

Hybrid Organizations and (strategic) incentives for managers

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Plan of the talk

- Motivation and literature
- Two multi-stage games
- Subgame-perfect equilibria and comparative statics
- Conclusions and extensions

Hybrid organizations

- Williamson (1991), Menard (2004)
- Porter/Kramer (2011): Shared Value & Reinventing Capitalism
- Bromberger (2011), Nobel (2011): Hybrid Structures with Profit & Nonprofit Motives (e.g. L3C)
- Shareholder view
 - Maximize profits; clear mission/goal; usually publicly held firms
- Stakeholder view (Freeman et al. 2004)
 - Consider other stakeholders: consumers, workers, suppliers, communities, competitors, etc.
 - Criticism: Objective function? Weights? Performance measure? Managerial entrenchment?
 - NPOs, Cooperatives, S&L institutions, socially concerned firms, public firms, NGOs
- Enlightened Value Maximization Approach (Jensen 2001)

Modeling approaches in the literature

- Lambertini/Tampieri (2010) – Environmental concerns: Profit - Pollution + $\theta \times$ Consumer surplus)
- Kopel/Szidarovszky (2006) – Cross-shareholdings: Profit i + $\theta \times$ Profit j
- Purroy/Salas (2000) – S&L institutions: Profit + $\theta \times$ Labor expenditures
- Bandiera et al. (2010) – Family firms: Profit + $\theta \times$ Benefit of direct control
- Lien (2002), Goering (2007) – Non-profit organizations: Profit + $\theta \times$ Consumer surplus
- Empirical studies: e.g. Wine industry (Scott Morton/Podolny 2002), Family firms, Banking
- Paper 1: Kopel/Brand (2011)
 - Mixed oligopoly: PMF vs SRF (Objective: Profit + $\theta \times$ Consumer surplus)
 - Interaction between internal governance and product market competition

Research questions and motivation for paper 1

- Research questions
 - Will both firms hire managers and delegate the production decision? (Fershtman/Judd/Vickers/Sklivas)
 - Can it pay off for a firm to be socially concerned?
 - What is the impact of an increasing concern for CS on prices, quantities, industry profits and welfare?
- Goering's (2007) study: *"A full Cournot game where both the NPO and the for-profit rival simultaneously select managerial incentives in stage one and outputs in stage two would be of interest. Unfortunately, even in this very stylized model, a complicated cubic equation must be solved [...] and though solvable does not yield much insight due to the complexity of the solution."* (p. 90)
- We provide a full analysis of such a game and find
 - Both firms hire managers and delegate production decisions
 - Socially concerned firm may have higher profit & market share than PMF

The Multi-stage game

- Homogenous-products duopoly
- Linear inverse demand: $p = a - b(x_{SR} + x_{PM})$
- Firms' objective functions ($0 \leq \theta \leq 1$)

$$\pi_{PM} = (a - b(x_{SR} + x_{PM}) - c_{PM})x_{PM}.$$

$$V_{SR} = (a - b(x_{SR} + x_{PM}) - c_{SR})x_{SR} + \theta \frac{b(x_{SR} + x_{PM})^2}{2}$$

- Strategic incentives for managers

$$U_{PM} = (1 - \gamma_{PM})\pi_{PM} + \gamma_{PM}(px_{PM})$$

$$U_{SR} = (1 - \gamma_{SR})\pi_{SR} + (\theta + \gamma_{SR}) \frac{b(x_{SR} + x_{PM})^2}{2}$$

