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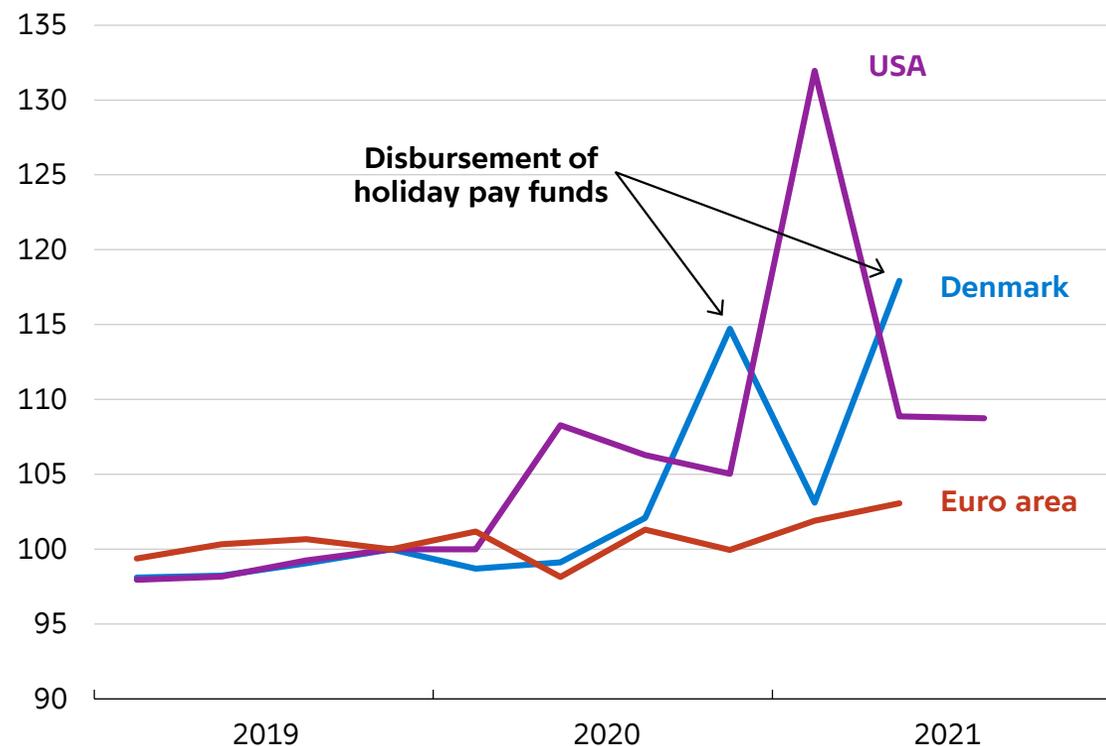
Economic policy and inflation during covid-19 Perspectives on Denmark, the euro area and the United States

Thomas Harr, Assistant Governor, Danmarks Nationalbank
23 November 2021

Strong consumption recovery on the back of boost in disposable income

Large increase in disposable income in the United States and Denmark

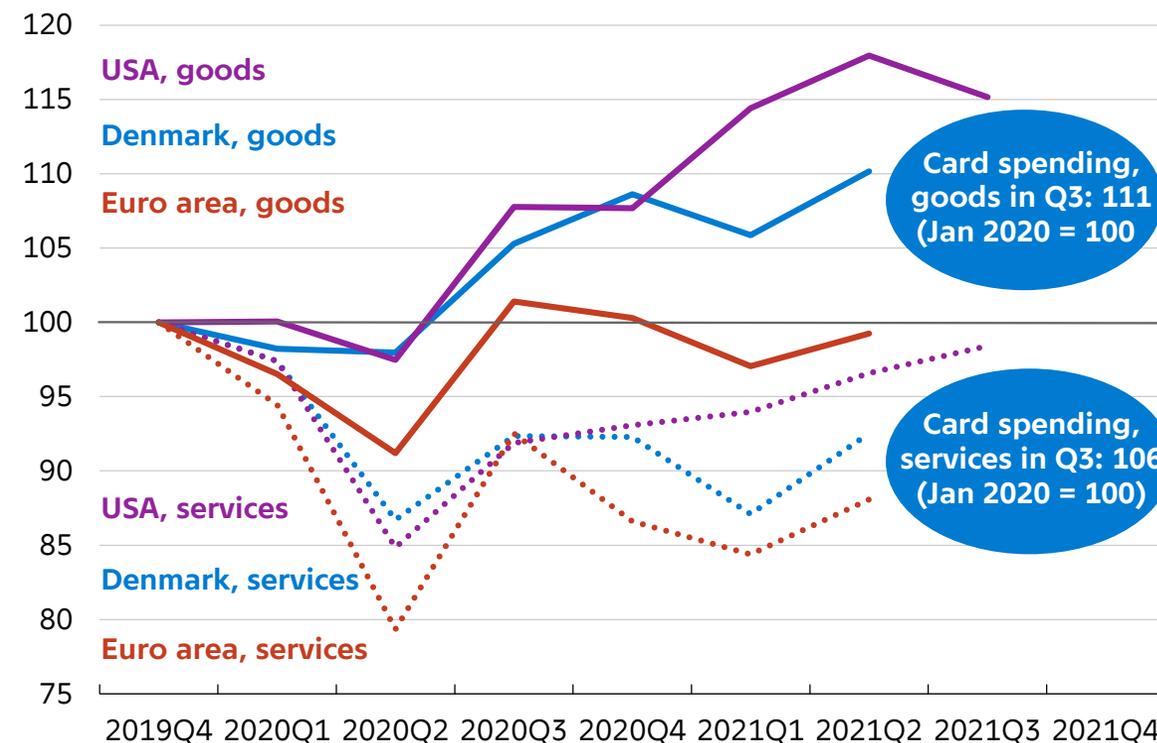
Index, 2019Q4 = 100



Note: The disbursement of frozen holiday pay funds has been added to disposable income for Denmark.
Source: Macrobond.

