How Does Corporate Reputation Affect Innovative Performance?

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Abstract

Corporate reputation has received considerable attention in the managerial academic literature. Whereas most research has focused on financial performance of corporate reputation, research on corporate reputation pointing to innovative performance and corporation internal mechanisms to influence innovative performance achieve has only recently emerged. Since little is known about how corporate reputation affects innovative performance, this study tests the separate moderating effects of human capital and social capital on the relationship between corporate reputation and innovative performance empirically. The sample is derived from a panel dataset of eighty-six Taiwan high-tech firms, covering six high-tech industry sub-sectors for the period 2004–2012. This study not only finds that better human capital moderates between corporate reputation and innovative performance, but also yields novel insight into the higher social capital decreases the effect of corporate reputation on innovative performance.

Keywords: corporate reputation, innovative performance, human capital, social capital, panel data

1. Introduction

Most of the relationships among innovative performance, organizational culture (Walker, Damanpour & Devece, 2011), organizational behavior (Koch, 2011), marketing strategy (Wu, 2011), and changeable external environment (Sohn & Jung, 2010) have previously been examined. More recently, researchers have created new constructs as possible predictors of innovative performance that tend to dichotomize tangible and economically related resource assets (e.g., Liu & Buck, 2007) versus intangible sources assets (e.g., Wincent, Anokhin & Ortqvist, 2010). The quest to identify key intangible variables that predict innovative performance is important, since without this knowledge researchers cannot advise high-tech firms on how to increase their innovative performance through corporate reputation.

Research on corporate reputation has identified the benefits of good reputation in explaining how a high-tech firm may benefit and best strategically position itself through its reputation (Wang, 2013). These benefits of a good reputation are seen as including higher customer retention rates, increased sales, higher product selling prices, and reduced operating costs. But despite those potential benefits, questions of the relationships between corporate reputation and innovative performance continue to be raised in technology industries. This research gap, and the need to illuminate the conditions that influence innovative performance, motivate this study.

Corporate reputation has become central to competitive success in fast changing business markets (Doz & Hamel, 1998). The dramatically increased need for firms to develop good corporate reputation in their business activities has been attributed to strategic responses to rapid environmental changes, such as acceleration of technology advancements. This is especially disadvantageous for high-tech firms, since the pace of new technology and new product development is remarkably high with a product life cycle that is accordingly short (Vilkamo & Keil, 2003). Recently, a frequent response to this disadvantage is to focus on intangible assets that improve innovative performance both through internal human capital and through external social network relationships. Human capital and social capital have become increasingly accepted in the technological management literature as pivotal strategic tools that differentiate firm innovative performance (Cabello-Medina, Lopez-Cabrales & Valle-Cabrera, 2011; Cantner, Conti & Meder, 2010; Leana & Pil, 2006; Muscio, 2007; Vinding, 2006). Most plausibly, an innovative effect arises because, through human and social capital, reputable high-tech firms acquire knowledge about innovative know-how, which enables them to overcome the challenges of dramatic technology changes.

This study has attempted to incorporate human and social capital into the research of corporate reputation, thereby increasing our understanding of how variations in innovation performance arise. More specifically, rather than focusing on corporate reputation, this work proposes and tests a framework that integrate, theoretical developments from the literatures of human and social capital (Sammarra & Biggiero, 2008). The concept and methodology benefit from understanding the relative contribution and role of each factor. To this end, this study examines how the level of human capital in a high-tech firm moderates the linkage of corporate reputation-innovative performance. Drawing from technological management thinking that emphasizes the role of external social network relationships, this study also examines how social capital in the high-tech industry moderates the effect of corporate reputation.

This study begins by discussing the theoretical background and our conceptual model, and then develops hypotheses. Following this, we present our empirical results from a survey of corporate reputation. This study concludes with a discussion of the theoretical and empirical implications, along with limitations and directions for future research.

2. Theoretical Development

Our conceptual model is shown in Figure 1. In this section, we explain the constructs used in the conceptual model and develop hypotheses positing the relationship between corporate reputation, human capital, social capital, and innovative performance.



Figure 1. Proposed model

2.1 The Role of Corporate Reputation in Explaining Innovative Performance

Reputation is seen by managers as an important asset that can be used for competitive advantage and to increase performance (Bergh, Ketchen, Boyd & Bergh, 2010). A good reputation is identified as an intangible resource which may provide a firm with a basis for sustaining competitive advantage due to its valuable and hard to imitate characteristics (Roberts & Dowling, 2002). Reputation refers to the emotional reaction of external stakeholders to a firm (Forbrun & van Reil, 1997) as well as the knowledge they hold about the firm's true characteristic. Roberts and Dowling (2002) expand upon these definitions to indicate that reputation manifests itself as the extent to which the firm is seen as good. Thus, reputation includes not only perceptions about past actions, but also about future prospects of the firm (Rindova, Williamson & Petkova, 2010).

There are two major keys to the success of high-tech firms: their technology and their reputation. But in practice, these factors currently play only a minor role in the strategic management of these high-tech firms, especially developing reputation. Can a good reputation serve as a strategic resource? To be considered a strategic resource, a resource must be valuable, rare, and free from imitation. The transaction cost theory (TCT) considers reputation as a strategic resource that is derived from combinations of internal efficiency and external prominence (Shamsie, 2003). In this view, reputation can be viewed as a key driver of innovativeness, whose value is derived from a specific asset that lead to competitive advantage (Kalaignanam, Shankar & Varadarajan,

2007), and ultimately, innovative performance superiority (Barney, 1991).

H1: Corporate reputation has a positive impact on innovative performance.

2.2 The Moderating Role of Human Capital

We assert that the relationship between corporate reputation and innovative performance is moderated by the intangible asset of human capital, which is defined as the combined knowledge, skill, innovation and ability of employees (Chu, Lin, Hsiung & Liu, 2006). With regard to corporate reputation, employees particularly from high-tech firms (e.g., Apple, Sony, & LG), have strong scientific and technological abilities. Hence, it is more likely that reputable high-tech firms which have human capital with a high level employee ability will benefit more from reputation spillover. Previous empirical findings are consistent with this argument, showing that higher levels of employees are strongly associated with such effects (Carmeli, 2004).

