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Euro Area Research
Measuring the euro area inflation pulse

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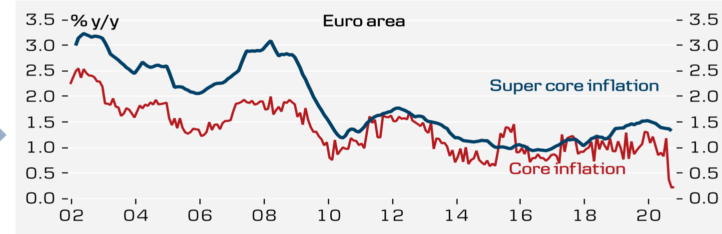
Important disclosures and certifications are contained from page 38 of this report

Summary: measuring the euro area inflation pulse

1. Euro inflation rewind: negative inflation returns to the euro area

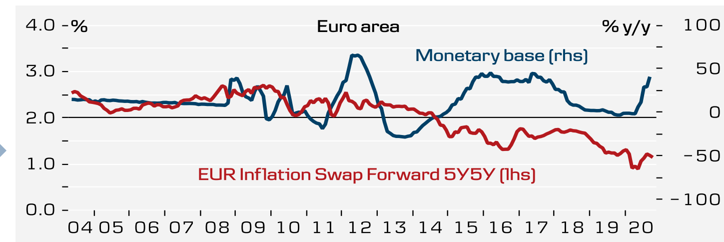
- However, underlying inflation pressures are not as weak as core inflation would suggest.



Source: Eurostat, Macrobond Financial, Danske Bank

2. Theme: inflation drivers in a post-corona world

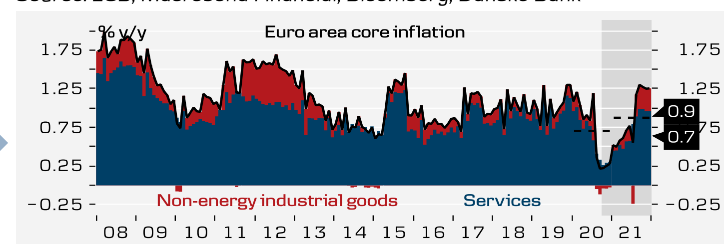
- Both anti- and pro-inflationary drivers can be found in a post-coronavirus world. While we see the balance of risk for higher inflation in the medium term, the long-term implications are less clear cut.



Note: Past performance is not a reliable indicator of current or future results
Source: ECB, Macrobond Financial, Bloomberg, Danske Bank

3. Euro inflation outlook: the battle between demand and supply side factors

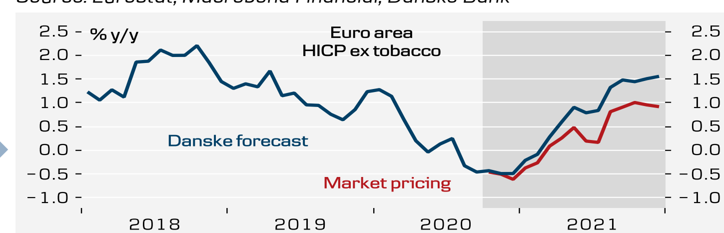
- The inflation prospects should brighten going into 2021, driven partly by technical factors but also by economic ones.



Source: Eurostat, Macrobond Financial, Danske Bank

4. Inflation expectations and market dynamics: reflation doubts linger

- Little evidence yet of higher selling prices explains why markets remain sceptical about reflation.



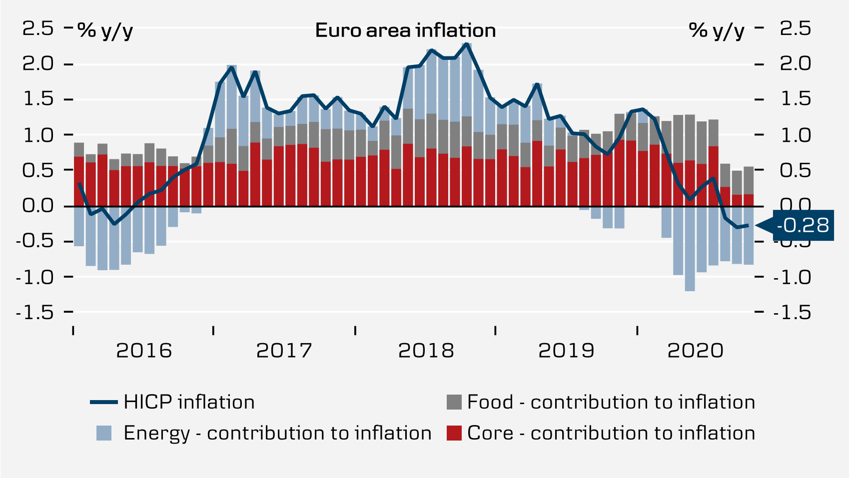
Note: Past performance is not a reliable indicator of current or future results
Source: Eurostat, Bloomberg, Macrobond Financial, Danske Bank

Euro inflation rewind:
negative inflation returns to the euro area

Negative inflation returns to the euro area

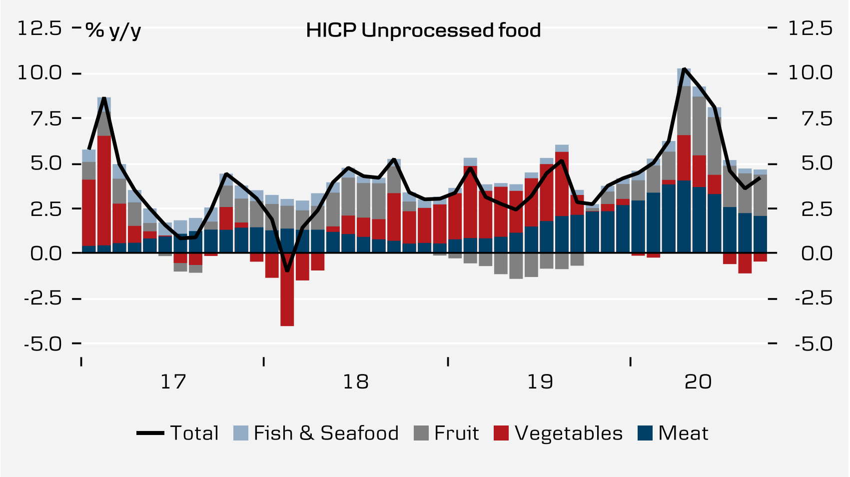
- **State of play:** In August, **headline inflation** fell back into negative territory for the first time since 2016. A significant drag from energy prices on the back of the oil price fall in 2020 was an important factor behind this development but policy initiatives such as Germany's temporary VAT cut for H2 20 (see also *Euro Area Research: Germany's VAT cut sends euro inflation on a roller coaster*, 11 June) and an easing of service price inflation contributed to the fall.
- **The outlier:** An outlier of the adverse price trends has been **food price inflation**. As the lockdowns in southern Europe were upended production and transport routes, prices for fruit and vegetables surged, with food price inflation reaching 3.4% in Q2 20 (up from 2.2% in Q1 20). That said, as lockdowns eased and supply chain disruptions abated, prices came down again in H2 20.
- **Policy implications:** Although the current low inflation pressure is unlikely to cheer ECB policymakers, they have stressed their transitory nature. Still, with the economic outlook deteriorating due to second waves and renewed partial lockdowns, we look for a comprehensive ECB easing package to be unveiled in December (see *ECB Review*, 29 October).

Energy weighs on HICP inflation



Source: Eurostat, Macrobond Financial, Danske Bank

Fruit and vegetable prices surged in Q2 20

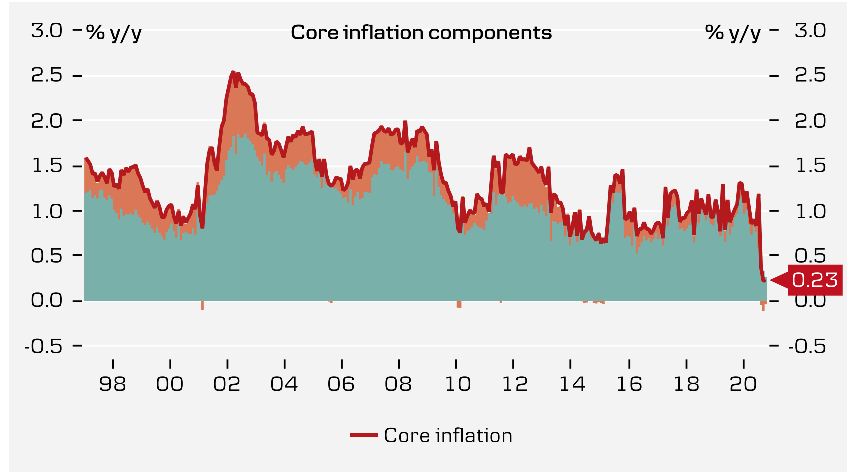


Source: Eurostat, Macrobond Financial, Danske Bank

A core conundrum

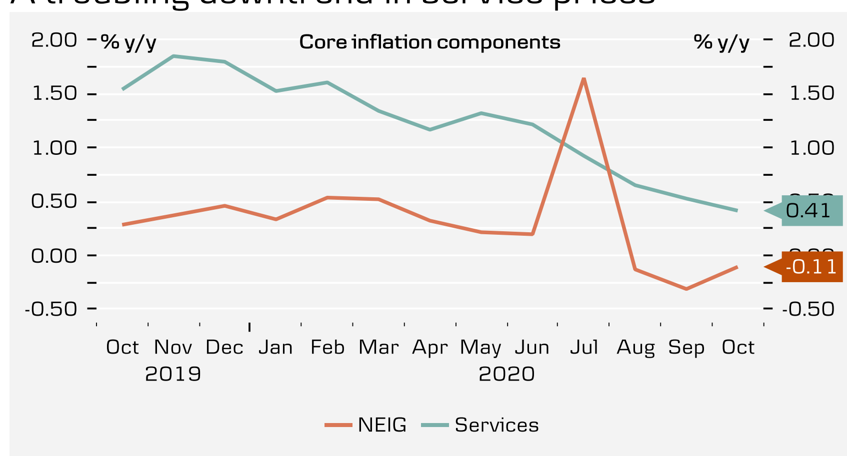
- Whereas **core inflation** still averaged 1.1% in Q1 20, with signs of building momentum in underlying inflation (see overleaf), the coronavirus crisis brought a significant setback in the ECB's fight to lift core inflation.
- In September, core inflation fell to a new all-time low of only 0.2%, with both non-energy industrial goods (NEIG) and service prices contributing to the abating momentum, although for different reasons.
- **NEIG inflation** was on a roller-coaster in Q3 20, as the impact of Germany's VAT cut and seasonal factors related to postponed summer sales in France and Italy (July in 2019, August in 2020) wreaked havoc on annual inflation rates.
- The downtrend in **service price inflation** (from a peak of 1.85% in November 2019 to stand at only 0.41% in October 2020) has been more persistent – and more worrying. A closer look at the subcategories reveals hospitality and travel-related services were the main culprits, while inflation in other services areas has (so far) remained fairly resilient.

Core inflation reaches a new all-time low



Source: Eurostat, Macrobond Financial, Danske Bank

A troubling downtrend in service prices



Source: Eurostat, Macrobond Financial, Danske Bank

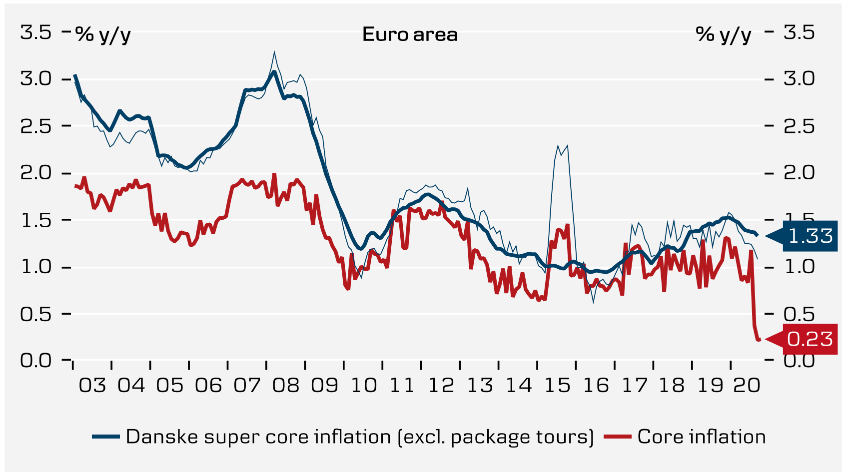
Underlying inflation pressures not as weak as it seems

- The ECB's seeming complacency, with low and declining core inflation rates, might seem surprising but a closer look at alternative underlying inflation measures reveals that deflationary risks might not be as pronounced as it seems.
- Our **super core inflation** measure* has been on a steady uptrend since 2016, peaking at 1.53% in December 2019. However, although fortunes reversed in 2020, the decline in super core inflation (to 1.33% in September) has by no means been as steep as the one visible in core inflation.
- A **weighted-median inflation** measure** following the methodology of *Ball and Mazumder (2020)* reveals underlying inflation might have been higher than core inflation would have suggested in 2017-19. However, with the advent of the coronavirus crisis median inflation has shown a marked deceleration, nearly halving to 0.75% in September.

