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by

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Abstract

Social capital and corporate social responsibility (CSR) have received increasing attention in research on the role that elements such as trust, trustworthiness and social norms of reciprocity and cooperation may have in promoting socio-economic development. Although social capital and CSR seem to have features in common, their relationship has not yet been analysed in depth. This paper investigates the idea of a virtuous circle between the level of social capital and the implementation of CSR practices that fosters the creation of cooperative networks between the firm and all its stakeholders. By using both a theoretical approach developed by considering tools of network analysis and psychological game theory and an empirical approach based on original evidence from three case studies, this study shows the role that cognitive social capital (understood as a disposition to conform with ethical principles of cooperation) and the adoption of CSR practices may have in promoting the emergence of sustainable networks of relations between the firm and all its stakeholders (structural social capital).

Keywords: Social capital, Corporate Social Responsibility, Social norms, Network, Cooperation, Trust.

JEL Classification: A13; D23; L21; M14; Z10

Introduction

Aim of the paper

Does stakeholders' social capital favor the diffusion of corporate social responsibility (CSR) good practices? In turn, does corporate social responsibility positively affect the social capital stock of stakeholders and, more in general, of the community? By adopting a multidimensional approach to the concept of social capital and a contractarian approach to CSR, the present paper analyzes the relationship between these two concepts by considering the possibility of a virtuous circle involving CSR and social capital.

Concepts and definitions

    A. Cognitive and structural social capital

In respect to the notion of social capital, two main dimensions have been identified in the literature. On the one hand, social capital is defined in terms of cooperative networks of relations (e.g. Coleman, 1988; Lin, 2001; Burt, 2002). On the other hand, the notion refers to cognitive factors (such as belief in others' behaviour – e.g. Uphoff, 1999) or elements related to social norms of trust and civicness (e.g. Putnam et al., 1993; Knack and Keefer, 1997). In this paper we consider these two different dimensions and, following Uphoff's classification, we distinguish between cognitive and structural social capital (Uphoff, 1999). In what follows, cognitive social capital is defined in terms of beliefs (in the behaviour of others) and dispositions to conform with ethical principles of cooperation. Beliefs depend on the behaviour that others have already exhibited in the past and that can be produced or reinforced by ethical commitments undertaken by them, such as subscription to an agreement on an ethical principle. Dispositions mainly stem from the norms and values shared in the community; but they are also associated with micro elements such as genetic and psychological factors. Both beliefs and dispositions affect trust and the propensity to cooperate. Structural social capital is defined in terms of social networks based on trust and trustworthiness which connect agents together. Three main factors may promote the creation of structural social capital: a) beliefs that others will be cooperative, b) personal dispositions to cooperate and c) the existence of believable endogenous sanctions against the agents that decide not to cooperate.[1]

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[1] Our definitions of the two social capital dimensions differ from those proposed by Uphoff, although they also share some essential characteristics with them. Both our approach and the one adopted by Uphoff include the networks that contribute to cooperation in the structural dimension. According to Uphoff, cognitive social capital "derives from mental processes and resulting ideas, reinforced by culture and ideology, specifically norms, values, attitudes, and beliefs that contribute cooperative behavior" (Uphoff, 1999, p.218). We refer to cognitive social capital by considering only beliefs and dispositions and show how they affect the propensity of people to share ethical principles of cooperation.

B. A contractarian approach to CSR

In regard to the notion of CSR, we adopt a contractarian approach and define CSR as a "model of extended corporate governance whereby those who run a firm (entrepreneurs, directors and managers) have responsibilities that range from fulfilment of their fiduciary duties[2] towards the owners to fulfilment of analogous fiduciary duties towards all the firm's stakeholders" (Sacconi, 2006a,b).

This approach to corporate governance is rooted in a critical appraisal of the new-institutional theory of the firm (Williamson, 1975 and 1986; Grossman and Hart, 1986; Hart and Moore, 1990; Hart, 1995; Hansmann, 1996). According to this theoretical framework, the firm emerges as an institutional form of "unified transactions governance" which aims to remedy imperfections in the contracts that regulate relations among subjects endowed with specific assets that may create a surplus if combined. These contracts are characterized by incompleteness. A risk of opportunistic behaviour by the party in a stronger *ex post* position thus arises. Parties who expect to be expropriated will have no incentive to undertake their investments at the optimal level. This expectation can generate a loss of efficiency at the social level. The firm tackles this problem by bringing the various transactions under the control of a hierarchical authority (the party which owns the firm), which, through ownership, is entitled to make decisions concerning the contingencies that were not ex ante contractible.[3] This party will invest its asset at an optimal level, since it is safeguarded against other stakeholders' opportunism. However, the risk of "abuse of authority" emerges in relation to all the other "non controlling" stakeholders (Sacconi, 1999; 2000; 2006a,b, 2010a) and it may generate inefficiency (e.g. the non controlling stakeholders will *ex ante* be discouraged from investing at an optimal level, while *ex post* they will resort to conflicting or disloyal behaviour in the belief that they are being subjected to abuse of authority). Consequently, the optimal level of investment cannot be realized and a less than second best solution arises. This result, which represents only a poor approximation to social efficiency, is associated with all the governance solutions based on the mere allocation of property rights to a single party.

According to the contractarian approach adopted in this paper, this situation may be remedied and a first best solution may be achieved if fiduciary duties based on the residual control right are completed with further fiduciary duties owed to all the corporate stakeholders that face the risk of abuse of authority. From this perspective, the firm must be grounded on a rational agreement (the social contract of the firm) among all the corporate stakeholders whereby all the latter (the non controlling ones included) delegate authority to the stakeholder selected as in charge of running the firm. The social contract of the firm, however, not only contributes to defining the allocation of control over the firm, it also seeks to include in this structure other rights – *essentially, responsibility claims in defence of non controlling stakeholders*. The resulting

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[2] On the concept of fiduciary duty see Flannigan (1989) and Sacconi (2006a,b).
[3] Various factors - e.g. a comparative analysis of control's costs of the different stakeholders - condition the decision on the party that must have this authority. See Sacconi 2006 and Sacconi 2010a for a discussion of this issue.

institutional structure specifies the principles of the firm's governance structure consistently with the idea of CSR as a governance model with multiple fiduciary duties (see Sacconi 2006a,b and Sacconi 2010a,b for a deeper discussion on the Rawlsian character of the social contract of the firm). Once the social contract of the firm has been agreed, in order to induce all the stakeholders to invest at an optimal level, the firm must develop a reputation for respecting fiduciary duties established by the contract. However, the development of a reputation is made difficult by the fact that interactions between the firm and its stakeholders take place in a setting characterized by incomplete knowledge about the firm's action.[4] Because of incomplete knowledge, it is impossible for the stakeholders to verify whether the firm has actually behaved in accordance with a concrete commitment; consequently, it is impossible for the firm to develop a reputation. In order to avoid the consequences caused by incomplete information about the reputation formation, the firm must adopt principles and rules of behaviour (a CSR principle, norm or standard of behavior) that explicitly establish the fiduciary duties accepted in the hypothetical social contract among its stakeholders. These state general principles whose contents are such to elicit stakeholder consensus, as well as explicit commitments to comply with principles and rules known *ex ante* by stakeholders. It is the CSR standard of reference that allows the social mechanism of reputation to function properly by enabling stakeholders to increase their trust in the firm and in its compliance with CSR principles. A reputation for fair behaviour is created only if the actual behaviour of the firm is consistent with the declared principles and precautionary rules of behaviour.[5] However the reputation mechanism is fragile: it depends on information that is typically fuzzy; and it also rests on the comparison between short term incentives to abuse and the long run benefits from a fair and cooperative behaviour, which must be weighted for a discount time factor. Moreover, possible reputations (and reputation equilibria) are always multiple, and there is no reason to believe that a firm will try to select a perfectly fair reputation if a reputation for moderate defection from commitments is deemed sufficient to prevent stakeholders from ceasing their cooperation with the firm.[6]

The contractarian approach is adopted to investigate the relationship between social capital and CSR for two main reasons. First, because the contractarian approach makes it possible to identify a criterion for defining a balance among the firm's stakeholders, which is one of the main criticisms brought against multi-stakeholder approaches in running firms. Second, because the social contract highlights the relations

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[4] On the theory of reputation under unforeseen contingencies see Sacconi (2000 and 2007b).
[5] For design of a CSR norm and management standard corresponding to the features now defined see for example Sacconi DeColle Baldin (2003) and Clarkson Centre for Business Ethics (2002).
[6] On the fuzzy nature of information on which reputation is based in a context of unforeseen contingencies see Sacconi (2000, 2007b). "Moderate defection" and multiple reputation equilibria are discussed in Sacconi (2007a) and mainly Sacconi (2011), which also explains how conformist preferences and the sense of justice complement reputation in ensuring the firm's compliance with CSR principles and standards of behavior, especially in the selection of the fair repeated game equilibrium among the many possible.

between our concepts of social capital and CSR. In fact, as we will explain in detail, it is the social contract which makes it possible:

i) to activate the stakeholders' conformist dispositions with respect to compliance with the social contract which are an element of our notion of cognitive social capital;

ii) the formation of the stakeholders' beliefs (both as *prior* beliefs and *ex post* beliefs - i.e. based on repeated observation of the firm's behaviour over repeated plays) about the firm's conformity with the social contract (beliefs which constitute the second element of our definition of cognitive social capital) that takes compliance with CSR principles and standards as its reference point;

iii) to explain the self-supporting decision of the firm to engage in repeated cooperation so as to maintain cooperative relationships with all its stakeholders (which completes our definition of structural social capital as a network of mutually cooperative relationships between the firm and all its stakeholders).

Hypotheses

This article assumes three main theoretical hypotheses:

a) In line with the burgeoning literature in behavioral economics, we hypothesize that the economic agents' motivations and preferences system is complex and irreducible to mere rational self-interest, even if a self–referenced material consequence may be an important part of it. Dispositions to act in a deontological way – that is, to conform with principles of fairness – are also part of the motivational fabric of the socio-economic agent, although their activation is contingent on conditions such as the reaching of an (at least hypothetical) impartial agreement and the formation of beliefs about other agents' reciprocity in conforming with such principles and norms (i.e. we allow room for not purely deontological behavior "in isolation"). We assume that the "social contract of the firm" amongst the corporate stakeholders over a set of principles of fairness and norms of behavior, as they are translated into and implemented through the adoption of a set of CSR standards of governance and socially responsible management, under additional conditions to be specified, is able to activate and make effective the agents' (stakeholders') disposition to conform and reciprocate compliance with ethical principles of fairness and cooperation (this disposition is an element of our notion of cognitive social capital).

b) the firm-stakeholders' social contract – as expressed by the adoption of CSR principles, standards of governance and managerial tools (we will use also the expression "CSR practices") – is also the basis for the formation of stakeholders' beliefs about the level of the firm's compliance with CSR principles of fair treatment in respect to all its stakeholders (this belief is the second component of the idea of cognitive social capital adopted in this paper). First, the adoption itself of such principles and rules of behavior, managerial standards and tools induces the *prior* belief that the firm will conform with the CSR principles in so far as such beliefs stem from default reasoning. The simplest mental model (mental representation) of a

player who agrees on the "social contract" also contains the representation of an intention to comply with the agreement under the intended circumstances (at least) until proof to the contrary arises. Thus the default inference ensues that this is the normal model of a player (e.g. it is assumed for the sake of simplicity that players "equal", which entails that any whatever player will conform with the agreed social contract under the same conditions). Second, such beliefs are *ex post* confirmed or disconfirmed by the repeated observation of the firm's behavior in the iterated interaction not only with *strong stakeholders* (who, according to the definition proposed in the text, are stakeholders who bring into the firm essential assets and with whom the firm has a strong interest - a business interest, in terms of material gains - to develop and maintain cooperative relations of mutual advantage), but also with *weak stakeholders* (who are defined as stakeholders interested in cooperating with the firm, whilst the latter prefers to abuse them repeatedly in their relationships) through a network of imperfectly cooperative relationships within which the firm is embedded.

c) Taken together (i) conditional dispositions to conform with fairness principles and (ii) conformity beliefs are the basis for developing psychological preferences for reciprocal conformity (what we call "conformist preferences") with CSR principles and rules. At least in the case of strong stakeholders, these preferences are sufficiently strong motivations to induce them to act as enforcers of the cooperative relationship with the firm, based on reciprocal conformity with the set of ethical principles established by the social contract in regard to the treatment of all the firm's stakeholders. This means not only that such stakeholders cooperate with the firm when it complies with its set of CSR principles and rules of behavior, but also that the firm is severely punished when compliance is not fulfilled. Note that there is no assumption that this role of spontaneous enforcer is performed because of simple self-interest of the strong stakeholders. They act on psychological preferences (defined in the paper) that are irreducible to simple self-interest. We call "cognitive social capital" a combination of dispositions to conform with norms of fairness and beliefs about reciprocity in conformity. Overall, this type of social capital becomes effective when the disposition to reciprocate conformity with social norms of fairness (at both corporate and the wider social community level) is taken in conjunction with beliefs about reciprocal conformity on the corporate level.

