行政院國家科學委員會專題研究計畫 期末報告

「智慧資本之研究：管理議題探討」三年整合型計畫--子計畫五 ： 社會資本、人力資本與社會資本、及結構資本與社會資本之動因及其對績效影響之整合性研究－平衡計分卡觀點(第 3 年)

計 畫 類 別 ： 整合型
計 畫 編 號 ： NSC 99-2410-H-004-019-MY3
執 行 期 間 ： 101 年 08 月 01 日至 102 年 07 月 31 日
執 行 單 位 ： 國立政治大學會計學系

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報 告 附 件 ： 出席國際會議研究心得報告及發表論文

公 開 資 訊 ： 本計畫涉及專利或其他智慧財產權，2 年後可公開查詢

中 華 民 國 102 年 10 月 31 日

中 文 摘 要 ： Prior literature shows that social capital from outside have great impact on the firm performance. This study focuses on the impact of relationship between social capital and innovation capital on firm performance especially from the depth of the social capital created by key shareholders under high and low competition market. The empirical results show that key social capital has more positive effect on firm performance under high market competition than that of low market competition. In addition, this study examines the mediating effect of innovation capital on the relationship between social capital and firm performance. The results show that the social capital has negative indirect effect on firm performance through innovation capital. However, when further examining the mediating effect of innovation capital under different intensity competition market, the results show that there is insignificant indirect effect of social capital on firm performance under high competition market or under low competition market.

中文關鍵詞： Social capital, Innovation capital, Shareholder network, Market competition, Firm performance

英 文 摘 要 ：

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Market Competition, Social Capital, Innovation Capital, and Firm Performance: An Emerging Economy Test

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Abstract

Prior literature shows that social capital from outside have great impact on the firm performance. This study focuses on the impact of relationship between social capital and innovation capital on firm performance especially from the depth of the social capital created by key shareholders under high and low competition market. The empirical results show that key social capital has more positive effect on firm performance under high market competition than that of low market competition. In addition, this study examines the mediating effect of innovation capital on the relationship between social capital and firm performance. The results show that the social capital has negative indirect effect on firm performance through innovation capital. However, when further examining the mediating effect of innovation capital under different intensity competition market, the results show that there is insignificant indirect effect of social capital on firm performance under high competition market or under low competition market.

Key word: Social capital, Innovation capital, Shareholder network, Market competition, Firm performance

I. Introduction

In the knowledge economy age, the value of firms changes from tangible assets to intangible assets. Intangible assets include professional ability of employees, firms' culture, patents, and social capital from inside and outside the firms. Social capital is one of the most important intangible assets for firms in the current keen competitive environment. According to "social capital theory", social capital developed by social relations generates economic or non-economic benefits, such as social, psychological, and emotional supports (White 2002; Lin 2000). Social capital is essential in creating economic success and values, and becomes the central resources for organizational operation. Dyer and Singh (1998) suggest that firms' critical resources are expanded and embedded in intra-firms. The embeddedness with outside partners provides a lot of knowledge, information, and resources to improve organizational performance. In other words, firms have relations with other firms to get new knowledge, information, and resources for improving performance (Leana and Pil 2006; Knight and Yueh 2008). Some studies show that social capital from outside have great impact on the performance of firms (Nahapiet and Ghoshal 1998; Yli-Renko, Altio, and Sapienza 2001; Kotabe, Jian, and Murray 2011).

There are two key sources of social capital which are social capital from board directors and shareholders. Most studies focus on social capital from board directors, but not from shareholders. In general, key shareholders play important roles for organizational behavior (Douma, George, and Kabir 2006). Key shareholders have strong influence on corporate governance, decisions-making, and strategy planning of firms (North 1990; Huang and Shiu 2009; Baik, Kang, and Kim 2010). Most of the key shareholders are institutional shareholders who have more special knowledge and experiences than those of individual shareholders (Lee and Park 2009). Key institutional shareholders invest in different companies and gain different information and knowledge from other companies. Therefore, social capital from those key shareholders has significant benefits to companies' performance.

Market competition is an important issue in emerging countries (Brüggen and Luft 2011).

Firms in emerging markets face keen competition and uncertainty environment from foreign firms, so they need to seek the relevant resources and information from outsiders to improve their capabilities (Barney 1991; Li and Kozhihode 2008). Based on resource-based view, firms develop their abilities based on different resources to improve management and operational activities (Barney, Wright, and Kelchen 2001). In the competitive environment, the internal resources are not enough for firms to survive and success; therefore, firms need external resources to cumulate their capabilities and knowledge. In other words, in order to win in the keen competitive market, firms need to interact with outsiders through social capital to develop their unique abilities. Key shareholders play significant roles in the emerging market to assist firms to develop their unique and differentiated abilities (Hitt et al. 2000).

To empirically test the impacts of social capital and market competition on firm performance, this research examines the following issues: First, this study focuses on social capital which is proxy by the depth of shareholders' networks measured by the numbers of the linkage with different companies in the same industry. The depth of shareholder networks shows the degree of linkage with different companies in the same industry, which means that shareholders get related information, resources, and knowledge from different firms but in the same industry. Second, this study examines the different impacts of social capital on firm performance under high market competition or low market competition.

