‘Individual’ Social Capital, ‘Social’ Networks, and their Linkages to Economic Game

Masahiko Aoki

Stanford University and VCASI, the Tokyo Foundation

1. Standing on the Shoulders of Giants

About ten years ago, Partha Dasgupta and Ismail Serageldin edited a marvelous volume on social capital based on a years-long project of the World Bank (Dasgupta and Serageldin 1999). I start out this essay by re-visiting the book. Essays included in that volume exhibited so much varied views on the concept and ways it is used, and, in spite of the lucidly executed concluding chapter by Dasgupta that impartially summarized the contents as well as presented his own comprehensive view, the divide on the concept did not seem to have been settled yet. Particularly troublesome is the fact that the two giants among contemporary economists, Kenneth Arrow and Robert Solow, raised clear objections to the concept of social capital. Arrow “urge[d] the abandonment of the metaphor of capital and the term “social capital.”” Solow concurred in being “critical of the concept of social capital and the way it is used.” What were reasons for objections? Arrow, while admitting the plausibility of the hypothesis that social network could affect economic performance, pointed out that “the reward for social interactions is intrinsic” and lacked the important property of capital as saved for future benefit at deliberate sacrifice today. Solow argued that various things normally referred to as social capital, such as “trust, the willingness to cooperate and coordinate, the habit of contributing to a common effort even if no one is watching,” may be referred just as the “behavior
patterns,’ and the concept of capital in the usual sense of which stock and return can be measured may not appropriate. Another point was that the social network or the behavior patterns may have positive or negative impacts on economic performance so that they cannot be considered as factors of production as physical or human capital.

In this paper, I dare to stand on the shoulders of the giants as a dwarf and try to see if landscape can be gazed better. That is, I would like to squarely face the above problems and explore if social capital can be still a useful concept in understanding economic performance. I sense first of all that one of the sources of the divide or debate is that the distinction or possible relations had not been made clear by the proponents of the concept between collective phenomena (or institutional phenomena), such as the social network or social behavior patterns, on one hand, and individual actions leading to the accumulation of the so-called social capital, on the other. This question may be referred to as the “micro-macro transformation problem” as Coleman phrased (Coleman 1988, 1990). Or, it may correspond to relations between equilibrium of social game of some kind and individual strategic choices generating those outcomes in the game-theoretic sense. Or, more concretely, one may ask who owns social capital, society or individuals composing it? Secondly, I wonder what really makes “social” capital, if it exists, distinct from “physical capital”, “human capital”, “public goods” and so on. What is the “social” about? If it is made definitely distinct from these “economic” entities, why and how is it related to economic performance?

In the last few decades, economists have been dealt with trust, norms and the like, of which essence was lucidly summarized by Dasgupta (1999). In this venture, economists regard trust and norms endogenously generated through repeated economic transactions
They represent equilibrium patterns of economic behavior by rational agents. On the other hand, sociologists, like Granovetter (1985), criticized economists for neglecting that social networks embed and thereby constrained/facilitated economic transactions. Rising interests among economists in the concept of social capital may be considered partly as their response to such criticism. Some of economists are prompted to measure ‘social capital’ as parameters to their equations and estimate its impacts on economic performance. Which way is right? Is social capital endogenous variable or exogenous parameter for economic analysis? Or is there a third way of looking at relations between economic and social factors?

Below, I intend to explore answers to the questions raised above. I first conceptualize a special type of game, social-exchange game, distinct from the economic exchange game. In that game, agents invest in their own “social capital” as individual strategies, and social networks or behavior patterns with certain characteristics emerge as equilibrium of them (Section 2). Then I link this game with games in economic or the commons domains, and see how individual uses of social capital in the linked games may generate certain economic outcomes not viable if those economic games stand alone. Possible applications of this idea to economic development and social-economic networks in the information-communications industry and the commercialization of life science are briefly mentioned (Section 3). Then, I discuss how the attribution of differentiated social capital among the agents does, or does not, control the rat race in organizational context, quoting an example drawn from the recent financial crisis (Section 4). Finally, I apply the notion of individually-investible social capital to business corporations. I posit that corporate social capital, as distinct from physical and market-
specific reputation capital, may be accumulated by individual business corporations through the Corporate Social Responsibility (CSR) program and the like, and examine its potentially significant implications to business strategy and public interests. In this example, the positions of business corporations and the community of citizens in social-exchange are placed in asymmetric position (Section 5). Conclusion then follows.

