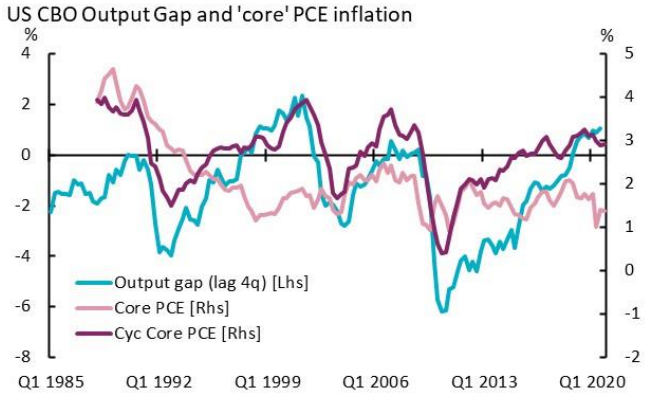
Exhibit 2: Historic output gap and projections



Source: CBO, Bureau of Labour Statistics (BLS) and AXA IM Research, April 2021

The robust fiscal stimulus is likely to close the US output gap sooner than we had previously forecast. As ever, there are plenty of qualifications that should be made: There are questions about what level of spare capacity actually existed before the pandemic struck, while the future potential growth rate of the US economy is also uncertain as it attempts to shrug off hysteresis effects associated with the sharp drop in activity in 2020. However, a simple extrapolation of Congressional Budget Office (CBO) estimates of the output gap based on our own growth forecasts (Exhibit 2), shows that the US is expected to operate in conditions of excess demand from the end of this year. While we take a precise estimate of the output gap with a pinch of salt, this also suggests that excess demand could rise to its highest in four decades, particularly if further infrastructure spending spurs growth faster in 2023.

Exhibit 3: PCE inflation subcomponents and the output gap



Source: CBO, BLS and AXA IM Research, April 2021

This expectation for greater than potential expansion is a prima facie case for stronger price pressure over the medium term. However, recent history suggests that inflation has not been so responsive to these cyclical pressures. Exhibit 3 illustrates the relationship between core Personal Consumption Expenditures (PCE) inflation since 1985 and the output gap. It

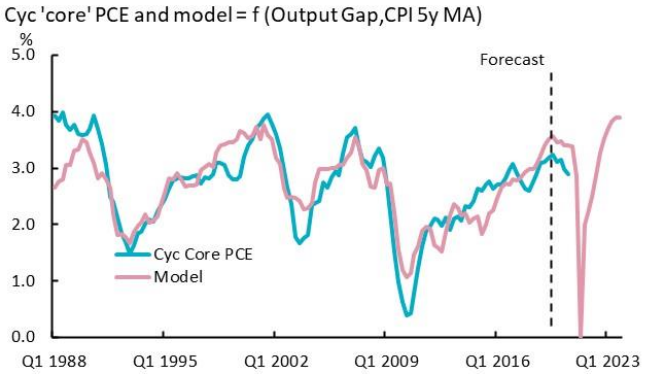
[2] This reflects rising productivity growth associated with higher per capita capital, even sometimes alongside rising wage costs.

[3] $0.9tn passed in December 2020 and $1.9tn in March 2021.

shows that the annual rate of core PCE inflation (excluding food and energy) is reasonably invariant to changes in the output gap. This was particularly the case in the late 1990s, where excess demand suggested faster inflation, and post-2008, where a large output gap suggested weaker inflation.

A decomposition of core PCE inflation is required to address these anomalies. Exhibit 3 also illustrates 'cyclical' components of PCE inflation. These have been identified by the Fed[4] as sub-sectors of inflation that are negatively correlated with the unemployment gap. By definition, these show a much closer relationship with the US output gap. Indeed, if we allow for lags and crudely allow for adaptive inflation expectations, using a five-year moving average of the Consumer Price Inflation (CPI) rate, we get a reasonably good explanation of cyclical price trends in core PCE inflation (Exhibit 4).