This study focuses on the high-tech firms in Taiwan which is an emerging market. The emerging market is chosen for two reasons. First, firms in the emerging market are on the transition of market-based systems and face the rapid economic development. Firms in the emerging markets need more resources which including financial assets, technical capabilities and intangible resources, to survive and grow in the keen competitive situation (Arnold and Quelch 1998). In general, firms in the emerging market usually learn knowledge and get information and resources from outside partners (Kotabe et al. 2011); therefore, social capital becomes a key factor for firms to survive and grow in the emerging market. Second, Taiwanese high-tech industry plays an important role in the global market, because it is the largest

producers of desktop personal computers, notebooks, displays, and motherboards (Einhorn 2005; Dedrick and Kraemer 2005). This research uses the specific sample to provide economically significant insights for international corporations and investors.

This study contributes to the extant literature in the following three aspects. First, this study discusses the role of social capital on high-tech industries which provide new evidences in the intangible capital area. Second, this study contributes to an emerging market in social capital which is very important in East Asia such as China and Taiwan. Third, this study adds to the literature on market competition. Little prior research examines the effect of social capital under different market competition. This study provides the evidence of social capital for operation performance under high or low competitive market environment.

The remainder of this paper is organized as follow: Section 2 discusses the related literature and hypothesis development. Section 3 shows the research method, which includes data collection, variables' definitions, and empirical models. Section 4 presents empirical results for testing different hypothesis. Section 5 is the conclusion and limitations of this study.

2. Literature review and hypothesis development

2.1 The impact of social capital on firm performance under different market competition

In emerging market, one of the significant sources of competition is come from the entrance of foreign firms which cause the economy environment uncertainty (Fleming, Chow, and Chen 2009; Sakakibara and Porter 2001). Firms in emerging market may use interorganizational relations to gain resources to develop their capabilities to compete with global competitors (Hitt et al. 2000; Todeva and Knoke 2005; O'Connor, Vera-Muñoz, Chan 2011). When the market competition increases, firms need more outside information and resources to make right and relevant decisions (Barney 1991; Mia and Clarke 1999).

Based on resource-based view (RBV) of firms, superior performances are essentially based on the firm's ownership or control of non-imitate resource combinations (Morash and Lych 2002; Ibeh 2005). RBV proposes that highly integrated organizations gain competitive advantages from

information visible and operational knowledge. Integrated firms can be easy to response to volatile market from frequent change in keen competition, rapid change of technology, and governmental regulation (Dyer 1996). Therefore, firms improve operational performance from external resources to face high competitive market.

Industry competition encourages firms to develop social capital in getting access to resources and searching ways to mitigate their disadvantages (Kotabe et al. 2011). The more social capital a firm has, the more likely a firm to gain competitive advantage in the keen competitive environment (Yli-Renko et al. 2001). Thus, this study expects that shareholder network has more positive impacts on firm performance under high market competition than that of low market competition.

Hypothesis 1: Social capital has more positive effect on firm performance under high market competition than that of low market competition.

In competitive environment, firms need social capital to their competitive capabilities by broadening and deepening market knowledge and information. Firms need to align or integrate with other partners with special resources and technological knowledge to retain their various competitive capabilities. In the high market competition, firms need more information about other competitors in the same industry (Dedman and Lennox 2009). In other words, firms under high market competition need more same industry information and knowledge than firms under low market competition for long-term survival. The depth of shareholders' network causes firms to get deep information and experience in the same industry. Thus, I expects that in high market competition, firms need more shareholder networks from the same industry than those in low market competition.

Hypothesis 2: The depth of social capital has stronger positive effect on firm performance under high market competition than that of low market competition.

2.2 The mediating impact of innovation capital on the relationship between social capital and firm performance

The relationship between individuals or organizations which facilitate the action and create value is social capital (Adler and Kwon 2002). According to "social capital theory", social capital is generated by the social relations and can be mobilized to have economic or non-economic benefits to the parties in the short or long terms (Lin 2000; White 2002; Adler and Kwon 2002). Social capital is the goodwill and resources from mutual, trusting relationships which have positive contribution on firm's performance (Nahapiet and Ghoshal 1998; Adler and Kwon 2002; Hitt et al. 2002; Collins and Clark 2003; Moran 2005; Stam and Elfring 2008; Sabatini 2009). By interaction with other parties, firms may benefit from great and timely access information, financial or other resources (Seibert et al. 2001; Lin et al. 1981). Firms need to exchange intra-organizational resources to help buffer themselves from environmental uncertainty. Hence, social capital increases the information flow and then improves firm performance.

Most literature focuses on social capital from board directors but not from key shareholders. The key shareholders have strong influences on an organization's structure and behavior (Douma et al. 2006). Based on the view of "agency theory", key shareholders can monitor managers and then improve firms' economic performance. North (1990) argues that shareholders go through formal and informal activities and rules to improve production and operation of firms. Most key shareholders in firms are institutional shareholders who are highly specialized players in the market, have more knowledge of the invested firms, acquire more information from the outside, and have better experience in the market than those of individual shareholders (Douma et al. 2006; Lee and Park 2009). Institutional shareholders strongly influence management and corporate governance of firms and improve the valuation of firms in the long run (Thomsen and Pedersen 2000; Hartzell and Starks 2003; Piotroski and Roulstone 2004; Aggarwal et al. 2011).

Firms in emerging markets need information and resources from key institutional shareholders because those shareholders are professional shareholders with expertise and talent

(Chan et al. 2007). Therefore, the social capital from key institutional shareholders increases firms' knowledge and information on the emerging market to improve operation performance.