Methodology

The analysis is developed at both a theoretical and empirical level. The theoretical analysis is carried out by using tools of network analysis[7] and (psychological) game theory. The relationship between the firm and its stakeholders and the role of CSR and cognitive social capital in favouring structural social capital

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[7] For a different use of networks in business ethics see R.Phillips (2010). Even though the general intuition about the role of networks in fostering CSR may be similar, our approach based on a network of games is quite different and our result doesn't rely on 'communication'.

formation are modeled by considering a network of relations where agents interact repeatedly by playing different games. The empirical analysis is based on original case studies concerning three Italian organizations operating in the large-scale distribution sector. By administering anonymous questionnaires to different organizations' stakeholders, we analysed the relationship between: the degree of CSR practices' implementation by the organizations, stakeholders' cognitive social capital and structural social capital between the firm and its stakeholders.

Main results

On the theoretical level, we show that not just cooperative relationships between the firm and the strong stakeholders can be sustained endogenously; but so too can cooperative relationships with weak stakeholders. In other words, we can show that a network of mutually cooperative relationships is made sustainable, even though self-interest would imperfectly sustain bilateral cooperation between the firm and at least a substantial subset of its stakeholders (the weak ones). This ensues simply because of the endowment of cognitive social capital of some of the network participants in terms of disposition to comply with ethical principles and social norms of fairness, and mutual beliefs about reciprocity in compliance, both of which are triggered by endorsement of the stakeholders/firm social contract on CSR principles and standards of behavior.

On the empirical level, *first* we show that the adoption of CSR principles and norms, management standards and tools seem to be related to the presence of stakeholders who possess what we can identify with a high disposition to conform with social norms of fairness and cooperation – that is, a cognitive component of social capital. This may be interpreted as follows: adoption of CSR principles and managerial tools by the firm are related to the anticipated relevance and intensity of the stakeholders' response, e.g. with the possible formation of stakeholders' conformist preferences that support both positive cooperation and negative sanctions against defection. Thus, a firm that, in order to improve its cooperation with stakeholders needs the incentive deriving from a positive reputation (which in turn entails a cooperative beneficial response by its stakeholders), will be more inclined to undertake CSR in the presence of stakeholders endowed with a high level of dispositions (cognitive social capital). *Secondly*, we show that firms that more strongly adopt CSR principles and management rules - when they are associated with stakeholders endowed with high dispositions to conform with social norms, and these stakeholders also believe that the firm is complying with CSR principles - are fair in their treatment not only of their strong stakeholders, who are able to retaliate in the case of abuse, but also their weak stakeholders, who do not have that capacity. For example, a firm maintains a long run cooperative relationship with employees not "essential" and irreplaceable for the company. We infer from our observational data that, since the explanation for this behavior cannot be provided by material long-run interests in mutual cooperation with weak stakeholders, the driving forces are conformist preferences of *at least* strong stakeholders that

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constitute an effective threat against the firm's defection with weak stakeholders. Given our observation about CSR adoption, the stakeholders' high level of dispositions and conformity beliefs, this inference seems warranted. "At least" means here that we can economize with an analogous hypothesis about the management of the firm or its owners' preference. However, this more optimistic hypothesis concerning nearly symmetric conformist preferences on the part of the firm cannot be excluded, and if it were true it would imply conclusions even more consistent with our observations.

Originality in respect to the related literature

Only a few and recent papers have focused on the relationship between social capital and CSR. From a theoretical point of view, we may refer to two main studies. Aoki (2010b) proposes a game-theoretic approach which endogenizes the relevance of social constructs such as (individual) social capital, norms, and status ascriptions to firms' economic behavior and discusses how corporate social capital accumulated through corporate social responsibility programs can compensate the pecuniary costs of CSR programs; how the former can nonetheless indirectly complement the accumulation of the latter; and how the former can become an insurance against an institutional change in environmental rights distribution. Perrini and Russo (2010) adopt Putnam's definition of social capital in terms of "connections among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them" (Putnam 2000, 19) that "can improve the efficiency of society by facilitating co-ordinated actions'' Putnam (1993, p.167) and argue that this notion may be useful for understanding the concept of CSR in relation to SMEs instead of the prevailing understanding of CSR in terms of stakeholder theory. However, in this paper social capital and CSR are not clearly distinguished – and it could not be otherwise, given its abandonment of normative stakeholder theory in understanding CSR – and social capital is used as a "*passepartout"* which makes it possible to interpret virtually all informal responsible behaviors or aptitudes of SMEs not connected with the adoption of an explicit CSR standard.

From an empirical point of view, a recent contribution by Degli Antoni and Portale (2010) focuses on social cooperatives and analyzes the relationship between corporate social responsibility and social capital, showing that the adoption of CSR good practices (in terms of the implementation of a multi-stakeholder ownership and of the adoption of CSR formal instruments such as ethical codes and social reports) fosters the creation of workers' social capital understood as cooperative social network, generalized trust and relational skills.

The present paper differs from the previous ones and contributes to the understanding of the relationship between social capital and CSR in many respects. It takes explicit account of the multidimensional nature of social capital and analyzes at theoretical level the relationships between CSR and the various dimensions of social capital (a similar perspective may be found in Degli Antoni and Sacconi (2011)). In this regard, it provides a complete theoretical framework capable of interpreting the

relationship between these two concepts according to a wide and general theoretical perspective, and it gives an analytical basis to the intuition that both social capital and CSR affect the creation of cooperative networks of relations not based solely on self-interest. Moreover, it sets out an exploratory empirical analysis based on case studies aimed at assessing the theoretical model.

Outline of the paper

The structure of the paper is as follows. We introduce our analytical framework by presenting an exemplificatory network involving the firm and its strong and weak stakeholders, and by using the tools of game theory to give a simple representation of these relationships. After discussing the relationships between the firm and its stakeholders by only considering material payoffs stemming from their interaction, we introduce the possibility that agents endowed with conformist preferences may obtain a positive ideal utility by cooperating with agents who contribute to fulfilling ideal principles of fairness. We then show how cognitive social capital and the adoption of CSR practices may allow the creation of long term cooperative relationships between the firm and all its stakeholders who would not be sustainable otherwise. Finally, we present some original case studies and evidence collected by the authors to discuss the theoretical model from an empirical point of view. The final section concludes.

The relationship between the firm and its stakeholders

An original distinction between strong and weak stakeholders

A preliminary and original distinction between strong and weak stakeholders which characterizes our theoretical approach must be discussed before we present our analysis of the theoretical relationship between social capital and CSR. The notion of "stakeholder" has been subject to different definitions and classifications. In this paper, we start from a definition of stakeholders as individuals or groups with a major stake in the running of the firm and who are able to influence it significantly (see Freeman et al. 2010) and we adopt the distinction between stakeholders in the strict or in the broad sense (Sacconi 2006b). Stakeholders in the strict sense have an interest at stake because of *specific investments* made in the transactions of the firm (in the Williamsonian sense). Stakeholders in a broad sense include stakeholders who do not directly participate in any transactions with the firm but *undergo* the "external effects" of the transactions performed by it.

However, within the category of "strict" stakeholders, we draw an original distinction between weak and strong stakeholders. The difference between weak and strong stakeholders concerns the consequences that cessation of the relationship with the firm produces on the stakeholder and the firm.

- *Weak stakeholders* make specific investments in their relationship with the firm that add a surplus to the transaction value. The value of this investment can be lost if the cooperative relationship with the firms stops. Thus they are locked into their relations with the firm. In accordance with the *Prisoners' Dilemma* logic, in order to be able to gain from cooperation (and specific investments), they put themselves at risk of being expropriated by the firm's opportunistic behaviour. So far, however, they are not necessarily *weak*, which would not be the case were the firm in a symmetrical position (as happens in many repeated Prisoners' Dilemma games). Their weakness instead stems from the fact that their investments do not bring *essential* assets into the firm, whereas the firm's assets are *essential* to their investment (Aoki, 2010a) – e.g. whilst realisation of the value of their investment depends on the continuing cooperation of the firm, if (at a cost) they decided to exit the relation they could be substituted by the firm at *not* prohibitive costs. This does not mean that the cessation of cooperation is not costly to the firm; it simply means that it is not sufficiently costly to incentivise the firm to maintain a fully cooperative behaviour in the long run. Put differently, the threat to interrupt cooperation is not effective in the case of weak stakeholders. Analytically, weak stakeholders would profit from cooperating "forever" with a cooperating firm, but the discounted payoff that the firm obtains from cooperating forever with them is lower than the payoff that it obtains by defecting at whatever stage (by expropriating the stakeholders' specific investments) and never cooperating again - i.e. continuing a distrustful relationship or replacing them with other stakeholders (even if these are less productive then the previous weak stakeholders because they have not made specific investments). Note that here "defecting", as opposed to "cooperating", means violating the mutuality of obligations in any given implicit or explicit agreement of cooperation, and acting so as to obtain all the surplus generated through an interaction with another agent, without sharing any part of it in order to remunerate her/his contribution. Hence, in this context, defecting does not necessarily imply the immediate severing of the link which connects the firm and the stakeholder. Assume that it is an employment contract or a supply chain long-term contract. "Defecting" would mean that the firm extracts the entire surplus deriving from the weak stakeholder's investment if the latter continues with cooperative conduct by fully honoring its contractual commitments. But if both the players "defect", the relationship is not necessarily ceased. In the long run, the firm may continue to impose conditions capable of extracting any surplus that may derive from the action of the worker or supplier; but these in their turn may reduce their (unobservable) effort to a minimum (to the level where the firm would be indifferent between maintaining the inefficient contract or replacing the supplier or the worker with less productive ones). This would be a long run (*defect, defect*) outcome, which is typically possible in equilibrium in any repeated Prisoners' Dilemma. What makes stakeholders weak is that "defection" by the stakeholder cannot be part of a conditional strategy deterring the firm from

adopting its "defect" strategy. Supply chain contractors in developing countries, unskilled workers or employees in delocalized plants are typical instances of weak stakeholders.

- *Strong stakeholders* are stakeholders in the strict sense that bring *essential* assets into the firm. That is, they are symmetrically necessary for realisation of the value of their specific investments. Thus, if one of these stakeholders (even if at high cost for itself) exited the relationship, because it is irreplaceable, the firm would suffer a huge (sunk) cost. Such stakeholders are, for example, institutional investors or highly skilled workers. Strong stakeholders are precious (in terms of assets brought into the firm) for the firm and they cannot be replaced at low switching costs. For this reason, the firm wants to cooperate repeatedly with cooperating strong stakeholders, and it may offer them contractual conditions aimed at minimizing the risk of interruption of the relationship with them. For instance, a firm may decide to offer skilled workers salaries that are higher than their reservation wages. In the same way, strong stakeholders prefer to cooperate with a cooperative firm in the long run rather than defect with it, since it is from the relationship with the firm that they may generate a surplus by investing their assets. In more technical terms (using the terminology of game theory), even though both of them could have an incentive to expropriate the other's specific investment in the short run (as happens in the Prisoners' Dilemma), nevertheless in the long run for each of them the difference between the discounted payoff obtained by cooperating forever (when the other player also cooperates) and the discounted payoff obtained by exploiting the other player's cooperation at the first stage (and thus inducing mutual defection forever) is positive. However, in order to stress even more strongly the condition that cooperation is mutually advantageous to both of them, later on in the paper we will assume that the game characterising their interaction is not the typical Prisoners' Dilemma, and that both the firm and strong stakeholders do not have material incentives to defect in their relationship even in the short run.

The network involving the firm and its stakeholders:

We start our discussion on the theoretical relationship between the firm ("enterprise" E) and its stakeholders by considering a network where the firm is supposed to be linked with a strong stakeholder (S_s) and two weak stakeholders (S_{w1} and S_{w2}) (Figure 1).

As in Lippert and Spagnolo (2010), the players in this network are connected by playing repeated standard Prisoner's Dilemmas where the payoff structure implies the static Nash equilibrium (Defect^{i,j}, Defect^{j,i}) (Table 1). Players are assumed to have a discount factor $\delta < 1$ related to payoffs stemming from their future interactions in the repeated games.[8]

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[8] Additive separability of agents' payoffs across interactions and across time is assumed for simplicity.

