

“Regulation of Food Quality: Deep Capture and Economies of Scope between Innovation and Influence”

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Shallow and Deep Capture

Shallow Capture (orthodox regulatory capture)

- Stigler (1971), Peltzman (1976), and Laffont and Tirole (1993)
- Transfer from regulated firm to regulator
 - Bribes or revolving door transfers commonly discussed

Deep Capture

- Hanson and Yosifon (2003), Smith and and Tasnádi (2014)
- Firm efforts to influence (nudge) institutions beyond regulator
 - Media, public education, academic research, and scientific bodies in order to influence regulatory approval and public acceptance of firm's products

Motivation

- **Innovation yields:**
 - **Potential benefits via improved products**
 - **Potential risks from novel aspects of products**
- **Asymmetry in:**
 - **Information about product improvements**
 - **Knowledge about how to assess novel aspects**
 - **Regulators must rely on innovator to understand and evaluate novel aspect**
 - **Innovator has incentives to shape evaluation process to their benefit – “shaping the science”**

Motivation

- **Potential for *economies of scope* between:**
 - **Innovation and regulatory influence via deep capture**
 - **Greater innovation effort reduces cost of deep capture:**
 - **Firm in stronger position to influence regulator's evaluation mechanisms because asymmetry of knowledge about innovation is heightened**
 - **Greater novelty, more regulator must rely upon innovator's knowledge to assess product risks, and easier it becomes to shape assessment to benefit of firm**

Examples of Deep Capture and Economies of Scope

- **“Without outside help ...the safety bureau [Ocean Energy Safety Institute – regulator]...cannot realistically be expected to match industry in technical depth or breadth...”** Limits agency in its role as source of **“trustworthy, conflict-free insight and information...”** (October 2013, *Fuel Fix*, summarizing National Academy of Sciences report)
- **“...P&G needed to develop different ...methods for evaluating safety, and the FDA needed to establish new regulatory standards for a product that could not be tested in routine ways...”** Nestle, *Food Politics*, on introduction of *Olestra*, a fat substitute. Similar statements made by P&G CEO Ed Gartz in Congressional testimony.

Regulatory and Influence Structure

- Assume following structure:



Policymaker → Regulator → Advisory Board → (Dis)approval

- Policymaker sets rules for regulator who recruits advisory board of experts that screens information on product quality supplied by innovating firm
 - **Shallow capture** via bribes/revolving door (Stigler, 1971)
 - **Deep capture** – regulators and supporting institutions subject to other forms of firm manipulation (Hanson and Yosifon, 2003)

Game Structure

Firm invests in R&D (continuous)

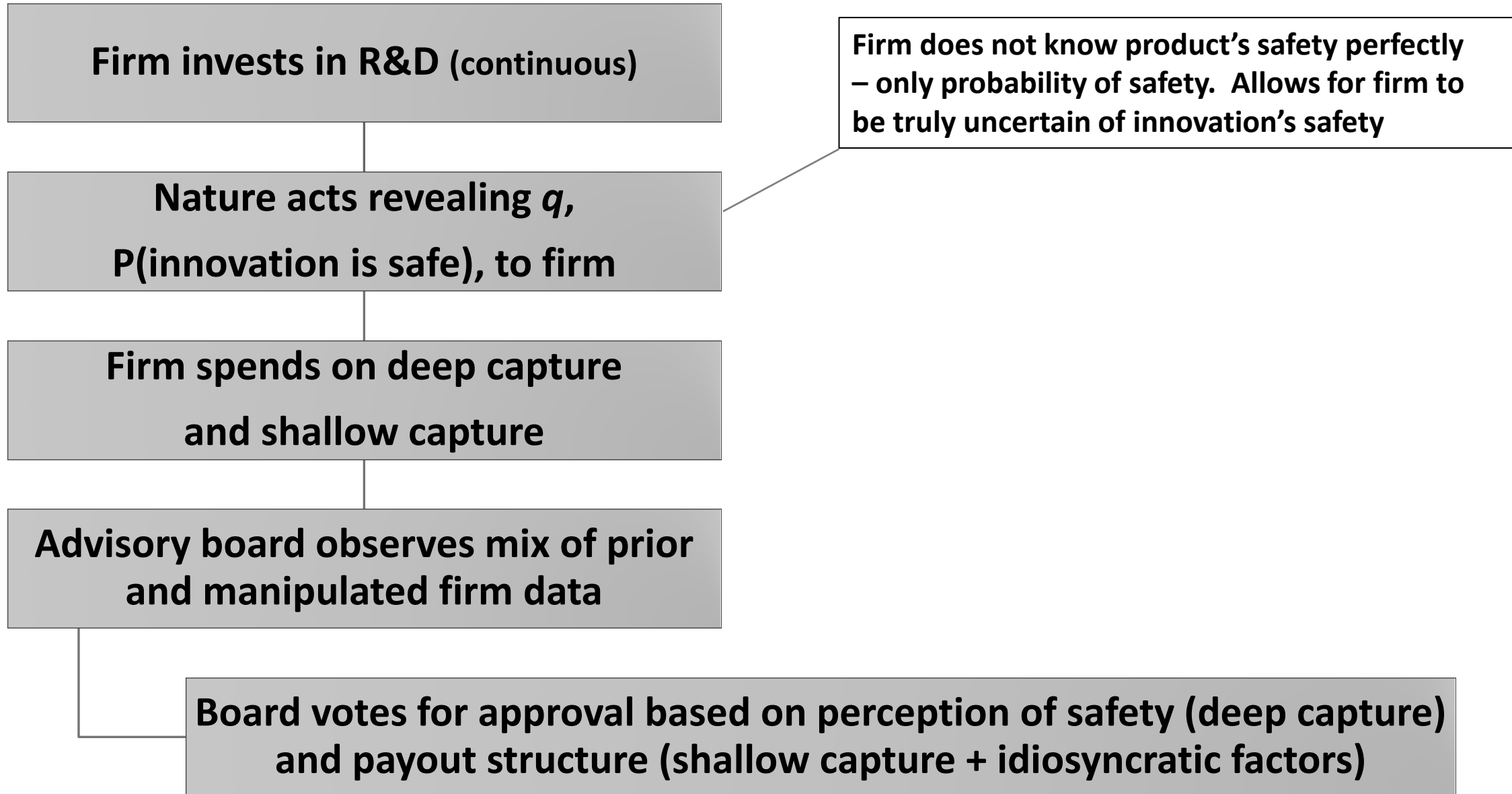
Nature acts revealing q ,
 $P(\text{innovation is safe})$, to firm

