

Bond Market Contact Group (European Central Bank)

*Market and sentiment-
based inflation
expectations*

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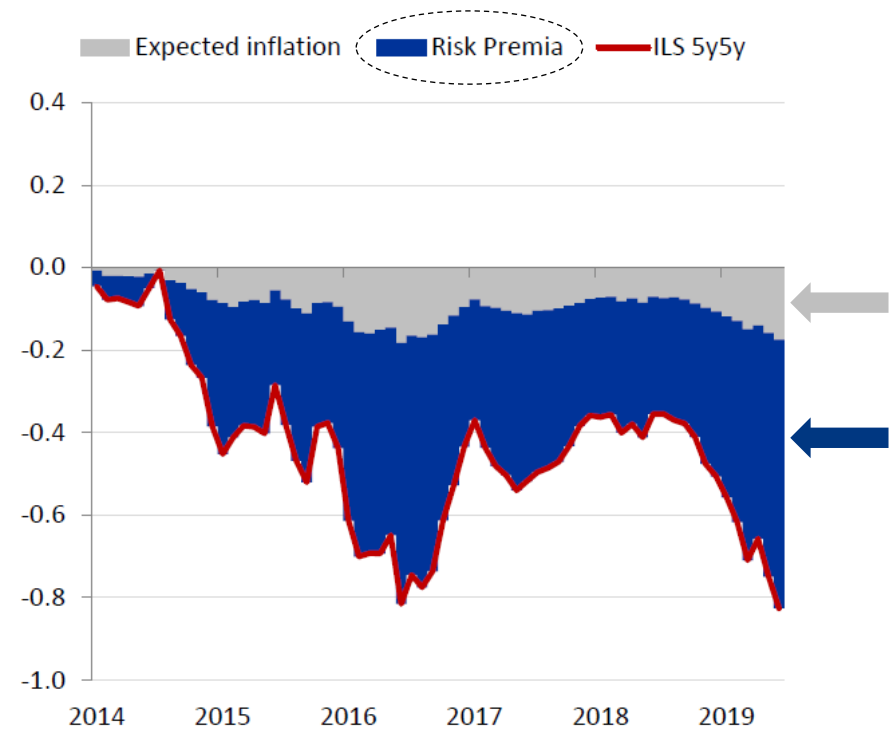
Market-based inflation compensations are not an unbiased estimator for inflation expectations

Drop in market-based long-term inflation compensations...



...mainly driven by shifts in inflation risk premia

Decomposition of 5y5y ILS rate, cumulative change since 1 Jan 2014, %-points²

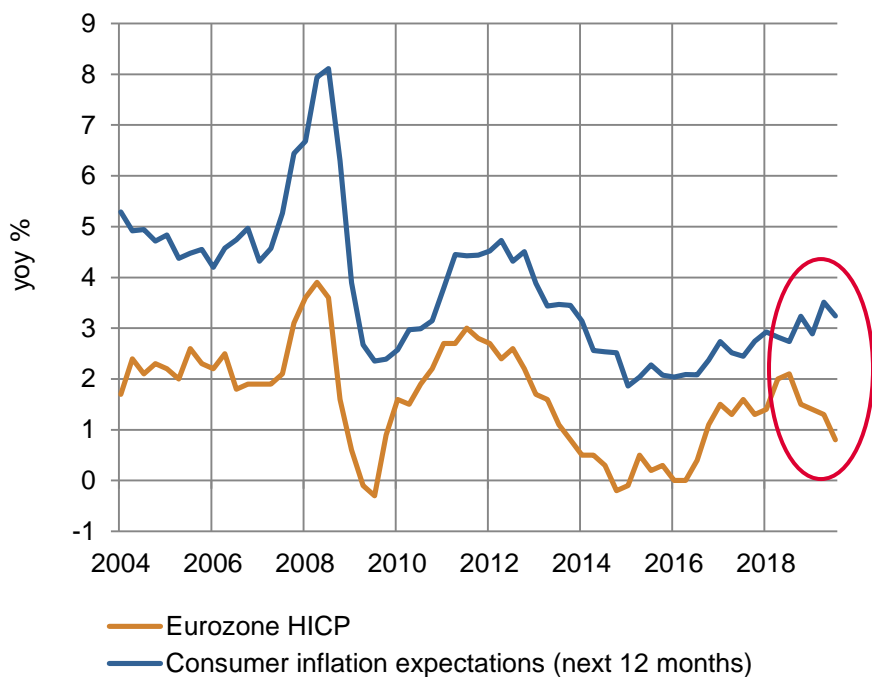


About 80% of the drop in the five-year forward inflation-linked swap rate five years ahead, both in 2016 and in 2019, is due to a drop in the risk premium, according to ECB calculations. Actual expectations fell to a smaller extent.

