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Ragnhild Silkoset
BI Norwegian Business School

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Ragnhild Silkoset
Professor
BI Norwegian Business School
Department of Marketing
Nydalsveien 37
N-0442 Oslo, Norway
Phone: +47 464 10 565
ragnhild.silkoset@bi.no

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INTRODUCTION

A company's marketing efforts create positive spillover effects that benefit co-located businesses (Chung and Kalnins, 2001). For example, a company's promotional campaign will increase customer flow to a shopping area, which benefits the co-located businesses (Baum and Haveman, 1997). These positive externalities are public and indivisible (Canina et al., 2005, p. 565), and it might potentially reduce the co-located firms incentives to participate in collective actions, such as taking part in the promotional campaign (Olson, 1965).

The arena for this study encompasses the situations where a company suspects that the co-located firms exploit the market externalities by withholding efforts. This study examines the withholding effort in the form of perceived free riding and perceived necessity to control for shirking. Free riding is the lack of any contribution or liability to a joint effort, while the latter, shirking, is the neglect of responsibility (Albanese and Van Fleet, 1985, Bennet and Naumann, 2005, Jones, 1984, Kidwell and Bennett, 1993). Free riding would be to refuse to participate in the promotional campaign, while shirking would be a promise to participate, without any real intention to hold the promise.

The main question of this study is to investigate whether a firm should invest time and resources in building social capital for the co-localized firms, with the purpose to reduce these firms' withholding efforts. For that reason, the study examines how the relationship between the

firms affects the company's opinion about the co-located firms that free- ride and the firms that need to be controlled for shirking. In this respect, the dimensions of social capital map the relationship between the co-located firms.

As a means of securing partner participation, the literature on the subject discusses authority relations, such as coercive power (Olson, 1965), integration (Williamson, 1979), contracting (Van de Ven, 1976), and incentives (Jensen and Meckling, 1976, Knoke, 1988, Olson, 1965). The literature on social power discusses the effects of group size (Granovetter, 1978, Olson, 1965), social norms (Biong et al., 2010, Coleman, 1988), social pressure (Ahuja, 2000), and social structure (Chwe, 1999, Coleman, 1988).

The contribution that this paper makes to the literature of social capital is its investigation of how one can optimize, as opposed to maximize, the various types of social capital (Woolcock, 1998, p. 158). Nahapiet and Ghoshal (1998, p. 245) argue that social capital "is not a universal beneficial resource". They find support in Coleman (1990, p. 302), who observes that "[A] given form of social capital that is useful for facilitating certain activities may be useless or harmful for others". Nahapiet and Ghoshal (1998, p. 206) recognize that "social capital may also have significant negative consequences. For example, certain norms may be antagonistic rather than supportive of cooperation, exchange, and change". Portes (1998) points out the necessity of including the negative effects of social capital "to keep the analysis within the bounds of serious sociological analysis rather than moralizing statements" (p. 15). To fulfill its purpose, the paper investigates the dimensions of social capital on perceived free riding and the perceived need to control for shirking. Using dimensions of social capital enables the identification of potential positive and negative effects of the relationships.

The empirical contribution of this paper is to quantitatively examine the relational, cognitive and structural dimension of social capital on the perception of co-located firm's

withholding efforts, and on the company's performance. Paired dyadic data are used to test this research model which controls for common method variance. The paper is organized as follows: The paper first presents the conceptual framework, including the research hypotheses. Next, the paper describes the research design and the empirical tests. Finally, the paper discusses the implications of the findings, the study's limitations, and possible topics for further research.

LITERATURE BACKGROUND AND HYPOTHESES

Withholding effort among co-located firms

Co-located firms' withholding efforts arise from dissimilar motivations. For example, when tourist firms co-create Internet pages to attract travelers, some firms refuse to participate. Nevertheless, they benefit from the increased number of travelers to the destination generated by these Internet pages. The free rider problem occurs when non-participants benefit from others' contributions without paying their fair share of costs (Albanese and Van Fleet, 1985, Jones, 1984), such as investments in developing the Internet pages. Free riders are perceived to be actors who consume more than their fair share of a resource or shoulder less than their fair share of its production costs. Already in 1740 Hume explained the phenomenon of free riding by describing the tendency of individuals to profit from collective activities without making a fair contribution (Schneider and Pommerehne, 1981).

While free riding materializes through the sales process, shirking occurs in the production process (Alchian and Demsetz, 1972). The shirking problems (Alchian and Demsetz, 1972) occur when co-located companies participating in the Internet project fail to meet their commitment to update the information about their activities and offerings. Shirking is enabled because the other companies cannot force them to follow up appointments. Consequently, the lack of new, relevant information reduces the attractiveness of the Internet pages, in turn leading to reduced customer

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flow. These are two of many examples that illustrate the major problems of free riding and shirking between co-localized firms.

In this study, shirking involves "not delivering the promised action and resources and failing to do this on a fairly systematic and sustained basis"(Hardy and Magrath, 1989, p. 123). Shirking occurs, for example, when a firm reduces its efforts in following rules and routines, refuses to coordinate opening times, and shirks on maintaining a clean, tidy place of business (Leibowitz and Tollison, 1980). The assumption underlying the shirking phenomenon is that an actor will shirk whenever they cannot be monitored (Bennet and Naumann, 2005, p. 114). Consequently, when the agglomeration facilitates shirking, it becomes necessary for the other firms to monitor the co-locating firms. Alchian and Demsetz (1972) solve the shirking issue by assigning a monitor or a manager to oversee the production process.

Social capital

This project uses Nahapiet and Ghoshal's dimensioning (1998) of social capital, which distinguishes between three dimensions, namely relational, cognitive and structural social capital. Relational social capital describes the personal relationships people have developed through a history of interactions (Granovetter, 1992). The influence that respect and friendship have on behavior reflects this concept (Nahapiet and Ghoshal, 1998). People fulfill social motives and sociability, approval, and prestige through such ongoing relationships (Nahapiet and Ghoshal, 1998, p. 244). Tsai and Ghoshal (1998, p. 465) relate the relational dimension of social capital to trust and trustworthiness. Whereas trust is an attribute of a relationship, trustworthiness is an attribute of an individual actor involved in a relationship (Barney and Hansen, 1994). The second dimension, cognitive social capital, refers to resources providing shared representations, interpretations, and systems of meaning among parties (Nahapiet and Ghoshal, 1998, p. 244). Knowledge redundancy is identified through the overlap in knowledge base between the actors

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(see Burt, 1982, Krackhardt, 1992, Rindfleisch and Moorman, 2001, p. 3). The third dimension, structural social capital, concerns the configuration of linkages between people or units (Nahapiet and Ghoshal, 1998), hence the strong and weak, direct and indirect ties. The term describes the impersonal configuration of linkages between people or units. It describes the existence of a network that is created for one purpose but which may be beneficial for other purposes (Nahapiet and Ghoshal, 1998, p. 244). Tsai and Ghoshal (1998, p. 465) relate the structural dimension of social capital to the social interaction which provides certain advantages for the actor.