Studies have constantly shown the positive effect of human capital on performance. Hsu and Wang (2012), for example, indicated that employee know-how, essential part of human capital, is perceived as one of the most valuable resources associated with firm success. Since people are a valuable corporate resource, high-tech firms whose strategy is based on people focus on the added value of their employees, recognizing that these people possess valuable skills that they contribute to attaining a competitive position (Gineviius & Korsakiene, 2005; Korsakiene, 2004). Therefore, it is expected that the effects of corporate reputation on the innovative performance of high human capital will be higher than the corresponding effects for high-tech firms with low human capital.

Human capital also affects the structure of reputable high-tech firms' production and technological level (de Jorge Moreno, Castillo & de Zuani Masere, 2010; Steinfield, Scupola & Lopez-Nicolas, 2010). Moreover, more highly educated employees are able to improve production and R&D technologies, and the use of new technologies needs a well-educated workforce. This need for a more skilled workforce increases in a reputable high-tech firm that has access to new technologies. Human capital theory maintains that knowledge increases employees' cognitive ability (Hsu & Fang, 2009), leading to more productive and efficient potential activity (Davidsson & Honig, 2003). In the technological production process, employees should have superior ability to successfully exploit opportunities. According to Colombo and Grilli (2005), reputable high-tech firms with better human capital are likely to have better innovative performance than firms with lesser human capital.

H2: Human capital will positively moderate the relationship between corporate reputation and innovative performance.

2.3 The Moderating Role of Social Capital

Despite general agreement over the theoretical basis and underlying mechanisms pertaining to innovative performance, previous research has not yet fully explored which factors moderate their relationship between corporate reputation and innovative performance. We assert that an intangible asset that moderates the linkage of corporate reputation-innovative performance is social capital, defined as the value represented by relations with individuals or organizations operating in the environment, expressed of the level of cooperation, cohesion, and connection that they wish to establish with the firm (Shipilov & Danis, 2006; Zabala et al., 2005).

Reputable high-tech firms pursue external cooperation relationships in order to tap into sources of knowledge located outside the boundaries of the firm, to gain fast access to new technologies or new markets, to benefit from joint R&D and production efficiency and to share the risks for innovative activities that are beyond the capabilities of a single firm (Fischer & Varga, 2002). The relationship between social network relationships and innovative performance has attracted much research interest (Lhuillery & Pfister, 2011; Sammarra & Biggiero, 2008). Some researchers suggest that a reputable firm's intangible assets are conducive to embody innovation spillover through the value-adding network relationships.

Several studies have suggested that social relationships and managers' personal ties play a crucial role in absorbing new knowledge of high-tech firms. Embedded social relationships are also important for exchanging and transferring information among firms or other organizations (Steinfield et al., 2010). Through social networks, managers of companies have opportunities to update their knowledge in a fast-changing environment and to detect future developments in the high-tech industry (Lhuillery & Pfister, 2011). Accordingly, we expect that the effects of cooperate reputation in innovative performance should be more pronounced in high-tech firms with stronger social capital than in those with weaker social capital. Furthermore, previous research has suggested that the innovative ability of companies with stronger social capital differ significantly from those of firms with weaker social capital (Ulhoi, 2005). The good corporate reputations that firms with high social capital have may assist them in benefiting from external know-how. The fact that the possibilities for technological

advance are renewed quickly in high-tech industry may also motivate reputable firms to systematically exploit the know-how created by external networks partners. This may improve innovative performance.

H3: Social capital will positively moderate the relationship between corporate reputation and innovative performance.

3. Methodology

3.1 Sample and Data

As in other recent corporate reputation studies, this study focused on the high-tech industry known for its extensive innovation spending. Specifically, we drew our sample firms from the *Commonwealth*, which has data on the 1,000 largest public Taiwanese companies in the high-tech sector, including the semiconductor industry (SIC code: 3674) in the IC design, manufacturing, and packaging sectors, computer industry (SIC code: 3571), communications equipment industry (SIC code: 3663), electronic equipment industry (SIC code: 3641), machinery equipment industry (SIC code: 3541), and electronic components industry (SIC code: 3679). This study collected data from years 2004 to 2012. The financial indexes were collected from the Taiwan Economic Dataset. R&D intensity, top management group (TMG) network and board network were collected from annual financial statements and the Taiwan Economic Journal database (TEJ). This study used the Taiwan patent search database to gather data for numbers of patents. Firms with missing data during the study period were excluded, 86 firms that were included in both *Commonwealth* and TEJ database lists for 9 years were used in this study.

3.2 Measures

Innovative performance. The innovative performance of high-tech firms is measured using data on the inputs of the conduct of innovation (i.e., R&D intensity) and its output in the form of intangible assets registered as patents. Previous studies suggest that R&D investment is related to firm innovation (Kim & Lee, 2011; Majumdar, 2011; Sauermann & Cohen, 2010; Wang, 2011). R&D-intensive high-tech firms represent that R&D investment is the primary means of gaining innovative performance. I also consider the number of patents created by high-tech firms to approximate the firm's value. When numerous patents are created, they are more likely to be of high value than when patents are rarely created (Griliches, 1990). The two indexes were averaged to represent the innovative performance.

Corporate reputation. *Commonwealth*'s annual "1,000 Most Admired Companies in Taiwan" is one of the few consistent sources of reputation data. Each year, since 1989, *Commonwealth* surveys executives, board members and financial analysts. Respondents are asked to rate the five largest firms in their industry on ten dimensions using a scale from 0 (low) to 10 (high). The response rate averaged 49–58% over the period of 2002–2010. These dimensions were then averaged into an "overall reputation score" for each company.

Human capital. To measure specific human capital for high-tech firms, we constructed two-dimensional ratios covering the educational level and R&D employee ratio. First, to measure educational level (Mithas & Krishnan, 2008; Zarutskie, 2010), this study used the employees' specific high-tech educational level that enables them to do their jobs successfully. Second, the value of human capital is determined by the extent to which it enables the high-tech firm to respond to environmental threats and contributes to the firm's effectiveness. Thus, the uniqueness of human capital is gauged by the R&D employee ratio that the high-tech firm already has.

Social capital. Following prior literature, two operationalizations of social capital were used to reflect the key facets. Prior studies conducted following the resource-dependency theory have determined that board network and TMG network may relate to variance performance (Geletkanycz & Boyd, 2011). First, board network refers to the extensiveness or the cohesiveness of contacts among the members of boards of directors. If all of the members have close connections with each other, board network is extremely high. Social capital is a useful resource created from the network of social ties that allows members of a given society to trust each other. A board network can be measured by comparing the total member of social ties to the potential member that would occur if everyone in the network were connected to everyone else (Kim, 2005; Marsden, 1990). Second, TMG network help to reduce the level of uncertainty surrounding external resource dependencies (e.g., Pfeffer & Salancik, 1978), since they allow high-tech firms to secure critical resources, often on more favorable terms. The resource dependency benefits of TMG network ultimately extend to innovative performance, with evidence indicating that high-tech firms with ties to sectors having the most critical environmental constraints outperform their industry counterparts lacking such network relationships (Boyd, 1990). TMG networks are measured by the number and attributes of outside firms with which CEOs share a TMG linkage.

