國立交通大學

經營管理研究所

碩士論文

領導與團隊文化對團隊績效之影響：以競合與團隊授權為中介機制

The Influence of Leadership and Team Culture on Team Performance: The Mediating Mechanism of Coopetition and Team Empowerment

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領導與團隊文化對團隊績效之影響：以競合與團隊授權為中介機制

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摘　　要

本篇研究利用競合理論提出一個團隊彈性與團隊績效之模型。在所提出的模型中，集體主義、團隊政治、轉換型領導與交易型領導會透過團隊的競合與授權影響團隊的彈性及績效，而團隊績效也會受到團隊彈性的影響。本研究以高科技組織的員工為抽樣對象，並以階層迴歸的方法來驗證團隊競合的有效性。根據本篇研究的結果，合作會受到集體主義、團隊政治、轉換型領導與交易型領導的影響；競爭會受到團隊政治與交易型領導的影響；團隊授權會受到轉換型領導的影響；團隊彈性會受到合作、競爭與團隊授權的影響；團隊績效會受到合作、團隊授權與團隊彈性的影響，驗證了競合與團隊授權的中介角色。最後依據實證結果提出管理意涵及研究限制。

關鍵字： 團隊績效、團隊彈性、團隊合作、團隊競爭、團隊授權

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Abstract

This study proposes a model based on coopetition theory to explain the formation of team agility and performance. In the proposed model, team performance and team agility are affected by collectivism, team politics, transformational leadership and transactional leadership via the mediation of coopetition and empowerment. Accordingly, team performance is also affected by team agility. Empirical testing of this model, by investigating personnel in information technology (IT) organizations, and using multiple regression analysis to confirm the applicability of coopetition among working teams. According to our findings, cooperation is affected by collectivism, team politics, transformational leadership and transactional leadership; competition is affected by team politics and transactional leadership; team empowerment is affected by transformational leadership; team agility is affected by cooperation, competition and team empowerment; team performance is affected by cooperation, team empowerment and agility. The findings confirm the mediating roles of coopetition and team empowerment. Based on the empirical findings of this study, managerial implications and limitations of the research are provided.

Keywords: Team performance, Team agility, Team cooperation, Team competition, Team empowerment

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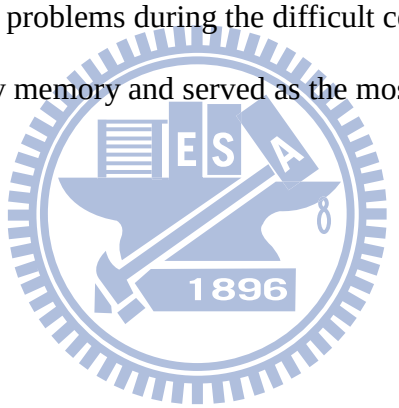

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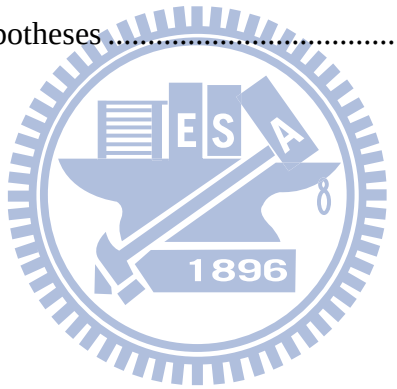

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1. Introduction

Many firms currently face a very dynamic environment with demands for attention coming from customers, suppliers, government agencies, and others. This has resulted in markets that can be characterized as increasingly violent and volatile (Brown & Eisenhardt, 1998). It could be concluded that the main issue in this area is the ability to cope with unexpected changes, to survive unprecedented threats of business environment, and to take advantage of changes as opportunities. This ability is called agility. Agility is defined as the ability to survive in an environment of unpredictable change and profit from rapidly change (Nagel & Dove, 1991). The agility concept was popularized in manufacturing in the early 1990s and was soon extended into the broader business field, evolving notions of the agile competitor (Goldman et al., 1995), agile business relationships (Preiss et al., 1996), agile supply chains (Christopher, 2000), agile enterprises (Goldman & Nagel, 1993), agile decision support systems (Huang, 1999) and most recently, the team agile workforce (e.g., Van Oyen et al., 2001). In many industries today, the necessity of the successful companies is their processes and products that can change or be changed in response to customers' various demands (McCarthy & Tsinopoulos, 2003). Those firms who are able to sustain performance while changing quickly and easily adapting to environmental fluctuations are considered to be agile firms. Team agility is important because it has been seen to achieve a number of organizational benefits such as increased productivity, competitive advantages, profits and market shares (Goldman et al., 1995; Gehani, 1995; Katayama & Bennett, 1999). Prior empirical studies continue to stress the benefits of team agility, and their findings emphasize team agility as supporting strategic objectives of cost, speed, time, quality, responsiveness and variety (e.g., Hopp & Van Oyen, 2004; Swafford et al., 2006). Unfortunately, when it

comes to management actions that facilitate team agility, the literature is highly limited to untested prescriptions (Sumukadas & Sawhney, 2004).

It makes sense to ask: How can we make companies more flexible? “Coopetiton” may be one of the answers. According to the theory of cooperation and competition (Deutsch, 1949), which theorized how people perceive their goals shapes their actual working together and their subsequent effectiveness. The theory has been elaborated by Johnson and Johnson (1989), who argues social interdependence, is structured and determines how individuals interact within the situation, which in turn affects the outcomes. In other words, the participants have a cooperative orientation or a competitive orientation is decisive in determining its outcomes. Inside a multiunit organization, coopetition occurs among different aspects. To get new knowledge and to achievement economies of scope they have to cooperate with each other and learn from each other. At the same time, these units compete with each other in many areas because they are contrasted on the basis of their ability to achieve high rates of return. Coopetiton is an appropriate approach for shaping team agility because it theorized how people perceive their goals and strengthening their flexible working via both cooperation and competition, achieving subsequent performance (Yauch & Navaresse, 2007). Coopetition is uniquely helpful for team agility in two important ways. On one hand, team members who cooperate with each other are likely to foster team’s equal footing with the same goals in a dramatic changing market, enhancing team agility. Indeed. Previous literature emphasize that team agility represents as how closely the team aligns with the same values and goals (Sharp & Ryan, 2008). On the other hand, team members who compete with each other stimulate the members to stay alert and quickly respond to the dramatic changing market, boosting the team agility. It has been indicated that the presence of competition creates urgency, which, in turn, creates pressure to move team projects faster (Chin, 2004). Thus, organizational units are indeed embedded

in a social structure of coopetition in which improves their agility and performance.

In addition to coopetition, empowerment has emerged as a key focus that affects team agility (Biron & Bamberger, 2010; Breu et al., 2001). Previous research suggests that because uncertainty will continue to bring about change, agility (e.g., flexibility) based on team empowerment (or self-motivated) are a rational organizational strategy for the future (Swafford et al., 2006; Williams, 1997). Empowering employees has proven to be an effective approach to fostering entrepreneurial team members that can react to changes in their environment with agility (Cornwall, 1994). Collectively, this study using coopetition and team empowerment to clarify team agility and other team outcomes (e.g., team performance) shed some light on management implications to improve teamwork. Based on the preceding, the purpose of this study is to explore how coopetition and team empowerment link team outcomes (i.e., agility, performance) and antecedents we discuss in next section.

The upcoming question is, how can a firm coordinate different units to enhance its agility and performance? Cultural factors have long been known to influence the communication and shape members' behavior (Doz & Hamel, 1998; Almeida et al., 1998; Bhagat et al., 2002; De Long & Fahey, 2000; Hamel, 1991; Kedia & Bhagat, 1988; Deckop et al., 2003). In the management literature, collectivism and organizational politics are two of the cultural factors that influence individual's behavior (Breer & Locke, 1965; Ferris et al., 1989; Gandz & Murray, 1980). Collectivism is the tendency to be more interested about the outcomes of one's behavior on in-group members, and to be more willing to sacrifice personal interests for the achievement of collective interests. Organizational politics is the degree to which individuals view their work environment as political, and therefore unjust and unfair (Ferris et al., 1989). Both concern an individual's psychological conditions that

have a potential impact on the individual's behavior. However, some studies have also shown leadership play as the key factors to provide the flexibility and agility required to deal with fluctuations in customer demands and take better competitive advantage via empowerment (Bass, 1999; Psoinos & Smithson, 2002). Therefore, an organizational leader has an influence on performance and agility through the empowerment (Shamir, House, & Arthur, 1993; Koberg et al., 1999; Thomas & Velthouse, 1990; Thomas & Tymon, 1994).

Change in environment has entered management studies and research for a long time. Along with the trend towards active environments, companies are increasing their reliance on teams (Pirisi, 1999). One research of over 500 firms found continuing expansion of all forms of team participation with significant increases in the percentage of the workforce involved in groups (Malone, 1993). This towards greater reliance on groups within organizations is also identified in an extensive review of research related to group performance and intragroup relationships (Guzzo & Shea, 1992). So this prompts our research focuses on team relations.

