

Human capital, Social Capital and Organizational Performance: A Structural Modeling Approach

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Abstract

This research evaluates the human capital and social capital of managers and its influence on the performance of small and medium-sized Portuguese companies. We resorted to the structural modeling methodology approach applied to a sample of 199 small and medium companies aged between four and fifteen years from five different activity sectors. It was concluded that human capital affects the social capital and that the experience and cognitive ability influence personal relations and complicity. The organizational performance is strongly influenced by human capital through the cognitive ability of the manager. It's an important contribution to the management literature.

Keywords: human capital, social capital, organizational performance, cognitive ability, small and medium enterprises

1. Introduction

The performance of organizations depends on the personal characteristics of entrepreneurs and managers and their social ability to interact (Hatch & Zweig, 2000; Hite, 2005). The literature refers that human capital (Gimeno *et al.*, 1997; Colombo & Grili, 2005) and the social capital (Palmer & Barber, 2001; Widen-Wulff & Ginmam, 2004) are fields open to knowledge. Several authors (e.g. Bates, 1995; Shane & Venkataran, 2000) show that entrepreneurs with

higher human capital are more likely to discover opportunities and trigger initiatives to create their own businesses because they have more self-confidence and feel fewer risks. Putnam (2000) and Adler & Kwon (2002) perceive the social capital associated to the affective bond and connections between external players, with positive effects in raising resources and trust in the organization. The social capital provides links that facilitate the discovery of opportunities and the identification, collection and allocation

of scarce resources for the organization (Greene & Brown, 1997; Uzzi, 1999).

The literature provides insufficient results on the influence of the social capital and the human capital in the growth and performance of firms (Davidsson & Honig, 2003; Myint *et al.*, 2005; Liao & Welsh, 2005). Also, there are few studies that analyze the type of relationship between the social structure and human capital factors (Bates, 1995; Bruderl & Preisendorfer, 1998). However, the importance of the social interconnections network and the social status isn't clear (Glaeser *et al.*, 2002).

The research is supported on the human capital theory (Becker, 1964; Mincer, 1974) and social capital theory (Lin *et al.*, 1981; Portes, 1998). The focus is to understand the relationship between the personal characteristics of managers and the social factors and the effect on the performance of companies. The following objectives were established: analyze the relationship between the factors of human capital and social capital and verify its influence on organizational performance.

The status of the individual in society, the social relationships and his/her interconnections are important to ensure conditions of influence and accentuate social differences, diversely associated to personal characteristics, including professional experience, level of knowledge and cognitive capabilities. This relation allows to better understand the performance of organizations. Are the cognitive capabilities more or less important than personal relationships to achieve organizational success? Does the experience and professional capabilities or social status affect more or less the performance?

To support this research we chose to analyze firms with three to fifteen years of activity as this corresponds to the emerging and the following business stage.

After the introduction we present the literature review and hypotheses, conceptual and empirical agenda, and the statistical analysis and results. Following we present the discussion and the conclusions and contributions. Finally the future research is also presented.

2. Literature Review and Hypotheses

2.1 Human Capital and Social Capital

Different studies find that the variables of human capital and social capital correlate consistently and positively with organizational performance (Dimov & Shepherd, 2005; Gimeno *et al.*, 1997). For Davidsson & Honig (2003), the tacit knowledge acquired from previous experience in new business is particularly influential for new entrepreneurs, but human capital alone is not enough to ensure success. The authors also report that the encouragement of friends and family is strongly associated with the gestation of the entrepreneurial activity. Likewise, they indicate that human capital factors can explain the discovery and some of the progress in the operational process, but only when applied in the context of a relevant social structure those qualities can help to achieve successful results. Social capital is about solidarity, confidence and easiness that derive from social relationships involving family, friends, workmates and others and provide access to valuable resources, such as information, influence and solidarity that facilitate action (e.g. Burt, 2000; Adler & Kwon 2002). It refers to the stock of relationships, context, trust and norms that allow proper

behavior for knowledge sharing (Anklam, 2002). This sharing of knowledge includes cognitive and communication skills in a specific context (Widén-Wulff & Ginmam, 2004). The social capital seems to explain the strategic behavior (Gulati, 1999) among other things. In turn, the emotional bonds of social capital provide additional information within the activity groups leading to efficiency gains arising from the reciprocity of commitments involving new opportunities, with lower opportunity costs (Shane & Venkataraman, 2000). Davidsson & Honig (2003) suggest, as sources of social capital, the affection relationships and relationships that facilitate bridges between agents, usually diversified.