Control variables. To avoid the impact caused by variables that are absent for our model, this study also controls for firm size, firm age, and leverage. Firm size is included as a control variable (Brenner & Broekel,

2011; Cefis, 2010; Corsino, Espa & Micciolo, 2011; Huang & Chen, 2010; Schneider, Gunther & Brandenburg, 2010; Wang, 2011) because of the significant association between firm size and firm reputation. A positive relationship is expected between firm size and innovative performance because larger firms are thought to have better ability to create new products and to leverage a lower cost of capital. Firm size is measured by the natural logarithm of total capital (Segars & Grover, 1995). The study also controls for a company's age because older companies may have accumulated more solid reputations and strategic freedom than newly founded high-tech firms (de Jorge Moreno & Castillo, 2011; Zahra & Bogner, 2000). Firm age is measured by the number of years the companies had been in existence (Barge-Gil, Nieto & Santamaria, 2011). Leverage reflects a high-tech firm's capital structure and the financial risk faced by a firm, which might limit managers' ability to allocate adequate resources to innovative activities (Kim, Kim & Lee, 2011). The indicator of leverage is measured by long-term debt over total assets, and Table 1 provides a summary of means of operationalization and sources of all variables.

Constructs	Variables	Definition	Adapted from			
Innovation performance (IP)	RD: R&D intensity	R&D expenditures divided by sales	Evangelista, Sandven, Sirilli, & Smith, 1998; Johansson & Loof, 2008; Shin, Kwon, & Kim, 2010			
	PN: Patent counts	Number of patent applications per year	Filatotchev, Liu, Lu, & Wright, 2011; Hu & Wu, 2011; Huang & Chen, 2010; Liu, Wright, Filatotchev, Dai, & Lu, 2010; Shin et al., 2010			
Human capital (HC)	AEL: Average educational level of employee	Number of employees with university degree as a percentage of total employees	Bayo-Moriones & Lera-Lopez, 2007; Hsu & Wang, 2012; Wang, 2008; Youndt, Subramaniam, & Snell, 2004			
	RDE: R&D mployee ratio	The ratio of R&D employees to total employees	Chu et al., 2006; Wu, Tsai, Cheng, & Lai, 2006			
Social capital (SC)	TN: TMG network	The number and attributes of outside firms with which CEOs share TMG linkage	Collins & Clark, 2003; Shipilov & Danis, 2006			
	BN: Board network	Number of board member contacts	Kim, 2005; Kim & Cannella Jr, 2008			
Control variables	LE: Leverage	Debt divided by total liabilities	Kim et al., 2011; Wang, Hsu, & Fang, 2008			
	FS: Firm size	The natural logarithm of total capital	Huang & Chen, 2010; Kalaignanam et al., 2007; Wang, 2011; Wang, 2008			
	FA: Firm age	Year t minus establishment year	Barge-Gil et al., 2011; Huang & Chen, 2010; Jansen, Van Den Bosch, & Volberda, 2006; Kalaignanam et al., 2007; Wang, 2011			

Table 1. Definitions of independent variables

3.3 Model Design

In order to test the framework statistically, this study employs regression analysis and estimate a model that represents the key relationships predicted by our theoretical analysis. This entails modeling innovative performance in the high-tech industry as a function of various parameters, including human capital, social capital, and corporate reputation. For this, this study uses a three-equation structural model. The first model is estimated by control variables. The main effect of corporate reputation, human capital and social capital is incorporated into the second model. The third model is simultaneously estimated by main effect and moderating effect. More specifically, I have the following models:

$$IP_{it} = \beta_0 + \beta_1 L E_{it-1} + \beta_2 F S_{it-1} + \beta_3 F A_{it-1} + \varepsilon_{it}$$
(1)

$$IP_{it} = \hat{\beta}_0 + \hat{\beta}_1 LE_{it-1} + \hat{\beta}_2 FS_{it-1} + \hat{\beta}_3 FA_{it-1} + \hat{\beta}_4 CR_{it-1} + \hat{\beta}_5 HC_{it-1} + \hat{\beta}_6 SC_{it-1} + \hat{\varepsilon}_{it}$$
(2)

$$IP_{it} = \widetilde{\beta}_0 + \widetilde{\beta}_1 LE_{it-1} + \widetilde{\beta}_2 FS_{it-1} + \widetilde{\beta}_3 FA_{it-1} + \widetilde{\beta}_4 CR_{it-1} + \widetilde{\beta}_5 HC_{it-1} + \widetilde{\beta}_6 SC_{it-1} + \widetilde{\beta}_7 (HC_{it-1} \times CR_{it-1}) + \widetilde{\beta}_8 (SC_{it-1} \times CR_{it-1}) + \widetilde{\varepsilon}_{it}$$
(3)

where *IP* is the innovative performance, *LE* is leverage, *FS* is firm size, *FA* is firm age, *CR* is corporate reputation, *HC* is human capital and *SC* is social capital. β_0 , $\hat{\beta}_0$ and $\tilde{\beta}_0$ are intercept, β_i (*i* =1,2,...,3) $\hat{\beta}_i$ (*i*=1,2,...,6) and $\tilde{\beta}_i$ (*i*=1,2,...,8) are parameters, ε_{it} is the error term of firm (*i*=1,2,...,86) in period *t* (*t*=1,2,...,9).

3.4 Tests of Fixed Effect and Random Effects

The statistical *method* used *in this study* is *panel data* analysis (Alvarez-Herranz, Valencia-De-Lara & Martinez-Ruiz, 2011; Reganati & Sica, 2007). The concepts of fixed and random effects tests are used *to select* suitable model. Cross-section fixed effects result from unobserved explanatory variables that change from one company to another but do not change over time. Time fixed effects resulting from unobserved explanatory variables that change from one period to another but do not change across companies. The fixed effects regression models allow the dependent variable-(either cross-section fixed or time fixed)-to be correlated with the independent variables. If the dependent variables are strictly uncorrelated with the independent variables, then it might be appropriate to treat the regression model as a random effect model, where cross-section specific constant terms are randomly distributed across cross sectional units. In order to decide whether the fixed effects or the random effects tests and Hausman random effects tests were performed by the process shown in Figure 2.