The purpose of this study is twofold: First, to examine the mediating roles of cooperation and competition in the link between cultural factors (collectivism, and team politics) and (1) team agility and (2) team performance. Second, to examine the mediating roles of cooperation, competition, and empowerment in the link between leadership styles and (1) team agility and (2) team performance.

This study differs from previous research in some important ways. First, a majority of previous research related to interactions among team members focuses on either competition or cooperation, which often resulted in a one-sided understanding of team members and their team outcomes (e.g., Passos & Caetano, 2005; Richter et al., 2005). The coopetition in a team is worth studying to avoid managerial misunderstanding since

simultaneous cooperation and competition among the members often complicates teaming and its outcomes. This study assessing the team outcomes based on coopetition generates in-depth understanding concerning key determinants of team agility and performance.

Second, this study pioneers the expansion of coopetition by including team empowerment as critical variables influencing team outcomes. Most previous research related to coopetition considers cooperation and competition to the neglect of other factors. This study demonstrates how team empowerment and coopetition jointly influence team outcomes.

Last, while some prior empirical studies have examined coopetition at the firm level (e.g., Tiessen & Linton, 2000), this study is one of the few to use primary survey data collected from team members to test the determinants and outcomes of coopetition and team empowerment based on teams. Research supports and extends the notion that coopetition is not only important among intra-organizational partners, but also among inter-team parties (or inter-organizational parties) and these interactions are key for a team's or a firm's long-term viability (Luo et al., 2006).

2. Literature Review

2.1 Agility

Agility was developed in the 1950s in the field of air combat. Agility was defined as an aircraft's competence to change maneuver state, or put another way, as the time derivative of maneuverability (Richards, 1996). The agility concept was popularized in manufacturing in the early 1990s and was soon extended into the business field, evolving notions of the agile competitor (Goldman et al., 1995), agile business relationships (Preiss et al., 1996), agile supply chains (Christopher, 2000), agile enterprises (Goldman & Nagel, 1993), agile decision support systems (Huang, 1999) and most recently, the agile workforce (Van Oyen et al., 2001). Lately, agility has been defined as an organization-wide ability to respond quickly to market changes with unexpected change in order to survive from the business environment (Huang, 1999), and at the soul of the agility concept are the notions of speed and flexibility (Goldman & Nagel, 1993; Gunasekaran, 1999). In our research, we focus on the workforce agility, because it has been seen to achieve a number of organizational benefits. It is understood to increase productivity, profits and market shares (Goldman et al., 1995), to grow a business in a competitive market of continuous and unanticipated change (Gehani, 1995) and to enhance organizations' prospects for survival in increasingly volatile and global business environments (Katayama & Bennett, 1999).

2.2 Coopetition

Cooperation and competition have frequently been studied together to determine which mode is most productive (Reitz, 1981). Cooperation occurs when two or more people working together for a common goal or mutual benefit, while competition is defined as two or more people rival with one another for some relative individual gain. In cooperation,

individuals believe that others' success facilitates their own success. When others move toward goal achievement, they also move toward their goals. Others' goal achievement promotes their success, as when they pursue a same vision and shared rewards (Deutsch, 1973). In competition, people believe that their goals are negatively related, that is, one's goal achievement precludes, or at least makes others less likely attain their goals. Believing others' goal achievement interferes with their own success, people keep information as they pursue their own goals and may even be tempted to block the goal progress of others (Johnson & Johnson, 1989; Johnson et al., 1981; Stanne, Johnson, & Johnson, 1999).

One of the early studies was published by Deutsch (1949). In his theory of cooperation and competition, Deutsch argued that people's beliefs about how their goals are related determine the way in which they interact, which in turn affects their performance and group cohesiveness. Central to this theory is the categorization of situations that make cooperative or competitive orientations which influences the outcomes. Much of the early study came out in favor of cooperation. For example, Hammond and Goldman (1961) concluded that competition is not necessary to motivate performance and is detrimental to group performance. Not long after, some researchers began reporting mixed results. Stanne et al. (1999) documented some positive effects of competition. They found that it led to higher levels of performance than individual conditions. Another research with mixed results concluded that competition leads to greater motivation, better productivity (Julian & Perry, 1967).

In conclusion, the degree to which organizations should emphasize cooperation or competition among the members of work teams is an age-old controversy, and many studies have debated whether activities should be structured in a cooperative or competitive manner to promote motivation and performance (e.g., Deutsch, 1949; Johnson & Johnson, 1989,

1990; Slavin, 1996), but our research believe that the answer may lie in a combination of these two contexts.

2.3 Empowerment

The feeling of empowerment or psychological empowerment has been conceptualized as a form of intrinsic motivation to perform tasks, manifested in four cognitive dimensions: meaning, impact, competence, and self-determination (Conger & Kanungo, 1988; Spreitzer, 1995; Thomas & Velthouse, 1990). Meaning is the agreement between one's values and the values associated with a task or firm (Thomas & Velthouse, 1990). Impact reflects one's ability to influence strategic and operational decisions within the organization or group (Spreitzer, 1997). Competence is the judgment that work activities can be carried out skillfully and successfully, and is analogous with the notion of self-efficacy. Self-determination is the belief that one is free to choose how to perform activities. These four cognitions therefore represent an active orientation to one's work role in which the individual is both willing and feels able to shape one's work role (Spreitzer, 1995). The four dimensions combine additively to create an overall form of psychological empowerment so that, lack of any single dimension will deflate but not completely remove the overall degree of psychological empowerment. Throughout this paper we will focus on team empowerment which refers to a psychological empowerment of a team.

Empowerment is management strategies for sharing decision-making power with organizational members (Lashley, 1999). Hence, those who perceive strong empowerment in their organization are more cognitively flexible and likely to find many alternative ways of solving problems (Wei et al., 2010).

2.4 Coopetition and empowerment to team agility

Agile workforces are argued to gain from cooperation, both within and outside the organization, because collaborative teams share information and communicate effectively among team members. Therefore, cooperation is recognized as an essential characteristic of agile manufacturing systems (Brandenburger & Nalebuff, 1996; Makri, 1999; Gnyawali & Madhavan, 2001; Preiss, Goldman, & Nagel, 1996; Gunasekaran, 1999; White, Daniel, & Mohdzain, 2005). Although the literature on agility strongly emphasizes the importance of intra and inter organizational cooperation, but some studies have shown the competitive groups are better able to respond to the unpredictable change. One previous experiment has been conducted to assess the effects of cooperative and competitive incentives on group performance in a dynamic environment (Yauch & Adkins, 2004). The study showed that competitive incentives yield shorter completion times (e.g., lead times, setup times, and design cycles), higher productivity, and more agility, but lower quality than cooperative incentives. Another study also recognized the same results (Yauch & Wright, 2007) which argued competition between individuals led to greater agility with respect to implementing product change notices and competitive individuals were better able to respond to the unpredictable demands for change. For example, competitive teams treat other team members as competitors and they are compared on the basis of their own ability to achieve high rates of return. And in order to compete with other team members, it also stimulates the members to stay alert and quickly respond to the dramatic changing market, boosting the team agility. It has been indicated that the presence of competition creates urgency, which, in turn, creates pressure to move team projects faster (Chin, 2004). These results aim future research to increase the understanding of how intrateam relations, specifically cooperation and competition impact team agility. In our research, we suggest people compete to other team members which increase their speed to perform their own task, so we predict team

cooperation and competition are both positively related to team agility.

Team empowerment and autonomy in decision making are seen to be the key in making a workforce truly agile (Deci & Ryan, 1987; Goldman & Nagel, 1993; Van Oyen et al., 2001). The empowerment gets arise from the flexibility of being able to resolve problems at source, rather than escalating to specialists or senior management (Parker & Turner, 2002). Much literature has indicated that empowerment practices are likely to offer such substantial benefits as enhanced organizational agility (Biron & Bamberger, 2010). Team agility is positively influenced by empowerment because empowerment facilitates team members to effectively solve problems related to responsiveness and flexibility (e.g., service report time, management of crisis) (Swafford et al., 2006). Previous study has shown empowerment plays a key role to enhance the agility (e.g., flexibility) required to deal with fluctuations in customer demands and take better competitive advantage (Psoinos & Smithson, 2002). Thomas and Velthouse (1990) particularly confirmed that when employee feel empowered, proactive behaviors such as flexibility and persistence ensue. Collectively, empowerment allows team members to have individuals' adaptability to deal with abrupt and irreversible impacts in job contexts, fostering great team agility. Based on the above rationales regarding coopetition, empowerment and agility, the hypothesis is derived as below.

H1: Cooperation, competition, and empowerment positively relate to team agility.

2.5 Coopetition and empowerment to team performance

Cooperation and competition should be studied together to determine which mode of behavior is most productive (e.g., Reitz, 1981). Cooperation occurs when people or teams act together in a coordinated way to pursue shared or complementary targets. As opposed to

competition, where the emphasis is on winning and outdoing other team members because one person to win and enjoy the greater share of rewards, another must lose and settle for fewer rewards (Argyle, 1991).