Strong goods consumption in the United States and Denmark, services are lagging

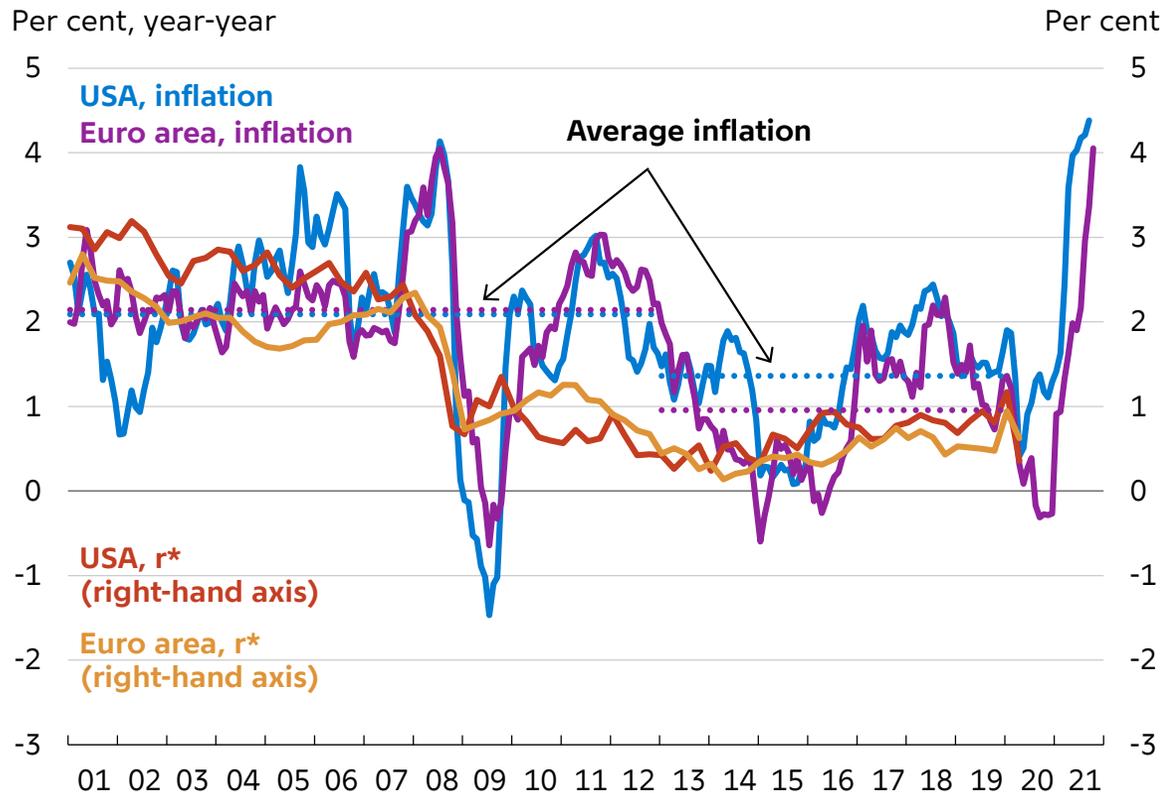
Index, 2019Q4 = 100



Note: Constant prices. Euro area is a GDP-weighted average of Germany, France, Italy and the Netherlands.
Source: National accounts data via Macrobond.