There are different types of social network, such as strong tie, weak tie, and the depth of social network. In general, different social network bring different information and resources to firms. Different social network not only comes from unique resources and information hold by other entities, but also comes from different transfer way within the network (Inkpen and Tsang 2005). Most literature examine social network in the perspective of strong or weak tie. This study examines the depth of social network. The depth of shareholder network shows how deep the key shareholders network ties within the same industry. When shareholders have deep linkage within an industry, they have more information and knowledge about the same industry. The greater the depth of information and knowledge from different firms in the same industry is, the greater the influence on the operating performance (Zahra et al. 2000). Thus, we expect that the depth of shareholder network from other firms in the same industry improves operational performance.

Hypothesis 3: The depth of social capital has positive effect on firm performance.

Based on the view of "agency theory", key shareholders can monitor managers and then improve firms' economic performance. North (1990) argues that shareholders go through formal and informal activities and rules to improve production and operation of firms. Most key shareholders in firms are institutional shareholders who are highly specialized players in the market, have more knowledge of the invested firms, acquire more information from the outside, and have better experience in the market than those of individual shareholders (Douma et al. 2006; Lee and Park 2009). Institutional shareholders strongly influence management and corporate governance of firms and improve the valuation of firms in the long run (Thomsen and Pedersen 2000; Hartzell and Starks 2003; Piotroski and Roulstone 2004; Aggarwal et al. 2011). Therefore, the social capital from those key institutional shareholders can increases firms' knowledge and information on the emerging market to improve innovation capital and firm

performance.

Innovation capital is very important in the high competitive environment. Van de Ven (1986) indicates that innovation intrinsically identify and use right resources to create new products, and services. Joia (2000) identifies innovation capital as a direct consequence of the firm's culture and its capacity of creating new knowledge. There are four properties viewed as output of innovation capital, such are new products, patents, trademarks, and copyrights. Several studies indicate that innovation capital is a key factor which has significant influence on competitive advantage and business performance (e.g., Chen et al., 2004). Triest and Vis (2007) show that good knowledge of technology, markets and competitors which are embodied in valuation of patents on production process improvements. In other words, innovation capital enriches and enhances the persistence of organizations. Furthermore, several studies have examined the relationship between innovation capital and firm performance. Most of the literature argues that innovation capital is positively related to performance (e.g., Stevens et al. 1999; Sher and Yang 2005). For example, Aboody and Lev (2001) focus on 83 publicly-traded chemical firms and examine the profitability of R&D investments from 1980 to 1999. The results show that a dollar invested in chemical R&D increases current and future operating income by two dollars. Similarly, Sougiannis (1994) shows that when the firm increases $1 in R&D investment, it will increase $2 in earnings and $5 in market value over the next seven years. Therefore, from the above research, innovation capital not only has an impact on current performance, but also further financial performance and firm value.

Based on the resource-based view, a company is a combination of resources and capabilities. When these resources are unique, valuable, rare, and hard to imitate, appropriate usage of these resources will contribute to maintain a competitive advantage for the business (Barney 1991). Therefore, this study assumes that the deeper shareholder network will increase innovation capital, which will have a positive impact on firm performance.

Hypothesis 4: Social capital is positively association with innovation capital, which leads to higher firm performance.

When facing an economic environment of high competition, enterprises must have the ability in cumulating innovation capital to create competitive advantage (Han 2001). On the other hand, as indicated by prior literature, firms need to cooperate with external partners to access to different sources of knowledge and experience in highly competitive environment (Kotabe et al. 2011). Therefore, devoting resources to deepen the networks of shareholder should accumulate innovation capital and then have a stronger positive impact on firm performance under a highly competitive environment. In sum, the influence of the intensity of competition on the relationship among social capital, innovation capital, and firm performance is assumed as follows:

Hypothesis 5: Innovation capital has a stronger positive mediating effect on the relationship between social capital and firm performance under high market competition than that of low market competition.

3. Research method

3.1 Data collection

The sample of this study consists of 1,866 firm years from public listed high-tech firms in Taiwan from 2007 to 2009. The key shareholders' list is obtained from the corporate governance database of Taiwan Economic Journal (TEJ). This study focuses on the top 3 shareholders of each high-tech firm. The financial information is obtained from the Financial Report Database compiled by TEJ, which contains data extracted from firms' annual financial reports. The number of patent data is collected from database of Intellectual Property Office.

3.2 Variable measurement and models for testing hypotheses

To examine the impacts of shareholder network under different market competition on firm performance, this study follows Ho, Wu, and Xu (2011) and uses the following two regression models:

High market competition ($COMP = 1$):

$$TOBINSQ = \beta_0^{COMP} + \beta_1^{COMP} SN\_COM + \beta_2^{COMP} SIZE + \beta_3^{COMP} GROW + \beta_4^{COMP} RD_{t-1} + \beta_5^{COMP} ROA + \beta_6^{COMP} YEAR2007 + \beta_7^{COMP} YEAR2008 + \varepsilon$$