Researches document that people in cooperation share information, communicate and influence effectively, exchange resources and support each other, discuss opposing ideas openly (Deutsch, 1973; Johnson & Johnson, 1989; Johnson et al., 1981). These actions in turn help cooperators move forward by completing tasks, agreeing to high quality solutions, enhance work relationships. Many theorists have argued that cooperation should boost higher performance (Aronson & Bridgeman, 1979; Deutsch & Krauss, 1962; Jehn & Shah, 1997; Podsakoff, Ahearne, & MacKenzie, 1997). So we suggest team cooperation is positively related to team performance.

On the opposite, competition leads people to promote their own benfefits at the expense of others, and even to actively interrupt with each other (Deutsch, 1973; Johnson & Johnson, 1989; Johnson et al., 1981). An atmosphere of mistrust restricts information and resource exchange and contorts communication. People often try to avoid direct discussion and when compelled to discuss, impose their positions on each other. These ways of interacting defeat productivity, intensify stress, and lower morale. Theorists have also expressed concern that competition can promote negative behaviors and outcomes (Deci & Ryan, 1985). In our research, we predict team competition is negatively related to team performance.

A key presumption of empowerment theory is that empowered employees perform better than those relatively less empowered (Thomas & Velthouse, 1990; Liden, Wayne, & Sparrowe, 2000). This is consistent with the view that employees generally have more complete knowledge about their work than top managers and are therefore better positioned

to plan their task, as well as identify and resolve the obstacles that constrain their performance (Cooke, 1994). So empowerment is a stronger predictor of the performance (Liden et al., 2000; Spreitzer et al., 1997; Huang et al., 2010). Thus, employee who feel that their tasks are meaningful and that by completing their job responsibilities they have an impact on others within and outside of the organization are motivated to perform better (Liden et al., 2000). Individuals who perceive they have the necessary job abilities and can choose how to do their job also outperform their counterparts who do not. Indeed, the effect of competence or self-efficacy on performance is reported as profound in the literature (Bandura, 1977; Gist & Mitchell, 1992). Based on the above rationales regarding coopetition, empowerment and team performance, the hypothesis can be derived as below.

H2: Cooperation and empowerment positively relate to team performance, but competition negatively relates to team performance.

H3: Team agility positively relates to team performance.

2.6 Collectivism

Collectivism is the tendency to be more concerned about the consequences of one's behavior on group members, and to be more willing to sacrifice personal benefits for the attainment of collective benefits (Hofstede, 1980). Collectivism occurs when the demands and benefits of groups take priority over the desires of individuals (Triandis, 1995, 1998). Collectivists look out for the well-being of the groups to which they belong, even if such actions require that personal benefits be disregarded and they also hold common goals (Leung & Bond, 1984; Hui & Triandis, 1986; Wagner & Moch, 1986).

2.7 Team politics

Organizational politics is the phenomenon when individuals or groups deliberately act in a way that will protect or enhance their own self-interests, when their actions may or may not be in the best interests of other individuals, teams, or even the firms to which the actors belong (Allen et al., 1979; Kacmar & Ferries, 1993). Studies generally accept that organizational politics refers to the complex mixture of power and interest-seeking behaviors that dominate individuals' benefit in the workplace. Organizational politics here refers to the degree which individuals view their work environment as political, and therefore unjust and unfair (Ferris et al., 1989). A literature summary reveals a set of probable poor outcomes that may be related with politics of teams. Until now studies have frequently concentrated on work attitudes (e.g., job satisfaction and organizational commitment) or behavior intentions (e.g., turnover intentions, intentions of negligent behavior) (Vigoda, 2002). Another study concluded that organizational politics is both helpful and harmful for employees of the firm. The positive outcomes of politics are recognition, enhanced power and position, accomplishment of personal goals, enhanced sense of control. The harmful outcomes are loss of strategic power, negative feeling toward others, internal feelings of guilt, and hampered job performance of various fields (Kumar & Ghadially, 1989; Shirom, 1989; Ganster & Schaubroeck, 1991; Golembiewski et al., 1996). Here we focus on the influence of member's behavior.

2.8 Collectivism and team politics to coopetition

The organizational cultural differences in dialectical reasoning have critical implications for research on the role of collectivism in cooperation and competition within teams (e.g., Chen, 2002). Previous literature has examined the relationship between organizational culture and coopetition, focusing on, for example, the differences of collectivist values among

employees. For example, many studies have attributed more cooperation to collectivism (Kirkman & Shapiro, 2001; Wagner, 1995). Over the past years a consistent theme has been heard in cross-cultural management research. This theme is that increased collectivism leads to more cooperation and collaboration (Chatman & Barsade, 1995; Eby & Dobbins, 1997; Koch & Koch, 2007). It can be further predicted that collectivists will be more predisposed towards cooperation with members of the group as they tend to feel more interdependent with and more concerned about the results of their actions on other group members (Mead, 1976; Triandis, 1990; Breer & Locke, 1965). The above findings seem to suggest that collectivists work better with others and are more collaborative. However, communication tends to occur primarily with in-group members in collectivist cultures (Usunier, 1996), which decreases competition. Collectivism also refers to a general orientation toward team goals and proclivity to cooperate in group endeavors (Eby & Dobbins, 1997) and this may lead to low competition.

Meanwhile, effective communication that tends to occur among team members in collectivist cultures often decreases competition (Aritzeta & Balluerka, 2006; Usunier, 1996), because collectivism refers to a general orientation toward team goals and proclivity to cooperate in group endeavors (Eby & Dobbins, 1997). For example, Chinese people, as collectivists, often avoid opportunism because they value interpersonal relationships highly and avoid aggressive ways of working and competing with others (Wong et al., 2005).

Jablin (1981) reported that subordinates who perceived their leader to be highly involved in organizational politics were less open in their communications. The findings supported the study of Cropanzano et al. (1997). Gilmore et al. (1996) also confirmed that organizational politics has many negative outcomes, including conflict and disharmony, which emerge when individuals or groups are pitted against each other or against the

organization. One implication of these findings is that employees who work in political environments develop an emotional alienation from work as a result of unfair organizational climate (Kacmar & Ferris, 1991; Ferris & Kacmar, 1992). Such a psychological state may lead employees to suffer higher of stress, strain and job burnout, which may eventually translate into harmful behaviors, and lead to team competition. In addition, the findings also provide some initial evidences of another possible consequence of organizational politics, namely its relationship with aggressive behavior. People who face great pressure on high team politics may become block the important information and evince far less tolerant behavior towards others. In fact, such symptoms may also lead to low collaboration among team members. So politics enhances conflicts among individuals and groups as well as creating a hostile work environment, subordinates' behavior will most likely be affected in some way at least, perhaps reaching extreme points such as competitive behavior toward co-workers verbally or physically (Vigoda, 2002). Consequently, the hypotheses are derived as below.

H4: Collectivism positively relates to cooperation, but team politics negatively relates to cooperation.

H5: Collectivism negatively relates to competition, but team politics positively relates to competition.

2.9 Leadership

In today's uncertain and complex business environment, effective leadership is a key to achieving organizational goals. Leadership is one of the most widely researched phenomena in the social sciences (Lipshitz & Mann, 2005). In addition to providing vision and motivation, leaders play a key role in creating competitive advantages. This study applies

the full-range leadership theory as conceptualized by Bass (1985) and developed by Avolio and Bass (1991). They distinguish between three major types of leadership behavior: laissez-faire (non-leadership), transformational, and transactional leadership. Our research focuses on the latter two.

Transformational leadership was introduced into leadership research by Burns (1978) as a new paradigm of leadership that pays more attention to initiating changes among followers and transforming followers' personal values and organizational cultures. Transformational leadership is characterized by leader behaviors aimed at motivating, inspiring, and broadening the interests of followers. Moreover, transformational leaders provide vision for their employees by inspiring them to look beyond their own self-interests (Bass, 1990). Thus, transformational leaders focus not only on motivating employees, but also on inspiring them to go beyond what they believe they are capable of doing. This approach then confirms four dimensions in which leaders can affect followers: (1) idealized influence: leaders who exhibit high standards of moral conduct and engender loyalty from followers and who arouse a desire in followers to want to follow them; (2) intellectual stimulation: leaders who encourage divergent thinking by challenging organizational norms and encourage followers to think outside the box; (3) inspirational motivation: leaders who inspire followers with a strong vision for the future; and (4) individual consideration: leaders who treat followers as unique individuals by providing support, growth experiences, and encouragement (Bass, 1990; Levy, 2003).

On the opposite, transactional leadership is characterized by leader behaviors aimed at monitoring and controlling employees. It involves an exchange between the leader and follower, such that the leader provides rewards in return for the subordinate's effort (Burns, 1978). According to Bass (1985), there are two main forms of transactional leadership

behavior. One is contingent reward behavior, which is analogous to positive supervisory feedback. The other one is called management by exception by Bass (1985) and contingent punishment by others (Podsakoff et al., 1984). This behavior consists of a variety of forms of negative feedback, administered by the manager contingent on poor performance. In contrast to transactional leadership, which is based on an economic transaction, transformational leadership is a social exchange based on relationships. However, transformational and transformational leadership styles are not mutually incompatible or dichotomous. Instead, leaders are often viewed as situational, exhibiting traits of both styles and emphasizing one style more than the other as the situation demands (Bass, 1999; Conger & Kanungo, 1998).