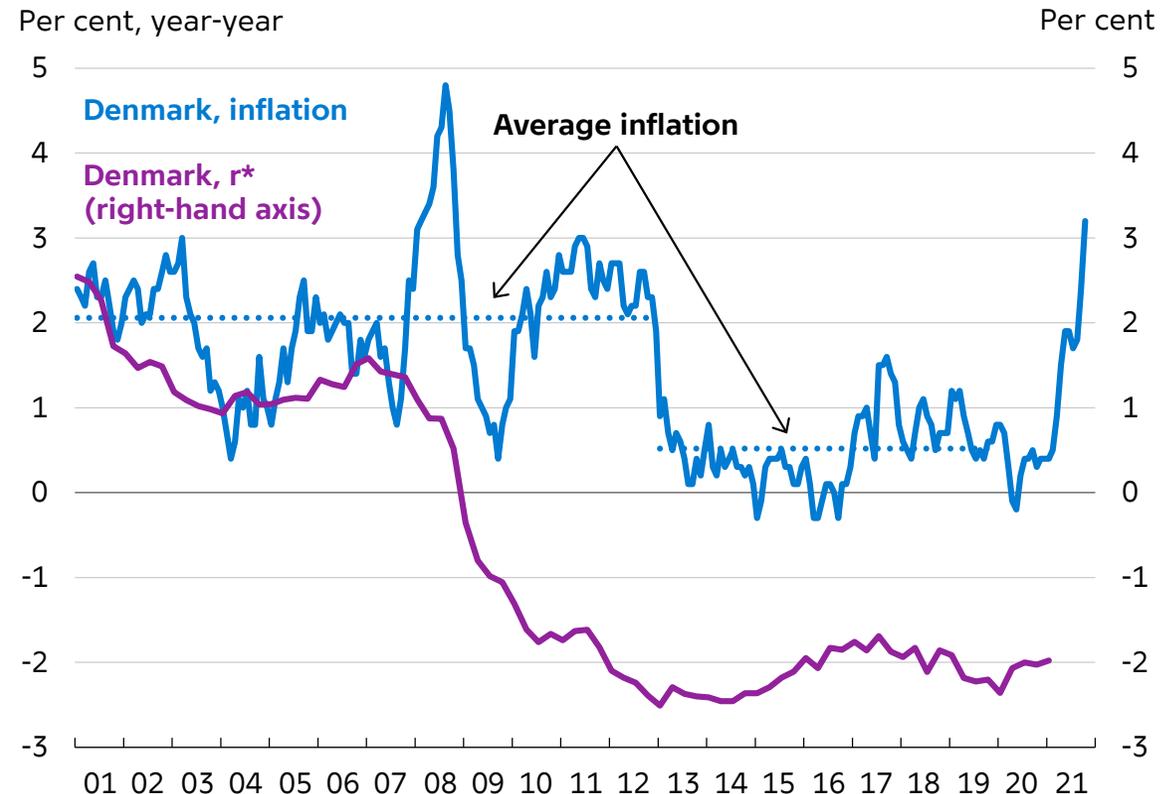
Central banks needed to regain additional monetary policy space before covid-19

Low inflation and fall in r^* in the years preceding covid-19



Note: The chart shows PCE inflation for the USA and HICP inflation for the euro area. Dotted lines indicate average inflation rates for the USA and euro area, respectively.
Source: Macrobond.