** Danske's super core inflation measure constitutes 14 items (accounting for 30% of the HICP weight), with a statistically significant and positive link to the output gap (mostly in the services component).*

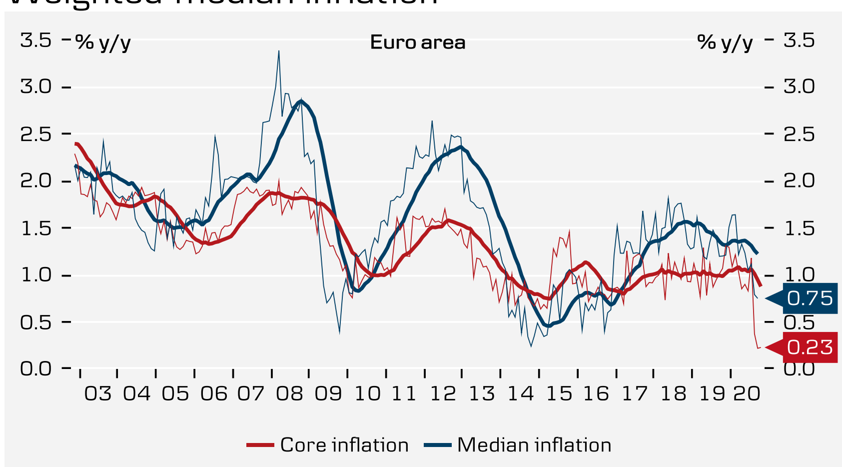
*** Median inflation is constructed from the inflation rates of the 94 industries that make up the HICP. The weighted median is the inflation rate such that industries with half of the total weights have higher rates and industries with half of the weights have lower rates.*

Super core inflation



Source: Eurostat, Macrobond Financial, Danske Bank

Weighted-median inflation



Source: Eurostat, Macrobond Financial, Danske Bank

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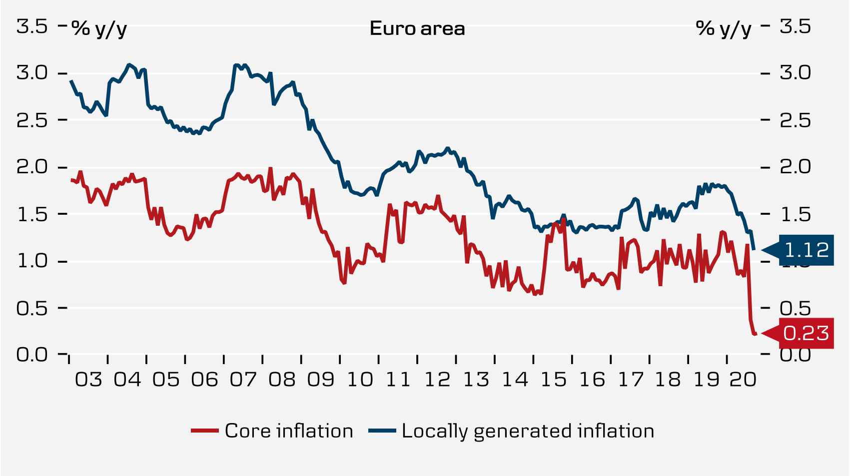
Underlying inflation pressures not as weak as it seems

- Our **domestically generated inflation** measure* includes only locally sourced HICP items and aims to filter out the (mostly negative) impact of international factors and globalisation. This measure rose steadily from the start of 2018, to reach a peak of 1.8% in 2019. Among the alternative measures of underlying inflation, this metric has seen the strongest fall since the onset of the COVID-19 pandemic. This suggests easing domestically generated price pressures has been at the heart of the collapse in core inflation.
- A more robust picture emerges when looking at the **persistent component of inflation** as measured by **PCCI** (see *ECB paper*). To us this suggests that the observed adverse price trends might still be driven largely by idiosyncratic factors and the ECB should rightly be cautious about basing its policy decision entirely on the current low core inflation prints. That said, the situation can change quickly with 'traditional' recession dynamics taking over. Developments in the labour market after the expiry of short-time working schemes will be an important variable to watch in this respect.

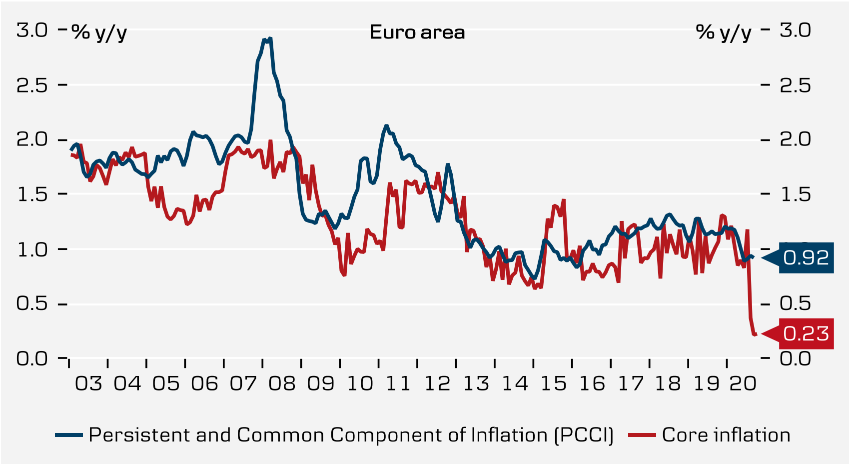
** Danske's domestically generated inflation constitutes 22 locally sourced items (accounting for 40% of the HICP weight), mostly in the services component.*

Locally generated inflation



Source: Eurostat, Macrobond Financial, Danske Bank

Persistent and common component of inflation (PCCI)



Source: Eurostat, ECB, Macrobond Financial, Danske Bank

Theme: inflation drivers in a post-corona world

Inflation drivers in a post-coronavirus world

Anti-inflationary | *Pro-inflationary*

Short term

1-6M: coronavirus-related factors dominate

Anti-inflationary:

- *Imputations*
- *Discounting campaigns*
- *German VAT cut*

Pro-inflationary:

- *Higher production costs (stricter hygiene requirements)*

Medium term

6-24M: demand versus supply factors take over

Anti-inflationary:

- *Labour market*
- *Weight changes*
- *Exchange rate*

Pro-inflationary:

- *Supply-side constraints*
- *German climate package*

Long term

3-10Y: structural drivers take over

Anti-inflationary:

- *Digitalisation and trend towards online shopping*
- *Natural rate (r*) impact*

Pro-inflationary:

- *Monetary and fiscal easing*
- *Demographics*
- *'Slowbalisation'*

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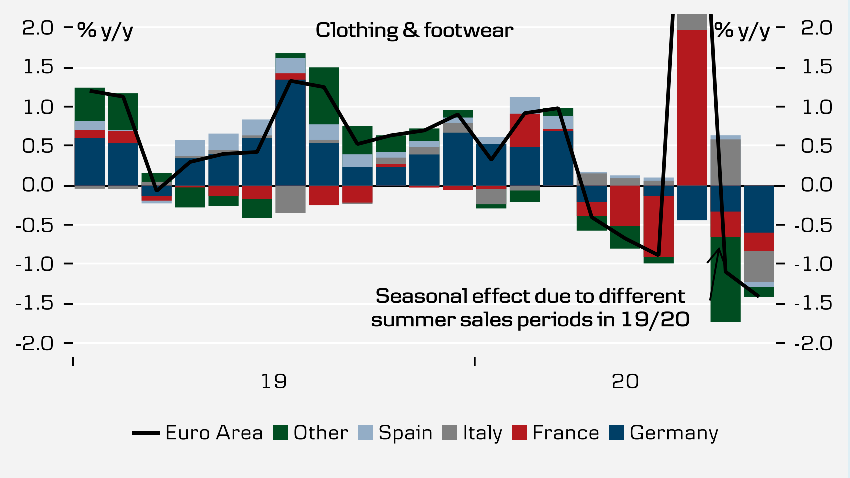
German VAT cut and discounting campaigns weighing on euro area inflation in the short term

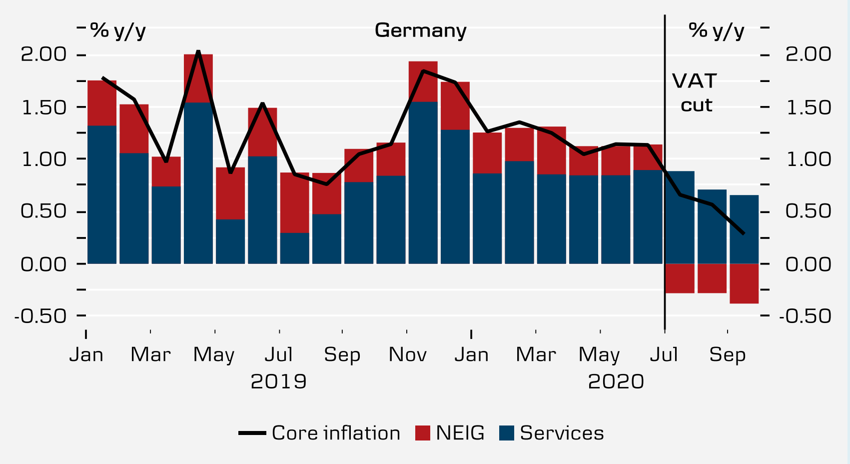
- Since lockdowns ended, **discounting campaigns** by retailers to entice consumers have been visible in a range of euro area countries, notably France. In particular, clothing and footwear registered significant price decreases from April onward, although postponed summer sales in France and Italy (August in 2020, July in 2019) led to a significant base effect pushing up the year-on-year inflation rate in July. Overall, we expect the impact of discounting campaigns to fade gradually throughout 2021.
- **Germany's temporary VAT cut**, which took effect in July 2020, is set to remain a drag on euro area inflation for the remainder of this year (see also *Euro Area Research: Germany's VAT cut sends euro inflation on a roller coaster*, 11 June). As expected, pass-through of the VAT cut to prices of goods has been high, leading German core inflation to dip from 1.1% in June to 0.7% in July. At the current stage, the German government is reluctant to extend the VAT cut beyond 2020, so a positive base effect will give an artificial boost to core inflation in the latter part of 2021.

Discounting campaigns visible in clothing prices



Source: Eurostat, Macrobond Financial, Danske Bank

German VAT cut depresses prices in H2 20



Source: Eurostat, Macrobond Financial, Danske Bank

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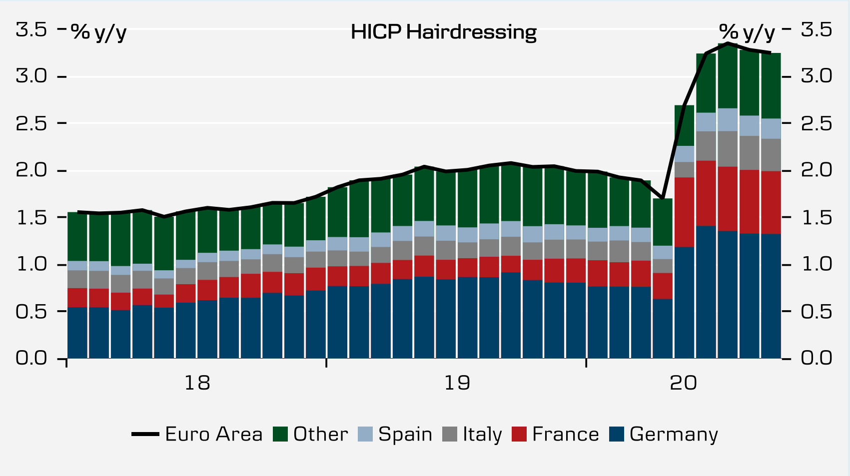
Upward bias from imputations and coronavirus-related price adjustments is waning

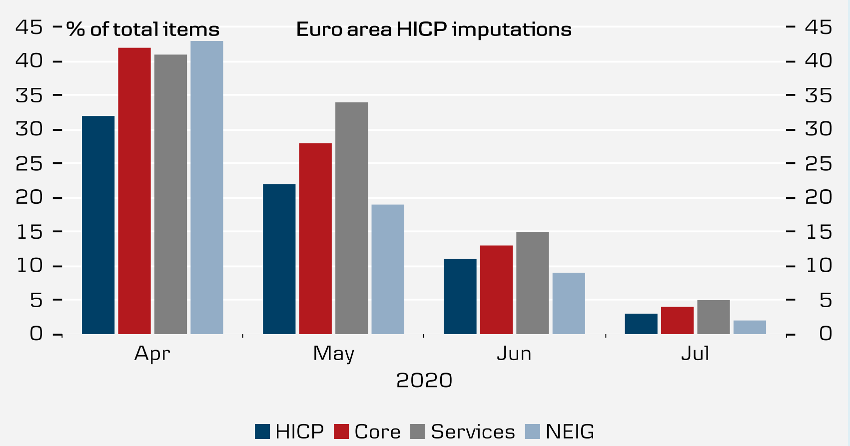
- The coronavirus crisis requires some service providers (such as hairdressers and restaurants) to comply with **stricter hygiene requirements** in their daily business operations. Some of these costs have been passed on to consumer prices relatively swiftly, as the chart on the right shows. However, most businesses are likely to have done their short-term coronavirus-related price adjustments for now, so we do not expect a further acceleration in inflation rates from this channel in the near term.
- The restrictive measures implemented by European governments in reaction to the COVID-19 pandemic – such as closures of shops or travel restrictions – had a significant impact on statistical offices' ability to collect prices in the spring. A range of *imputation methods* had to be applied in the case of missing prices. This affected, in particular, prices for travel and recreational services, where inflation rates have often been 'frozen' by applying the same seasonal month-on-month variation as last year. However, as the importance of imputations wanes, the upward bias this has created in the HICP also gradually reverses.

Hairdressers have passed cost of stricter hygiene requirement on to consumers



Source: Eurostat, Macrobond Financial, Danske Bank

HICP imputation share has declined significantly



Source: Eurostat, Macrobond Financial, Danske Bank

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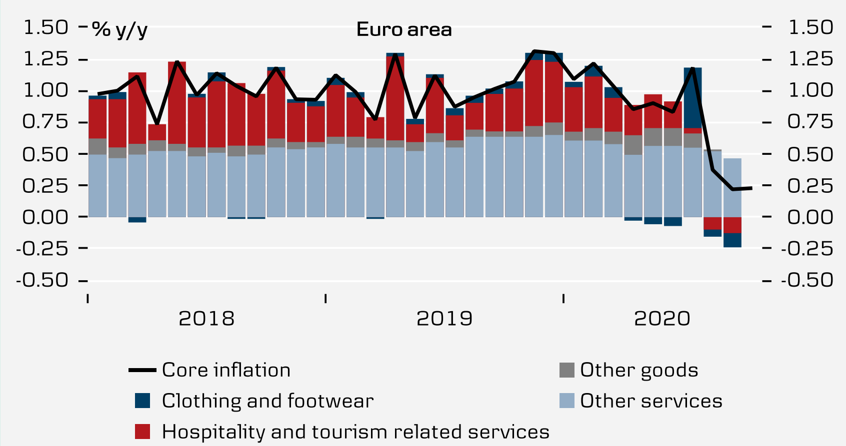
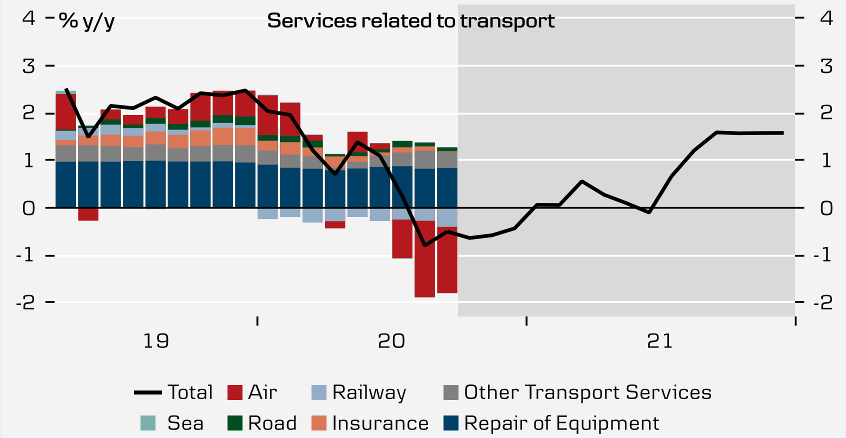
Transport and recreational services to feel supply-side constraints

- The slowdown in service price inflation in 2020 has been driven mainly by services related to transport and recreation, while prices for other services have held relatively steady.
- Discounting campaigns in transport and recreational services are likely to maintain the upper hand in the short term. However, in our view, a normalisation in consumer spending patterns for travel and cultural services once a vaccine is found, coupled with reduced capacity in some industries such as accommodation and airlines, leaves room for 'demand-pull' inflation to emerge. We believe transport and recreational services are likely to be the two main core inflation items to feel the impact of supply-side constraints most acutely. Helped by the reversal of Germany's VAT cut and strengthening demand, we expect inflation rates in transport services to pick up in H2 21.
- In the following, we take a closer look at the different subcategories.