2.10 Leadership to coopetition

Previous studies have demonstrated that transformational leadership has a positive effect on the attitudes and behaviors of followers (Dumdum et al. 2002; Avolio et al., 2004). A transformational leader influences team members' behaviors via individualized consideration, inspirational motivation, and intellectual stimulation. Individualized consideration shows understanding and appreciation of other members' input, team members are likely to participate collaboratively by engaging in supportive behaviors, often with explanations (Sosik, 1997). Cooperation may also be evoked by inspirational motivation which that emphasize learning from each other and working together toward a common goal. This emphasis highlights the intrinsic value of the team's discussion and motivates participation and cooperation by engaging participants' self-concepts and making their effort more meaningful. The important characteristic of transformational leaders is their ability to help team followers realign their personal values according to their transformational leader's vision which creates strong values of internalization, cooperation, and congruence among followers (Jung & Avolio, 2000; House & Shamir, 1993; Shamir et

al., 1993). Therefore, transformational leadership is related to cooperation positively but to competition negatively because such leadership helps foster positive within-team relations and engender a sense of team belongingness (Ashforth & Mael, 1989; De Cremer & van Knippenberg, 2002). The notation that transformational leadership engenders cooperation by fostering a sense of team belongingness can be found in theories of charismatic and transformational leadership (e.g., Bass & Avolio, 1993; Shamir et al., 1993). More specifically, leaders perceived as charismatic (i.e., a form of transformational leadership) stimulates team member cooperation (De Cremer, 2002).

In contrast to transformational leadership, transactional leadership is characterized by leader behaviors aimed at monitoring and controlling employees with rewards or punishments (Burns, 1978). Research in social dilemmas has tried from the assumption that leaders would encourage cooperation but discourage competition by stimulating employees' behavior with incentives. As a result, instrumental means to encourage cooperation but to discourage competition have been proposed, such as sanctioning systems in which cooperation is rewarded and noncooperation is not rewarded (De Cremer & van Knippenberg, 2002). The side effects of such systems are, however, once economic incentives are cancelled, cooperation is likely to drop and competition (e.g., for resources) is likely to arise (e.g., Deci & Ryan, 1985), suggesting the influence of transactional leadership is positive to cooperation but negative to competition. Based on the above rationales, the hypotheses regarding coopetition and leadership can be stated as below.

H6: Transformational leadership and transactional leadership positively relate to cooperation.

H7: Transformational leadership and transactional leadership negatively relate to competition.

2.11 Leadership to empowerment

Managers and supervisors can help employees feel empowered by providing them the ability and autonomy to achieve success (Koberg et al., 1999). Transformational leadership facilitates building employees' self-confidence (or self-determination) and heightening their personal development (or competence), which, in turn, strengthening the perceived psychological empowerment of followers (Conger, 1999). Previous study emphasized psychological empowerment as a potential mediator between transformational leadership and work outcomes (e.g., organizational commitment) (Avolio et al., 2004; Bass, 1999), supporting a direct linkage between transformational leadership and empowerment (Jung & Sosik, 2002). It has been argued that transformational leaders enhance team performance by empowering employees to perform their job independently from the leader. For example, empirical results of partial least squares analysis in previous research indicated that transformational leadership was positively related to empowerment, group cohesiveness, and group effectiveness.

Similar to transformational leadership, transactional leadership is also positively related to empowerment. Conger and Kanungo (1988) suggest that studies that link leadership practices and empowerment seem appropriate. By changing and rewarding the circumstances that lead to feelings of powerlessness, it is anticipated that employees would perform at their productive and creative best (Ozarzlli, 2003), suggesting a mediating role of empowerment between transactional leadership and team performance. More often than not, leaders using rewards or punishments (i.e., transactional leadership) help strengthen employees' self-confidence, competence and perceived autonomy with respect to team goal attainment, thus revealing a strong relationship between transactional leadership and empowerment. Based on the above rationales about leadership and empowerment, the hypothesis can be stated as below.

H8: Transformational leadership and transactional leadership positively relate to empowerment.

This study establishes a model based on coopetition to explain the formation of team outcomes including team performance and team agility. In the proposed model, team performance and team agility are affected by collectivism, team politics, transformational leadership and transactional leadership via the mediation of coopetition and empowerment. Meanwhile, team performance is also affected by team agility. Figure 1 shows our research framework.

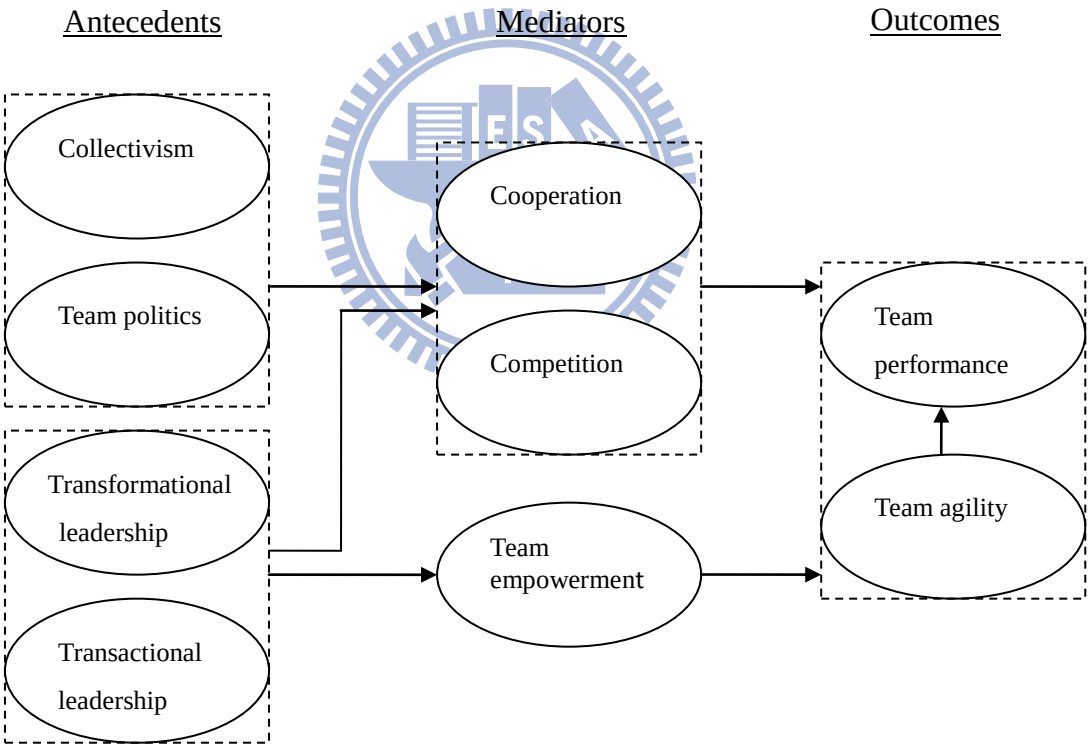

Figure1. Research framework

3. Methodology

3.1 Sampling

The research hypotheses described above were empirically tested using a survey of professionals working in teams of IT firms in Taiwan. Professionals from IT firms were recruited for this study, because this population represents one of the largest user groups of online technologies. A total of 23 large IT firms in Taipei were targeted from. Respondent firms for these studies were drawn from the EMBA students and alumni of NCTU, who worked in the information technology industry. These IT firms provided an appropriate representative sample as these firms meet the criteria of using work teams. A work team was defined as a group of personnel who (1) formed the smallest functional unit in the organization, (2) reported directly to the same supervisor, and (3) worked together on a permanent basis. We surveyed five persons on each team, including four team members and a team leader (or team supervisor). In case a leader supervised more than one team, we only surveyed one of his or her teams to avoid any confusion to the leader. Of the 650 questionnaires distributed to the members of 130 teams, 565 usable questionnaires from 121 teams were returned, a questionnaire response rate of 86.92%.

3.2 Research constructs and measurement

Team performance

Team performance is the behavioral perspective views performance in terms of the measurable behaviors that are relevant to the achievement of team goals (Campbell et al., 1993). Team performance was measured using five items directly drawn from Lin (2010). Measurement items are stated as follows:

1. The collaboration of our team reduces redundancy of work content.
2. The collaboration of our team improves team efficiency.
3. The collaboration of our team coordinates the efforts of everyone on the team.
4. The collaboration of our team facilitates innovating new ideas.
5. The collaboration of our team streamlines the internal processes.

Team agility

Team agility is defined as the ability of a team to quickly respond to changes in a market environment (Christopher, 2000; Swafford et al., 2006) and a 8-item scale by Breu et al. (2001) was used to measure the team agility. Measurement items are stated as follows:

1. Our team can develop new skills quickly.
2. Our team's responsiveness to changing needs of the other teams (or customers) is timely.
3. Our team's responsiveness to changing organizational conditions is timely.
4. Our team's speed of acquiring the skills necessary for business process change is fast.
5. Our team's effectiveness of cooperating across functional boundaries is good.
6. Our team's speed of acquiring new IT (or software) skills is fast.
7. Our team can switch to different projects (or missions) with ease.
8. Our team's speed of applying new management skills is fast.