Figure 2. The procedure of inspection of fixed and random effects

4. Results

Table 2 provides means, standard deviations, and correlations among the measured items. The average numbers of patents is 218. The main effects are significantly correlated with the dependent variable as expected, except for board network. Most of independent variables correlation between the dependent variable is higher than 0.10 and the highest value of VIF is 6.02. As this is significantly lower than the acceptable threshold of 10, it appears that multicollinearity does not pose an important problem for our study. Control variables such as firm size, firm age, and leverage are important, as expected.

Table 3 provides the outcomes of the moderated regression analysis. The first model includes only a set of control variables. The second model states that the main effect of corporate reputation would be positively related to innovative performance ($\hat{\beta}_4 = 0.24$; p < .001). Thus, H1 is supported. Model 3 states that the effect of corporate reputation on innovative performance is significantly positive influenced by human capital ($\tilde{\beta}_7 = 0.18$; p < .05) and social capital ($\tilde{\beta}_8 = 0.15$; p < .05), respectively. Thus, H2 and H3 are also supported. To better illustrate the moderating effect of human capital and social capital, we conduct a simple slop test, as described

by Aiken and West (1991). This study use a software package, ModGraph (Jose, 2010), and graphed the interaction effects following procedures set forth Cohen and Cohen (1987). Please see Figure 3 and Figure 4 for the resulting graphs. From Figure 3, the slope tests confirmed that in the presence of higher corporate reputation improved innovative performance when human capital is higher (simple slope= 0.172, t = 1.97, p < .1) rather than lower (simple slope= 0.143, t = 1.66, p > .1). However, in Figure 4 the slope significance test demonstrates that higher corporate reputation did improve innovative performance when social capital is lower (simple slope= 0.152, t = 2.16, p < .05) rather than higher (simple slope= 0.163, t = 1.65, p > .1).

Table 2. Correlations matrix and descriptive statistics

	Mean	S.D.	Max	Min	1	2	3	4	5	6	7	8	9
1. RD	0.06	0.06	0.32	0	1								
2. NP	218.57	376.84	3798.00	0	-0.04	1							
3. CR	7.12	0.67	8.79	5.7	-0.04	0.39**	1						
4. AEL	0.24	0.20	0.95	0.01	0.49**	0.18**	0.36**	1					
5. RDE	0.39	0.23	0.91	0	0.13*	0.19**	0.20**	0.30**	1				
6. TN	30.76	39.52	203	0	0.14"	0.06*	0.07	-0.01	-0.25**	1			
7. BN	51.55	54.30	272	0	-0.08	-0.09	0.02	0.03	-0.23**	0.83**	1		
8. LE	0.44	1.26	0.81	0.08	-0.22**	0.35**	0.03	-0.19**	-0.14*	0.10	0.07	1	
9. FS	17.86	1.27	20.76	14.89	-0.28**	0.53**	0.66**	0.05	-0.03	0.39**	0.34**	0.26**	1
10. FA	17.75	9.58	54	3	-0.41**	0.07	-0.19**	-0.33**	0.23**	0.25**	0.25**	0.07	0.14*

p < .05, p < .01. RD: R&D intensity, NP: Number of patent, CR: Corporate reputation, AEL: Average educational level of employee, RDE: R&D employee ratio, TN: TMG network, BN: Board network, FA: Firm age, FS: Firm size, LE: Leverage.

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Table 3	Regression	analysis	of nro	nosed	model
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Independent variable	Mode	el 1	Model	12	Model 3		
independent variable	Coefficients	t values	Coefficients	t values	Coefficients	t values	
Effect of corporate reputation on innovation performance							
CR_{t-1}			0.24***	4.27	0.16**	3.10	
HC_{t-1}			0.47***	3.46	0.39**	2.92	
SC_{t-1}			0.18 +	1.79	0.21**	2.94	
Moderating effect of social capital, human capital on corporate reputation, and innovation performance							
$HC_{t-1} \times CR_{t-1}$					0.18*	2.01	
$SC_{t-1} \times CR_{t-1}$					0.15*	1.98	
Control variables							
LE_{t-1}	-0.69***	-5.20	-0.61***	-3.95	-0.54***	-3.52	
FS_{t-1}	0.15***	6.94	0.09***	4.27	0.09***	4.16	
FA_{t-1}	0.06*	2.11	0.10**	3.01	0.09**	3.17	
Constant	-1.80***	-5.22	-3.32***	-4.57	-3.35***	-4.23	
Adj <i>R</i> ²	0.13		0.29		0.37		
Cross-section F statistic	17.99***		13.51***		12.23***		
LM test	1011.	82***	782.18***		799.19***		
Hausman test (Chi-Sq. statistic)	26.51***		19.65**		22.99**		

 $^{+}p < .1; *p < .05; **p < .01; ***p < .001.$



Figure 3. Moderating role of human capital on the corporate reputation-innovative performance link



Figure 4. Moderating role of social capital on the corporate reputation-innovative performance link

5. Discussion

This study investigates the separate moderating roles that human capital and social capital play in explaining corporate reputation differences in innovative performance. Using Taiwan the high-tech firms' panel dataset, we were able to empirically differentiate between the higher corporate reputation and lower corporate reputation via the role of a firm's human capital and social capital obtained. As expected, the main effect for corporate reputation was positive. While the large majority of previous studies focused on high-tech innovative performance, this study confirms that corporate reputation also is an important factor of a firm's innovative performance. Our finding also holds interesting managerial implications. The finding underscores the important of a good corporate reputation, where reputation has a major effect on innovative performance. Therefore, practitioners should recognize that good corporate reputation is more likely to sustain superior innovative performance over time.

A good corporate reputation benefits a high-tech firm by directly enhancing its internal resource to create value as well as indirectly by enhancing its innovative capability, which then influence its innovative performance. Therefore, this finding extends the current wisdom on innovative performance development in high-tech firms, which is an emerging scientific field. More specifically, a good corporate reputation has direct benefits and indirect benefits. Increased internal resource benefits are hugely important in deepening innovative capability. If a company has a good reputation, then investments in internal resources would seem to be an effective way to spend funds. However, with a poor reputation, the firm may be worse off by spending those funds on increasing innovative performance focusing on innovative capability improvement goals. This insight may contribute to the way in which corporate reputation can best be leveraged, which is a very important practical implication for many high-tech firms.