   Relational social capital. This hypothesis section starts with the generic "baseline" hypothesis which states that relational social capital expects to affect the company's profitability in a positive way. Several studies have empirically tested, and found support for, the relationship between relational embeddedness and a firm's performance (see Batjargal, 2003). Tsai and Ghoshal (1998) relate the relational dimension of social capital to assets rooted in the relationship, such as trust and trustworthiness. A trustworthy actor is more likely to be a popular exchange partner for other actors in the network (Tsai and Ghoshal, 1998). Trustworthy actors are those who "…get other actor's support for achieving goals to an extent that would not be possible in a situation where trust did not exist" (Tsai and Ghoshal, 1998, p. 465). The reputation of being trustworthy increases the willingness to exchange resources with the firm. Access to resources gives the firm increased opportunities to exploit the market, which affects the value creation of the firm positively.

H1: When relational social capital of *firm A* is related to *firm B*, it increases *firm B*'s profitability.

   Relational social capital is expected to reduce the perceived free riding. Keefer and Knack (2008) propose that the purely self-interested citizen would choose to free-ride on the efforts of

others. Extensive relations between partners foster the development of shared norms of behavior (Dyer and Noboeka, 2000, Uzzi, 1997, Walker et al., 1997). For example, several studies show that relational norms are developed over time through a close relationship, and that the degree of personal relationships describes the parties' willingness to combine and share resources (Dwyer et al., 1987). Standard neoclassic economic models assume that rational firms exclusively pursue their self-interest. The element of reciprocity between the companies will eliminate the company's financial incentive to free ride. This is because companies do not have an incentive to cheat companies they believe will benefit them. Therefore, the tendency is that embedded companies have lower free riding, compared to firms that lack such bonds (Moran, 2005).

H2: When relational social capital of *firm A* is related to *firm B*, it decreases *firm B*'s perception of *firm A*'s free riding.

The final factor predicts that relational social capital increases the company's need to control for shirking. Keefer and Knack (2008) argue that in many societies, the extent of commitments is highly circumscribed because everyone believes that most individuals will shirk their responsibilities under the compact, even though all would be better off if no one shirked. Relational social capital creates expectations linked to the other firm's behavior. These expectations of the roles and responsibilities may be incongruent or incompatible. This relates to the concept of role conflict that is the "degree of incongruity or incompatibility of expectations associated with the role" (House and Rizzo, 1972, p. 475). House and Rizzo's analysis of conflict addresses the incompatibilities between the standards or values, time, resources or capabilities, multiple role responsibilities, and various organizational inputs (see Nygaard and Dahlstrøm, 2002, p. 62). Wathne and Heide (2000, p. 41) identify such opportunism as a passive type of

shirking. Therefore, although the relational social capital creates expectations of future interaction which will reduce the tendency to free ride, it simultaneously increases the necessity to clarify roles and responsibilities in the dyad. Such clarification is made through formal, internal behavior control (Pandya and Dholakia, 1992, p. 36), by setting rules of behavior among the firms.

H3: When relational social capital of *firm A* is related to *firm B*, it increases *firm B*'s perception of the need to control *firm A*'s shirking.

Cognitive social capital. The cognitive social capital section also starts with the generic "baseline" hypothesis, which proposes an effect on a firm's profitability. Cognitive social capital reflects firms that have overlapping knowledge (Rindfleisch and Moorman, 2001). Overlapping knowledge is the product of firms operating within the same market, which exposes them to similar types of information (Rindfleisch and Moorman, 2001, p. 3). When two firms were to target the same customer segments, their competition would intensify (Porter, 1990). Accordingly, a company having similar products and services would encounter relatively strong competition from the other (Baum and Haveman, 1997) because they compete for the same limited number of consumers (D'Aunno et al., 2000). Competition therefore makes it rational for a firm to use resources to adapt to and influence their customer segments. Therefore, it is expected that the more overlapping knowledge, the stronger the competition and the more the firm have to invest to survive (Kidwell et al., 2007, p. 529). Through this it is predicted that the cognitive social capital decreases the firm's profitability.

H4: When cognitive social capital of *firm A* is related to *firm B*, it decreases *firm B*'s profitability.

Secondly, cognitive social capital is predicted to reduce perceived free riding. McLure Wasko and Faraj (2005) investigate free riding and the knowledge contribution of individuals in electronic networks, and find that individuals contribute knowledge and help others despite the lack of a personal, face-to-face relationship and the easy alternative of free-riding on the efforts of others. Cognitive social capital increases the company's institutionalized, common ways of thinking within the network. According to Olson (1965), the problem of collective action, such as free riding, derives from the group asymmetry. Olson (1965) argues that the failure of a collective action can be overcome through selective incentives (which provide private benefits) and institutional design. This research claims that the institutionalized thinking that is created by the cognitive social capital may one such selective incentive. Common ways of thinking increase the company's motivation to participate in collective action because the company is able to see how their contributions are conducive to co-production.

H5: When cognitive social capital of *firm A* is related to *firm B*, it decreases *firm B*'s perception of *firm A*'s free riding.

The last hypothesis regarding cognitive social capital concerns its relation to the perceived need to control for shirking. Knowledge redundancy occurs when companies operate within the same business area; they have experience and expertise in the same types of services. Thus, their market knowledge converges (Rindfleisch and Moorman, 2001). This shared knowledge increases the company's ability to identify, understand and evaluate each other's behavior. Although few studies have proposed hypotheses regarding shirking or have tested them empirically, one can draw on the work of Wathne and Heide (2000, p. 42) who argue that

companies are more willing to pursue opportunistic actions when the likelihood of being caught is low. Because an actor will shirk whenever they cannot be monitored (Bennet and Naumann, 2005, p. 114), the more transparent behavior because of cognitive social capital, the less the need to control for shirking behavior.

H6: When cognitive social capital of *firm A* is related to *firm B*, it decreases *firm B*'s perception of the necessity to control for *firm A*'s shirking.

Structural social capital. The structural social capital section starts with a test of the baseline generic hypothesis that proposes an effect of structural social capital on a firm's profitability. Structural social capital deals with patterns of relationships between organizations (Burt, 1992, Granovetter, 1973). This study follows Nahapiet and Ghoshal's (1998) definition of structural social capital, where the structural dimension is identified by the frequency of interactions between firms. When markets are loaded with many collective activities that must be solved, the frequency of interaction is high. According to Olson (1965, p. 35), the need for collective action occurs when no member derives sufficient benefits to bear the whole burden of collective provision alone. Frequent interaction among co-producing members can be a symptom of networks with unsolved collective activities. Unsolved collective activities reduce the customer's perception of the company's attractiveness, and this might reduce the firm's sales and thus profitability (Ingram and Inman, 1996).

H7: When structural social capital of *firm A* is related to *firm B*, it decreases *firm B*'s profitability.

