

COVID-19 in Europe

Always and everywhere an inflationary phenomenon?

Free to View
Economics - Eurozone, UK

- ◆ COVID-19 has led to higher, not lower, underlying inflation in Europe
- ◆ We think future waves are likely to lift inflation too, given supply disruption and possible renewed job support schemes...
- ◆ Central banks are now moving towards tighter policy, and are less likely to respond to future waves with large-scale easing

Chris Hare
Senior Economist
HSBC Bank plc

COVID-19 has been inflationary, not disinflationary

Central banks say that the inflation impact of COVID-19 remains uncertain. In our view, the evidence firmly points in a more hawkish direction: the recent pandemic has raised, rather than lowered, underlying inflation.

The past few months of surging European inflation have, of course, chimed with that view. Granted, a large portion of the strength is likely to be temporary, relating to energy effects (some of which is unrelated to COVID-19), supply bottlenecks and rapidly shifting consumption patterns. But some of it – such as labour market tightness – might prove persistent. In any case, without getting too caught up in the ‘temporary versus persistent’ debate, one thing’s for sure – disinflation has not come through. Far from it. And with no clear evidence of ‘slack’ left in the European economy, the probability of deflation materialising over the medium to long term is low, in our view.

Could next time be different?

Of course, future waves might look different. So we have put together a generalised framework for thinking about how inflation might pan out the Omicron and possible future variants. It boils down to the impact on supply and demand, and the policy response.

With that framework in mind, there are three ways in which the inflation impact of future waves might differ. First, one view is that policy stimulus might not come so readily next time, thus failing to stave off disinflation like it did in 2020. But we wouldn’t necessarily agree – new restrictions could easily see the renewal of job support schemes which, for example, were reopened in the Netherlands and Ireland last month. Second, economies are better placed to cope with restrictions, so any economic impact is likely to be smaller. Third, possible light-touch restrictions in Europe, set against stronger measures among Asian exporters, might make global supply bottlenecks even more intense.

Central banks: from dovish to hawkish?

If COVID-19 tends to be inflationary, should monetary policy tighten in response to outbreaks? After all, core inflation might now still be above 2% even if central banks hadn’t eased policy in March 2020. Such were the risks of a (disinflationary) rise in borrowing costs in March 2020, we wouldn’t say the policy response was a ‘mistake’. But we would argue that for those central banks who do loosen policy at the onset of future waves, the subsequent tightening during the recovery could come quicker than last time.

This is an abridged version of a report by the same title published on 17-Jan-22. Please contact your HSBC representative or email AskResearch@hsbc.com for more information.

Disclosures & Disclaimer

This report must be read with the disclosures and the analyst certifications in the Disclosure appendix, and with the Disclaimer, which forms part of it.

Issuer of report: HSBC Bank plc

View HSBC Global Research at:
<https://www.research.hsbc.com>

COVID-19 and inflation in Europe

- ◆ COVID-19 has led to higher, not lower, underlying inflation in Europe
- ◆ We think future waves are likely to lift inflation too, given supply disruption and possible renewed job support schemes
- ◆ Central banks are now moving towards tighter policy, and are less likely to respond to future waves with large-scale easing

Central bankers on a journey

From dovish to 'uncertain'...

As COVID-19 took hold in March 2020, the central bank response seemed obvious. Fearing a big disinflationary hit to the real economy, the ECB and the Bank of England (BoE) responded with major asset purchase programmes, with the latter also cutting rates.

Central banks are 'uncertain' about the inflation impact of COVID-19...

But given the surprising strength of inflation in recent months, central bank thinking about the impact of further waves of the pandemic has become much more nuanced. Take the latest policy decisions made by the ECB and the BoE on 16 December last year. Christine Lagarde's view was that the inflation impact of the Omicron variant is 'totally uncertain'. The BoE sounded a little more hawkish, but not exactly unequivocal.



The balance between the inflationary or deflationary impact that Omicron will have is still totally uncertain

ECB President Christine Lagarde, ECB Press Conference, 16 December 2021



The economic impact of the new variant could, in some scenarios, increase these inflationary pressures further

Bank of England MPC meeting minutes, 16 December 2021

...to hawkish?

Granted, neither central bank let the Omicron variant scupper hawkish policy decisions on 16 December – in the ECB's case to announce an end of the PEPP programme next March, with a surprisingly steep taper, in the BoE's case to raise Bank Rate from 0.10% to 0.25%. But while the Omicron variant didn't make the ECB or the BoE less hawkish, it didn't make them *more* hawkish. On the inflation impact of COVID-19, central banks remain somewhat on the fence.

...while we have come to a somewhat more hawkish view

We have come to lean in a somewhat more hawkish direction, that pandemic outbreaks tend in general to raise, rather than lower, inflation (particularly assuming they prompt significant fiscal support). And central banks may, over time, lean in an increasingly hawkish manner, if and when future waves come along.

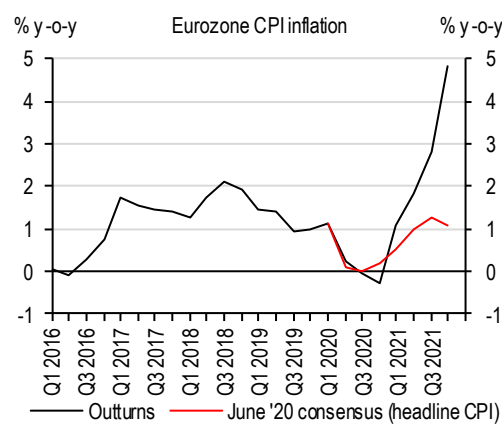
What we've learnt since March 2020

The upside risks we flagged in 2020 appear to have crystallised...