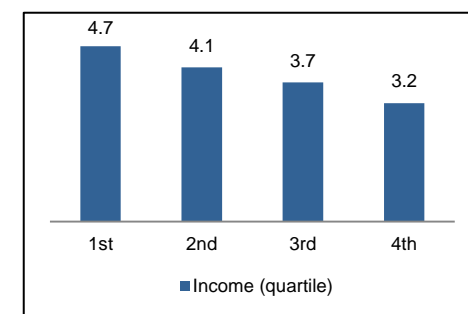
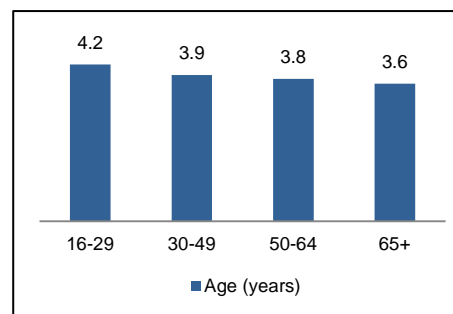
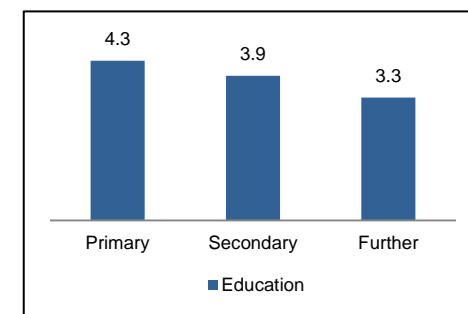
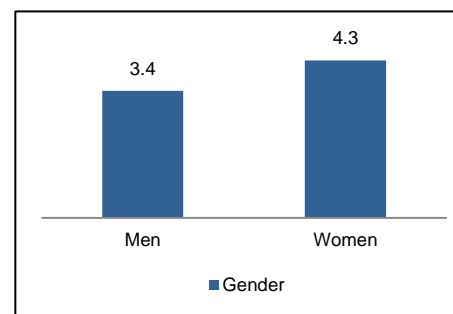
¹ “Unemployment in the euro area”, speech by Mario Draghi, President of the ECB, Annual central bank symposium in Jackson Hole, 22 August 2014. ² Source: “Inflation expectations and the conduct of monetary policy”, speech by Benoît Coeuré, Member of the Executive Board of the ECB, at an event organised by the SAFE Policy Center, Frankfurt am Main, 11 July 2019. Notes: The 5y5y rate and its components are re-based to zero at the beginning of January 2014. The decomposition is derived on the basis of an affine term structure model fitted to the euro area zero-coupon inflation linked swap curve. Past performance is not a reliable indicator of future results. Sources: Datastream, ECB, Allianz Global Investors.

Consumer inflation expectations have been consistently overshooting official price measures

Growing divergence between consumer inflation expectations and HICP¹ more recently



Consumer inflation expectations (in %) affected by socio-demographic factors²

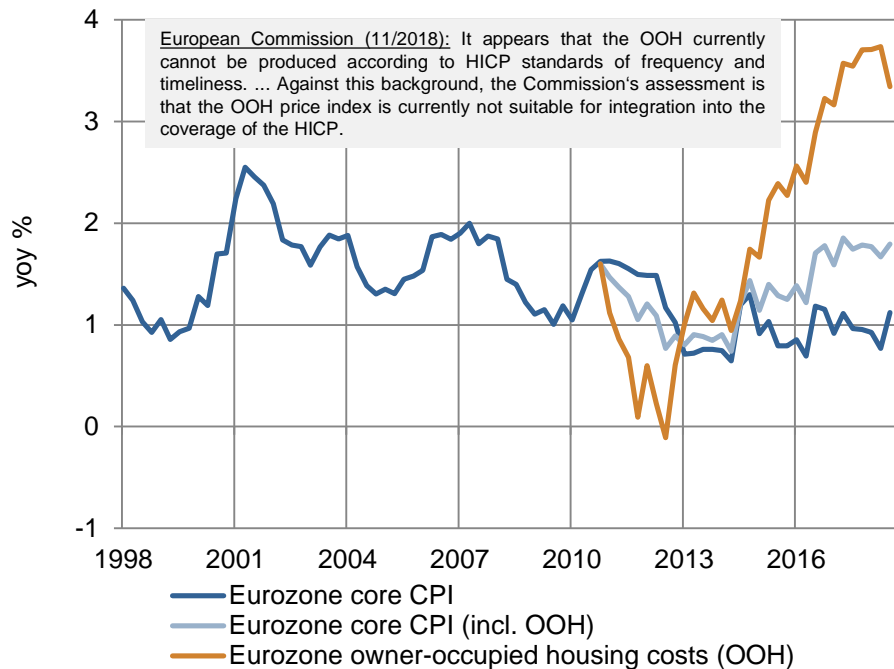


The persistent gap between consumer inflation perceptions and expectations and HICP inflation can be explained to some extent by socio-demographic factors. But it also points to a lack of representativeness of official price measures.