Previous researchers have discussed the linkage between frequency of interaction and a firm's tendency toward unethical behavior. For example, Brass et al. (1998, p. 17) state that "As frequency of interaction and trust increase, opportunities for unethical behavior increase, as do the possible payoffs". This means that companies with frequent interaction may be more prone to free riding, compared with businesses that have few collective activities to solve.

H8: When structural social capital of *firm A* is related to *firm B*, it increases *firm B*'s perception of *firm A*'s free riding.

Fischbacher and Gachter (2010) empirically test and show that the decline in cooperation can be driven by the fact that most people have a preference to contribute less than others, rather than by their changing beliefs regarding the contribution of others over time. The level of frequent interaction could, therefore, indicate a need to follow up companies' existing promises (Wathne and Heide, 2000). Since structural social capital reflects the level of interaction, a high degree of interaction implies a need for companies to follow up their commitment with regard to rules and routines, their coordination of opening times and their efforts in maintaining a clean, tidy store.

H9: When structural social capital of *firm A* is related to *firm B*, it increases *firm B*'s perception of the necessity to control for *firm A*'s shirking.

Effect of withholding effort on the firm's profitability

When a firm realizes that co-localized firms do not cover their fair share of collective activities, such as transportation, marketing and promotional expenses at tourist destinations,

these costs have to be covered by themselves. This will increase this firm's costs. Also their budget allocation for marketing at the destination will suffer, impacting negatively on the number of guests at the destination. Therefore, the more costs the firms must bear due to free riding by a co-localized firm, the lower the firm's profitability.

H10: Free riding by *firm A* decreases *firm B's* profitability.

Unlike manufacturing firms processing raw materials, shirking in the production process among service providers in co-localized firms is a direct result of the firm's unwillingness to follow rules and practices among the companies. When a shirking firm steers clear of monitoring, this will reduce all of the firms' attractiveness to customers. For example, if a shuttle bus within a destination ignores the schedule in order to enhance their own efficiency, the tourist shops along the route risk losing sales. Therefore, monitoring the co-localized firms' service-production processes ensures a more attractive offer to customers, which in turn generates more sales and higher profitability. Figure 1 summarizes and illustrates this study's research model.

H11: Controlling for *firm A's* shirking increases *firm B*'s profitability.

*** Insert Figure 1 around here ***

Methodology

The unit of analysis in this study was the interface between the true-dyads of legal, independent, co-localized firms. This study collected data from one industry, tourism (see Ingram and Inman, 1996), rather than a branch, such as hotels (Baum and Haveman, 1997, Baum and

Mezias, 1992, Canina et al., 2005, Chung and Kalnins, 2001, Ingram and Roberts, 2000). This represents co-localized firms, and complements existing research on social capital. Instead of analyzing one destination in depth, as Ingram and Inman (1996) did in Niagara Falls, this study based the analysis on data collected from randomly selected tourism-related businesses located at different destinations in Norway (see Figure 2).

*** Insert Figure 2 around here ***

While Chung and Kalnins (2001) used randomly selected hotels in Texas in their research, this research involves the relationship between companies in the *SIC*-code 55, hotels (55.0 percent of respondents) and restaurant industry (8.5 percent of the asked), *SIC* 92, entertainment and attractions (21.3 percent of respondents), *SIC* 63, information and reservations (8.1 percent of respondents), *SIC* 62 and *SIC* 61, flights and transport on land (1.6 percent of respondents), and other areas (4.7 percent of respondents). The study used three main criteria for selecting this empirical context. First, the context fulfilled the requirement for a context with collective activities. Secondly, companies in the industry varied in age, size and location, which resulted in variation in the two phenomena of interest: withholding effort and social capital. Third, macro market conditions in Norway showed a low and stable rate of inflation and unemployment as well as steady growth in gross domestic product and a growing surplus of goods and services (Statistics Norway). This reduced the variation in factors outside the research model. Therefore, through the use of tourism in Norway as the setting, this favored the external validity.

First, eight in-depth interviews with administrative leaders / managers in the tourism industry informed this study. These interviews were used to gain insight into the underlying motives for this project, its research issues and to discuss items for each construct. These in-depth

interviews took place in three cities and one village, and consisted of interviews conducted with four hotels, two restaurants, one tourist office, and one destination firm. Also, the research model was presented to an expert in corporate networks with the intent to validate the model.

Next, a professional marketing analysis agency used the CATI- system to randomly recruit the general managers or marketing managers of travel companies to participate in the study. Four hundred managers were contacted and asked to name three other businesses that served the same customers as they did. This generated a new list of names. From this list, which consisted of four rows of name combinations, pairs of names were randomly picked (referred to respectively as *firm A* and *firm B*) to participate in the survey. A total of 744 companies were contacted, 288 of which responded to the survey. This resulted in a response rate of 39 percent. This random selection process followed the procedure recommended by John and Reve (1982). *Firm A* was asked about the exogenous variables in the research model, and *firm B* about the endogenous variables. This was done by mailing them a survey by letter.

Among non-respondent firms were museums which denied that they were related to tourism, and small firms that had neither the capacity nor the competence to respond to the survey. To verify the data, 27 of the non-respondent companies agreed to respond to a simplified questionnaire. An independent-samples *t*-test that compared these two groups showed no significant differences between respondents and non-respondents (i.e. the average difference of relational social capital was 0.30, *t*-value = 0.87, *p*-value > 0.05).

Of the 288 companies that responded, it was possible to match 224 of them in 112 true-dyads. This means that in these dyads *firm A* reported about the degree of social capital towards *firm B*, while *firm B* reported their perception of withholding effort towards *firm A*. Profitability measures were obtained by using *firm B's* numbers reported to the Norwegian tax authorities, see Figure 3.

This use of paired-dyadic data made it impossible to bias the observed relationship between the independent and dependent variables, and is the number one recommended approach for dealing with common-method bias (Podsakoff et al., 2003, Viswanathan, 2005). There may, however, be a certain bias in the selection of the participating companies. This is because the list of names may predominantly comprise firms that have entered the names of their closest partners or toughest competitors. To take this bias into account, the analysis controlled for whether the dyadic partners were friends or competitors. The estimated reliability of the latent variables was calculated as $(\Sigma\lambda_i)^2 / [(\Sigma\lambda_i)^2 + \Sigma(1 - \lambda_i^2)]$, where λ_i is the standardized factor loading for indicator i and the summation is over the indicators (Fornell and Larcker, 1981). Average variance extracted is a more conservative measure than composite reliability (Fornell and Larcker, 1981), and was calculated using the following formula: $V\eta = \sum \lambda y_i^{\,2} \Big/ \left(\sum \lambda y_i^{\,2} + \sum \varepsilon_i \right)$. The reliability numbers and average variance extracted is reported in the next section, which is about the operationalization of the constructs.