Slowdown in services prices driven mainly by transport and recreational categories

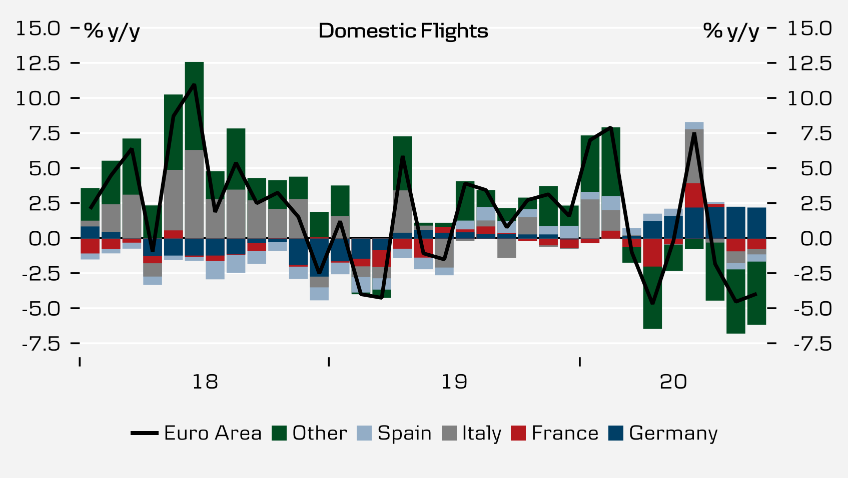




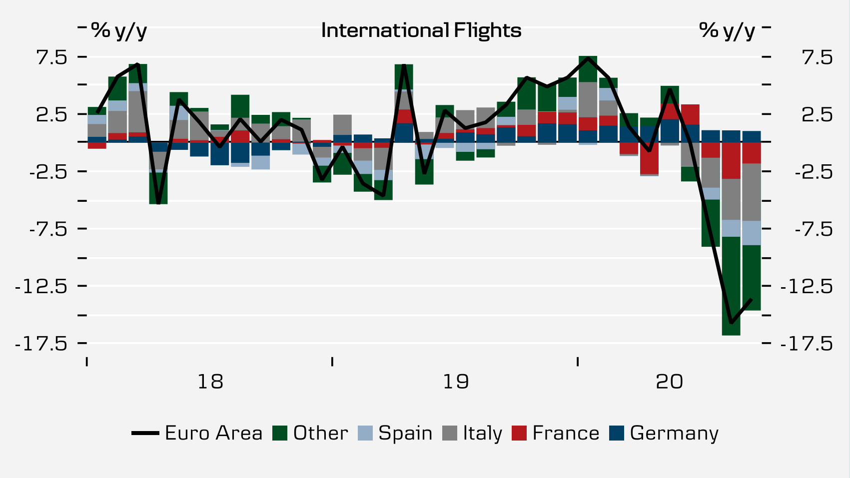
Note: Hospitality and tourism-related services include recreational and cultural services, package holidays, restaurants and hotels, passenger transport by air
Source: Eurostat, Macrobond Financial, Danske Bank

Inflation in airfares to make a comeback but timing uncertain

- **Airlines:** With demand for air travel still down significantly from pre-coronavirus levels, we have seen some evidence in recent months of lower prices to lure people back on board. However, airline experts generally do not expect to see big discount/price wars. First, this crisis situation is different from normal downturns due to the *hygiene element*. Second, airlines are likely to hesitate to add too much capacity before they see a clear demand pickup, as its too expensive to operate with half-empty planes. Some airlines have already filed for various forms of bankruptcy protection or have gone under. In our view, this is set to lead to less competition and the possibility of monopoly pricing. Another uncertainty is what the crisis will do to low-cost carriers amid greater M&A activity and industry consolidation (see *article*). Looking at past trends, such as after the 9/11 attack in 2001 and the great recession of 2008, DFC (a website that delivers cheap flight alerts) predicts in a *report* from April that airfares for both international and domestic flights worldwide will decrease by 35% on average through to end-2021 and then sharply increase 27% on average (above 2019 levels) up to 2025 as demand rebounds. The combination of reduced capacity/supply, stricter hygiene requirements and recovering demand once a vaccine is available leaves us expecting some acceleration in inflation in airfares in coming years but the exact timing remains difficult to call.



Source: Eurostat, Macrobond Financial, Danske Bank



Source: Eurostat, Macrobond Financial, Danske Bank

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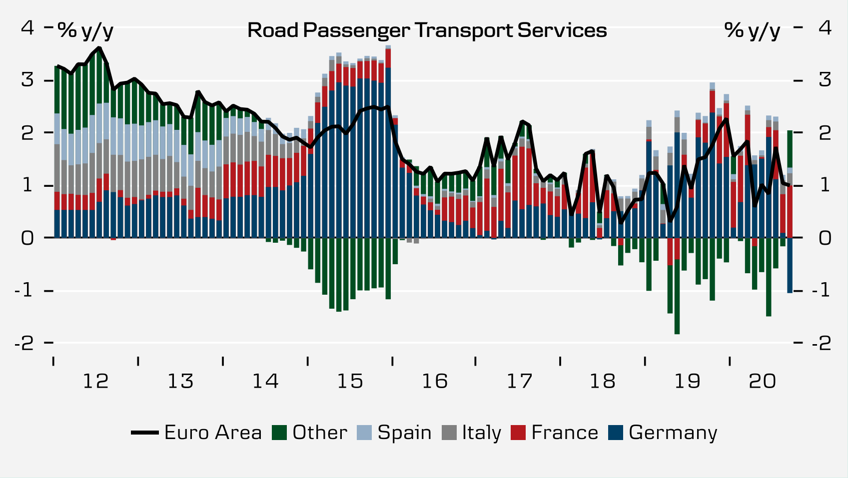
Robust demand should help underpin prices for road and sea transport services



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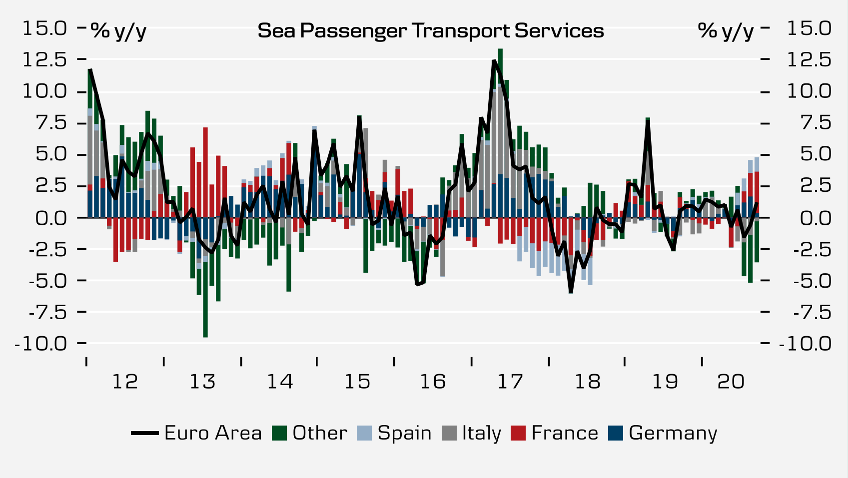
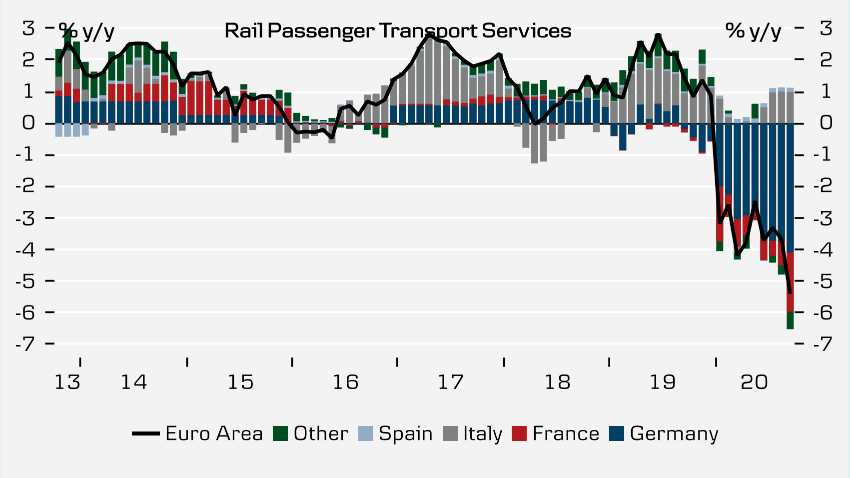


Source: Eurostat, Macrobond Financial, Danske Bank

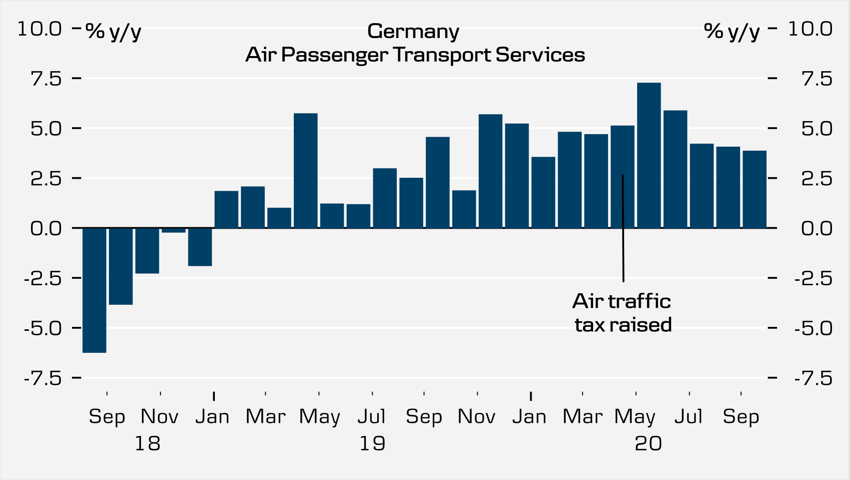
- **Road:** Passenger transport services include both bus/coach and taxi travel, with the latter accounting for around one-third. On the demand side, the implications of the coronavirus pandemic on prices for road transport services are not clear cut: bus travel is likely to suffer from the same consumer health concerns as airlines, especially amid older cohorts. For taxi travel, an opposite development could be the consequence, as people prefer 'solo rides' to public transport. However, prices could experience some upward pressure from higher fuel costs, not least from Germany's climate package (see overleaf).
- **Cruises:** Although the coronavirus has dealt the cruise ship industry a heavy blow, bookings for 2021 are already increasing and are at almost the same level as in 2019 (see *article*). The cruise industry can point to one of the highest repurchase rates in the travel sector, with 85% of people who take a cruise booking again. This aspect of 'demand loyalty' combined with *fewer ships setting sail* in 2021 should prevent a marked decline in prices.

German climate package set to lift energy prices from 2021 onward

- In November 2019, the German Bundestag passed a Climate Package comprising a range of climate legislation. Below we look at the details of the package and its impact on consumer prices.
- **VAT rates on long-distance train travel** had already been lowered from 19% to 7% at the start of 2020, being an important factor behind the slowdown in inflation rates observed in this category. However, as no further VAT reductions are planned, this is set to lead to a positive base effect in 2021, pulling the inflation rate up. Furthermore, Germany's Deutsche Bahn has also announced plans to increase ticket prices on long-distance rail tickets by some 1% from 13 December 2020 (see *article*).
- The **air traffic tax** was raised in April 2020 but as the tax increase coincided with the peak of the coronavirus crisis, widespread travel bans and imputations applied in the HICP, there has been no visible impact of this in airfares.



Source: Eurostat, Macrobond Financial, Danske Bank



Source: Eurostat, Macrobond Financial, Danske Bank

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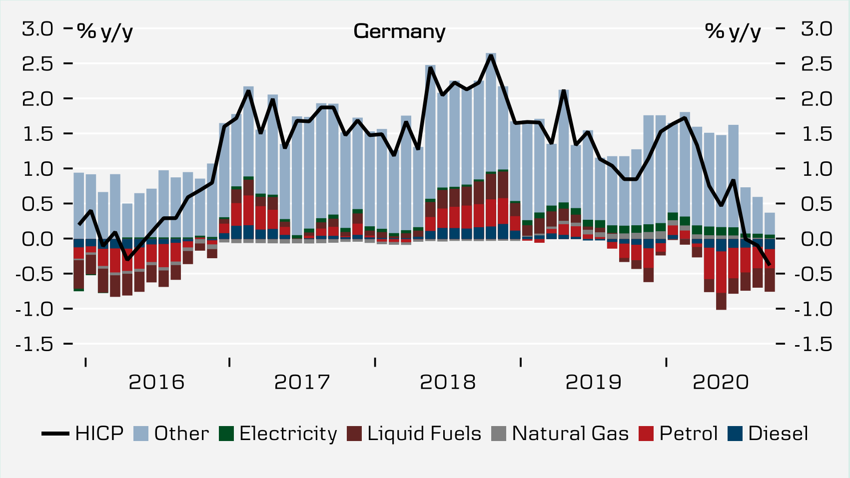
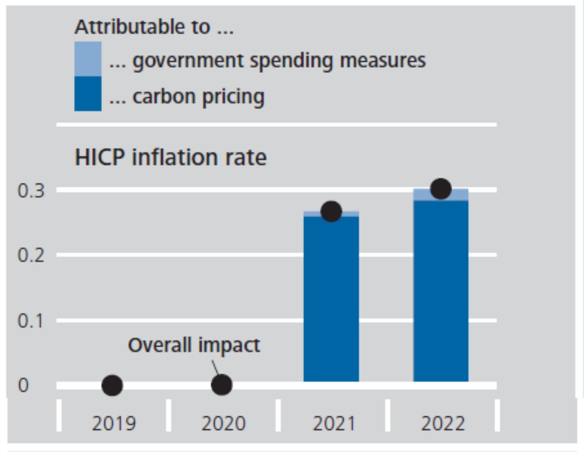
German climate package set to lift energy prices from 2021 onward

- The heart of the climate package constitutes a new price on CO_2 emissions. Enterprises selling heating fuel and fuel for vehicles will therefore need to purchase **allowances for CO_2 emissions**, starting at EUR25\tonne in 2021 and rising to EUR55\tonne in 2025.
- We expect this change to have a noticeable impact on, in particular, the energy component of consumer prices. According to a *study* by the Bundesbank, the CO_2 price will raise energy prices by c.2% in 2021 and 2022. With energy weighted at slightly over 10% in the HICP, this should raise German headline inflation by around 0.2-0.3 percentage points in each of these years (and c.0.1pp for euro area HICP, where Germany has a 28% weight). A smaller impact on consumer prices is likely in the years 2023 to 2025 because of the lower increase in allowance prices.
- In our view, other core inflation items are likely see a much more muted impact of the CO2 price but some upward impact could be visible for, for example, transport services via higher input costs.