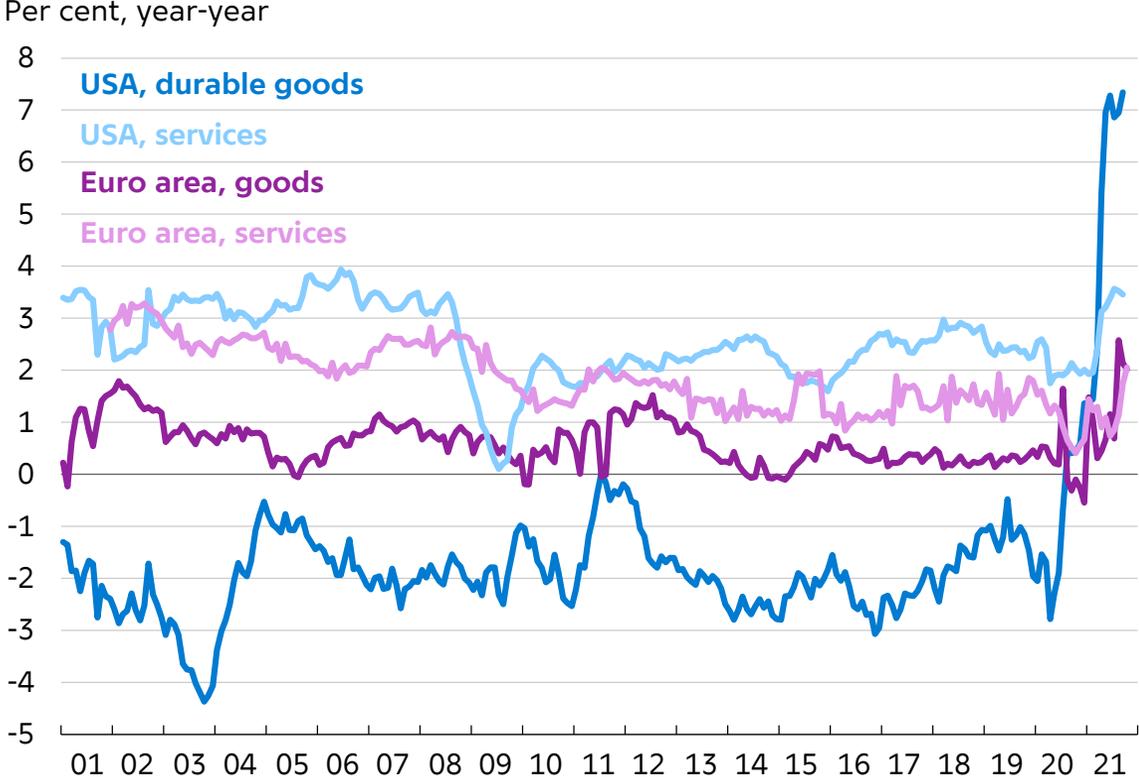
r^* has also fallen in Denmark



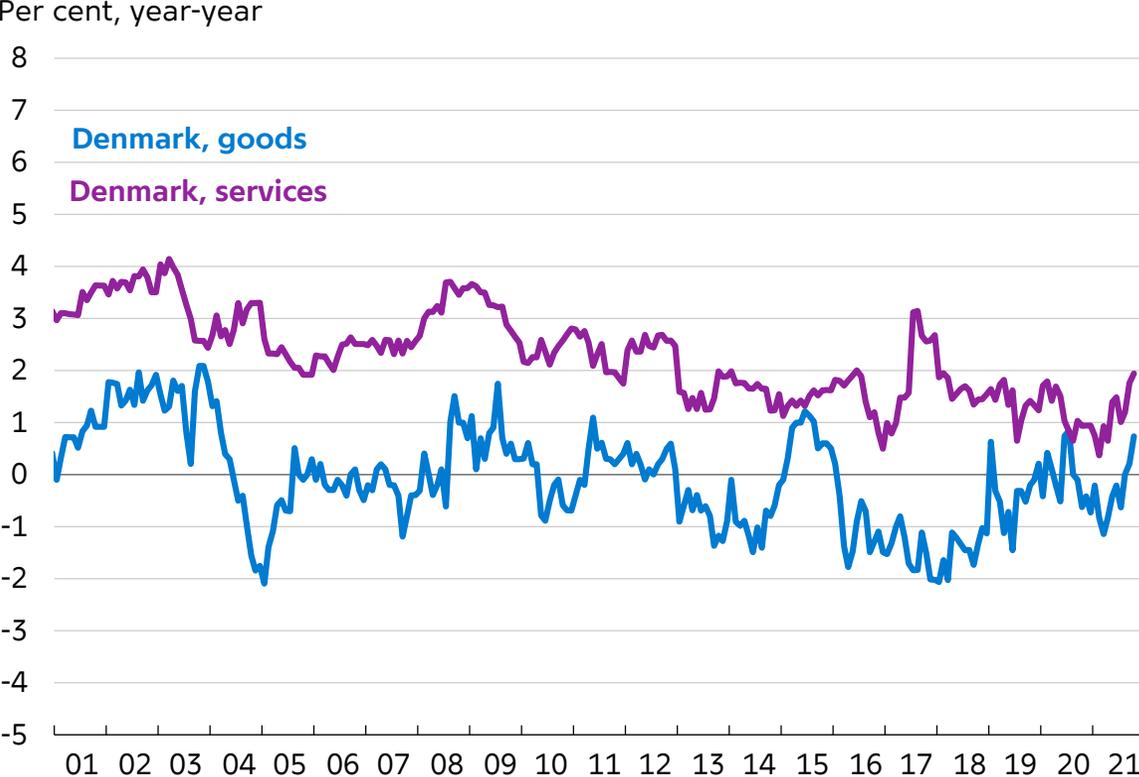
Note: The chart shows HICP inflation for Denmark.
Source: Macrobond, Statistics Denmark and Danmarks Nationalbank.

The diverging goods and services price inflation led by the United States

Goods price inflation has risen sharply in the United States



Denmark has not seen a spike in goods prices during covid-19

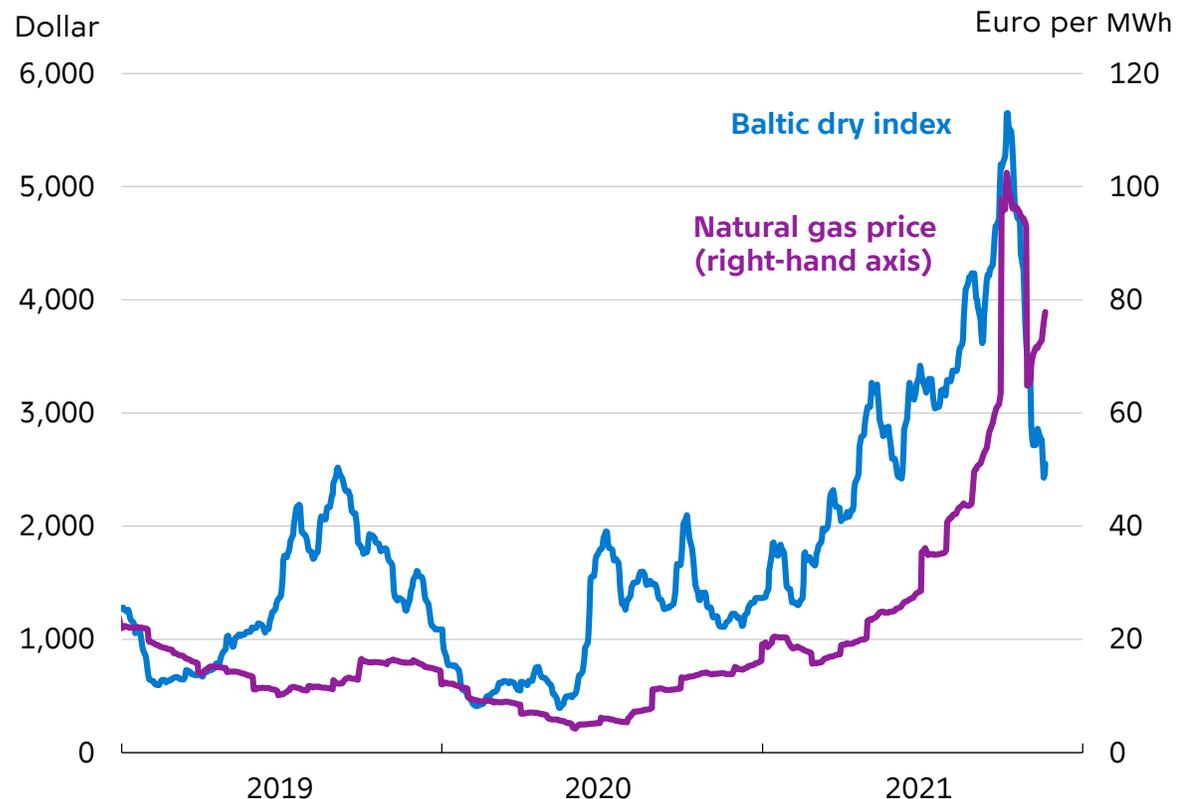


Note: Chart shows HICP non-energy goods and services prices for the euro area and PCE durable goods and service prices for the US. Source: Macrobond.