TABLE 1

The payoff matrix of the Prisoners' Dilemma

Agent *j*

		Cooperate^{j,i}	Defect^{j,i}
Agent *i*	Cooperate^{i,j}	c^{i,j}, c^{j,i}	l^{i,j}, w^{j,i}
	Defect^{i,j}	w^{i,j}, l^{j,i}	d^{i,j}, d^{j,i}

with l^{i,j} < d^{i,j} < c^{i,j} < w^{i,j} and l^{i,j} + w^{i,j} < 2c^{i,j}, $\forall$ i, j $\in$ N, i $\neq$ j

To represent the players' behaviour in the Prisoner's Dilemmas, and consequently in the network, we introduce the following notation (see again Lippert and Spagnolo 2010). g^{i,j} is the net expected discounted gain obtained by agent *i* from the relation with player *j* and it represents the difference between the discounted payoff that agent *i* obtains by playing (Cooperate^{i,j}, Cooperate^{j,i}) forever and defecting and starting to play the static Nash equilibrium (Defect^{i,j}, Defect^{j,i}) thereafter:

$$g^{i,j} \equiv \frac{c^{i,j}}{(1-\delta)} - w^{i,j} - \frac{\delta d^{i,j}}{(1-\delta)}$$

A relation of player *i* with player *j* in which g^{i,j} < 0 is called a "deficient relation" for player *i*; a relation of player *i* with player *j* in which g^{i,j} $\geq$ 0 is called "non-deficient" for player *i*. A relation between *i* and *j* is called "mutual" iff g^{i,j} $\geq$ 0 and g^{j,i} $\geq$ 0; it is called "unilateral" iff either g^{i,j} < 0 and g^{j,i} $\geq$ 0 or g^{i,j} $\geq$ 0 and g^{j,i} < 0; and it is called "bilaterally deficient" iff g^{i,j} < 0 and g^{j,i} < 0. The different kinds of relations possible between *i* and *j* according to the value of g^{i,j} are represented by using incoming and outgoing arrows. An *incoming arrow* to player *i* represents a non-deficient relation for player *i* (i.e g^{i,j} $\geq$ 0); an *outgoing arrow* from player *i* represents a deficient relation for player *i* (i.e g^{j,i} < 0).

FIGURE 1

An exemplificatory network involving the firm and its weak and strong stakeholders
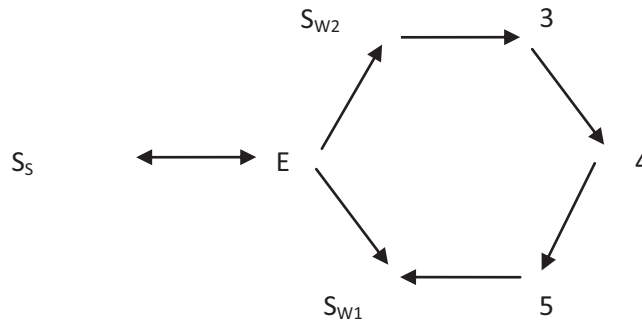
According to the previous definitions and analytical framework, we can easily interpret the relationship in Figure 1. The firm and the strong stakeholder have (coherently with the definition of strong stakeholders)

a mutual relation (they are linked by a bidirectional arrow): that is, both the strong stakeholder and the firm would like to cooperate forever with each other in their relationship.[9] By contrast, the firm has unilateral relations with weak stakeholders: the latter want to cooperate repeatedly with the firm ($g^{Sw,E} \geq 0$) while the firm does not have material incentives to cooperate with weak stakeholders ($g^{E,Sw} < 0$).[10]

In respect to the network represented in Figure 1, we are particularly interested in the conditions for the network's sustainability. i.e. self-enforceability of cooperation throughout all the network's nodes. In their 2010 study, Lippert and Spagnolo state that, under perfect information (that is: every player observes the actions taken by any other player in the network), in a network like the one represented in Figure 1 - where each player unilaterally, but not necessarily bilaterally, prefers to cooperate in the long run with all his/her immediate predecessors, save for a pair (in our case players S_S and E) who also have a bilateral incentive for long run cooperation - mutual cooperation would be sustainable (that is: all the players would cooperate with each other) if all players adopted the Multilateral Grim Trigger strategy (MGT strategy) and $\sum_{j \in R_i} g^{i,j} \geq 0 \quad \forall i \in N^S$. According to the MGT strategy, if one player at some point in the network defected with his/her immediate successor (with whom s/he has a deficient cooperative relation), all the network's members (e.g. "multilaterally") would trigger the grim sanctioning of their neighbors by shutting down cooperation forever. This in turn would involve a sanction against the first defector as well, because of the interruption of cooperation from his/her predecessor, who is a desirable cooperator for him/her (remember that the defector has a non-deficient cooperative relation with his/her predecessor, even though his/her relation is deficient with the successor). The MGT strategy thus provides an incentive not to deviate from ongoing cooperation to each member of the network that has a deficient cooperative relation with her/his immediate successors. To be precise, according to the MGT strategy

Every player $i \in N^S$

1. starts playing $C^{i,j} \quad \forall j \in R_i$,

2. continues playing $C^{i,j} \quad \forall j \in R_i$ as long as s/he observes $C^{m,n} \quad \forall m,n \in N^S$, and

3. reverts to $D^{i,j} \quad \forall j \in R_i$ forever otherwise.

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[9] Even though (see below) we do not interpret the relationship between the firm and the strong stakeholders as necessarily a Prisoner's Dilemma, we may nonetheless conveniently use the previous analytical framework in terms of the net expected discounted gain $g^{i,j}$ and in terms of graphical representation through incoming and outgoing arrows.

[10] To give a complete interpretation of the network in Figure 1 according to the previous definitions, we may imagine that: E is a Multinational Enterprise; S_{W1} are employees in a plant owned by E in a poor developing country where E has delocalised mature productive processes for some of the goods that it supplies to the global market; S_{W2} is the first firm in the international supply chain for the furnishing of some item components that E continues to assemble at its plant located in a rich developed country; S_S may be pension funds holding a significant share in E or high skilled core employees at the E's headquarters, well unionised and with some threat power; 3 is a second order supplying firm within E's supply-chain (i.e. a supplier firm of E's direct supplier); 4 are employees of 3, and 5 are the developing country's retailers who have as their best customers the 3's employees (on the contrary, S_{W1} are paid so badly that they are too poor to be commercially attractive to retailers).

Whilst the MGT strategy may be useful in general, we do not agree with the conclusion concerning the network's sustainability in this case. Since in the network represented in Figure 1 the relation between S_S and E is mutual, and no player beyond S_S can sanction E, nor are there other players who can sanction S_S if s/he deviates from his/her MGT strategy, there are no endogenous incentives for player S_S to sanction the firm if it defects with the weak stakeholders. In other words, when the MGT strategy requires sanctioning behaviour against the firm if it defects against its weak stakeholders, the strong stakeholder (S_S) is paradoxically required to act contrary to rationality. But then the threat to the firm implicit in player S_S's MGT strategy is *non-credible*, and would be unable to prevent E from "defecting" with its weak stakeholders.

In what follows, we will conduct deeper analysis of the games played throughout the network by the various players (in particular by S_S, E and $S_{w1,2}$) and we will show: (a) the instability of the MGT strategy if E deviates from cooperation and (b) how the network depicted in Figure 1 may become sustainable by considering the possibility of a psychological game (based on cognitive social capital and CSR) played by S_S and E.

The "games" involving the firm and its weak and strong stakeholders

Starting from the previous network, we formalize the relationships between the firm and its weak and strong stakeholders in terms of repeated games played by these players in the network.

In respect to the relations between the firm and its weak stakeholders, we assume that they play repeated Prisoner's Dilemma Games (hereafter also PDs) with the payoff structure described in Table 1. The firm could cooperate in the PDs with weak stakeholders where cooperating means underwriting long-term contracts including guarantees that reassure weak stakeholders concerning their appropriation of an equitable part of the surplus produced. However, for the reason discussed above, by considering only its material incentives in the relationship with weak stakeholders, the firm (given its discount rate δ_E) always wants to defect in the PDs with weak stakeholders.

In regard to the relationship between the firm and strong stakeholders, we have in mind a more composite situation where also weak stakeholders have a role (even if passive). We model the relationship between the firm and strong stakeholders by introducing in the analysis a modified version of the Trust Game, hereafter called G (Figure 2) which represents the relationships between two active players (the enterprise - named E - and a strong stakeholder - named S_S - who ideally represents all the strong stakeholders) and a dummy player S_w (which ideally represents all the weak stakeholders). The intuitive idea behind this game is that the strong stakeholder may decide to enter or not to enter into a cooperative relationship with the firm by considering whether the firm will abuse or not abuse his/her trust, in regard not so much to his/her material payoff as to the overall distribution among the players of the surplus generated by the joint production of all of them, the dummy player (S_w) included.

13

If S_S decides to start a cooperative relationship with the firm, both of them must decide how to deal with the (dummy) weak stakeholder. They may behave in a "fair" or in an "unfair" way. By playing "fair" (F) the strong stakeholder coordinates with E and S_W so as to produce a joint surplus (equal to 6 in the numerical example presented in Figure 2), but at the same time s/he moderates his/her claim to the surplus and asks for a part of it (equal to 2 in the Figure 2) to be saved and given to the weak stakeholder later. It means that the strong stakeholder opts to allocate part of the surplus for the purpose of increasing the weak stakeholders' payoffs to an equitable distribution in the PDs that the weak stakeholders will play with the firm in the further part of the network, where S_W will become an active player interacting with the firm E.

Likewise, by playing "fair", also E acts so as to allow the joint production of a surplus, and agrees to allocate part of it to the goal of increasing the weak stakeholder's payoff in the ensuing PDs played with her/him. The interpretation is that by playing "fair" the firm is committed to using the part of the surplus saved in G in order to pay the weak stakeholder a fairer payoff for mutual cooperation in the following PDs. If both E and the S_S play "fair", a positive share of the surplus (jointly produced by S_S, S_W and E) is actually saved in G and it increases the total amount of payoffs that may be divided between the firm and weak stakeholders in the ensuing PDs wherein E and S_W are the actual players. Note that this does not change the strategic structure of the ensuing PDs. It can be considered as only an addition to the payoff that weak stakeholders get conditionally on how the firm plays the PDs. In particular, if the firm decides to cooperate with the weak stakeholders in the PDs, the amount saved on behalf of S_W in G (when both the firm and the strong stakeholder play "fair") is effectively used to pay S_w more. Otherwise if the E "defects" with S_W in the PDs, the previously saved amount is "stolen" and goes to increasing the unilateral defection payoff gained by E.

By contrast, by playing "unfair" (U) the strong stakeholder decides to cooperate with the firm, but does not agree to save a positive share of the surplus for the weak stakeholder. In the same way, when the firm plays "unfair", it refuses to save a positive part of the surplus produced to be used in the ensuing PDs played with weak stakeholders. Consequently, if both E and S_s play "unfair" they equally share the surplus (in the numerical example reported in Figure 2 they get a payoff equal to 3) and noting is saved for the S_W. On the other hand, if E (respectively S_W) plays "unfair" while the S_S (respectively E) is playing "fair", the former gets a payoff equal to 4, the latter a payoff equal to 2, and also in this case nothing is left to be paid to S_W in the PDs.

Finally, and this is a central point in our analysis, when the S_S decides not to start a relationship with the firm (i.e. s/he plays ¬e), the weak stakeholder gets a positive payoff (equal to 1 in Figure 2). This means that strong stakeholders who also care about the weak ones' welfare and are aware of E's cunning strategy to get around its candid self-restraint move, have an alternative to pursuing "full fairness": to boycott the firm (not to start the relationship with it) on behalf of the weak stakeholders' (second best) stakes in the

transaction. By way of an example of a possible weak stakeholder situation, consider a small firm which, by incurring a positive cost (say 1), converts its production plant to become a dedicated supplier of a multinational enterprise. After the specific investment is made, the multinational enterprise asks to change the supply contract; otherwise it will find a different supplier. In the worst case, this may generate a situation which is worse for the supplier than the situation before the specific investment (no surplus is allocated to cover the cost of its investment). By not starting the cooperative relations with E, the strong stakeholder prevents the weak (small supplier) from incurring this transaction cost.