Exhibit 4: A simple model of cyclical inflation

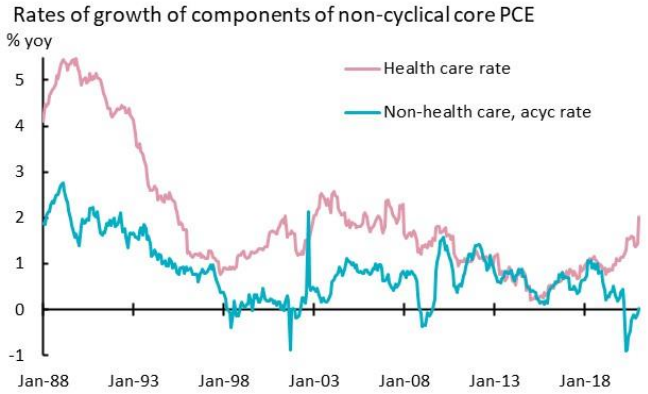


Source: CBO, BLS and, AXA IM Research, April 2021

However, these cyclical components account for just under 40% of the core PCE inflation basket. The remainder are a collection of idiosyncratic acyclical components. These include the large sectors of healthcare – accounting for 35% of the acyclical factors – and housing, just under 30%.

Exhibit 5 illustrates the rate of acyclical inflation, decomposed into healthcare and non-healthcare. Following a decade of disinflation from the late 1980s, the rate of healthcare inflation varied only gently around a mean of just under 2% from the late 1990s until the introduction of the Affordable Care Act, known as Obamacare. This put downward pressure on healthcare costs for the early part of the 2010s and has subsequently seen a return towards and above its mean, particularly in the last four years as President Donald Trump reversed elements of Obamacare. It is clear that healthcare costs do not respond to cyclical changes in the economy. The outlook remains uncertain and idiosyncratic, with some bipartisan support to address prescription drug costs in the US potentially bringing renewed downward pressure. But we do not think that the broader US economic rebound will feed through into inflation though this component.

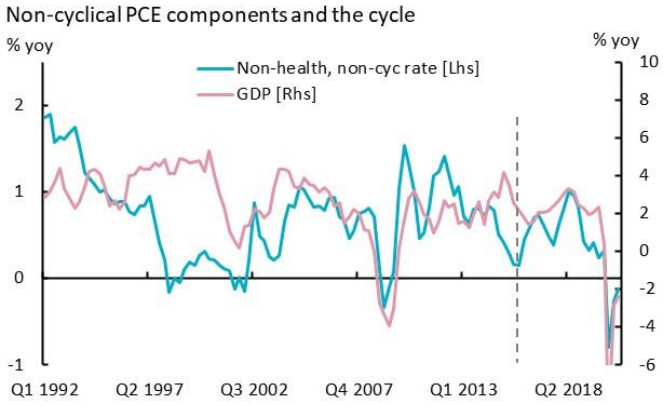
Exhibit 5: Rates of acyclical inflation components



Source: CBO, BLS and AXA IM Research, April 2021

Exhibit 6 illustrates that the remainder of the acyclical components have tended to follow the economic cycle since the early 2000s. This suggests that as economic activity quickens, prices will accelerate. However, there is a key difference between price growth in this sub-component and the cyclical sub-component. Residual acyclical price growth is associated with current growth (as opposed to the output gap itself). This suggests price pressures will grow over 2021 and 2022, but as growth reverts to more normal levels beyond 2022, so inflation pressures should subside. By contrast, cyclical price inflation reflects the level of activity relative to its potential. Slower growth alone would not soften the inflation rate, only growth slowing below potential would ease inflation pressures – something we do not envisage through 2023. This suggests a ratcheting up of inflation in the cyclical component.