Energy components affected by CO_2 price



Source: Eurostat, Macrobond Financial, Danske Bank



Source: Bundesbank

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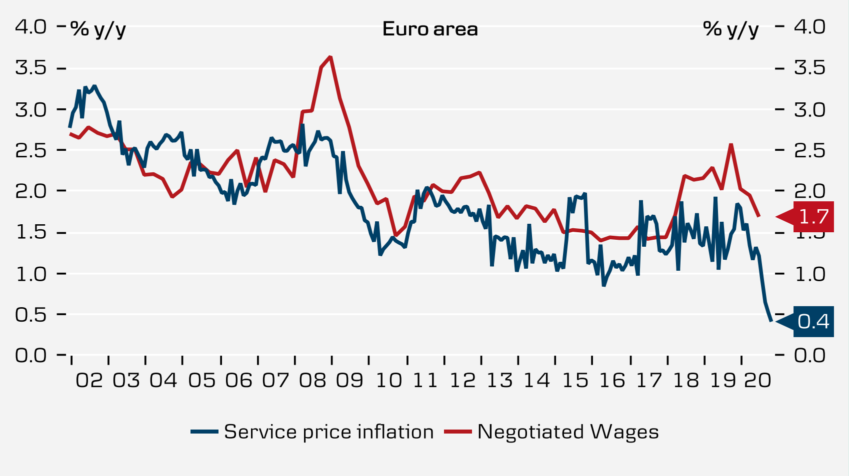
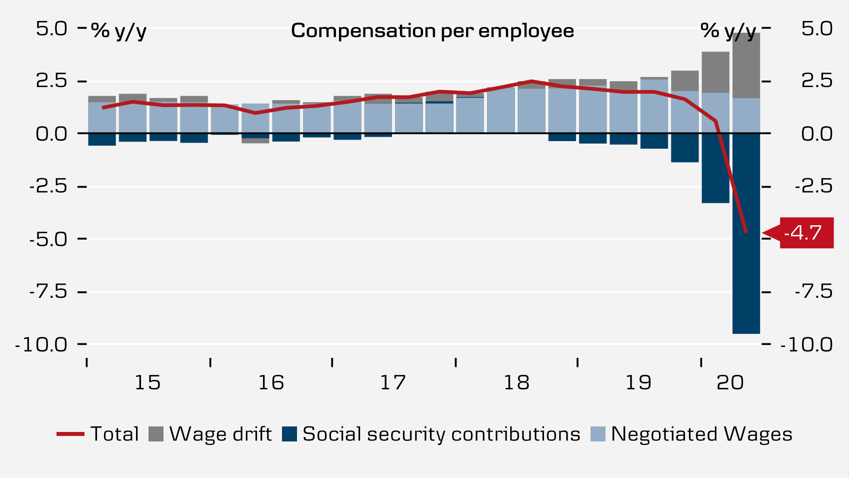
Wage growth unlikely to be major source of inflationary pressure



Source: ECB, Eurostat, Macrobond Financial, Danske Bank



Source: ECB, Macrobond Financial, Danske Bank

- The euro area labour market has so far come out of the coronavirus crisis relatively well. Some 1.8m jobs have been lost since the pandemic started but short-time working schemes, which have been extended in most countries (at least to the end of 2020), have limited job losses. However, the jury is still out on the labour market, especially once furlough schemes start to expire, raising the risk of rising unemployment rates and weakening wage dynamics in 2021.
- Euro area wage growth, as measured by compensation per employee, slumped to -4.7% in Q2 20. However, this is due mostly to the significant drag from lower social security contributions due to furlough schemes and does not mirror the true wage pressures in the economy. Instead, negotiated wage growth is a better guide. This has eased to 1.7% in Q2 20 (from 2.6% in Q3 19). With the latest union bargaining rounds moderating their wage demands, preferring job security and other 'perks' (such as the right to home working) to higher wages, 'cost-push' inflation is unlikely to be a major driver of core inflation in 2021.

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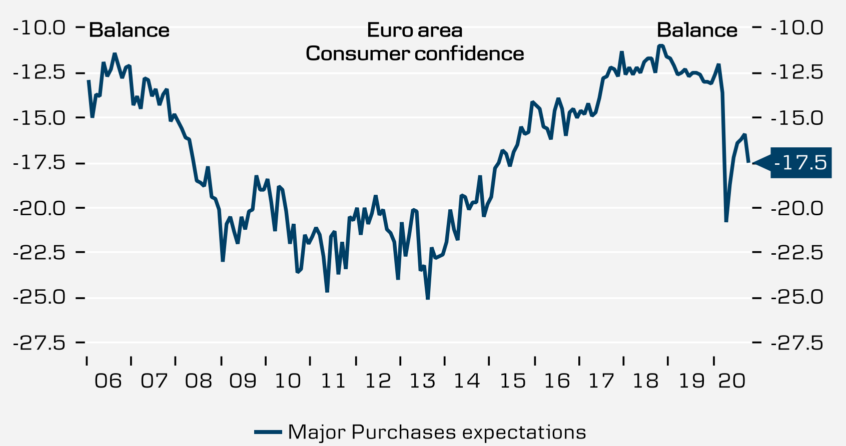
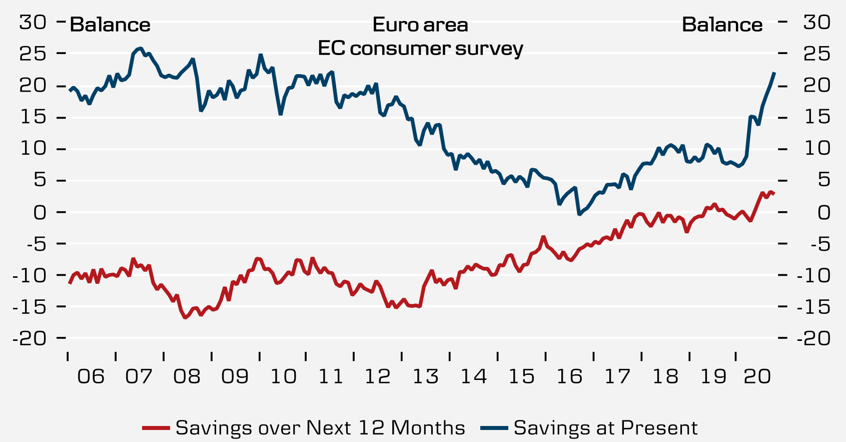
Household wealth: will demand-pull inflation return?

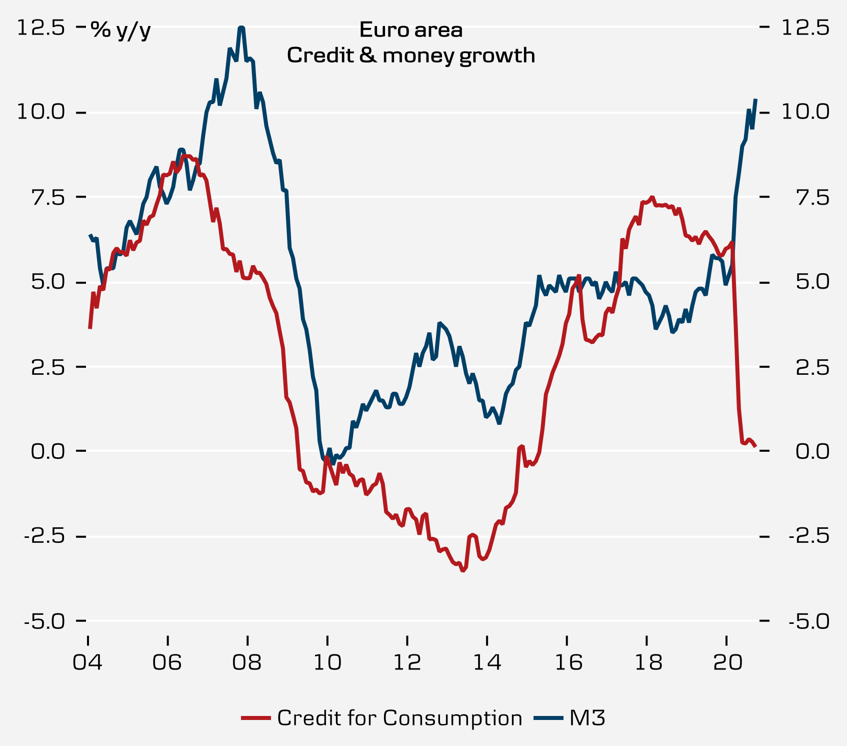
Households have increased precautionary savings and remain reluctant to make major purchases





Source: EU Commission, Macrobond Financial, Danske Bank

ECB has eased credit conditions but households remain reluctant to make use of credit for consumption



Source: ECB, Macrobond Financial, Danske Bank

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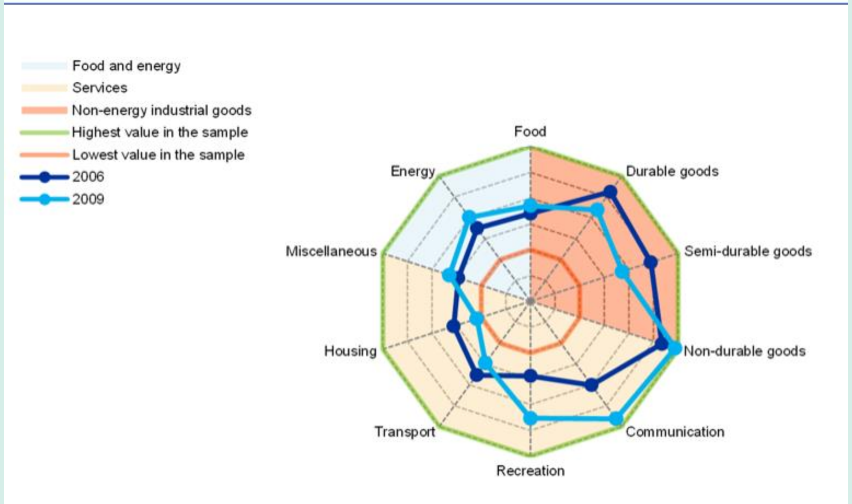
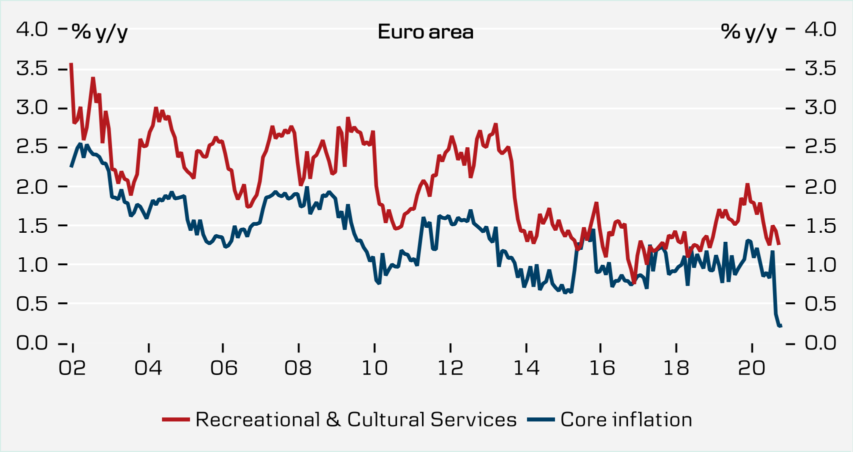
Weight changes: lower HICP weights for recreational and cultural services could weigh on core inflation

- The extent to which consumers adjust their consumption patterns in response to the COVID-19 crisis will also leave its mark on the HICP in a more structural way, i.e. via the impact of changing HICP item weights. Past episodes of economic distress have also led to changes in consumption weights, for example following the Global Financial Crisis (see chart), with lower expenditure shares for durable and semi-durable goods as well as housing and transport services, while consumption shares for recreation and communication as well as as energy, food and non-durable goods increased.
- The coronavirus crisis is likely to lead to higher consumption weights being applied to food products and lower weights in recreational and cultural services. In our view, lower HICP weights for the latter will on balance exert a drag on core inflation, as their inflation rates over past years have tended to lie well above the core inflation average. For HICP as a whole, the impact is more ambiguous, as a higher weight on food price inflation could compensate for some of the downward pull on core inflation.

Euro areaHICP weights adjustment during the 2008-2009 downturn



Source: ECB



Source: Eurostat, Macrobond Financial, Danske Bank

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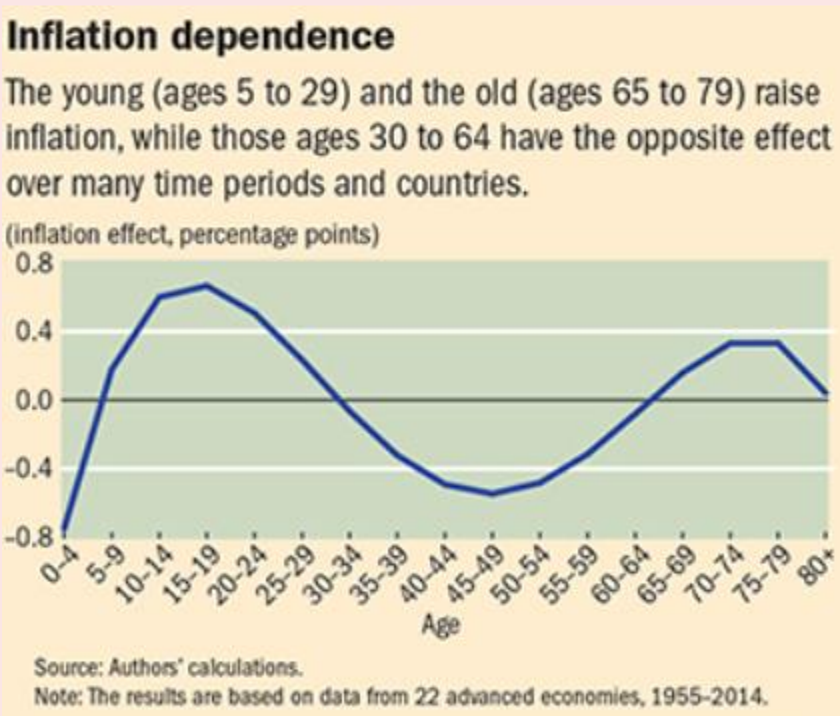
Age and inflation: will retiring 'baby boomers' drive up inflation?