Different authors (Phillips & Zuckerman, 2001; Westphal & Khanna, 2003) consider that the status of managers is sometimes defined in a social ranking in relation to members of the business elite. However, for Podolny (2001), the position of the members of the business elite in the social class structure tends to become rigid and is determinant of their interests and capabilities with regard to different company strategies. Westphal & Khanna (2003) showed that individuals are less subject to sanctioning of deviant behavior when they have high status. Therefore, members of high-status families enjoy great benefits from the social recognition. Trusts relationships based on strong and weak bonds lead to the creation of cognitive social capital, contributing to entrepreneurial learning and exploration of opportunities (Lechner & Dowling, 2003). Therefore, the trust should be seen as an important intermediation factor for the social capital (Kawachi *et al.*, 1999; Lochner *et al.*, 1999). Entrepreneurs often take decisions

based on friendship, advice of friends and other relationships which has strong implications on small firms (Bennett & Robson, 1999; Bruderl & Preisendorfer, 1998). Similarly, investment the establishment of interweaving increases the individual social capital (Baker 2000; Adler & Kwon 2002), making individuals and groups benefit in terms of information, power and solidarity. The diversified entanglement is greater for individuals with higher education, with better jobs, coming from socially richer environments and more active in voluntary associations (Erickson, 2004) and simultaneously promotes cultural diversity and status (Lin, 1999). The interconnections are also an important source of self-information for entrepreneurs helping to identify, articulate and evaluate business opportunities (Aldrich & Zimmer, 1986). More recently Hite (2005) highlights its importance, particularly for the discovery of opportunities. The working hypothesis is as follows:

Hypothesis 1: Different factors of human capital are related to different factors of social capital.

2.2 Human Capital

In numerous studies human capital is considered a critical factor for organizational performance (Colombo & Grilli, 2005; Gimeno *et al.*, 1997). Its' relevant characteristics are education, experience and knowledge (Writh *et al.*, 1995), allowing access to more opportunities (Davidsson & Honig, 2003; Gimeno *et al.*, 1997). The highest level of education is positively related to performance (Cooper *et al.*, 1994; Gimeno *et al.*, 1997). Work experience, management experience and prior entrepreneurial experience are related to the firm

activity (Dimov & Shepherd, 2005; Gimeno *et al.*, 1997). Hatch & Zweig (2000) consider that there isn't a clear pattern of cognitive orientation and behavior that ensures business success. The years of previous work experience have no significant impact on growth (Bruderl & Preisendorfer, 2000). But the previous management experience and entrepreneurial experience positively influence the economic performance of new firms (Gimeno *et al.*, 1997). The human capital theory considers that knowledge brings greater cognitive skills to the individuals, making them more productive and with more efficiency potential to develop activities (Becker, 1964; Mincer, 1974). The social capital theory refers to the ability of individuals to extract benefits from their social structure, interpersonal relationships and their membership in social organizations (Lin *et al.*, 1981; Portes, 1998).

Davidsson & Honig (2003) argue that formal education does not seem to be a determining factor of success throughout the business process nor in terms of gestation of activities. The coordination of knowledge dispersed among different individuals is a distinctive capability related with the knowledge and skills of entrepreneurs who have learned through education and previous work experience. In turn, perceptions of risk and opportunities are influenced by the ability to accumulate new knowledge dependent of the existence of stocks of explicit knowledge acquired in education institutions and implicit knowledge acquired through experience in a certain field (Cohen & Levinthal, 1990). Consequently we set up the following hypothesis:

Hypothesis 2: The human capital factors influence differently organizational performance.