Exhibit 6: Beyond healthcare, inflation reflects growth



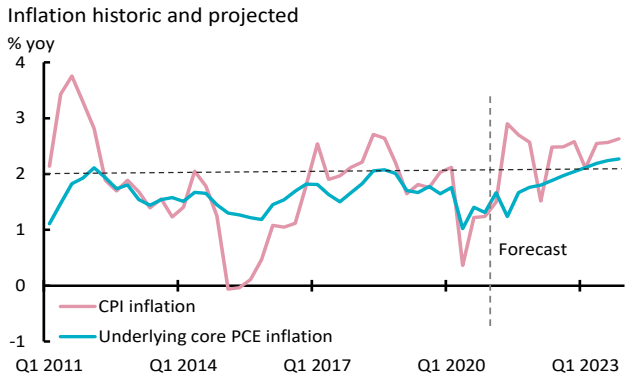
Source: CBO, BLS and AXA IM Research, April 2021

In total, assuming healthcare costs to be broadly stable over the coming years, we forecast cyclical inflation components to accelerate. However, reflecting the lagged relationship with the output gap, we do not expect these to exceed prior rates until 2023. The remainder of the acyclical price components look likely to record higher inflation this year, before easing back as headline growth normalises next year and into 2023. In total, we forecast core PCE inflation to close 2022 at 2.0%

[4] Shapiro, A.H., "A Simple Framework to Monitor Inflation", Federal Reserve Board of San Francisco, August 2020

and 2023 at 2.3%. Exhibit 7 illustrates this smoothed assessment of underling PCE inflation, as well as our more volatile forecasts for headline CPI inflation.

Exhibit 7: Models of different measures of inflation



Source: CBO, BLS and AXA IM Research, April 2021

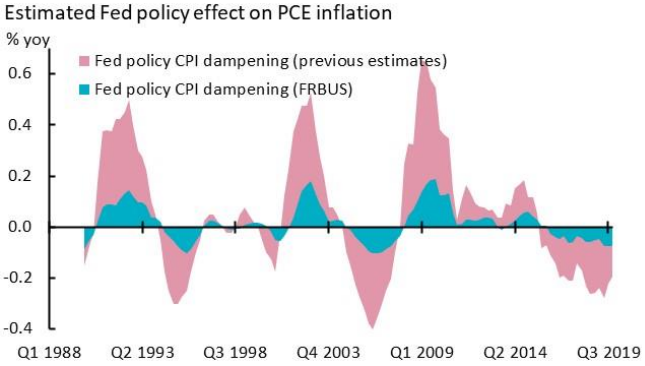
Fed reaction function – a step into the unknown

In August, the Fed announced that it would move to a flexible average inflation targeting (FAIT) framework. Rather than simply targeting inflation at 2% every year, the Fed will now 'remember' what inflation did in previous years. After periods of inflation undershooting the target – as we have seen over the past decade – the Fed will allow for a "moderate" overshoot of its long-term target so that the average inflation rate, over some years, will average 2%. In a perfect economic world, households and businesses would recognise that the Fed was more committed to its inflation target, inflation expectations would rise automatically, and this would help lift actual inflation[5]. In reality, inflation expectations appear not to be wholly defined rationally. As such, expectations may rise imperfectly after the announcement or may require actual inflation to rise before they move higher. Uncertainty about the formation of inflation expectations is a good reason for the flexibility and discretion that the Fed has retained in the operation of this new system.

Beyond the shift in the inflation target itself, the Fed has also changed another aspect of its long-term goals. It now states that it will only adjust policy to mitigate "shortfalls" in labour market conditions consistent with full employment, a change from the previous two-sided "deviations"[6]. This introduces a deliberate asymmetry to policy making, reducing the Fed's anticipation of future inflation pressure. Indeed, this goal has become more specific over time, with minutes to the March 2021 Federal Open Market Committee (FOMC) meeting stating "policy should be based primarily on observed outcomes rather than forecasts".

Monetary policy is often characterised as only fully acting on the economy with a lag of 18-24 months. This is why inflation-targeting central banks forecast inflation, to judge where it will be in the future when the policy announced today has become fully effective. The Fed's recent change suggests it will stop this anticipatory behaviour and this could have important consequences. Exhibit 8 illustrates the estimated dampening impact that the Fed's monetary policy has had historically. As the Fed has eased monetary policy in the face of economic downturns, it has generated more inflation than would otherwise have been the case. The reverse has been the case when the Fed has started to tighten monetary policy – the process that the Fed is suggesting it will now delay.

