Discussion: Optimal Communication in Banking Supervision

Jeong Ho (John) Kim, Kyungmin Kim, Victoria Liu, and Noam Tanner

Seung Joo Lee
Oxford University

Dec 13, 2024

Basic mechanism

Hidden state: $\omega \in \{G, B\}$

- Supervisor signals: $\hat{s}$ translated to $t = \Pr\{\omega = G|\hat{s}\} \sim F(t)$
- Bank signals: $s = g(b)$ when $\omega = G(B)$ with probability $\gamma > \frac{1}{2}$

Conflict of interests:

- Banks always want to take high risks, while supervisor wants high risks only in $\omega = G$
- Supervisors want high risks even with $s = b$ if $t \geqslant \bar{t}$, want low risks even with $s = g$ if $t \leqslant \underline{t}$

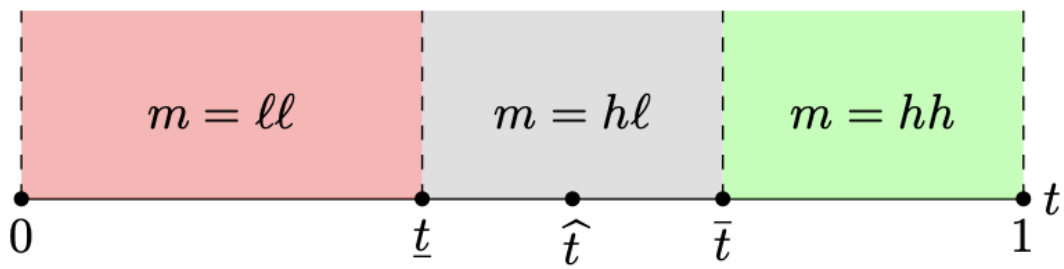


Figure: First-best for supervisors

Observation

Honest communication strategy: not incentive compatible (banks $\longrightarrow$ high risks always)

Muddling of information: allows supervisors to achieve the first best

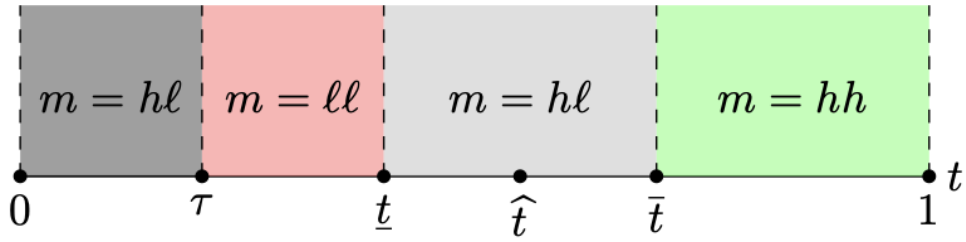
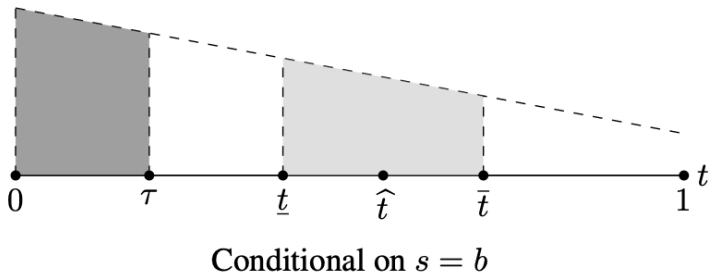
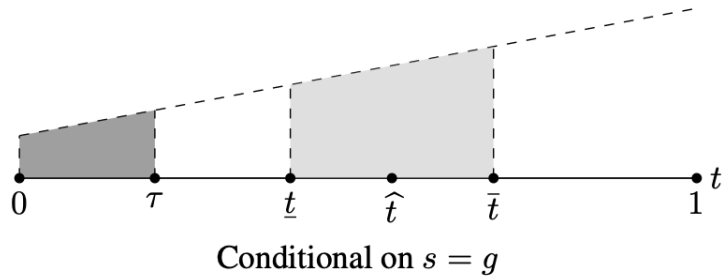