FIGURE 2

The extensive form of game G representing the relationship between the firm and the strong stakeholders (the numbers in the column represent the payoffs obtained by S_S, E, S_W respectively).
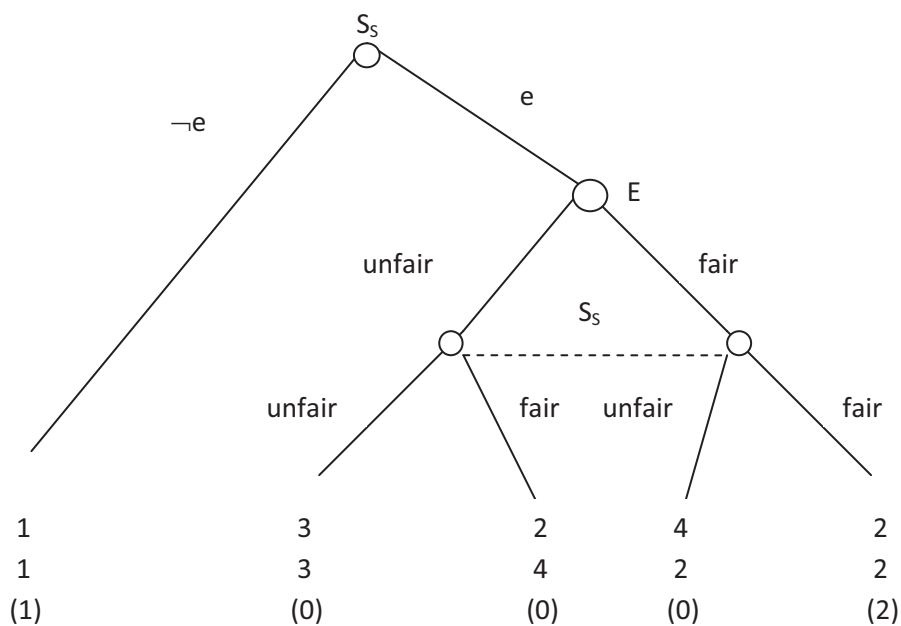
Given the payoff structure, the game depicted in Figure 2 has only one Nash equilibrium solution where S_S enters and plays "unfair" and E plays "unfair" as well. This means that, as far as only material payoffs are considered, the weak stakeholders are headed for a null payoff in this game. This gives even more stringency to the argument put forward in the previous section about the ineffectuality of player S_S's MGT strategy as part of a self enforcing mechanism able to support cooperation in the network depicted by Figure 1. Player S_S will never rationally punish the firm E because of its defection with regard to some weak stakeholder in the ensuing PDs.

CSR and cognitive social capital favouring structural social capital formation

Dispositions, beliefs and conformist preferences

As long as only *material* payoffs are taken into account, we conclude that (i) as regards game G, the firm and its strong stakeholders will always collude by sharing among them all the surplus in G and not leaving anything for the weak stakeholder; (ii) as regards the ensuing PDs games, cooperative relationships between the firm and its weak stakeholders cannot arise because the firm does not have incentives to cooperate.

However, in our approach, the game presented in the previous section is only the material basis for a *psychological game* (see Genakoplos et al. 1989, and Rabin 1993) where players do not care only about material payoffs but are characterized by conformist preferences intrinsically depending on their reciprocal beliefs (Grimalda and Sacconi 2005; Sacconi 2007a). Agents with conformist preferences obtain a positive ideal utility by conforming with some ideal principles that they are willing to fulfil conditionally on the expected behaviour of other agents they are in relation with. The intuition behind the idea of conformist preferences may be formalized by specifying the overall utility function V_i of a generic player *i* endowed with conformist preferences:

$$V_i = U_i(\sigma) + \lambda_i F[T(\sigma)]$$

The first term $U_i(\sigma)$ represents the material utility got by agent *i* in state σ. The second term $\lambda_i F[T(\sigma)]$ represents the ideal utility and reflects the agent's conformist reason to act as a disposition to conform with an ethical principle conditional on the expectations of reciprocal conformity with it. Essentially, these reasons amount to a desire to conform with a principle *T*, as long as it is believed that it will be reciprocally conformed with – up to some level – by the agent itself and by the other agents that participate in the same interaction through the production (by means of the agents' choices) of the social state of affairs σ.

T is the ethical principle with which agents want to conform.

λ_i is an exogenous parameter representing the importance attached by agent *i* to the ideal utility in respect to the material one. The higher λ_i is, the more the agent *i* will be willing to conform with the normative principle *T* if s/he believes that the others will act coherently in order to conform with the principle.

The role of beliefs (in the degree of conformity with the principle *T* of other agents) in affecting the ideal utility of agents and, consequently, their behaviour, is captured by the function *F*. Following Grimalda and Sacconi (2005), *F* is based on the idea of expected mutuality in conforming with the normative principle *T*. In a two-person game, *F* can be specified by considering two elements (see Sacconi (2007a) and Grimalda and Sacconi (2005) for a formal and more detailed representation of *F*): f_i, which is the index of

16

conditional conformity with the principle *T* of player *i*; $\tilde{f}_j$, which is the esteem that player *i* forms about *j*'s compliance with the principle *T*. These two indices determine *F* and the ideal component of the overall utility function of a player characterized by conformist preferences, so that the overall utility function is specified as follows

$$V_i(\sigma_i, b_i^1, b_i^2) = U_i(\sigma_i, b_i^1) + \lambda_i[1 + \tilde{f}_j(b_i^1, b_i^2)][1 + f_i(\sigma_i, b_i^1)]$$

where b_i^1 is the first order belief that player *i* has in the behaviour of player *j*. b_i^2 is the second order belief about player *j*'s belief in the behaviour of player *i*.

Both beliefs and dispositions have a key role in determining the ideal utility of agent *i*:

a) If *i* conforms totally with the principle *T* and believes that *j* will conform totally with the principle, then the ideal utility of *i* will assume the maximum value:

$$\lambda_i \times 1 \times 1 = \lambda_i$$

b) If *i*'s conformity is not complete and *i* believes that also *j* will not conform completely, the value of the ideal utility will be lower than λ_i:

$$(1-x)(1-y)\lambda_i < \lambda_i$$

c) Finally, if the conformity of one of the two agents is zero, the ideal utility obtained by agent *i* goes to zero:

$$(1-1)(1-y)\lambda_i = 0$$

We now have all the elements needed to reinterpret the relationship between the firm and its stakeholders by considering the role of CSR and social capital. In fact:

- we interpret the ethical principle *T* as the CSR principle agreed by the firm and its stakeholders in the social contract (where the firm agrees to respect fiduciary duties towards all its stakeholders). In a contractarian approach to CSR, a characterisation of the ideal principle *T* is given by the Nash bargaining solution, also called the Nash social welfare function N:

$$T(\sigma) = N(U_1, ..., U_N) = \prod_{i=1}^{n}(U_i - d_i)$$

  where d_i stands for the reservation utility that agent *i* can obtain when the bargaining process collapses.

- λ is the agents' cognitive social capital understood as dispositions to conform with ethical principles of CSR.

- Function F captures the belief of agents in others' behaviour and represents the idea of cognitive social capital in terms of beliefs.

The role of cognitive social capital and CSR in making fair behavior self-sustaining

Let us reconsider the game described in Figure 2 involving the firm (E) and the strong stakeholder (S_s) when they are endowed with conformist preferences. We analyze how the possible combination of the players' strategies taken in conjunction with their mutual (predictive) beliefs affect the ideal utility of S_s (note that in what follows beliefs correctly predict actions).

If the strong stakeholder believes that the firm will behave fairly and that the firm believes that s/he will behave fairly as well, by "entering" and playing "fair" s/he will maximize the level of implementation of the ideal principle *T.* In fact, if the strong stakeholder plays "fair", given that the firm plays "fair", the material surplus is equally shared among all the players with outcome (2,2,2), and the *T* value is 8 (e.g. $2 \times 2 \times 2 = 8$), which is the maximum possible with respect to the alternative (in fact, if S_W played "unfair" the outcome would be (4,2,0) with *T* = 0. Thus, when both E and S_s play "fair", the maximum ideal utility λ_{Ss}, enters the stakeholder S_s overall payoff.

To give an example of the calculation of the ideal utility, let us start with the ideal utility to be added to the material payoff of player S_S because of his/her conditional conformity index and the expected reciprocal conformity index of the firm, namely $1 + f_{Ss}(\sigma_{Ss}, b_{Ss}^1)$ and $1 + \tilde{f}_E\left(b_{Ss}^1, b_{Ss}^2\right)$, as they are specified at each possible state of the game. Consider the previous situation, i.e. the strategy $\sigma_{Ss} = $ (e,F_{Ss}) of player S_S given his/her first-order belief that E plays "fair", (b_{Ss}^1 = F_E), and his/her second-order belief that E believes that S_S plays (e, F_{Ss}), (b_{Ss}^2 = (e, F_{Ss})). In this case, the index of conditional deviation of player S_S is:

$$\frac{T(e, F_{Ss}; F_E) - T^{MAX}(F_E)}{T^{MAX}(F_E) - T^{MIN}(F_E)} = \frac{T(e, F_{Ss}; F_E) - T(e, F_{Ss}; F_E)}{T(e, F_{Ss}; F_E) - T(e, U_{Ss}; F_E)} = 0 \,,$$

In fact, by responding with (e,F_{Ss}) the strong stakeholder obtains the best possible *T* value conditional on E's choice being "fair", which implies a conditional conformity index $1 + f_{Ss}(e, F_{Ss}; F_E) = 1$. For the same strategy pair, by symmetrical reasons, the expected index of reciprocal deviation of player E is

$$\frac{T(F_E; F_{Ss}) - T^{MAX}(e, F_{Ss})}{T^{MAX}(e, F_{Ss}) - T^{MIN}(e, F_{Ss})} = \frac{T(F_E; e, F_{Ss}) - T(F_E; e, F_{Ss})}{T(F_E; e, F_{Ss}) - T(U_E; e, F_{Ss})} = 0 \,,$$

which implies that the expected reciprocal conformity index of the firm is $1+f_E(F_E;e,F_{Ss})=1$. Thus the ideal utility of player S_S for this strategy combination is the full weight λ (namely, $1\times1\times\lambda$).

Using the same method, conditional conformity indexes of S_S and expected reciprocal conformity indexes of E can be computed for each strategy pair, and the ideal utility of player S_S can be derived. If S_S believes that E will play "unfair" and that E believes that s/he will play (e,F_{Ss}), by playing (e,F_{Ss}) s/he obtains ideal utility 0 since, against a player E who plays "unfair", entering and playing "fair" generates the worst T value. "Staying out" by ¬e, would have given an outcome (1,1,1,) with the highest value $T=1$ conditional on the "unfair" strategy played by E. On the other hand, If S_S believes that the E will play "fair", and that E believes that s/he will play (e,U_{Ss}), by playing (e,U_{Ss}) s/he still obtains ideal utility 0, since s/he engenders a poor value T = 0 whereas by playing "fair" s/he would have maximised it (T = 8). Moreover S_S obtains an ideal utility also equal to 0 by playing the strategy (e,U_{Ss}),when s/he believes that E will play U_E and that E believes s/he will play (e,U_{Ss}), since collusion entails a outcome with the worst T value (0), whereas responding by "staying out" S_S would have obtained the outcome (1,1,1) with a better value T = 1.

An interesting case is when S_S believes that E will play "unfair" and that E believes s/he will play (¬e). By "staying out", S_S obtains an ideal utility equal to λ since not entering neutralizes any deviation form the maximum value of T that could be induced by E's "unfair" choice. At the same time, given that player S_S "stays out", the firm cannot deviate from the maximum value of T =1 by choosing whichever of its two strategies (the outcome is the same in both cases).

Last, if S_S stays out when s/he believes that E will play "fair" and that E believes that s/he will play ¬e, then player S_S scores a high deviation index -7/8, and hence his/her complementary conditional conformity index is low, that is, 1/8. On the other hand, if E believes that S_S "stays out", it cannot do anything to improve the outcome over (1,1,1) and thus T = 1 is the maximum value attainable. Thus, the firm's expected reciprocal conformity index is 1, which combined with 1/8 allows S_S to get only an ideal utility 1/8λ .

To sum up, the only way for S_S to be fully conformist is to "enter" and opt for "fair" if s/he believes that also E plays "fair", but to stay out otherwise. This latter behavior is a very important consequence of the conformist preference model: staying out of an unfair cooperative relation can induce the relative best level of conformity if the "cooperative" choice is such that acceding to such a proposal of unfair behaviour (collusion) induces a lower level of principle T achievement (e.g. a lower T value).

