

Forward Guidance: Communication, Commitment, or Both?

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Distinction between:

- “Odyssean” forward guidance: meant as a form of commitment
- “Delphic” forward guidance: central bank has superior information, reveals it to the public

Forward Guidance as Cheap Talk

- Forward guidance: a set of statements about likely future policy that:
 - does not **directly** constrain central bank actions
 - does not **directly** change future decision process
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 - does not **directly** affect payoffs
- Forward guidance is cheap talk (in the technical sense)

Goal of this Project

- When does forward guidance work?
- How does it work?
- What does it communicate?

- Set up a monetary policy game
- Study repeated interaction (reputation, “embarrassment,” ...)

1. A Simple Model without Private Information

- Phillips curve:

$$y_t = \lambda(\pi_t - \pi_t^e)$$

- Loss function of the CB:

$$-(y_t - \hat{y})^2 + \alpha(\pi_t - \pi_t^*)^2$$

- Central bank controls inflation, within bounds:

$$\pi_t \in [-\Pi, \Pi].$$

The Game without Forward Guidance

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- 2 Gov't sets π_t , Phillips curve determines y_t

Histories and Strategies

- A (public) history at the expectations-setting stage $h^{et} := \{\pi_s\}_{s=0}^{t-1}$
- A (public) history at the policy-setting stage is $h^t := (h^{et}, \pi_t^e)$.
- Set of histories: H^{et}, H^t
- A (symmetric) household strategy is $\sigma^e : H^{et} \rightarrow \mathbb{R}$
- A CB strategy is $\sigma : H^t \rightarrow \mathbb{R}$

- A strategy profile (σ^e, σ) such that:
- Given any history at the expectations-setting stage, household expectations are realized

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- Given any history at the policy-setting stage, the gov't choice is optimal, assuming that hhs and CB will follow (σ^e, σ) .
- Set of Equilibria is big (trigger strategies, tit-for-tat, repeated Nash,...)
- Can be computed using Abreu-Pierce-Stacchetti methods.

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An Equivalence Theorem

- In both games, equilibrium strategies induce an equilibrium sequence for $\{\pi_s\}_{s=0}^{\infty}$.
- The set of equilibrium sequences is the same in the two games

- Public announcement is supposed to cause “embarrassment” if policy deviates (Odyssean forward guidance)
- There may be equilibria of this type (announcement believed, trigger based on whether announcement was carried out)
- Same outcome achieved when high inflation carries embarrassment
- Trigger based directly on action
- No need to speak, but just to *act!*

An example

- Set $\lambda = 40$, $\hat{y} = 0.01$, $\beta = 0.96$, $\pi^* = 0.02$, $\alpha = 1$
- One equilibrium (trigger strategy):
- CB offers “forward guidance” that inflation will be 2%;
- Private sector believes announcement if and only if previous announcements were truthful
- Otherwise, private sector disregards announcement, expects repeated Nash, 42%
- CB sets π_t equal to announcement (2%) if truthful in the past, to 42% otherwise

Equilibrium without Cheap Talk

- Private sector expects 2% inflation, unless different inflation rate occurred in the past
- Otherwise, private sector expects 42%
- CB sets π_t to 2% if it never deviated from 2% in the past, to 42% otherwise

First Conclusion

Pure Odyssean forward guidance has no role to play

2. Adding private information about the Economy

- i.i.d. shocks to potential output, $\bar{y}_t$
- Observed by private sector at the **end** of the period
- Known to CB at **beginning** of period
- (Not essential) Shifts CB target one for one $\hat{y}_t = \hat{y} + \bar{y}_t$

New Phillips Curve

- Phillips curve:

$$y_t = \omega \bar{y}_t + (1 - \omega) y_t^e + \lambda (\pi_t - \pi_t^e)$$

- y_t^e is private sector expectation about potential output $\bar{y}_t$
- $y_t^e = 0$ unless CB announces something meaningful
- Here, private info of the CB is about **fundamentals**

Optimal Policy under Commitment (before observing $\bar{y}_0$)

- Announce truthfully $\bar{y}_t$;
- Set inflation to π_t^* .
- Note: announcement strictly improves welfare (cheap talk is essential)
- This is pure **Delphic** forward guidance
- Will be an equilibrium outcome without commitment for sufficiently high β (Folk theorem)

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- CB reporting information about underlying economy, not its policy
- **In the example**, policy (inflation) unaffected by information
- Reporting policy would not substitute for direct report of information
- In other contexts, one-to-one mapping between future policy and economic state...
- ...can report policy instead of state...
- ... but not very natural, when people really care about state

3. Delphic forward guidance about policy

- Back to original environment, potential output common knowledge
- Asymmetric information about π_t^* ; two interpretations:
 - Asy. info. on CB preferences
 - π_t^* arises from deep parameters, CB does not know deep parameters, but has beliefs
- For tractability, assume again π_t^* observed by private sector at the end of the period

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 - π_t^* arises from deep parameters, CB does not know deep parameters, but has beliefs
- For tractability, assume again π_t^* observed by private sector at the end of the period
- **Given policy**, private sector has all the info needed to take decisions
- Asy. info only relevant for forecasting CB policy

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- As in the case of asy. info about potential output, cheap talk is essential
- Forward guidance is directly about CB policy

What Does this Suggest about Forward Guidance in Practice?

- Can communicate insights into decision process
- Can signal agreement, disagreement among policymakers
- Can signal models policymakers believe in (Krugman-Woodford-Eggertsson)

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- Delphic component essential to make sense of forward guidance
- Does this mean forward guidance useless for commitment?
- Not necessarily.
- Forward guidance expands set of equilibria. When commitment outcome not attainable, can still help support better outcomes