Low market competition ($COMP = 0$):

$$TOBINSQ = \beta_0^{1-COMP} + \beta_1^{1-COMP} SN\_COM + \beta_2^{1-COMP} SIZE + \beta_3^{1-COMP} GROW + \beta_4^{1-COMP} RD_{t-1} + \beta_5^{1-COMP} ROA + \beta_6^{1-COMP} YEAR2007 + \beta_7^{1-COMP} YEAR2008 + \varepsilon \quad (1)$$

where market competition is measured by the four-firm concentration ratio (*CR4*) for each firm. *CR4* is the percentage of total sales in the firm's industry sector accounted for by the four largest firms in the same industry sector. Higher industry concentration is more competitive in the market. *COMP* is a dummy variable that takes the value of 1 when CR4 is below the median which represent high market competition. On the other hand, *COMP* equals if CR4 is above the median which represent low market competition. The independent variable in this model is shareholder network (*SN_COM*). The control variables include *SIZE* which is the nature logarithm of total assets, *GROW* which is the change in sales revenue to this period from the last period and scaled by net sales revenue from that last period, *ROA* which refers to the ratio of firms' annual earnings to First, I calculate the total count number of the top 3 shareholders' investment on other listed Taiwanese high-tech companies. Further, I use the average count number of the top 3 shareholders' investment to represent the firms' shareholder network. β_1^{COMP} and β_1^{1-COMP} gauge the effect of shareholder network on firm performance in high and low market competition respectively. I expect that the effect of shareholder network is more positive in high market competition than low market competition, that is β_1^{COMP} is more positive than β_1^{1-COMP}.

To investigate the impact of the depth of shareholder network on firm performance under different market competition, this research uses following models to test Hypotheses 2:

High market competition ($COMP = 1$):

$$TOBINSQ = \beta_0^{COMP} + \beta_1^{COMP} SN\_DEPTH + \beta_2^{COMP} SIZE + \beta_3^{COMP} GROW + \beta_4^{COMP} RD_{t-1} + \beta_5^{COMP} ROA + \beta_6^{COMP} YEAR2007 + \beta_7^{COMP} YEAR2008 + \varepsilon$$

Low market competition ($COMP = 0$):

$$TOBINSQ = \beta_0^{1-COMP} + \beta_1^{1-COMP} SN\_DEPTH + \beta_2^{1-COMP} SIZE + \beta_3^{1-COMP} GROW + \beta_4^{1-COMP} RD_{t-1} + \beta_5^{1-COMP} ROA + \beta_6^{1-COMP} YEAR2007 + \beta_7^{1-COMP} YEAR2008 + \varepsilon \quad (2)$$

where β_1^{COMP} and β_1^{1-COMP} gauge the impact of the depth of shareholder network on firm performance in high and low competitive industries respectively. I expect that the effect of the depth of shareholder network is more positive in high competitive industries than low competitive industries, that is β_1^{COMP} is more positive than β_1^{1-COMP}.

To analyze the indirect effect of shareholder network on firm performance, this study develops following models:

$$IC = \beta_0 + \beta_1 SN\_DEPTH + \beta_2 SIZE + \beta_3 GROW + \beta_4 ROA_{t-1} + \beta_5 YEAR2007 + \beta_6 YEAR2008 + \varepsilon \quad (3)$$

$$TOBINSQ = \beta_0 + \beta_1 SN\_DEPTH + \beta_2 IC + \beta_3 SIZE + \beta_4 GROW + \beta_5 ROA + \beta_6 YEAR2007 + \beta_7 YEAR2008 + \varepsilon \quad (4)$$

I also divide the sample into high market competition and low market competition to investigate whether the innovation capital has different mediating effects on the association between the depth of shareholder network and firm performance.

4. Results

4.1 Summary statistics

This study presents descriptive statistics of key variables for the full sample in Table 1. The mean of depth of shareholder network (*SN_DEPTH*) is 1.809. The minimum of *SN_DEPTH* is 1 and the maximum is 10. The standard deviation of *SN_DEPTH* is 1.474. The difference of the

depth of shareholder network is not large. The mean of the key shareholder network (*SN_COM*) is 5.883. The minimum of *SN_COM* is 1. However, the maximum of *SN_COM* is 58. The standard deviation of *SN_COM* is 8.513, which means the variation of shareholder network is big in Taiwanese high-tech industry.

Table 2 provides the correlation matrix for variables used in the regression analysis. The results show a significant and positive correlation between two shareholder network variables (*SN_COM* and *SN_DEPTH*) and firm performance (*TOBIN'S Q*), which preliminarily support the hypotheses. This study will do regression analysis to further examine the relationship between shareholder network and firm performance.

Please Insert Table 1 here

Please Insert Table 2 here

4.2 Regression analysis

4.2.1 The impact of social capital under different market competition

I further examine the impact of key shareholder network on firm performance under different market competition. Table 3 presents two sets of regression models, including high market competition (*COMP*=1) and low market competition (*COMP*=0). The results show that the coefficient of shareholder network (*SN_COM*) is insignificant in low market competition (0.001, t=0.52) while significant and positive in high market competition (0.012, t=2.80). This finding is consistent with the expectation that key shareholder network is more positive to firm performance in high market competition than that under low market competition, which supports Hypothesis 1.

Please Insert Table 3 here

Hypothesis 2 expects that the depth of key shareholder network have more positive effect on firm performance under high market competition (*COMP*=1) than firms under low market competition (*COMP*=0). The regression results for Hypothesis 2 are presented in Table 4. The coefficient on the depth of shareholder network (*SN_DEPTH*) is insignificant in low competitive industries (0.018, t=1.04) while significant and positive in high competitive industries (0.042, t=2.16). Therefore, the results support Hypothesis 2.

Please Insert Table 4 here

4.2.2 The indirect impact of social capital on firm performance

In order to test structural equation model, this paper reports x^2, Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Squared Residual (SRMSR), Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI). According to Table 5, the results show relatively good fit for the model.

Please Insert Table 5 here

Table 6 presents the analysis results of the direct relation among shareholder network, innovation capital, and firm performance. When firm size, sales growth, R&D, and year effects are controlled, shareholder network is significantly and positively related to Tobin's Q (0.045, *Z*=3.04). Overall, the finding provides support for Hypothesis 3 and suggests that a higher level of shareholder network enhances firm performance in the Taiwanese electronics industry.

