Leader-Member Skill Distance, Team Cooperation, and Team Performance: A Cross-Culture Study in a Context of Sport Teams

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[ABSTRACT]

Team heterogeneity research has been traditionally dominated by atomistic or single-culture assumptions. This study extends this stream by investigating the influences of cooperation and culture on the link between leader-member skill distance (one special type of team heterogeneity) and team performance. Building upon input-process-output framework from the perspective of individualist and collectivist cultures, we propose that the association between leader-member skill distance and team performance has an inverted-U shape in individualist cultures. Further, in such cultures, team cooperation can augment the positive effect of leader-member skill distance on team performance. In contrast, in collectivist cultures, the association between leader-member skill distance and team performance has a monotonic and positive shape, and team cooperation will attenuate the positive effect of leader-member skill distance on team performance. We find the empirical support for our views with a mixed-methods design: a qualitative study interviewing informants in different cultures to clarify the psychological mechanisms, and also a quantitative study analyzing the data from US's National Basketball Association (NBA) and China Basketball Association (CBA).

Keywords: Leader-member skill distance, individualist-collectivist culture, cooperation, team performance, mixed-methods design, basketball team

1. Introduction

Due to rapid globalization, teams in organizations are becoming increasingly heterogeneous in terms of race, gender, personality, education, skill, power, and knowledge (Harrison & Klein, 2007; Webber & Donahue, 2001). More researchers have turned attention to examine how team effectiveness will be possibly shaped by leader-member heterogeneity in general and job-related skill heterogeneity in particular (Farh, Hackett, & Liang, 2007; Liao, Chuang, & Joshi, 2008; Schaubroeck & Lam, 2002; Tsui, Egan, & O'Reilly, 1992). In this study, we seek to contribute to the current research on leader-member heterogeneity by explicitly exploring whether, how, and when team effectiveness will be influenced by *leader-member skill distance*, defined as the extent of job-related skill difference between leader and members in a team.

Despite the great efforts and much advancement, prior team heterogeneity research has primarily relied on atomistic or single-culture assumptions (Eppler & Sukowski, 2000; Schaubroeck & Lam, 2002; Tsui, Egan, & O'Reilly, 1992), so it has paid limited attention to the joint effect of cooperation and culture on the deep-level issues of leader-member heterogeneity and team effectiveness. One recent research stream has acknowledged that individuals are embedded in teams' cooperative networks and teamwork is a cooperative process, defined as the atmosphere of willful interaction and connection among team players during the completion of interdependent jobs (Reagans, Zuckerman, & McEvily, 2004). Another recent research stream has recognized that teams embedded in different cultures will behave in different ways (Bessarabova, 2014; Yamaguchi, 2013; Zaidman & Malach-Pines, 2014). In this study, we bridge and extend the above two previously separated research streams to explore those critical, yet underexplored, factors that affect the association between leader-member skill distance and team effectiveness. Specifically, we ask two critical and interrelated research questions: (1) *How does leader-member*

skill distance influence team performance in different cultures? (2) How is such influence moderated by the level of team cooperation in different cultures?

Three motivations drive our study. First, although team heterogeneity consists of member-member and leader-member heterogeneity, most extant research has paid much attention to the heterogeneity among team members (Harrison & Klein, 2007), so the leader-member heterogeneity has been relatively overlooked. To address this void, we explore how team performance can be influenced by leader-member skill distance, especially given the salience of skill configuration to team design (Van Der Vegt, Bunderson, & Oosterhof, 2006). Second, all players in a team, both leaders and members, are not atomistic individuals but relational entities with their complex interdependency and interaction (Levinthal & March, 1993; Reagans, Zuckerman, & McEvily, 2004). Such relational perspective is particularly relevant to our research question because the process of teamwork is about interactions, cooperations, and communications among team players, which can be shaped by team players' embeddedness in cooperative relationships. Unfortunately, little research has explored how team cooperation will moderate the link between leader-member heterogeneity and team performance. Thus, we will focus on the moderating role of team cooperation on the link between leader-member skill distance and team effectiveness. Finally, even though researchers have long recognized that teams may behave differently in different cultures (e.g., Liu, 2007), their studies are mostly within a single culture, particularly in those individualist cultures (e.g., Harrison, Price, & Bell, 1998; Liao, Chuang, & Joshi, 2008; Schaubroeck & Lam, 2002). In light of this major gap, we seek to contribute by applying the cultural dimension of individualism-collectivism (IC, Hofstede, 1980, 1991) as the overarching cross-culture framework to connect the research streams on team heterogeneity, team cooperation, and team performance in an integrative process.

