Remarks on

The constituency for low inflation

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Workshop on
The Future of Inflation Targeting

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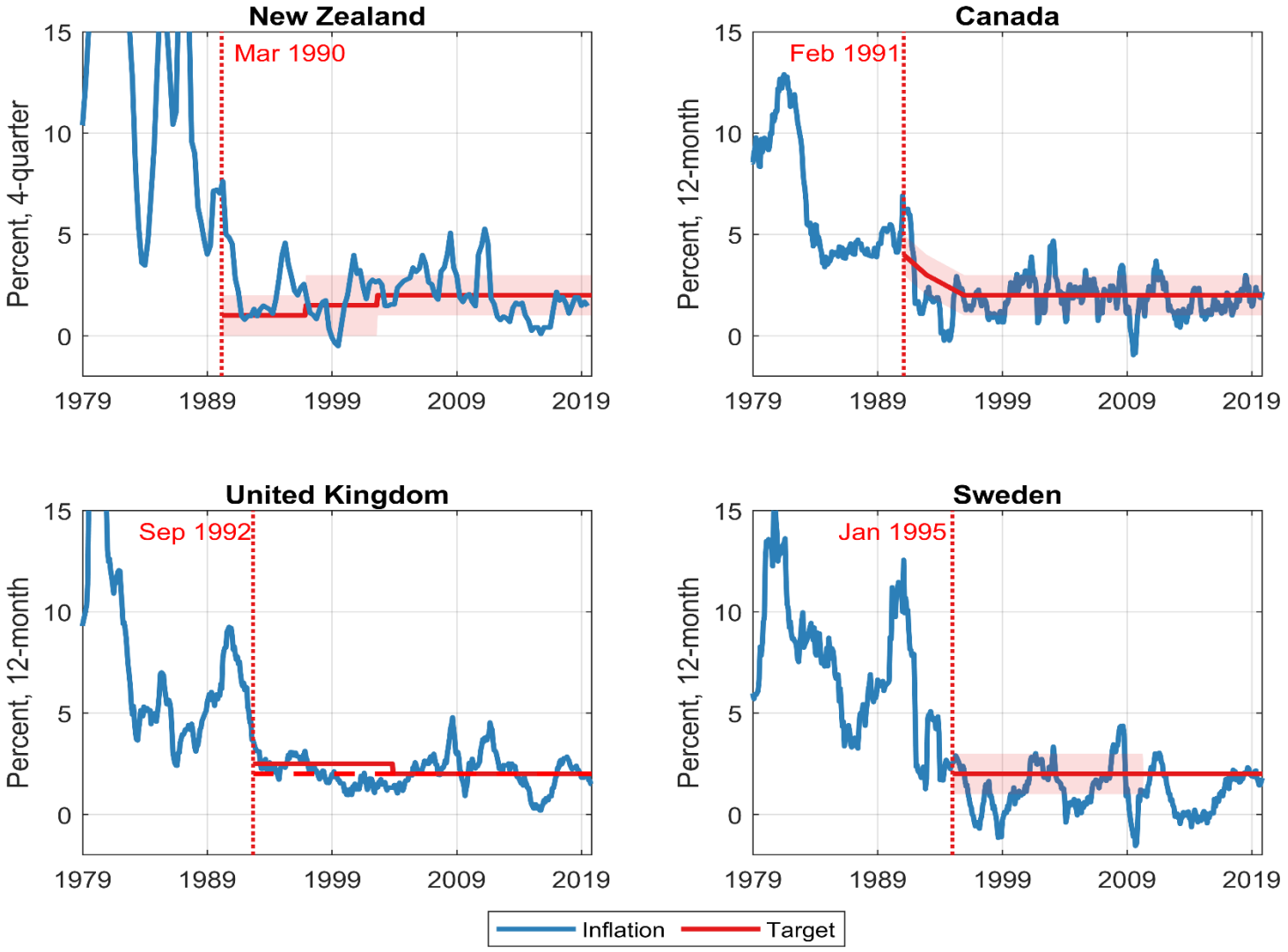
*The views expressed here are my own and do not necessarily reflect those of the Federal Reserve Bank of New York or any other part of the Federal Reserve System