FIGURE 3

*The game representing the relationship between the firm and the strong stakeholder
when ideal utility is considered*
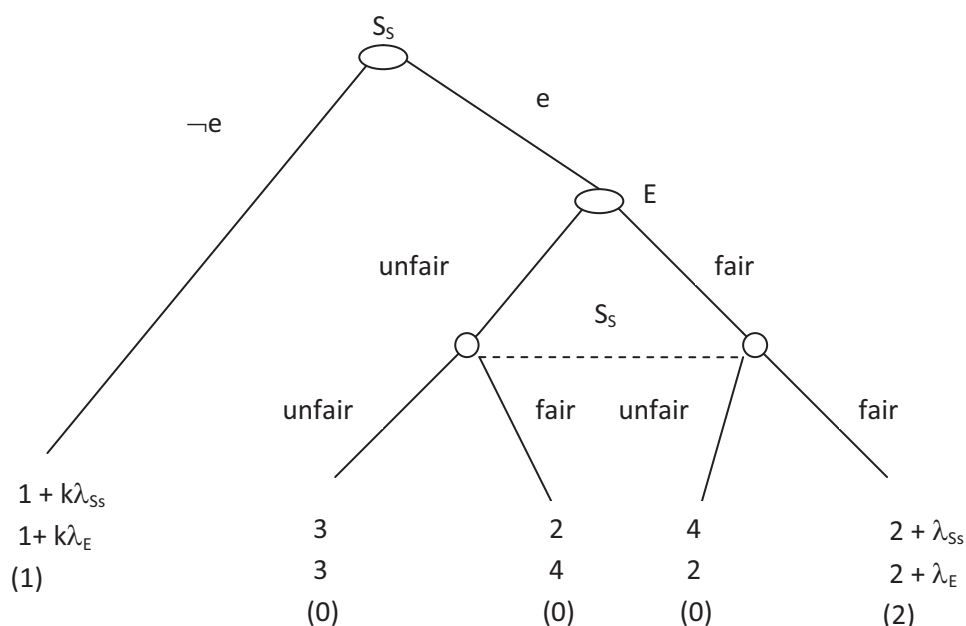
with $0 \leq k \leq 1$ varying in function of the reciprocal players' prediction

   In respect to the firm, player E's indexes of conditional and expected reciprocal conformity are computable by analogous reasoning on symmetric strategy pairs. There are, however, two non-symmetrical cases – $(\neg e, F_{Ss})$, $(\neg e, U_{Ss})$ – where E predicts that player S_S will choose $(\neg e)$ but that S_S believes that E will choose either F_E or U_E. Then the firm's "fair" strategy obtains ideal utility $1/8\lambda$, since when the firm predicts that the strong stakeholder will stay out, neither playing F_E nor U_E makes any difference to the value of T. However, what reduces overall conformity in this case is the low level of expected reciprocal conformity by S_S, which by choosing $\neg e$ scores the poor level $1/8$ given that the enterprise chooses "fair". By contrast, the firm's "unfair" strategy, given that E believes that S_S will play $\neg e$, obtains the highest ideal utility λ, since as before, by choosing U_E (as well as F_E) the firm makes T as high as possible, but now also the choice $\neg e$ by S_S makes T as high as possible given the firm's predicted choice U_E.

   Figure 3 includes in the overall payoffs of the players the ideal utility obtained in the different situations when they are endowed with conformist preferences (and the related beliefs). Whilst in the game with solely material payoffs only a Nash equilibrium arises – i.e. $(e, U_{Ss}; U_E)$ – it is now evident that when psychological payoffs are considered, there are two more possible psychological Nash equilibria beyond $(e, U_{Ss}; U_E)$.[11] They depend on the value of λ and on the players' system of reciprocal beliefs:

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[11] When the game is changed from a "material game" to a "psychological game" in which the players' payoffs have as their argument not just the material outcomes but also their reciprocal beliefs concerning their choices, the

1. When λ_{Ss} and λ_E are larger than 2 (given the payoff structure in our numerical exemplification of the game), S_s believes that E plays "fair", E believes that S_s plays (e, F_{Ss}), and each of them has second (and higher) order beliefs that the other has exactly these beliefs, then $(e, F_{Ss}; F_E)$ is a psychological equilibrium. In fact the players' mutual best responses are exactly F_E and (e, F_{Ss}). Thus mutual cooperative and fair behavior is endogenously sustainable in G.

2. Alternatively, when E believes that S_s "stays out" and S_s believes that E plays U_E, and each of them has second (and higher) order beliefs consistent with these predictions, if λ_{Ss} is larger than 2, the strong stakeholder will prefer to "stay out" rather than enter and play whatever second move (note that in this case k=1, since both conditional conformity and reciprocal expected conformity indexes are 1). Then $(\neg e; U_E)$ is also a psychological equilibrium. In this case, by staying out, the strong stakeholder allows the weak one to obtain a payoff (equal to 1) higher than the null payoff got by the weak stakeholder if the firm is "allowed to" to play the "unfair" strategy. Note that, because of the existence of this second-best "fair" psychological equilibrium, no condition on λ_E is required.

It should also be noted that if S_s plays $\neg e$ but believes that the firm E will play "fair", even though (given $\neg e$) E cannot do anything better to improve the value of *T* than play (indifferently) one or other of its two strategies, nevertheless S_s could behave in a better way with respect to *T* maximization (indeed s/he could play "enter"). Thus, in this case, as already explained, k = 1/8 and the pair $(\neg e; F_E)$ is not a psychological equilibrium. In fact, for this belief (e.g. that E plays "fair") the relevant psychological equilibria would be $(e, F_{Ss}; F_E)$ consistently with E's belief that S_s "enters" and plays "fair". On the other hand, if S_s continued to believe that E plays U_E, but her/his second order belief was that E predicted that s/he would enter (and if this were consistent with E's first and second order beliefs), then the relevant psychological equilibrium would be the old one, $(e, U_{Ss}; U_E)$, where the stakeholder enters and then colludes with a colluding firm. In this case the overall payoff of both the players coincides with the material one. Nonetheless, this is a psychological equilibrium as well, because beliefs and the related conformity indexes reduce to zero the ideal utility components of overall payoffs, so that material payoffs are the only utility components that can drive the players behavior.

The role of the CSR-social contract in triggering cognitive social capital and prior beliefs

Cognitive social capital consists of dispositions to conform with social norms of fairness and mutual beliefs about reciprocal conformity with agreed principles. The effectiveness of the former is conditional on the formation of the latter, and agreement on CSR principles and rules of behaviour is (in our context) the necessary precondition for both.

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appropriate equilibrium concept is no longer the *Nash equilibrium* but the *Psychological Nash equilibrium* (see Genakoplos et al. 1989). Note that also the old equilibrium point $(e, U_{Ss}; U_E)$ is a psychological equilibrium in the new context.

In our approach, we study the relationship between the firm and its stakeholders by implicitly assuming that, before the game described in Figure 3 is played, a phase of pre-play communication takes place (traditional game theory would consider this as a "cheap talk", but we shall see that it has an important role in affecting the players' preferences). In this pre-play communication phase, agents adjust themselves to the perspective of an ideal game "under a veil of ignorance" such that they are able impersonally and impartially to agree on a principle of cooperation devoted to settling the distribution of surpluses generated in interactions like the one involving the firm and its stakeholders. "Impersonality" is guaranteed because, by ignoring who will *ex post* assume whatever role in the game (for example the role of E, S_s or S_w), in order to decide how the "real life" division game will be played *ex post*, a CSR principle of fair division is *ex ante* agreed upon by anonymous agents (the players in the game). The equal power exerted by whatever player in agreeing, irrespectively of its real life role in the game guarantees "impartiality" of the collective decision.

From the *motivational* point of view, it is quite clear that it is because a player autonomously abides by an impersonal /impartial decision on a principle that s/he then recognizes being under the obligation of fulfilling the commitment ensuing from the agreement. This may have different interpretations, all compatible with the model: the content of the agreement is a reciprocal obligation, and the agreement is a way to *focus* on it as the prevailing (most *salient*) mode of behavior. *Focussing* by agreement triggers motivations, and pushes alternative motives to act into the background of the agent's mind. Otherwise, a player agrees on a principle because s/he *already* has an *independent reason* (some interest or reason to act) for complying with it. Impartiality of the agreement can only reinforce this reason to act because it proves that this reason to act is invariant to the symmetric permutation of the individual viewpoint, i.e. by taking in turn the viewpoints of any participant it does not change – it is unanimous and universally acceptable. Last, agents entering the agreement process have only the motivation to reach an impartial agreement with similarly motivated participants. The agreement must be based on impersonal arguments that participants give in favour of some solution or another. Their only endeavour is to acquire other participants' rational, disinterested consensus -- on the expectation that everybody else will also accept a similar deliberative process. Since reaching such an agreement fulfils their desire, they are ready to act upon it, because it is the simplest way to act consistently with it. Summing up, a fair agreement on a *principle of justice* activates a motivational drive (a disposition to act, or a set of attitudes generating dispositions, that we can call "the sense of justice") capable of generating a specific behaviour – so to speak, the "desire" to be just (act in conformity with a principle of justice). The intensity of this "desire" is what the model captures with parameter λ.[12]

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[12] The different positions exemplified here can be referred to different philosophical theories: the Humean theory of social convections (see Lewis, Bicchieri), the contractarian theory of morals based on fair terms of agreement (Gauthier but, as it is treated in the text, also Rawls) and contractualism (see Barry and Scanlon). The idea of a "sense of justice" is taken from Rawls (Rawls 1971). But the desire to be just can be retrieved directly from Kant's *Critique of*

From the *cognitive* point of view, the *framing* effect engendered by the agreement may be crucial. Framing the situation as one of impartial agreement affects players' beliefs. The impartial agreement triggers a mental framing such that the current situation is recognized as belonging to a category wherein agents are treated impartially. It happens that a mental model of *the* rational agent comes to the player's mind. In this model, an agent having agreed on a principle will act in accordance with the obligation agreed. Hence the individual reasoner proceeds *by default* to the conclusion that there is no reason or evidence for not believing that whatever agent (let it be herself/himself and the counterparts) will envisage the situation according to the same mental model. The framing effect induced by the pre-play agreement phase amounts to entering the following normative mental model: "People who voluntarily agree on a principle or classify a situation as belonging to a category wherein a norm is valid, *normally* behave according to the agreed or valid norm".

Note that a logical proof that rational agents will necessarily act according to the principle does not exist. It is only the simplest mental model of an intentional agent that follows from having framed the situation as one of free impartial agreement. One may say that, if a generic agent freely agrees to a principle, s/he expresses the intention to act according to the principles and the obligations stemming from it. Consequently, until proof to the contrary, one may expect that the typical rational agent will "normally" act in conformity with the freely agreed principle. All these are only *default* inferences, which may be accepted on the *caveat* that "normally", "until proof to the contrary ,"there is no evidence to the contrary that" the typical agent will fulfil the agreed commitments. They are perfectly reasonable within the limits of these *caveats, but are not valid deductive conclusions in terms of classical logic*.[13]

Consequently, assume that this is the *stereotype* of a rational agent under the current framing of the situation, e.g., it is the mental model that "comes to the agent's mind" when s/he tries to decide rationally, the one s/he takes for granted or as provisionally true in planning his/her behaviour. Now imagine that the same agent is asked to forecast the behaviour of the other agents (for example the strong stakeholder is asked to forecast the firm's behaviour). If contradictory information or evidence does not arise, by default the agent will simulate other agents' reasoning and behaviour by replicating onto them the same mental model used to provisionally define his/her own behaviour. This replication has the same fragile but nonetheless intelligible basis as before: the simplest way in which we can forecast the behaviour of other agents is to simulate their behaviour through the best mental model of an agent that we have inferred from our framing of the situation.

Practical Reason. For its incorporation into psychological game theory see Sacconi and Faillo (2010) and Sacconi (2011).

[13]To be noted, however, is that even though the reasoning described cannot be considered as a valid inference in classical propositional calculus, it nevertheless obeys the inference rules of non monotonic logics such as default reasoning (see Reiter 1980)

Given the mental model just described, if players participate in the pre-play communication phase (the agreement on CSR principles), their first set of beliefs in the psychological game will consist of the prediction that players' strategy choices are (e, F_{Ss}) for the strong stakeholder and (F_E) for the firm, and mutual second order beliefs are consistent with these prediction about choices. This means that, when the firm and the strong stakeholders agree on some ethical principle of cooperation, we may suppose (believe) that they will start playing the game G described in Figure 3 in a cooperative and fair way, and that the first psychological equilibrium they should reach is the one where they play $(e, F_{Ss}; F_E)$.

The role of cognitive social capital and CSR in the sustainability of cooperation in the overall network of relations

Thus far, we have discussed the game G as a one-shot game related to the PDs simply because the payoff saved in the G was intended to increase the weak stakeholders' payoffs through an equitable distribution in the PDs that weak stakeholders play with the firm in further parts of the network. However, G is not a one-shot game. It is the stage game of a repeated game played by the firm and the strong stakeholder, and it is played simultaneously with the repeated PDs that the firm E plays with its weak stakeholders in the remaining parts of the network. This has two important effects on players' belief formation in G. First, *ex post* beliefs depend on the behaviours observed in the previous plays of the same game G. Moreover, and this highlights the connection between G and the PDs, the strong stakeholders' belief concerning the behaviour of the firm in the G is also affected by the firm's behaviour in the PDs. In fact, the payoff saved for the weak stakeholders in G should be used by the firm E to improve the weak stakeholders' condition when E plays the cooperative strategies in the PDs. If the strong stakeholder observes from past plays of the PDs that the firm defects against weak stakeholders (thus also appropriating unilaterally any amount of the surplus saved in G), then s/he will assume that neither is the firm conforming with the CSR principle in G, and that his/her best strategy in G (if conditions on λ_{Ss} hold) becomes to exit cooperation with the firm. Thus in the stage game G the psychological Nash equilibrium $(\neg e; U_E)$ emerges.