Coopetition

In cooperation, Individuals believe that others' success facilitates their own success. Others' goal attainment promotes their success, as when they pursue a common vision and shared rewards (Deutsch, 1973). In competition, people believe that their goals are negatively related, that is, one's goal attainment precludes, or at least makes others less likely attain their goals. They pursue their own goals and may even be tempted to obstruct the goal progress of others (Deutsch, 1973). Both scales were used by Wong, Tjosvold, and Liu (2009). The five cooperative goal items measured the emphasis on mutual goals, shared rewards and common tasks. And the five competitive goal items measured the emphasis on incompatible goals and rewards. Measurement items are stated as follows:

Cooperation

1. Our team members ‘swim or sink’ together.
2. Our team members want each other to succeed.
3. Our team members seek compatible attitude in terms of teamwork.
4. Our teamwork goes smoothly.
5. When our team members work together, we usually seek a solution that is good for the team.

Competition

1. Our team members structure things in ways that favor their own benefit rather than that of other team members.
2. Our team members have a ‘win–lose’ relationship.
3. Our team members like to show that they are superior to each other.
4. Our team members’ work attitude is incompatible with each other.
5. Our team members give high priority to the things they want to accomplish and low priority to the things other team members want to accomplish.

Team empowerment

Empowerment is defined as increased intrinsic task motivation manifested in a set of four cognitions reflecting individuals’ orientation to their work role, including meaning (i.e., belief that their work is important), competence (i.e., perceived ability to perform their tasks), impact (i.e., degree to which employees fell their work affects the performance of their team) and self-determination (i.e., perceived autonomy at work) (Avolio et al., 2004). Empowerment was measured with twelve items directly drawn from Spreitzer (1995). Measurement items are stated as follows:

Meaning

1. The work I do is very important to me.
2. My job activities are personally meaningful to me.
3. The work I do is meaningful to me.

Competence

1. I am confident about my ability to do my job.
2. I am self-assured about my capabilities to perform my work activities.
3. I have mastered the skills necessary for my job.

Self-determination

1. I have significant autonomy in determining how I do my job.
2. I can decide on my own how to go about my work.
3. I have considerable opportunity for independence and freedom in how I do my job.

Impact

1. My impact on what happens in my team is large.
2. I have a great deal of control over what happens in my team.
3. I have significant influence over what happens in my team.

Collectivism

Collectivism is the tendency to be concerned about the consequences of one's behavior on the other team members, and to be willing to sacrifice personal interests for the attainment of collaborative interests (Hofstede, 1980). Collectivism was measured using seven items directly drawn from Robert & Wasti's (2002) organizational culture scale. Measurement items are stated as follows:

1. Management and supervisors are protective of and generous to loyal workers.
2. Decisions about changes in work methods are taken jointly by supervisors and employees.
3. Employees are taken care of like members of a family.
4. Everyone shares responsibility for the team' failures as well as success.
5. Regardless of hierarchical level, employees take each other's views into consideration.
6. Once someone is hired, the team takes care of that person's overall welfare.
7. Everyone is kept informed about major decisions that affect the success of the team.

Team politics

Team politics is the phenomenon when individuals deliberately act in a way that will protect or enhance their own self-interests, even if their actions may or may not be in the best interests of other team members (Kacmar & Ferries, 1993). Team politics is measure using five items directly drawn from Vigoda (2002). Measurement items are stated as follows:

1. The member who gets ahead around here is not determined by merit, but by favoritism.
2. There are a few members in our team who always get things their way, because no one dares to challenge them.
3. Members in our team attempt to build themselves up by tearing others down.
4. I have seen changes made in policies here that only serve the purposes of a few individuals, not our team.
5. Managers prefer yes-men around here: good ideas are rejected when it means disagreeing with superiors.

Transformational leadership

Transformational leadership is defined as a style of leadership that transforms followers to rise above their self-interest by altering their morale, ideas, interests, and values, motivating them to perform better than initially expected (Pieterse, van Knippenberg, Schippers, & Stam, 2010). Transformational leadership was measured using 19 items directly drawn from Avolio, Bass, & Jung (1999). Measurement items are stated as follows:

1. I am proud of being my team leader's subordinate.
2. I respect my team leader.
3. My team leader is my role-model.
4. I am confident about my team leader.
5. My team leader deals things with justice.
6. My team leader's behaviors fit with moral standard.
7. When making a decision, the team leader considers about ethics.
8. The team leader is really responsible.
9. The team leader considers about the team's future.
10. The team leader emphasizes team work and mission.

11. The team leader inspires my passion to the team.
12. The team leader makes me really optimistic about the team's future.
13. The team leader encourages me to revise if a prior decision is appropriate.
14. The team leader encourages me to try different means to solve problems.
15. The team leader suggests me to use novel ways to deal with things.
16. The team leader inspires me to analyze things with different aspects.
17. The team leader values my abilities and advantages.
18. The team leader instructs me and also trains me.
19. The team leader pays attention to individual differences in the team.

Transactional leadership

Transactional leadership is characterized by leader behaviors aimed at monitoring and controlling employees with rewards or punishments (Burns, 1978). Transactional leadership was measured using 3 items directly drawn the scale items of contingent punishment behavior from Podsakoff et al. (1984). Measurement items are stated as follows:

1. My team leader will indicate his (her) disapproval if I performed at a low level.
2. My team leader lets me know about it when I perform poorly.
3. My team leader points it out to me when my productivity is not up to par.

The constructs in this study are measured using 5-point Likert scales drawn and modified from existing literature. Four steps are employed in choosing measurement items. First, the items from the existing literature are translated into Chinese from English. Second, the items in Chinese were then substantially refined by a focus group of four people familiar with organizational behavior, including two graduate students and two professors. Our focus group repeatedly examined both our English version questionnaire as well as its Chinese counterpart, maintaining a high degree of correspondence between the two questionnaires. Third, two pilot studies were conducted prior to the actual survey to assess the quality of our measures and improve item readability and clarity if needed. Some inappropriate items were repeatedly reworded or removed from our survey questionnaire after two pilot tests

analyzed using exploratory factor analysis. Respondents for these studies were drawn from the student population at an evening college, who worked professionally during the day in the information technology industry. They were asked to complete the survey questionnaire and point out any confusing items. Sample sizes for the two pilot studies were 105 and 69 respondents respectively. These respondents did not overlap with the respondents in the actual survey. The appendix 1 lists all the scale items with their references.

3.3 Analytical method

According to MacKinnon et al. (2002), the most common method for testing mediation in psychological research was developed by Kenny and Baron (1986). According to this method, there are four steps in testing mediators. The first step is to show that there is a significant relation between the predictor and the outcome. The second step is to show that the predictor is related to the mediator. The third step is to show that the mediator is related to the outcome. The final step is to show that the strength of the relation between the predictor and the outcome is significantly reduced when the mediator is added to the model. If a variable is a complete mediator, the relation between predictor and outcome will not differ from zero after the variable is included in the model. If a variable is a partial mediator, which is more likely, the relation between predictor and outcome will be significantly smaller when the variable is included but will still be greater than zero. However, situations in which a researcher might want to look for evidence of mediation in the absence of a relation between a predictor and an outcome. In fact, Kenny et al. (1998) stated that this first step is not required (although a significant predictor–outcome relationship is implied if the predictor is related to the mediator and the mediator is related to the outcome). One example is a situation in which a treatment does not appear to be effective (i.e., no effect of predictor on outcome) because there are various mediators producing inconsistent effects (Collins, Graham, & Flaherty, 1998; MacKinnon, 2000; MacKinnon, Krull, & Lockwood,

2000). Because of the above, we skip the first step, and a set of hierarchical multiple regression analyses were used to examine the mediators.

4. Results and Discussion

In our sample, a total of 286 participants are male (51.3%) and a total of 525 participants with a bachelor's degree or higher (93%). Besides, there are totally 504 participants working in their current team for a year or more (89.20%). Table 1 lists the characteristics of the sample.