Measures

Relational social capital. Relational social capital is measured by asking *firm A* about their perception of social capital to *firm B*. This measurement of relational social capital is based on relational embeddedness by Rindfleisch and Moorman (2001); it taps the degree of reciprocal services and mutual closeness among the co-located firms within a tourist destination. Relational social capital is measured by asking *firm A* the degree to which: (1) they feel indebted to *firm B* for what they have done for them, (2) whether they share close social relations to *firm B*, (3) whether the relationship to *firm B* can be defined as mutually gratifying, and (4) whether they

expect to work together with *firm B* in the future. The ordinal scale runs from 1 (strongly disagree) to 7 (strongly agree). These four latent scaled items reported a reliability of 0.88 and an average variance extracted of 0.65.

Cognitive social capital. The definition of cognitive social capital is based on the concept of knowledge redundancy by Rindfleisch and Moorman (2001). Knowledge redundancy measures destination *firm A's* perception of degree of similarity with *firm B*, hereof (1) similarities of skills to *firm B*, (2) similarities of knowledge to *firm B*, (3) similarities of experience with products/ services to *firm B*. This approach measures redundancy more directly than the network analysis that focuses on the overlap in the network contacts of social actors (Burt, 1992, Rindfleisch and Moorman, 2001). The ordinal scale varies from 1 (strongly disagree) to 7 (strongly agree). These three items reported a reliability of 0.83 and an average variance extracted at 0.62.

Structural social capital. While relational social capital measures the companies' motivation to transfer information (Frenzen and Nakamoto, 1993, p. 369), structural social capital measures the companies' ability to transfer information between firms (Granovetter, 1992, Krackhardt, 1992). The study measures structural social capital by asking *firm A* about the (1) frequency of formal meetings with *firm B*. This definition of structural social capital at the inter-organizational level differs from structural social capital at the individual level, which discusses the effects of open and closed networks (Moran, 2005). This inter-organizational definition of tie-strength is measured by one question: how many times per month the firms have formal, joint meetings. The in-depth interviews with tourism leaders confirmed that a monthly frequency was appropriate.

Perceived free riding. In this study, perceived service quality is a *proxy* that reflects perceived free riding (Kidwell et al., 2007). This is because the spillover effects enable service

providers to reduce their quality of service without losing guests, which corroborates the definition of free riding. Free riders calculate that the other companies will bear the cost of attracting new guests to the resort.

Three reflective items cover the concept by asking *firm B* about the degree to which (1) the customer complains about the customer service offered by *firm A*, (2) whether they lose customers because of the customer service of *firm A*, and (3) the extent to which *firm A* provides lower service to their customers compared with the other companies within the same destination. The ordinal scale runs from 1 (strongly disagree) to 7 (strongly agree). The reliability for these three latent items is on 0.87 with an average variance extracted of 0.70.

Perceived need to control for shirking. By following Alchian and Demsetz (1972), this study measures the perceived need to control for shirking by asking *firm B* three questions: (1) perceived need to control *firm A's* opening hours, (2) perceived need to control whether *firm A* follows the rules and routines within the destination, (3) perceived need to control whether *firm A* follows the requirements for cleanliness and hygiene within the destination. The ordinal scale runs from 1 (strongly disagree) to 7 (strongly agree). The concept reports a satisfactory reliability of 0.99 and an average variance extracted of 0.98.

Profitability. The dependent variable of profitability in the study is measured by the objective number return on sales (ROS) for *firm B*. ROS measures the firm's operating income or loss divided by gross sales revenue. Although other tourism studies recommend using revenue per room (see Chung and Kalnins, 2001), this is not relevant in a study that includes hotels, restaurants, transport and activity providers. The use of ROS is based on a widely used accounting ratio that reveals operational efficiency. Moreover, because social desirability may increase the reported ROS, the study used figures obtained from the Norwegian tax authorities. Although this number may be biased due to possible tax manipulation of the stock, such behavior

is considered to be less prominent within the service industry. The highest sales revenue among the respondents was NOK 384,156,000, and the lowest was NOK 30,000; the highest operating profit was NOK 21,333,000 and the largest operating loss was NOK 61,863,000. The study used accounting figures from the years after the survey was conducted.

Control variables. Because a firm could favor friends in the sampling process, and because firms can have dual roles at a destination, being partners and competitors at the same time, two questions were included. These measured the degree to which the firms in the dyad are partners and/or competitors. This information was collected by asking *firm B*.

The impact of price sensitivity on profitability was included as a control variable. This is because the up-scaled businesses make more money per unit. Although the price sensitivity exists in the customer's mind, business leaders react in accordance with their own perception of their customers' price sensitivity. The concept is therefore measured by asking leaders in *firm B* about their perceptions of their customers' price sensitivity.

Latent variable validation

The analysis used structural equation modeling (SEM) and EQS 6.1 (Bentler, 2006). This is because SEM has the advantage of modeling the measurement error related to the indicators, rather than assuming that the concepts were measured without error (Bollen, 1989). In particular, the theoretical model predicted that social capital affected the level of withholding effort, which in turn affected the company's profitability.

The two-stage procedure developed by Anderson and Gerbing (1988) was used to test the research model The research model consisted of four latent constructs and four constructs with manifest variables. These four constructs with single indicants (performance, collaborator, competitor, and price sensitivity) were given a fixed error term of 0.0 (Bentler, 2006, p. 24, Ping, 1995, p. 336). Missing values were replaced with estimates using the maximum likelihood (*ML*)

technique[1]. This *ML* approach artificially underestimated the variance and covariance statistics slightly, and thus strengthened the test of power (Bollen, 1989).

The a-priori analysis of the overall measurement model reported a *Chi*-square of 141.524, *p*-value < 0.01, based on 104 degrees of freedom. A significant *Chi*-square meant that the given covariance structure model was significantly dissimilar to the observed covariance matrix. The study followed the recommendations of Bentler (2006) and included the fit measures of *RMSEA* (Root Mean Square Error Approximation), standardized *RMR* (Average Standardized Residual) and *CFI* (Comparative Fit Index). *RMSEA* fit statistics reported number at 0.06. The standardized *RMR* were 0.08. The *CFI* was 1.00. Overall, the fit statistic for the overall measurement model was satisfactory.