2. Theoretical framework and hypotheses

2.1. *Input-process-output framework and team heterogeneity*

To explore how leader-member skill distance affects team effectiveness, we adopt the general input-process-output model (Hackman, 1987; Stewart & Barrick, 2000). One essential *team input* is group composition represented by leader-member skill distance in this study. Team input affects team output through altering team's psychosocial traits, such as team trust (Cohen & Bailey, 1997), which in turn influences task performance (Dirks, 2000). There are two basic types of trust: affect-based trust (indicating that people tend to trust those with emotional bond), and competence-based trust (indicating that people tend to trust those with more skill, knowledge, and expertise) (Levin & Cross, 2004).

Leader-member skill distance suggests that team leader is usually more skillful than team members for solving job-related problems, and it will affect the competence-based trust of team members in the team leader. Also, since a skillful team leader contributes more to team task, he/she tends to be rewarded more from task performance than other members. However, the uneven distribution of rewards tends to trigger some conflicts between leader and members, which negatively affects affect-based trust or emotional bonds in a team (Cohen & Bailey, 1997). Further, different levels of trust can generate different levels of team cohesion with different sense of belonging, thus resulting in different levels of team output (Tsui & O'Reilly, 1989).

Taking all members in a team as a collective entity, *team process* refers to interacting and communicating among all members during the pursuit of team objective (Cohen & Bailey, 1997; Hackman, 1987). Hackman (1987) specifically defines team process as "those aspects of interaction that relate directly to a group's work on its task"(p.321). Hence, we select team cooperation to represent team process. Team cooperation, as team process, affects the

transformation from team input and team output by influencing team's psychological traits.

Stronger team cooperation indicates that more interactions and communications will generate more opportunities for team members to understand each other (Liang, Shih, & Chiang, 2015), while more understandings can yield more trust, both affect-based and competence-based.

Reagans and colleagues (2004) argue that team cooperation can provide social capital, such as a higher level of cohesion and trust, which in turn affects team performance. Further, Gilsing and colleagues (2008) demonstrate that denser connection can facilitate the development of trust as a reputation mechanism as well as the development of social coalition to constrain opportunism.

Team output can be operationalized as performance outcomes (e.g., quality and productivity), attitudinal outcomes (e.g., job satisfaction), and behavioral outcomes (e.g., absenteeism) (Cohen & Bailey, 1997; Hackman, 1987). Since scholars and managers put team performance as priority, this study focuses on how leader-member skill distance can enhance team performance. Our conceptual model is shown in Figure 1.

[Insert FIGURE 1 here]

2.2. Cultural values of individualism and collectivism

Individualism defines in-group as people in comparable social class, race, beliefs, attitudes, and values, rather in organizations, firms, or teams (Triandis et al., 1988). People in individualist cultures may compete against, clash with, and exploit out-group members, even if they are in the same team. The risk of conflicts and opportunism can impair individuals' trust and sense of belonging to their team. Moreover, individualism believes generalized trust—to trust both in-group and out-group members in a similar pattern (Huff & Kelley, 2005; Kwon & Arenius, 2008). Further, individualist cultures cherish individuals' free will, uniqueness, and non-determinism, and legitimize the pursuit of their own self-interests (Ma, Huang, & Shenkar,

2011). If a leader takes an unfair slice of awards, members have the right to challenge, even confront against the leader for their own fair share.

In contrast to individualism, collectivism defines in-group as people of family members, friends, teammates, and people in the same organization (Triandis et al., 1988). Since people in collectivist cultures regard individuals in one team as in-group, the potential risk of conflicts and opportunism in a team should be low (Chen, Peng, & Saporito, 2002). In that case, individuals' trust as well as sense of belonging to their team is high and stable, thus not likely to vary, neither to strengthen nor to weaken. In addition, distinct from individualists, collectivists are expected to subsume their own interests to that of their team—chasing individuals' interests is morally shaky, and even institutionally forbidden (Triandis, 2004). Because collectivists' inveterate custom of obeying and trusting their leader, and because the leader owns an absolute authority to distribute resources, a skillful leader is deemed necessary for a team in collectivist cultures (Ma, Huang, & Shenkar, 2011; Xiao & Tsui, 2007).

2.3. Individualism, leader-member skill distance, and team performance

In individualist cultures, if team's leader-member skill distance is exceedingly small (when both leader and members are almost equally skillful and similarly capable of problem-solving), team effectiveness would be jeopardized for three basic reasons. First, for a team with small leader-member skill distance, the members' competence-based trust in the leader can be fragile (Levin & Cross, 2004; Mayer, Davis, & Schoorman, 1995). Weak competence-based trust will trigger conflicts between members and leader because individualist cultures encourage members to challenge leader's decisions, and also because individualist cultures tolerate, and even encourage, members' free expressions (Ma, Huang, & Shenkar, 2011). Further, any escalating tensions and conflicts, in turn, can damage the affect-based trust or emotional bonds in a team.