Table1. Sample characteristics (N = 565)

Characteristic	Sample Proportion
Individual-Level	
Gender	
Male	51.3%
Female	48.7%
Age	
30 years or less	30.5%
31–40 years	42.2%
41–50 years	21.1%
51 years or above	6.2%
Seniority of current company	
3 years or less	38.5%
4–6 years	23.3%
7–9 years	15.6%
10–12 years	7.6%
13 years or above	15.0%
Seniority of current team	
3 years or less	56.0%
4–6 years	16.5%
7–9 years	13.9%
10–12 years	6.5%
13 years or above	7.1%
Education	

High school or below	7.0%
University/College	67.8%
Graduate school or above	25.2%
Marriage	
Single	46.7%
Married	53.3%
Monthly income	
Below 20,000	0.7%
20,000–29,999	14.3%
30,000–39,999	25.4%
40,000–49,999	18.5%
50,000–69,999	25.0%
70,000–89,999	9.0%
90,000–109,999	4.2%
Above 110,000	2.9%
Seniority	
Less 1 year	2.7%
1–5 years	21.8%
6–10 years	26.9%
11–15 years	19.7%
16–20 years	13.2%
21–25 years	8.3%
Over 25 years	7.4%
Team-Level	
Members of the team	
10 members or less	56.9%
11–15 members	13.8%
16–20 members	14.6%
21–25members	4.4%
25 members or above	10.3%
Ratio of members' difference in gender	
0%~20%	26.1%
21%~40%	18.4%
41%~60%	16.8%
61%~80%	16.9%

81%~100%	21.8%
Ratio of members' difference in age	
0%~20%	55.1%
21%~40%	30.5%
41%~60%	9.3%
61%~80%	2.6%
81%~100%	2.5%
Ratio of members with higher education	
0%~20%	10.9%
21%~40%	15.2%
41%~60%	15.1%
61%~80%	17.6%
81%~100%	41.2%
Ratio of expatriate members	
0%~20%	79.0%
21%~40%	16.0%
41%~60%	1.6%
61%~80%	3.4%
81%~100%	0.0%

Because our data are made on units that are organized into groups, intra-class correlation and R_{wg} are used to test the homogeneity among individual-level data. Intra-class correlation is the ratio of the between-subject variation (BSV) to the total variation [i.e., the sum of the BSV and the within-subject variation (WSV)]. R_{wg} is an assessment of within-group interrater agreement. $R_{wg} = 1 - (S_x^2 / \sigma_{EU}^2)$, S_x^2 is the observed variance on a single item and σ_{EU}^2 is the variance on a single item that would be expected if all judgments were due exclusively to random measurement error. R_{wg} is greater than 0.7 can be considered as an indicator of good within group agreement. The result is provided in table 2. Team-level data were analyzed using exploratory factor analysis with promax oblique rotation before the empirical tests are conducted. More specifically, due to our limited team samples and a large number of research factors, we divide our factors into two

groups and ran exploratory factor analysis for each group. A total of 12 factors emerged from the analysis with eigenvalues greater than 1.0, including four dimensions of empowerment (i.e., meaning, competence, impact and self-determination) that contribute to an overall construct of empowerment (Spreitzer, 1996). Reliability analysis found that each of our constructs had a Cronbach's alpha of 0.8 or higher, providing reasonable evidence of reliability. Table 3 and 4 present team-level factor matrices. Besides, team-level correlation matrix is provided in Table 5.

Table2. Intraclass correlation and R_{wg}

Construct	ICC	R_{wg}
Transactional leadership	0.130	0.916
Team Politics	0.309	0.895
Transformational leadership	0.281	0.987
Collectivism	0.245	0.958
Cooperation	0.210	0.962
Competition	0.240	0.921
Team Empowerment	0.155	0.979
Team Performance	0.159	0.961
Team Agility	0.188	0.974

Table3. Team-Level Factor Matrix of the Mediators and Outcomes

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
COO1	0.02	**0.92**	-0.01	-0.02	0.00	0.01	0.08	-0.04
COO2	0.07	**0.96**	0.01	-0.11	0.06	0.00	0.02	-0.04
COO3	-0.02	**0.84**	-0.12	0.07	-0.06	0.02	0.02	-0.01
COO4	0.14	**0.85**	-0.06	-0.02	0.03	-0.01	0.01	-0.06
COO5	-0.03	**0.79**	0.02	0.15	-0.01	0.04	-0.06	0.11
COM1	0.09	-0.03	**0.87**	-0.03	0.01	0.08	-0.09	-0.01
COM2	-0.07	-0.02	**0.81**	0.05	0.09	-0.13	0.25	-0.20
COM3	-0.03	0.05	**0.93**	-0.03	0.03	0.07	-0.04	0.01
COM4	0.09	-0.19	**0.75**	0.05	0.01	-0.15	0.19	-0.19
COM5	-0.07	0.04	**0.88**	-0.06	-0.10	0.03	-0.27	0.30
EMP1_1	-0.05	-0.03	0.04	0.13	0.04	**0.85**	-0.02	0.08
EMP1_2	0.07	0.01	-0.07	0.03	0.07	**0.88**	0.03	-0.08
EMP1_3	0.01	0.10	0.00	0.06	0.04	**0.85**	0.05	-0.08
EMP2_1	0.05	-0.01	0.08	-0.08	**0.89**	0.17	-0.05	0.00
EMP2_2	0.02	0.00	-0.05	-0.03	**0.85**	0.00	0.04	0.11
EMP2_3	-0.03	0.02	0.02	0.12	**0.83**	-0.03	0.06	0.03
EMP3_1	0.14	0.09	0.08	0.05	0.03	0.00	0.11	**0.68**
EMP3_2	0.00	0.02	0.00	-0.05	0.04	0.02	0.13	**0.85**
EMP3_3	0.02	-0.11	-0.11	0.03	0.07	-0.09	0.15	**0.85**

EMP4_1	0.08	0.01	0.02	0.00	0.06	0.03	**0.73**	0.22
EMP4_2	-0.05	0.04	-0.03	0.05	0.05	-0.05	**0.89**	0.07
EMP4_3	0.14	0.02	0.01	-0.04	-0.07	0.10	**0.78**	0.12
PER1	-0.01	-0.09	-0.02	**0.96**	0.01	0.09	-0.05	-0.12
PER2	0.03	0.16	-0.05	**0.74**	0.12	0.03	-0.03	-0.01
PER3	-0.01	0.26	0.06	**0.62**	-0.01	0.06	0.06	0.12
PER4	0.23	0.02	-0.07	**0.65**	-0.14	0.07	0.10	0.08
PER5	0.02	0.14	0.02	**0.72**	-0.01	0.01	0.06	0.12
AGI1	**0.60**	0.40	0.07	0.19	-0.10	-0.03	0.05	-0.14
AGI2	**0.65**	0.15	-0.09	0.08	0.13	-0.11	-0.17	0.18
AGI3	**0.73**	0.00	-0.06	0.20	0.19	-0.12	-0.14	0.00
AGI4	**0.75**	0.09	0.08	0.21	0.02	-0.04	-0.06	-0.01
AGI5	**0.84**	-0.01	0.07	0.05	-0.09	-0.01	0.05	0.12
AGI6	**0.95**	-0.08	-0.09	-0.08	-0.02	0.00	0.09	-0.09
AGI7	**0.80**	-0.03	0.05	-0.19	-0.05	0.22	0.07	0.13
AGI8	**0.82**	0.05	-0.01	-0.09	0.05	0.09	0.13	-0.07

Based on principal components technique with promax oblique rotation.
Legend: COO = Cooperation; COM = Competition; EMP = Empowerment; PER = Performance; AGI = Agility.

Table4. Team-Level Factor Matrix of the Antecedents

Items	Factor 1	Factor 2	Factor 3	Factor 4
TSA1	-0.18	-0.04	0.04	**0.82**
TSA2	0.12	0.01	0.00	**0.87**
TSA3	0.09	0.04	0.01	**0.85**
POL1	-0.06	-0.07	**0.77**	0.05
POL2	-0.12	0.09	**0.86**	0.00
POL3	-0.07	0.05	**0.84**	-0.07
POL4	0.04	-0.04	**0.93**	0.03
POL5	0.07	-0.07	**0.89**	0.05
TSF1	**0.87**	0.10	0.05	-0.14
TSF2	**0.98**	0.02	0.16	-0.10
TSF3	**0.99**	0.03	0.19	-0.02
TSF4	**0.87**	0.06	0.02	0.01
TSF5	**0.78**	0.08	-0.10	0.01
TSF6	**0.87**	0.01	0.00	-0.05
TSF7	**0.76**	0.03	-0.02	-0.02
TSF8	**0.93**	-0.17	-0.09	0.02
TSF9	**0.82**	-0.08	-0.16	-0.03
TSF10	**0.78**	0.03	-0.04	0.13
TSF11	**0.70**	0.29	0.08	0.03
TSF12	**0.62**	0.30	-0.07	-0.05
TSF13	**0.68**	0.17	-0.07	0.06
TSF14	**0.64**	0.15	-0.13	0.12
TSF15	**0.60**	0.20	-0.19	-0.04
TSF16	**0.61**	0.08	-0.22	0.13
TSF17	**0.71**	0.18	-0.07	-0.01
TSF18	**0.67**	0.08	-0.14	0.10
TSF19	**0.65**	0.17	-0.06	-0.01
CLV1	0.26	**0.66**	0.06	-0.06
CLV2	0.02	**0.91**	0.07	-0.04
CLV3	0.05	**0.82**	-0.10	-0.03
CLV4	0.13	**0.70**	-0.06	0.12
CLV5	0.11	**0.67**	-0.24	-0.07
CLV6	0.15	**0.80**	0.01	-0.06
CLV7	0.10	**0.74**	0.06	0.18

Based on principal components technique with promax oblique rotation.
Legend: TSA = Transactional leadership; POL = Team politics; TSF = Transformational leadership; CLV = Collectivism.