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[1] In this analysis, 96 of the dyads had missing values for some of the 18 variables. There were 47 patterns of missing data in the dataset. The first pattern showed that 16 of the dyads did not have any missing data at all. The other pattern showed one dyad with 13 missing values, followed by three dyads with 10 missing values. 46 of the dyads showed five or less missing values, spread on 25 patterns. The missing data were completely *random* for more than 6 percent of the data (Roth, 1994). The study used regression imputation for replacing the missing values. This technique estimates the factor structure of the data matrix from the functions of the other variables (Roth, 1994). To reduce the risk of creating a spurious correlation in the factor structure, the method of regression weight(s) reported by the sample of indicators was estimated for each of the constructs, after which it was imputed to the raw data matrix. Such an approach artificially underestimates variance and covariance statistics slightly, and thus strengthened the test of power (Bollen, 1989). A review of studies within social science demonstrates that as many as 73 percent of the studies did not discuss non-response (Roth, 1994). Of those that did, 39 percent argued that no missing-data replacement technique was needed, 13 percent implemented listwise deletion, and 15% used pairwise deletion, while only 1 percent implemented mean substitution. No study reported on other techniques. These figures are alarming when one takes into account that different techniques have different levels of appropriateness dependent on condition codes. However, "doing nothing is not an option" (Bentler, 2006, p. 275). Listwise deletion may result in discarding a large proportion of the data. It biases the distribution in the sample, and non-missing values of variables for the dropped cases will not be utilized (Bollen, 1989, p. 370-371). Pairwise deletion forms a sample covariance matrix by using all cases with non-missing values to compute each covariance or variance. However, the choice of sample in a covariance structure analysis through pairwise deletion is ambiguous since the elements of the covariance matrix are determined by different numbers of cases (Bollen, 1989). It may lead to mathematically inconsistent correlations, or a covariance matrix that is not positively definite. Replacing missing values with estimates from the sample mean or median of the observed variables increases the risk of heteroscedasticity for the error term in the equation, because the error variance in such cases is greater for those cases with estimated values. Furthermore, the distribution of the missing values is unlikely to be normal even if the distribution of the sample cases is normal (Bollen, 1989).

A further evaluation of the measurement model showed that the *z*-score for each estimated factor loading for the variables reported numbers above the minimum-level of 2.33. In summary, the scaled latent variables satisfied the conditions for convergent validity. Table 1 reports the items and factor loadings.

*** Insert Table 1 around here ***

Discriminant validity

Two analyses were performed to test for discriminant validity of the latent-scaled variables. First, a number of models were analyzed where all traits were allowed to correlate. This analysis was compared against a number of models where intertrait correlation was fixed to 1.00. This test reported satisfactory values. For example, the discrimination between the relational and cognitive social capital was valid with the following numbers: *Chi*-square (df) = 6.99 (1), *p*-value < 0.05. Secondly, the study used the procedure with a single factor model against a two-factor model in the confirmatory factor analysis (Bagozzi et al., 1991). This test also reported values that support discriminant validity within the measurement model. For example, the test showed satisfactory numbers for perceived free riding and perceived need to control for shirking: *Chi*-square (df) = 42.89 (2), *p*-value < 0.05. These tests, together with the correlation matrix, supported the notion that the latent-scaled variables were distinct and valid. Based on these analyses, the data were transferred into the structural model analysis. Table 2 reports the descriptive statistics, the correlation and covariance matrix, and the construct's variance.

*** Insert Table 2 around here ***

Results

The three dimensions of social capital was tested in one operation in the structural model analysis, using EQS 6.1 (Bentler, 2006). The discussion starts with the effects from relational social capital (see Table 3). Hypothesis 1 proposed a positive effect from relational social capital on profitability, and the hypothesis test reported significant numbers (*H*1: 0.13, *p*-value < 0.05). Hypothesis 2 proposed that relational social capital would reduce the perceived free riding, whereas hypothesis 3 proposed that it would increase the perceived need to control for shirking. These two hypotheses were statistically supported (*H*2: -0.19, *p*-value < 0.01; *H*3: 0.29, *p*-value < 0.001). Summarized, *H*1, *H*2 and *H*3 regarding relational social capital, were supported statistically.

The next set of hypotheses tested the effect from cognitive social capital. First, hypothesis 4 proposed and found that cognitive social capital reduced the profitability (*H*4: -0.13, *p*-value < 0.05). Cognitive social capital was found to have a negative effect on perceived free riding (*H*5: -0.33, *p*-value < 0.001), and a strong and negative effect on perceived need to control for shirking (*H*6: -0.51, *p*-value < 0.001). This supported *H*4, *H*5 and *H*6 regarding the cognitive social capital.

The final hypotheses regarding social capital tested the effects of structural social capital. In hypothesis 7, structural social capital was predicted to reduce profitability. The statistical test supported this hypothesis (*H*7: -0.19, *p*-value < 0.001). Next, structural social capital was positively related to perceived free riding (*H*8: 0.32, *p*-value < 0.001), while the effect on perceived need to control for shirking was non-significant (*H*9: 0.04, *p*-value = ns). To summarize structural social capital, *H*7 and *H*8 received statistical support, while *H*9 was rejected.

The final set of hypotheses tested whether perceived withholding effort affected profitability. For hypothesis $H10$, this predicted that the more perceived free riding, the lower the profitability. The statistical test supports this hypothesis ($H10$: -0.14, p-value < 0.001). The final hypothesis, $H11$, contended that perceived need to control for shirking leads to increased profitability ($H11$: 0.20, p-value < 0.001). In summary, $H10$ and $H11$ received statistical support.

*** Insert Table 3 around here ***

Validation of the structural model

To test for alternative models, the analysis included the Wald test and the Lagrange Multiplier Test in EQS 6.1. These tests suggested no significant changes among the paths in the research model. The independent variables in the research model explained 13.2 percent of the variance in profitability, while the numbers are 24.5 percent for perceived free riding and 30.5 percent for perceived need to control for shirking. The structural model showed only small differences in the inclusion or exclusion of control variables. The numbers presented in the paper include the control variables. The model fit had a *Chi*-square of 117.11, p-value < 0.26, based on 109 degrees of freedom. *RMSEA* reported to be 0.03. Standardized *RMR* was 0.09, while the CFI was 1.00. The *BIC* (Bayesian Information Criterion) value was -397.21. *BIC* were calculated using the formula χ^2-($ln(N) \cdot df$). Negative values of *BIC* indicate a model that has greater support from the data, compared to the saturated model where *BIC* is 0 (Raftery, 1995). The saturated model perfectly reproduces the sample covariance matrix.

The total effect of the three types of social capital on profitability was calculated by taking the sum of the direct effect plus the indirect effects, see Table 4. Figure 4 illustrates how the total effect of X (c) was calculated from the direct effect (c') and the indirect effects (a) x (b). The total

effect gives a more complete assessment of the roles of the three dimensions of social capital because it takes into account the indirect and direct effects of the social capital. The total effect for relational social capital was 0.17, the total effect for cognitive social capital was 0.02, and the total effect for structural social capital was -0.50. The next section discusses the implications of the hypothesis tests. Figure 5 present the result model with signs and coefficients.

*** Insert Table 4, Figure 4 and Figure 5 around here ***

INTERPETATION OF THE RESULST AND DISCUSSION

When is it beneficial to invest time and resources in social capital, and when is it not? This study shows that the dimensions of social capital vary regarding whether they reduce or facilitate the perceived withholding efforts by co-located firms.

The total effect of *relational social capital* was positive, which indicates that the overall investment pays off. While the direct effects from relational social capital on performance and the indirect effect via perceived free riding are positive, the indirect effect via perceived necessity to control for shirking was negative. The relational social capital increased the firm's profitability, which was attributed to trustworthiness which increased firm's access to resources (Coleman, 1990, Granovetter, 1985). Relational social capital reduced perceived free riding because the element of reciprocity increased the willingness to behave unselfishly (Moran, 2005). It simultaneously increased the perceived need to control for shirking within the dyad. This effect was speculated to be because the embeddedness within relational social capital creates role conflict (Nygaard and Dahlstrøm, 2002). The companies therefore need a formal internal control mechanism to specify their roles in order to reduce this uncertainty. Therefore, even if there is a

negative side to the decision to invest in relational social capital, the advantages outweigh the disadvantages.