Exhibit 8: Estimated impact of inflation dampening



Source: Federal Reserve Bank, BAML, BLS and AXA IM Research, April 2021

Judging the scale of this is difficult. Exhibit 8 uses the Fed's macro model to estimate the impact of a change in monetary policy on core PCE inflation. Using the latest version, the impact of historic changes is estimated to be small, reducing inflation by an average of 0.05ppt in recent tightening cycles. Yet these estimates have evolved over time. Previous macro model estimates pointed to larger effects, averaging around 0.2ppt a few years ago. This is the order of magnitude that a delayed tightening in monetary policy could have on headline inflation.

Part of the reason prices have less sensitive to monetary policy is an increased anchoring of inflation expectations at lower rates. We are wary that this process is neither fixed, nor one-way. If the Fed's policy is successful in limiting the fall in inflation expectations, or even reversing previous declines back towards its target, the responsiveness of inflation to monetary policy changes is likely to be stronger than the Fed's latest estimates. This would be even more the case if economic agents' expectations became less anchored. Given the unprecedented easy monetary and fiscal policy at present, there is every chance of this. Indeed, market and household survey-based measures of long-term inflation expectations[7] have risen to levels not seen since 2018 and 2015 respectively – not extreme, but rising nonetheless.

[5] Not least because the real interest rate, the true instrument of monetary policy and itself a function of inflation expectations, would fall further as expectations rose.

[6] "2020 Statement on Longer-Run Goals and Monetary Policy Strategy", FRB, 27 August 2020

[7] 5y-5y measures of US breakeven inflation and the 5-10yr inflation expectation from the University of Michigan Consumer Sentiment Survey.

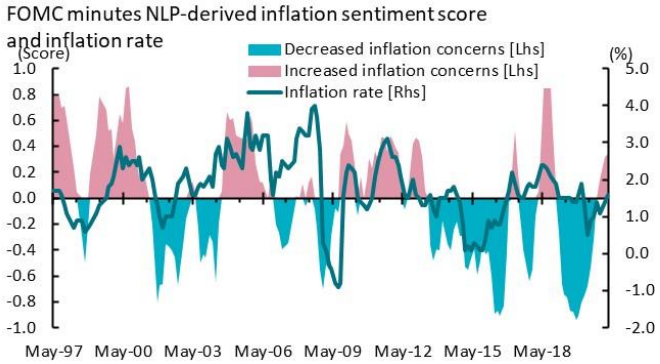
We conclude that the Fed's current communication – that it will only react after inflation has risen – will delay the usual pre-emptive dampening of inflation and add upside risks to our forecast inflation outlook, primarily from later 2022.

Gauging the reaction function in real time

Our forecasts suggest that as the Fed starts 2023, inflation and unemployment pre-conditions for monetary tightening are likely to have been met. As such, we forecast the first increase in the Fed Funds Rate in June 2023, with a follow up by year-end – ahead of current Fed guidance, but broadly in line with current market pricing.

Mindful of the shift in the Fed's reaction function, we will monitor the Fed closely. To do this we will use our natural language processing (NLP) tool[8] to quantify inflation signals from the FOMC minutes and Beige Book. Exhibit 9 shows how NLP can parse the minutes to determine the level of inflation concern and shows how this relates to actual inflation. It shows the FOMC appeared to show premature concern about inflation in the mid-to-late 1990s but has been broadly on track with inflation assessments in the 2000s (and ignored inflation spikes around the time of the financial crisis).