Surprisingly inflationary

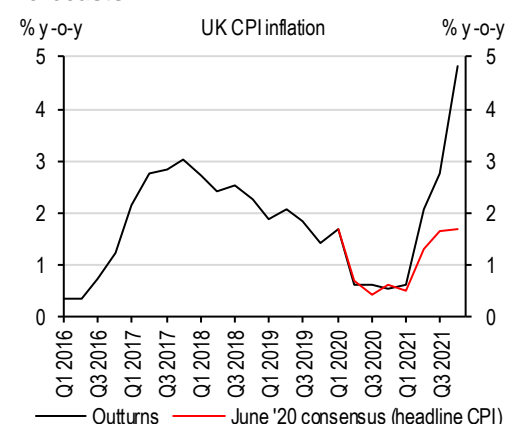
We have long flagged upside risks to inflation stemming from COVID-19, on account of the possibility of resilient demand running up against constrained supply. Those upside risks appear to have crystallised – confounding expectations for sub-2% inflation, eurozone and UK inflation surged to the 5% mark towards the tail end of last year (Charts 1 & 2). In the eurozone in particular, bearing in mind persistently sub-2% inflation before the pandemic, and deflation fears following its onset, that is remarkable.

1. European inflation surged last year...



Source: Eurostat, Refinitiv Datastream, Bloomberg Consensus.

2. ...confounding economists' sub-2% forecasts



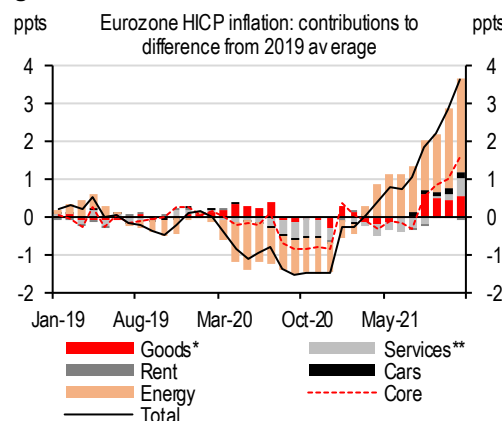
Source: ONS, Refinitiv Datastream, Bloomberg Consensus.

...with strength in core goods and, more recently, services inflation

Broad based, and pandemic-related, strength

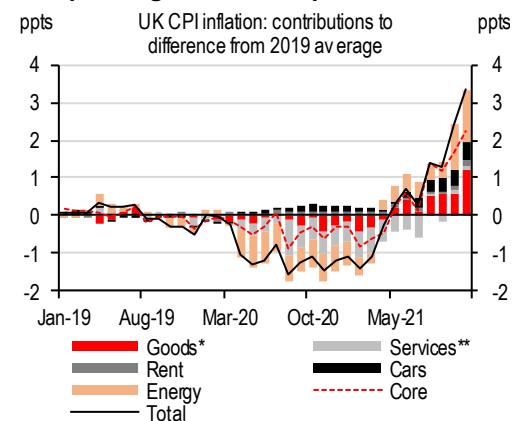
Unpicking these developments is the first step towards thinking about the potential impact of any future pandemic-related shocks. As a starting point, Charts 3 & 4 show eurozone and UK inflation, relative to their average rates in 2019 – a pre-pandemic year when inflation was relatively stable. Energy prices have played a big role, but the strength is more broad-based than that. Contrary to economists' many expectations that the downturn would weigh on inflation, core goods inflation has risen significantly. More recently, services price inflation – usually a decent proxy for domestically generated inflation, has also risen above 2019 rates.

3. Supply bottlenecks have lifted core goods inflation...



Source: Refinitiv Datastream, HSBC calculations. *Excluding cars **Excluding rent.

4. ...but services inflation has edged up too, pointing to domestic pressures



Source: Refinitiv Datastream, HSBC calculations. *Excluding cars **Excluding rent.

Of course, not all the strength in inflation is pandemic-related. Part of the recent surge in energy price inflation relates to soaring wholesale gas prices which have, in part, been driven by geopolitical tensions. Supply discipline on the part of OPEC+ has also helped lift oil prices. And even some of the strength in core inflation, at least in the UK, relates to low unemployment – and tight labour markets more generally – at the onset of the pandemic.

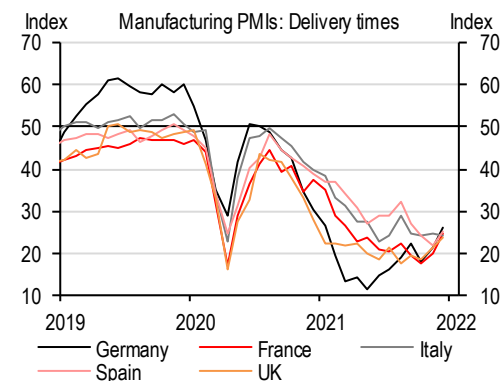
But we do think three pandemic-related factors have been significant in driving underlying inflation higher in recent months: global supply bottlenecks; resilient and shifting household consumption; and (perhaps less clearly) tightness in the labour market.

Global supply bottlenecks still at play

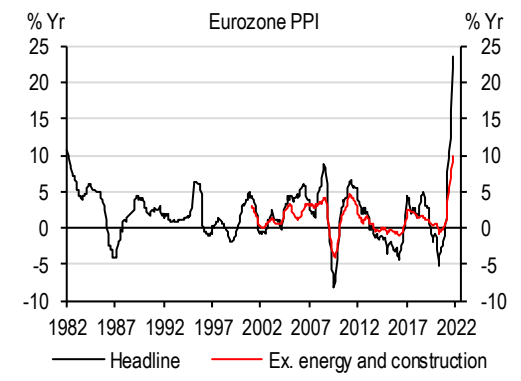
Supply bottlenecks, which have mostly affected goods prices, are still at play. Despite improvements in December, the 'supplier delivery times' components of the PMIs remain extremely depressed (Chart 5). Shipping costs remain elevated, and producer price inflation continues to break records (Chart 6). Global supply bottlenecks have, therefore, had a significant impact, and are turning out to be rather persistent.

Supply bottlenecks have sent producer prices soaring

5. Global supply disruption remains significant...



6. ...and producer price inflation is still rising



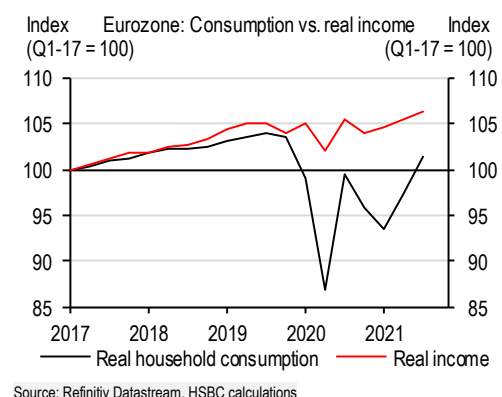
Resilient, and shifting, consumption patterns

Second, we have seen resilient, and shifting, consumption patterns. Household incomes have held up remarkably well, allowing spending to recover quickly as restrictions have eased (Chart 7). As we discuss later, fiscal support has no doubt played a role here.