2.3 Social Capital

It's recognized that the importance of social capital for entrepreneurs has been increasing (Anderson & Miller, 2003; Myint *et al.*, 2005; Ullhoi, 2005), and studies using models of structural and cognitive social capital that influence business growth are starting to appear (Liao & Welsch, 2005). We use the social capital in terms of social exchanges due to the influence in the performance, considering business success as a social game (Schoonhoven & Romanelli, 2001). Lazega (1999) highlights the social capital as a product of multi-complex networks, namely through the combination of work and friendship relationships, because it confers cohesion and distinct effects over performance, strong in the case of work and weak in the case of friendship. Teece (2005) admits the communication process as an important competency for the success of firms.

Social capital encompasses the context, the stock of relationships, the interpersonal trust and norms that allow certain behaviors and relationships between individuals and that ensure conditions for the development of organizations and knowledge sharing (Anklan, 2002), being this considered as an activity with multiple dimensions of which we highlight the cognitive ability and communication aptitude influenced by the context (Widen-Wulff & Ginmam, 2004). Woolcock & Narayan (2000) and Putnam (2000) clarify that it is the nature of the social interconnections that hold, bind or unite individuals. According to Reagans & Zuckerman

(2001), teams with greater diversity of social interconnections improve organizational performance. The entanglement resulting from repeated and frequent social interaction is essential to accomplish a competitive and efficient organization (Ghoshal & Bartlett, 1990). Schoonhoven & Romanelli (2001) admit that the entrepreneurial success is the result of a social game, given that the widespread use of social capital, in the perspective of social exchanges, influences the performance of organizations. The working hypothesis is the following:

Hypothesis 3: The social capital factors influence differently organizational performance.

3. Conceptual and Empirical Agenda

3.1 Research Model and Variables

The research model establishes the relationship between human capital and social capital and its effect on organizational performance (Figure 1).

Insert figure 1 about here.

Human capital is grouped into four constructs as follows:

- 1) Knowledge, that includes the variables academic level of the chairman (HC1), academic level of the director/manager (HC2), specific training of the chairman (HC3) and specific training of the director/manager (HC4);
- 2) Experience, that includes the variables business experience (HC5), management/leadership experience (HC6), technical/technological work experience (HC7), commercial work experience (HC8), industry experience (HC9) and diversified experience (HC10);

3) Professional proficiency, that includes the variables professional proficiency in the technical/technological area (HC11), professional proficiency in company management (HC12), widespread knowledge (HC17) and communication skills (HC18);

4) Cognitive ability, that includes the variables strategic decision-making regarding risk-taking propensity (HC13), ability to innovate (HC14), perception of risk and threats (HC15) and discovery and exploitation of opportunities (HC16).

Social capital is grouped into five constructs as follows:

1) Status, that includes the variables economic status (SC1), cultural status (SC2), popular status (SC3) and political status (SC4);

2) Interlinking and family support, that includes the variables family interlinking (SC5), work interlinking (SC6), sporting interlinking (SC7), associative interlinking (SC8), political interlinking (SC9), family encouragement for challenges (SC18) and family support to overcome difficulties (SC19);

3) Complicity, that includes the variables interpersonal solidarity (SC10), interpersonal confidence (SC11) and understanding of weaknesses (SC12);

4) Personal relations, that includes the variables personal relations with financial entities (SC13), personal relations with the government (SC14), personal relations with business associations (SC15), personal relations with sports associations (SC16) and personal relations with cultural institutions (SC17);

5) Social relations, that includes the variables informal relations with bank/insurance managers (SC20), informal relations with the government

(SC21), informal relations with association managers (SC22) and informal relations with cultural institutions (SC23).

A single construct was used in the performance (P) measurement model. This model includes the variables market share (P1), sales (P2), profits (P3), firm size (P4), general performance (P5), and performance relation (P6).

These variables were measured on a 5-point Likert scale ranged from less important (score 1) to more important (score 5).

3.2 Data

This research focuses on Portuguese small- and medium-sized firms (SME) across various business sectors, but excluding the financial sector. The selected firms were those employing between 10 person and 250 persons (SME definition adopted by European Commission, 2003/361/EC).