This study also raises questions about the reliability of associating corporation reputation with a firm's innovative performance. While Rose and Thomsen (2004) question the cost-benefit relationship of investing in reputation and advocating increased management attention to improving innovative performance, this study would suggest that more attention is required on how reputation, as a source of sustainable competitive

advantage, has been managed to yield improved innovative performance. That is, reputation, as an intangible resource providing a positional capability differential, needs to be leveraged in such a way as to support innovative performance. This leverage management is a missing moderating factor between corporate reputation and innovative performance.

In confirming the moderating role of human capital, the results provide weak support for H2. The effect of corporate reputation is contingent on human capital, and good corporate reputation performs better with superior human capital. This finding suggests there is no statistical support for lower human capital. Our results also show that the link between corporate reputation-innovative performances is not uniform across different situations, and that the nature and extent of human capital moderate the relationships. Thus, high-tech firms can obtain superior innovative performance if they align their superior human capital with the corporate reputation-innovative performance linkages. Specifically, the link can be strengthened by superior human capital, and investing in human capital is beneficial to the high-tech firm. Superior human capital includes knowledge and skills which are valuable for reputable high-tech firms in particular and for an innovative activity. This type of knowledge is necessary to be transformed into a product or process technology, and it arises from an intimate working familiarity nurtured by years of effort and is formed as a complementary product of reputable company.

Our results show that social capital positively moderates the linkage between corporate reputation and innovative performance. This finding is congruence with previous studies (Marti 2004). The finding supports the following managerial implication. Under the social capital paradigm, activities, resources and managers are connected through manager bonds, resource ties and activity links (Hakansson & Snehota, 1995). These bonds, ties, and links describe the interaction among the actors. New value innovative activities are formed mainly by exchanging combining and creating new resources obtained through networks. Thus, a high-tech firm's manager should emphasize the relational value of social capital themselves.

Our findings challenge the typical perception that for reputable high-tech firms social capital has less effect on innovative performance. The insignificant role of high-level social capital seems to contradict our theoretical model. This may be explained from two viewpoints. First, the relationship marketing viewpoint emphasizes the necessity for symmetry and mutuality and that symmetric dependence structures foster long-term relationships based on trust. But in fact, symmetry is not a typical state. In other words, relationships based on a perfectly stable balance (Gummesson, 1996) may not always be possible. However, reputable high-tech firms may tolerate an imbalance in order to gain and perhaps maintain lucrative business.

Second, higher social capital may have a number of costs and risks. While strong ties provide solidarity benefits that facilitate the pursuit of common goals, they may also result in groupthink (Janis, 1982), over embeddedness (Uzzi, 1996), and inertia, or contribute to the fragmentation of organizations into warring factions (Foley & Edwards, 1996). Conversely, weaker social capital provides brokerage and other benefits to those spanning structural roles (Burt, 1997), through there is no guarantee that those benefits will accrue to the organization (e.g., some partners may hoard benefits for their own use, or abuse their position to the detriment of their organizations).

6. Limitation

Our study has two limitations that may hinder the generality of our findings. First, due to the availability of reputation data, the sample included only seven sub-sectors of the high-tech industry and approximately eighty-six firms. Also, the data were not as long or as large as I would have liked, but collecting social capital data across time would require considerable time and resources. Given our findings, perhaps future study could be conducted on a larger scale sample and longer data. Second, although this study has examined attributes specific to high-tech firms, it has ignored other features of the high-tech industry attributes, such as the competitive pressure (Soliman & Janz, 2004) and environmental dynamics (Zahra, 2005). This external pressure within which the high-tech firm performs its innovative activities has a strong influence on the decision to adopt technology. Future research should be aimed at conducting the subject, incorporating those external factors that could lead to a more accurately assess the nature of the relationship between corporate reputation and innovative performance.

References

- Aiken, L. S., & West, S. G. (1991). *Multiple Regression: Testing and Interpreting Interactions*. Newbury Park, CA: Sage Publications.
- Alvarez-Herranz, A., Valencia-De-Lara, P., & Martinez-Ruiz, M. P. (2011). How Entrepreneurial Characteristics Influence Company Creation: A Cross-National Study of 22 Countriestested with Panel Data Methodology.

Journal of Business Economics and Management, 12(3), 529–545. http://dx.doi.org/10.3846/16111699.2011.599409