Please Insert Table 6 here

This research further examines the indirect relationship among shareholder network and firm performance. As shown in Table 7, the indirect effects of innovation depth and innovation breadth are significant and negative for Tobin's Q model ($-0.002, z = -1.76$). The proportion of indirect to total effect is 4.651%. The results are not consistent with Hypothesis 4 of an indirect effect of shareholder network. Overall, the findings suggest that innovation capital mediate the relationship between shareholder network and firm performance. However, higher intensity of shareholder network is associated with lower innovation capital, which leads to lower firm performance.

Please Insert Table 7 here

This study expects that innovation capital has a different mediating effects on the relationship between key shareholder network and firm performance under high market competition (*COMP*=1) and low market competition (*COMP*=0). The regression results are presented in Table 8 and Table 9. The results show that the indirect effects of innovation capital on the relationship between key shareholder network and firm performance are insignificant either under high market competition (0.001, Z=0.47) or under low market competition (-0.001, Z= -1.26). The proportion of indirect to total effect is 1.695% and 5.556%. The result is not consistent with Hypothesis 5 that innovation capital has a greater mediating effect under high competition market. Thus, Hypothesis 5 is not supported.

Please Insert Table 8 and Table 9 here

5. Conclusion

Shareholders are the owners and the governors of the firms that seek improvement of performances. This study focuses on the impact of social capital on firm performance especially the depth of the social network created by key shareholders. This study investigates the different impacts of social capital on firm performance under high market competition and low market competition. In the emerging market, firms need to be more competitive than others, thus they need more resources, information, and knowledge from outside parties. Social capital enhances the resources and knowledge available through the network relationships. Those resources help firms to develop their competitive capabilities (Yli-Renko et al. 2001). Key shareholders usually are specialized in the market, so they have a strong influence on firms' competitive advantage. The empirical results support the predictions that key shareholder network has significantly positive impact on firm performance under high market competition than that of low market competition. Moreover, the depth of social capital also has positive impact on firm performance under high market competitive industries. Firms need to align with others with special resources and technological knowledge to maintain their competitive capabilities (Kim 2009). Therefore, the deeper of the social capital in the same industry, the more specific resources and knowledge the firm will obtain. To sum up, the empirical results show that firms not only need overall social capital but also need the depth of social network in the same industry to acquire industry related information, resources, and knowledge to improve operational performance.

This study also explore whether the social capital has indirect effect on firm performance through innovation capital. However, the results show that social capital has negative indirect impact on firm performance. This finding indicates that the higher the intensity of social capital

is, the lower of innovation capital so that the firm performance would decrease. I also further examine the effect of the intensity of competition on the relationship among social capital, innovation capital, and firm performance. However, the results show that innovation capital has no mediating effect on the relationship between social capital and firm performance under high competition market or under low competition market.

There are three limitations in this study. First, this study uses the average count number of the top 3 shareholder network to measure the depth of firms' shareholder network. Future research could examine alternative ways of measuring key shareholder network. Second, this study shows that shareholders' network positively impacts firm performance, but the empirical approach does not permit a direct examination of this relationship. This limitation exists in most empirical literature on the "network" (Carpenter and Westphal 2001). Finally, this study focuses on public electronics firms. The findings are based on large and public firms, but may be less applicable to small or non-public firms.

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Table 1: Descriptive statistics

Variables	Mean	Std. Dev.	Min	Max
Dependent Variable				
TOBINSQ	1.277	0.916	-0.053	12.474
Independent Variables				
SN_DEPTH	1.809	1.4739	1	10
SN_COM	5.883	8.513	1	58
COMP	0.507	0.500	0	1
IC	11.65	63.206	0	1768
SN_IC	24.962	103.229	0	1768
Control Variables				
SIZE	6.544	0.622	4.713	8.9438
GROW	5.592	259.243	-8111.45	4312.6
RD_{t-1}	4.881	8.056	0	118.68
ROA	5.220	12.772	-105.75	84.86
N=1866				

Notes:

TOBINSQ.= Tobin's Q; SN_COM = key shareholder network; SN_DEPTH = the depth of shareholder network; COMP = dummy variable that equals 1 if firms in the high market competition; IC = the number of patents granted by the firm; SIZE = natural logarithm of total assets; GROW = the change in sales revenue to this period from the last period and scaled by net sales revenue from that last period; RD_{t-1} = R&D expenditure of the last period; ROA = the ratio of firms' annual earnings to total assets.

Table 2: Correlations for the variables in the model

	TOBINS' Q	SN_DEPTH	SN_COM	COMP	IC	SN_IC	ROA	SIZE	GROWTH	RD_{t-1}
TOBINS'Q	1.000									
SN_DEPTH	0.083***	1.000								
SN_COM	0.072***	0.8476***	1.000							
COMP	0.037	0.085***	-0.047**	1.000						
IC	0.015	0.041*	0.084***	-0.049**	1.000					
SN_IC	0.021	0.293***	0.258***	-0.020	0.780***	1.000				
ROA	0.392***	0.114***	0.110***	0.009	0.039*	0.060**	1.000			
SIZE	-0.003	0.334***	0.350***	-0.060***	0.365***	0.450***	0.210***	1.000		
GROWTH	0.050**	-0.082***	-0.057*	0.007	-0.003	-0.018	0.098***	-0.006	1.000	
RD_{t-1}	0.261	-0.002	-0.025	0.130***	0.485***	0.459***	-0.069***	-0.229***	0.035	1.000