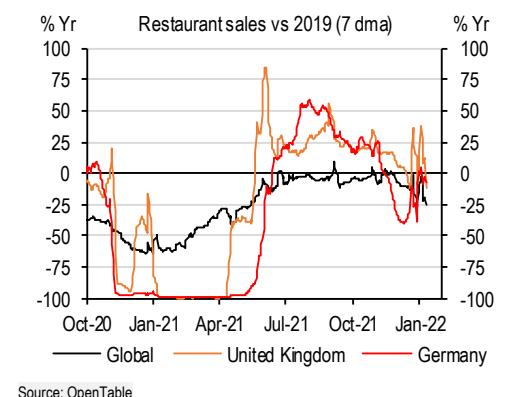
But over and above that, spending has shifted rapidly across sectors of the economy, while supply has had little time to adjust. For example, the easing of restrictions led to a surge in restaurant demand (against a finite supply of covers) in mid-2021 (Chart 8). That, in turn, has lifted hotel and restaurant price inflation (3.3% y-o-y in the eurozone, 5.2% y-o-y in the UK).

Resilient incomes have helped fuel demand for, and inflation in, restaurant meals

7. Resilient income has allowed consumption to bounce...



8. ...putting pressure on restaurants during the reopening



Emerging pressures from labour markets

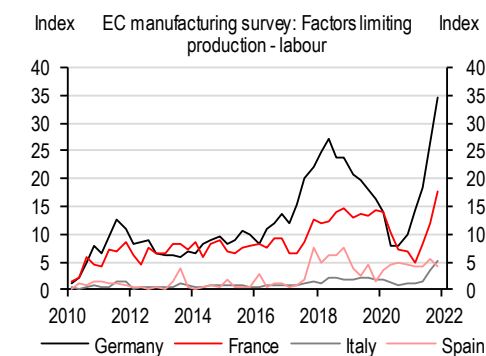
Third, and perhaps less clearly and obviously, is the possible inflationary impact of tightness in the labour market. Indeed, as Europeans have changed jobs during the pandemic, or left the labour market entirely through study or retirement, and while demand has remained solid, businesses are reporting major supply shortages.

Meanwhile, even in October 2021, after the end of its furlough scheme, UK vacancies are extremely elevated, relative to the unemployment rate. That points to a significant ongoing 'mismatch' between workers and jobs.

Labour markets are tight, but the wage and inflation impact is hard to gauge

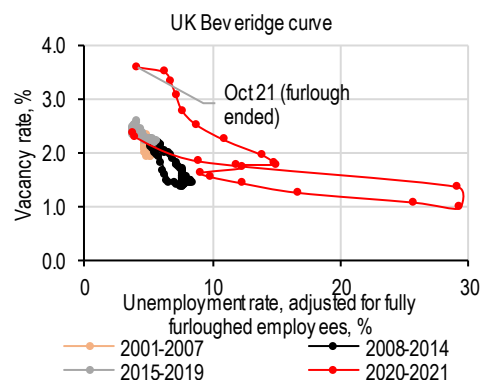
The inflationary impact of this labour market tightness has so far been hard to gauge. While UK wages are looking fairly perky, at 4.9% 3m/yr in October, eurozone negotiated wages remain soft, at 1.3% y-o-y in Q3 2021. But of all the potentially inflationary consequences of COVID-19, this could turn out to be the most persistent.

9. European business are reporting acute labour shortages...



Source: Refinitiv Datastream.

10. ...while the UK is seeing ongoing frictions, even after the furlough scheme



Source: ONS, HMRC, Refinitiv Datastream, HSBC calculations.

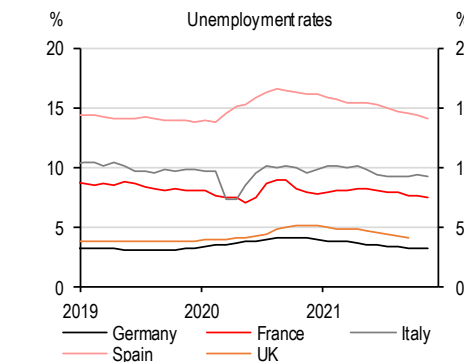
The door to disinflation might have closed

Of the inflationary factors discussed above, we still think that the effect of higher energy prices, supply bottlenecks and shifting consumption patterns are very likely to prove transitory – global commodity prices shouldn't keep spiralling upwards, easing restrictions should allow bottlenecks to ease, and consumption patterns should settle towards a 'new normal' eventually (with the supply side adjusting accordingly).

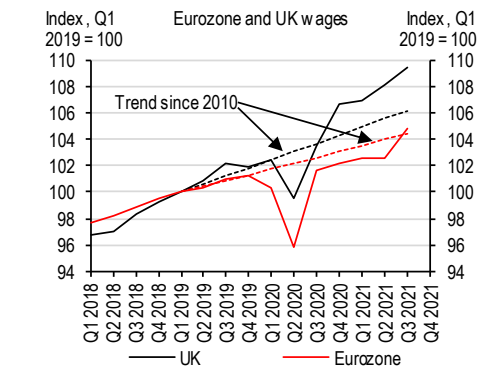
With unemployment back at pre-pandemic levels, any drag on wages is unlikely

The jury is still out on the extent to which labour market tightness will persist. But without getting too hung up on the 'temporary' versus persistent' debate here, one thing is clear in our view – the door to a net disinflationary impact from the pandemic appears to have closed. In particular, the only potentially persistent disinflationary effect would have come from 'slack' in the labour market weighing on wage, cost and price pressures. But now, unemployment rates have fallen pretty much in line with pre-pandemic lows (Chart 11). While some of these falls can be accounted for by lower participation rates as opposed to broader employment strength, there appears to have been no discernible drag on wages, at least in the UK where the level of wages is actually well above what would have been implied by pre-pandemic trends (Chart 12). And if wage-related disinflation did not materialise while joblessness was elevated, it's not going to come through now.