Firm spends on deep capture
and shallow capture

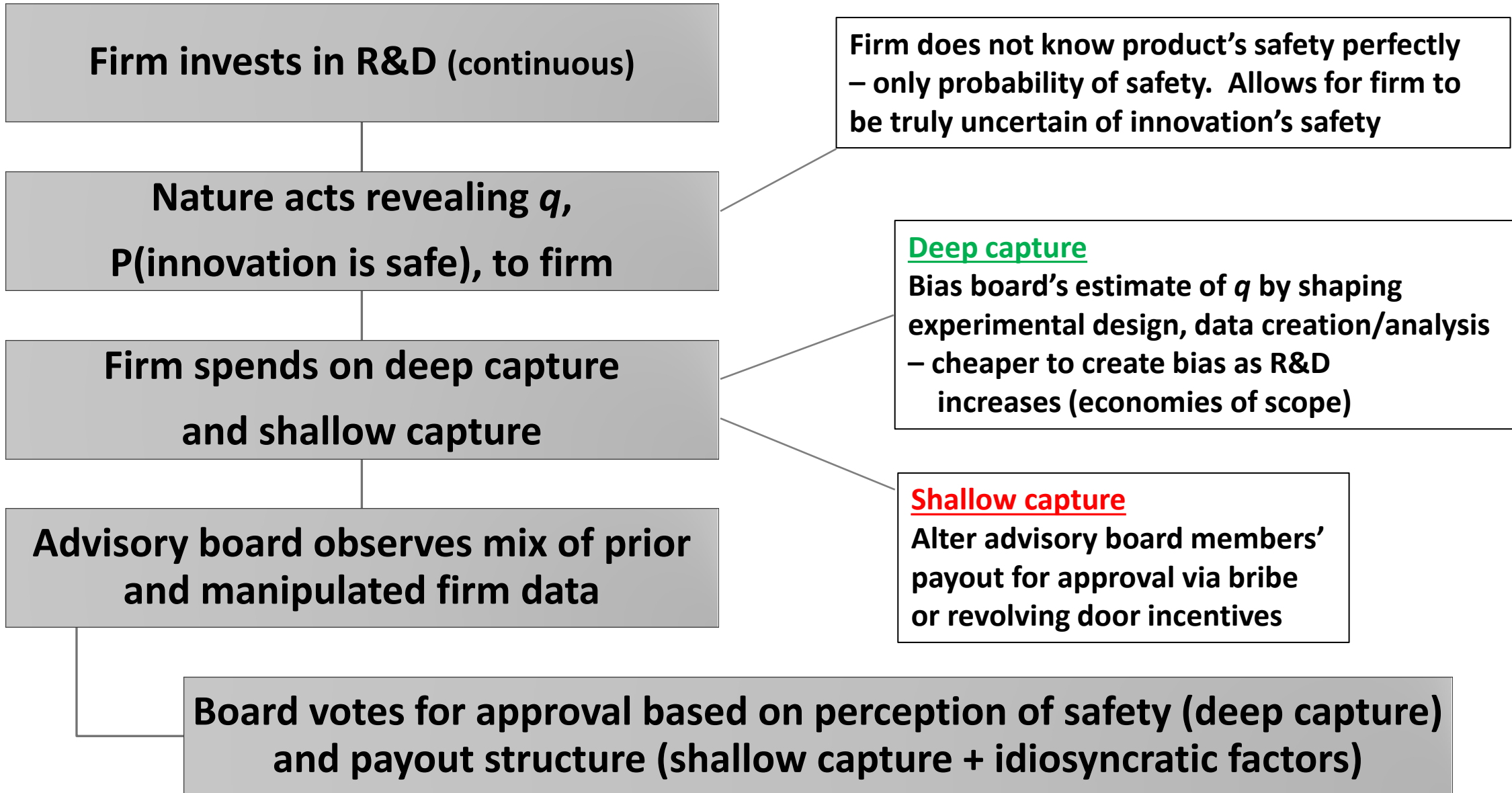
Advisory board observes mix of prior
and manipulated firm data