Preamble

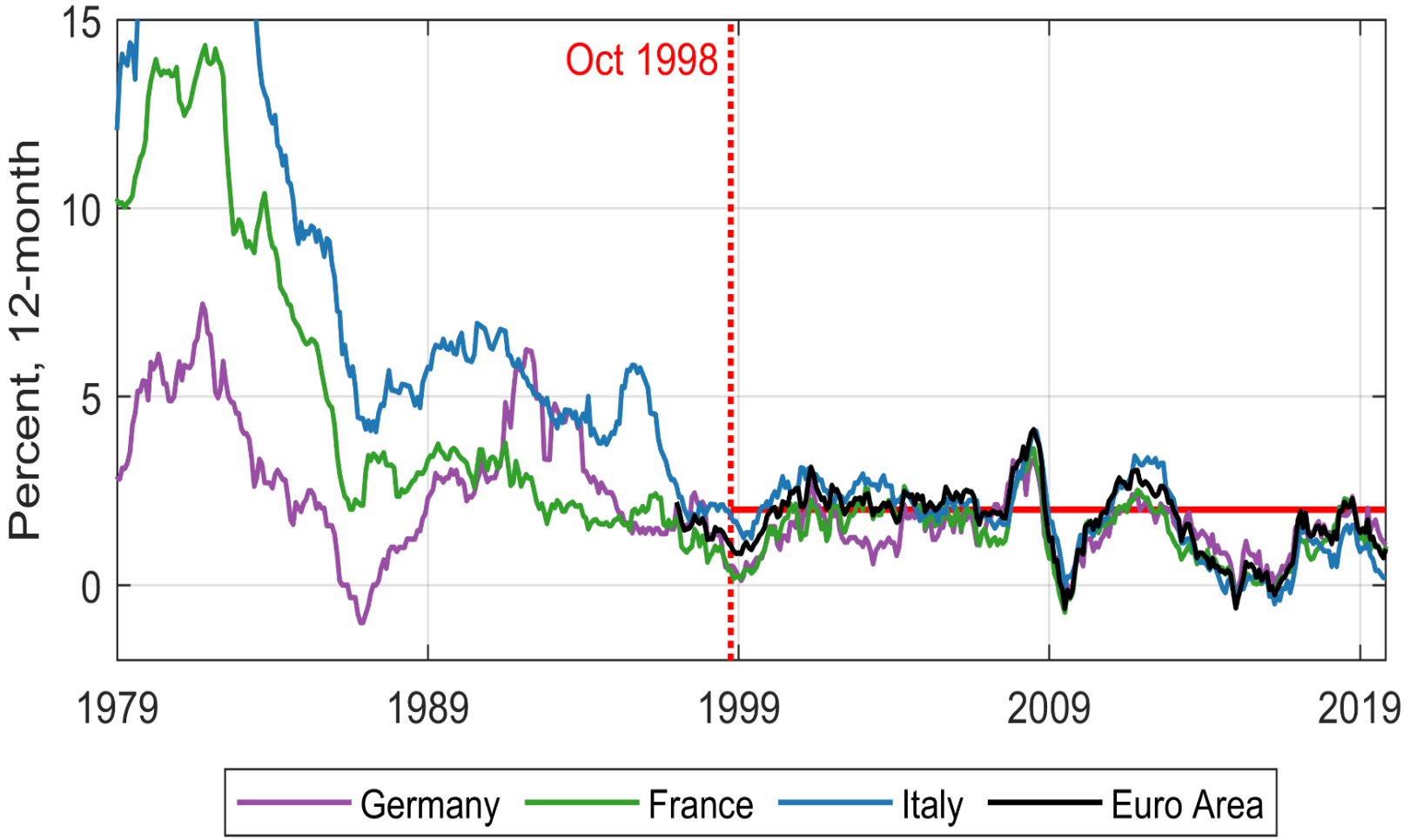
- The making of inflation targeting
  - Growing consensus circa 1990s
  - Ensuing era of low and stable inflation

Achievement of low and stable inflation



Note: The vertical lines mark the adoption of the inflation targeting regime. The UK targeted RPIX at 2.5% before switching to headline CPI at 2%. Shaded areas indicate target bands (New Zealand), inflation-control range (Canada) or a tolerance band (Sweden).

Convergence of inflation in the euro area



Note: The vertical line marks the adoption of the ECB monetary policy strategy that included the quantitative definition of price stability as a year-on-year HICP inflation for the euro area of “below 2%” (later modified with “close to 2%”).