The data were collected using a questionnaire sent to the general manager of a group of firms randomly selected from Informa D&B database. The chosen firms had between three and fifteen years of business history, specifically because such a duration best captures the evolutionary stages of business projects. A total of 199 useable responses were received. Of those, 59 (29.7%) were from manufacturing firms, 33 (16.6%) were from construction and public works firms, 45 (22.6%) were from wholesale and retail trade firms, and 62 (31.1%) were from service firms.

3.3 Structural Equation Modelling

Structural equation modelling (SEM) is used to analyse the human capital, social capital and

performance data using a two stage procedure (Hair *et al.*, 2006).

In the first stage, we performed a confirmatory factor analysis to test separately how well observed variables represent the underlying latent constructs. We computed the factor loading estimates and their associated communalities by the maximum likelihood method. Standardized loading estimates should be 0.5 or higher to suggest convergent validity. We then computed the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy.

In the second stage, we perform the analysis of data using the structural model, by specifying the relationships between the human capital, social capital and performance constructs. We computed two types of fit indices for the structure model, and used the software AMOS.

In our empirical study, the criterion for adequate fit between the hypothesized model and the structural model was a relative chi-square (χ^2/df) of 5 or less, and one of the goodness-of-fit measures (GFI, CFI, TLI) should be equal to or greater than 0.9 to accept the model.

4. Statistical Analysis and Results

4.1 The Measurement Models

The survey items and descriptive statistics are provided in Table 1.

Insert table 1 about here.

We use the principal component factor analysis method in the estimation of the factor loadings and communalities. Using the threshold of ± 0.5 for identifying significant loadings (Hair *et al.*, 2006), we can see that all but five (SC1, SC5, SC6, SC18 and SC19) variables in the social

capital measurement models have significant loadings (Table 2).

Insert table 2 about here.

In the human capital measurement models, HC7, HC9, HC11, H13 and HC16 exhibit non-significant loadings (Table 3).

Insert table 3 about here.

All the variables have highly significant loadings on the performance measurement model (Table 4).

Insert table 4 about here.

4.2 The Structural Model

From the confirmatory factor analysis, the items SC1, SC5, SC6, SC18, SC19, HC7, HC9, HC11, H13 and HC16 were deleted of the underlying measurement models, as they have loadings less than 0.5 (in absolute value) and low communality estimates (<0.25). We then construct the structural model, by specifying the relationships between the latent variables (human capital, social capital and performance) with the remaining items in each latent variable in line with the confirmatory factor analysis. We used modification indices to add paths one at a time in order to achieve a better fit to the data. The path diagram of the final model is shown in Figure 2.

Insert figure 2 about here.

All parameter estimates are statistically significant at conventional levels in the final

model of SEM estimation (Table 5). The fit measures indicate an acceptable model fit, with relative chi-square less than 5 (2.43) and CFI and TLI greater than 0.9.

Causal paths specified in the hypothesized model were found to be statistically significant from cognitive ability to complicity ($\beta=0.831$), experience to personal relations ($\beta=0.234$), experience to professional proficiency ($\beta=1.202$), personal relations to status ($\beta=1.383$), professional proficiency to cognitive ability ($\beta=0.611$), personal relations to social relations ($\beta=1.834$), status to interlinking ($\beta=1.106$), and personal relations to complicity ($\beta=-0.284$), therefore, supporting hypothesis H1. The effect of cognitive ability on performance ($\beta=0.763$) is positive and significant at the 0.05 level, and therefore, hypothesis H2 for the construct cognitive ability is supported. There is no evidence to support hypothesis H3.

Insert table 5 about here.