Supply-side factors might lead to elevated inflation in 2021 and 2022 but as demand and supply adjust, we believe it is unlikely to lead to a persistent level shift in inflation, unless the structural inflation drivers have also changed in a post-corona world.



Source: 'Age and Inflation', Finance & Development, March 2016, Vol. 53, No. 1

- The aging of populations is usually seen as a factor that increases the demand for savings and thereby depresses inflation and the natural rate of interest. Although the coronavirus crisis has affected older people more severely, with a higher prevalence of deaths, it is unlikely to change materially the adverse demographic trends that have captured Europe and depressed inflation and interest rates.
- However, help for central bankers might come from another channel, namely the retiring baby boomers generation. Some economists have argued there exists a link between age structure and trend inflation, as people tend to borrow when they are young, save during their working life and live off accumulated assets when they are old. Consequently, inflation pressure is high when the share of young and old people (who consume but largely do not produce) is large compared with the working-age population. As the retiring baby boomers will increasingly shift this dynamic, the age-structure effect is set increasingly to turn pro-inflationary over the coming three decades (see *paper*).

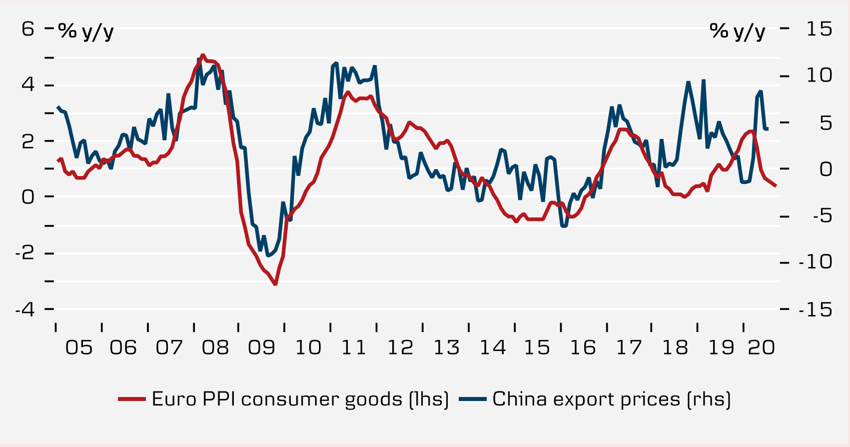
Danske Bank

'Slowbalisation': will reshoring efforts stoke inflation?

The close link between euro area PPI for consumer goods and Chinese export prices, as well as the declining dispersion of core inflation rates across OECD countries, bears witness to the claim that global value chain integration has increased synchronisation of global business cycles and inflation. Will the pandemic change this dynamic?

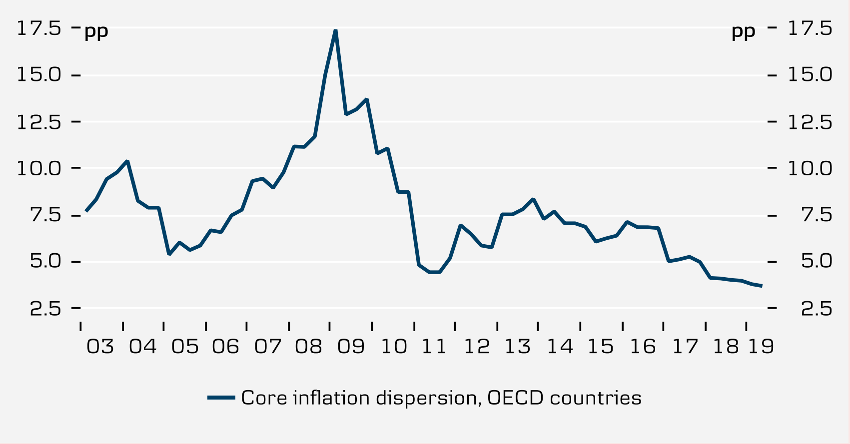
- The logic of turning inward is shaky: *Bonadio et al. (2020)* find that one-quarter of the fall in GDP in 2020 was transmitted along supply chains but that reshoring production would not have reduced the damage.
- In our view the COVID-19 pandemic is likely to reinforce the 'slowbalisation' forces that have already been at play since the 2010s. However, while firms are likely to accept some loss of efficiency in exchange for more robust supply chains, most are unlikely to abandon their cross-border investments (see also *FT article*). Hence, we should not necessarily expect outright deglobalisation to give much boost to worker's bargaining power (as some economists have *argued*).
- Various studies have also found mixed evidence on the question whether low global inflation has brought low inflation to the euro area through cheaper imports as well as increased labour mobility and competition (see overleaf).

Chinese export prices important for euro PPI



Source: Eurostat, Macrobond Financial, Danske Bank

Less dispersion of core inflation in OECD countries



Source: OECD, Macrobond Financial, Danske Bank

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Studies on the 'global factor' in inflation find mixed evidence

IMF Working Paper *'Understanding Euro Area Inflation Dynamics: Why so low for so long?'*, **No. 18/188, August 2018**

- *'We find that domestic factors dominate global factors in explaining recent inflation dynamics. Global factors do not help to explain the recent low inflation episode.'*

ECB Economic Bulletin Article *'Domestic and global drivers of inflation in the euro area'*, **4/2017**

- *'The theoretically appealing idea that domestic wage and price pressures are increasingly affected by global developments via higher integration and increasing contestability of labour and product markets is difficult to capture empirically. In this respect we find only limited support for including measures of global slack and of the integration in global value chains in Phillips curve analyses of inflation in the euro area.'*

BIS Working paper *'Has globalization changed the inflation process?'*, **No. 791, July 2019**

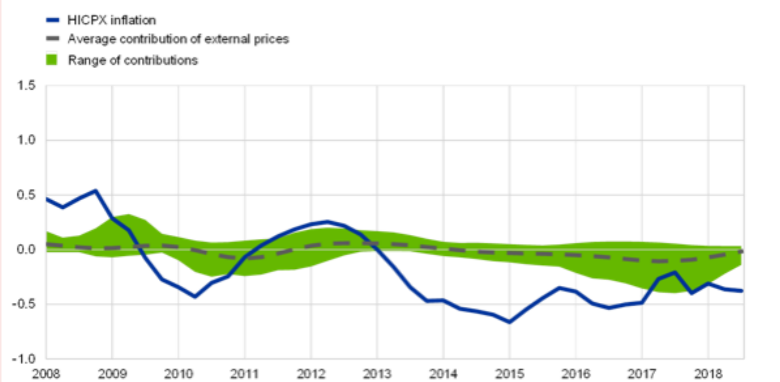
- *'Global factors, including exchange rates, oil prices, other commodity prices, slack in major economies (not just at home) and international pricing competition, can all be important determinants of inflation. Although results vary across individual countries, the role of these global factors in explaining CPI inflation rates has increased over the last decade. '*

European Commission *'Has inflation become more global? '*, **Spring 2018 Economic Forecast**

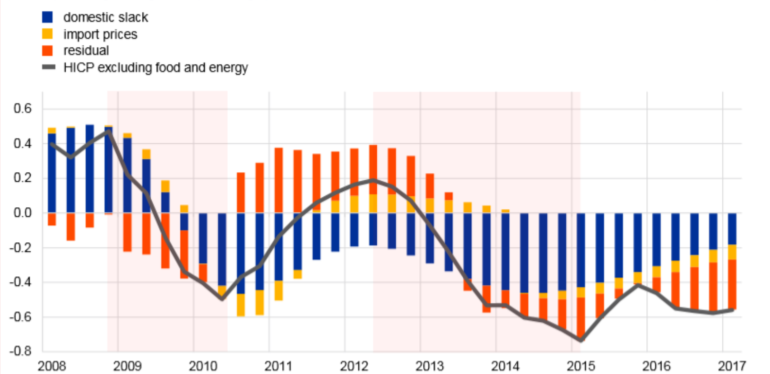
- *'Inflation in the OECD countries has a common factor, whose relevance increased after 1999.'*

Studies find negative contributions from external factors to underlying inflation are relatively modest

(annual percentage changes and percentage point contributions; all values in terms of deviations from their averages since 1999)



(annual percentage changes and percentage point contributions; all values in terms of deviations of their model-implied mean)



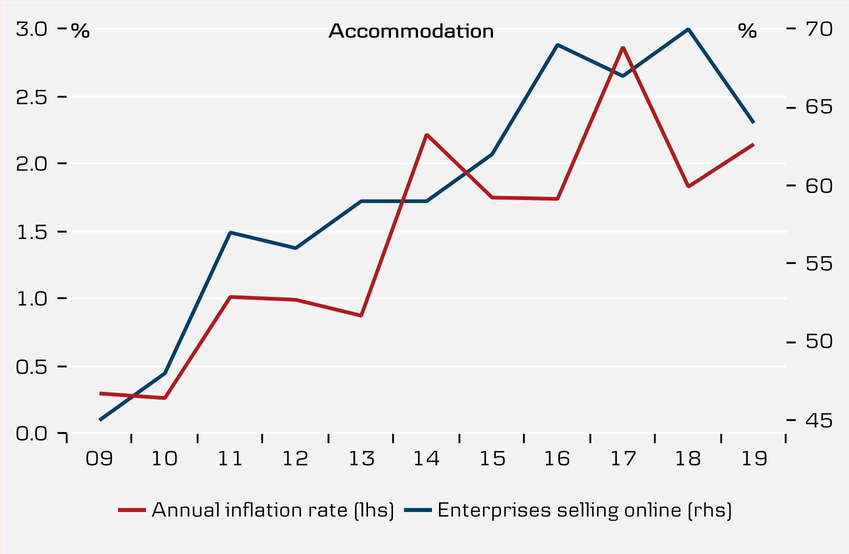
Sources: Eurostat and ECB calculations.
Notes: The black line shows deviations of HICP excluding energy and food inflation from its model-implied mean. Contributions (including residuals) are also shown as deviations from their model-implied mean. Contributions are calculated based on an equation in which HICP excluding energy and food inflation (the annualised quarterly growth rate of the seasonally adjusted series) is regressed against its own lag, the lagged output gap of the European Commission, the third lag of import price inflation and a constant. The shaded areas indicate two disinflation periods.

Danske Bank

Digitalisation and online shopping: scant evidence of the 'Amazon effect'

The coronavirus crisis has reinforced the trend towards digitalisation and online shopping. Globally, 49% of consumers admit to shopping online more frequently than they did before the coronavirus pandemic, according to a recent study by *Bazaarvoice*.

Inflation in accommodation services has increased despite the growing importance of e-sales



Source: Eurostat, European Commission, Macrobond Financial, Danske Bank

- The 'Amazon effect' has often been mentioned by central bankers as one of the reasons for slower price developments. In principle, e-commerce may bring prices down for two reasons. (1) compared with bricks-and-mortar-based distribution channels, e-commerce allows for cost savings in the wholesale and retail markets, which retailers can pass on to their customers. (2) It leads to increased competition among suppliers, as customers can search the internet for better bargains and thus exert downward pressure on prices.
- In *Euro Area Research – Inflation's race against the digital machine*, 27 November 2019, we took a closer at the effect of digitalisation on inflation and overall found scant evidence that digital technology is the culprit for the unattainability of the ECB's inflation target.
- An *ECB study* finds only a very limited impact of e-commerce having on average reduced NEIG inflation by 0.1pp per year in the period 2003 to 2015.

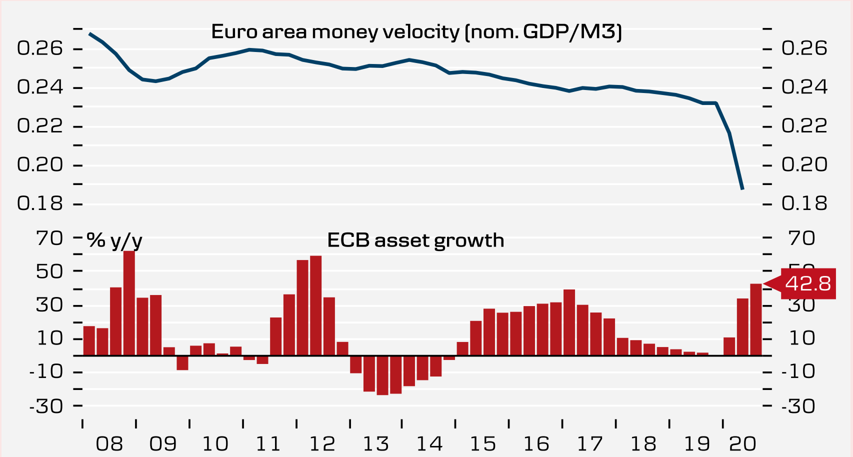
Danske Bank

Concerted monetary and fiscal easing: a necessary but not sufficient condition to raise inflation

'Inflation is always and everywhere a monetary phenomenon'. To the extent that Milton Friedman's famous words are still relevant today, the unprecedented amount of not only monetary but also fiscal easing seen in a post-COVID-19 world provides a conducive environment for rising inflationary pressures, once the economic momentum accelerates and the velocity of money rises.