- Barge-Gil, A., Nieto, M. J., & Santamaria, L. (2011). Hidden Innovators: The Role of Non-R&D Activities. *Technology Analysis & Strategic Management, 23*(4), 415–432. http://dx.doi.org/10.1080/09537325.2011.558400
- Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99–120. http://dx.doi.org/10.1177/014920639101700108
- Bayo-Moriones, A., & Lera-Lopez, F. (2007). A Firm-Level Analysis of Determinants of ICT Adoption in Spain. *Technovation*, 27(6–7), 352–366. http://dx.doi.org/10.1016/j.technovation.2007.01.003
- Bergh, D. D., Ketchen, D. J., Boyd, B. K., & Bergh, J. (2010). New Frontiers of the Reputation—Performance Relationship: Insights from Multiple Theories. *Journal of Management*, 36(3), 620–632. http://dx.doi.org/10.1177/0149206309355320
- Boyd, B. (1990). Corporate linkages and organizational environment: A test of the resource dependence model. *Strategic Management Journal, 11*(6), 419–430. http://dx.doi.org/10.1002/smj.4250110602
- Brenner, T., & Broekel, T. (2011). Methodological Issues in Measuring Innovation Performance of Spatial Units. *Industry and Innovation, 18*(1), 7–37. http://dx.doi.org/10.1080/13662716.2010.528927
- Burt, R. S. (1997). The Contingent Value of Social Capital. *Administrative Science Quarterly*, 42(2), 339–365. http://dx.doi.org/10.2307/2393923
- Cabello, M. C., Lopez, C. A., & Valle, C. R. (2011). Leveraging the innovative performance of human capital through HRM and social capital in Spanish firms. *International Journal of Human Resource Management*, 22(4), 807–828. http://dx.doi.org/10.1080/09585192.2011.555125
- Cantner, U., Conti, E., & Meder, A. (2010). Networks and Innovation: The role of Social Assets in Explaining Firms' Innovative Capacity. *European Planning Studies*, 18(12), 1937–1956. http://dx.doi.org/10.1080/09654313.2010.515795
- Carmeli, A. (2004). The Link between Organizational Elements, Perceived External Prestige and Performance. *Corporate Reputation Review, 6*(4), 314–331. http://dx.doi.org/10.1057/palgrave.crr.1540002
- Cefis, E. (2010). The Impact of M&A on Technology Sourcing Strategies. *Economics of Innovation and New Technology*, 19(1), 27–51. http://dx.doi.org/10.1080/10438590903016385
- Chu, P. Y., Lin, Y. L., Hsiung, H. H., & Liu, T. Y. (2006). Intellectual Capital: An Empirical Study of ITRI. *Technological Forecasting and Social Change*, 73(7), 886–902. http://dx.doi.org/10.1016/j.techfore.2005.11.001
- Cohen, J., & Cohen, P. (1987). *Applied Multiple Regression—Correlation Analyses for the Behavioral Sciences*. Hillsdale, NJ: Lawrence Erlbaum.
- Collins, C. J., & Clark, K. D. (2003). Strategic Human Resource Practices, Top Management Team Social Networks, and Firm Performance: The Role of Human Resource Practices in Creating Organizational Competitive Advantage. Academy of Management Journal, 46(6), 740–751. http://dx.doi.org/10.2307/30040665
- Colombo, M. G., & Grilli, L. (2005). Founders' Human Capital and the Growth of New Technology-Based Firms: A Competence-Based View. *Research Policy*, 34(6), 795–816. http://dx.doi.org/10.1016/j.respol.2005.03.010
- Corsino, M., Espa, G., & Micciolo, R. (2011). R&D, Firm Size and Incremental Product Innovation. *Economics* of Innovation and New Technology, 20(5), 423–443. http://dx.doi.org/10.1080/10438599.2011.562354
- Davidsson, P., & Honig, B. (2003). The Role of Social and Human Capital among Nascent Entrepreneurs. Journal of Business Venturing, 18(3), 301-331. http://dx.doi.org/10.1016/S0883-9026(02)00097-6
- de Jorge Moreno, J., Castillo, L. L., & de Zuani Masere, E. (2010). Firm Size and Entrepreneurial Characteristics: Evidence from the SME Sector in Argentina. *Journal of Business Economics and Management, 11*(2), 259–282. http://dx.doi.org/10.3846/jbem.2010.13
- de Jorge Moreno, J., & Castillo, L. L. (2011). Corporate Growth, Age and Ownership Structure: Empirical Evidence in Spanish Firms. *Journal of Business Economics and Management, 12*(1), 164–196. http://dx.doi.org/10.3846/16111699.2011.555449

- Doz, Y. L., & Hamel, G. (1998). *Alliance Advantage: The Art of Creating Value through Partnering*. Cambridge, MA: Harvard Business School Press.
- Evangelista, R., Sandven, T., Sirilli, G., & Smith, K. (1998). Measuring Innovation in European Industry. *International Journal of the Economics of Business*, 5(3), 311–333. http://dx.doi.org/10.1080/13571519884413
- Filatotchev, I., Liu, X., Lu, J., & Wright, M. (2011). Knowledge Spillovers through Human Mobility Across National Borders: Evidence from Zhongguancun Science Park in China. *Research Policy*, 40(3), 453–462. http://dx.doi.org/10.1016/j.respol.2011.01.003
- Fischer, M. M., & Varga, A. (2002). Technological Innovation and Interfirm Cooperation: An Exploratory Analysis using Survey Data from Manufacturing Firms in the Metropolitan Region of Vienna. *International Journal of Technology Management*, 24(7), 724–742. http://dx.doi.org/10.1504/IJTM.2002.003080
- Foley, M. W., & Edwards, B. (1996). The Paradox of Civil Society. *Journal of Democracy*, 7(3), 38–52. http://dx.doi.org/10.1353/jod.1996.0048
- Forbrun, C. J., & van Reil, C. V. (1997). The Reputational Landscape. *Corporate Reputation Review*, 1(1), 5–13. http://dx.doi.org/10.1057/palgrave.crr.1540008
- Geletkanycz, M. A. & Boyd, B. K. (2011). CEO Outside Directorships and Firm Performance: A Reconciliation of Agency and Embeddedness Views. *Academy of Management Journal*, 54(2), 335–352. http://dx.doi.org/10.5465/AMJ.2011.60263094
- Ginevi, R., & Korsakiene, R. (2005). Exploration of Strategy: Objectives, Competencies and Competitive Advantage. *Journal of Business Economics and Management*, 6(1), 13–22.
- Griliches, Z. (1990). Patent Statistics as Economic Indicators: A Survey. *Journal of Economic Literature*, 28(4), 1661–1707. Retrieved from http://www.globelicsacademy.net/pdf/BronwynHall_4.pdf
- Gummesson, E. (1996). Relationship Marketing and Imaginary Organizations: A Synthesis. *European Journal of Marketing*, *30*(2), 31–44. http://dx.doi.org/10.1108/03090569610106635
- Hakansson, H., & Snehota, I. (1995). Developing Relationships in Business Networks. London: Routledge.
- Hsu, L. C., & Wang, C. H. (2012). Clarifying the Effect of Intellectual Capital on Performance: The Mediating Role of Dynamic Capability. *British Journal of Management*, 23(2), 179–205. http://dx.doi.org/10.1111/j.1467-8551.2010.00718.x
- Hsu, Y. H., & Fang, W. (2009). Intellectual Capital and New Product Development Performance: The Mediating Role of Organizational Learning Capability. *Technological Forecasting and Social Change*, *76*(5), 664–677. http://dx.doi.org/10.1016/j.techfore.2008.03.012
- Hu, M. C., & Wu, C. Y. (2011). Exploring Technological Innovation Trajectories through Latecomers: Evidence from Taiwan's Bicycle Industry. *Technology Analysis & Strategic Management*, 23(4), 433–452. http://dx.doi.org/10.1080/09537325.2011.558401
- Huang, Y. F., & Chen, C. J. (2010). The Impact of Technological Diversity and Organizational Slack on Innovation. *Technovation*, 30(7-8), 420-428. http://dx.doi.org/10.1016/j.technovation.2010.01.004
- Janis, I. L. (1982). *Groupthink: Psychological Studies of Policy Decisions and Fiascoes*. New York: Houghton Mifflin.
- Jansen, J. J. P., Van Den Bosch, F. A. J., & Volberda, H. W. (2006). Exploratery Innovation, Exploitative Innovation, and Performance: Effects of Organizational Antecedents and Environmental Moderators. *Management Science*, 52(11), 1661–1674. http://dx.doi.org/10.1287/mnsc.1060.0576
- Johansson, B., & Loof, H. (2008). Innovation Activities Explained by Firm Attributes and Location. *Economics* of Innovation and New Technology, 17(6), 533–552. http://dx.doi.org/10.1080/10438590701407349
- Jose, P. E. (2010). ModGraph-I: A Programme to Compute Cell Means for the Graphical Display of Moderational Analyses: The Internet Version. New Zealand: Victoria University of Wellington.
- Kalaignanam, K., Shankar, V., & Varadarajan, R. (2007). Asymmetric New Product Development Alliances: Win–Win or Win–Lose Partnerships? *Management Science*, 53(3), 357–374. http://dx.doi.org/10.1287/mnsc.1060.0642
- Kim, J., Kim, S., & Lee, H. (2011). An Effect of Technology Innovation Activity on Firm Value and a Mediation Effect of Leverage: Evidence from Korean Firms. *Asian Journal of Technology Innovation*, 19(1), 37–51.