5. Discussion

Some human capital factors only relate directly to social capital factors. The formal knowledge acquired by managers, despite important at individual level, does not establish any relationship with human capital factors. Different situation has the professional proficiency, associated with management capacities and risk perception of managers, that is strongly influenced by the diversity of leadership and business experiences and contributes to the cognitive ability of managers. It's verified that this cognitive ability and experience are factors that relate directly to other social capital factors that are complicity and

personal relations. The other factors that constitute social capital only relate to each other. In this case, personal relations strongly influences the status of the manager and the social relations. In turn, the situation of the manager's social status strongly influences his/her social entanglement arising especially from family support. Hypothesis 1 is supported accordingly to the literature that establishes the importance of the relationship between human capital and social capital (Dimov & Shepherd, 2005; Gimeno *et al.*, 1997). Mincer (1974) emphasizes the role of cognitive skills. In turn, Gulati (1999) and Whetpal & Khanna (2003) highlight that the strategic behavior depends of the social capital.

An assessment of how organizational performance is formed is of utmost importance to understand how to ensure the success of companies, recognizing the fundamental action of the cognitive ability of the manager. All other factors of human capital and social capital are important in building the conditions for success but not directly determine organizational performance. This finding is of major importance and impact for management. In the center of the conditions for the success of organizations are the strategic decision capabilities and communication relationship with employees and with stakeholders, i.e. cognitive abilities. Therefore, it's human capital in its' complexity that determines the organizational performance and not the social capital as it is found that depends from the first. The results support the hypothesis 2 but don't support hypothesis 3. This research follows Colombo & Grilli (2005), and Gimeno *et al.* (1997) that refer the human capital as key to

organizational performance. But Hatch & Zweig (2000) indicate that there isn't a clear pattern of cognitive orientation and behavior that ensure business success. The failure to confirm the third hypothesis contradicts the literature, which is assumed as an opportunity to continue the studies in this field. For instance, Schoonhoven & Romanelli (2001), Liao & Welsch (2005) and Reagans & Zuckerman (2001) support the effect of social capital on performance.

6. Conclusions and Contributions

This study proves that the larger experience of managers in leadership and conducting business contributes to the development of improved personal relationships with organizations and institutions. In turn, the better aptitudes on strategic decision and communication results from the management capacity and perception of risk and seizing opportunities, and is reflected in the ability to develop personal complicities of solidarity, trust and understanding of the weaknesses. It is also proved that organizational performance is strongly influenced by higher communication and strategic decision capacities of the manager. Additionally, it's the formal personal relationships that provide conditions of social status of the managers who develop strong bonds of informality in social relationships. We conclude also that the greatest professional experience of managers is an extraordinary support to face successfully professional challenges.

This research presents major contribution to the literature by confirming the interrelationship and influence of human capital on the social capital and also for better comprehension of the influence of cognitive skills on business success.

It too presents significant contribution to the management field by proving the effect of the professional aptitudes of managers and their experience in the development of formal social relations and after the complicity.

7. Future Research

Future studies should assess the relationship between human capital and social capital and influence on organizational performance, comparing SMEs in the growth stage with other companies in the maturity stage. It is also of interest to analyze the same model applied to micro enterprises to understand the prevalent factors of human capital and social capital.