The second dimension, the *cognitive social capital*, showed a slightly positive total effect. Cognitive social capital had a direct negative effect on profitability. This was ascribed to the increased competition that these firms experienced. Cognitive social capital seemed therefore to reduce the company's earnings. However, social capital has two valuable effects. First, it seemed to reduce the perceived free riding. This was because companies increase their ability to identify the value from their own contributions (Olson, 1965), which creates an incentive to participate in the joint efforts. Secondly, the transparency reduced the motive to shirk (Wathne and Heide, 2000). This was because it became easier to identify cheaters (Bennet and Naumann, 2005, p. 114). To summarize, the benefits and the costs seem to balance, and companies should exercise caution when investing in cognitive social capital.

Finally, the total effect of *structural social capital* was negative. First, the direct effect from structural social capital on profitability was negative. This means that these markets share large numbers of collective activities. Consequently, markets with a low share of collective activities outperform markets with a high share of collective activities (Olson, 1965). The effect on perceived free riding (Brass et al., 1998) and perceived need to control for shirking also indicated that these markets are more vulnerable to unsolved tasks, and demonstrated the challenges in following up the existing rules and routines.

Several researchers have called for studies that investigate the limits of social capital (see Coleman, 1990, Nahapiet and Ghoshal, 1998, Portes, 1998, Woolcock, 1998). The empirical analysis in this paper supports their assertion by empirically demonstrating that social capital also has negative effects. Acquaah (2007) identified various effects of social capital, depending on the organization's strategic orientation. Future research should follow up this finding by investigating

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in more depth the limits of social capital, for example by controlling for environmental uncertainty, such as competitive intensity and market turbulence.

This study also contributes to the agglomeration theory by empirically testing the counterproductive effects of agglomeration externalities in the form of perceived free riding and perceived need to control for shirking (Baum and Haveman, 1997, Canina et al., 2005). While previous research mainly focuses on the gains from agglomeration (see Ingram and Inman, 1996), this study demonstrates that such gains can be exploited and consequently hurt the co-localized firms. Future research should investigate more precise ways by which to measure perceived free riding and perceived need to control for shirking. This study uses proxy variables to solve this methodological challenge, while it simultaneously builds on other studies that measure the constructs by asking one of the actors within the dyad (Kidwell et al., 2007).

Using a paired-dyadic data approach to SEM modeling, this study provides a unique and valid basis for empirical study of social capital in a variety of destinations. Because the study obtains the predictor and criterion variables from different sources (Viswanathan, 2005), the statistical test requires no additional remedies (Podsakoff et al., 2003). The ability to link different information sources thereby creates this unique data set, which controls for confounding effects of common method biases in the analysis.

Managerial implication

Managers should not ask whether or not they should invest in social capital. Rather, the question should be "how much and what kind of social capital" should be invested. To build relational social capital, the managers need to invest time and energy in order to build social relations with managers from other firms (Mouzas et al., 2007). Over time, this creates mutuality and norms of reciprocity between the firms. This will reduce future needs for costly control

mechanisms which would ensure the performance of the market which has been targeted by the firms.

The managers create cognitive social capital by interacting with managers from firms that operate in markets that are supplied with similar products/services as they provide. Firms should be careful with regard to the firms with which they cooperate. This is because these firms compete for the same customers, and the information they exchange can be misused. However, when the combination of firms is successful, the cognitive social capital will reduce the perceived free riding and reduce the need to control for shirking. The drawback, according to Nahapiet and Ghoshal (1998, p. 260) is that the creation and maintenance of relational and cognitive dimensions of social capital are costly.

The final dimension within social capital is structural social capital. This type of social capital reflects firms with a high degree of formal interaction, meaning that they need to solve collective activities. This need creates challenges in their market, and the firms should strive to create private incentives, so that they will not be outperformed by firms with a lesser degree of collective activities. One example of such actors is markets with a 'significant other', such as operators of theme parks and activity providers (Olson, 1965).

This study benefits managers facing the challenging problem of free riding and shirking among co-localized firms. Co-localized firms differ from vertical integration, franchising, joint venture, and alliance formations in that the firms cannot implement formal control mechanisms to regulate actors' behavior (Rokkan and Haugland, 2002). Therefore, the instrument of social capital becomes even more important to regulate behavior through the network and contact between the actors. This is also true among actors that do not exchange money, resources, or goods.

Limitations

This study is based on a time frame of one year by using the profitability numbers from the year following the survey. Several of the concepts in the research model, especially the relational social capital concept, evolve over time. Longitudinal data would have provided a better and more informative understanding of the processes that occurs when building the social capital dimensions. Furthermore, a longitudinal data design would better control for the risk of spuriousity and would strengthen the causality test. For example, one could question whether a high degree of free riding reduces the relational social capital, which is opposite to the hypothesis. One might argue that companies may feel that it is necessary to have meetings with companies that have a tendency to free ride and shirk. While the existing hypotheses build on theoretical rationalities to determine the causalities, a longitudinal data analysis would be better able to empirically test the direction of the hypothesis. In addition, the effect of the dimensions might be non-linear in the longer time-perspective. Future research should investigate these conditions.

Conclusion

This research supports Woolcock's (1998, p. 158) suggestion that there are different types of social capital, and that the goal is to not to maximize, but to optimize the social capital. The answer to the research question in this study is that the investment in social capital does not always pay off. This study indicates that researchers and companies should individually assess the three dimensions of social capital. Moreover, the study emphasizes the need to determine the degree of collective activities within their market in order to estimate the effect of the social capital dimensions.

Markets with a low degree of collective activities acquire less of an advantage from cognitive social capital, because its primary effect lies in its transparency and ability to detect opportunistic behavior. The effect of relational social capital is more stable because of the

positive, direct effect on profitability. Structural social capital indicates that markets would benefit from creating private incentives with the intention to transform collective activities into private payoffs. This reduces the need to follow up the co-localized businesses.