2. Conceptualizing Individual’s Social Capital: Social-Exchange Game Approach

One of the early proponents of the concept of social capital, James Coleman, employed the following interesting analogy to introduce the concept: “If A does something for B and trust B to reciprocate in the future, this establishes an expectation in A and an obligation on the part of B. This obligation can be conceived as a credit slip held by A for performance by B. If A holds a large number of these credit slips, for a number of persons with whom A has relations, then the analogy to financial capital is direct. These credit slips constitute a large body of credit that A can call in if necessary --- unless, of course, the placement of trust has been unwise, and these are bad debts that it will not be repaid.”(Coleman 1988/1999: 20) Here a game-theoretic notion of social capital as individual assets, independent of their social consequences, is clearly elucidated. But what kinds of exchanges are involved here (what do A do for B), what are their payoffs (what the nature of credit slips) in those exchanges? How are they different from economic-exchanges? Are A and B placed in symmetric positions to generate social networks characterized by mutual trust and so on?

As mentioned above, economists have been endogenizing the notion of trust and social norms as possible outcomes of reputation games in the economic domain itself.
For example, if there is credible belief among the agents in the community of traders that cheating a trading partner would surely result in the exclusion from further transactions in the community and if they are reasonably far sighted, then they may refrain from cheating and honest trading may be supported. But there can be situations where accessibility to some economic goods cannot be denied by technological and other reasons: for example, the use of the natural environments. Landscape cannot be hidden, water flow cannot be diverted, air cannot be denied to breathe, etc. But it is intuitive that there may be cases in which social norms could play roles even in such situations (e.g., Ostrom 1990). I try to show below that the examination of this kind of situation has indeed important implications for the problem of how to control one of acute economic problems of today, the global warming and other environmental problems. There are other applications of non-excludability which may not be dealt, at least entirely, with political commands and the like. To proceed, therefore, I propose to consider first a kind of game that Coleman depicted purely as the social-exchange game and then re-couple it with games of economic exchanges to examine implications of the linkage.

Suppose there is a community (group) of agents who mutually interact with each other by the means of social symbols (such as words, gestures, gifts and the like), physical actions (such as helping, violence) or offering of non-marketable goods (such as valuable information, gossips) and the like to affect the emotional payoffs of others. Let us call the set of such mutually interactive agents and the sets of their instruments as the domain of social-exchanges and their interactions as play of the social-exchange game. It is one class of societal games recursively played in a population as distinct from economic-exchange games. A few words may be due to distinguish them.
First, although exchanges of social symbols (e.g., speech acts) may be involved in other types of domains as well, those in the social-exchange domain are distinct by the nature of exchanges as well as players’ objectives. Any economic exchange is essentially a contract that cannot be implemented without a mutual agreement between specific two (or more) parties, although it may be unilaterally or bilaterally defaulted **ex post**. However, social exchanges can be made without explicit agreement but only with ‘unspecified obligations of reciprocity’ (like gift-exchange, mutual help), \(^1\) or multilateral within a network of agents directly or indirectly connected with unspecified routing (e.g., helping of any other in a community, or communications in the clandestine “study” groups of radical Korean students quoted as one example of “social capital” by Coleman). It is to be discussed later under what conditions the unspecified obligations of reciprocity become believed to be fulfilled among agents concerned. For now it may be noted that there is a good body of psychological and experimental studies to indicate that reciprocity is deeply embedded in many social interactions (e.g., Rabin 1998, Fehr and Gachter 2000, Benabou and Tirole 2006). Second, the utterance of speech or dispatch of other social symbols in social exchanges may well be generated by sender’s own direct interests/emotions (e.g., appreciation, empathy, envy, jealousy, anger, and so on), but their messages are necessarily intended to have impacts on objects’ emotional payoffs, either positively (e.g., pride, satisfaction, consolation, retribution, and so on) or negatively (e.g., shame, guilt, feeling of excluded, and so on): kinds of emotions which Elster (1998) characterize as “social”. In that sense, they are distinct from mere speech

---

\(^1\) The notion of “unspecified obligations of reciprocity” as a distinctive characteristic of social-exchanges was emphasized by Blau (1964/1986).
acts, or the so-called “cheap talk” (information transmission without no direct effect on other’s payoffs) in the signaling game in economic domain. Also I assume that engagement in social exchanges may not necessarily be ‘cheap’ for agents, because it may be costly in terms of time, effort, value of gift and so on.