Notes:

1. TOBINSQ= Tobin's Q; SN_COM = key shareholder network; SN_DEPTH = the depth of shareholder network; COMP = dummy variable that equals 1 if firms in the high market competition; SIZE = natural logarithm of total assets; GROW = the change in sales revenue to this period from the last period and scaled by net sales revenue from that last period; RD_{t-1} = R&D expenditure of the last period; ROA = the ratio of firms' annual earnings to total assets.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively

Table 3: The role of large institutional shareholder network on firm performance under high market competition

	High Competition (COMP=1)	Low Competition (COMP=0)
Intercept	1.661	1.127
	(4.54)***	(4.78)***
SN_COM	0.012	0.001
	(2.80)***	(0.52)
SIZE	-0.126	-0.029
	(-2.21)**	(-0.80)
GROW	-0.000	0.000
	(-0.19)	(0.97)
RD_{t-1}	0.033	0.027
	(10.86)***	(6.81)***
ROA	0.031	0.024
	(14.05)***	(13.28)***
YEAR2007	0.414	0.382
	(5.61)***	(7.28)***
YEAR2008	-0.170	-0.162
	(-2.32)**	(-4.78)***
N	855	1011
F Value	57.66***	53.12***
R^2	0.323	0.271
Adjusted R^2	0.317	0.265

Notes:

1. TOBINSQ= Tobin's Q; SN_COM = key shareholder network; COMP = dummy variable that equals 1 if firms in the high market competition; SIZE = natural logarithm of total assets; GROW = the change in sales revenue to this period from the last period and scaled by net sales revenue from that last period; RD_{t-1} = R&D expenditure of the last period; ROA = the ratio of firms' annual earnings to total assets; YEAR2007-YEAR2008 = dummy variables of year effect.
2. *t* statistics are in parentheses.
3. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4: The role of depth of shareholder network and on firm performance under high and low market competition

	High Competition (COMP=1)	Low Competition (COMP=0)
Intercept	1.560	1.143
	(4.30)***	(5.93)***
SN_DEPTH	0.042	0.018
	(2.16)**	(1.04)
SIZE	-0.114	-0.348
	(-1.98)**	(-0.97)
GROW	-0.000	0.000
	(-0.23)	(0.99)
RD_{t-1}	0.033	0.027
	(10.96)***	(6.80)***
ROA	0.032	0.024
	(14.19)***	(13.21)***
YEAR2007	0.411	0.383
	(5.55)***	(7.20)***
YEAR2008	-0.170	-0.162
	(-2.32)**	(-3.23)***
N	855	1011
F Value	57.00***	53.28***
R^2	0.320	0.271
Adjusted R^2	0.315	0.266

Notes:

1. TOBINSQ= Tobin's Q; SN_DEPTH = the depth of shareholder network; COMP = dummy variable that equals 1 if firms in the high market competition; SIZE = natural logarithm of total assets; GROW = the change in sales revenue to this period from the last period and scaled by net sales revenue from that last period; RD_{t-1} = R&D expenditure of the last period; ROA = the ratio of firms' annual earnings to total assets; YEAR2007-YEAR2008 = dummy variables of year effect.
2. *t* statistics are in parentheses.
3. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 5: Fit indices for structural model

Fit index	Criteria	Model
Chi-square	The smaller, the better	0.287
P value	>0.05	0.962
Standardized root mean squared residual, SRMSR	<0.05	0.001
Root mean square error of approximation, RMSEA	<0.05	0.000
Tucker-lewis index, TLI	>0.90	1.011
Comparative fit index, CFI	>0.90	1.000

Table 6: The path analysis results of structural equation model (based on 2000 bootstrap samples)

Path			Stand. coef.	z
SN_DEPTH	→	TOBINSQ	0.045***	3.04
SN_DEPTH	→	IC	-1.251	-1.53
IC	→	TOBINSQ	0.002	1.54

One tailed tests: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TOBINSQ= Tobin's Q; SN_DEPTH = the depth of shareholder network; IC=the number of patents granted by the firms.

Table 7: The analysis results of indirect effects (based on 2000 bootstrap samples)

Paths	Direct effects		Indirect effects		Total effects		Proportion of indirect to total effect
	Stand. coef.	z value	Stand. coef.	z value	Stand. coef.	z value	
SN_DEPTH→IC→ TOBINSQ	0.045***	3.04	-0.002*	-1.76	0.043***	2.93	4.651%%

One tailed tests: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TOBINSQ= Tobin's Q; SN_DEPTH = the depth of shareholder network; IC=the number of patents granted by the firms.

Table 8: The path analysis results of structural equation model (based on 2000 bootstrap samples)

	Path			Stand. coef.	z
High competition	SN_DEPTH	→	TOBINSQ	0.057***	3.19
	SN_DEPTH	→	IC	0.264	0.46
	IC	→	TOBINSQ	0.005***	4.91
Low competition	SN_DEPTH	→	TOBINSQ	0.020	1.27
	SN_DEPTH	→	IC	-3.20	-2.19**
	IC	→	TOBINSQ	0.001	1.34

One tailed tests: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TOBINSQ= Tobin's Q; SN_DEPTH = the depth of shareholder network; IC=the number of patents granted by the firms.