This analysis clarifies why cooperation is sustainable in the network of relations of Figure 1 when cognitive social capital and CSR are considered within the general framework of conformist preferences. As stressed above, as long as only material payoffs are considered, the assumption that players will adopt the MGT strategy in sanctioning their successors if any "defection" is observed in the network, requires the strong stakeholder (S_S) to act contrary to his/her material incentives. In fact, the relation between S_S and E is bilaterally advantageous and not deficient. Thus, when S_S observes an opportunistic behaviour by the firm against weak stakeholders, there are no reasons (based on material incentives) which may rationally justify the strong stakeholder's decision to punish the firm by halting the cooperation with it.

On the contrary, we showed that, when ideal utilities are considered, the strong stakeholder's decision to "stay out" of the relationship with the firm in order to punish it for its opportunistic behaviour against weak stakeholders is perfectly compatible with the incentives of player S_S (e.g. it is "rational"). In particular, when the conditions on λ are satisfied, under consistent reciprocal beliefs such that S_S is predicted to "stay out" and E is predicted to play "unfair", a stage game G psychological equilibrium exists such that the strong stakeholder predicting unfairness by the firm (both in G or in the previous PDs) plays ¬e. This result grants consistency between implementation of the MGT strategy and equilibrium behaviour in G (e.g. in a relevant sub-game of the overall game that E plays with both strong and weak stakeholders).

One last condition must be stated. In order for the decision to play ¬e to be a credible threat for the firm, the total payoff gained by E from the repeated games in which it participates must be considered. The combined total payoff (in terms of both material and ideal utility) that the firm E obtains in the long run when (i) the equilibrium played in each repetition of G is (e,F_{Ss};F_E) and (ii) the firm also cooperates in each repeated PDs with S_W, must be higher than E's combined total payoff obtained in the long run when (i) the equilibrium played in each repeated G is (¬e;U_E) and (ii) the equilibrium in each repeated PDs is (Defect^{i,j}, Defect^{j,i}). In fact (¬e;U_E) is the sanction stage of the MGT repeated strategy of player S_S aimed at discouraging player E's defection from fair behaviour toward S_W, and at supporting behavior by E consistent with (e,F_{Ss};F_E) and "cooperation" in the repeated PDs. Were this behavior not profitable to the firm, it would always prefer to defect in the PDs and face the retaliation from the strong stakeholder in the repeated G. To be sure, a wide array of parameters generally satisfy the required proportion between the firm E's overall payoffs in G and its material payoffs in the PDs, as in fact is true in the particular case under examination (see Degli Antoni and Sacconi 2011).

Conformism, reputation and ex post belief formation

We previously argued that a prior agreement (the "social contract") on CSR principles and norms directly affects the players' beliefs, so that the cooperative and fair equilibrium immediately arises in the one-shot game G. This is not just an assumption, because there is experimental evidence that this is in fact the case (see Sacconi and Faillo 2010, Faillo, Ottone Sacconi 2008). To gain a complete explanation of the players' beliefs that support the "cooperative and fair" solution of G, however, it must be considered, as stressed in the previous section, that G is the stage game of a repeated game played simultaneously with the PDs. Thus beliefs supporting psychological equilibria in G must be explained also on the basis of firm E's behaviour throughout the repeated PDs played with its weak stakeholders S_W. In order not induce S_S to halt his/her cooperation with E in the stage game G (by "staying out"), firm E must maintain the good reputation of being a player who deals fairly and cooperatively with any S_w in each repeated PD.

Let us assume for the moment that, at the beginning of the process, player S_S is not completely convinced about E's conformity, and hence s/he plays "staying out", and that also E believes that s/he stays

out (e.g. the game starts in a region that is attracted by the psychological equilibrium ($\neg e; U_E$)). Remember, however, that we also assume that the firm's long-run total payoff deriving from the summation of its overall payoffs from the repeated play of the equilibrium ($e, F_{Ss}; F_E$) at each stage of G with the material payoffs of mutual cooperation in the repeated PDs outweighs both (i) the total payoff deriving from adding the overall payoffs of repeated "not started" cooperation in the stage games G to the payoff of repeated mutual defection in all the PD_S, and (ii) the total payoff deriving from adding the overall payoffs of repeated "mutual collusion" in the stage games G and the payoffs of mutual defection in repeated PDs. Hence it makes sense for player E to try to build a reputation as a "fair co-operator": a player who always plays "fair" in G (even if in initial periods an untrusting S_S may stays out) and always plays "cooperate" in the PDs (even if in initial periods an untrusting S_W may play "defect"). In fact, it may eventually change the beliefs of player S_S on the firm type, so that at some point in time s/he will start to "enter" the cooperative relation with E and then play "fair" in G.

In general, however, the mechanism of reputation building is a fragile one. A great deal of information must be transmitted in order unambiguously to verify consistency between behavior and prior commitments. But specification of contingent commitments may be difficult ex ante. The discount rate δ may be low, so that the likelihood of expected payoffs must be high in order to impinge significantly on the total player payoff. Moreover, the typical sophisticated abusive behavior that simulates honest conduct, whilst instead abusing the stakeholder's trust as many times as possible without reaching a breaking point where the stakeholder terminates the relationship, must be not an available option. Otherwise a self-interested firm would prefer to develop more the reputation of being such a sophisticated abusive player than that the reputation of being a completely compliant player.

In addition, the reputation building behaviour in our context confronts E with an actual cost because repeated cooperation in the PDs does not provide it with a real advantage with respect to the opportunity for benefit deriving from an occasional defection and a long history of mutual defection (e.g. the typical "folk theorem" argument for cooperation does not work in this case). The firm thus needs some reinforcing behavioral mechanism that magnifies both the strong stakeholders' positive and negative reaction to the "fair cooperative" or defective conduct by the firm, and the advantages or punishment that the firm can derive from such reactions.

This is exactly the case when stakeholders (at least the strong ones) have a disposition to comply with social norms of fairness, e.g. they are endowed with a strong component of cognitive social capital. From this feature of stakeholders the firm derives an incentive to adopt CSR principles and standards of behavior in regard to the treatment of all stakeholders belonging to its network of relationships. In fact, endorsement of the social contract with stakeholders may provide the second component of stakeholders' cognitive social capital - the prior beliefs that the company will conform with a firm-specific norm of fairness (see the previous section). And this will activate the stakeholders' conformist preferences. These

in turn induce strong stakeholders to cooperate with the firm as reciprocation of its conformity, and they allow ideal utilities to enter into the firm's overall payoff. But at the same time they would induce strong stakeholders to sanction severely a firm that did not rigorously comply with its own CSR principles and norms. Since, when the beliefs are elicited, ideal utilities enter the overall players' payoffs without delay, the firm does not have to wait long before experiencing positive payoffs from the decision to abide with the CSR principles and norms of behavior.

To explain, everything depends on the intensity of the players' conformist ideal utilities λ_E and λ_{Ss} (i.e. the utility "bonus" for the "cooperative and fair" psychological equilibrium) and on the efficiency and speed of the reputation building mechanism which permits the convergence of beliefs toward the "cooperative and fair" psychological equilibrium. If the parameter λ is high enough and the agreement elicits prior probabilities in the attraction area of the psychological equilibrium, then the cost of a reputation building strategy become sustainable, since quite early on beliefs reach the level that triggers the ideal utilities of player S_S, so that it "enters" and offers the firm E an overall payoff $2+ \lambda$ (>2) at each stage game G. Thus, even though playing the reputation building strategy may initially be costly for E, it is quite soon repaid with positive overall payoffs that more than counterbalance the cost of giving up opportunities for unilateral defections in the repeated PDs. The key element is no longer the discount rate of future payoffs, but the level of λ and its nearly immediate impact on player E's overall payoff. In sum, the firm has a higher incentive to adhere to a CSR principle and rule of behavior because this may engender higher payoffs, admitted the initial condition that the first component of cognitive social capital (disposition to comply with social norms) spreads through all its potential strong stakeholders.

Summing up, we may say that there is a "virtuous circle" between CSR and social capital: dispositions (preexisting cognitive social capital held by a set of agents embedded in a given society or community) favors the adoption of CSR principles and managerial standards of behavior on the part of a company operating within a network of relations. The endorsement of a social contract between the company and its stakeholders provides a second component of cognitive social capital, that is, beliefs concerning reciprocity of conformity. In conjunction with the first component, these engender conformist preferences, which is how we model "cognitive social capital" as a whole. This explains why in the overall network cooperation may become sustainable even if bilateral relationships are imperfectly cooperative (e.g. unilaterally deficient) between the firm and some of its stakeholders participating in the network. The reason is that when the social contract has been endorsed, conformist preferences induce stakeholders to over-reward or over-punish the firm on the basis of its effective, observable through iterated plays, compliance with CSR. And this extends far beyond the bilateral relation of mutual advantage between the firm and its strong stakeholders and spreads throughout the network. Thus preexisting "cognitive social capital" creates the opportunity for the undertaking of CSR on the part of companies, but CSR also increases "cognitive social

capital" and makes it possible the sustainability of cooperative relations throughout the overall network of social relations, e.g. it engenders what can be called "structural social capital".

Cognitive social capital, CSR and structural social capital: evidence from case studies

The case studies

In order to assess the theoretical model presented in the previous sections, we will refer to evidence from three original case studies. They concern three Italian organizations operating in the large-scale distribution sector. Two of them are consumer cooperatives (we will name them "A" and "B") while the third one is a joint-stock company (we will name it "C"). The two consumer cooperatives own supermarkets and hypermarkets in various Italian regions (A operates in four Italian regions and B in two), even though their headquarters are in the same North Italian region. The joint-stock company operates mainly through supermarkets in a north-eastern Italian region, where also its headquarters are located.

Our empirical study involved three hypermarkets (one owned by organization A and two by B) and two supermarkets (both owned by C). The hypermarket of A is located near A's headquarters. We will name it A1. The two hypermarkets owned by B are located in two very different places. One is located near the headquarters of organization B (we will name it B1), and one in a southern Italian region (we will name it B2). The two supermarkets owned by C are located in two nearby cities in the same region where the joint-stock company's headquarters are located. Because of the size of the two supermarkets and of the homogeneity of the context in which they operate, we will consider them in the analysis as a single observational unit (named C1).

We administered anonymous questionnaires (in the presence of the data collector) to different organization stakeholders. We will focus our empirical analysis by considering evidence from questionnaires filled in by consumers and workers of A1, B1, B2 and C1, and by the person in charge of CSR matters in each of the three organizations (A, B, and C). Questionnaires were completed by both consumers and workers randomly. In each hyper/supermarket we spent two days at the checkouts giving all the consumers who agreed to take part in the research project the opportunity to fill in a questionnaire. In regard to the workers, we collected replies from those who, after having been randomly contacted, agreed to participate in the project.

The theoretical hypotheses

Before examining the empirical results, we summarize the main hypotheses (stemming from the theoretical model) investigated using the empirical data.

H1. **Organizations in contact with stakeholders (both strong and weak) endowed with high disposition to cooperate (λ) with agents conforming with ethical principle of fairness and cooperation will have more**

incentives to adopt CSR practices than organizations operating in contact with stakeholders who are less endowed with λ. Here the argument relates to the mechanism behind the creation of reputation. As previously pointed out, reputation requires a long time to be accumulated, and cooperation between the firm and its stakeholders may prevail because of reputation only if the impact of future payoffs on the actualized utility of stakeholders is high. Conformist preferences (and the ideal utility connected with conformist preferences whose level strictly depends on λ) induce stakeholders to cooperate sooner with a "cooperative firm", and this may be a key factor in fostering the adoption of CSR practices (see the explanation in the previous section "Cognitive Social Capital, CSR, conformist preferences and the sustainability of all the network's relationships").

H2. **The more the firm adopts CSR good practices and respects them, the higher the beliefs of stakeholders (both strong and weak) in the fair (coherent with the CSR declarations) behaviour of the organization.** In fact, if stakeholders verify compliance with CSR good practices by the firm, they should believe that the firm is actually conforming with CSR principles. Note that stakeholders' beliefs in the firm's behaviour conforming with CSR principles are formed only if two conditions are met. First, the firm explicitly declares the CSR principles with which it wants to conform. Second, stakeholders may check conformity with the principles. If the firm does not adopt CSR principles, or does not make the check by stakeholders possible, stakeholders' belief may not be formed. Moreover, if the firm adopts and does not respect CSR principles stakeholders' belief will be of low compliance of the firm with the principles.

H3. **Organizations in contact with strong stakeholders endowed with a high level of λ and believing that the organization conforms with CSR principles, will have incentives to respect CSR principles and to avoid opportunistic behaviour against weak stakeholders.** After the organization has implemented CSR good practices, and after stakeholders have developed their belief in the fair behaviour of the organization, ideal utility should stem from the cooperative relationship between the organization and its stakeholders. In this context, if strong stakeholders observe that the organization is defecting against the weak ones, and if their λ is high enough to counterbalance the material loss deriving to stakeholders from cessation of their relationship with the organization, we should observe strong stakeholders discontinuing their relationship with the firm in order to punish it for its unfair behaviour against the weak stakeholders. Since organizations fear that strong stakeholders may decide to stop their cooperation, they may decide to behave fairly with weak stakeholders.