Note: The chart shows HICP non-energy goods and services prices for Denmark. Source; Macrobond.

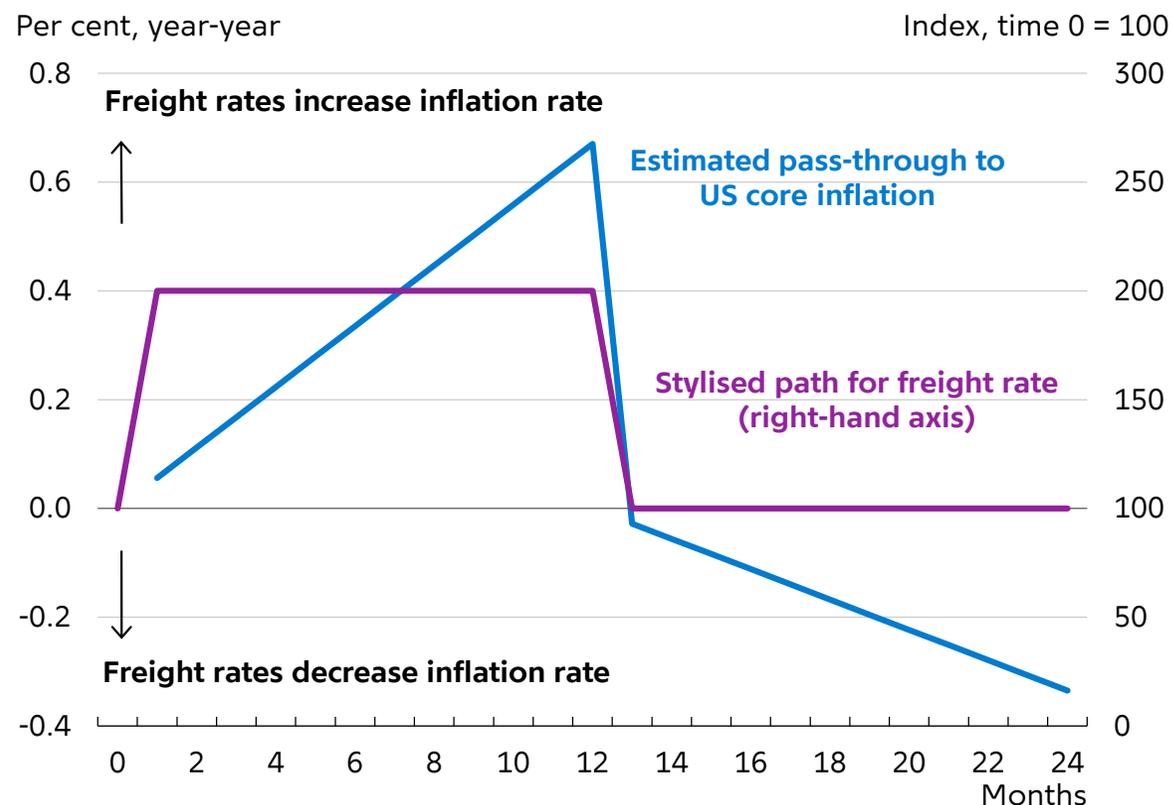
Some of the current factors lifting inflation may be easing

The Baltic Dry Index and natural gas prices have fallen back somewhat



Note: Chart shows the TTF natural gas TTFI index and the Baltic dry index.
Source: Macrobond.