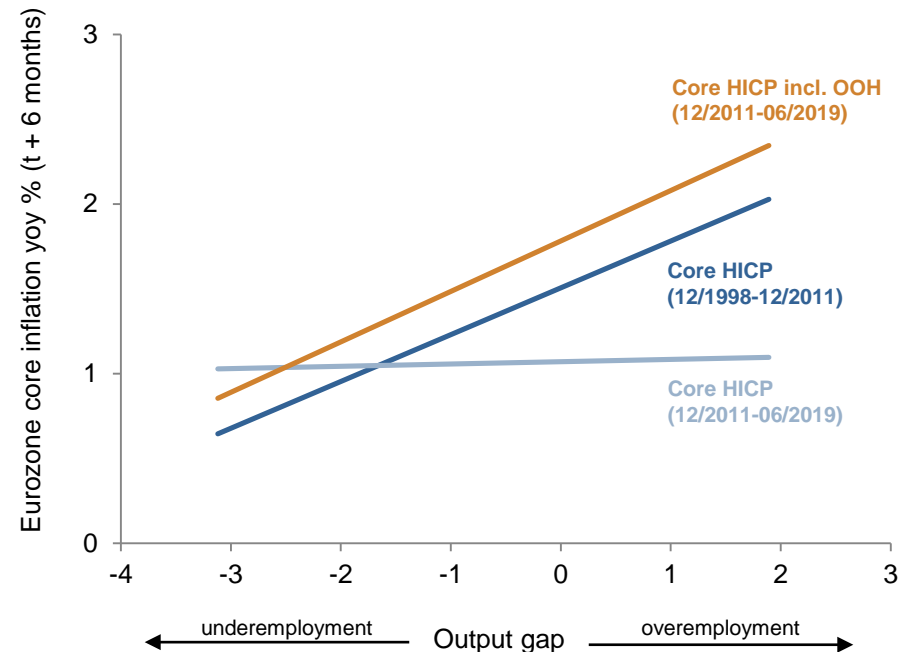
¹HICP: Harmonised Indices of Consumer Prices, ²Average inflation expectations Q1/2004 – Q3/2019. Income quartiles: 1st = lowest, 4th = highest
Source: Allianz Global Investors, Bloomberg, European Commission, Eurostat (data as at 30/09/2019)

Is consumer price inflation in the Eurozone understated by the HICP?

Exclusion of owner-occupied housing costs (OOH) exerts a material downside bias on Euro consumer price indices¹