The Multi-stage game

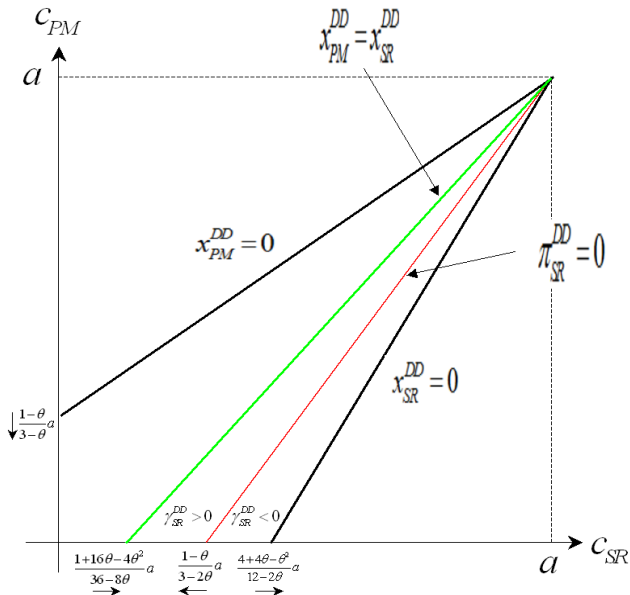
- Timing
 - Firms/owners endogenously choose to hire managers (Yes/No)
 - Write incentive contracts
 - Managers accept/reject contract (Participation constraint)
 - Managers select production quantities
 - Payoffs
- Subgame-perfect outcome determined by matrix game

SRF

		<i>ND</i>	<i>D</i>
<i>PMF</i>	<i>ND</i>	$\pi_{PM}^{NDND}, V_{SR}^{NDND}$	$\pi_{PM}^{NDD}, V_{SR}^{NDD}$
	<i>D</i>	$\pi_{PM}^{DND}, V_{SR}^{DND}$	$\pi_{PM}^{DD}, V_{SR}^{DD}$

- Identical unit costs: $c_{PM} = c_{SR}$
 - Contracting stage: 2 solutions
 - DD is the overall equilibrium: both firms delegate production decision
 - SRF has higher market share than PMF: $x_{PM}^{DD} < x_{SR}^{DD}$
 - SRF has higher profit than PMF: $\pi_{PM}^{DD} < \pi_{SR}^{DD}$
 - Relation between θ and π_{SR}^{DD} is non-monotonic: $\partial \pi_{SR}^{DD} / \partial \theta > 0$ for $\theta \in [0, 0.27184)$ and $\partial \pi_{SR}^{DD} / \partial \theta < 0$ otherwise.
"It pays off to consider stakeholders, but not too much" (Mintzberg, 1983)
 - Welfare and industry output increase in θ
- Non-identical unit costs: $c_{PM} \neq c_{SR}$
 - Contracting stage: 3 solutions (use SOC)
 - Closed-form solutions formidable
 - Full characterization of the solution in the (c_{SR}, c_{PM}) -plane

Analysis and findings



Research questions and motivation in paper 2

- Paper 2: Kopel/Marini (2011) – IOF vs Coop (Objective: $\theta \times \text{Profit} + (1 - \theta) \times \text{Member welfare}$)
- Additional research questions
 - Will a Coop always hire a manager and delegate the production decision?
 - How does the compensation structure of IOF and Coop compare?
 - Impact of an increasing concern for non-profit motives on profits and welfare?
- We find
 - IOF always hires manager, Coop *does not* always hire manager
 - Compensation structure differs with higher profit bonus rate for IOF manager
 - Commitment value of hybrid objective function
 - Profit of Coop can become negative

The Multi-stage game: Coop vs IOF

- Marini/Zevi (2011): Differentiated-products duopoly
- Linear inverse demand system ($0 \leq \beta \leq 1$)

$$p_{CO} = \alpha - x_{CO} - \beta x_{IOF},$$

$$p_{IOF} = \alpha - x_{IOF} - \beta x_{CO}$$

- Firms' objective functions ($0 \leq \theta \leq 1$)

