

# Strategic Leadership in Corporate Social Responsibility

Rui Albuquerque<sup>1</sup>    Luís Cabral<sup>2</sup>

<sup>1</sup>Boston College, ECGI and CEPR

<sup>2</sup>New York University and CEPR

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## What is CSR?

- “Corporate Social Responsibility is a management concept whereby companies [] achieve a balance of economic, environmental and social imperatives (“Triple-Bottom-Line- Approach”), while at the same time addressing the expectations of shareholders and stakeholders.”  
United Nations
- Tirole (2017) summarizes it: “Creation of value and accountability” to society.
- Not too distant from George Washington’s first Rule of Civility: “Every action done in company, ought to be with some sign of respect, to those that are present.”

*Why do firms adopt corporate social responsibility (CSR) policies?*

- The traditional answer is that firms *maximize shareholder value* by balancing the goals of different stakeholders:
  - increasing customer awareness (Servaes and Tamayo, 2013; Albuquerque, Koskinen, and Zhang, 2019); longer-term planning horizon (Bénabou and Tirole, 2010); more resilient supply chain (Hoepner et al., 2021); addressing employee concerns (Edmans, 2011).

Two aspects of the traditional answer are unappealing:

- Often this balancing act is not independent of how other industry participants respond:
  - a firm may invest on the resilience of its supply chain, but that may add little value if its suppliers don't do the same.
- In addition, traditional approach generally uses a partial equilibrium design that is ill equipped to deal with externalities.

- We argue that strategizing over CSR policies is similar to engaging in price or quantity competition in the output market.
- With one difference: CSR changes the firm's objective function, affecting subsequent choices over other strategic variables.
- We assume that firms have the ability to choose an objective function (its "mission" or "view") that includes profits as well as other goals.
- We let profit maximizers choose whether or not to adopt a stakeholder value function.

# Main modeling assumption

In the applications we develop: (i) firms act strategically and (ii) there are strategic complementarities (externalities) across firms.

- Adoption of clean technologies by one firm in isolation leads to high production marginal costs, whereas adoption by multiple firms leads to all-around lower costs. Motivated by (a) non-excludable learning-by-doing cost savings in solar panel manufacturing and (b) network benefits from a collective switch to electric vehicles (due to a dense network of charging stations or improved battery technology).
- Staying away from child labor or increasing minimum wages in isolation may not affect the firm's reputation if it is dominated by the industry's reputation, and will certainly increase costs. But if everyone does it, the industry attracts demand in a way that benefits everyone.
- In setting of supply chain resilience a firm does not incorporate the benefit to other firms in the supply chain of its investment in resilience.

## **Departures from neoclassical paradigm of profit-maximizing firm**

- Baron (2001), Bénabou and Tirole (2010), Hart and Zingales (2017), Broccardo, Hart, and Zingales (2021), Allen, Carletti, and Marquez (2014), Tirole (2017)

## **Industrial organization literature on strategic delegation**

- Vickers (1985), Fershtman and Judd (1987), Sklivas (1987), Aggarwal and Samwick (1999)

## **Literature on leadership**

- Management leadership inside the firm (e.g., Dinh et al. 2014, Hermalin 1998)
- Stackelberg model and firm leadership (von Stackelberg, 2011)

# The model of clean technology adoption

Two firms  $\{i, j\}$  play the following game:

- In the first stage, firms are profit maximizers. They choose what objective function they want for the second stage,  $\theta_i \in \{0, \bar{\theta}\}$ , where  $\theta_i = 0$  corresponds to a “Friedman” firm, and  $\theta_i = \bar{\theta}$  corresponds to a socially responsible firm.
- In the second stage, given  $(t_j, \theta_j)$ , firm  $i$  chooses whether or not to adopt a clean technology,  $t_i = 0, 1$ , to maximize

$$\max_{t_i} \pi_i(t_i, t_j) + t_i \theta_i$$

- Given the choices  $(t_i, t_j)$ , firms then choose quantities in a Cournot competition game.

# Assumption on costs under the green and legacy technologies

- The legacy technology has constant marginal cost  $c < 1$ .
- If only firm  $i$  adopts the green tech, then its marginal cost of production is  $c_i = \bar{c}$ , and for firm  $j$ ,  $c_j = c$ .
- If both firms adopt the green technology, then  $c_i = c_j = \underline{c}$  with  $\underline{c} < c < \bar{c}$ .
- There is an externality where a lower cost can only be achieved if both firms adopt the clean technology.



# Clean-technology adoption model

We first construct the profit function  $\pi_i(t_i, t_j)$ .