Figure: First-best communication strategy

Given message $m = h\ell$: now incentive compatible



(a) With $s = b$: banks $\longrightarrow$ low risks



(b) With $s = g$: banks $\longrightarrow$ high risks

Big issue: as $\gamma\uparrow$ (i.e., more precise bank signals), leading to $\underline{t}\downarrow$ and $\overline{t}\uparrow$

- The probability of rejection$\downarrow$ when banks $\longrightarrow$ high risks given $s = b$
- Supervisors need to rely more on bank signal, ironically weakening information elicitation channel from bank acts

With high γ

Natural solution: reduce the interval for approval to $\left[\underline{t}^*, \bar{t}^*\right] \subset [\underline{t}, \bar{t}]$

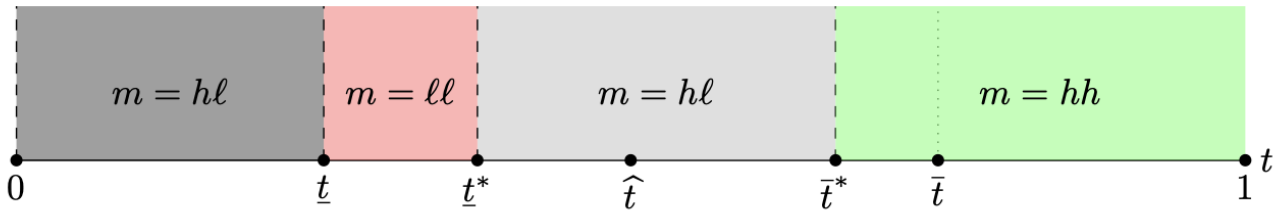
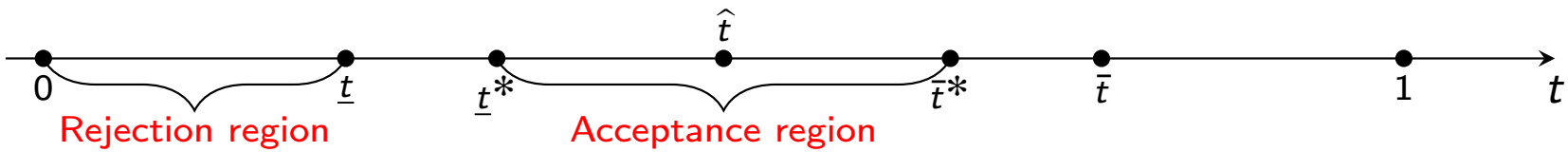
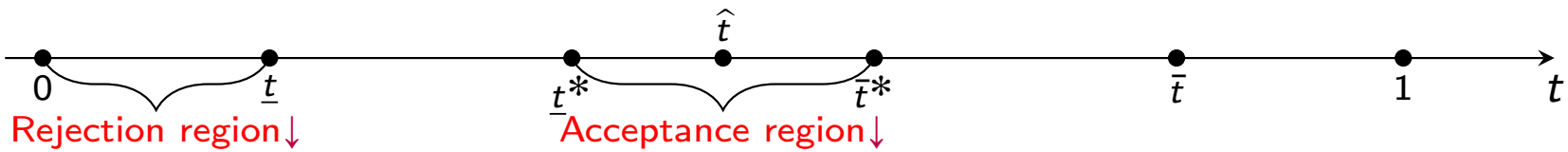


Figure: Optimal communication (when the first best is not achievable)



With higher γ:



As $\gamma \to 1$: $\underline{t}^* = \bar{t}^* \to \widehat{t}$ so welfare drops to no information elicitation case ($\gamma = \frac{1}{2}$)

- Effects of γ on welfare becomes non-monotonic (novel)

Some comments

Very beautiful and thought-provoking theoretical paper

- Applying information design techniques to bank supervision problems, solving optimal communication solution