11. Unemployment rates are close to pre-pandemic lows...



12. ...with no evidence of a persistent drag on wages while unemployment was higher



Will next time be different?

A more general framework

Even if it turns out to be transitory, the impact of COVID-19 – alongside the resulting fiscal and monetary policy response – has been inflationary, in our view. But will the experience of the past two years be a good guide to potential future outbreaks of COVID-19, or even other pandemics?

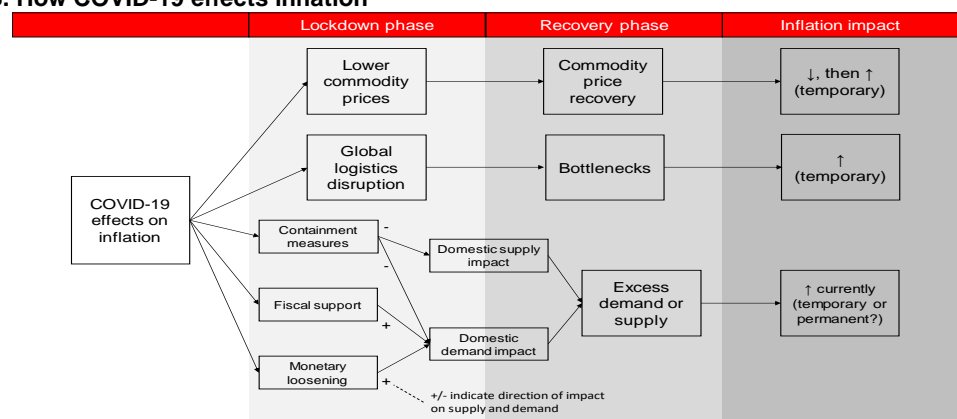
We think it helps to take the lessons discussed above and place them in a more general framework, outlined in Table 13, which maps out some of the key inflationary (or disinflationary) channels across the downturn and recovery phases of an outbreak. The first two factors are fairly simple. First a pandemic-related downturn should push the level of commodity prices down, then, up, but the ultimate inflation impact should eventually drop out. Second, logistics disruption, leading to supply bottlenecks in the recovery phase, should raise inflation, albeit temporarily.

Much more complicated is what happens in the lower portion of Table 13, namely the combined impact of containment measures, monetary and fiscal policy on the balance of supply and demand. At least temporarily, these factors appear to have hit supply by somewhat more than demand in recent months. Elevated services inflation during the recovery phase is one indication of this.

In the context of this framework, we see three potential ways in which a further wave of COVID-19 might look different to those of the last couple of years:

- (i) overall fiscal and monetary policy support might be more limited (less inflationary);
- (ii) the economy will be better-equipped to cope so the impact may be smaller (inflation impact unclear – the impact on supply and demand would be smaller, but the resulting balance between the two is uncertain);
- (iii) supply bottlenecks relating to Asia might prove more severe (more inflationary).

13. How COVID-19 effects inflation



The pandemic has, at least temporary, hit supply by more than demand

It may be argued that less stimulus in future will deliver a less inflationary response...

...but key measures like short-time work schemes have scope to continue

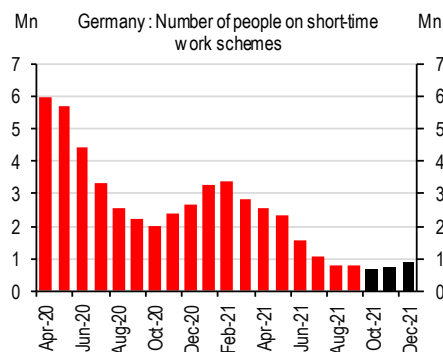
Possible difference 1: policy support might be smaller

Perhaps the strongest argument made in favour of there being a less inflationary impact next time is that policy stimulus would be more limited. There is surely some truth in that – while the discussion can become somewhat circular, a monetary bazooka is less likely in any future wave because central bankers have learnt that COVID-19 isn't as deflationary as previously thought (we discuss this further at the end of this report). Meanwhile, it's also possible that fiscal support would be more limited, bearing in mind materially higher public debt levels now than before the pandemic struck.

But given the success of some fiscal measures taken during the pandemic, such as enhanced or new short-time work or 'furlough' schemes, we would be surprised if governments did not allow them to be made use of in future. Indeed, Germany's short-time work scheme continues to run, and uptake edged up in December as the Omicron wave worsened, according to ifo estimates (Chart 14). It's also notable that two countries who closed job retention schemes earlier in 2021 – the Netherlands and Ireland¹ – reopened them towards the end of the year. In other words, governments still seem willing to use job retention schemes, which should stave off potential mass job losses, one of the biggest sources of potential disinflation from COVID-19.

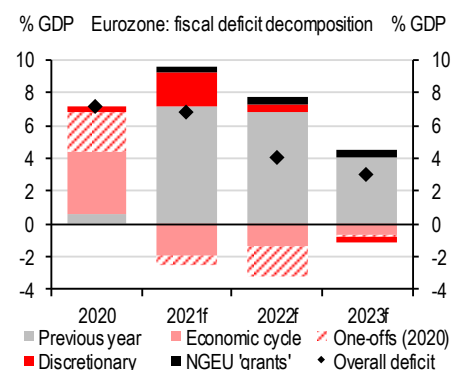
More generally, it is worth noting that EU fiscal rules remain suspended, and we see no significant discretionary fiscal consolidation in the eurozone at least until the end of 2023 (Chart 15).

14. Use of Germany's short-time work scheme edged up in December



Source: IFO.

15. The eurozone is not set for fiscal consolidation any time soon



Source: HSBC calculations based on DBPs.

Possible difference 2: the economy is better adapted

A second possible difference, which has clearly been materialising through each wave of the pandemic, is that the European economy is better adapted. One obvious point is that, since the vaccine rollout, restrictions have not been nearly as stringent as during the first wave of the pandemic.