Hence, team effectiveness will be dampened by small leader-member skill distance in individualist cultures.

Second, small leader-member skill distance implies that team members think their leader is relatively incapable of helming the team. Noticing that, all members will strive to compete for the leader position, since individualist cultures encourage members to pursue their own self-interests freely as the leader is the one who earns the most (Huff & Kelley, 2005; Kwon & Arenius, 2008). This can cause more conflicts in their team, and can further damage team effectiveness. Third, in individualist cultures, team members may view others in a team as out-group, and behave opportunistically toward the leader as well as other members when high conflicts occur (Triandis et al., 1988). Due to such conflicts and opportunism, team cohesion and team trust can be jeopardized, thus hampering team effectiveness (Cohen & Bailey, 1997).

In contrast, large leader-member skill distance can reduce the above three negative impacts, and team performance will be ameliorated accordingly. We argue, however, that the positive effect of a large leader-member skill distance will diminish after reaching a threshold. As leader-member skill distance becomes larger, members' competence-based trust in the leader will become stronger. When team members encounter any task-related difficulties, they will turn to the leader for help. Once this occurs at the extreme level, team members will become too dependent on their leader rather than take their own initiatives, which will greatly reduce members' active involvements in problem-solving. Low involvements in team process can spoil the sense of belonging to the team, and then diminish team effectiveness (Brown & Leigh, 1996).

Further, if leader-member skill distance is too large, the leader contributes most to the team's objectives, while the contributions from other team members would be deemed as unessential and insignificant. As a result, the leader will earn most of the rewards—especially economic bonus. In

contrast, the less skillful members, however, cannot fulfill their needs, neither financially nor psychologically. Because individualist cultures tend to propel members to prioritize their own interests over team interests, the job satisfaction of less skillful members will become low, which will have negative impacts on team performance (Christen, Iyer, & Soberman, 2006). In short, we posit that the link between leader-member skill distance and team performance will follow an inverted U-shaped pattern.

Hypothesis 1: The relationship between leader-member skill distance and team performance follows an inverted U-shaped curve in individualist cultures.

2.4. Team cooperation as a moderator in individualistic cultures

As a core dimension of team process that focuses on interactions and communications in a team (Klein et al., 2004), *team cooperation* refers to the intensive interactions and communications among team members for team tasks (Hackman, 1987). In individualist cultures, leader-member skill distance (as team input) tends to pose three types of obstacles to team effectiveness (as team output): fragile trust, potential conflicts, and weak sense of belonging. However, strong team cooperation (as team process) can alleviate the above three obstacles, just like “grease in wheels”. In this sense, team cooperation can enhance the positive link between leader-member skill distance and team performance by reducing team conflicts and promoting team trust.

Further, strong team cooperation can facilitate the mutual understanding between leader and members, so it can strengthen the emotional bonds and affect-based trust in a team (Castelfranchi, Falcone, & Marzo, 2006). Also, the dense interactions between leader and members can increase members’ competence-based trust in leader, which will reduce the potential clashes deriving from perceived injustices concerning uneven distribution of rewards (Castelfranchi, Falcone, & Marzo,

2006; Levin & Cross, 2004). For instance, Levin and Cross (2004) find that strong tie is related to benevolence-based (similar to affect-based) and competence-based (similar to cognition-based) trust. Finally, team cooperation can strengthen the task involvement of members, especially less skillful ones, so as to increase their sense of belonging. In sum, strong team cooperation can create a positive climate to strengthen the positive effect of large leader-member skill distance on team performance in the specific context of individualistic cultures.

Hypothesis 2: Team cooperation will strengthen the positive effect of leader-member skill distance on team performance in individualist cultures.