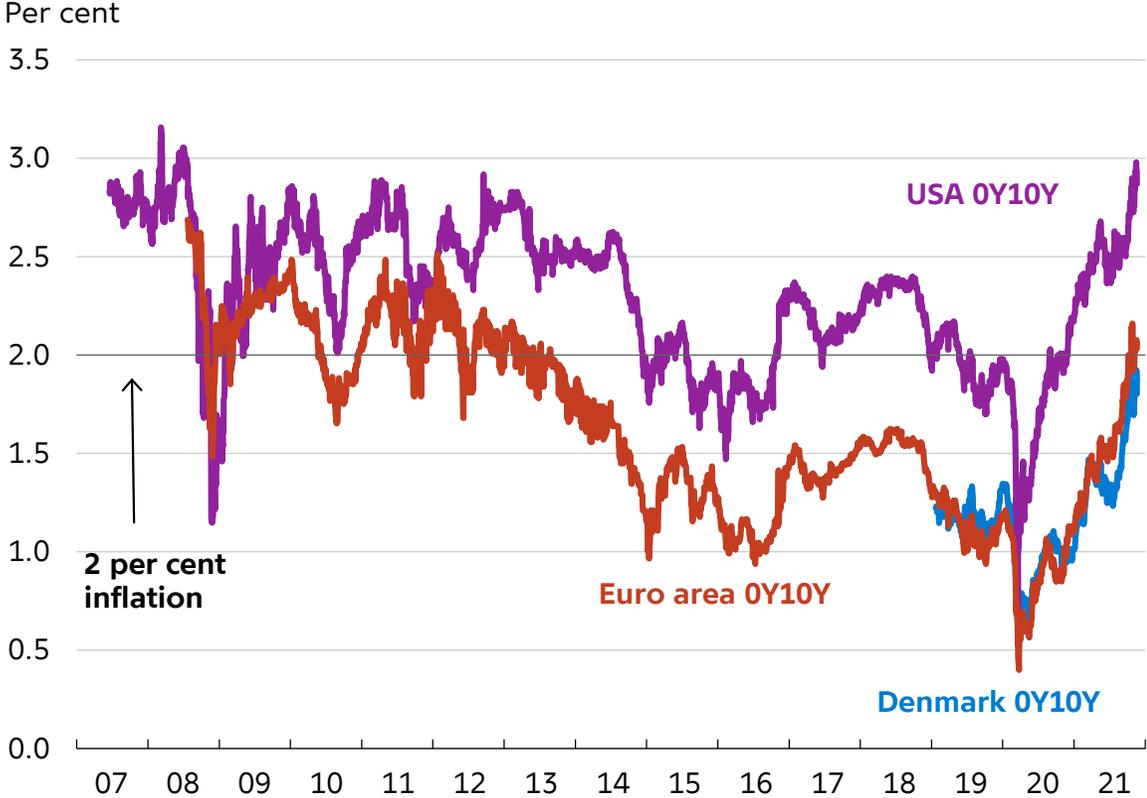
Rising freight rates may only push up US inflation temporarily



Note: Chart shows the estimated pass-through to US core PCE inflation after a shock to the Harpex freight index. Drawing on Heeriford et al (2016) a hypothetical 100 per cent increase in freight rates is estimated to add almost 0.7 ppt. to US core CPI after 12 months. Assuming that freight rates afterwards drop 50 per cent and thus reverse to their starting point the impact on inflation becomes negative.
Source: Own calculations based on the VAR-model in Herriford (2016).

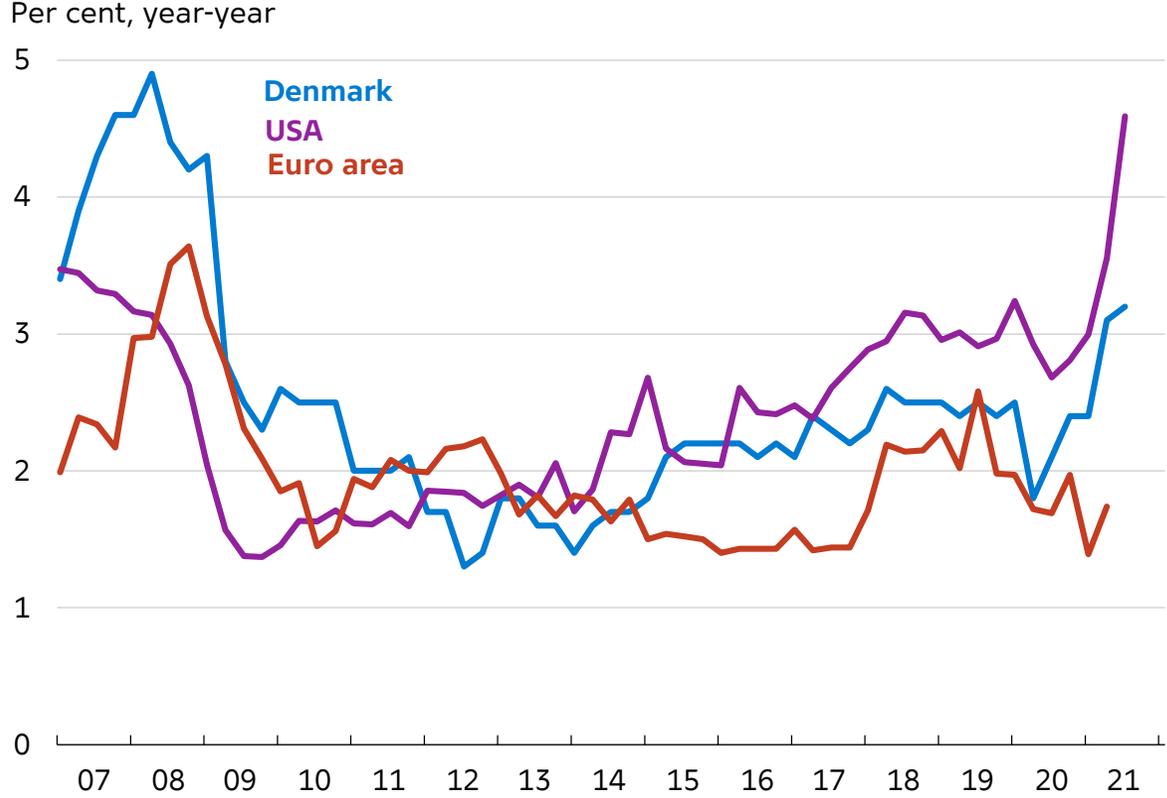
Inflation expectations and wages are key for the medium-term inflation outlook

Marked-based inflation expectations are anchored, but significantly higher in the United States



Note: US and EA break-even inflation rates (BEIR) are computed as the 10Y ILS middle rate. The Danish BEIR is computed on 10Y nominal and inflation-linked government bonds maturing in 2030.
Source: Bloomberg and Danmarks Nationalbank

Wages have started to increase, especially in the United States



Note: The charts shows wages from Dansk Arbejdsgiverforening for Denmark, BEA's employment cost index for the private sector in the United States and ECB's indicator for negotiated wages in the euro area.
Source: Macrobond.