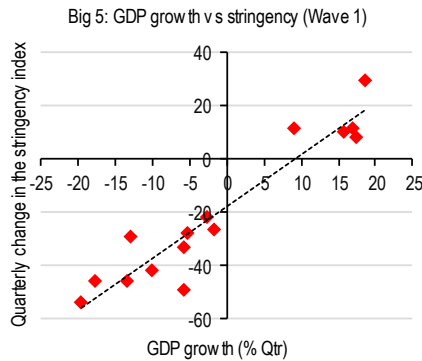
But also, for a given level of restrictions, economies might have come to cope better. Chart 16 plots the change in average restriction stringency against GDP growth for Europe's five largest economies through the first wave of COVID-19 in H1 2020. Chart 17 does the same for the second wave in late 2020 and early 2021. The restrictions were less tight in the second wave and, in turn, the economic impact smaller. But the steeper line in Chart 5 could indicate that economies were less impacted by a given level of stringency.

Better adapted economies = smaller inflation impact (but the direction is uncertain)

From an inflation perspective, the directional impact is uncertain. While the negative impact on supply is likely to be smaller as the economy has learnt to adapt, the negative impact on demand might be smaller, too. But we can quite confidently predict that the magnitude of the inflation impact, in either direction, is likely to be smaller.

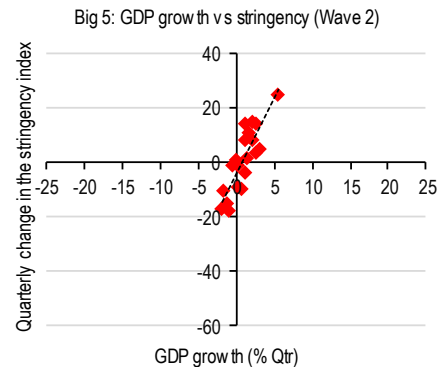
¹ Having closed at the end of September, the NOW wage subsidy scheme in the Netherlands reopened for November and December 2021. In Ireland, Pandemic Unemployment Payments, which was closed to new applicants in July, restarted in December

16. Relative to Q2 2020, restrictions have been less stringent...



Source: OxCGRT, Refinitiv Datastream, HSBC. Wave 1 refers to three quarters, Q1 2020 to Q3 2020.

17. ...and economies have adapted



Source: OxCGRT, Refinitiv Datastream, HSBC. Wave 2 refers to four quarters, Q4 2020 to Q3 2021.

Possible difference 3: More intense bottlenecks?

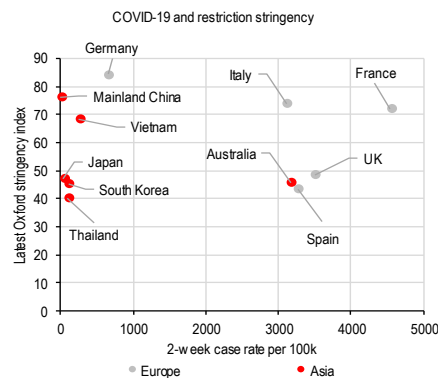
There is one area of difference that does point more clearly in an inflationary direction – possible future supply chain disruption. Back in the spring of 2020, most of the world was essentially in lockdown – and importantly from a European (imported) inflation perspective, the level of restrictions was fairly similar between Europe and countries from which Europe sources key inputs, including in Asia. And as restrictions eased, global supply and demand recovered at a similar time (albeit at a different pace).

But governments' reaction functions are changing. While the approach in Europe may be moving towards 'learning to live' with COVID-19, some major restrictions are re-emerging in parts of Asia in response to the Omicron surge, including the full lockdown of the Chinese city of Xi'an. Consistent with that, Chart 18 shows that mainland China has much more stringent restrictions in place, despite having only a fraction of the number of recorded cases.

Now, we may be in a situation where renewed supply disruption in Asia comes at a time when European import demand is strong and recovering. And there are already reports of renewed issues relating to port and chip factory operations,² consistent with a renewed spike in a New York Fed measure of global supply chain pressure (Chart 19). The consequence might be even more inflationary than before.

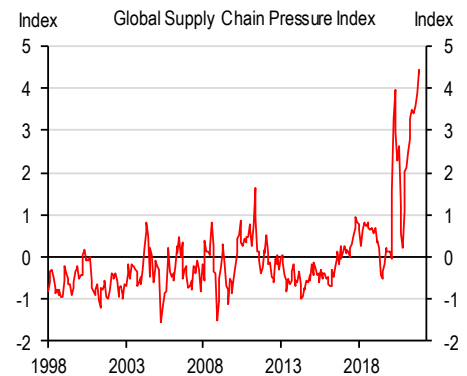
Asian supply disruption could flare up while European import demand remains unfettered

18. Mainland China has stringent restrictions, despite low cases



Source: Our World in Data, Oxford Government Response Tracker

19. Global supply chain pressures remain significant



Source: Gianluca Benigno, Julian di Giovanni, Jan J. J. Groen, and Adam I. Noble, "A New Barometer of Global Supply Chain Pressures" Federal Reserve Bank of New York Liberty Street Economics, January 4, 2022

² 'China's COVID-19 flare-ups and lockdowns are disrupting port and chip-factory operations, hitting the supply chain — again', Business Insider, 10 January 2022

Monetary policy: from dovish to hawkish?

Mostly inflationary

Having concluded that the COVID-19 experience so far has been inflationary, rather than disinflationary, we have argued that future potential pandemics are more likely to raise, than lower, inflation.