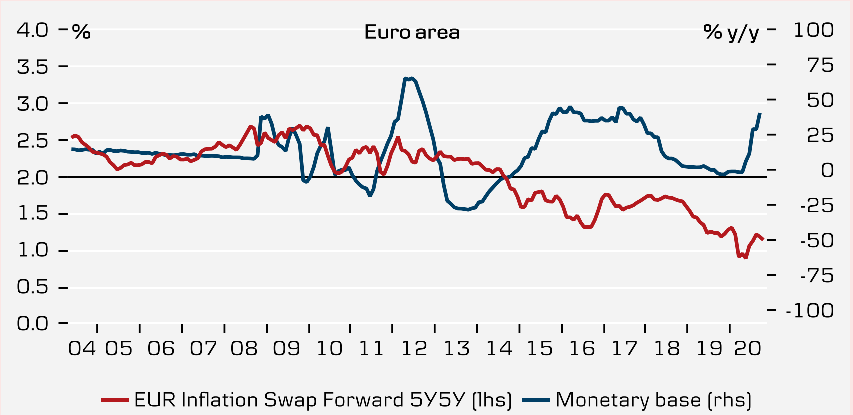
- As discussed in *Research Global – Public debt levels post COVID-19: much ado about nothing?*, 30 September, we expect fiscal dominance to become even more entrenched in a post-coronavirus world due to government's larger fiscal deficits and central banks' willingness to support them. This concerted effort of expansionary monetary and fiscal policies increases the possibility of rising inflation pressures *in our view*, not least because of high Keynesian multipliers in a low interest rate environment.
- That said, the mix of measures is set to play a crucial role in the effectiveness to stoke inflation. While more asset purchases by the ECB are unlikely to generate meaningful inflation pressures in our view, fiscal measures to address the structural weaknesses in the European economy could prove more successful on this front.

ECB has opened the tabs...



Source: Eurostat, ECB, Macrobond Financial, Danske Bank

...inflation markets remain more sceptic



Note: Past performance is not a reliable indicator of current or future results
Source: ECB, Macrobond Financial, Danske Bank

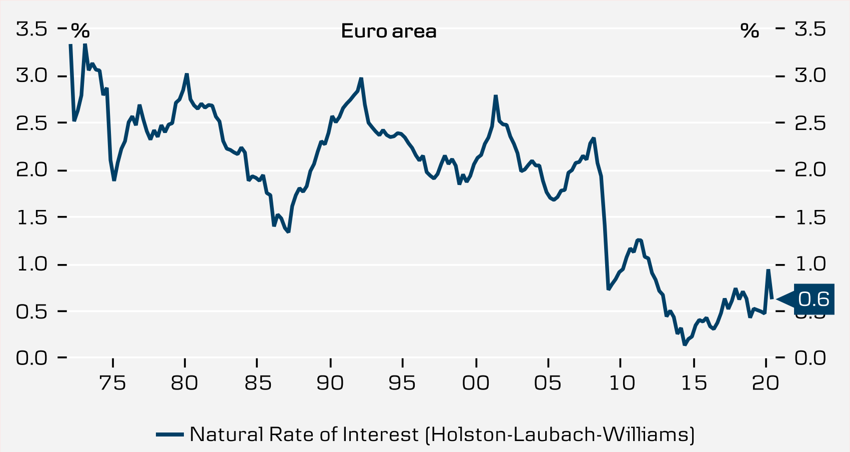
Natural rate: COVID-19 pandemic could depress r* even more, limiting pro-inflationary effects of monetary easing

Another important variable is the natural rate of interest (r*), whose downtrend since the 1980s has often been linked to the observed decline in inflation and the zero lower bound conundrum of central banks.

There are several ways in which the COVID-19 pandemic could exert a downward drag on r*.

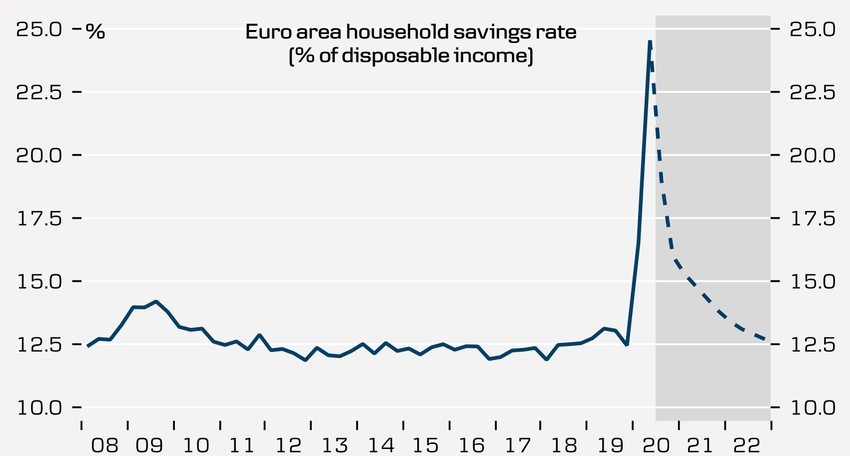
- One is by boosting the precautionary savings of households and firms. The propensity of households to save reached unprecedented levels in Q2 20. However, although ECB research finds that the increase has largely been due to 'forced' savings under the lockdown, we expect the savings rate to come down only gradually over the years.
- Another is by making investors more aware of the risk of disasters, increasing demand for save assets. Kozlowski et al. (2020) predict that changed perceptions of risk in the aftermath of the pandemic will depress r* by 67 basis points.
- A third way is by boosting income inequality (because the rich, who tend to save a higher proportion of their income, are relatively less affected by the pandemic than the poor). Auclert and Rognlite (2020) find that nearly one-fifth of the decline in r* since 1980 can be attributed to rising inequality.

Natural rate has trended down



Source: Federal Reserve Bank of New York, Macrobond Financial, Danske Bank

Savings ratio to return only slowly to pre-crisis levels



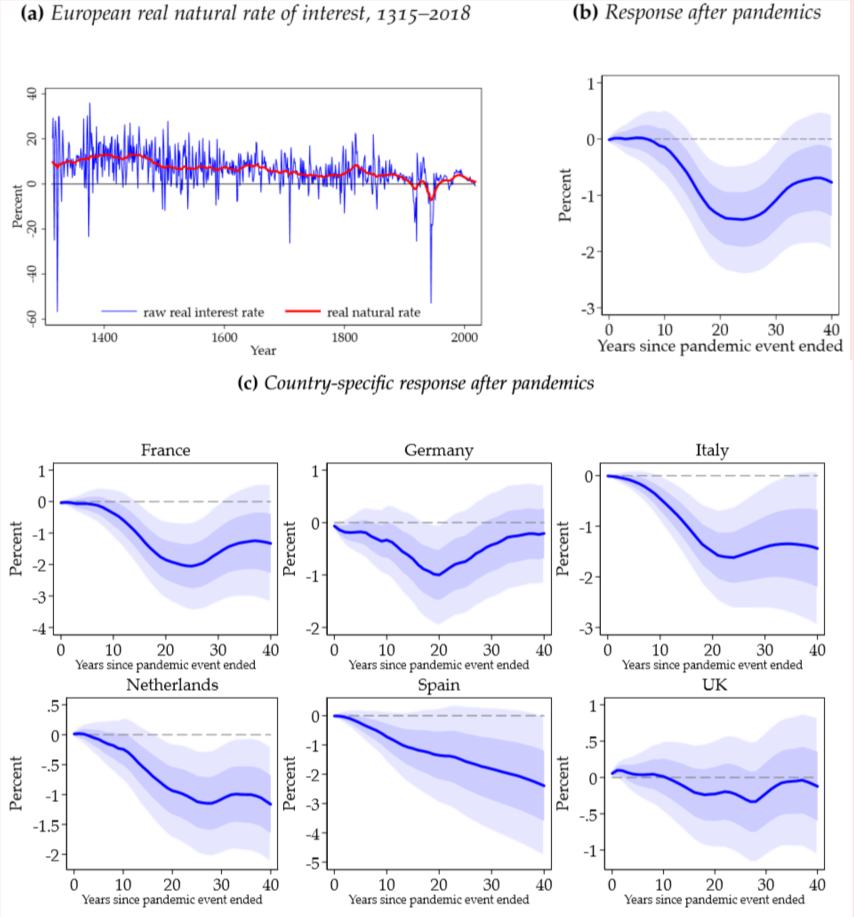
Source: Eurostat, Macrobond Financial, Danske Bank

Danske Bank

Natural rate: COVID-19 pandemic could depress r* even more, limiting pro-inflationary effects of monetary easing

- Probably even more troubling, research also suggests that previous pandemics have suppressed interest rates for decades after. Jordà et al (2020) studied 19 pandemics since the 14th century and estimate that even 20 years after a pandemic, interest rates are around 1.5 percentage points lower than they would otherwise have been. Only around four decades later, the natural rate returns to the level it would have had if the pandemic had not taken place. Although the COVID-19 pandemic is unlikely to be as deadly as the Black Death or Spanish flu (and, consequently, will have less effect on the working age population), even an effect half as large as the authors find would significantly depress r* for years to come.
- Hence, there is a clear risk that the COVID-19 shock will depress the natural rate even further, limiting the pro-inflationary effects of expansionary monetary policies. Fiscal policies – especially when targeted at growth enhancing investments – could counter this effect somewhat (see *article*).

The European real natural rate and response after pandemic



Source: Jordà et al (2020)

Summary: inflation drivers in a post-corona world

Both anti- and pro-inflationary drivers can be found in a post-corona world:

- **In the short-term we expect anti-inflationary forces to maintain the upper hand**, as competitive pressures and efforts to drum up new business in a challenging economic environment will dominate firms' price setting behaviour.

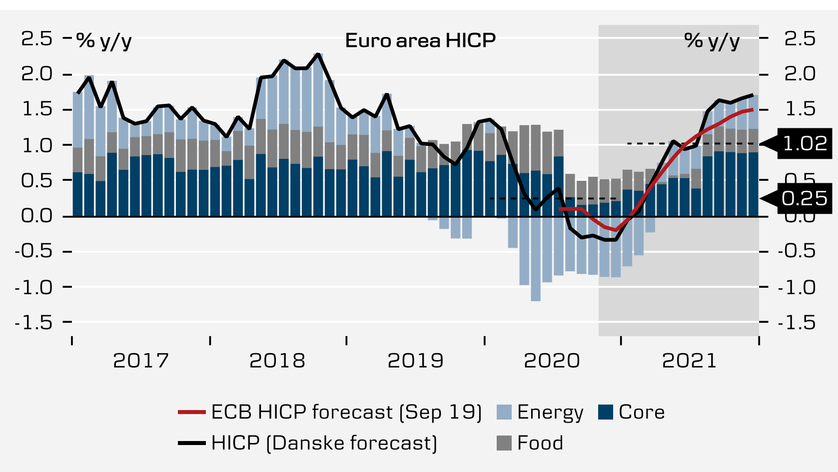
- **Over the medium term, we see scope for inflation to surprise on the upside.** This risk notably stems from emerging supply-side constraints paired with rebounding demand for travel and recreational services. However, weight changes in the HICP basket on the back of changed consumption patterns following the pandemic could mitigate some of this effect.

- While we see the balance of risk for higher inflation in the medium term, **the long-term implications are less clear cut.** The combination of highly expansionary monetary and fiscal policies creates a unique environment to generate higher inflation pressures. Shifting demographic trends could reduce the global savings glut and 'slowbalisation' trigger renewed reshoring efforts. Yet, other structural drivers could hamper the reflationary forces, such as the growing importance of e-commerce and digitalisation as well as a further fall in the natural rate of interest on the back of the pandemic repercussions.

Euro inflation outlook:
the battle between demand and supply-side factors

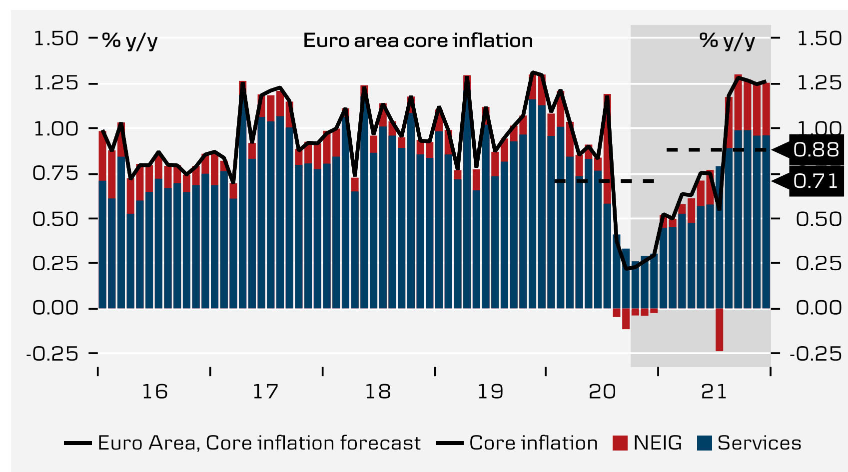
The battle between demand and supply-side factors

- For the remainder of 2020, we expect inflation pressures to remain subdued in the euro area, with **headline rates** that stay in negative territory. However, in our view, inflation prospects should brighten going into 2021, driven partly by technical factors but also by economic ones. While **food price inflation** is likely to become less of an inflation driver, the drag from **energy prices** should slowly abate in 2021.
- The reversal of Germany's VAT cut will be an important factor lifting **NEIG inflation**, which we expect to accelerate from 0.2% in 2020 to 0.4% in 2021. The dynamics in **service price inflation** (projected at 1.0% in 2020 and 1.1% in 2021) remain more ambiguous. The observed stability in inflation rates for housing, recreation and personal care and other services bode well that some resilience in service price inflation can be maintained. However, it probably also requires some form of normalisation in tourism and hospitality-related sectors before service price inflation can get back to its pre-coronavirus highs. As we expect a COVID-19 vaccine to become available in 2021, we incorporate some normalisation in transport services and package tours in our core inflation forecast.