Each agent can derive positive/negative payoffs from other’s social actions directed toward he or she, as discussed and experimentally verified by brain scientists. However, in order to be able to expect continual positive actions from others, he or she must reciprocate positive actions toward them. If somebody is mean to him/her, on the other hand, he or she may wish to revenge the opponent to stop further malicious actions and avoid ‘social pain’. Thus, expected emotional payoffs of agents over time in the social-exchange domain will be conditional on others’ actions that are expected in response to their own actions. Thus agent’s emotional payoff from social-exchange becomes in reduced form the function of his or her own action although implicitly via own belief about other’s reaction.  

---

2 For a brief survey, see Lieberman and Eisenberger 2009.

3 The unit of emotional payoff of own action may be measured by the marginal opportunity cost in terms of material payoff in economic domain. It may be noted that the tradability between monetary rewards and emotional payoffs is experimentally confirmed by some recent neuroscience studies founded on the notion of ‘common neuro-currency’ due to Montague and Berns (2002). A functional magnetic resonance imaging (fMRI) experiment by Izumi et al (2008) found that the acquisition of one’s good reputation activates rewards-related brain areas, notably the striatum, and they partially overlapped with the areas related to monetary rewards.
emotional payoffs over time as his or her social capital. It represents agents’ expected capacity to derive positive net emotional payoffs over time as well as to use it to derive benefits in other domains. Some scholars adopt the word ‘social capital’ referring to intangible collective assets held by society as a whole (e.g., norms, the educational level of the society) in analogous to tangible collective assets (e.g., public goods, commons). But I conceptualize social capital as owned and used by individual agents (including individual corporations). As discussed shortly, it is to be conceptually distinguished from social norms and other such social categories that evolve as societal outcomes of play of the social-exchange games in which individual agents accumulate social capital to derive future social and other payoffs.

Individual agent’s social capital has double features. One, it is the object of individual investment. It depreciates without effort to sustain it. Thus, agents exchange social symbolic actions in such a way that they consider the most fit/desirable in order to increase, as well as to make the best use of, own social capital. I will provide concrete examples later, but it may be pointed out at this point that the basic structure of social-

---

4 The value of emotional payoff of a reciprocated action by the other may be measured by the cost of own effort at margin that induces it.

5 Putnam’s social capital comes into being not through individual intentional action, but is said to be “inherited” with its origins hidden in the mist of the past. The existing stock cannot be thus individually owned. A collectivist notion of social capital is articulated by Hayami as “the structure of informal social relationships conducive to developing cooperation among economic actors with the effects of increasing social product.” However, he also develops a subtle argument to allude to the dualistic, individual nature of social capital.
exchanges as described indicates its strategic nature, albeit not in exclusively self-regarding manner. Social-exchanges based on reciprocity thus defined are different from altruism. Altruism is a form of unconditional kindness. It derives from the nature of agents’ preferences and, as it is, it is not directly related to either strategic play or the endogenous rules of societal games.

Secondly, individual agent’s social capital actually depends not only on one’s own actions but also on one’s belief regarding others’ actions, other’s beliefs regarding one’s beliefs and so on. In this sense, the social-exchange game shares the same problem of infinite regression as the psychological games introduced by Geanakoplos, Pearce and Staccetti (1989) and applied by Rabin (1993). Recent achievement of epistemic game theory suggests us that economic agents need a fair amount of common knowledge to arrive at equilibrium (Aumann and Brandenburger 1995). Such common knowledge may be provided in the form of culture as encapsulation of past experiences and/or some public indicators (cognitive societal categories) to make an equilibrium as focal point.\footnote{Aoki (2010), Chapter IV. Also see Arrow (1993) for the importance of social categories in achieving equilibrium.}

The concept of the social-exchange game as a class of societal game \textit{recursively} played within a population suggests a reasonable solution to this problem. If agents are recursively engaged in social-exchanges within an informative, homogenous community, then their actions are more easily known and others’ beliefs are more easily inferred. Namely in the small community, experiences, information, and inferences are shared, resulting in the sharing of behavioral beliefs. Then there may evolve some standard of social exchanges, i.e., norms of reciprocity, through practices and customs. Such standard
of behavior, or “a behavioral strategy that is subscribed to by all” (Dasgupta 1999: 341) may be regarded as representing a Nash equilibrium of psychological game.

