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Document defines specific strategies using loss functions
  - Clarifies difference between longer-term strategies and setting (the policy rate) to achieve objectives

Among specific strategies: average inflation targeting and price-level targeting have some advantages if...

Average inflation is a smaller change than price-level targeting, but still need to choose:
  - Averaging period for inflation
  - Temporary or permanent
  - Relative importance of inflation and employment objectives in loss
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Focus on specific strategies on inflation within a dual mandate framework

With a lower bound to interest rates—evaluate:
- Robustness
- Time consistency
- Credibility

Some advantages to temporary variants of price-level targeting and average inflation targeting

Comments expand on LS, emphasizing practical considerations
Average inflation targeting (AIT) and price-level targeting (PLT)

Good
- Have automatic stabilizing benefits in some models assuming expectations behave “appropriately”
- Achieve inflation close to target

But
- Are not robust
  - Under some expectations assumptions, advantages of PLT decrease and can be worse than flexible IT
  - Whether PLT is better than FIT can depend on the model
- Are time inconsistent
  - Would policymakers want to tighten if inflation is below $\pi^T$ and unemployment is rising, but prices are too high relative to target.

Key questions: Can central banks
- engineer outcomes as in models given uncertainty?
- manage inflation expectations to behave like frequently assumed?
Short-run expected and actual inflation

FOMC forecasts lag inflation
**Terminology**

- **Inflation** ($\pi$)
- **Inflation target** ($\pi^T$)
- **Long-run expected inflation** ($\text{LRE}\pi$)
  - anchors inflation expectations
- **Expected inflation** ($E\pi$)
  - short-run expected inflation moves more if long-run expectations shift in the same direction
- **Average inflation** ($A\pi$)
  - An outcome—what has inflation been on average
- **$\pi^*$**
  - In technical documents, a term in policy functions that may represent the inflation target
Temporary PLT/AIT means...

- Away from the lower bound to interest rates, the baseline framework remains in place.

- Once constrained by the lower bound put some weight on reversing past misses—for example, don’t increase policy rates until an average inflation measure is equal to or greater than $\pi^T$.
  - At least some of the specified period has to be in the past.
Reasons to consider temporary PLT/AIT

- Even if expectations don’t behave “appropriately”...
  - More robust and less-likely time inconsistent than PLT/ALT
  - Achieve $A\pi$ closer to $\pi^T$, helping accountability
  - Can help the public understand policy at the lower bound
  - May be a good risk management tool given uncertainty
Key issue: Will credibility be maintained if $A\pi \neq \pi^T$?

Credibility: $LRE\pi = \pi^T$

Theory: The lower bound to policy rates introduces an asymmetry

- $A\pi < \pi^T$ under FIT
- This could lead $LRE\pi$ to drift downward away from $\pi^T$

Practical considerations:

- $LRE\pi$ lags inflation and at longer horizons, the sensitivity to inflation gaps declines
- With an explicit $\pi^T$ in place, $LRE\pi$ may be less sensitive to $\pi$ or $A\pi$
- But, how to measure $LRE\pi$?
The Federal Reserve has earned credibility...

\[ \text{LRE}_\pi = \pi^T \]
How to measure LREπ?
Temporary PLT/AIT delays raising the policy rate from the lower bound

- ... increasing the likelihood that inflation would overshoot the target

- Small overshoots not a large concern
  - would have to be quite large or persistent to lead to an outsized drift of $LRE_\pi$.
  - policy can react
  - could contribute to bringing $A_\pi$ closer to $\pi^T$

- Temporary PLT/AIT may increase the buildup of financial imbalances
Temporary PLT/AIT as risk management under uncertainty

- May balance risks associated with changes in the relationship between unemployment and inflation
- At the lower bound it is better to accept risks of unexpectedly higher inflation than unexpectedly lower inflation
Estimates of the NAIRU move a lot over time, and are revised a lot.
At the lower bound, the policy rate appears to be insensitive to data

Providing necessary conditions for policy rate increases improves transparency on data dependency

Flexibility is necessary
  ▪ Can consider generalizing concept
  ▪ What if unemployment is high and inflation is temporarily above target (e.g. UK experience)?

Communications challenges—not a promise for action
Addenda: π* as an operational guide in technical analysis

- In research, have LREπ = Aπ, but if this is true in temporary PLT/AIT, may need inflation to exceed the target in non-lower bound periods.

- In a model, π* in a policy rule may differ from the target if a different value is required to achieve an outcome where long-run expectations are anchored on the target
  - Other adjustments to the rule could also work
  - Mertens and Williams 2019
  - Bernanke, Kiley, Roberts 2019

- While policy rules are useful in models to approximate behaviour of policy-makers, actual decisions are not determined by mathematical expressions
  - Model limitations and model uncertainty, data uncertainty, parameter uncertainty
THANK YOU