Note: Assumptions: EUR/USD at 1.14 in 2020 and 1.16 in 2021; Brent oil at 42 USD/bbl in 2020 and 42 USD/bbl in 2021

Source: Eurostat, ECB, Macrobond Financial, Danske Bank



Source: Eurostat, Macrobond Financial, Danske Bank

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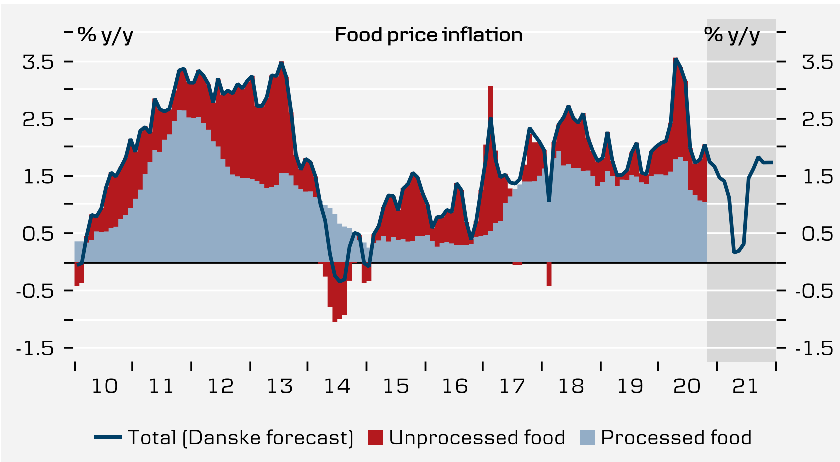
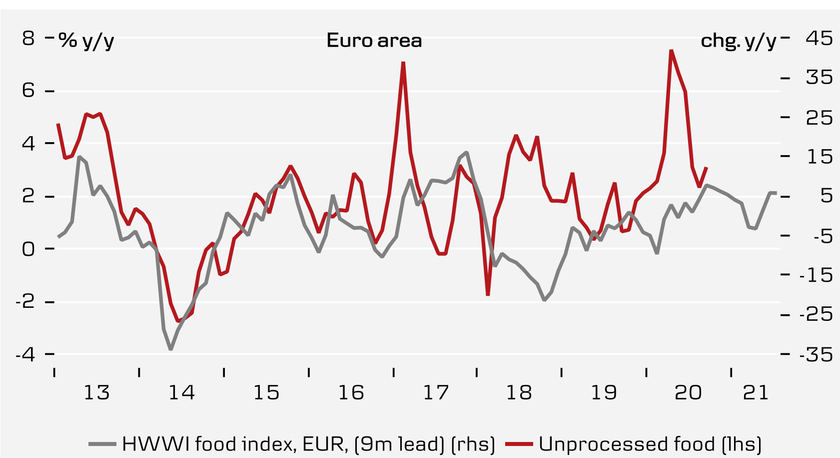
Diverging fortunes of food and energy prices

Food price inflation has peaked for now

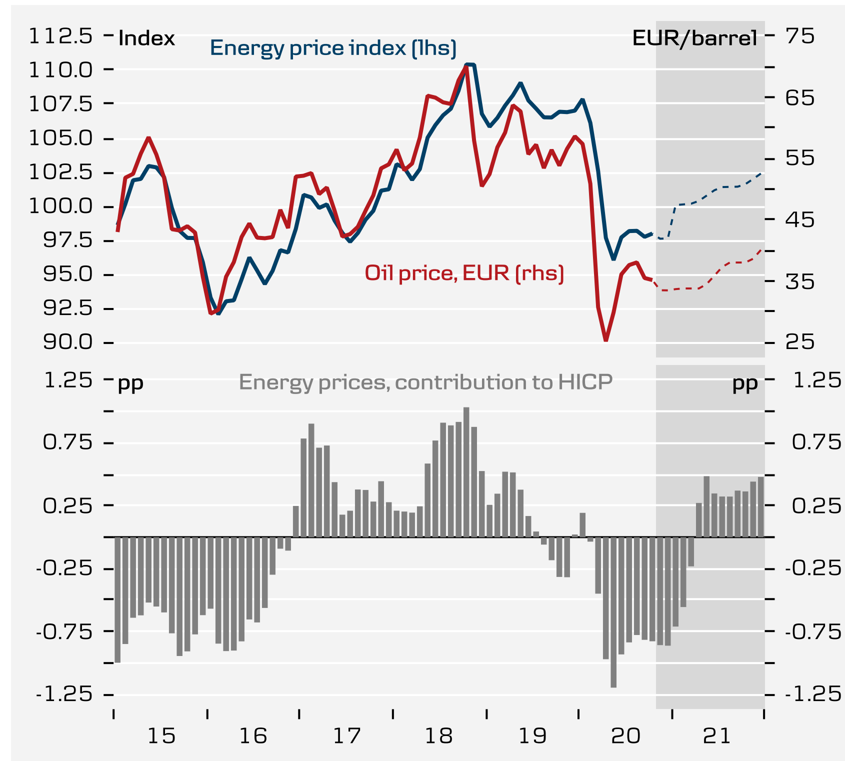


Source: Eurostat, Macrobond Financial, Danske Bank



Source : Eurostat, Hamburg Institute of International Economics , Macrobond Financial, Danske Bank

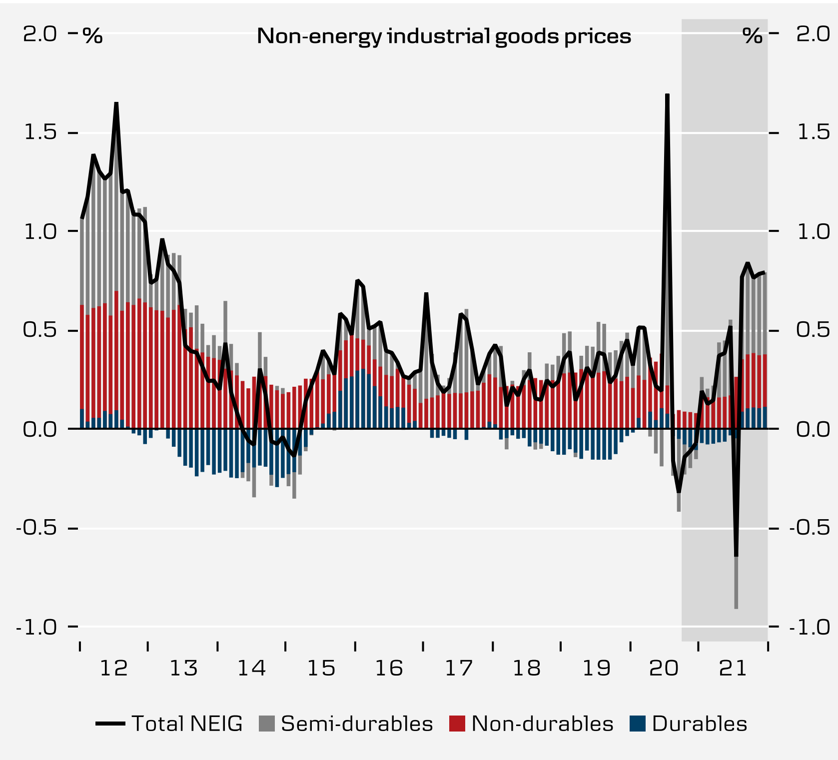
Energy price inflation becomes a boost to headline inflation in 2021



Note: Assumptions: EUR/USD at 1.14 in 2020 and 1.16 in 2021; Brent oil at 42 USD/bbl in 2020 and 42 USD/bbl in 2021
Source: Eurostat, Macrobond Financial, Danske Bank

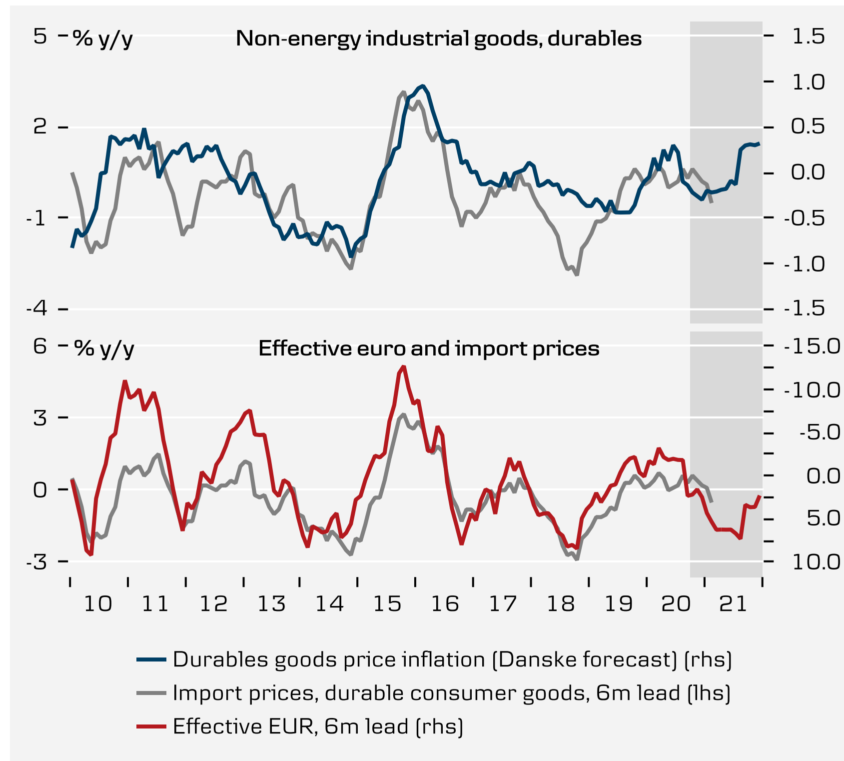
The comeback of NEIG inflation

We believe NEIG inflation will be lifted in 2021 by the reversal of Germany's VAT cut and base effects from corona discounting campaigns.



Source: Eurostat, Macrobond Financial, Danske Bank

The effective EUR appreciation in H2 20 is set to weigh on durable goods prices in H1 21, as import prices have turned from a tailwind to a headwind. However, we believe the drag will fade in H2 21 in the absence of renewed EUR strengthening.



Note: Assumptions: Effective EUR unchanged at November level
Source: Eurostat, ECB, Macrobond Financial, Danske Bank

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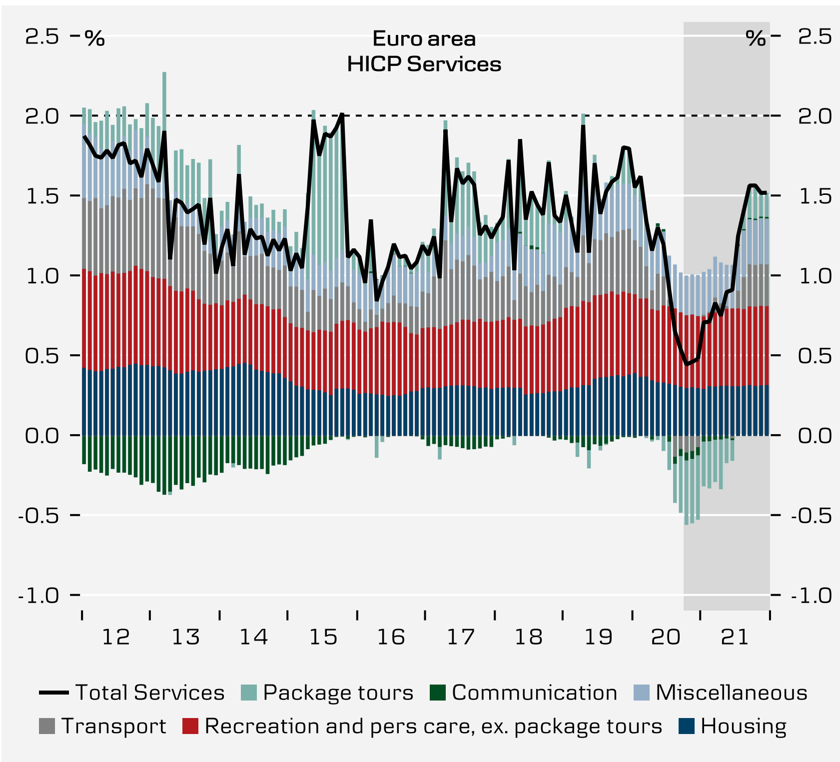
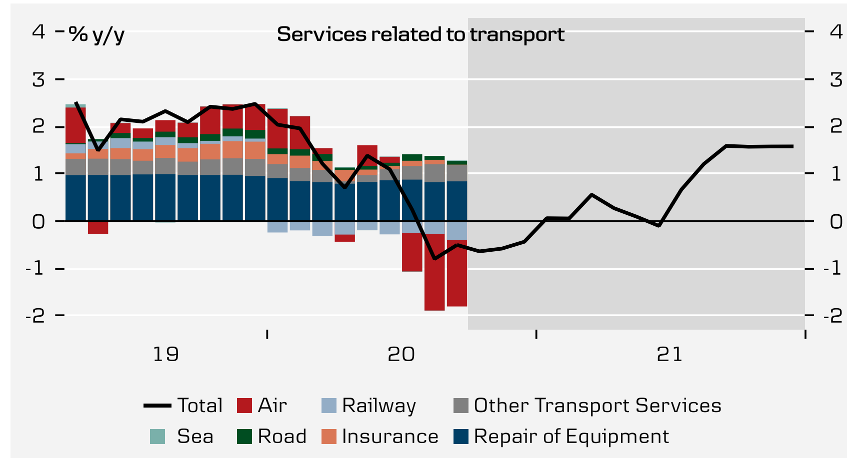
Service price inflation set to reverse its slump in 2021

Service price inflation set to recover some ground...



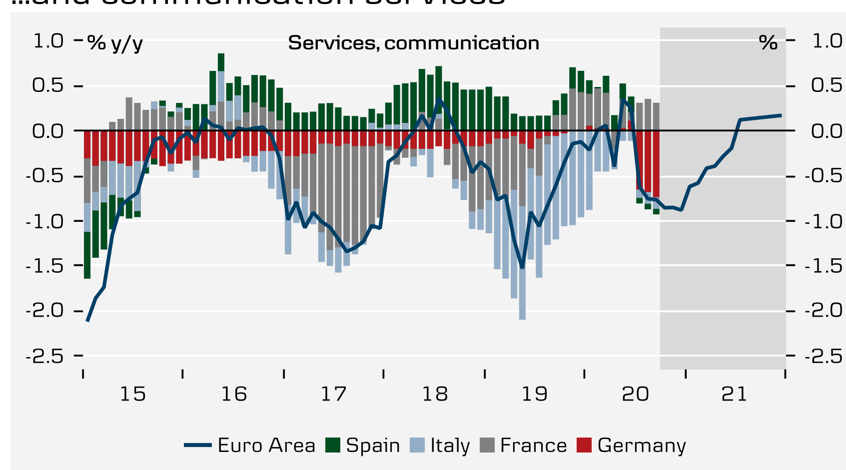
Source: Eurostat, Macrobond Financial, Danske Bank

...helped by a tailwind from accelerating transport...