The share behavioral beliefs would serve as a guide for the agents to act socially properly. For, as Nash equilibrium, it is not beneficial for agents not to follow them. The failure to comply with the norm would be believed to be punished (‘sanctioned’ in the traditional sociological terminology) by the loss of social capital. Such loss may not necessarily be implemented only by external sanctions by others in the form of ostracism at extreme. If norms are internalized, they are followed even when violation would be unobserved by others, because not doing so may create guilt-consciousness, shame, and other negative emotional payoff. Such moral sense need not be considered as derived from an abstract super-natural axiom or primarily imposed by an external authority, such as schools, churches, government and so on. But it can be regarded as originating in practices. Aristotle noted that "moral goodness (etike).... is the result of habit, from which it has actually got its name, being a slight modification of the word ethos." (Book II.i:91) Arrow also noted “internalized feelings of guilt and right are essentially unconscious equivalents of agreement that represent social decisions.” (1967:79)

3. Linking Economic and Social Exchange Games

I have presented a simple argument that the genesis of norms may be regarded as endogenous outcomes in the social-exchange game. However, we do not necessarily need to regard them as exogenous constraints for choices in the economic domain. Economic and social exchanges may be linked and norms may evolve through interactions of the two. This is why the concept of individual social capital may still be relevant to an
understanding of economic performance. As an example to exhibit the basic logic in a simple way, let me introduce a simple parable of the dilemma of the commons. That is, suppose that there is the commons economically and/or aesthetically valuable to the members of the community, but in order to keep them valuable in sustainable manner collective maintenance efforts are required. Efforts are costly to the members, however, so that there can be potential risks of free-riding. Suppose that it is technologically not feasible to exclude any member from benefiting from it. For example, the remarkable growth of rice production in the Edo period (from the 17th to the 19th centuries) of Japan was largely owed to the continual land reclamation and the associated development of irrigation systems in the rural community. However, rice paddies cultivated by member families were mutually scattered and intermeshed due to the incremental land development by fairly homogenous member families, while the irrigation system was such that water drawn from a canal is successively supplied from one paddy field to the next utilizing the natural slope (the gravity system).  

Then the usual reputation mechanism to control member’s moral hazard behavior in the collective maintenance efforts may not be feasible. Suppose that it is not feasible either politically or by some other reasons to solve the problem by establishing property rights on the commons or politically forcing the members to be engaged in the collective efforts against their individual incentives and wills. Suppose, however, that the members

---

7 Incidentally it is interesting to note that the development of collective irrigation system had quite different paths in the Edo Japan and the Yi Korea due to various historical, political and geographical reasons. I discussed this difference and its possible implications to the issue of social norm in some details in the Appendix to Chapter 2 in Aoki (2001)
of the community are mutually engaged in various social-exchanges (e.g., mutual help as needed, participation in festivities, etc.), which allow the members to derive emotional (and practical) payoffs with possible costs in terms of time, efforts, resources, psychological burdens, etc. The exclusion of any individual from the social exchanges implies the deprivation of his or her social capital.

Then, even though exclusion from the use of the commons is not technologically possible, shirking of collective efforts in developing and maintaining the commons may be punishable by the exclusion of the shirker from the benefits of the social-exchange game, e.g., ostracism. Indeed in the case of Japan’s Edo village I just referred to above, severe ostracism known as *Mura-hachibu* was practiced against serious deviants (literally it implies 80 percent exclusion from village collective actions except for funeral services and fire fighting to prevent spread of disease and fire). In any case, if the common beliefs prevail to the effect that shirking in the commons domain is punishable in the social exchange domain, it can generate cooperative participations of the members both in the commons game and the social exchange game as their individual best choice. Namely, given the shared beliefs, the cooperative states of play in both games become sustained. We can refer to such a standard of cooperative behavior, supported by the common beliefs, as a social norm.

In this example, the social exchange game is “linked” to the commons game in such a way that the social capital of each agent created in the former game can be used as incentives for cooperative behavior in the latter game. In that sense, it may be regarded as a game-theoretic restatement of the notion of “social embeddedness” originating in the seminal writing of the economic sociologist Granovetter (1985). However, my point is
that social norms are not something given from outside economic domains and
unilaterally embed and control economic behaviors. Rather, the norm, or the “pattern of
behavior” in Solow’s terminology, is generated and sustained by agents’ strategies to
accumulate and use social capital to achieve their own higher over-all payoff inclusive of
social one. Later, I give some examples in which social networks and social capital
endogenously evolves together with certain patterns of economic-exchanges.