Board votes for approval based on perception of safety (deep capture)
and payout structure (shallow capture + idiosyncratic factors)

Game Structure

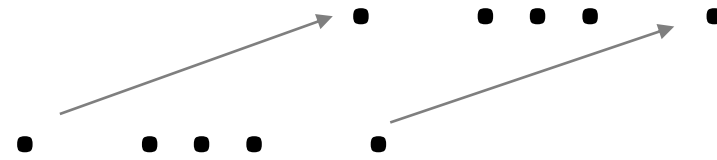


Game Structure



Firm Influence on Regulatory Assessment of Quality Samples

Biased analytical technique (data or measurement)



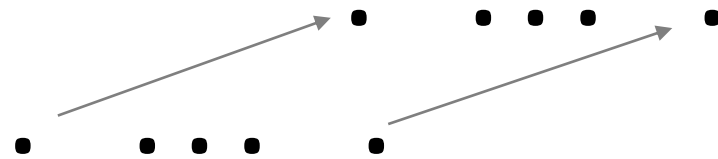
Finessed data

Raw data

Safety index

Firm Influence on Regulatory Assessment of Quality Samples

Biased analytical technique (data or measurement)



Finessed data

Raw data

Safety index

Outlier management



Finessed data

Raw data

Safety index

% of NIH funded scientists who admit to:

	All	Mid-Career
Falsified research data	0.3	0.2
Failure to present data that contradict own previous research	6.0	6.5
Overlooking others' use of flawed data or questionable interpretation of data	12.5	12.2
Changing design, methods or results of a study in response to pressure from funder	15.5	20.6

Source: Martinson, Anderson and de Vries (2005), "Scientists Behaving Badly," *Nature* 435(9 June): 737-738

*Response rate to anonymous survey was 52% for mid-career scientists and 43% for early career scientists

Policy Options

1. **Advisory board composition and functioning**
 - **Increasing % that must vote for approval**
 - **Increase data requirements (delay)**
 - **Increase monitoring for conflicts of interest/bribes/shallow capture**
2. **Allow for punitive damages**
 - **Guessing game on understanding how seldom/long before firms held liable**
3. **Increase publicly conducted innovation**
4. **Investment in regulator knowledge/education**
5. **Government-replicated studies (still subject to deep capture)**
6. **Curb innovation via higher approval processing fees or shorter patent-life**

Some Questions

Are deep and shallow capture substitutes or complements?

- **With limited budget and perhaps differential latitude to ‘reform’ of internal (advisory boards) and external (research) institutions, regulators must decide how much and where to allocate such resources**
- **As policies reduce shallow capture, e.g., conflict of interest disclosure or recusal rules, how will deep capture and R&D investment change?**
- **How do various voting rules, e.g., majority, supermajority, unanimity, affect relationship between deep and shallow capture efforts of firm? May depend upon prior disposition of board members, some may have affiliations with competitors or be unpersuadable due to prior sentiment**

Some Questions

- **Does potential for deep capture induce socially excessive R&D expenditure due to economies of scope?**
 - **What are damages created and what is distribution of damages?**
- **How will policies curbing deep and shallow capture affect firm-internal safety threshold, below which firms will not submit innovations for approval (self-regulation of safety)?**
 - **Likely exists internal threshold q (probability that innovation is safe) below which firms will not seek approval (can only massage data so much or directly influence only so many board members)**
 - **Can policies align privately and publicly optimal thresholds and fully induce self-regulation?**
 - **Will beneficial innovation be stifled by policies that curb deep capture?**