Phillips curve would look quite differently based on augmented inflation measure

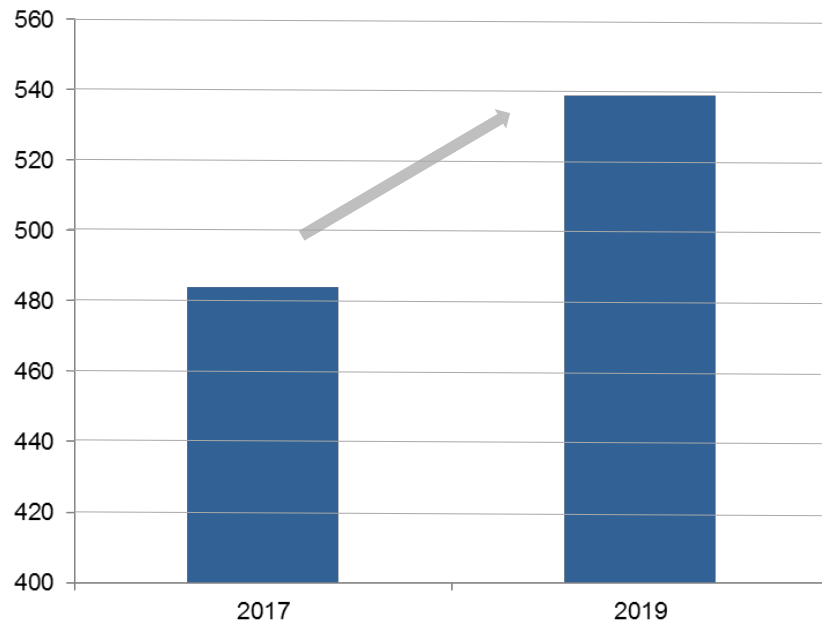


There are indications that actual price increases in the Eurozone could be understated by official consumer inflation measures. In contrast to the United States, where the costs for owner-occupied housing have a weighting of roughly 24 percent in the overall consumer price index, Eurostat continues to disregard this important factor in the calculation of the Harmonized Index of Consumer Prices (HICP). A similar treatment of homeowners' shelter costs would have pushed up annual HICP inflation by roughly 0.5 percent at the headline level and more than 0.6 percent in the core rate in June 2019.

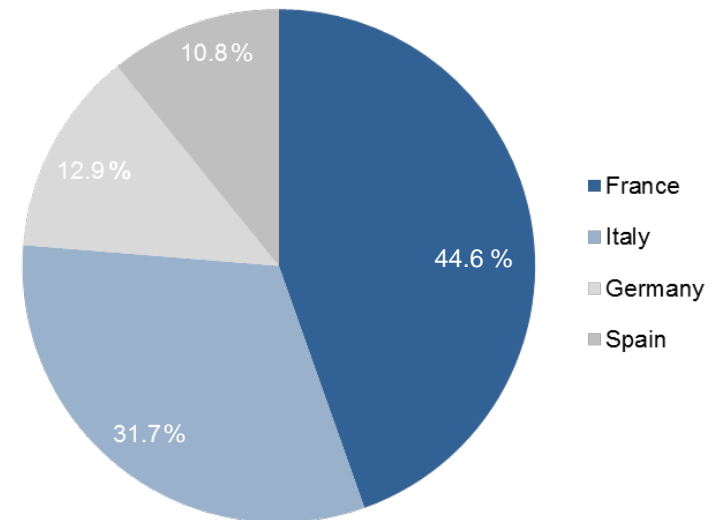
¹HICP core (incl. OOH) considers costs for owner-occupied housing with the same weight as the US CPI (total: 24.1%, core: 30.3%)
Source: Allianz Global Investors, Bloomberg, Eurostat, Bureau of Labor Statistics (data as at 30/06/2019)

EUR inflation-linked sovereign bond market: State of play

EUR inflation-linked bond market has continued to grow ¹
(bn EUR)



France and Italy are the largest issuers of EUR inflation-linkers¹



The market for Eurozone inflation-linked sovereign bonds has continued to grow, with a current market capitalization of more than EUR 530 billion.

¹ Market capitalization in EUR billion (01/01/2017 vs. current) and country split in % based on Bloomberg Barclays Euro Govt Inflation-Linked Bond All Maturities Total Return Index. Sources: Bloomberg, Allianz Global Investors (data as at 08/11/2019)

EUR inflation-linked bonds: market participants

Typical inflation-linked bonds investors and issuers

Investors		Issuers	
Pension funds	LDI strategies Matching guaranteed benefits	Governments	Index-Linked bonds
Asset Managers	Inflation-benchmarked funds Alpha generation, total return	Dealer/Market makers	Asset swap supply
Insurance companies	LDI strategies Bulk annuity business	Corporates	Limited utility issuance
Banks	Asset swap demand		
Retail investors	Inflation guaranteed products Specific retail instruments		
Hedge funds	Macro and relative value driven investing		



In most countries: more sources of inflation demand than supply.

What's driving the EUR inflation-linked bond market?

Price developments

- ✗ Eurozone headline inflation looks set to remain muted amid slowing economic growth. Some uptick in Q1 2020 conceivable given base effects.
- ✗ Strengthened labour cost pressures, but underlying inflation still subdued given lack of pass-through from robust wage growth to core inflation.

What to watch:

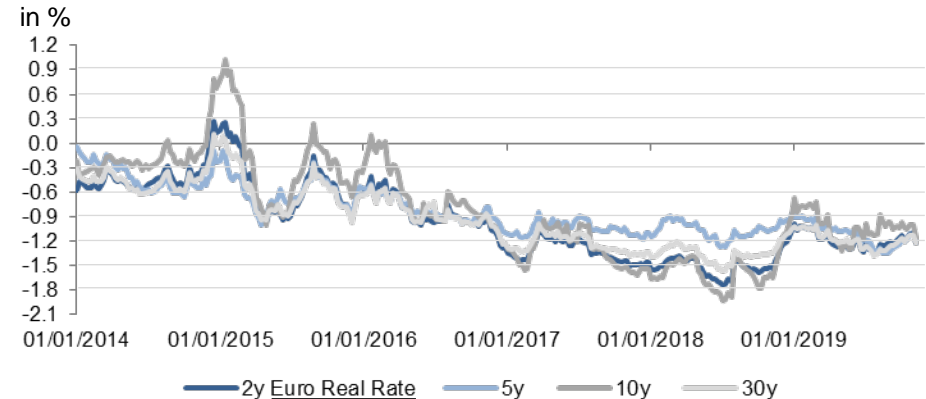
- ✓ Will QE2 help to reflate the Eurozone?
- ✓ German CO2 tax for transport and heating in buildings in 2021 – more broadly climate policies discussed at European level could exert upward pressure on prices (notably fuel prices).