The empirical strategy and the database

In order to verify whether the data confute our hypotheses we shall compare:
- the degree of the adoption of CSR good practices by the three organizations A,B and C;
- the belief and dispositions of stakeholders belonging to the different organizations;
- the behaviour of the firm towards weak stakeholders.

In doing so, we will:

- ✓ consider consumers as strong stakeholders (they are obviously valuable to organizations and the organizations prefer to cooperate with consumers instead of behaving opportunistically and lose their cooperation);

- ✓ classify the workers in two groups according to their position within the company. Workers employed at the first, second or third level are considered strong stakeholders (they are essentially heads of department or people who have been employed in the organization for a long time). They are considered strong stakeholders because they have positions or may have acquired skills by staying in the organization which mean that they cannot be replaced at low switching costs. By contrast, workers employed in lower positions are considered weak stakeholders, since we suppose that the organization may replace them without significant costs;

- ✓ carry out the analysis by considering four observational units: the three hypermarkets (A1, B1 and B2) belonging to the two cooperative organizations and the two supermarkets (C1) owned by the joint-stock company.

Our data do not allow us to carry out econometric estimates. This is because we only have observations from three different organizations and the degree of CSR implementation is measured at the organizational level. However, we collected data from 366 questionnaires filled in by workers, consumers and managers of the three organizations which give us significant and useful information on the dynamics characterizing the relationship between these stakeholders (see Table 2). As we will show, the three case studies represent at least an interesting starting point from which to interpret the theoretical model previously presented from an empirical point of view and to offer some important insights to enrich the theoretical results. Table 2 shows the number of questionnaires collected across organizations/hypermarkets and stakeholder categories.

TABLE 2

Number of questionnaires across organizations and stakeholders

	Consumers	Strong workers	Weak workers	"CSR manager"
A1	64	5	36	1
B1	48	1	42	
B2	60	5	33	1
C1	40	14	15	1
Total	212	25	126	3

The measurement of disposition

In order to measure the disposition (λ) to cooperate with agents who conform with ethical principles of fairness and cooperation, we included in our survey instrument a specific section called "Socio-

demographic questions". In what follows, we specify in italics and bold script the names of the variables derived from each question and which will be used to summarize our empirical results.

The variables created in order to measure the level of stakeholders' λ were:

- **Volunteer:** variable equal to 2 if the interviewee had done voluntary work for solidaristic voluntary associations over the last 12 months and equal to 1 otherwise;

- **Benefits, Ticket, Evadetax, Appropriate** and **Damage**: variables assuming three possible values (1 always; 2 – sometimes; 3 – never) as answers to the question "Generally speaking, do you think that the following behaviour may be justified?" in relation to the following behaviours: receiving social benefits (e.g permission to park in the city centre) without being entitled to them (*Benefits*); not paying the ticket for public transport (*Ticket*); evading taxes (*Evadetax*); appropriating money found accidentally (*Appropriate*); running away after damaging a parked car (*Damage*);

- **Politics:** variables measuring how often the respondent followed the events concerning Italian politics (6 – Every day; 5 - A few times a week; 4 -Once a week; 3 - A few times a month (less than 4); 2 - A few times a year; 1 - Never)

- **Referendum**: number of times the respondent had voted in referendums since s/he came of age (1 – Never; 2 - less than 50%; 3- more than 50%; 4 - always);

- **Climate, Safety** and **Information:** variables measuring how worried the respondent was in regard to: climate change (*Climate*); lack of safety in workplaces (*Safety*); lack of information on consumption goods (*Information*) (from 1 – Not at all to 10 – Entirely);

- **Taxservices** and **Taxcivilduty:** variables on the level of agreement or disagreement with the following two statements (using a 10-point scale, from 1 – completely disagree to 10 – completely agree): paying taxes is fair because it makes it possible to produce services and goods for all the community (*Taxservices*); paying taxes is a civic duty (*Taxcivilduty*).

The idea was that these questions could capture the agents' attention and sensitivity to a general idea of social welfare and also their disposition to pay attention to behavior of others which may affect it. For instance, some questions regarded the concern with collective problems or issues (such as the variables **Climate, Safety, Information, Politics, Referendum**), personal engagement in activities which may positively affect others' welfare (variable **Volunteer**) or the opinion on free-riding behaviour (**Benefits, Tickets, Evadetax, Appropriate, Damage, Services, Civilduty**).

The measurement of belief

In order to measure the creation of stakeholders' beliefs in the fair behavior of the organizations towards different stakeholders, we considered the following variables:

- **Employeeright, Environment, Correctinf, Discrimination, Involvement,** and **Csrsuppliers**: variables measuring the extent to which the respondent believes that "organization A (or B or C depending on the

31

questionnaire)" in carrying out its activity (from 1 – Not at all to 10 – Completely): respects the rights of its employees and of the employees of its suppliers (*Employeeright*); respects the environment (*Environment*); gives correct information on goods sold in its shops (*Correctinf*); avoids favoritism and discrimination among workers (*Discrimination*); favors the involvement of its employees in the organization's activity (*Involvement*); selects its suppliers by considering their attention to CSR practices (*Csrsuppliers*);

- ***Member/shareholder Strongworkers Weakworkers Suppliers Consumers,*** and ***Localcommunity:*** variables measuring the extent to which the respondent believes that "organization A (or B or C)" behaves fairly in dealing with the following categories of subjects (from 1 – Not at all to 10 – Completely): members (in the case of the consumer cooperatives) or shareholders (in the case of the joint-stock company) (*Member/shareholder*); skilled workers such as heads of departments etc. (*Strongworkers*); unskilled workers such as non-specialized employees (*Weakworkers*); suppliers (*Suppliers*); consumers (*Consumers*); the local community (*Localcommunity*).

- ***Beliefgoods1*** and ***Beliefgoods2:*** respondent's belief in the fact that the organization (A,B and C) is doing all it can to respect its commitments in relation to specific product lines sold by the organizations and characterized, according to organizations' declarations, by specific qualities (such as goodness, genuineness, respect for local tradition etc.).[14]

The measurement of CSR practices adoption

In order to measure the implementation of CSR practices by the organizations, we considered the adoption of the following formal CSR instruments (also by specifying some characteristics of the formal instruments, such as the degree of involvement of different stakeholders in the creation of the ethical code or the specific activities concerning ethical training):

- An explicitly declared mission of the organization;
- An ethical code (specifying whether the code has been created by involving the different stakeholder categories in order to present the code, discuss its contents, and approve it);
- Ethical training (also specifying what it includes);

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[14] The two consumer cooperatives sell a product line consisting of products (according to their declarations) which are safe, good, ethical, eco-friendly and cheap. The joint-stock company sells two different product lines. The first is characterized by (according to company's declarations) safe, good and genuine products and the second by products which respect the local tradition and are of high quality. We asked stakeholders in the various organizations if they believed (from 1 – Not at all to 10 Completely) that, with respect to these product lines, the organizations (A,B and C), were doing all they could to respect their commitments. Since in the empirical analysis we will compare the answers given by the stakeholders of the various organizations, we have created two variables. Both of them associate with the stakeholders (consumers and workers) of the consumer cooperatives the value of their belief in relation to the product line sold by those consumer cooperatives. By contrast, one of these two variables associates with the joint-stock company's stakeholders the belief reported in relation to the product line characterized by safe, good and genuine products (this variable is named *Beliefgoods1*). The second variable associates with the joint-stock company's stakeholders the belief reported in relation to other product line (this variable is named *Beliefgoods2*).

- A Social Report (specifying whether it is organized by stakeholders' categories);
- An internal auditing system.

The measurement of structural social capital

In order to have a proxy for the behavior of the organizations towards their weak stakeholders, we focused on an objective item of information: the kind of contract (permanent or non-permanent) proposed to employees – those characterized by our previous classification between weak and strong workers as weak given their position in the organization – when they entered the organization. According to our intuition it may be a good proxy for the attempt by the organization to exploit all the surplus from the relation with its weak stakeholders.

Empirical evidence

To assess our three hypotheses (H1, H2 and H3) from an empirical point of view, we have decided to compare the organizations (A, B and C) and their hypermarkets/supermarkets (A1, B1, B2 and C1) in pairs.

A) *Test of hypothesis H1*

Hypothesis H1 would not be confuted if we observe that organizations where stakeholders' λ is higher also have a greater degree of CSR implementation.

In regard to CSR implementation, we may rank the three organizations as follows: A better than B and B better than C (that is A>B>C). Organization A has adopted the following CSR instruments: an explicitly declared mission, an ethical code elaborated by involving all the stakeholders in all the three key moments considered (presentation, the discussion of the contents, and approval), a consolidated phase of ethical training, a social report and an internal auditing process. Organization B has a codified mission, a significant phase of ethical training and a social report. With respect to organization B, organization C does not have a phase of ethical training (it simply organizes a welcome day for new employees) and has an ethical code, but its elaboration has not involved the stakeholders in the discussion of the norms and principles to include in the code. The interview conducted with the CSR manager gave us the impression that organization B had decided not to adopt an ethical code but was able to fix its ethical principle of cooperation (codified for example in the mission) for example through ethical training.

In regard to the level of disposition, Table 3 shows the level of λ among the organizations' stakeholders in comparative terms. The first column in the table specifies the two hypermarkets/supermarkets belonging to the organizations being compared (when we compare, for example, A1 and B1, we would find in the first column: A1 > B1 or B1 > A1). The names of the variables measuring λ reported in columns 2, 3 and 4 indicate variables which assume statistically significant higher values for the stakeholders belonging to A1 or B1 according to the indication in the corresponding row of column 1 (e.g. alternatively: A1 > B1 or B1 > A1). Column 2 concerns variables which record different values in respect to consumer dispositions, column

3 concerns weak worker dispositions and column 4 strong worker dispositions. For example, the variable **Damage** in the third column – second row of Table 3 means that the distribution of this variable is significantly higher (at 0.6% significance level) for weak workers belonging to A1 than for weak workers belonging to B1. Variables **Ticket, Climate** and **Information** in the third column – fifth row show that the distribution of these variables is significantly higher (at 0.043%, 0.014% and 0.002% significance respectively) for weak workers belonging to B2 than for weak workers belonging to A1.

TABLE 3

The level of disposition obtained by comparing the hypermarkets/supermarkets in pairs

Comparison between hypermarkets/ supermarkets	Consumers	Weak workers	Strong workers
A1>B1	**Politics** (0.002)**, Damage** (0.030)**, Safety** (0.009)**, Taxservices** (0.039)**, Taxcivilduty** (0.018)**.**	**Damage** (0.006)	
B1>A1			
A1>B2			
B2>A1		**Ticket** (0.043)**, Climate** (0.014)**, Information** (0.002)	
A1>C1	**Politics** (0.008)**, Referendum** (0.011)**, Damage** (0.001), **Climate** (0.001)**, Safety** (0.010)**, Information** (0.003)		
C1>A1			
B1>C1	**Climate** (0.020)	**Taxcivilduty** (0.040)	**Safety** (0.009)**, Information** (0.001)
C1>B1			
B2>C1	**Referendum** (0.020)**, Ticket** (0.007)**, Climate** (0.001)**, Appropriate** (0.008)**, Damage** (0.003)	**Ticket** (0.019)**, Information** (0.006) **Taxservices** (0.014)**, Taxcivilduty** (0.006)**.**	
C1>B2			

To evaluate the statistical significance of the differences in the variables we used nonparametric tests and applied the 5% significance threshold [we performed the Two-sample Wilcoxon rank-sum (Mann-

Whitney) test by using Stata9, the probability of the test (Prob > |z| = ...) is in brackets, the complete test value is available from the authors upon request].

Table 3 shows quite clearly that:

- A1's stakeholders (in particular consumers) have a higher disposition than B1's stakeholders.
- A1's stakeholders (in particular consumers) have a higher disposition than C1's stakeholders.
- B1's stakeholders (in particular strong workers) have a higher disposition (albeit only in respect to a few variables) than C1's stakeholders.
- B2's stakeholders (in particular consumers and weak workers) have a higher disposition than C1's stakeholders.

All these results are consistent with the degree of implementation of CSR by the organizations (remember that A adopted CSR practices at a higher level than B, and B at a higher level than C). This finding seems not to confute the possible positive role of stakeholders' disposition in promoting the decision to adopt CSR practices discussed at a theoretical level.

In this regard, a curious result concerns the higher disposition of weak workers of B2 compared with weak workers of A1. A possible interpretation may relate to the fact that B2 is an hypermarket operating in a location distant from the headquarters of B. It is therefore possible that the disposition of B1's stakeholders, who belong to the area where organization B initially developed its business, had a more important role in affecting B's CSR decision than did B2's stakeholders. If this is the case, we should look at B1's stakeholders disposition to "interpret" B's decision of in terms of adoption of CSR practices (and the dispositions of B1's stakeholders are lower than those of A1's stakeholders, exactly in line with the fact that the level of implementation of CSR is higher for organization A than B).