Table 9: The analysis results of indirect effects (based on 2000 bootstrap samples)

	Paths	Direct effects		Indirect effects		Total effects		Proportion of indirect to total effect
		Stand. coef.	z value	Stand. coef.	z value	Stand. coef.	z value	
High competition	SN_DEPTH→N_D TOBINSQ	0.057	3.19***	0.001	0.47	0.059	3.42***	1.695%
Low competition	SN_DEPTHoef. TOBINSQ	0.020	1.27	-0.001	-1.26	0.018	1.18	5.556%

One tailed tests: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TOBINSQ= Tobin's Q; SN_DEPTH = the depth of shareholder network; IC=the number of patents granted by the firms.

美國會計協會 – 2013 年管理會計年會

American Accounting Association —2013 Management Accounting Section

出席年會報告

吳安妮
國立政治大學會計系

2013 年 1 月

美國會計協會—2013 管理會計年會

本次大會：美國會計協會—2013 管理會計年會(2013 Management Accounting Section)於美國 New Orleans 舉行，共 3 天〔1 月 10 日至 1 月 12 日〕。以下簡述參與本次大會之經過：

1、 參加會議經過

〔一〕會前會議：

一月十日〔星期四〕

晚上 6:00-8:00 舉行 Early Bird Reception，出席 MAS 會議的全體與會者都會參加此活動，本活動之主要目的在提供與會學者有相互交流與溝通之機會，俾增進各國管理會計學者之學術研究交流，以達國際管理會計學術研究深耕之效益。MAS 會議的出席學者都以管理會計之學者為主，吾人可以利用此機會與國際管會知名學者相互交流及交換研究心得，進一步找尋未來可能之研究議題。同時也可以在會場中，找尋未來可以共同研究的學者，此外也可以請教知名學者對本人之研究計畫提出有意義之點醒及改進建議，使本人受益良多。

〔二〕會議內容：

1、一月十一日〔星期五〕

上午 8:30-10:00 第一場的會議是邀請Sloan School of Management的Distinguished教授Robert Gibbons發表“Accounting for (Relational) contracts?”一文，Gibbons是MIT教授，早期有關賽局理論與組織經濟學的書籍為會計學者重要參考用書。Gibbons在key note speech中以關係契約在會計中的應用為題，說明關係契約在組織經濟學中的重要性，關係契約是指建立在訂約雙方信任基礎上的契約，這種契約型態通常是非正式的，亦無明文規定，包括同儕之間、主管與部屬之間有關工作的指派、升遷、免職等決策，亦包括在獎酬、轉撥計價、內部稽核與資本預算等正式的契約過程，企業之間的商業關係亦包含關係契約，例如供應鏈中買方與賣方的關係，以及同業中策略聯盟、合資、與關係企業等。由此可知，關係契約可以減少正式契約的複雜度，使經濟活動可以更順利進行。因此，未來會計研究也應考量關係契約或非正式的契約行為對於會計行為的影響，這也顯示社會資本或社會網絡關係等主題將是未來管理會計研究的重要方向，尤其是在講究關係的東方社會中，對於會計學者有很大的啟發。

上午 10:30 – 12:00，本時段為分組研討會正式開始，本時段共

有五個研究場次及一個專題討論會進行，主要研究場次包括：1、買方及供應商之相關研究議題；2、獎酬實施之相關研究議題；及 3、專題討論：管理控制系統是否幫忙或阻礙企業創新等議題。本人在此時段參加了獎酬實施之相關研究議題之場次，發表者Byun, Jorgensen, Patrick, and Soderstrom共同發表“Reinvestigating the Relation between Risk and Executive Compensation”一文，該研究主要探討風險與經理人獎酬之關係，該研究以Execucomp, Risk Metrics, Compustat, and CRSP資料庫（期間為 1996 至 2010）之資料為研究樣本，研究結果顯示：CEO之薪資獎酬與ROA變化是負相關的。同時，ROA變化的要素可以有效地說明CEO薪資獎酬，且各要素也各有不同的獎酬權重。

下午 1:30 – 3:00，本時段共有六個研究場次進行，討論之重要議題包括：1、主觀績效評估之相關研究議題；2、創造力、創新、及學習之相關研究議題；及 3、教學個案之相關研究等議題。本人在此時段參加了主觀績效評估之相關研究議題之場次，發表者Abernethy, Hung, and Lent共同發表“Status and Discretionary Bonus Payments: Evidence from a Large Private Chinese Hospital”一文，該研究主要探討經理人對紅利發放之影響情況。該研究以中國大陸某一間大型民營醫院之資料為研究樣本，研究結果顯示：醫院授予經理人權限來分配自己及部下之紅利，而高階經理人

則較少運用職權於紅利決策上，反之，低階經理人則會運用較多職權於決策上。由於醫院對經理人的行為並沒有任何的懲罰制度，而導致紅利分配決策之不公平。當經理人較少運用職權於紅利分配決策上時，則醫院之績效會較好。

下午 3:30 – 5:00，本時段共有五個研究場次及一個專題討論會進行，其中重要之議題包括：1、績效目標之相關研究議題；2、監督之相關研究議；及 3、績效相關揭露之相關研究等議題。本人在此時段參加了監督之相關研究議題之場次，發表者Kim, Elaine, and Patro共同發表“Outside Directors and Board Advising and Monitoring Performance”一文，該研究主要探討外部董事任期及專業能力對監督公司績效之影響，該研究以Motningstar資料庫（2003 至 2008 年）之公司董事會及CEO獎酬資料為研究樣本，研究結果顯示：外部董事之任期對董事會之績效呈現正相關。同時外部董事之任期對CEO獎酬之監督有正面之效果。此外，外部董事之財務專業能力對於財務報表及CEO獎酬之監督也有正相關之關係。