2.5. Collectivism, leader-member skill distance, and team performance

Collectivist cultures revere leader's authority, and require members' obedience—challenging a leader is morally inappropriate (Ma, Huang, & Shenkar, 2011). Hence, it is expected that, in collectivist cultures, the larger leader-member skill distance, the more united a team would be, and the higher team effectiveness. The positive effect of leader-member skill distance on team performance in collectivist cultures appears to be comparable to individualist cultures, but the threshold for an inverted U-shaped curve in individualist cultures may not exist in collectivist cultures. As discussed earlier, two reasons account for the inverted U-shaped curve of the link between leader-member skill distance and team effectiveness in individualist cultures as a result of extremely large leader-member skill distance: (1) low sense of belonging, and (2) unfulfilled personal needs (Ma, Huang, & Shenkar, 2011; Xiao & Tsui, 2007). In collectivist cultures, however, the case could just be the opposite. By perceiving oneself as interdependent with others as part of a team as in-group, putting team interests as top priority, and viewing team success as one's own, large leader-member skill distance may not result in low sense of belonging and

unfulfilled personal needs (Triandis, 2004; Xiao & Tsui, 2007). In this sense, even though less skillful members may not contribute much to team performance and more skillful leader gets the biggest slice of rewards, teams can still function smoothly with low conflicts, strong trust, and high job satisfaction. In sum, the case of typical threshold for an inverted U-shape curve in individualist cultures may not occur in collectivist cultures.

Hypothesis 3: The leader-member skill distance is positively and linearly associated with team performance in collectivist cultures.

2.6. Team cooperation as a moderator in collectivist cultures

We argue that team cooperation plays different roles in different cultures. In individualist cultures, team cooperation can reduce the negative effect of leader-member skill distance on team performance, because team trust is so thin there that the room for improving trust is large. In contrast, in collectivist cultures, team cooperation is not “grease in wheels”, but “a snag” that teams may unexpectedly run into. This is because that team trust in collectivist cultures, including both competence-based and affect-based types of trust, is already robust and stable, because all individuals view others as in-group (Ma, Huang, & Shenkar, 2011). Not only trust is already robust and stable, but also the sense of belonging to the team (Chen, Chen, & Meindl, 1998). The margin for increasing trust and sense of belonging there will be narrow. In other words, team cooperation in collectivist cultures will not, as in individualist cultures, help enhancing the connection between leader-member skill distance and team performance, since robust and stable trust already exists there.

On the contrary, too much cooperation will damage the existing atmosphere in collectivist cultures. Because collectivist cultures do not inspire members to pursue private interests (Xiao &

Tsui, 2007), their motivations to share responsibilities are weak. When their team encounters big obstacles, too much cooperation is equivalent to team members “passing the buck” on to others, which, in turn, will trigger negative behaviors: opportunism, conflicting, and distrusting—all will damage the existing team atmosphere. Previous studies have identified several negative roles of cooperative tie (*guanxi*) in collectivist cultures, such as cronyism, opportunism, corruption, violations of organizational regulations, and the erosion of trust (e.g., Bian, 1997; Khatri, Tsang, & Begley, 2006). For instance, taking the view of procedural justice, Chen, Chen, and Xin (2004) have investigated the impact of cooperative practices (via *guanxi*) in human resources management on employees’ trust in top management in Chinese organizations, and they found a negative effect of *guanxi* practices on trust in organizations in a survey study.

Hence, too much cooperation, in collectivist cultures, can be a snag. Let us take a basketball match as a metaphor. Shooting to score is the key to win a game so that the shooters have to bear responsibilities. As team leaders tend to face many defensive players of rival teams due to their high skills, opportunities of scoring will be in the hands of other unskillful players. If unskillful players, when facing good opportunities to score, choose to pass the ball back to the team leaders again and again because of competence trust and aversion of responsibilities, the team will be at high risk of losing the game since leader’s score position may be not as good as others. In consequence, leaders will not trust the unskillful players anymore. In short, high-level cooperation may hurt the extant trust between leaders and members in collectivist cultures.

Hypothesis 4: Team cooperation will weaken the positive effect of leader-member skill distance on team performance in collectivist cultures.

3. A mixed-methods design

3.1. Qualitative study

A qualitative method earns a major merit to delve into our research question—it can reinforce trust between interviewers and interviewees that is essential to examine informants' psychological feelings. Besides, individuals' psychological traits are central to team designing results, which are illuminated in our input-process-output framework (Figure 1). Inspired by prior research (Liu, 2011), we first employed a qualitative fashion to crystallize the psychological mechanisms, through which leader-member skill distance, team cooperation, and cultures can affect team effectiveness.

To ensure interviewees fully reflect their local cultures and mindsets, we merely selected native speakers. Specifically, to control sampling bias, we employed snowball sampling: first, we listed the interviewees who wanted to join; after interviewing, we then asked the interviewee to nominate as many as others who are suitable for and interested in our study; finally, we treated those nominees as the base for next stage interviewing.