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PANEL SPEECH

Notes for Assistant Governor Thomas Harr's panel speech Economic policy and inflation during covid-19: Perspectives on Denmark, the euro area and the United States

23 November 2021

Danske Bank Summit 2021

CHECK AGAINST DELIVERY

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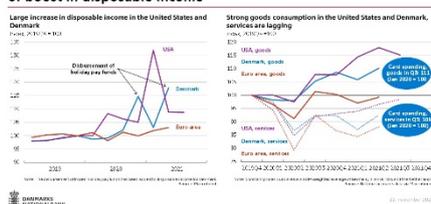
Thomas Harr, Assistant Governor, Danmarks Nationalbank
23 November 2021



Slide 1:

- Today, I will discuss the economic recovery from the covid-19 pandemic, fiscal and monetary policy, and the outlook for inflation.
- I argue that there are large differences between the United States and the euro area, while Denmark is a special case.
- Over the medium-term, inflation expectations and wages will be the key determinants of inflation.

Strong consumption recovery on the back of boost in disposable income



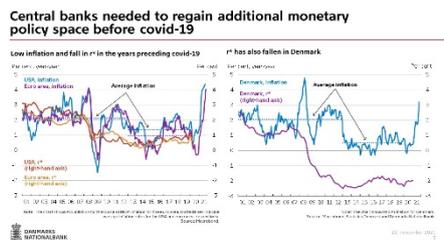
Slide 2:

- On the subject of the recovery and fiscal policy, one of the most striking features of the pandemic is that disposable income

increased significantly across developed countries, including in Denmark, the euro area and the United States.

- This was mainly due to strong fiscal policy support to households in the form of the disbursement of holiday pay funds in Denmark and transfers in the United States.
- The fiscal stimulus was larger in the United States than in the euro area and Denmark, even considering the differences in automatic stabilisers. This larger fiscal stimulus partly reflected the significant increase in transfers to households.
- Academic research suggests that insurance policies towards workers which are affected by the pandemic are more effective during lockdowns than standard fiscal stimulus, see Guerrieri et al (2020).
- In Denmark, there is evidence that wage compensation schemes helped maintain worker-company ties during lockdowns, thereby mitigating labour scarring, see Bess and Darougheh (2021).
- Private consumption has recovered very fast in the United States, but also in Denmark and to a lesser extent in the euro area. The differences are partly due to the diverging developments in disposable incomes.
- During the pandemic, goods consumption has been very strong relative to service consumption, which is due to restrictions and behavioural changes.
- Consumption patterns are now starting to normalise towards their pre-covid-19 levels, particularly in Denmark.
- Saving rates increased substantially during the peak of the crisis which in Denmark's case appear to have been driven mostly by restrictions rather than precautionary savings, cf. Andersen et al (2021).
- In the United States, there is evidence that consumers only used a small part of stimulus checks on consumption, cf. Coibion et al (2020).
- In both Denmark and the United States, this has left substantial accumulated savings that can potentially lead to saving rates which are lower than prior to the pandemic.
- In Denmark, we do not expect an extended period of very strong consumption due to the following factors:
 - Pent-up demand for services is likely to be limited as there is evidence that service consumption does not catch up on foregone spending after demand driven recessions, see Beraja and Wolf (2021).
 - Questionnaires indicate that the pent-up demand for durable goods is limited in Denmark.

- Housing and pension wealth gains, which have been large during the pandemic but are less liquid, are typically only converted into consumption over a number of years, see Yde Andersen and Leth-Petersen (2021).



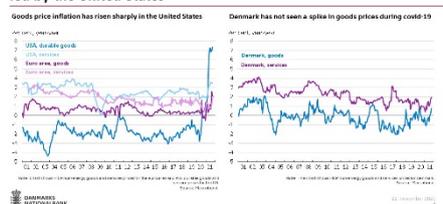
Slide 3:

- As for monetary policy, heading into the pandemic, several advanced economy central banks needed to regain additional monetary policy space due to low policy rates, falling equilibrium real rate of interest, r^* , and subdued inflation.
- This was a central element in the Fed’s ‘Review of Monetary Policy Strategy’ and the ECB’s ‘Strategic Review’.
- One benefit from experiencing higher inflation for some time, is that it may create more space for monetary policy to tackle future recessions.
- In addition, in response to covid-19, there has been a complementary approach to fiscal and monetary policy:
 - Research indicates that the Fed’s intervention substantially mitigated the impact on output, cf. Chadha et al. (2021).
 - In the euro area, monetary and fiscal interaction has improved the prospects of higher inflation, cf. Panetta (2021), and was a key focus in the ECB’s Strategic Review, cf. ECB Strategy Review (2021)
- In Denmark, we ensure price stability through our fixed exchange rate regime vis-à-vis the euro.
- Through the fixed exchange rate regime, we import the monetary policy stance from the euro area. This implies that inflation in Denmark in the medium- to long-term will be aligned with inflation in the euro area.
- In a fixed exchange rate regime such as Denmark, fiscal policy should be used to stabilise economic fluctuations particularly in the event of significant diverging economic developments relative to the euro area.