Exhibit 9: NLP assessment of FOMC inflation concerns

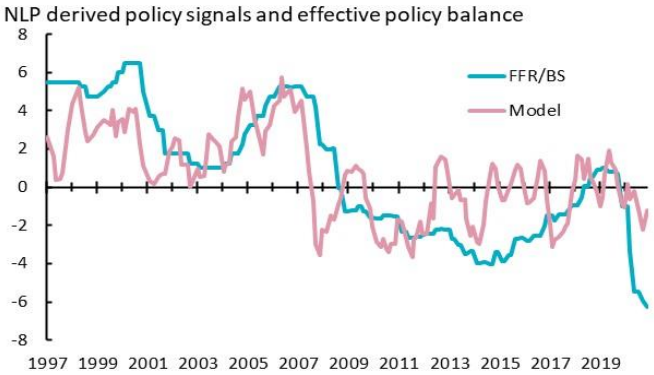


Source: Datastream and AXA IM Research, April 2021

Historically, Fed assessments of the inflation and growth outlook as derived from these minutes and the Beige Book have provided useful information with regards to impending policy changes. Exhibit 10 illustrates how a combination of assessments has provided a good signal to future policy movements[9].

These tools should provide a means of tracking the change in the Fed's reaction function. Historically, we can see how increased assessments of the growth and inflation outlook have translated into changes in policy. Looking ahead, we should now be able to observe a more lagged response in Fed policy action to a rise in these signals.

Exhibit 10: Minutes, Beige Book provide policy steer



Source: Datastream and AXA IM Research, April 2021

Risks to the US inflation outlook

A number of risks surround the inflation outlook. The predominant risks remain centred around the course of the virus in the US and globally. The progress of vaccinations provides hope for the forecast magnitude to US activity, but problems with vaccine supply or take-up, or the ongoing risk of vaccine-skipping virus variants could yet upend this outlook, not only domestically but globally.

More traditional risks also surround the inflation outlook. Predominant here is the ever-important role of energy. Presently, having absorbed much of the world's pandemic glut of oil, oil prices have recovered to pre-COVID-19 levels. However, this is still against a backdrop of major oil exporting nations (OPEC+) curbing output and reduced US shale oil production. Increases in supply could soften oil prices sharply, leading to subdued inflation. Conversely, a stronger demand rebound could lift oil prices further, exacerbating inflation pressures.

Over the longer term, we will also watch for ongoing geopolitical tensions that could lead to either direct tariffs or indirect blocks reducing international trade and raising domestic production costs. We will also monitor the impact of climate change policy impacting broader inflation, either directly through an increased impact of endogenizing carbon pricing or indirectly as purchases avoid low-cost carbon damaging transactions for more sustainable alternatives. We will also monitor any longer-term institutional changes, including minimum wage increases and re-regulation of the labour market as a further, additional upside risk to inflation.

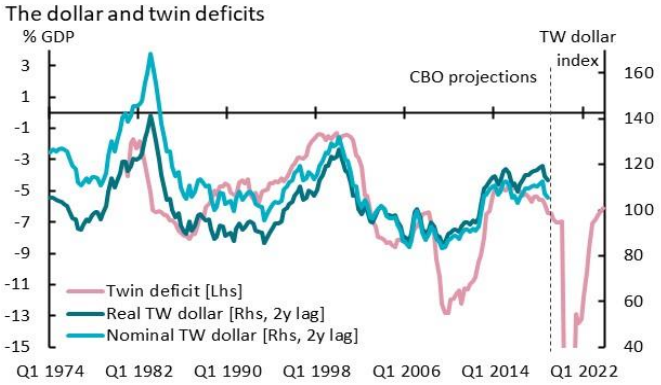
Finally, the US dollar will be a key uncertainty for inflation. Indeed, we attribute the relatively stronger 2020 CPI inflation to the 8% drop in the US dollar against a basket of currencies over the second half of 2020. This was in excess of our forecasts and added an estimated 0.3ppt to 2020 inflation. Our outlook for the dollar is for renewed strength over the

[8] Makonga, E. and Le Damany, H., "Natural Language Processing – a new tool to decode the Fed", AXA IM Research, 16 July 2020.

[9] Noting that before 2008, policy movements purely reflected changes in the Fed Funds Rate (FFR), but after 2008 these also included balance sheet adjustments, that we translate into a rate-equivalent

coming months before a period of modest depreciation from mid-year through 2023. However, there is certainly scope for more volatility in international exchange rates (Exhibit 11).