2、一月十二日〔星期六〕

上午 8:30-10:00 第一場的會議是由 Mark and Susan (Purdue University) 共同發表“Knowing Versus Telling

Private Information about a Rival”一文，該研究主要探討競爭者資訊之揭露之影響。研究結果顯示：公司在了解競爭者資訊之揭露情況下，才會採取政策來揭露自家公司資訊之情況，資訊之揭露包括顧客及成本等資訊，且資訊之揭露幅度取決於公司產品之差異化程度。

上午 10:30 – 12:00，本時段共有五個研究場次及一個專題討論會進行，主要研究場次包括：1、績效衡量權重之相關研究議題；2、成本行為之相關研究議題；及 3、績效相關資訊於預算之相關研究議題等。本人與共同作者 Dipankar Ghosh 及 Lee Ling-Chu 在本場次中發表” Incentive Instruments and the Weighting of Performance Measures”一文，本文主要探討績效誘因工具及績效衡量權重之關係，本文以台灣某汽車公司（87 家服務中心，6 年）之資料為研究對象。研究結果顯示：員工對於長期之績效誘因工具（紅利、功績及升遷）都有顯著的影響。在績效誘因合約下，財務衡量方面以紅利之權重較重，而在非財務衡量方面，則是功績及升遷的權重較重。就紅利而言，高階經理及低階經理的績效衡量是一樣的；而就功績及升遷而言，對低階經理的績效衡量之影響大於高階經理之影響。評論人給予本人很多的寶貴修改方向及建議，對本人的文章未來投稿至國際期刊具有相當地助益。

下午 1:30 – 3:00，討論之議題共有六個研究場次進行，重要之議題包括：1、風險管理與組織複雜度之相關研究議題；2、管理控制系統設計之相關研究議題；及 3、獎酬實施之相關研究議題等。本人在此時段參加了風險管理與組織複雜度之相關研究議題之場次，發表者Carolyn and Jared共同發表“An Evaluation of the Performance Benefits of Enterprise Risk Management”一文，該研究主要探討企業風險管理（ERM）對公司經營績效之影響，該研究以網路問卷法及Standard and Poors Compustat 與CRSP 資料庫（2006 至 2008 年）之資料為研究樣本，研究結果顯示：實施高成熟度之企業風險管理（ERM）流程之公司對公司之運營績效具有正面的影響作用。

二、與會心得

美國管理會計會議是世界上管理會計領域最重要的學術性會議之一，會中聚集了全球各地管理會計學術界之學者及少數的實務界人士與會。透過參與會議，吾人可以與世界許多優秀的管理會計研究者進行學術交流與研究合作，對發掘未來重要之研究議題、瞭解國際學術脈動、與拓展研究合作團隊都有甚大的助益。

三、建議事項

本次研討會與會者眾多，隨著國際學術的日益競爭，勢必造成台灣學者在國際學術上之壓力，為鼓勵台灣學者，尤其是年輕學者朝國際化發展，因此建議國科會能提供更多機會，且更積極地鼓勵及獎勵國內學者努力從事國際化之學術研究，並積極到國外發表學術論文，俾提昇台灣之國際學術水準。近年來，亞洲各國積極地從事管理會計之國際化學術研究，其中中國大陸積極度最高，其次則是韓國，此次韓國之管理會計學者已有倍增之趨勢，所以建議國科會能積極地鼓勵及獎勵更多的國內年輕學者投入管理會計的相關研究。

四、攜回資料名稱及內容

本次會議攜回之資料為 2013 Management Accounting Section Doctoral Consortium and Research and Case Conference 議程，其中詳載本次會議之行程內容：包括場次時間、論文場次、發表文章之題目、發表人、及發表人之學校及聯絡方式等相關資訊，資料內容相當豐富及充實，參考價值相當地高。

國科會補助計畫衍生研發成果推廣資料表

日期:2013/11/01

國科會補助計畫	計畫名稱: 子計畫五 ： 社會資本、人力資本與社會資本、及結構資本與社會資本之動因及其對績效影響之整合性研究－平衡計分卡觀點
	計畫主持人: 吳安妮
	計畫編號: 99-2410-H-004-019-MY3　　學門領域: 會計

無研發成果推廣資料

99 年度專題研究計畫研究成果彙整表

計畫主持人：吳安妮	計畫編號：99-2410-H-004-019-MY3
計畫名稱：「智慧資本之研究：管理議題探討」三年整合型計畫--子計畫五 ： 社會資本、人力資本與社會資本、及結構資本與社會資本之動因及其對績效影響之整合性研究－平衡計分卡觀點	

成果項目			量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）
			實際已達成數（被接受或已發表）	預期總達成數(含實際已達成數)	本計畫實際貢獻百分比		
國內	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	1	1	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%		
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（本國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	1	1	100%		
國外	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%	章/本	
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（外國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		

其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)	無

	成果項目	量化	名稱或內容性質簡述
科教處計畫加填項目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與（閱聽）人數	0	

國科會補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估 ■達成目標 □未達成目標（請說明，以 100 字為限） □實驗失敗 □因故實驗中斷 □其他原因 說明：
2. 研究成果在學術期刊發表或申請專利等情形： 論文：□已發表 □未發表之文稿 ■撰寫中 □無 專利：□已獲得 □申請中 ■無 技轉：□已技轉 □洽談中 ■無 其他：(以 100 字為限)
3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）(以 500 字為限)