$$\pi_{IOF} = (p_{IOF} - c_{IOF})x_{IOF}.$$

$$O_{CO} = \theta \pi_{CO} + (1 - \theta)U$$

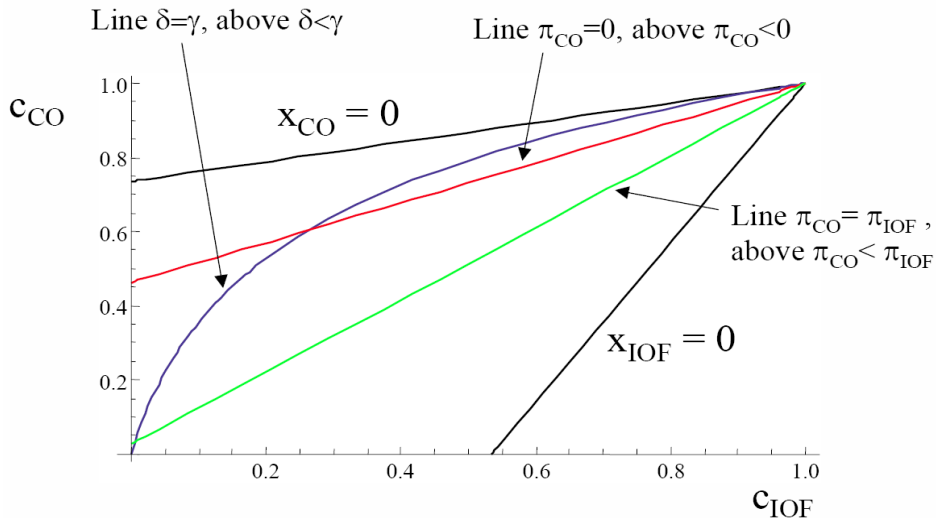
where member welfare U results from maximizing quadratic utility subject to budget constraint.

- Strategic incentives for managers

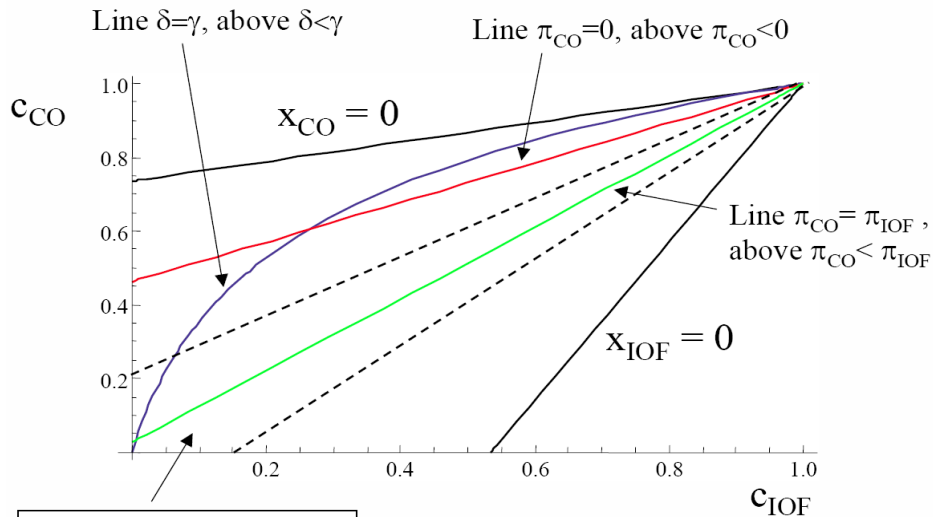
$$U_{IOF} = \delta_{IOF} \pi_{IOF} + (1 - \delta_{IOF})(p_{IOF} x_{IOF})$$

$$U_{CO} = \gamma_{CO} \pi_{CO} + (1 - \gamma_{CO})(p_{CO} x_{CO})$$

Analysis and findings



Analysis and findings



Coop does not delegate

- Hybrid organizational structures and their objective functions
- In mixed oligopoly, firms' choices might be different wrt rivals and PMF literature
- Heterogeneity as an outcome of (hidden) missions
- Small differences might result in asymmetric governance, compensation structure, etc.
- Extensions
 - Price competition (Marini/Zevi 2011)
 - R&D choices
 - Make-Buy
 - etc.