The linked game approach may also clarify possibly varied roles of social norms for
institutional transition. The endogenous view of social norms by economists mentioned
above – that is, identifying social norm with an equilibrium outcome of reputation
mechanisms in the economic domain itself – implies that norms emerge and disappear
with relevant modes of economic transactions. Looking at the same thing from a
different angle, one may say that the inherent inertia of social norm is in general
detrimental to the emergence of new mode of economic transaction. Greif’s seminal
historical comparative institutional analysis (1993, 2006) provided one instance for this to
be true. Cultural beliefs among the Maghreb traders that dishonest trading would be
punished by ostracism from their community could not be shared by outsiders so that
they failed to expand the orbit of their trading beyond their internal reach. It is claimed
that this was a major reason for them to eventually lose competitiveness in long-distance
trading in spite of their possible internal efficiency vis-a-vis the Genoese traders who
relied on efficiency wage discipline on recruits of agents from market.

We may then ask: were pre-market community norm needed to be destroyed prior to
market transition and replaced by entirely new market mores? How could the latter
emerge? Traditional views, whether those of economists (e.g., Hicks 1969) or scholars in
other social science disciplines such as economic anthropology (e.g., K. Polanyi 1944; Geertz 1963) have drawn a sharp line between the market economy and the pre-modern economy for entertaining such a view. However, recently a revisionist view has emerged which contends that, under certain conditions, the rural community bound by cooperative norms could play a positive role in facilitating the gradual transition of pre-modern rural economies to market economies. Such can become possible when the community norms can regulate moral hazardous behavior on both insiders and outsiders in the initial transition to mutual market relationships. The complete destruction of rural communities may be neither sufficient nor necessary for the emergence of external market relationships and eventual integration into the market economy. However, as market relationships evolve, the value of social capital that individual members can accumulate through community relationships would certainly go down. Various historical and regional examples of the roles of community norms in the transition to the market economy are given in Aoki and Hayami (2001).

Social network woven by individual investment in social capital also play roles in the contemporary development of new types of industrial organizations where the creation of information is vital source of competitiveness. In the evolution of the Silicon Valley clustering of start-up firms in the IT industry, a fair amount of the sharing of information and cognition took place among them regarding general direction of developmental potential (i.e., the world view and their positions in it), while actual development efforts of developing and designing particular modular elements of potential innovative systems were firmly encapsulated within individual entrepreneurial start-up firms. These two opposing aspects are actually complementary in producing innovation systems under high
uncertainty. Tournament-like competition among start up firms can be more conducive to innovation than R&D in an integrated firm under high uncertainty, because parallel development efforts by multiple firms provides option values (multiple experiments! Baldwain and Clark 2001), as well as extra incentives in the form of tournament-winning premium (i.e., the value of marginal increase in the probability of winning tournament due to extra efforts. Aoki and Takizawa 2002). However, in order for such decentralized approach is feasible, they have to share information and vision regarding the future possibilities of the industry, i.e., how their specialized modular products can be crucial elements of evolving innovative product system. Information sharing in this respect are mediated, or brokered, by venture capitalists, university professors, consultants, angels and so on in manners somewhat remindful of academic exchanges (e.g., Saxenian 1994, Podolny 2001, Burt 2005). To promote useful information exchanges, reciprocity and mutual trust matters to restrain exclusively-self-regarding, only-take- not-to-give kinds of attitudes, while high esteems and reputations are endowed to informative brokers and helpful mentors and so on. Thus, the dense social-exchanges embeded the Silicon Valley mode of industrial architecture, and the agents who invested in social capital in this network was able to expect future economic and social returns in terms of future business opportunities and social status. 8