Table5. Team-level Correlation Matrix

NAME	Mean	Std	1	2	3	4	5	6	7	8	9
1. Collectivism	3.62	0.40	0.93								
2. Team politics	2.67	0.57	-0.56	0.92							
3. Transformational leadership	3.79	0.40	0.80	-0.60	0.97						
4. Transactional leadership	3.79	0.34	0.24	-0.15	0.34	0.80					
5. Cooperation	3.86	0.38	0.79	-0.59	0.77	0.36	0.95				
6. Competition	2.65	0.46	-0.37	0.70	-0.37	0.11	-0.46	0.91			
7. Team empowerment	3.77	0.29	0.60	-0.40	0.64	0.22	0.59	-0.24	0.93		
8. Team agility	3.56	0.35	0.63	-0.37	0.63	0.32	0.65	-0.12	0.68	0.94	
9. Team performance	3.71	0.36	0.75	-0.49	0.69	0.27	0.76	-0.38	0.69	0.67	0.94

Note: Diagonal indicates Cronbach's alphas.

We used multiple regression analysis to reflect our hypotheses at a team-level in Table 6 by simultaneously including our four demographic control variables (i.e., the ratio of members' difference in gender, the ratio of members' difference in age, the ratio of members with higher education and the ratio of expatriate members). In models 1 and 2, we included four independent variables containing collectivism, team politics, transformational leadership and transactional leadership. The results show that team politics are negatively related to cooperation while collectivism, transformational leadership and transactional leadership are positively related to cooperation. Meanwhile, team politics and transactional leadership are both positively related to competition, whereas collectivism and transformational leadership are not related to competition. In model 3, transformational and transactional leadership are included as independent variables and consequently only the

transformational leadership is positively and significantly related to team empowerment.

In models 4 and 5, we included cooperation, competition and team empowerment as predictors that affect team agility and team performance. The results show that team agility is positively related to all the three predictors while team performance is only positively related to cooperation and empowerment rather than competition.

To test if cooperation, competition and team empowerment are full or partial mediators, we conducted further tests by adding direct links from our four antecedents to our two team outcomes (i.e., agility and performance). As presented in Table 6, our results indicate that all the significant paths in above-mentioned models remain unchanged. Furthermore, all the direct paths between antecedents and outcomes were insignificant except collectivism (β = 0.25, $p < 0.01$), suggesting that full mediations of coopetition and team empowerment indeed exist between our antecedents and team outcomes to a large extent. Finally, in model 7, the test results show that the team agility is positively related to team performance.

Based on the above empirical results, we depict all the significant model paths in Figure 2 and then summarize the final results of our hypotheses in Table 7. Of our 8 hypotheses, we have 4 supported, 3 partially supported hypotheses, and 1 not supported hypothesis.

Table6. Team-level regression analysis

	Model 1 Cooperation	Model 2 Competition	Model 3 Team empowerment	Model 4 Team agility	Model 5 Team performance	Model 6 Team agility	Model 7 Team performance
Control variables:							
Ratio of members' difference in gender	0.01	0.02	-0.03*	0.01	-0.02	0.01	-0.02
Ratio of members' difference in age	-0.02	0.12**	0.03	0.01	0.03	0.01	0.02
Ratio of members with higher education	-0.01	-0.02	0.00	0.01	0.01	0.01	0.01
Ratio of expatriate members	-0.02	-0.06	0.04	0.01	0.02	0.02	0.02
Antecedents:							
Collectivism	0.47**	-0.08				0.06	0.25**
Team politics	-0.09*	0.54**				-0.04	0.03
Transformational leadership	0.23*	0.04	0.48**			0.06	-0.04
Transactional leadership	0.15*	0.22*	0.02			-0.02	0.09
Mediators:							
Cooperation				0.46**	0.39**	0.38**	0.22*
Competition				0.15**	-0.08	0.18**	-0.11
Team empowerment				0.52**	0.23**	0.47**	0.20*
Team agility					0.30**		0.28**
Adj R^2	0.69	0.56	0.41	0.60	0.71	0.60	0.73

*$p < 0.05$; **$p < 0.01$

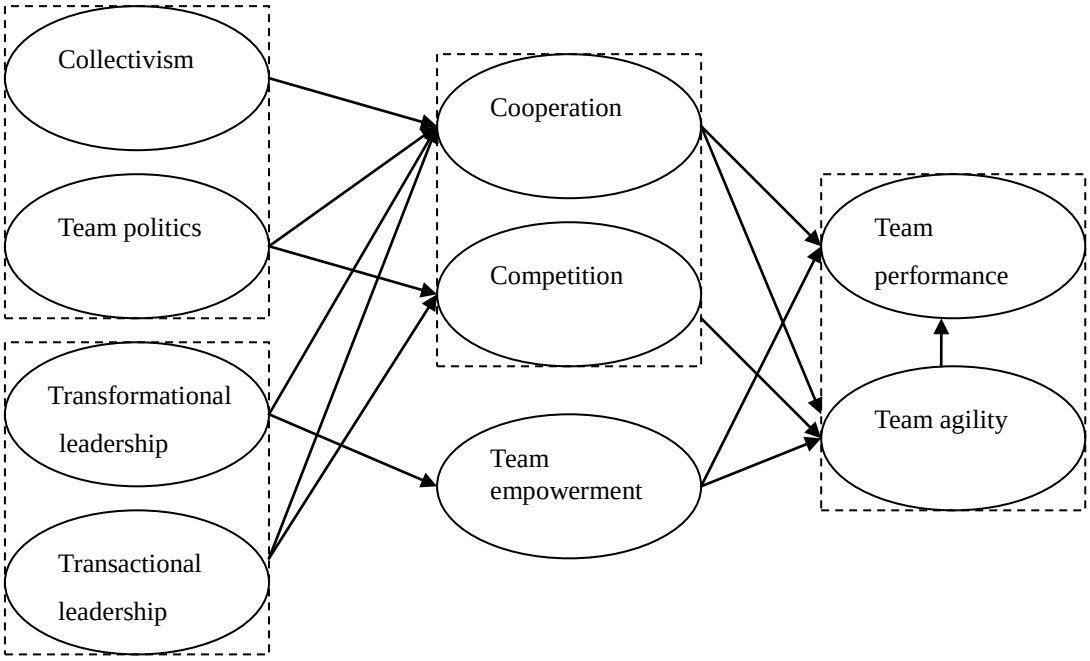

Figure2. Significant model paths

Table7. Test results of hypotheses

Hypotheses	Results
H1: Cooperation, competition, and empowerment positively relate to team agility.	Supported
H2: Cooperation and empowerment positively relate to team performance, but competition negatively relates to team performance.	Partially Supported
H3: Team agility positively relates to team performance.	Supported
H4: Collectivism positively relates to cooperation, but team politics negatively relates to cooperation.	Supported
H5: Collectivism negatively relates to competition, but team politics positively relates to competition.	Partially Supported
H6: Transformational leadership and transactional leadership positively relate to cooperation.	Supported
H7: Transformational leadership and transactional leadership negatively relate to competition.	Not Supported
H8: Transformational leadership and transactional leadership positively relate to empowerment.	Partially Supported

5. Conclusions and Suggestions

5.1 Conclusion and Managerial Implication

This study has contributed to the literature of agility in teams in several ways. First, the focus of this study is to determine if cooperation, competition, and team empowerment are significant mediators that have not been previously studied. Our findings confirm high collectivism will bring high team performance and high team agility by team cooperation. This is a key finding for team leader whose team seeks a better performance. The effect of team politics on the team performance and team agility is mediated by cooperation and competition. The result is high team politics produces low team performance, but leads to high team agility via competition. Therefore, team leaders should take care of the politics in their team. Collectivism helps to balance the negative impact of team politics on cooperation because collectivism deters team members from unscrupulously achieving their goal. Given that team politics are sometimes inevitable in a team or an organization, it is important for management to make good use of collectivism to lever the suppressed cooperation into a better position. It is important to note that team politics are not always bad to a team. Second, our study suggests transformational leadership has significant influences on team performance and team agility via the mediation of cooperation and team empowerment, while the relationship is positive. In the same way, the findings also indicate transactional leadership has a positive impact on team performance and team agility by cooperation and competition. That is to say, both leaderships are good for the team outcomes. And our study confirms the importance of team empowerment again. We find team empowerment is positively related to team performance and team agility. This suggests the perception of team empowerment has a strong and direct link with team's

outcomes (Liden, Wayne, & Sparrowe, 2000; Mitchell & Daniels, 2003; Pinder, 1998). Finally, the significant influence of team agility on both team cooperation and competition in coworkers implies cooperation and competition are not polar ends of one continuum; instead, within any relationship, competition and cooperation are two separate but interrelated aspects of that relationship. The implication is that within any given relationship, both competition and cooperation can, and often do, coexist and that the combination of the two leads to enhanced agility for the team (Lado, Boyd, & Hanlon, 1997; Gnyawali & Madhavan, 2001).