The issue

- Is the Great Recession a turning point?
  - With low interest rates, is there still a case for low and stable inflation (i.e. for maintaining a low inflation target)?
  - Trade-offs
    - Costs of higher trend inflation: welfare costs from price dispersion, possible destabilization of inflation expectations, instability due to greater sensitivity to expectations
    - Benefits of higher trend inflation: increase the policy space, reduce incidence of ELB episodes, avoid deflationary spirals
- How well anchored are inflation expectations?

Why is low trend inflation desirable?

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- These costs are possibly underestimated in standard approximations of monetary models (New Keynesian models with nominal rigidities and financial frictions) around a zero-inflation steady state
  - Such approximation is misleading as the model is highly non-linear at that point

- Another possible class of costs of high inflation is the breakdown of the norm of non-indexation of contracted wages and posted prices

Greater mis-alignment of prices/wages

- Price dispersion increases in trend inflation
  - Distorts composition of spending and production
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- Moreover, standard analyses of these effects assume that prices and wages are set exactly optimally when they are readjusted
  - But in an inflationary environment, prices may also be set *less accurately*, even when adjusted, because firms need to pay attention to how much other prices have changed
  - This would lead to even greater increase of price and wage mis-alignment with higher trend inflation rate

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  - Measure inefficient price dispersion by absolute size of price changes
    - If (trend) inflation makes prices drift further from desired level, prices should change by a larger amount when they do change
    - Using BLS micro-data 1978-2014, find mean size of price changes flat
  - *But* the absolute size potentially underestimates price dispersion
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- Sheremirov, 2019: price dispersion does rise with inflation
  - Analyzes U.S. scanner price data for the period of 2001–2011
  - Finds positive correlation between dispersion of 'regular' prices and inflation
- Alvarez et al., 2016: high-inflation countries evidence
  - Dispersion of relative prices is insensitive to changes in inflation when inflation is low but it increases with inflation when inflation is higher

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  - E.g. Branch-Evans (2017) adaptive learning model: an increase in inflation target can generate near random-walk beliefs and temporarily unstable dynamics due to self-fulfilling paths.
- Finally, higher inflation is more likely to lead to a breakdown of the norm of non-indexation of contracted wages and posted prices (Akerlof, 2019)
  - Workers' anger at their own employer for failing to index wages is sufficient to enforce the adjustment norm, and this is more likely to happen in high inflation
  - This is expected to make stabilization of inflation dynamics more difficult, as wage-price spirals have more intrinsic persistence

Why would a higher trend inflation be desirable?

- Are the costs of a permanently higher trend inflation off-set by the benefits of reducing the incidence and consequences of ELB episodes?
  - Main issues
    - The probability of hitting the ELB
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- On the *severity of ELB episodes*, there are mitigating factors
  - E.g., Baqaee (2019): Inflation expectations may be rigid downward due to ambiguity aversion; the prediction of his model appear in line with data from the MSC

→ This leads to the issue of how inflation expectations react to variations in inflation

Looking closely at inflation expectations

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  - Evidence about how much expectations change in response to new information, more generally
- Attention has turned increasingly to inflation expectations from surveys of households and firms
  - More relevant for interpreting and forecasting aggregate spending
  - Significantly different from those of professional forecasters
    - Households' inflation expectation based on own shopping experience (D'Acunto et al., 2019)
    - Firms appear to form their expectations more like households than as professional forecasters (Kumar et al., 2015)
  - Offer insights on the extent to which monetary policy communication is effective

Do inflation targets matter for expectations anchoring?

- Various metrics proposed to assess anchoring (Kumar et al., 2015)
  - Dispersion, uncertainty, volatility, response to forecast errors
- Evidence is mixed
  - Expectations from the Michigan Survey appear to have become more anchored over the last decade (e.g. Drager - Lamla, 2018)
  - Firms' expectations from a New Zealand survey found limited evidence of anchoring and even limited knowledge of the central bank's inflation target (Coibion et al., 2018)
  - NY Fed's Survey of Consumer Expectations (SCE) shows improved anchoring in several dimensions
    - Compression of the upper tail of the aggregate density forecast and stable probability of deflation
    - Decline in median uncertainty since 2013 (where individual uncertainty is measured by the IQ range of the individual density forecasts)
    - Decline in the absolute size of forecast revisions

How do expectations respond to new information?