"Socially Responsible Firms and Endogenous Choice of Strategic Incentives" - Discussion

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CREI, Università degli Studi RomaTre, 26 Ottobre 2011

General Observations

- The issue of CSR is quite relevant and nowadays widely discussed in newspapers and business schools.
- The traditional view of economists that private firms are at the heart of wealth creation, while issues as public goods and externalities are the preserve of government or eleemosynary institutions such as non-profits is currently under attack.
- (i) people increasingly demands a social role for private enterprise via CSR;(ii) government intervention (e.g. to underdeveloped countries) has been largely criticized as inefficient and thus, taken over by usually more effective non-governmental institutions.

CSR Definitions

- Many definitions of CSR are currently adopted, as, for instance,

- (Holme and Watts), "CSR is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large"

- (European Commission) "A concept whereby companies decide voluntarily to contribute to a better society and a cleaner environment..."

Still, there are many different ways to look at the problem of CSR, even just adopting a narrow economic perspective: (1) CSR as a *strategic* response of firms to consumers' pressure to adopt more stringent (e.g. environment) standards (Baron 2001,...); (2) CSR as a provision of a public good (Bagnoli and Watts, 2003, Kotchen, 2006, Besley and Ghatak, 2010); (3) CSR as coming from ethically motivated agents (i.e., Gathak and Mueller 2011)

General Observations

- According to these different angles, the focus of the analysis can, in turn, be:
 - (i) Consequences (for market output, welfare, etc.) coming by the strategic use of CSR by firms;
 - (ii) Institutional advantages and feasibility of firms with CSR when compared to pure PMFs;
 - (iii) What would ultimately be the behaviour of firms owned or conducted by ethically motivated agents (as NGOs, LMFs, Consumer Coops) acting alone or *vis à vis* the more traditional PMFs. or "what is the relevant model to capture the behaviour of such firms?

First paper

"Socially Responsible Firms and Endogenous Choice of Strategic Incentives" - Discussion

Marco Marini

General Observations

- If the question is as in (i), we should expect a model in which two or more PMFs competing strategically are able to induce an agent to be more or less socially responsible manipulating his contract (or, alternatively, recruiting a more or less ethically motivated agent);
- In the first paper, instead, the authors approach is to take an exogenously given level (θ) of CSR in a firm which is competing with a pure PMF and mainly ask: "does the exogenous existence (or the endogenous inducement) of a social concern inside the firm organization pay-off in term of profit when a linear form of strategic delegation is allowed?"
- This appear a question in between points (i) and (iii) above.

Comments on the model

- Objective function

$$\max_{x_i} (\pi_i + \theta CS) \approx \max_{x_i} (SW - (\pi_j)_{j \neq i}).$$

Alternative parametrization:

$$\max_{x_i} (SW - \theta (\pi_j)_{j \neq i}),$$

for $\theta = 0$ the CSR firm would be a pure-welfare maximizer (as a publicly-owned firm) and for $\theta = 1$ a CS maximizer (as a consumer-cooperative). We could model, somehow, a CSR as something in between the two, with $\theta \in (0, 1)$.

Comments and possible extensions

- It can be easily proved in any regular strategic setting (also Currarini & Marini, 2006) that at the a Nash equilibrium, if $x_i^* > x_j^*$ under positive externalities ($x_i^* < x_j^*$ under negative externalities), thus $u_i(x^*) < u_j(x^*)$. Therefore, the relative performance (in terms of profit) of differently socially concerned firms are not surprising (see also Kockesen & Ok, JET 2000, "The strategic advantage of negatively interdependent preferences").
- The non monotonicity of θ on the profit of CSR firm is a more intriguing result and, in my view, should be explained in more detail: does this depends on the fact that a higher θ changes simultaneously both firms best-replies.
- What about this effect when firm actions are strategic complements, as, e.g., with price-competition? Does the non monotone behaviour of $\pi_{SR}^{DD}(\theta)$ still hold?