http://dx.doi.org/10.1080/19761597.2011.578430

- Kim, M., & Lee, S. Y. (2011). The Effects of Government Financial Support on Business Innovation in South Korea. Asian Journal of Technology Innovation, 19(1), 67–83. http://dx.doi.org/10.1080/19761597.2011.578426
- Kim, Y. (2005). Board Network Characteristics and Firm Performance in Korea. *Corporate Governance: An International Review*, 13(6), 800–808. http://dx.doi.org/10.1111/j.1467-8683.2005.00471.x
- Kim, Y., & Cannella, Jr. A. A. (2008). Toward a Social Capital Theory of Director Selection. Corporate Governance: An International Review, 16(4), 282–293. http://dx.doi.org/10.1111/j.1467-8683.2008.00693.x
- Koch, A. (2011). Firm-Internal Knowledge Integration and the Effects on Innovation. *Journal of Knowledge Management*, 15(6), 984–996. http://dx.doi.org/10.1108/13673271111179325
- Korsakiene, R. (2004). Determining Competitive Advantage: The Analytic Hierarchy Process. Journal of Business Economics and Management, 5(4), 205–215.
- Leana, C. R., & Pil, F. K. (2006). Social Capital and Organizational Performance: Evidence from Urban Public Schools. *Organization Science*, *17*(3), 353–366. http://dx.doi.org/10.1287/orsc.1060.0191
- Lhuillery, S., & Pfister, E. (2011). Do Firms Know the Scope of Their R&D Network? An Empirical Investigation of the Determinants of Network Awareness on French Survey Data. *Industry and Innovation*, 18(1), 105–130. http://dx.doi.org/10.1080/13662716.2010.528936
- Liu, X., & Buck, T. (2007). Innovation Performance and Channels for International Technology Spillovers: Evidence from Chinese High-Tech Industries. *Research Policy*, *36*(3), 355–366. http://dx.doi.org/10.1016/j.respol.2006.12.003
- Liu, X., Wright, M., Filatotchev, I., Dai, O., & Lu, J. (2010). Human Mobility and International Knowledge Spillovers: Evidence from High Tech Small and Medium Enterprises in an Emerging Market. *Strategic Entrepreneurship Journal*, 4(4), 340–355. http://dx.doi.org/10.1002/sej.100
- Majumdar, S. K. (2011). Retentions, Relations and Innovation: The Financing of R&D in India. Economics of Innovation and New Technology, 20(3), 233–257. http://dx.doi.org/10.1080/10438590903516335
- Marsden, P. V. (1990). Network Data and Measurement. Annual Review of Sociology, 16(1), 435–463. http://dx.doi.org/10.1146/annurev.so.16.080190.002251
- Marti, J. M. V. (2004). Social Capital Benchmarking System: Profiting from Social Capital when Building Network Organizations. *Journal of Intellectual Capital*, 5(3), 426–442. http://dx.doi.org/10.1108/14691930410550381
- Mithas, S., & Krishnan, M. S. (2008). Human Capital and Institutional Effects in the Compensation of Information Technology Professionals in the United States. *Management Science*, 54(3), 415–428. http://dx.doi.org/10.1287/mnsc.1070.0778
- Muscio, A. (2007). The Impact of Absorptive Capacity on SMEs' Collaboration. *Economics of Innovation and New Technology*, *16*(8), 653–668. http://dx.doi.org/10.1080/10438590600983994
- Pfeffer, J., & Salancik, G. R. (1978). The External Control of Organizations: A Resource Dependence Perspective. New York: Harper and Row.
- Reganati, F., & Sica, E. (2007). Horizontaland Vertical Spillovers from FDI: Evidence from Panel Data for the Italian Manufacturing Sector. *Journal of Business Economics and Management*, 8(4), 259–266.
- Rindova, V. P., Williamson, I. O., & Petkova, A. P. (2010). Reputation as an Intangible Asset: Reflections on Theory and Methods in Two Empirical Studies of Business School Reputations. *Journal of Management*, 36(3), 610–619. http://dx.doi.org/10.1177/0149206309343208
- Roberts, P. W., & Dowling, G. R. (2002). Corporate Reputation and Sustained Superior Financial Performance. *Strategic Management Journal*, 23(12), 1077–1093. http://dx.doi.org/10.1002/smj.274
- Rose, C., & Thomsen, S. (2004). The Impact of Corporate Reputation on Performance: Some Danish Evidence. *European Management Journal*, 22(2), 201–210. http://dx.doi.org/10.1016/j.emj.2004.01.012
- Sammarra, A., & Biggiero, L. (2008). Heterogeneity and Specificity of Inter Firm Knowledge Flows in Innovation Networks. *Journal of Management Studies*, 45(4), 800–829. http://dx.doi.org/10.1111/j.1467-6486.2008.00770.x