- Interesting recent line of research uses experimental or "strategic surveys"
  - E.g., Binder-Rodrigue (2018) designed an online survey to test how inflation expectations respond to announcement of the target
    - Found Fed's communication not transmitted too widely, contributing to far-from-target forecasts in consumer surveys
  - With colleagues at the NY Fed we have used this type of approach to gauge a related question (Armantier et al., 2019)
    - How do inflation expectations respond to persistent inflation shocks?
    - We fielded a special SCE survey module in July 2019 and presented respondents with hypothetical inflation scenarios.

How likely is un-mooring of expectations?

- Structure of the experiment:
  - Elicit individuals' 5-years ahead inflation expectations
  - 'Treatment':
    - *"What if in each of the past three years inflation had been lower than it actually was by 1 percent each year."*
  - Elicit the 'posterior'
    - *"Under this scenario, would the rate of inflation you expect for the 12-month period between July 2023 and July 2024 be different than the [X] percent you just reported?"*
  - Elicit a quantitative measure of the **change** in their expectation, if any.

Results

- **Households revise their expectations**

		Sign of Inflation Shock	
		1% **lower**	1% **higher**
Duration of Inflation Shock	**3** year	-0.43^{***}	0.18^{***}
	10 year	-0.51^{***}	0.31^{***}