- During the covid-19 crisis, there has not been a need to use unconventional measures to support our fixed exchange rate regime.
- Following the ECB's Strategic Review unconventional monetary policy instruments have become an integral part of the ECB's monetary policy toolkit.
- To the extent that the ECB's unconventional monetary policy measures are effective in lifting inflation in the euro area during a recession, use of these measures may also support the Danish economy going forward, see Loncar and Pedersen (2021).

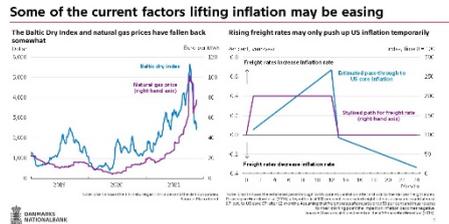
Slide 4:

The diverging goods and services price inflation led by the United States



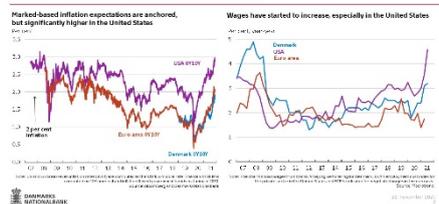
- On inflation, goods price inflation in Denmark and abroad has run below that of services for several decades before the pandemic.
- The low – and often negative – goods price inflation was due to secular disinflationary forces, such as faster productivity gains in the production of goods compared to services. This trend is likely to have been supported by China's entry into the WTO in 2001.
- This pattern has changed in some countries during the pandemic, particularly in the United States, where goods price inflation is now higher than services price inflation. Conversely, goods price inflation is substantially lower in the euro area and particularly in Denmark.
- The diverging developments between goods and services price inflation during the pandemic may be explained by spending rotation towards goods on the back of restrictions and behavioural changes and supply side shortages.
- The much higher goods inflation in the United States than in the euro area and Denmark may be explained by stronger demand partly due to a larger fiscal stimulus, cf. slide 2.

Slide 5:



- Supply has struggled to keep pace with demand in some parts of the global economy throughout 2021. Several factors have amplified the severity of these bottlenecks, see BIS (2021), including:
 - Shift in the composition of demand towards goods.
 - Pandemic-induced supply disruptions, e.g. port closures.
 - Precautionary hoarding and buffer building.
- Rising energy prices have contributed to the inflation jump in 2021, and strong pipeline price pressures, as seen by elevated producer prices and freight rates, may spill over to global consumer prices over the next year or two.
- For example, rising shipping costs generate cost pressures that may be passed on to consumers with some delay as shipping services ordered today are typically for goods delivered months into the future and companies need time to adjust prices to higher costs.
- However, the Baltic Dry Index and natural gas prices have fallen back somewhat, albeit at elevated levels. This could be an early sign that supply shortages are easing.
- Additionally, some of the supply shocks may have an effect on the price level but are unlikely to lead to recurrent increases in price changes, i.e. higher medium-term inflation.
- In fact, if freight rates and other input costs eventually fall back again, it could trigger downward pressure on inflation.
- As such, easing of supply-side shortages and normalising demand patterns could imply that some of the current factors lifting global goods inflation will wash out over time.
- However, the longer the bottlenecks persist the larger is the risk that they will feed through to inflation expectations and wage increases which would have a more lasting effect.
- Hence, services price inflation may increase if demand patterns normalise and if current labour shortages spill over to wages.

Inflation expectations and wages are key for the medium-term inflation outlook



Slide 6:

- Over the medium-term, inflation expectations and wage growth are the key determinants of inflation.
- In both the United States, the euro area and Denmark, medium-term measures of market-based inflation expectations have risen over the past year. They are well-anchored, but significantly higher in the United States.
- However, such measures may be biased due to liquidity and inflation risk premia.
- Instead, recent research shows that the ECB's Survey of Professional Forecaster provides a higher forecast accuracy, see Banbura et al. (2021). They are also well-anchored.
- In Denmark, 12 months household inflation expectations have reached 3.5 per cent, which is the highest level since 2008.¹ However, recent research documents the inflation perception bias in Danish household survey data, see Abildgren and Kuchler (2021).
- Wages have increased substantially in the United States, which may be explained by:
 - Demand-supply mismatches in the labour market visible in the outward shift in the Beveridge curve.
 - The drop in the labour market participation rate.
- In Denmark, private sector wages rose 3.2 per cent year-on-year in the 3rd quarter, which across industries are slightly higher than pre-pandemic levels. Wage setting in Denmark is typically done at the company level, and since the financial crisis there has been a strong focus on competitiveness, which is likely to mitigate a sharp increase in wage growth.
- However, given the increasingly tight Danish labour market with signs of labour shortages across a range of industries, wage growth may rise further in coming years.

¹ Source: Own calculations based on micro data from the consumer expectations survey compiled by Statistics Denmark

- Danish inflation is currently influenced by changes in energy and tobacco taxes. Looking beyond these factors, core HICP inflation excluding tax changes is still at low levels. A further rise in wage increases, however, may increase costs and thus consumer prices over the coming years.