Source: Eurostat, Macrobond Financial, Danske Bank

...and communication services



Source: Eurostat, Macrobond Financial, Danske Bank

Overview of euro area inflation outlook

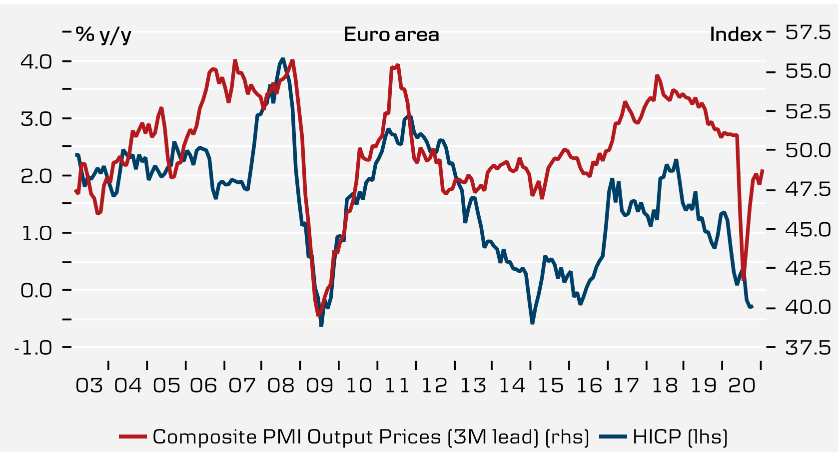
			Danske forecast			
	Current	Sparkline (last 6M)	2020 avg.	2021 avg.	HICP weight	Core weight
HICP	-0.28		0.25	0.78	100	
Energy price inflation	-8.36		-7.01	-0.82	9.8	
Food price inflation	2.05		2.30	1.23	19.1	
HICP ex tobacco	-0.46		0.12	0.63	97.7	
Core inflation	0.23		0.71	0.88	71.1	100
Non-energy Industrial Goods	-0.11		0.25	0.42	26.2	36.9
- Durables	-0.14		0.00	0.02	9.2	13.0
- Semi-durables	-0.94		0.19	0.50	10.3	14.5
- Non-durables	0.38		0.68	0.85	6.7	9.4
Services	0.41		0.97	1.14	44.9	63.1
- Communication	-0.76		-0.39	-0.13	2.6	3.7
- Housing	1.26		1.37	1.28	10.9	15.3
- Package tours & accommodation	-4.44		-2.01	-0.58	3.6	5.1
- Recreation & personal care	1.77		1.78	1.82	11.8	16.6
-Transport	-0.50		0.48	0.77	7.4	10.4
- Miscellaneous	1.31		1.44	1.44	8.5	12.0

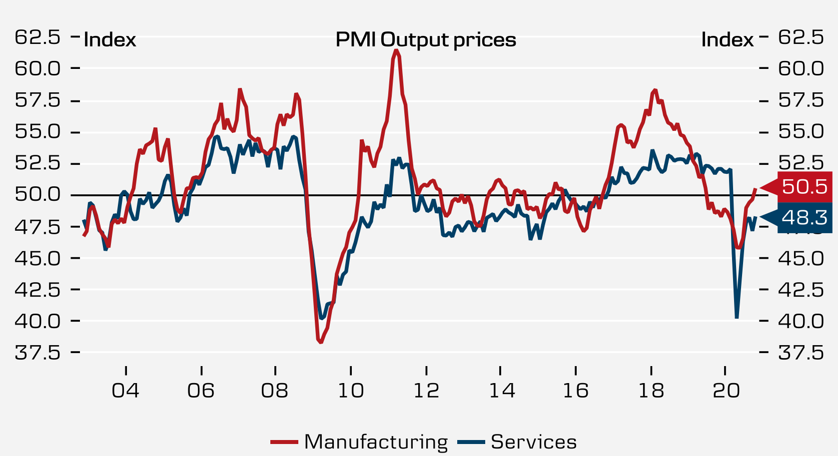
Source: Eurostat, Danske Bank

Inflation expectations and market dynamics: reflation doubts linger

No signs of higher selling prices yet

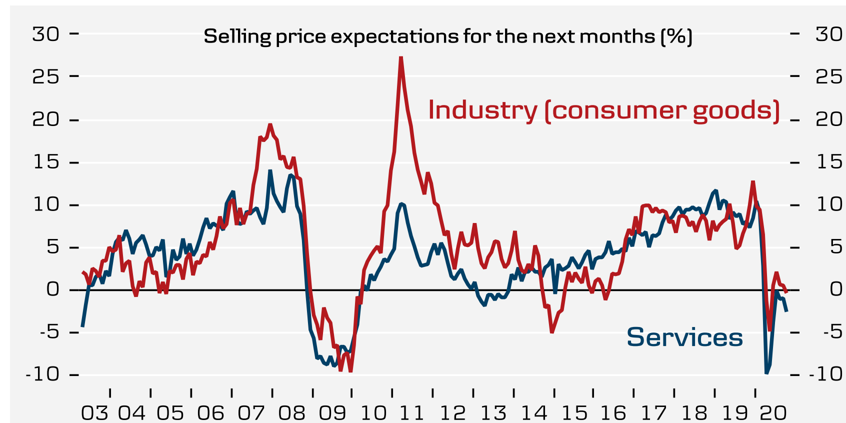
The challenging business environment weighs on company pricing power, with services PMI output prices still in easing territory.

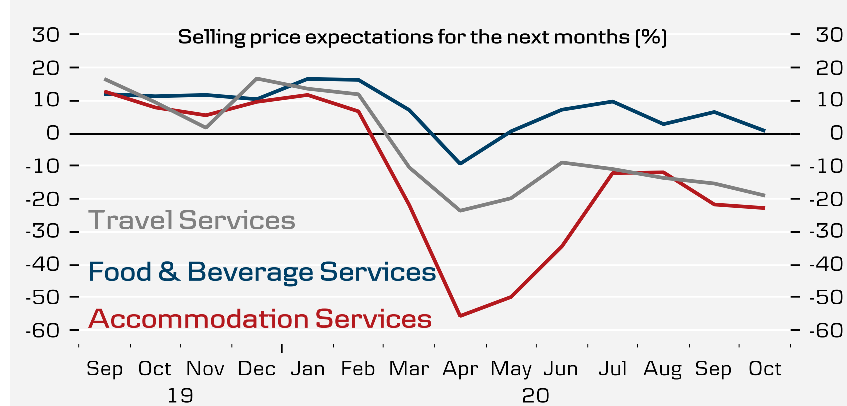




Source: Eurostat, Markit, Macrobond Financial, Danske Bank

Surveys suggest firms' selling price expectations will remain subdued in coming months, with no signs yet of price increases due to supply restrictions and social distancing in the most affected services industries.

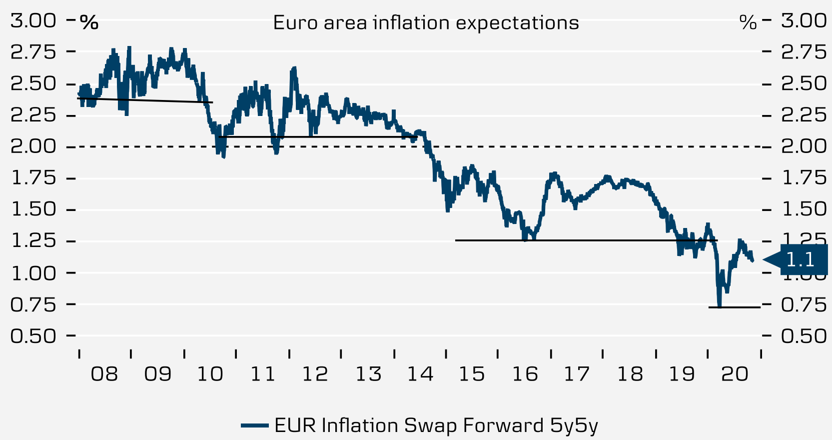


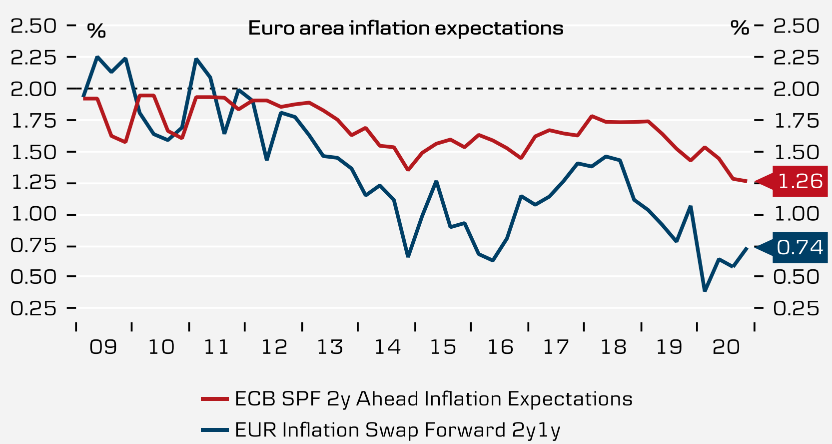


Source: EU Commission, Macrobond Financial, Danske Bank

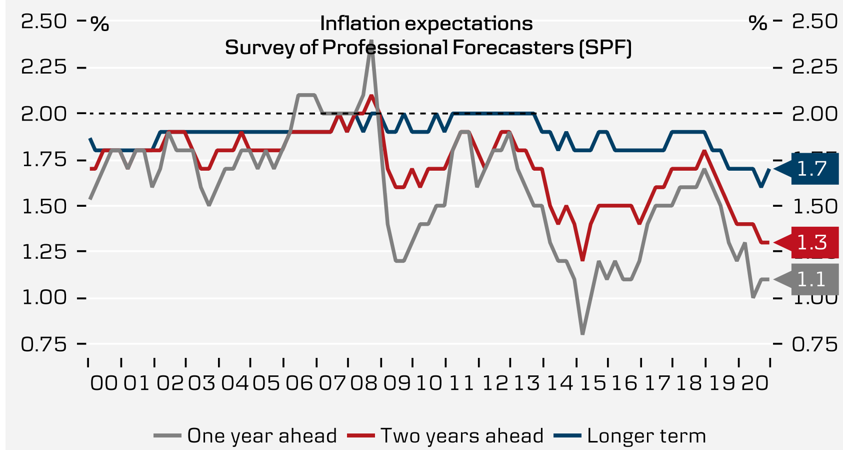
Deanchoring of long-term inflation expectations remains a worry

Market-based inflation expectations seem to have found a new bottom and recovered some ground since the spring. However, they remain significantly below survey-based measures of long-term inflation expectations.





Note: Past performance is not a reliable indicator of current or future results
Source: ECB, Bloomberg, Macrobond Financial, Danske Bank

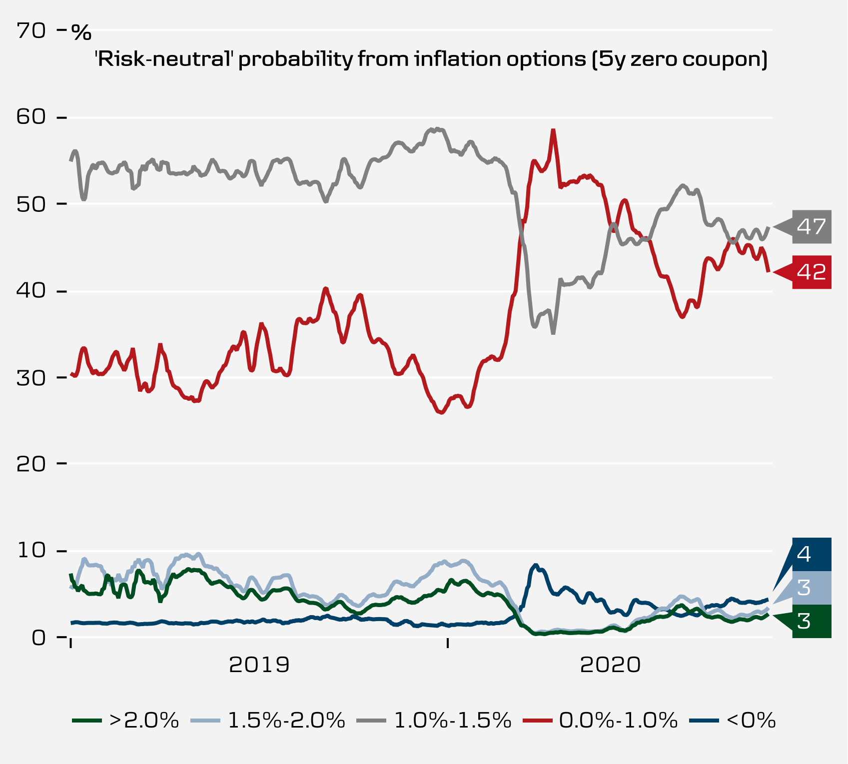


Source: ECB, Macrobond Financial, Danske Bank

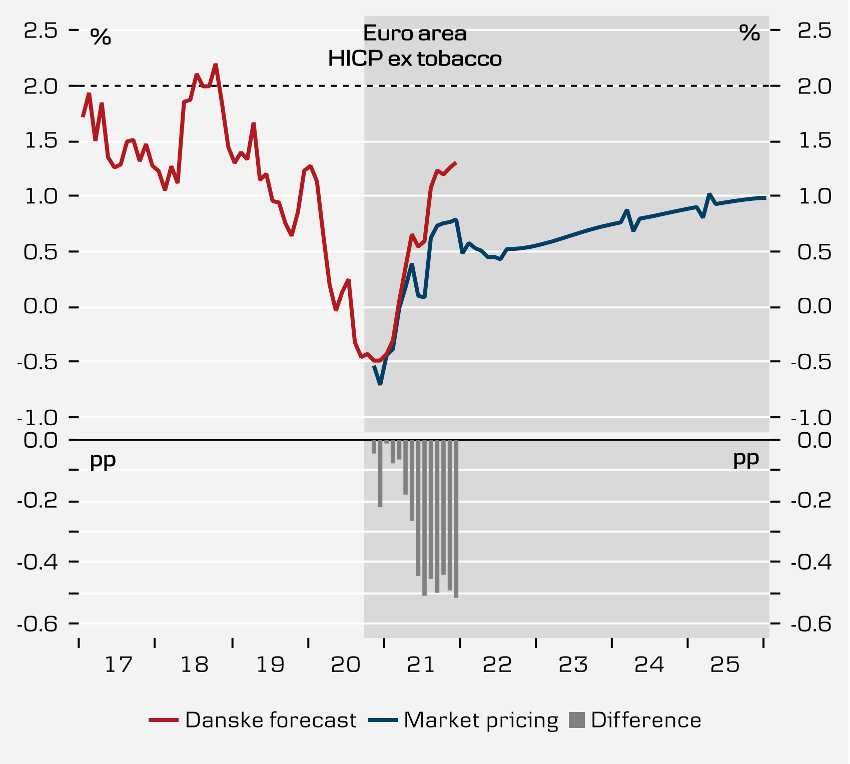
Markets remains somewhat sceptic about reflation

Although deflation risks have subsided since the turmoil in the spring, markets remain sceptical about a material change in the low euro area inflation environment, expecting inflation to remain caught in a sub-1.5% range over the medium term.

Inflation markets expect HCIP inflation to fall significantly short of 2% over the next five years. Over our forecast horizon we do not disagree significantly with the current market pricing, although fixings in H2 21 look to us a bit on the low side.



Note: Past performance is not a reliable indicator of current or future results
Source: Bloomberg, Danske Bank



Note: Past performance is not a reliable indicator of current or future results
Source: Bloomberg, Eurostat, Danske Bank

Disclosures

This research report has been prepared by Danske Bank A/S ('Danske Bank'). The author of this research report is Aila Mihr (Senior Analyst).

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