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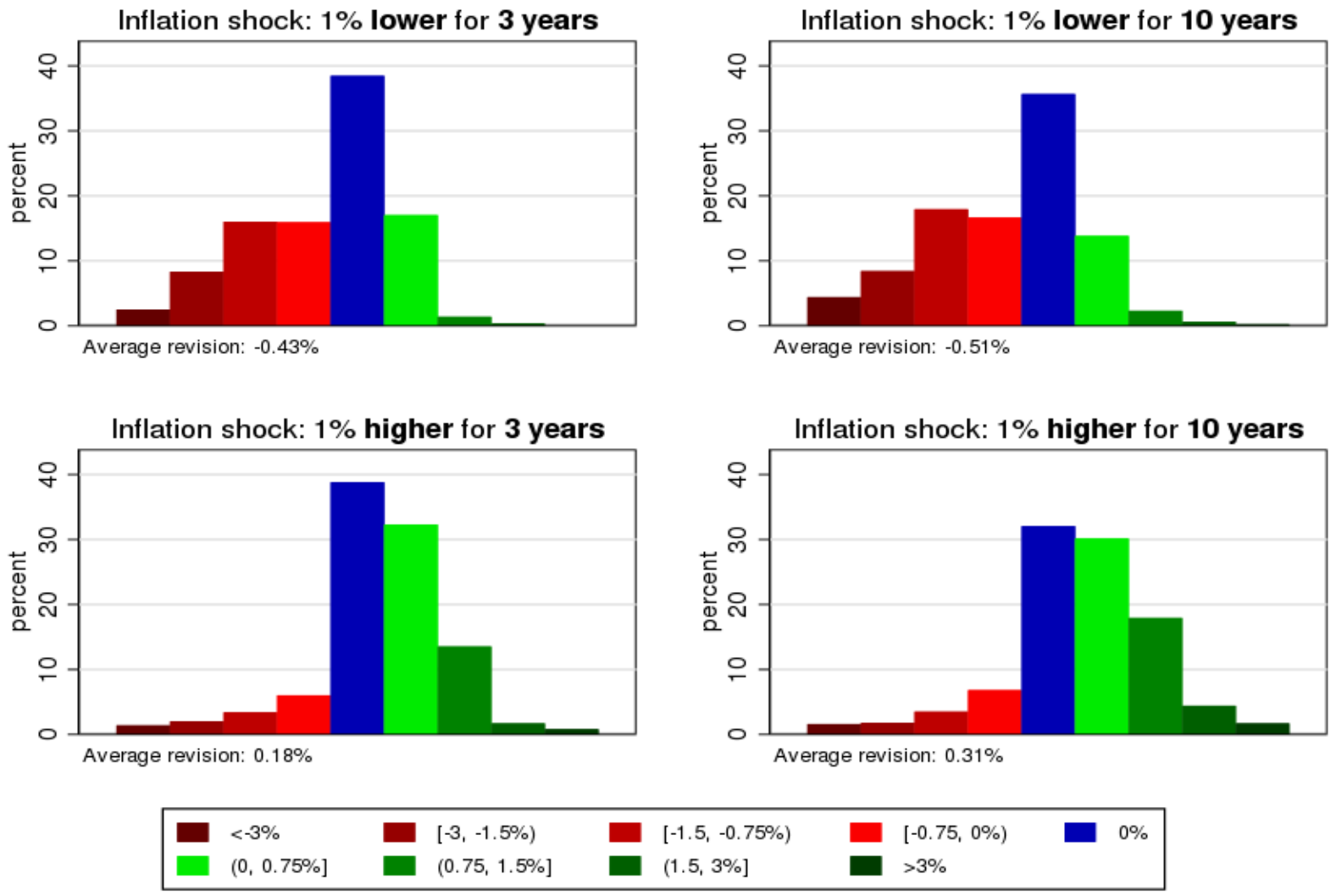
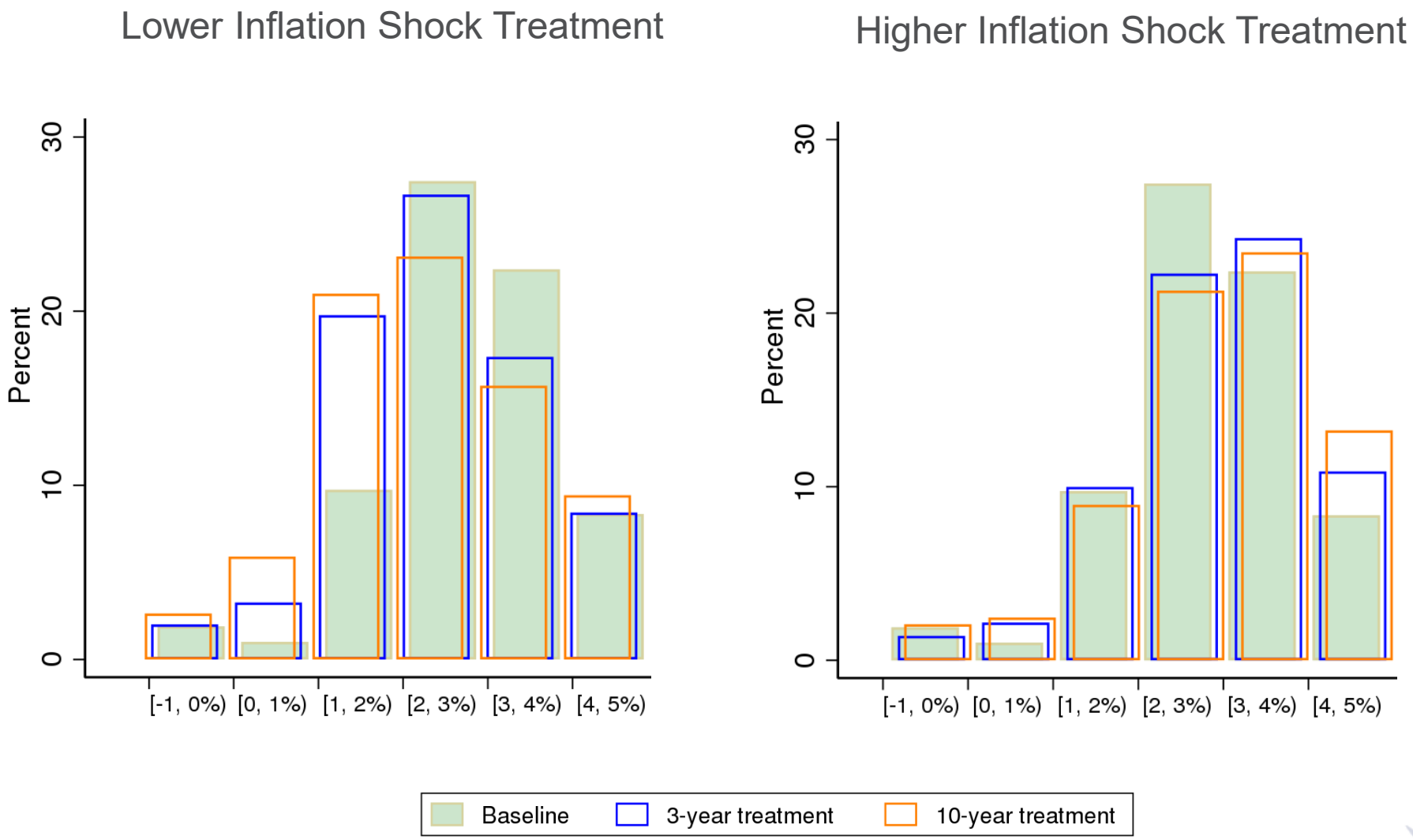
- **Noteworthy asymmetry**
  - Larger revisions in the negative than in the positive inflation treatments

Distribution of revisions: large % of ‘non revisions’



Note: The colored bars indicate ranges of revisions.