8 Recently some pessimism has started to prevail among the venture capital community in Silicon Valley. Even after the recovery from the burst of dot.com bubble, the rate of returns to venture capital investment is said to have not yielded satisfactory rate of returns, although the amount of financial resources invested in venture capital funds has been abundant. The rate of IPO has started also decline after the financial crisis. The average rate of ITO per quarter was in the order
The organization field of commercialization of life science has been evolving in somewhat differently, as Powell et al (2005) traced and depicts impressively with massive data sets and novel analytical methods. In the 1980s hundreds of small science-based firms were established based on scientific knowledge developed in university labs. Some of them became soon matured into what the authors called the dedicated biotech firms (DBFs). In early days, however, they did not necessarily own skills in marketing drugs that they invented and often relied on pharmaceutical giants, while the latter lacked new knowledge base in rapidly advancing life science. This situation did not led to the acquisition of DBFs by the giants as in the information technology field, however, but complementary collaborations between them not only in marketing but also in development effort. The collaborative networks further evolved to involve such diverse actors as universities, public research organizations, small start up firms, as well as venture capital firms and National Institute of Health (NIH) as funding agencies. Since no single organizations had a full range of scientific, developmental, and managerial assets to produce new medicines, organizations of various types diversified their connections with others in research collaboration and financial support. Career mobility back and forth between university and industry became commonplace (Owen-Smith and Powell of hundreds until 2008, but there was only two after the crisis. It is not clear yet whether this is the reflection of the financial crisis, the maturity of the IT industry that is transforming the industrial structure, or something else. But some experts points to the fact that the older generation of the VCs who had operating and engineering knowledge have retired and replaced by a new generation whose expertise is more in finance than engineering and operating. If this is indeed so, it may imply the declining rate of social capital accumulated in the VC community.
2004). Through all these, overlapping, multiple bundling of organizations as horizontal networks has been evolving with a small core of organizations at the center. The organizations in the centric positions are there because of established reputations in terms of highly effective, differentiated connections to diverse partners but not by virtue of simply being commercially large. This suggests the importance of investment in social capital by those organizations, distinct from market-specific reputation capital, as evidenced by the fact that these networks involve public research organizations such as universities and hospitals as significant players. Their relationships with business organizations are not formally contractual, but more informal and based on unspecified reciprocal obligations. Aggressive business firms tend to be rejected by them.

4. Social Capital and the Rat Race in the Organizational Context.

A norm matters even under competitive frame of organizational architecture in which workers’ jobs were standardized, mutually isolated and paid for individually by piece rate contracts; so Burawoy (1979) told us in his fascinating field study at a Chicago factory. If the piece rate system stands alone, it could generate a rat race among the workers, triggering rate-cut ratchet effects. However, he depicted that the workers normally aimed at individually achieving – “making out” in the workers’ slang – a certain individual target rate. Some were satisfied with 125 percent, while other would aim at a higher rate. But there could be a ceiling (say, 140 percent) imposed and well recognized by all members. If someone tried to achieve more than the ceiling, he would be socially ostracized (although he may not mind being ostracized), while anyone who could not attain 100 percent was scorned. The author argued that “making out” could not be
understood simply in terms of achieving greater individual earnings; its rewards included
relieving boredom and obtaining social relations and psychological rewards, while it
restrained over-competition. The culture of “making out” was generated by workers
themselves, but once established it was experienced as a set of externally imposed shop
floor norm. Those who do not follow, or cannot follow, the norm just lose or fail to
achieve their social capital.

Under other circumstances, however, misaligned incentive contracts in the
organization domain may create destabilizing competition among the workers by
inducing distorted incentives to invest in social capital in terms of prestige. For example,
in the process leading to the burst of the 2008 financial crisis, the supposedly best and
brightest competed in the Wall Street and the City for achieving higher social status
symbolized by capability of designing high-yield-generating derivative products.
Financial engineering to hedge risks relies on mathematical tools, such as the Ito’s
Lemma, that can be applied to calculus involving random Brownian movement of
variables (say, securities prices). However, in the practical performance-evaluation of
financial engineers the so-called tail risks (extreme events with small probability) are not
properly taken care of. If events in the lower tail happen, the loss is largely born by client
investors who are less informed, while fund managers are rewarded high when events in
the high tail occur. Thus they tend to gamble. However a large proportion of revenue
increase in the latter case is not real gains, but should have be set-aside as reserves for
future risks (i.e., as costs). Thus risk was endogenously amplified rather than hedged.

The ‘greed’ of financiers is often blamed for its eventual disastrous consequence.
What does the greed mean in his case? The competition among financial engineers does
not seem to have been simply an economic one to pursue the insatiable material payoff, but also a social one in which they strived to exhibit one’s superior competence and intelligence that may result in such emotional payoff as the sense of prestige, being awed, envied and the like. Thus, there was no ceiling in this rat race, even though extra million dollars might not have mattered so much to them for its own sake. The economic game and social game were linked in such a way that the contractual rules of the economic game generated the culture of rat race in the social-exchange game, which in turn destabilized the state of play in the economic game. The primary fault may have lied in the misalignment of incentive contracts, but it was through the mind-sets of people absorbed in that culture that eventually lead to the spectacular failures of some major financial-service houses.

(5) Does share markets internalize corporate social capital?