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Figures

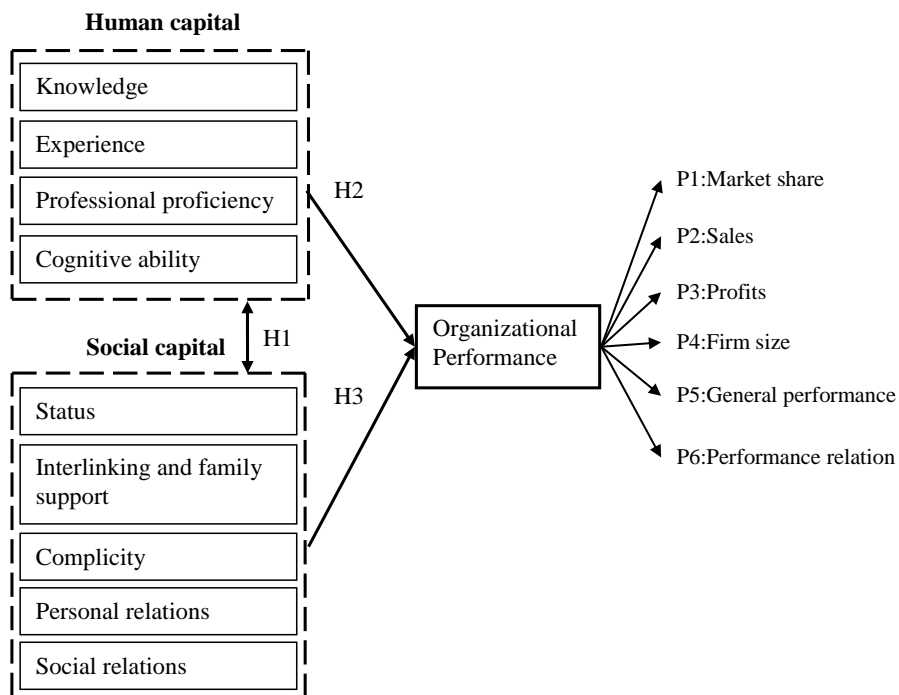


Figure 1. Hypothesized model of causal structure linking human capital, social capital and performance constructs

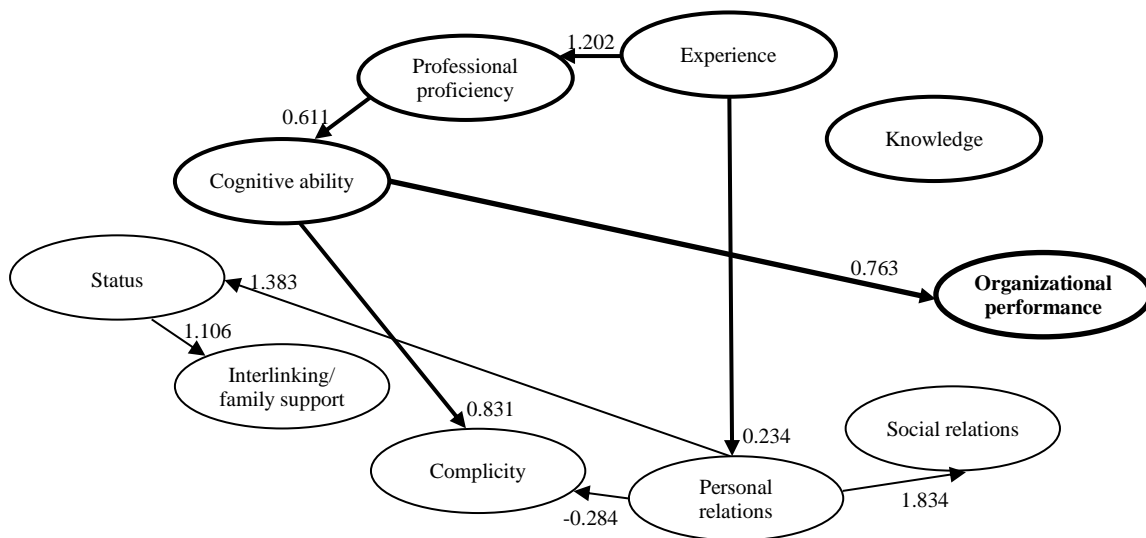


Figure 2. Final model of causal structure linking human capital, social capital and performance constructs

Tables

Table 1. Human capital, social capital and performance survey items and descriptive statistics
(mean and standard deviation)