Shifts in beliefs distribution also show asymmetry



Note: The brackets on the x-axis indicate ranges of inflation expectations.

Conclusion

- Aiming at a higher level of trend inflation has clear costs
  - Disrupts the price signaling mechanism
  - Can generate unstable inflation expectation
- The assessment of the benefits of a higher trend inflation still requires more analysis
- Evidence from surveys of inflation expectations suggests risks of un-anchoring under persistent shocks
- Important to avoid un-anchoring
  - Aiming for inflation *temporarily* higher than target could reap some of the benefits of higher inflation without the disruptions associated with a permanently high trend inflation

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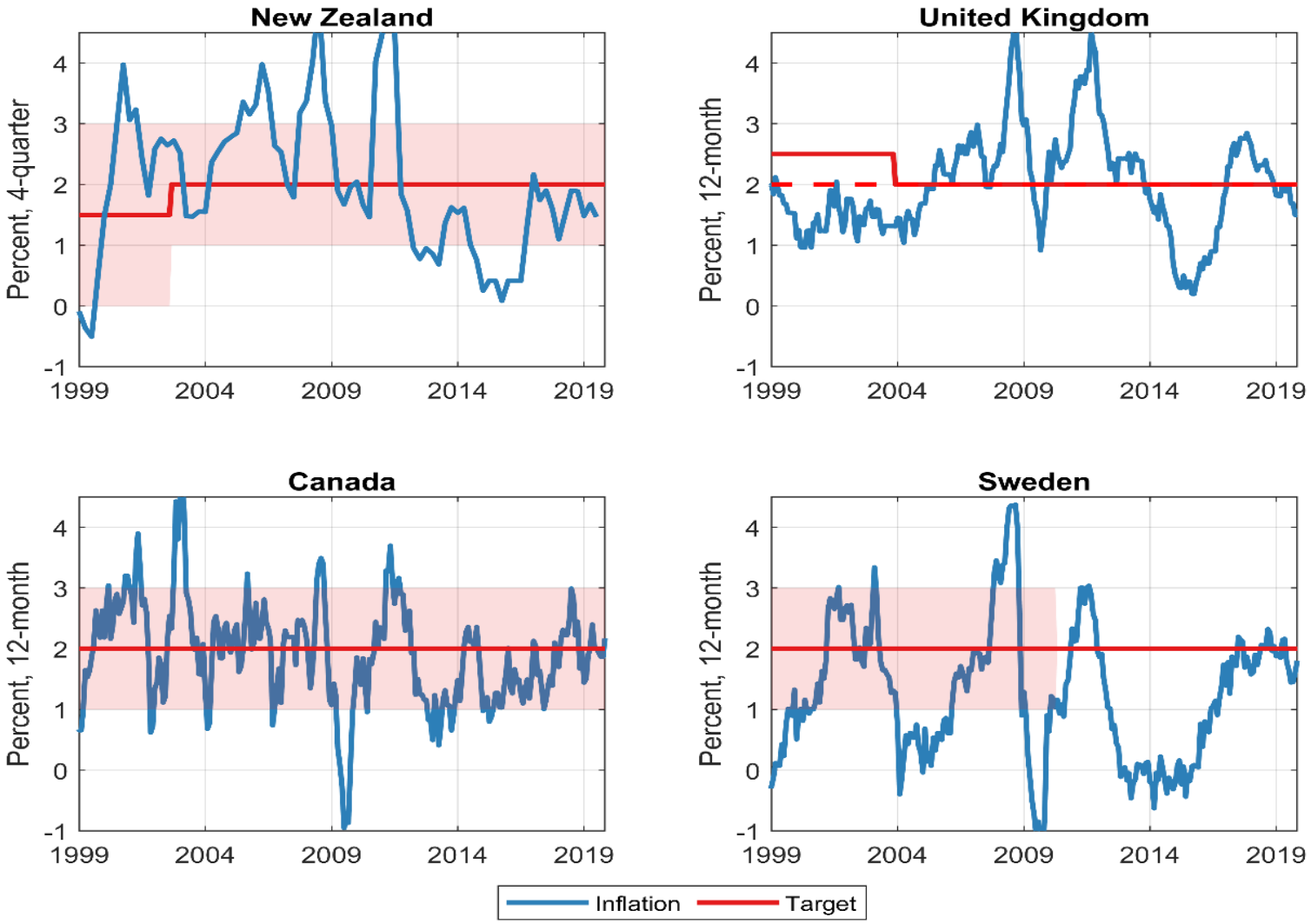
Some reference slides