Now we ask if there is any point to regard business corporations as engaged (and ought to be engaged for unique societal benefits) in exchanges with the society of citizens at large beyond their own markets and business partners. In posing questions in this way I set aside from my immediate concern such matters as corporate brand names embodying accumulated reputations in own markets (in terms of consumers’ expectations regarding product qualities, after-purchase services, delivery timing and the like). Costly signaling (such as advertisement) that would not directly affect the utility of the buyers is also left outside the scope of our discussion for a while (although advertisement may promote the so-called conspicuous consumption). The distinction between market-specific reputation and social capital is sometimes subtle and ambiguous in practice, and even often
complementary as seen later. But I start out with questioning whether or not business corporations accumulate (and ought to accumulate) social capital even outside own product markets and, if they do, what are its potential implications to their market and non-market behaviors.

Indeed, corporations and citizens of society at large may be viewed as directly and informally engaged in social-exchanges. If a business corporation pollutes natural environments and/or generates health hazards through its economic activities or products, it will be subjected to public reactions beyond own markets in terms of bad social reputation, public protest, product boycott, etc., even if those economic activities are not immediately illegal within existing statutory frameworks. On the other hand, some corporations voluntarily provide resources for social benefits such as environmental protection, poverty reduction, public health, education and scientific research and so on through the so-called corporate social responsibility (CSR) programs. They can be considered as corporate provisions of public goods or voluntary reductions of external costs. As such they may not immediately contribute to their profits nor are legally called for. In response to social contributions that are costly, however, citizens at large possibly ascribe social recognitions to provider corporations, which would contribute to the accumulation of their corporate social capital. To repeat, it could be distinguished from market-specific reputation capital. For example, a tobacco company may enjoy high reputations among the smokers, but its corporate social capital may be thin due to the nature of its products causing health hazard (although tobacco companies are known to be big spenders on CSR programs). But then why should business corporations be concerned with their social capital? As Friedman (1971) once forcefully argued, is it not
individuals (e.g., individual shareholder in the capacity of citizen) that should contribute
to the provision of social benefits but not business corporations whose objective should be to maximize shareholders’ values?

Those who are committed to the so-called stakeholders-society view of corporate governance may argue that the accumulation of corporate social capital can be regarded as assets collectively beneficial to the stakeholders of the corporation; e.g., the employees who can have pride in working for an organization known to have social reputation; environmentally conscious citizens who derive satisfactions from owning “green” stocks in the corporation even if they have to give up some dividends income; the embedding community which can expect sustained social contributions from the corporation; social entrepreneur having “warm glow preference” (Baron 2007) for creating a CSR firm even at a financial cost and so on. Indeed, by this way corporate social capital may function as cementing corporate assets: cognitive, financial and societal at large. Let us refer to the holders of the described orientations as the CSR stakeholders.

Although the above stakeholder-oriented view has some merits in its own, there is also a subtle aspect of corporate social capital that may not be completely offensive even to the shareholder-oriented view of corporate governance, either which in fact even strengthens the stakeholder-oriented view as well. If investors try to select their portfolios only from stocks of business corporations engaged in CSR, the orthodox financial theory tells us that they must perform worse in terms of financial returns, because they restrict the universe from which stocks can be picked. But, interestingly enough, empirical evidences seem to suggest a possibility, if not conclusively, that expenditures for CSR and stock price performance may be correlated (e.g., Dowell et al 2000: King and
Lennox 2001: Siegal and Vitaliano 2007, Heal 2008). Why? Two simple, but plausible reasons could be that (1) profitable corporations may be more willing to contribute to costly CSR; and (2) CSR may be adopted as strategy for enhancing profitability by attracting socially responsible consumers (Baron 2001, Williams and Siegal 2001). The first possibility may not be dismissed outright. For example, socially responsible investment (SRI), which now accounts for well over 10% of professional managed funds in the US, are not performing worse compared to other funds, but their portfolios are over-weighted by the IT-related stocks which showed relatively better growth from the-mid 1990s to the financial crisis of 2008. However, event studies by P. Dasgupta et al (2001, 2004) found that capital markets reacted to recognitions by media or government of superior (or inferior) environmental performances of corporations in positively (negatively) correlated manner, suggesting causation from environmental performance to stock prices. Also, Siegal and Vitaliano (2001) found that, when profits are treated as endogenous (i.e., controlling profits due to the “strategic” CSR), they appear to have no influence on the CSR adoption decision. So we cannot reject a possibility that capital markets internalize the values of corporate social capital to some extent.