The unsupported hypothesis is surprising. Particularly, this study hypothesizes that the transactional leadership is supposed to be negatively related to competition, but the test result actually show that the influence of transactional leadership on competition is positively significant. Such contradictory phenomenon may occur perhaps due to organizational climate, team punitive systems or other factors, which are not controlled herein. For example, transactional leaders may focus on employee mistakes to meet the standards or wait until a problem becomes severe before they intervene that contribute to the behaviors such as questioning, clarifications, and assessment of each member's contribution and cause the team competition. Nevertheless, the unexpected results for the unsupported hypothesis may warrant further study so that the insights behind the hypothesis can be interpreted accurately.

A majority of previous studies have mostly focused on either cooperation or competition. Some of the studies revealed mixed results regarding competition. For example, while Hammond and Goldman (1961) concluded that competition may not motivate performance and can be detrimental to team processes, Stanne et al. (1999) stressed some positive outcomes of competition on performance. Another research with

mixed results concluded that competition facilitates motivation, productivity, and quality (Julian & Perry, 1967). These mixed results imply that some critical mediators associated with competition and team performance (e.g., team empowerment and team agility) should be carefully examined so that our understanding about coopetition can be greatly improved. Indeed. The empirical results show that competition has a direct and negative effect on team performance and an indirect and positive effect on the team performance via the mediation of team agility. These findings provide a very strong explanation about why the effects of competition on team performance in previous studies are sometimes positive and sometimes negative, depending on their various viewpoints. The findings of this study strongly suggest that competition can have the pros and cons for teams, striking management to plan out balanced measures to maintain certain competition under the rules of the team. It would be very much mistaken for management that any competition should be eliminated. Instead, having cooperation with acceptable competition is good for the team, because the cooperation becomes more important and valued by employees when competition increases to a certain extent. The degree to which organizations should emphasize cooperation or competition among the members of work teams is an age-old controversy, and many studies have debated whether activities should be structured in a cooperative or competitive manner to promote motivation and performance (e.g., Deutsch, 1949; Johnson & Johnson, 1989, 1990; Slavin, 1996), but our research believe that the answer may lie in a combination of these two contexts. For that reason, this study examining two critical team outcomes (e.g., performance and agility) from a perspective of coopetition can substantially complement previous research with similar issues.

Organizations now face an unstable and turbulent environment. The marketplace for products and services is dominated by rapid changes in customer needs, fierce competition, globalization and technical innovations. At the same time, organizations are increasingly

using work teams to streamline processes, enhance employee participation, and improve performance. This lets us start with the issues concerning team agility and there are two implications from this study for team and team leader.

A practical implication is that, both team cooperation and competition are helpful to team agility. This implies a team leader can enhance team agility through increase the mediators of team cooperation and competition. For example, teams may seek to shape collectivistic culture that support team agility through team cooperation. Team members who observe, learn and imitate the culture of collectivism from team, based on the norm of cooperation, can enhance team agility. On the opposite, team members who work in political environments develop an emotional alienation from work as a result of inequity and unfair team climate. Such a psychological state may lead team members to suffer high levels of stress, strain, tension, which may eventually translate into aggressive behaviors and team competition. Thus, produce high team agility. But one should be careful is team competition may also harm team performance. Some previous studies have shown that intrateam competition is destructive (Deutsch, 1973; Johnson & Johnson, 1989; Johnson et al., 1981). In competing, individuals or subgroups place their own benefits first, and the gains achieved by one are often obtained at the expense of another. Therefore, when a manager wants to promote team agility must think about the benefits and damages of competition.

Another implication of this study is that both leaderships are good for team performance and agility via the mediating roles of cooperation, competition and team empowerment. When a leader is a transformational leader, he should pay more attention on team cooperation and empowerment. For example, a transformational leader should respect every team members, emphasizes team work and mission. In contrast, a transactional leader

should take notice of team cooperation and competition. For instance, a transactional leader should let team members know about it when they perform poorly or give them reward when they exceed the standard. Just like the literature has shown before, leaderships are often viewed as situational. Our research findings also indicate that management should learn and transfer various and flexible leadership styles to balance team coopetition and team empowerment.

5.2 Limitations of the study

There are three limitations in this study. First, the design of the study was the use of a one-time, cross-sectional measure. The cross-sectional nature of it limits our ability to achieve causal inferences from the data. Longitudinal studies are needed in this area of research which supports stronger inferences. Therefore, future studies can try to improve such shortcomings by directly observing the subjects' actual behaviors over time. Second, this study was conducted in a single country setting – the high-tech industry in Taiwan. As a result, the generalization of the findings might be limited. Additional research across different countries and industries will be required in order to generalize the findings. There is also a potential limitation that is the teams in our study were convenience sampling, not a random sample. Third, the design of this study was limited by its dependence on self-report measures. Although using self-report is common in social science studies, it does not provide a wider view of the variables. However, future researchers are advised to explore other potential mediators or other team's characteristics beyond the scope of cooperation and competition theory and compare their explanatory ability to the variables examined in this study.

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Appendix1. Measurement Items

Team performance

TP1. The collaboration of our team reduces redundancy of work content.
TP2. The collaboration of our team improves team efficiency.
TP3. The collaboration of our team coordinates the efforts of everyone on the team.
TP4. The collaboration of our team facilitates innovating new ideas.
TP5. The collaboration of our team streamlines the internal processes.

Team agility

TA1. Our team can develop new skills quickly.
TA2. Our team's responsiveness to changing needs of the other teams (or customers) is timely.
TA3. Our team's responsiveness to changing organizational conditions is timely.
TA4. Our team's speed of acquiring the skills necessary for business process change is fast.
TA5. Our team's effectiveness of cooperating across functional boundaries is good.
TA6. Our team's speed of acquiring new IT (or software) skills is fast.
TA7. Our team can switch to different projects (or missions) with ease.
TA8. Our team's speed of applying new management skills is fast.

Cooperation

COO1. Our team members 'swim or sink' together.
COO2. Our team members want each other to succeed.
COO3. Our team members seek compatible attitude in terms of teamwork.
COO4. Our teamwork goes smoothly.
COO5. When our team members work together, we usually seek a solution that is good for the team.

Competition

COM1. Our team members structure things in ways that favor their own benefit rather than that of other team members.
COM2. Our team members have a 'win–lose' relationship.
COM3. Our team members like to show that they are superior to each other.
COM4. Our team members' work attitude is incompatible with each other.
COM5. Our team members give high priority to the things they want to accomplish and low priority to the things other team members want to accomplish.

Team empowerment

TE1. The work I do is very important to me.
TE2. My job activities are personally meaningful to me.
TE3. The work I do is meaningful to me.
TE4. I am confident about my ability to do my job.
TE5. I am self-assured about my capabilities to perform my work activities.

TE6. I have mastered the skills necessary for my job.
TE7. I have significant autonomy in determining how I do my job.
TE8. I can decide on my own how to go about my work.
TE9. I have considerable opportunity for independence and freedom in how I do my job.
TE10. My impact on what happens in my team is large.
TE11. I have a great deal of control over what happens in my team.
TE12. I have significant influence over what happens in my team.

Collectivism

COL1. Management and supervisors are protective of and generous to loyal workers.
COL2. Decisions about changes in work methods are taken jointly by supervisors and employees.
COL3. Employees are taken care of like members of a family.
COL4. Everyone shares responsibility for the team' failures as well as success.
COL5. Regardless of hierarchical level, employees take each other's views into consideration.
COL6. Once someone is hired, the team takes care of that person's overall welfare.
COL7. Everyone is kept informed about major decisions that affect the success of the team.

Team politics

POL1. The member who gets ahead around here is not determined by merit but by favoritism.
POL2. There are few members in our team who always get things their way because no one dares to challenge them.
POL3. Members in our team attempt to build themselves up by tearing others down.
POL4. I have seen changes made in policies here that only serve the purposes of a few individuals, not our team.
POL5. Managers prefer yes-men around here; good ideas are rejected when it means disagreeing with superiors.

Transformational leadership

TSF1. I am proud of being my team leader's subordinate.
TSF2. I respect my team leader.
TSF3. My team leader is my role-model.
TSF4. I am confident about my team leader.
TSF5. My team leader deals things with justice.
TSF6. My team leader's behaviors fit with moral standard.
TSF7. When making decision, the team leader considers about ethics.
TSF8. The team leader is really responsible.
TSF9. The team leader considers about team's future.
TSF10. The team leader emphasizes on team work and mission.
TSF11. The team leader inspires my passion to team.
TSF12. The team leader makes me really optimistic about team's future.
TSF13. The team leader encourages me to revise if prior decision is appropriate.
TSF14. The team leader encourages me to try different means to solve problems.
TSF15. The team leader suggests me to use novel way to deal with things.
TSF16. The team leader inspires me to analyze things with different aspect.
TSF17. The team leader values my abilities and advantages.

TSF18. The team leader instructs me, and also trains me.
TSF19. The team leader pays attention to individual differences in the team.

Transactional leadership

TSA1. My team leader will indicate his (her) disapproval if I performed at a low level.
TSA2. My team leader lets me know about it when I perform poorly.
TSA3. My team leader points it out to me when my productivity is not up to par.