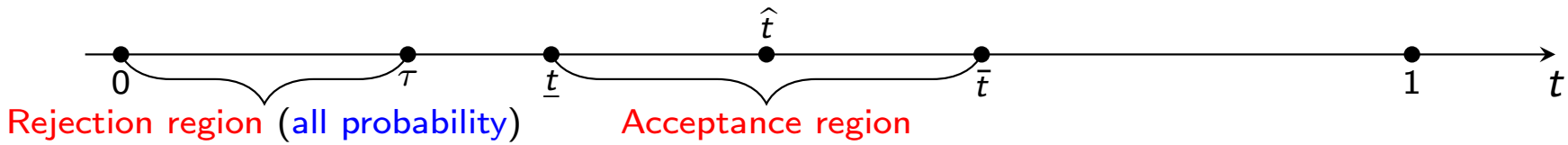
Multiple scenarios in stress testing:

- Michael Barr (the Fed's Vice Chair for Supervision): "capture a wide range of outcomes for the banking system" and prevent "[stress] test[s] [from] becom[ing] predictable".

- Multiple scenarios are mapped to muddling in the model, but muddling is pooling of messages across different realizations of supervisor's private information

- Maybe, multiple scenarios are not exactly mapped to multiple private signal realizations, but multiple models, i.e., $F(t)$ and γ, e.g., Siemsen and Vilsmeier (2018) and Kupiec (2020), argue different models lead to different stress testing results

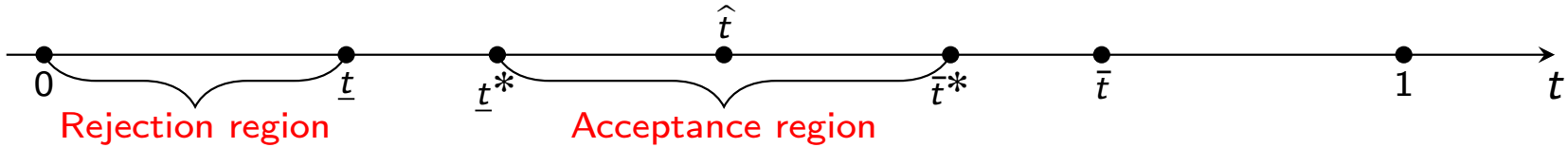
- What if banks are uncertain about $\{F(t)\}$ while supervisor knows it? In extreme cases, mim-max preference of banks leads to low risks only for $m = h\ell$ (precautionary)



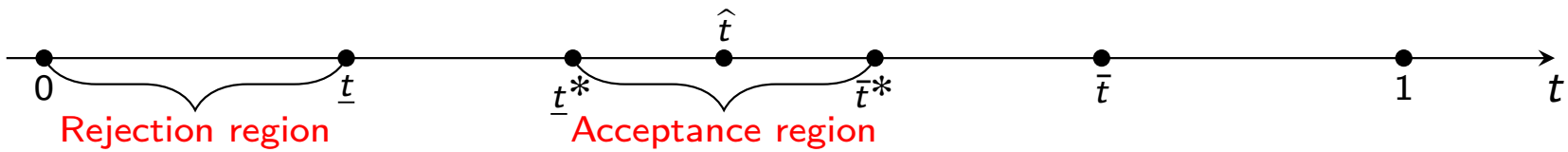
Some comments

Heterogeneous failure costs:

- Usually failure cost c is endogenous, accounting for an impact on financial markets.[1] And different banks perceive different levels of c



- Given the above communication, low c banks chooses h given b. If supervisor changes messages to:



  Then, now low c bank might choose ℓ given b

- But inefficiency region↑: ∃interesting trade-off

[1] See e.g., Sahin et al. (2020).

Some comments

Dynamic macroprudential concern:

- Even with high t, supervisor might want low risks from banks to reduce the probability of future crisis, stemming from high risks now. Maybe interesting intertemporal trade-off?

- Caballero and Simsek (2020) focus on monetary policy in this aspect: higher interest now, lower probability of next crisis

Overall, very interesting and policy-relevant paper!