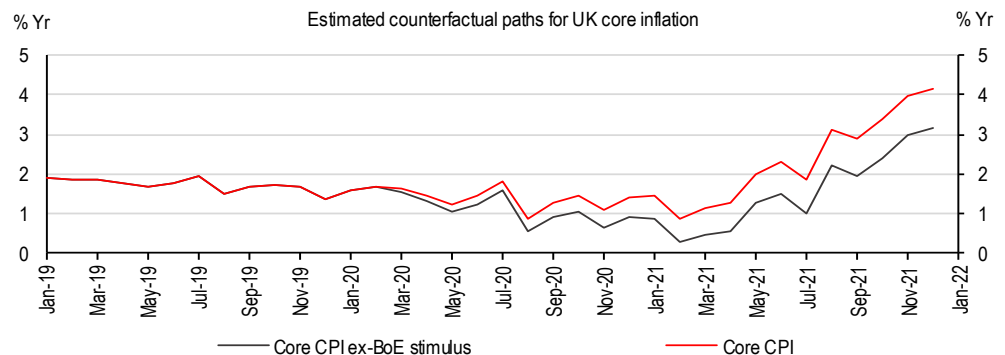
To be clear, we do expect inflation to fall back over the next two years – we see eurozone and UK inflation at close to the 2% mark next year, as energy effects, supply disruption and labour market cost pressures settle down. But potential further waves pose a clear upside risk to that view, potentially delaying the return of inflation rates to the ECB and BoE's 2% targets.

Tightening in response to future outbreaks?

Does that mean that, contrary to what happened in March 2020, central banks should steer clear of loosening monetary policy in response to future outbreaks?

Possibly. After all, using some simple rules of thumb, we have put together a counterfactual path for how UK core inflation might have evolved in the absence of the stimulus undertaken by the BoE in March 2020 (cutting Bank Rate from 0.75% to 0.10% and launching a GBP200bn round of asset purchases).³ And Chart 20 shows that, in the absence of those measures, core inflation would be lower, but still well in excess of 2%, such are the inflationary forces affecting the economy right now. In other words, even if a major central bank response does not materialise next time, the net impact of the pandemic could still be inflationary.

20. Without BoE stimulus, core inflation might still be above 3%



Source: ONS, HSBC calculations

Perhaps not initially...

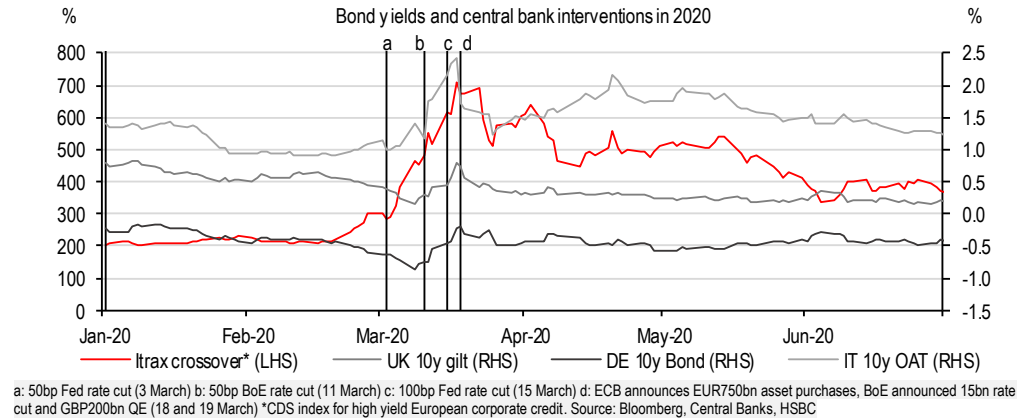
This is not to say the monetary stimulus undertaken in 2020 was a 'mistake'. It was certainly reasonable at the time. Market confidence was collapsing and, the stimulus likely played an important role in preventing a disorderly rise on sovereign and private sector borrowing costs, which were a major cause for concern that March (Chart 21). The potential disinflationary fallout from that is not covered in our counterfactual exercise in Chart 21.

Further pandemic-related shocks pose upside risks to inflation

UK inflation might still be high even without BoE easing in 2020

³ To estimate the impact of Bank Rate cuts, we use our usual rule of thumb whereby a 25bp Bank Rate cut lifts inflation by 0.1ppt, so the 2020 Bank Rate cut of 65bps adds around 0.25ppts to inflation. To estimate the QE impact, we use BoE estimates, admittedly from back in 2011, where a GBP200bn round of asset purchases lifts inflation by around 1ppt (See 'The United Kingdom's quantitative easing policy: design, operation and impact', BoE Quarterly Bulletin, Q3 2011).

21. Central banks needed to respond to rising borrowing costs in 2020



Risk management and concerns over credit conditions might still lead to a policy loosening initially...

Given what we've learnt over the past couple of years, underlying deflationary concerns will probably be more limited in a potential future pandemic wave. However, central banks might still need to react to an unwarranted tightening in monetary conditions, and may also need to step in if fiscal policy does not, after all, lend the ongoing support to jobs that we think it would. In which case, even given the potentially inflationary consequences of the pandemic, central banks might initially steer clear of tightening policy initially – they may even need to loosen.

...but subsequent tightening could come more quickly

However, even if central banks do loosen policy as an initial response to the pandemic, if the medium-term impact does indeed prove inflationary again, we think a subsequent tightening could come more quickly. Of course, surging inflation means that the recent turnaround in central bank policy surprised markets and many economists, with the ECB announcing an end to its PEPP programme in March and the BoE embarking on a path of rate rises. But with the benefit of hindsight, that hawkish shift might have come sooner – indeed, it seems odd to us that the BoE was still conducting net asset purchases as late as December 2021.

...but the subsequent tightening could come quickly

So, even if central banks initially stay on hold, or loosen, in response to a future pandemic, we think a subsequent tightening is likely, and could come much quicker than last time.

Conclusion

So what have we learned about inflation and pandemics, and to what end? In our view, the evidence suggests the disruption to supply dominates, making the shock net inflationary. This hinges on aggregate demand and market confidence shored up by swift and large stimulus. Under these conditions, once the recovery begins, any stimulus and support could be unwound faster than it was in response to COVID-19.

Disclosure appendix

Analyst Certification

The following analyst(s), economist(s), or strategist(s) who is(are) primarily responsible for this report, including any analyst(s) whose name(s) appear(s) as author of an individual section or sections of the report and any analyst(s) named as the covering analyst(s) of a subsidiary company in a sum-of-the-parts valuation certifies(y) that the opinion(s) on the subject security(ies) or issuer(s), any views or forecasts expressed in the section(s) of which such individual(s) is(are) named as author(s), and any other views or forecasts expressed herein, including any views expressed on the back page of the research report, accurately reflect their personal view(s) and that no part of their compensation was, is or will be directly or indirectly related to the specific recommendation(s) or views contained in this research report: Chris Hare

Important disclosures

This document has been prepared and is being distributed by the Research Department of HSBC and is not for publication to other persons, whether through the press or by other means.