The logic of capital pricing involving CSR due to Graff Zivin and Small (2005) and Baron (2007) suggest the following interesting story. Suppose that a contribution of CSR is positively but partially (say, θ%) reflected in the stock value of a corporation. This implies that, for citizens-cum-investors who value the corporate giving more than that proportion, the stock price is virtually discounted. It is because they can contribute to a social cause with less cost (that is, 100 - θ % less). Therefore, contrary to the Friedman’s

---

9 For a good survey on this and discussion of related subject see Heal (2005).
assertion, they are better off by buying the stocks of CSR firm rather than making social contribution as individuals. Therefore, the presence of CSR corporations can increase aggregate social giving. Although the CSR entrepreneurs (and possibly other stakeholders) bear the remaining cost (i.e., \((100 - \theta)\) % of corporate giving), they can derive social satisfactions not only from their own contributions but also by expanding opportunity sets for CSR shareholders by providing an alternative to personal giving. But this has not completed the whole story yet.

Business corporations may also be engaged in the development and commercialization of environmentally-friendly technology that may be appreciated by citizens as a whole but also potentially contribute to its profits: the CSR which is characterized as “strategic”. The development can be costly, but its social value may not necessarily be fully appreciated by potential buyers of its products alone. For example, potential buyers of eco-friendly cars may be able to save expenditures for fuel after purchase but may not be willing to bear the full development costs charged in the form of higher car price. Thus, managerial calculus of market-specific reputation capital alone may not immediately warrant a business corporation to pursue the costly technological development and its commercialization. However, as public concern with environmental degradation and sustainability of energy supplies rises, failure to do so may be damaging to the accumulation of corporate social capital, while investment in environmentally-friendly technology may contribute to its accumulation beyond immediate profits from car sales. The ascription of corporate social capital made possible by technological contributions to the cause of society would help the corporate organization to cohere and enhance its cognitive and financial abilities to further develop technology.
The attribution of corporate social capital may amplify the value of market-specific reputation, because it may enhance the beliefs of potential buyers of products regarding their user-cost-efficiency, durability, and the like, as well as its symbolic-values to them (e.g., environmental “conspicuous” consumption). In other words, corporate social capital may serve as positive signal (analogous to advertisement) and contribute to prospects of long-term profits net of costs of CRS. In other words, market-specific reputation capital and corporate social capital can be mutually complementary. When de facto property rights in global commons are shifting from the corporate sector to the public in general, it becomes further essential for individual corporations to cope with this substantive institutional change by own technological potential and social capital accumulation. In this situation, the CSR entrepreneur can be motivated to carry strategic CSR further beyond the value-maximizing level (Baron 2007).

Corporate CSR activities, pure and strategic combined, thus can link economic, commons, and social-exchange games between business corporations (and their stakeholders such as CSR entrepreneurs and employees) and concerned citizens. Concerned citizens may be engaged in those games by attributing corporate social capital to CSR corporations, investing in CSR stocks, as well as being potential buyers of products of CSR corporations. Business corporations are engaged in these games as social-givers as well as potential developers of profit-making, environmentally friendly technology. For them, those activities become complementary through the linkages of the games described. Corporations can do cognitively more than what the mere collections of individuals can do. It can be especially true with regard to the development of environmentally friendly and renewable energy technology. It requires innovative
entrepreneurial initiative, organization of inter-disciplinary inputs of knowledge and efforts, foresighted patience, etc., which may be effectively provided by CSR corporations, small and large. Thus, if the linkages of games as depicted above can indeed evolve, strategies that have not been viable in economic calculation alone may become supportable as societal equilibrium.

**Concluding Remarks**

In this essay, I made a conceptual distinction between social networks, norms, social status differentiation and so on, on one hand, and social capital, on the other. The former are social or institutional phenomena arising as outcomes of social exchange games in which individual agents invest in social capital strategically. Social capital cannot be immediately measured in a way satisfactory to economists, as it cannot be priced in the domain of economic game based on contractual agreement. But recent development of brain science suggests the future possibility of measuring social payoffs in terms of tradeoff relationships with material payoffs. This possibility may suggest a linked-game approach to social capital and its implication to economic performance more promising. It might make an insight and analysis of socio-economic network feasible that is not possible either by an economist approach to regard norms evolving endogenously only in economic domain or sociologist approach to treat social categories prior to individual choices. Particularly, I suggested a way to apply the linked game approach to the problem of the tragedy of the commons that is becoming one of most acute public issues of our time.
REFERENCES