Valuations

- ✓ Euro break-evens (BE) are attractively priced vs. inflation forecasts.
- ✓ Low supply until year-end will be supportive.
- ✓ BE could benefit from risk-on mode in the wake of fading geopolitical tail risks (trade, Brexit).

Risks

- ✗ Further weakening of GDP growth could weigh on core inflation (with a lag).
- ✗ Lingering geopolitical risks incl. flare-up of trade tensions (risk-off mode); declining oil price.
- ✗ Overshooting in case of a nominal bond yield rally.



The market is pricing a persistently weak inflation path but no deflation. Valuations are below 2016 levels for maturities of 5 to 30 years. Economic weakness and lingering political uncertainty prevent euro break-even rates from breaking out of their tight low range.

EUR inflation swap market: State of play

Key data for EUR inflation swaps

- EUR inflation swap market started 2002, central clearing started 2015
- Clearing distribution (estimated as of Nov 2019)
 - Central: ca 50-80% (via London Clearing House)
 - Bilateral: ca 20-50%
- Market volume:
 - On LCH:
 - Trading volume YTD (as of Nov 8, 2019): 2.0 trn EUR
 - Notional outstanding: 2.1 trn EUR
 - On EurexOTC Clear:
 - Volume YTD: 0 (sic!)
- Typical reference rates: Zero coupon 3-month lag on ...
 - European HICP excluding Tobacco (non revised)
 - (to smaller extent:) FRCPI excluding Tobacco (non revised)

Further market intelligence

- Largest market participants by trading volume:
 - Receiving side:
 - HICPx: pension funds
 - *FRCPIx: regulatory need for Livret A hedging by French commercial banks*
 - Paying side:
 - Proprietary desks, hedge funds



The market for Eurozone inflation swaps outsizes the inflation-linked bonds market. Most of the swap contracts are linked to the HICP. Largest market participants on the receiver side are pension funds.

Additional EUR inflation related derivatives products: State of play

- Year-on-year inflation swaps
- Linker asset swaps
 - Par-par asset swap
 - Proceed asset swap
 - Z-spread asset swaps
- Total return swaps on specific inflation bonds
- Floors and caps (probability of deflation can be derived from CPI options market)

(No EUR inflation futures markets (started 2008, but delisted 2014))

Summary

- Market-based inflation compensation measures are no unbiased estimator for inflation expectations. Significant drop in break-evens in the Eurozone primarily owing to receding inflation risk premium. ECB has a rising focus on market-based inflation expectations post-2014 (starting with President Draghi's Jackson hole speech in August 2014. Draghi was talking about market-based inflation expectations when referring to inflation swap rates.).
- Euro consumer inflation expectations have been persistently running above actual inflation rates. This is to some extent explainable by socio-demographic factors and the overall lack of representativeness of HICP. But it may also indicate that there is a genuine understatement of "true" real-world inflation by the HICP.
- Main reason for a potential underestimation of inflation by HICP is the exclusion of owner-occupied housing (OOH) costs. An inclusion of OOH with the same weight as in the US CPI would have lifted HICP core inflation close to the ECB's target over the past two years. Moreover, an augmented HICP (including OOH) would to some extent help to solve the "Phillips curve puzzle". Another (rarely cited) reason for an HICP downward bias is "obsolescence" (the persistent shortening of the life span of durable consumer goods is a negative quality effect which is unrecognized in Eurostat's inflation measurement).
- Unfortunately, the European Commission rejected a potential HICP reform (inclusion of OOH) in November 2018. Mentioned reasons (lack of data frequency and timeliness) are not convincing.
- Why it matters if inflation is understated: 1) Real GDP and productivity growth figures could be too high, 2) Public spending could be suppressed, 3) Inequality could rise, 4) Businesses may be watching misleading signals, 5) Investors could suffer from a "stealth devaluation" of their nominal assets and 6) Monetary policy may be more expansive than assumed.

Disclaimer

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