- Sauermann, H., & Cohen, W. M. (2010). What Makes Them Tick? Employee Motives and Industrial Innovation. *Management Science*, 56(12), 2134–2153. http://dx.doi.org/10.1287/mnsc.1100.1241
- Schneider, L., Gunther, J., & Brandenburg, B. (2010). Innovation and Skills from a Sectoral Perspective: A Linked Employer—Employee Analysis. *Economics of Innovation and New Technology*, 19(2), 185–202. http://dx.doi.org/10.1080/10438590902872887
- Segars, A. H., & Grover, V. (1995). The Industry Level Impact of Information Technology: An Empirical Analysis of Three Industries. *Decision Sciences*, 26(3), 337–368. http://dx.doi.org/10.1111/j.1540-5915.1995.tb01432.x
- Shamsie, J. (2003). The Context of Dominance: An Industry Driven Framework for Exploiting Reputation. *Strategic Management Journal*, 24(3), 199–215. http://dx.doi.org/10.1002/smj.291
- Shin, M. S., Kwon, J. S., & Kim, S. E. (2010). R&D Expenditure and Dividend Smoothing: Evidence from Korean Small and Medium Sized Enterprises. *Journal of Finance and Accountancy*, 5, 1–19. Retrieved from http://www.aabri.com/manuscripts/10618.pdf
- Shipilov, A., & Danis, W. (2006). TMG Social Capital, Strategic Choice and Firm Performance. *European Management Journal*, 24(1), 16–27. http://dx.doi.org/10.1016/j.emj.2005.12.004
- Sohn, S. Y., & Jung, C. S. (2010). Effect of Creativity on Innovation: Do Creativity Initiatives have Significant Impact on Innovative Performance in Korean Firms? *Creativity Research Journal*, 22(3), 320–328. http://dx.doi.org/10.1080/10400419.2010.503542
- Soliman, K. S., & Janz, B. D. (2004). An Exploratory Study to Identify the Critical Factors Affecting the Decision to Establish Internet—Based Interorganizational Information Systems. *Information & Management*, 41(6), 697–706. http://dx.doi.org/10.1016/j.im.2003.06.001
- Steinfield, C., Scupola, A., & Lopez-Nicolas, C. (2010). Social Capital, ICT Use and Company Performance: Findings from the Medicon Valley Biotech Cluster. *Technological Forecasting and Social Change*, 77(7), 1156–1166. http://dx.doi.org/10.1016/j.techfore.2010.03.004
- Ulhoi, J. (2005). The Social Dimensions of Entrepreneurship. *Technovation*, 25(8), 939–946. http://dx.doi.org/10.1016/j.technovation.2004.02.003
- Uzzi, B. (1996). The Sources and Consequences of Embeddedness for the Economic Performance of Organizations: The Network Effect. *American Sociological Review*, 61(4), 674–698. http://dx.doi.org/10.2307/2096399
- Vilkamo, T., & Keil, T. (2003). Strategic Technology Partnering in High-Velocity Environments—Lessons from a Case Study. *Technovation*, 23(3), 193–204. http://dx.doi.org/10.1016/S0166-4972(01)00108–0
- Vinding, A. L. (2006). Absorptive Capacity and Innovative Performance: A Human Capital Approach. *Economics of Innovation and New Technology*, 15(4–5), 507–517. http://dx.doi.org/10.1080/10438590500513057
- Walker, R. M., Damanpour, F., & Devece, C. A. (2011). Management Innovation and Organizational Performance: The Mediating Effect of Performance Management. *Journal of Public Administration Research and Theory*, 21(2), 367–386. http://dx.doi.org/10.1093/jopart/muq043
- Wang, J. C. (2008). Investigating Market Value and Intellectual Capital for S&P 500. *Journal of Intellectual Capital*, 9(4), 546–563. http://dx.doi.org/10.1108/14691930810913159
- Wang, C. H., Hsu, L. C., & Fang, S. R. (2008). The Determinants of Internationalization: Evidence from the Taiwan High Technology Industry. *Technological Forecasting and Social Change*, 75(9), 1388–1395. http://dx.doi.org/10.1016/j.techfore.2008.03.002
- Wang, C. H. (2011). Clarifying the Effects of R&D on Performance: Evidence from the High Technology Industries. Asia Pacific Management Review, 16(1), 51–64. Retrieved from http://apmr.management.ncku.edu.tw/comm/updown/DW1103213954.pdf
- Wang, C. H. (2011). The Moderating Role of Power Asymmetry on the Relationships between Alliance and Innovative Performance in the High-Tech Industry. *Technological Forecasting and Social Change*, 78(7), 1268–1279. http://dx.doi.org/10.1016/j.techfore.2011.03.017
- Wang, C. H. (2013). How Relational Capital Mediates the Effect of Corporate Reputation on Competitive Advantage: Evidence from Taiwan High-Tech Industry. *Technological Forecasting and Social Change*.

http://dx.doi.org/10.1016/j.techfore.2013.06.009

- Wincent, J., Anokhin, S., & Ortqvist, D. (2010). Does Network Board Capital Matter? A Study of Innovative Performance in Strategic SME Networks. *Journal of Business Research*, 63(3), 265–275. http://dx.doi.org/10.1016/j.jbusres.2009.03.012
- Wu, C. W. (2011). Global Marketing Strategy Modeling of High Tech Products. *Journal of Business Research*, 64(11), 1229–1233. http://dx.doi.org/10.1016/j.jbusres.2011.06.028
- Wu, W. Y., Tsai, H. J., Cheng, K. Y., & Lai, M. (2006). Assessment of Intellectual Capital Management in Taiwanese IC Design Companies: Using DEA and the Malmquist Productivity Index. *R&D Management*, 36(5), 531–545. http://dx.doi.org/10.1111/j.1467-9310.2006.00452.x
- Youndt, M. A., Subramaniam, M., & Snell, S. A. (2004). Intellectual Capital Profiles: An Examination of Investments and Returns. *Journal of Management Studies*, 41(2), 335–361. http://dx.doi.org/10.1111/j.1467-6486.2004.00435.x
- Zabala, I., Panadero, G., Gallardo, L. M., Amate, C. M., Sanchez-Galindo, M., Tena, I., & Villalba, I. (2005). Corporate Reputation in Professional Services Firms: Reputation Management based on Intellectual Capital Management. *Corporate Reputation Review*, 8(1), 59–71. http://dx.doi.org/10.1057/palgrave.crr.1540239
- Zahra, S. A. (2005). Entrepreneurial Risk Taking in Family Firms. *Family Business Review*, 18(1), 23-40. http://dx.doi.org/10.1111/j.1741-6248.2005.00028.x
- Zahra, S. A., & Bogner, W. C. (2000). Technology Strategy and Software New Ventures' Performance: Exploring the Moderating Effect of the Competitive Environment. *Journal of Business Venturing*, *15*(2), 135–173. http://dx.doi.org/10.1016/S0883-9026(98)00009-3
- Zarutskie, R. (2010). The Role of Top Management Team Human Capital in Venture Capital Markets: Evidence from First-Time Funds. *Journal of Business Venturing*, 25(1), 155–172. http://dx.doi.org/10.1016/j.jbusvent.2008.05.008

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