Exhibit 11: NLP assessment of FOMC inflation concerns



Source: Datastream and AXA IM Research, April 2021

The broader global inflationary picture

There is no such thing as global inflation. Outside of the US, local conditions will primarily determine local inflation rates. Beyond the rebound in headline inflation expected this year in most countries reflecting 2020's base effects, inflation is likely to be governed by common global factors, including energy prices, food prices and the dollar, local conditions of spare capacity and idiosyncratic currency weakness.

For most developed economies, we expect a gradual re-opening to lead to a surge in demand conditions, but also a rebound in the economic capacity that has been partially reduced or completely closed down for much of the past year. With labour and product markets likely to take time to adjust we expect spare capacity to exist this year and next in the absence of strong fiscal and monetary support. As such, we expect the persistence of output gaps, putting downward pressure on inflation in most regions.

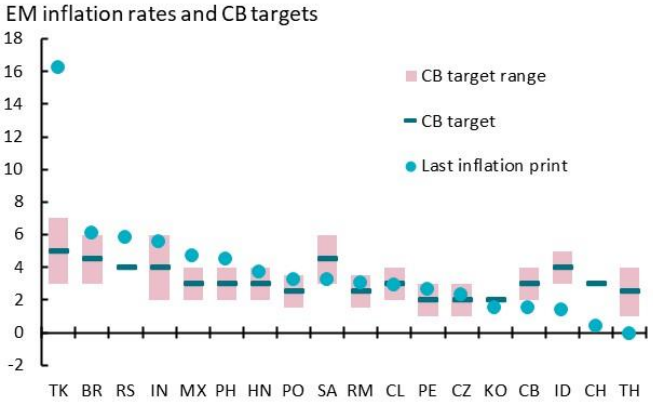
In the absence of an unexpected surge in energy prices or material decline in the US dollar and with food a relatively small part (around 10%) of most developed economies' inflation baskets, we expect inflation to remain subdued over our two-year forecast horizon. We forecast Eurozone inflation at 1.5% in 2021 and just 1.1% in 2022, in the UK we forecast 1.9% and 1.7% and in Japan -0.3% and 0.5%. In each of these cases we forecast inflation below the central banks' targets over the policy relevant horizon – materially so in the case of the euro area and Japan.

The case for emerging markets (EM) is as ever richer and more complicated. In broad terms most EMs should follow a slower recovery in demand than supply conditions over the medium-term. But the recovery in supply conditions will prove more challenging for EMs with vaccine availability severely lagging developed market front-runners. Over the medium-term large output gaps should also persist for EMs, weighing on prices. In the short-term, supply bottlenecks could force some prices higher for longer.

External factors are also typically more important for EM inflation. Food price inflation is a much bigger issue for EMs, where it can be around one-third of the total CPI basket. The United Nations' recorded 25% year-on-year increase in its Food and Agriculture Organization Food Price Index in March – the highest since 2011 – will have a major impact on EM inflation rates over coming months.

However, barring a major global energy price adjustment, the currency outlook is likely to remain most important for EM economy inflation. Our outlook for modest dollar strength around the middle of this year, followed by a more protracted period of dollar softening (with local currency stable to mildly appreciating) should be conducive to subdued inflation environments in most EM economies. However, idiosyncratic local EM weakness will also exacerbate inflation pressures. Exhibit 12 shows that in Russia, Brazil, Mexico, India and most obviously Turkey inflation is above respective central bank targets. It is no surprise that each of these has seen a broad depreciation against the US dollar over the past couple of years, ranging from mid-single digit for India and Mexico, to much sharper devaluations in Russia, Brazil and Turkey.

Exhibit 12: EM inflation performance



Source: Datastream and AXA IM Research, April 2021

We continue to conclude that for most economies – developed and emerging alike - as the global economy slowly regains control over the pandemic, the inflation outlook will remain subdued. However, material stimulus and changes to the monetary policy framework in the US are likely to see a gradual but persistent rise in inflation pressure to around target by the end of next year and to a "moderate" overshoot in 2023, that we would expect to persist. Individual emerging markets will retain the capacity for a sharper pick-up in inflation if they succumb to sharp currency depreciation.

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