- $\pi_i(t_i, t_j)$  is firm  $i$ 's Nash equilibrium profit from the sub-game where firms compete in setting quantities  $(q_i, q_j)$  given a linear market demand,  $Q = 1 - p$ , and constant marginal costs  $(c_i, c_j)$ .
- Marginal cost  $c_i$ , in turn, depends on the firms' technology choices.
- If marginal costs are not too far apart, both firms operate in the industry and equilibrium profit for firm  $i$  is

$$\tilde{\pi}_i = \frac{1}{9}(1 + c_j - 2c_i)^2$$

- By contrast, if firm  $j$ 's cost is sufficiently high (i.e.,  $c_j > (1 + c_i)/2$ ), then firm  $i$  is a monopolist and its profit is

$$\tilde{\pi}_i = \frac{1}{4}(1 - c_i)^2$$

## 2nd stage best response functions of profit maximizer

Suppose firm  $i$  chooses  $\theta_i = 0$  in the first stage:

- Suppose that  $t_j = 0$ . Assuming  $1 + c - 2\bar{c} < 0$ , then being the only firm choosing the green tech yields zero profits, whereas choosing the legacy tech yields positive duopoly profits.
- Suppose that  $t_j = 1$ . Under the previous assumption, choosing  $t_i = 0$  leads to monopoly profits for  $i$ . Assuming  $\frac{1}{4}(1 - c)^2 > \frac{1}{9}(1 - \underline{c})^2$  implies such profits are higher than duopoly profits under the clean tech.
- These assumptions combined imply that if  $\theta_i = 0$ , then it is a dominant strategy for firm  $i$  to choose  $t_i = 0$  in the second stage.
- Note: the second stage game is a prisoner's dilemma under "Friedman" firms.

## 2nd stage best response functions of CSR firm

Suppose firm  $i$  chooses  $\theta_i = 1$  in the first stage:

- Suppose that  $t_j = 0$ . Assuming  $\bar{\theta} < \frac{1}{9}(1 - c)^2$ , then duopoly profits under legacy dominate choosing the clean tech and failing to operate but earning  $\bar{\theta}$ .
- Suppose that  $t_j = 1$ . Assuming  $\frac{1}{4}(1 - c)^2 < \frac{1}{9}(1 - \underline{c})^2 + \bar{\theta}$ , then being the sole player with the legacy tech is worse than adopting the clean technology.
- Summing up, the best response of the CSR firm is to play the same action of the other firm.

**Proposition 1.** There exist three different subgame-perfect equilibria of the  $(\theta, t)$  two-stage game. These equilibria correspond to the following paths:

(a)  $\theta_1 = \theta_2 = 0$ , followed by  $t_1 = t_2 = 0$

(b)  $\theta_1 = \theta_2 = \bar{\theta}$ , followed by  $t_1 = t_2 = 1$

(c)  $\theta_1 = \theta_2 = \bar{\theta}$ , followed by  $t_1 = t_2 = 0$

Moreover, a profit-maximizing firm prefers equilibrium (b).

*Interpretation:*

- (a) profit maximizers' play the legacy technology.
- (b) firms **jointly** embrace CSR, with real consequences.
- (c) failure of CSR.

# A coordination game

The first stage choice of CSR turns a prisoner's dilemma game into a coordination game.

- “Friedman” firms face a prisoner's dilemma where the legacy technology is a dominant strategy.
- By adding the initial CSR stage, we add a new equilibrium that is Pareto superior.
- The problem becomes a coordination game since no dominant strategy exists regarding the choice of CSR, rather each firm's best response is to follow the same choice as the rival firm.

The coordination game introduces a possibility of a **strategic CSR leader**.

- No industry leader can resolve the prisoner's dilemma in the subgame played by Friedman firms (also Dixit-style investments would fail).
- In a coordination game, **an industry (CSR) leader can arise steering everyone to the high profit equilibrium**.
- Strategic leader must be able to commit to a stakeholder model.

# Commitment to CSR

Without commitment, players would deviate from their choice of  $\bar{\theta}$  in the second stage game. In addition, strategic leadership in CSR also requires commitment. Firm can commit via:

- A firm's mission statement (Hart and Zingales 2017; “sustainable” IPO of Allbirds).
- Hiring of board members and of CEOs with a reputation for CSR, agents who decide and transmit on corporate purpose through the institution (Mayer, 2021; Carl Icahn McDonald's' board presence).
- Matching company preferences with investor preferences:
  - investor engagements (Dimson et al. 2015; Exxon in 2021); Starks et al. (2020) on long-term investor preferences; Dasgupta et al. (2021) on geographic proximity of socially responsible funds.
- Outside environment prone to increased monitoring:
  - Proliferation of “green” statements; ESG-monitoring organizations; increase in Socially Responsible Investing; deviations (more) easily observable.

## Concluding remarks

- Paper proposes the idea that profit-maximizing firms may adopt a stakeholder model via a CSR policy because of strategic complementarities in the industry.
- Dichotomy between purpose and shareholder value is not clear-cut.
- A coordination problem arises that can be solved if one of the firms becomes the industry leader in CSR.
- Solution yields a Pareto improvement.
- Model suggests that public policy can help by incorporating strategic complementarities, e.g. industry-wide subsidies or threat of industry regulation.