This document is for information purposes only and it should not be regarded as an offer to sell or as a solicitation of an offer to buy the securities or other investment products mentioned in it and/or to participate in any trading strategy. Advice in this document is general and should not be construed as personal advice, given it has been prepared without taking account of the objectives, financial situation or needs of any particular investor. Accordingly, investors should, before acting on the advice, consider the appropriateness of the advice, having regard to their objectives, financial situation and needs. If necessary, seek professional investment and tax advice.

Certain investment products mentioned in this document may not be eligible for sale in some states or countries, and they may not be suitable for all types of investors. Investors should consult with their HSBC representative regarding the suitability of the investment products mentioned in this document and take into account their specific investment objectives, financial situation or particular needs before making a commitment to purchase investment products.

The value of and the income produced by the investment products mentioned in this document may fluctuate, so that an investor may get back less than originally invested. Certain high-volatility investments can be subject to sudden and large falls in value that could equal or exceed the amount invested. Value and income from investment products may be adversely affected by exchange rates, interest rates, or other factors. Past performance of a particular investment product is not indicative of future results.

HSBC and its affiliates will from time to time sell to and buy from customers the securities/instruments, both equity and debt (including derivatives) of companies covered in HSBC Research on a principal or agency basis or act as a market maker or liquidity provider in the securities/instruments mentioned in this report.

Analysts, economists, and strategists are paid in part by reference to the profitability of HSBC which includes investment banking, sales & trading, and principal trading revenues.

Whether, or in what time frame, an update of this analysis will be published is not determined in advance.

For disclosures in respect of any company mentioned in this report, please see the most recently published report on that company available at www.hsbcnet.com/research. HSBC Private Banking clients should contact their Relationship Manager for queries regarding other research reports. In order to find out more about the proprietary models used to produce this report, please contact the authoring analyst.

Additional disclosures

- 1 This report is dated as at 17 January 2022.
- 2 All market data included in this report are dated as at close 14 January 2022, unless a different date and/or a specific time of day is indicated in the report.
- 3 HSBC has procedures in place to identify and manage any potential conflicts of interest that arise in connection with its Research business. HSBC's analysts and its other staff who are involved in the preparation and dissemination of Research operate and have a management reporting line independent of HSBC's Investment Banking business. Information Barrier procedures are in place between the Investment Banking, Principal Trading, and Research businesses to ensure that any confidential and/or price sensitive information is handled in an appropriate manner.
- 4 You are not permitted to use, for reference, any data in this document for the purpose of (i) determining the interest payable, or other sums due, under loan agreements or under other financial contracts or instruments, (ii) determining the price at which a financial instrument may be bought or sold or traded or redeemed, or the value of a financial instrument, and/or (iii) measuring the performance of a financial instrument or of an investment fund.

Disclaimer

Legal entities as at 1 December 2020

'UAE' HSBC Bank Middle East Limited, DIFC; HSBC Bank Middle East Limited, Dubai; 'HK' The Hongkong and Shanghai Banking Corporation Limited, Hong Kong; 'TW' HSBC Securities (Taiwan) Corporation Limited; 'CA' HSBC Securities (Canada) Inc.; 'France' HSBC Continental Europe; 'Spain' HSBC Continental Europe, Sucursal en España; 'Italy' HSBC Continental Europe, Italy; 'Sweden' HSBC Continental Europe Bank, Sweden Filial; 'DE' HSBC Trinkaus & Burkhardt AG, Düsseldorf; '000' HSBC Bank (RR), Moscow; 'IN' HSBC Securities and Capital Markets (India) Private Limited, Mumbai; 'JP' HSBC Securities (Japan) Limited, Tokyo; 'EG' HSBC Securities Egypt SAE, Cairo; 'CN' HSBC Investment Bank Asia Limited, Beijing Representative Office; The Hongkong and Shanghai Banking Corporation Limited, Singapore Branch; The Hongkong and Shanghai Banking Corporation Limited, Seoul Securities Branch; The Hongkong and Shanghai Banking Corporation Limited, Seoul Securities (South Africa) (Pty) Ltd, Johannesburg; HSBC Bank plc, London, Tel Aviv; 'US' HSBC Securities (USA) Inc, New York; HSBC Yatirim Menkul Degerler AS, Istanbul; HSBC México, SA, Institución de Banca Múltiple, Grupo Financiero HSBC; HSBC Bank Australia Limited; HSBC Bank Argentina SA; HSBC Saudi Arabia Limited; The Hongkong and Shanghai Banking Corporation Limited, New Zealand Branch incorporated in Hong Kong SAR; The Hongkong and Shanghai Banking Corporation Limited, Bangkok Branch; PT Bank HSBC Indonesia; HSBC Qianhai Securities Limited; Banco HSBC S.A.

Issuer of report

HSBC Bank plc
8 Canada Square, London
E14 5HQ, United Kingdom
Telephone: +44 20 7991 8888
Fax: +44 20 7992 4880
Website: www.research.hsbc.com

In the UK, this publication is distributed by HSBC Bank plc for the information of its Clients (as defined in the Rules of FCA) and those of its affiliates only. Nothing herein excludes or restricts any duty or liability to a customer which HSBC Bank plc has under the Financial Services and Markets Act 2000 or under the Rules of FCA and PRA. A recipient who chooses to deal with any person who is not a representative of HSBC Bank plc in the UK will not enjoy the protections afforded by the UK regulatory regime. HSBC Bank plc is regulated by the Financial Conduct Authority and the Prudential Regulation Authority. If this research is received by a customer of an affiliate of HSBC, its provision to the recipient is subject to the terms of business in place between the recipient and such affiliate. In Australia, this publication has been distributed by The Hongkong and Shanghai Banking Corporation Limited (ABN 65 117 925 970, AFSL 301737) for the general information of its "wholesale" customers (as defined in the Corporations Act 2001). Where distributed to retail customers, this research is distributed by HSBC Bank Australia Limited (ABN 48 006 434 162, AFSL No. 232595). These respective entities make no representations that the products or services mentioned in this document are available to persons in Australia or are necessarily suitable for any particular person or appropriate in accordance with local law. No consideration has been given to the particular investment objectives, financial situation or particular needs of any recipient.