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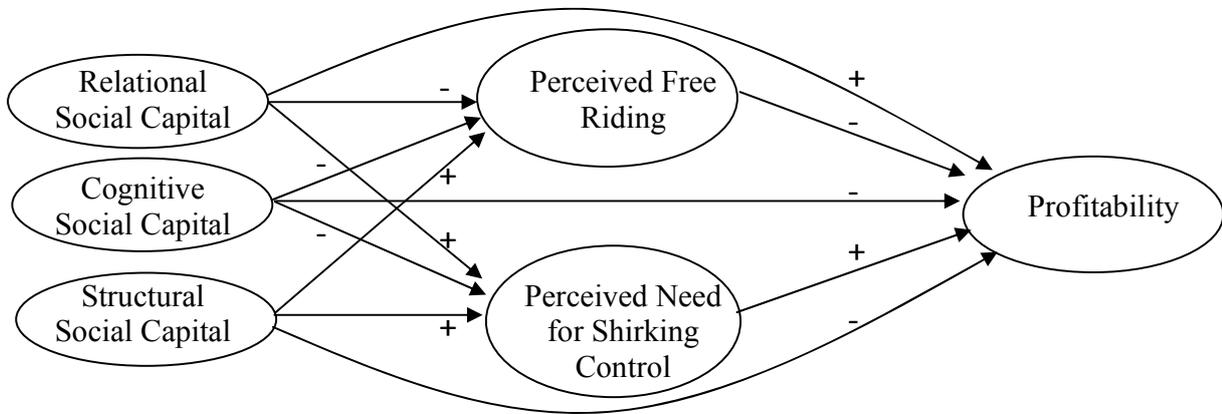
Figure 1: Research Model
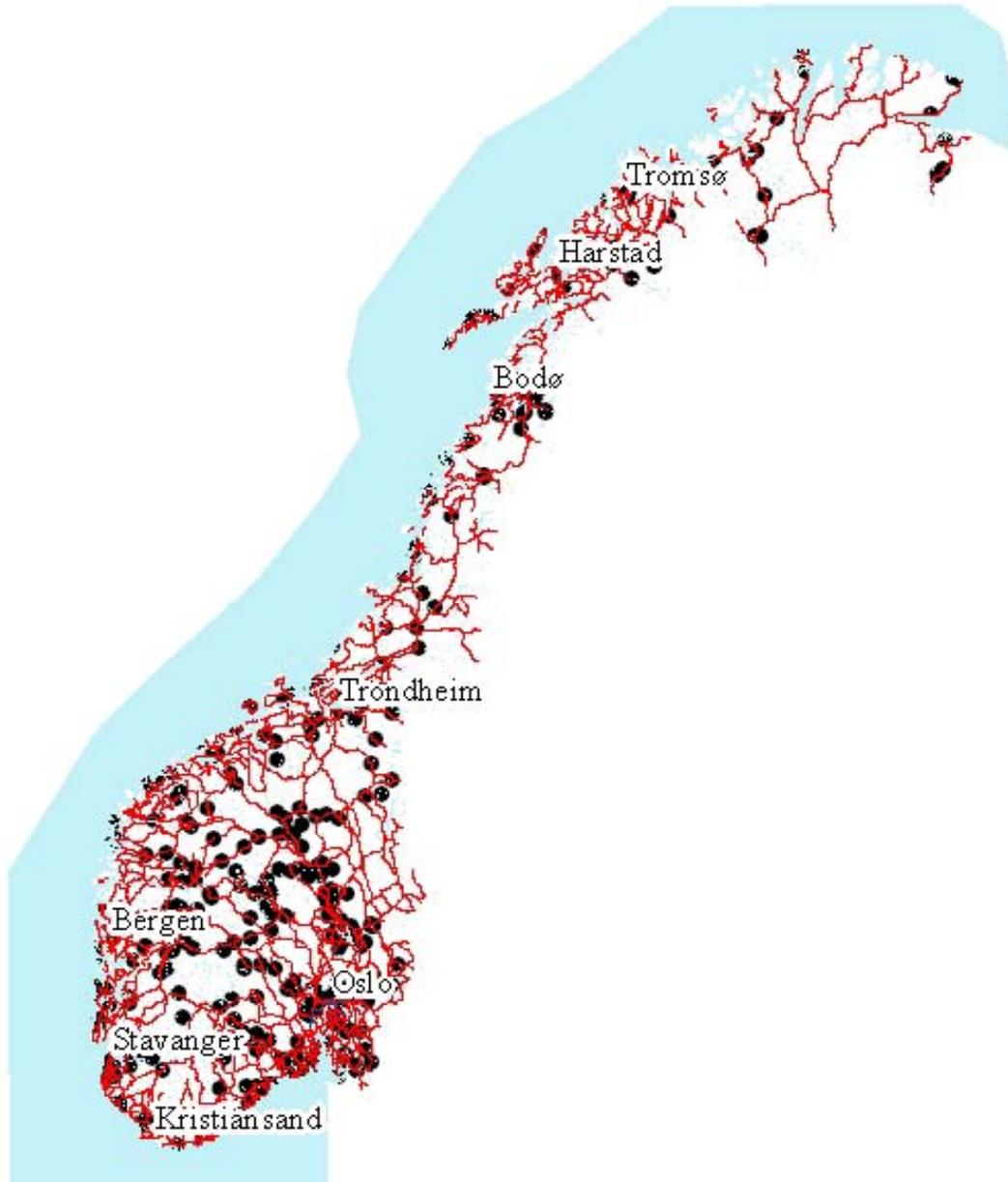
Figure 2: Geographic Dispersion of Responding Firms in the Dataset

Informant:	Type of variables:	Phenomenon:	Data type:
Firm A's opinion of *firm B*	Independent variables	Social capital	Psychometric data
Firm B's opinion of *firm A*	Dependent variables	Perceived withholding efforts	Psychometric data
Firm B	Dependent variable	Profitability	Objective accounting numbers

Figure 3: Informant roles
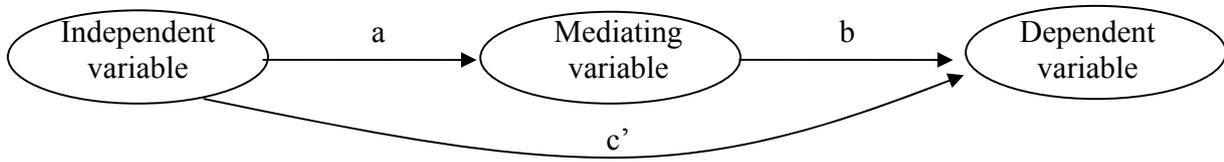
Figure 4: Total, indirect and direct effects
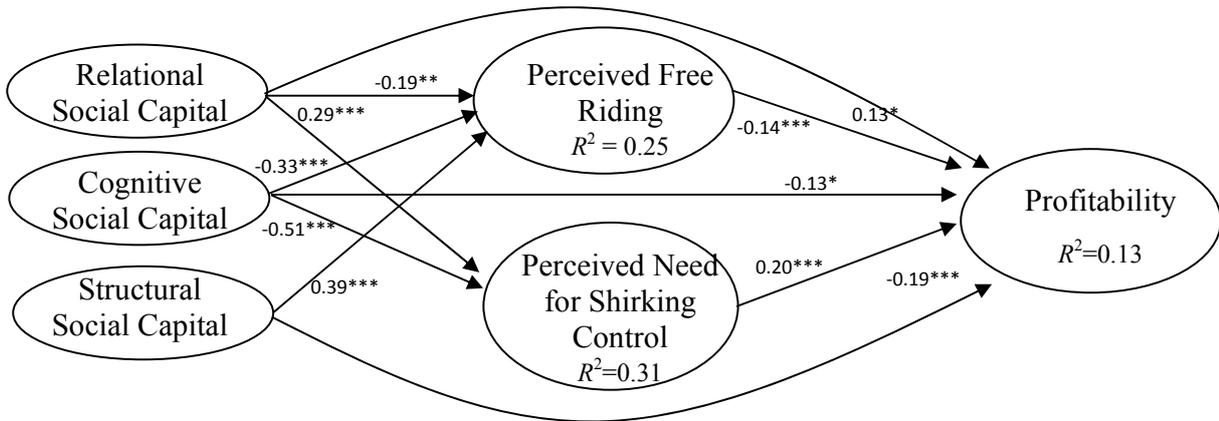
Figure 5: Results model