B) *Test of hypothesis H2*

According to the same logic used to compile Table 3, we created Table 4 with reference to the formation of stakeholders' belief. Hypothesis H2 would imply that if an organization implements and respects good CSR practices, it should be able to create the belief in its "fair" behaviour in its stakeholders.

By comparing the different organizations, according to the same procedure used in respect to disposition, we find that:

- B1's stakeholders (in particular consumers and weak workers) have a higher belief in the organization's conformity with CSR practices than do A1's stakeholders;
- B2's stakeholders (in particular consumers and weak workers) have a higher belief in the organization's conformity to CSR practices than do A1's stakeholders;
- C1's stakeholders seem to have lower belief in the organization's conformity with CSR practices than do stakeholders of A1 (even though here some variables related to consumers and weak

workers go into the opposite direction, the variables concerning the strong workers that go only in one direction seem to support this interpretation), A2 ad B1.

TABLE 4

The level of belief obtained by comparing the hypermarkets/supermarkets in pairs

Comparison between hypermarkets/ supermarkets	Consumers	Weak workers	Strong workers
A1>B1			
B1>A1	*Discrimination* (0.028), *Involvement*(0.011), *CSRsuppliers* (0.002), *Strongworkers* (0.033), *Weakworkers* (0.033), *Suppliers* (0.017), *Localcommunity* (0.015)	*Beliefgoods1* (0.001), *Employeeright* (0.000), *Environment*(0.002), *Correctinf*(0.000),*Discrimination* (0.007), *Involvement* (0.017), *CSRsuppliers* (0.000), *Strongworkers* (0.003), *Weakworkers* (0.004), *Suppliers* (0.028), *Consumers*(0.015), *Localcommunity* (0.018)	
A1>B2			
B2>A1	*Beliefgoods1* (0.048), *Employeeright* (0.001), *Environment* (0.002), *Member/shareholder* (0.003), *Strongworkers* (0.001), *Weakworkers* (0.007), *Consumers* (0.001), *Localcommunity* (0.006)	*Beliefgoods1* (0.000), *Environment* (0.000), *Correctinf* (0.000), *Discrimination* (0.000), *Involvement* (0.000), *CSRsuppliers* (0.000), *Member/shareholder* (0.003), *Strongworkers* (0.000), *Weakworkers* (0.000), *Suppliers* (0.000), *Consumers* (0.000), *Localcommunity* (0.000)	
A1>C1	*Beliefgoods1* (0.010), *Beliefgoods2* (0.003), *Environment* (0.020), *Member/shareholder* (0.028)	*Member/shareholder* (0.001)	*Beliefgoods2* (0.025) *Member/shareholder*(0.003) *Consumers*(0.043)
C1>A1	*Strongworkers* (0.000), *Weakworkers* (0.004), *Localcommunity* (0.033)	*Correctinf* (0.018), *Involvement* (0.003),	

36

B1>C1	*Beliefgoods1* (0.005), *Beliefgoods2* (0.012), *Environment* (0.005), *Discrimination* (0.038), *CSRsuppliers* (0.000) *Member/shareholder* (0.005)	*CSRsuppliers* (0.034), *Member/shareholder* (0.001), *Strongworkers* (0.020), *Consumers* (0.020), *Localcommunity* (0.017)	*Member/shareholder* (0.016)
C1>B1			
B2>C1	*Beliefgoods1* (0.000), *Beliefgoods2* (0.000), *Environment* (0.000), *Member/shareholder* (0.001)	*Beliefgoods1* (0.006), *Beliefgoods2* (0.002), *Environment* (0.005), *CSRsuppliers* (0.001), *Member/shareholder* (0.000), *Strongworkers* (0.002), *Weakworkers* (0.037), *Suppliers* (0.000), *Consumers* (0.000), *Localcommunity* (0.002)	
C1>B2			

Since we cannot verify the real compliance of the organizations with their CSR declarations, we cannot use our empirical observations to verify Hypothesis 2. However, on the basis of our data, we may suppose that:

- organization A does not perfectly comply with its CSR principles. Otherwise, having A a higher level of adoption of CSR practices than B, we should observe (if A fully conforms with the CSR principle) a higher belief in A's stakeholders than in B's;
- the compliance of A and B is sufficient to generate in their stakeholders a belief higher than that of C's stakeholders (where the implementation of CSR practices is lower than in A and B).

C) Test of hypothesis H3

The analysis of belief is essential for discussion of our third hypothesis (H3), according to which strong stakeholders who obtain a positive ideal utility may be disposed to punish an organization if they observe some defection against weak stakeholders. Since ideal utility depends on disposition and belief, we should observe organizations in contact with strong stakeholders endowed with high disposition (λ) and belief avoiding opportunistic behaviour against weak stakeholders in order not to be sanctioned by strong stakeholders.

If we consider the kind of contract (permanent or non-permanent) proposed to weak workers when they entered the organization as a proxy for a "fair" or "unfair" behaviour against them, we note that only two significant differences emerge:

- A1 is strictly better in terms of fair behaviour towards weak stakeholders (new weak workers employed by the organization) than C1. Considering our sample, 10 out of 36 weak workers of A1 have been hired for permanent jobs, while none of the 15 weak workers has been hired by C1 for permanent jobs. This represents a statistically significant difference: Fisher's exact 0.024.

- B2 is better than C1. 9 out of 42 weak workers of B2 have been hired for permanent jobs while none of the 15 weak workers has been hired by C1 for permanent jobs. This represents a statistically significant difference (even though at 10%): Fisher's exact 0.094.

Are these results coherent with the level of belief and dispositions observed across organizations? If we look at the combination of belief and disposition, it seems that this evidence is consistent with our theoretical result. In fact, strong stakeholders of A1 have both higher dispositions and beliefs than C1's strong stakeholders. Therefore, the ideal utility of A1's strong stakeholders should be higher than the ideal utility of C1's strong stakeholders. This implies a greater probability that A1's strong stakeholders will punish A1 if they observe it behaving opportunistically against weak stakeholders. It explains the higher structural social capital, in terms of a cooperative relationship between the organization and its weak stakeholders, of A1 in respect to C1.

Exactly the same argument applies for the second result (that B2 behaves significantly better with weak stakeholders than C1). In fact both the dispositions and beliefs of strong stakeholders (in particular the consumers) are significantly higher for B2 than for C1.

The last point to consider is why we do not find any difference between the behavior with weak stakeholders when we consider A1 vs. B1; A1 vs. B2 and B1 vs. C1. In regard to the first pair, this depends on the fact that A1's strong stakeholders have higher dispositions than B1's strong stakeholders; but exactly the opposite holds if we look at the belief. This implies that the ideal utility of the strong stakeholders of these two organizations should not differ significantly. In regard to the comparison between A1 and B2, the strong stakeholders' disposition of A1 and B2 does not differ in any variables. Finally, in regard to the comparison between B1 and C1, there is a clearly higher belief in B1's strong stakeholders than in C1's strong stakeholders. However, we have only a few variables which reveal higher dispositions of B1's strong stakeholders compared with C1's ones. Then there is no clear difference in the behavior of B1 and C1 with weak stakeholders, even though, consistently with the level of belief and (partly) with the level of dispositions, we find that 6 out of 33 weak workers of B1 have been hired for permanent jobs and all the workers of C1 have been hired for non-permanent jobs (however, the difference is not statistically significant at 10%).

Conclusions

This paper has investigated the relationship between social capital and corporate social responsibility by considering the possibility of a virtuous circle between them. A multidimensional approach to social capital

has been adopted. We have distinguished between *cognitive social capital*, which has been defined in terms of *disposition* to conform with ethical principles of fair cooperation (which can be understood as *trustworthiness*) and *beliefs* in the reciprocity of conformity with such principles by others (which may be understood as beliefs expressive of *trust*); and *structural* social capital, understood as a cooperative network of relations (which may be defined as a network wherein each link between any two players is a cooperative relation whose self-enforceability is endogenous to characteristics internal to the network itself).

Following a contractarian approach, CSR has been defined as a model of extended corporate governance whereby those who run a firm (entrepreneurs, directors and managers) have responsibilities that range from fulfilment of their fiduciary duties towards the owners to fulfilment of analogous fiduciary duties towards all the firm's stakeholders. Such fiduciary duties are obligations undertaken through the firm-stakeholders' social contract and are expressed by the explicit endorsement by the firm of CSR principles, norms of behaviour, managerial standards and tools. In regard to the firm's stakeholders, we introduced a distinction between strong and weak ones. As long as only material payoffs are considered, the firm is interested in cooperating in the long term with strong stakeholders, while it is not interested in cooperating with weak stakeholders.

Finally, we have also introduced the concept of conformist preferences. According to this notion, agents do not pursue material advantages alone. They also obtain a positive psychological utility by conforming with ethical principles (in our analysis the CSR principles and norms of fair cooperation and the corresponding CSR managerial standards and tools) when they believe and observe that also other players with which they are associated are reciprocally conforming with the same principles.

Our analysis has shown that cognitive social capital (understood as both disposition and belief) and the adoption of CSR principles, norms, managerial standards and tools generate endogenous incentives for the firm to comply with the content of such principles and hence to cooperate fairly also with their weak stakeholders.

Our argument can be summarised in five points.

1. The disposition of stakeholders favours the adoption of CSR principles and standards of behaviour by the firm. A firm that operates in contact with stakeholders characterized by a high level of cognitive social capital has incentives to adopt CSR principles and implement CSR practices. In fact, stakeholders endowed with high levels of disposition to comply with social norms of fairness and cooperation (cognitive social capital) will decide to trust a firm that endorses and complies with CSR principles and norms sooner than stakeholders with low levels of cognitive social capital. If the cooperation between the firm and its stakeholders is only dependent on self interest and reputation, the firm must accumulate a reputation through a long and costly history of unilateral cooperation with its stakeholders before the first of them is persuaded to trust the firm. In some contexts, like the one considered here,

this approach would not work, since the firm may not have enough incentive to systematically cooperate with all its stakeholder even in the long run. By contrast, if at least some stakeholders and the firm are endowed with conformist dispositions, and they see each another adopting and respecting CSR principles and standards of behaviour that support beliefs of reciprocal conformity, then they will develop conformist preferences. They therefore start to reciprocate cooperation well before they would do under the hypothesis that they care only about their material payoff in the long run. At the same time, they react against non-compliance with CSR much more severely than they would if only reputation associated with mutual advantages were at stake.

2. Through explicit endorsement and implementation over the time of CSR principles, standards and tools by the firm, stakeholders create their beliefs about the type of the firm with which they are interacting. The basic social contract simulated by the endorsement of CSR principles and standards elicits *a priori* beliefs about conformity (because of a default reasoning). Then, repeated observation of the firm's behaviour throughout all its relations in the network compared with the CSR standard of reference induces an updating of beliefs that confirms or refutes the hypothesis that the firm is a conformist player.

3. Conformity beliefs and dispositions may induce strong stakeholders to cooperate with the firm: cooperation in fact is the behaviour by which stakeholders reciprocate conformity with CSR principles on the part of the firm. Cooperation then depends on the formation of the correct belief about reciprocal conformity with CSR principles and on the pre-existing level of λ (disposition). But, importantly, this happens if and only if the firm is cooperative also with its weak stakeholders. In fact, because opportunistic behaviour with weak stakeholders is a violation of CSR principles, it induces the strong stakeholders to change their initial beliefs about the firm's consistency with its declared CSR principles and rules of behaviour. Expected non-conformity destroys the psychological preference for conformity and greatly reduces the cooperative payoff for strong stakeholders.

4. The possibility that strong stakeholders may decide not to cooperate with the firm if it defects with weak stakeholders is a reliable threat for the firm and may induce it to cooperate with weak stakeholders as well, in order to avoid the sanction from strong stakeholders.

5. This generates sustainable networks of cooperative relations involving the firm and its strong and weak stakeholders (structural social capital), that would not be sustainable without the threat of the sanction from the strong stakeholders. This sanction, however, is not an exogenous factor (as in the case of an external enforcing mechanism introduced from outside the model); rather, it is determined by endogenous incentives which we have explained by considering the impact of cognitive social capital and conformist preferences on stakeholders' behaviour.

We have also presented the analysis of three original case studies used to discuss the theoretical results of the paper from an empirical point of view. Even though the empirical analysis should be considered as

exploratory in nature, our observations are consistent with our hypothetical predictions. Hence the empirical evidence seems to corroborate the theory.

Our findings generate numerous questions and ideas for further research. In particular, by highlighting a new important role of social capital, they encourage further theoretical and empirical analysis of the factors and policies that may increase cognitive social capital in terms of disposition to cooperate, which is a key element in promoting CSR adoption and cooperative relations between firm and weak stakeholders.

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