In the European Economic Area, this publication has been distributed by HSBC Continental Europe or by such other HSBC affiliate from which the recipient receives relevant services

The document is distributed in Hong Kong by The Hongkong and Shanghai Banking Corporation Limited and in Japan by HSBC Securities (Japan) Limited. Each of the companies listed above (the "Participating Companies") is a member of the HSBC Group of Companies, any member of which may trade for its own account as Principal, may have underwritten an issue within the last 36 months or, together with its Directors, officers and employees, may have a long or short position in securities or instruments or in any related instrument mentioned in the document. Brokerage or fees may be earned by the Participating Companies or persons associated with them in respect of any business transacted by them in all or any of the securities or instruments referred to in this document. In Korea, this publication is distributed by either The Hongkong and Shanghai Banking Corporation Limited, Seoul Securities Branch ("HBAP SLS") or The Hongkong and Shanghai Banking Corporation Limited, Seoul Branch ("HBAP SEL") for the general information of professional investors specified in Article 9 of the Financial Investment Services and Capital Markets Act ("FSCMA"). This publication is not a prospectus as defined in the FSCMA. It may not be further distributed in whole or in part for any purpose. Both HBAP SLS and HBAP SEL are regulated by the Financial Services Commission and the Financial Supervisory Service of Korea. This publication is distributed in New Zealand by The Hongkong and Shanghai Banking Corporation Limited, New Zealand Branch incorporated in Hong Kong SAR.

The information in this document is derived from sources the Participating Companies believe to be reliable but which have not been independently verified. The Participating Companies make no guarantee of its accuracy and completeness and are not responsible for errors of transmission of factual or analytical data, nor shall the Participating Companies be liable for damages arising out of any person's reliance upon this information. All charts and graphs are from publicly available sources or proprietary data. The opinions in this document constitute the present judgement of the Participating Companies, which is subject to change without notice. From time to time research analysts conduct site visits of covered issuers. HSBC policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits. This document is neither an offer to sell, purchase or subscribe for any investment nor a solicitation of such an offer.

HSBC Securities (USA) Inc. accepts responsibility for the content of this research report prepared by its non-US foreign affiliate. The information contained herein is under no circumstances to be construed as investment advice and is not tailored to the needs of the recipient. All US persons receiving and/or accessing this report and intending to effect transactions in any security discussed herein should do so with HSBC Securities (USA) Inc. in the United States and not with its non-US foreign affiliate, the issuer of this report. In Singapore, this publication is distributed by The Hongkong and Shanghai Banking Corporation Limited, Singapore Branch for the general information of institutional investors or other persons specified in Sections 274 and 304 of the Securities and Futures Act (Chapter 289) ("SFA") and accredited investors and other persons in accordance with the conditions specified in Sections 275 and 305 of the SFA. Only Economics or Currencies reports are intended for distribution to a person who is not an Accredited Investor, Expert Investor or Institutional Investor as defined in SFA. The Hongkong and Shanghai Banking Corporation Limited, Singapore Branch accepts legal responsibility for the contents of reports pursuant to Regulation 32C(1)(d) of the Financial Advisers Regulations. This publication is not a prospectus as defined in the SFA. This publication is not a prospectus as defined in the SFA. It may not be further distributed in whole or in part for any purpose. The Hongkong and Shanghai Banking Corporation Limited Singapore Branch is regulated by the Monetary Authority of Singapore. Recipients in Singapore should contact a "Hongkong and Shanghai Banking Corporation Limited, Singapore Branch" representative in respect of any matters arising from, or in connection with this report. Please refer to The Hongkong and Shanghai Banking Corporation Limited Singapore Branch's website at www.business.hsbc.com.sg for contact details. HSBC México, S.A., Institución de Banca Múltiple, Grupo Financiero HSBC is authorized and regulated by Secretaría de Hacienda y Crédito Público and Comisión Nacional Bancaria y de Valores (CNBV).

In Canada, this document has been distributed by HSBC Securities (Canada) Inc. (member IIROC), and/or its affiliates. The information contained herein is under no circumstances to be construed as investment advice in any province or territory of Canada and is not tailored to the needs of the recipient. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed judgment upon these materials, the information contained herein or the merits of the securities described herein, and any representation to the contrary is an offense. In Brazil, this document has been distributed by Banco HSBC S.A. ("HSBC Brazil"), and/or its affiliates. As required by Instruction No. 598/18 of the Securities and Exchange Commission of Brazil (Comissão de Valores Mobiliários), potential conflicts of interest concerning (i) HSBC Brazil and/or its affiliates; and (ii) the analyst(s) responsible for authoring this report are stated on the chart above labelled "HSBC & Analyst Disclosures".

The document is intended to be distributed in its entirety. Unless governing law permits otherwise, you must contact a HSBC Group member in your home jurisdiction if you wish to use HSBC Group services in effecting a transaction in any investment mentioned in this document. HSBC Bank plc is registered in England No 14259, is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority and is a member of the London Stock Exchange. (070905)

If you are an HSBC Private Banking ("PB") customer with approval for receipt of relevant research publications by an applicable HSBC legal entity, you are eligible to receive this publication. To be eligible to receive such publications, you must have agreed to the applicable HSBC entity's terms and conditions for accessing research and the terms and conditions of any other internet banking service offered by that HSBC entity through which you will access research publications ("the Terms"). Distribution of this publication is the sole responsibility of the HSBC entity with whom you have agreed the Terms. If you do not meet the aforementioned eligibility requirements please disregard this publication and, if you are a customer of PB, please notify your Relationship Manager. Receipt of research publications is strictly subject to the Terms and any other conditions or disclaimers applicable to the provision of the publications that may be advised by PB.

© Copyright 2022, HSBC Bank plc, ALL RIGHTS RESERVED. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, on any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of HSBC Bank plc. MCI (P) 037/01/2022, MCI (P) 017/10/2021

[1185118]