Table 1: Items wordings, factor loadings and z scores

| Items	Factor loading	z-score
Relational Social Capital *(Informant: Firm A)*	**0.65**[a]	
1 We feel indebted to *firm B* for what they has done for us	0.51	--[b]
2 Our managers share close social relations with the managers from *firm B*	0.76	4.76
3 Our relationship to *firm B* can be defined as "mutually gratifying"	0.96	4.51
4 We expect that we will be working with *firm B* far into the future	0.93	4.61
Cognitive Social Capital *(Informant: Firm A)*	**0.62**	
1 The market knowledge of *firm B* employees is identical to the market knowledge of our employees	0.83	--[b]
2 *Firm B* and us have the same competence within the products/ services	0.87	12.24
3 *Firm B* and us have experience from identical types of products/ services	0.64	6.55
Structural Social Capital *(Informant: Firm A)*	--	--[c]
1 Number of formal meetings with *firm B* per month	1.00	
Perceived Free Riding *(Informant: Firm B)*	**0.70**	
1 We often hear the companies at the destination complain about *firm A*'s customer service	0.91	--[b]
2 We lose guests at our destination because of how *firm A* treats them	0.82	7.57
3 *Firm A* provides much lower service to the customer than other companies at our destination do	0.77	7.72
Perceived Need for Shirking Control *(Informant: Firm B)*	**0.98**	
It is absolutely necessary to control that *firm A*:		
1 - follow up the opening times agreed upon	0.99	--[b]
2 - follow up the agreed rules and routines	0.99	99.34
3 - perform satisfactory cleaning and hygiene	0.98	33.63
Profitability *(Informant: Firm B)*	--	--[c]
1 ROS = Operating income or loss / Gross sales revenue	1.00	
Collaborator *(Information: Firm B)*	--	--[c]
1 This company is a collaborator to us	1.00	
Competitor *(Informant: Firm B)*	--	--[c]
1 This company is a competitor to us	1.00	
Price Sensitivity *(Informant: Firm B)*	--	--[c]
1 Our customers are very sensitive to the prices	1.00	

[a]   Bold numbers are construct reliability
[b]   Fixed to 1.00 for the purpose of scaling
[c]   Single-item constructs

Table 2: Correlation and covariance matrix, variance and descriptive statistics

	1	2	3	4	5	6	7	8	9
Correlation and Covariance Matrix									
1 Relational Social Capital	*0.51*	0.42	0.16	-0.11	0.20	-0.03	0.41	-0.20	0.01
2 Cognitive Social Capital	0.39	*2.26*	0.20	-0.39	1.21	-0.32	0.22	0.76	-0.37
3 Structural Social Capital	0.35	0.21	*0.42*	0.16	0.19	-0.16	0.32	-0.09	0.04
4 Perceived Free Riding	-0.17	-0.27	0.26	*0.89*	0.69	-0.04	0.19	0.02	0.39
5 Perceived Need for Shirking Control	0.11	-0.31	0.11	0.28	*6.68*	1.01	1.47	0.41	-0.32
6 Profitability	-0.03	-0.17	-0.19	-0.03	0.30	*1.67*	-0.26	0.07	-0.63
7 Collaborators	0.34	0.09	0.29	0.12	0.34	-0.12	*2.87*	-0.45	0.61
8 Competitors	-0.15	0.27	-0.07	0.01	0.08	-0.26	-0.14	*3.58*	0.23
9 Price Sensitivity	0.00	-0.16	0.04	0.27	0.34	0.03	0.24	0.08	*2.30*
Descriptive statistics									
Mean	3.07	3.68	1.12	1.72	4.09	0.03	4.69	2.92	4.47
Std. Deviation	2.19	1.76	3.40	1.19	2.48	0.15	1.90	2.04	1.58
Minimum value	1.00	1.00	0	1.00	1.00	-0.52	1.00	1.00	1.00
Maximum value	7.00	7.00	30	7.00	7.00	0.51	7.00	7.00	7.00

Correlation matrix = below diagonal
Covariance matrix = above diagonal
Diagonal = variance

Table 3: Structural equation model testing the effects of the dimensions of social capital

Independent variables:	Profitability				Perceived Free riding				Perceived Need for Shirking Control			
	β[a]	B[b]	z-score		β	B	z-score		β	B	z-score	
Relational social capital	0.22	0.13	1.83	*	-0.23	-0.19	-2.49	**	0.99	0.29	3.61	***
Cognitive social capital	-0.11	-0.13	-2.24	*	-0.19	-0.33	-5.21	***	-0.86	-0.51	-7.37	***
Structural social capital	-0.38	-0.19	-3.47	***	0.53	0.39	5.58	***	0.17	0.04	0.79	
Perceived Free Riding	-0.21	-0.14	-3.62	***								
Perceived Need for Shirking Control	0.10	0.20	5.12	***								
Control variables												
Price sensitivity	-0.12	-0.14	-3.42	***								
Collaborators					0.05	0.09	1.86	*	0.44	0.23	5.28	***
Competitors					0.06	0.14	2.46	**	0.40	0.30	5.73	***
R – Squared	0.13				0.25				0.31			

[a]   Unstandardized regression coefficients
[b]   Standardized regression coefficients
* *p*-value < .05
** *p*-value < .01
*** *p*-value < .001

Table 4: Calculation of total effects

	Indirect effects:				Direct effect:	Total effects:
	Perceived Free Riding		Perceived Need for Shirking Control		Profitability	
	a[a]	b[b]	a	b	c'	c[c]
Relational Social Capital	-0.23[d]	-0.21	-0.99	0.10	0.22	0.17
Cognitive Social Capital	-0.19	-0.21	0.86	0.10	-0.11	0.02
Structural Social Capital	0.53	-0.21	-0.17	0.10	-0.38	-0.50

[a] See Figure 4 for the identification of the (a) coefficient
[b] See Figure 4 for the identification of the (b) coefficient
[c] = c' + (a x b) + (a x b)
[d] Unstandardized regression coefficients
The sign of the coefficient from perceived need for shirking control on profitability has been inverted to reflect the fact that increased shirking control is associated with increased shirking, which is an unfavorable situation.