| Constructs | | | Variables | Mean | S.d. |
|----------------------------|---|---------------------------------|--|------|------|
| Human capital | Knowledge | HC1 | Academic level of the chairman | 4.11 | 1.50 |
| | | HC2 | Academic level of the director/manager | 3.79 | 1.43 |
| | | HC3 | Specific training of the chairman | 2.21 | 0.81 |
| | | HC4 | Specific training of the director/manager | 2.13 | 0.85 |
| | Experience | HC5 | Business experience | 4.14 | 0.67 |
| | | HC6 | Management/leadership experience | 4.04 | 0.76 |
| | | HC7 | Technical/technological work experience | 4.09 | 0.76 |
| | | HC8 | Commercial work experience | 4.02 | 0.77 |
| | | HC9 | Industry experience | 3.79 | 1.09 |
| | | HC10 | Diversified experience | 3.86 | 0.84 |
| | Professional proficiency | HC11 | Professional proficiency in a technological area | 3.99 | 0.83 |
| | | HC12 | Professional proficiency in company management | 4.07 | 0.77 |
| | | HC17 | Widespread knowledge | 3.45 | 0.73 |
| | Cognitive ability | HC18 | Communication skills | 3.70 | 0.86 |
| | | HC13 | Strategic decision-making regarding risk-taking propensity | 2.97 | 0.86 |
| | | HC14 | Ability to innovate | 3.71 | 0.77 |
| HC15 | | Perception of risks and threats | 3.53 | 0.69 | |
| HC16 | Discovery and exploitation of opportunities | 3.33 | 0.89 | | |
| Social capital | Status | SC1 | Economic status | 3.55 | 0.76 |
| | | SC2 | Cultural status | 3.52 | 0.75 |
| | | SC3 | Popularity status | 2.96 | 1.00 |
| | | SC4 | Political status | 2.39 | 1.05 |
| | Interlinking and family support | SC5 | Family interlinking | 3.49 | 0.90 |
| | | SC6 | Work interlinking | 3.47 | 0.80 |
| | | SC7 | Sporting interlinking | 2.70 | 1.10 |
| | | SC8 | Associative interlinking | 2.69 | 1.04 |
| | | SC9 | Political interlinking | 2.28 | 1.04 |
| | Complicity | SC18 | Family encouragement regarding challenges | 3.48 | 0.88 |
| | | SC19 | Family support to overcome difficulties | 3.25 | 0.95 |
| | | SC10 | Interpersonal solidarity | 3.79 | 0.87 |
| | | SC11 | Interpersonal confidence | 3.93 | 0.88 |
| | Personal relations | SC12 | Understanding of weaknesses | 3.71 | 0.87 |
| | | SC13 | Personal relations with financial entities | 3.41 | 0.94 |
| | | SC14 | Personal relations with the government | 2.27 | 1.06 |
| | | SC15 | Personal relations with business associations | 3.02 | 1.05 |
| | | SC16 | Personal relations with sports associations | 2.58 | 1.11 |
| | Social relations | SC17 | Personal relations with cultural institutions | 2.67 | 1.06 |
| | | SC20 | Informal relations with bank/insurance managers | 3.14 | 1.04 |
| | | SC21 | Informal relations with the government | 1.99 | 1.02 |
| | | SC22 | Informal relations with business managers | 2.53 | 1.00 |
| | | SC23 | Informal relations with cultural institutions | 2.49 | 1.01 |
| Organizational performance | | | | | |
| P1 | | Growth in market share | 3.51 | 1.07 | |
| P2 | Sales growth | 3.54 | 1.12 | | |
| P3 | Profits growth | 2.71 | 1.15 | | |
| P4 | Growth of firm size | 3.42 | 1.11 | | |
| P5 | General performance | 3.65 | 0.91 | | |
| P6 | Performance in the previous year | 3.69 | 0.97 | | |

Table 2. Confirmatory factor analysis results for social capital measurement models

| Construct | Variable | Factor loadings | Communality | KMO |
|---------------------------------|----------|-----------------|-------------|-------|
| Status | SC1 | 0.479 | 0.229 | 0.684 |
| | SC2 | 0.564 | 0.318 | 0.707 |
| | SC3 | 0.802 | 0.644 | 0.656 |
| | SC4 | 0.611 | 0.373 | 0.639 |
| Interlinking and family support | | | | 0.670 |
| | SC5 | 0.474 | 0.225 | 0.741 |
| | SC6 | 0.476 | 0.227 | 0.747 |
| | SC7 | 0.776 | 0.603 | 0.760 |
| | SC8 | 0.827 | 0.685 | 0.702 |
| | SC9 | 0.629 | 0.396 | 0.773 |
| | SC18 | 0.393 | 0.154 | 0.663 |
| | SC19 | 0.393 | 0.159 | 0.678 |
| Complicity | | | | 0.721 |
| | SC10 | 0.871 | 0.758 | 0.786 |

