

We are very grateful for the referee's comment, which helps us to clarify the originality of our approach.

The followings are our replies and ways to reflect your comments.

In particular the referee states:

The authors take for granted that ethical capital improves cooperation and go on to implement the analogy. In my opinion, rather than assuming this proposition is true, a physical model would be more useful if applied to reinforce the proposition is true. Only assuming it is true and then automatically considering the link between Moebius strip and corporate social responsibility sounds artificial and perhaps not much useful. Of course, the exercise the authors make still yields the result that investing in corporate social responsibility depends on some identified factors ("worker sensitivity," "alienation," and number of sectors) and it is implied these factors should be boosted were the aim to improve corporate social responsibility. But the entire enterprise would be more satisfying if it helped one to make the case that ethical capital improves cooperation in the context of corporate social responsibility.

*In our paper we aim to explore in more details what mechanisms are at work to make CSR convenient for a Company. We do not explore and we take for granted the improvements of ethical capital formation for a CSR Company as there already exists a lot of literature, cited and described in the first part of our paper, both at a theoretical and empirical level, confirming this improvements.*

*Nevertheless we draw extensively from the analogies with the behavior of fermions in a Mobius strip to show both the kind of interactions among stakeholders in the Company which are at work to realize these improvements. In particular our findings show the existence of three types of crossed effects (cooperation among stakeholders of the same types, cooperation among stakeholders in different sectors, and stakeholders' loyalty to the Company) which on turn we show that they depend on the other identified factors such as ("worker sensitivity," "alienation," and number of sectors).*

Moreover the referee states that,

They repeat the finished physical model's calculations by simply finding analogies with the economic model.

This exercise is obviously valid. However, how legitimate it is? Quantum mechanics is behind the theory of solids. The analogy is pushing too far because it implies an application of quantum mechanics to economics. The postulates of quantum mechanics only refer to general properties that nature's fundamental particles should follow. Physical states are described by normalized wave functions, observed physical variables are described Hermitian operators, the evolution of wave functions follows Schroedinger equation, etc. And as far as I understand it, complexity is tackled by non-equilibrium statistical mechanics, which is classical mechanics.

*As replied to the other referee, the aim of the paper is to extensively draw from the topology of the interactions among fermions on Mobius strip the most appropriate analogies with*

*the interactions among stakeholders in a context of Corporate Social Responsibility sectors(CSR). This is not just an exercise but it helps us to define, and not just to solve, a new cost function, as according our point of view the traditional one, devised in the Economics textbook is not appropriate for the CSR companies. In fact the traditional one does not take into account the crossed effects and the additional interactions among different stakeholders and different sectors, on which the analogies with fermions shed lights.*

*On our opinion this kind of analysis and results are very important in Economics where it is relevant to explore how some mechanism works to find the right effects and variables on which to act with policy suggestions to realize the right improvements in a society.*