IT Central Banks' experience – the last 20 years



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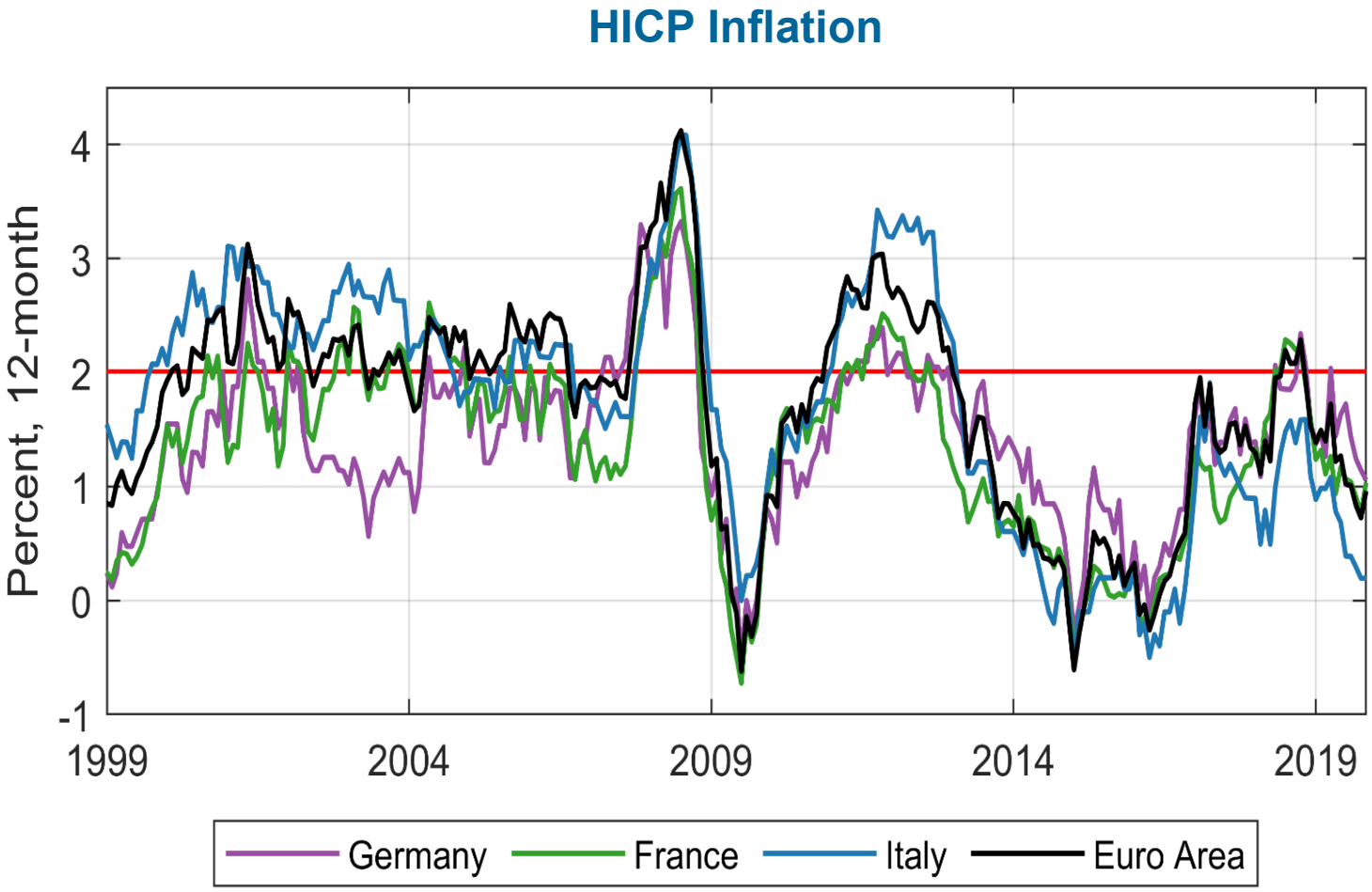
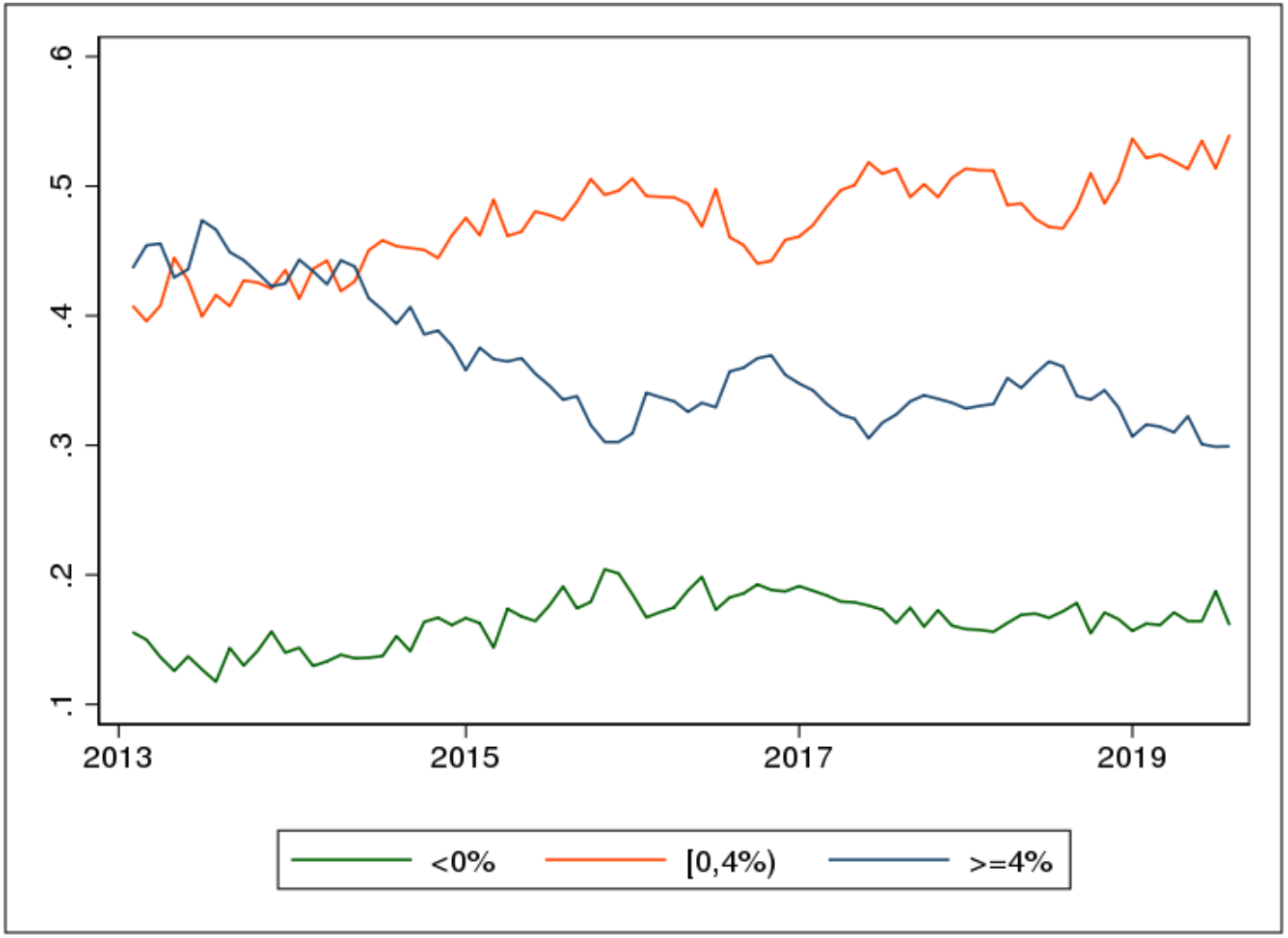
Euro Area Inflation – the last 20 years



SCE Aggregate Density Forecast



Note: The figure shows the average probability mass assigned by individual respondents to the specified ranges of 3-year ahead inflation outcomes.