| | | | | |
|--------------------|------|-------|-------|-------|
| | SC11 | 0.934 | 0.872 | 0.714 |
| | SC12 | 0.879 | 0.773 | 0.774 |
| Personal relations | | | | 0.756 |
| | SC13 | 0.518 | 0.268 | 0.841 |
| | SC14 | 0.750 | 0.562 | 0.830 |
| | SC15 | 0.758 | 0.575 | 0.800 |
| | SC16 | 0.767 | 0.575 | 0.801 |
| | SC17 | 0.840 | 0.706 | 0.790 |
| Social relations | | | | 0.808 |
| | SC20 | 0.587 | 0.345 | 0.893 |
| | SC21 | 0.752 | 0.565 | 0.859 |
| | SC22 | 0.895 | 0.801 | 0.744 |
| | SC23 | 0.867 | 0.752 | 0.750 |
| | | | | 0.795 |

Table 3. Confirmatory factor analysis results for human capital measurement models

| Construct | Variable | Factor loadings | Communality | KMO |
|--------------------------|----------|-----------------|-------------|-------|
| Knowledge | HC1 | 0.696 | 0.485 | 0.588 |
| | HC2 | 0.849 | 0.720 | 0.599 |
| | HC3 | 0.550 | 0.303 | 0.667 |
| | HC4 | 0.637 | 0.406 | 0.591 |
| Experience | | | | 0.607 |
| | HC5 | 0.800 | 0.640 | 0.706 |
| | HC6 | 0.838 | 0.702 | 0.685 |
| | HC7 | 0.381 | 0.145 | 0.746 |
| | HC8 | 0.560 | 0.314 | 0.867 |
| | HC9 | 0.397 | 0.158 | 0.748 |
| Professional proficiency | H10 | 0.567 | 0.322 | 0.854 |
| | | | | 0.752 |
| | HC11 | 0.381 | 0.145 | 0.594 |
| | HC12 | 0.580 | 0.337 | 0.638 |
| Cognitive ability | HC17 | 0.650 | 0.422 | 0.633 |
| | HC18 | 0.652 | 0.425 | 0.637 |
| | | | | 0.628 |
| | HC13 | 0.152 | 0.023 | 0.570 |
| | HC14 | 0.572 | 0.327 | 0.533 |
| | HC15 | 0.668 | 0.446 | 0.545 |
| | HC16 | 0.314 | 0.098 | 0.650 |
| | | | | 0.564 |

Table 4. Confirmatory factor analysis results for performance measurement model

| Construct | Variable | Factor loadings | Communality | KMO |
|----------------------------|----------|-----------------|-------------|-------|
| Organizational performance | P1 | 0.730 | 0.532 | 0.879 |
| | P2 | 0.825 | 0.680 | 0.830 |
| | P3 | 0.781 | 0.610 | 0.903 |
| | P4 | 0.711 | 0.505 | 0.936 |
| | P5 | 0.874 | 0.764 | 0.783 |
| | P6 | 0.885 | 0.783 | 0.781 |
| | | | | 0.844 |

Table 5. Estimated coefficients in the final model

| Path | Estimate | Standard error | Critical ratio |
|--|----------|----------------|----------------|
| Professional proficiency ← Experience | 1.202 | 0.162 | 7.434* |
| Personal relations ← Experience | 0.234 | 0.083 | 2.815* |
| Status ← Personal relations | 1.383 | 0.234 | 5.905* |
| Cognitive ability ← Professional proficiency | 0.611 | 0.085 | 7.203* |
| Social relations ← Personal relations | 1.834 | 0.277 | 6.629* |
| Interlinking ← Status | 1.106 | 0.114 | 9.684* |
| Performance ← Cognitive ability | 0.763 | 0.161 | 4.727* |
| Complicity ← Cognitive ability | 0.831 | 0.153 | 5.423* |
| Complicity ← Personal relations | -0.284 | 0.130 | -2.183** |
| $\chi^2/df = 2.43$ | | | |
| GFI = 0.831 | | | |
| CFI = 0.924 | | | |
| TLI = 0.909 | | | |

* Significant at the 1% level ** significant at the 5% level