

Review on “The CSR is just a twist in a Möbius strip”

This paper studies the interaction between stakeholders involved in CSR by relying on the geometrical model of the Möbius strip. Stakeholders are seen as electrons producing energy, i.e. the network of relationships between the different stakeholders allows to diffuse higher benefits to each of them and to decrease costs when cooperation is augmented. You have several results but the main result is that increasing investment in CSR can increase the intrinsic motivation of stakeholders, increase their productivity and in fine decrease costs for the company. The use of the Möbius strip model is used to show a diffusion of the effects of the CSR from a sector to another, or within a sector, from a stakeholder to another one.

I enjoyed reading the paper, which is clearly written on the mathematics side and well-thought, but I think that the theoretical results should be put in perspective with the empirical results in the literature and with two literature streams – the stakeholder theory and the social network theory - which are mentioned but not sufficiently referred to. This threatens the publication in its current state.

My review is organized as follows. I will start with the major points to be revised, focusing on potential revisions to make the article clearer. Some minor points, such as typos, will be then underlined.

Major points

- The CSR cost function presented in page 11: you assume that the company can decide to give a prize for the stakeholder’s social responsible engagement but the CSR engagement can also have some negative impact on the cost function of the firm. Please give an example to underline your argument. You should also clearly state your contribution as the literature on the subject is pretty massive, by discussing the results of other papers, what you barely do. An overview of the results would be much welcome in order to have a better understanding of the results afterwards, e.g. “alienation” is an unclear concept to me.
- I really appreciated your writing skills but I believe that you can make your paper even easier for readers by reshuffling your motivation, including more references on stakeholder theory and social networks models.

- References to works done in management on stakeholders (Freeman, 1984) and on the various developments made on the stakeholder theory are missing (see Bonnafous-Boucher and Porcher, 2010 for a literature review). Reviewing the literature about the stakeholder theory will help you improve the introduction, especially on the difference between stakeholders and shareholders. According to some authors, stakeholder theory is nonsense because the goal of a firm should be to increase its profits, not to do things for stakeholders. Taking into account stakeholders would be helpful only if it increases the outcomes of the firm, in terms of reputation, or sales.
- You could also add some references about social networks and social capital (Coleman, 1988; Granovetter, 1973). Part of your paper is about the diffusion of information between stakeholders so it could be related to various work on social networks. These are here probably a better reference than Giddens for example.
- You should properly review the model of Becchetti et al. (2014) if it provide suitable information for the paper. How do yours differ from their?
- You are mentioning intra-organizational cooperation on page 3 while the beginning of the paper would let the reader think that you are talking about inter-organizational or global exchanges between individuals, doesn't matter their organization. Please clarify this point.
- Please give an example or an empirical result to back your results on page 16. For example, it is pretty straightforward to understand the increased motivation and productivity of workers within a firm doing CSR but there seems to be a tradeoff with your second result. This is one of your major results as motivated in bullet point 3) on page 17 so you could bring further developments on this result, for example by characterizing how you differ from the studies mentioned in the introduction. You could also refer to the large literature on intrinsic motivation and how CSR can procure a unique kind of intrinsic motivation, but you do not refer to Benabou and Tirole for example.
- Your result on the link between the size of the firm and the profitability of investments in CSR (page 16, point 3) is interesting and you cite only one paper motivating your argument. Could you provide more references on this case as the paper cited (Tamm et al. 2010) has not been published yet?

- By the same token, you underline the fact that there might be a strategic behavior in the firm's investments depending on the number of sectors the company is facing.

Minor comments

- You alternatively use i) or 1) to enumerate items in the paper. Be consistent and use either i) or 1).
- Pages 4-5: the outline of the paper should be more straightforward to provide a clearer overview to the reader.
- Page 5: "We define a new cost function ...to alienation", this set of sentences should be developed sooner in the introduction as a part of the overview of your results and should not be in the outline of the paper.
- Page 9: there is a missing space "activities.According".
- Page 12: there is a missing space "in the KLD metrics,see Becchetti et al. 2016"
- Page 15: the very last sentence should finish with ':' instead of ';'.
- Page 16: there is a missing space 'Becchetti et al.2012'
- Page 17: there are missing spaces "at work:1)" & "sectors;3)" & "shareholders)and"
- References: reference [2] writes 'forth' instead of 'forthcoming'

Some references on stakeholder theory and social networks

Bonafous-Boucher and Porcher, Towards a stakeholder society: stakeholder theory vs theory of civil society, *European Management Review*, 7(4), 2010.

Coleman, Social Capital in the Creation of Human Capital, *The American Journal of Sociology*, 94, 1988.

Crifo and Forget, *The economics of CSR: a survey*, 2012.

Donaldson and Preston, The Stakeholder theory of corporation: concepts, evidence and implications, *Academy of Management Review*, 1995.

Freeman, *Strategic Management: a Stakeholder Approach*, 1984.

Granovetter, The Strength of Weak Ties, American Journal of Sociology, 1973.

Hill and Jones, Stakeholder Agency Theory, Journal of Management Studies, 1992.

Jensen, Value Maximization, Stakeholder Theory, and the Corporate Objective Function, Journal of Applied Corporate Finance, 2001.

Kitzmueller and Shimshack, Economic Perspectives on CSR, JEL, 2012.