The data collection extended for 2 months. Western countries are in individualist cultures, whereas Eastern countries in collectivist cultures (Ma, Huang, & Shenkar, 2011; Xiao & Tsui, 2007). We processed 30 interviews, 15 for each culture: China ($n = 13$) and Pakistan ($n = 2$) as a sample of collectivist cultures; Germany ($n = 1$), Netherland ($n = 1$), Poland ($n = 8$), and United States ($n = 5$) as individualist. Interviews of collectivists are in face-to-face style; interviews of individualists are through Skype. Our informants are mainly leaders of their current teams (63.3%). More details can be provided if needed.

We semi-structured interviews, and prepared 12 “required” questions (more details can be provided if needed). Each interviewer was also allowed to pursue interesting comments arising during an interview. Many interviewees showed enthusiasm to share their stories associated with leader-member skill distance, team cooperation, and team effectiveness. These unstructured

questions drew a clearer picture of psychological mechanisms and allowed us to explore our questions deeper.

Most respondents ($n = 25$) repeated that leader-member skill distance can vary their trust and sense of belonging to their teams. Meanwhile, 21 respondents mentioned that team cooperation will change team's work atmosphere. Finally, we still find evidences (albeit not concrete one) showing how individuals' behaviors and psychological traits differ across cultures (specific quotations can be provided if needed).

In sum, we found evidences from qualitative findings for our theoretical framework and perspectives: leader-member skill distance, team cooperation, and cultures can jointly affect team effectiveness by shaping the state of team psychology. However, such findings are insufficient to directly test our hypotheses. Hence, an additional quantitative study is conducted to supplement the above qualitative analysis.

3.2. Quantitative study

3.2.1. Sample and data

We tested our hypotheses with a sample of basketball teams in the National Basketball Association (NBA) and the China Basketball Association (CBA). Three reasons make this sampling appropriate. First, researchers define a team as a group of individuals working interdependently, having a common goal, having a leader and members, and possessing appropriate skills (Cohen & Bailey, 1997). According to the definition, a basketball team is comparable to a team in firms: marketing team, innovating team, and top management team. (All players in a basketball team relate with each other as a whole; the team has one task—to win; a leader and members exist; players acquire appropriate skills.) Therefore, we employed basketball teams to test the effectiveness of team designing in firms. Second, CBA was established in 1995;

NBA, in 1949. CBA copied NBA in almost all aspects: game's rules, league's regulations, and even stadiums' types. One significant difference between NBA and CBA is that players and teams are immersed in distinctive cultures. United States is a typical individualist culture; China, a collectivist one (Ma, Huang, & Shenkar, 2011; Oyserman, Coon, & Kemmelmeier, 2002; Xiao & Tsui, 2007). Teams in NBA and CBA, therefore, are appropriate to test how cultures influence team designing. Finally, two leagues' databases are sound and updating in time so that we can measure variables accurately, and the authors own extensive knowledge over both NBA and CBA, which will facilitate data collecting.

The NBA is currently composed of 30 teams, 29 from the United States and one from Canada; the CBA owns 17 teams, all from Chinese mainland (see Appendix). We tested our hypotheses using longitudinal data from the 2003-04 to the 2012-13 season of two leagues. The data of NBA were collected from two websites: the official NBA website (www.nba.com) and the basketball-reference (www.basketball-reference.com); the data of CBA from three websites: the official CBA website (www.cba.gov.cn), sina (www.sports.sina.com.cn/nba/), and baidu (www.baidu.com).

3.2.2. Measures

Team performance. Just as assessing one innovation team's performance with patents it applies in one period, one important performance indicator for a basketball team is how many games it wins in a regular season (Wright, Smart, & McMahan, 1995). Thus, we used the number of winning games in regular season to measure a basketball team performance in both leagues.

Player's (both leader and members) job-related skill level. We treated the most skillful player as team leader. First, the sole goal of basketball teams in both leagues is to win as many games as possible, thereby the most skillful players will be at the core of coaches' tactics and lead the

whole team. Second, not only in basketball teams, but also in management teams illustrated in study 1, the most skillful player always acts as team leader. For example, interviewee PL01 reported that “a leader would be naturally a person with the most experience, knowledge, and skill, but not necessarily the eldest member of the team.”

Van Der Vegt, Bunderson, and Oosterhof (2006) measured team member’s expertness with an index integrated with six abilities: academic ability, creative ability, social ability, leadership ability, practical understanding ability, and discipline ability. Following their research, we measured each player’s job-related skill level by the player efficiency rating (PER) in a season, an indicator developed by Hollinger (2005)¹. PER is composed of all basketball skills: scoring, rebounding, assisting, and so on (please see Ertug & Castellucci [2013] for PER calculating). Moreover, PER highly associates with other measures of player’s skills: toughness, quickness, and scoring, developed by Staw and Hoang (1995). Specifically, Ertug and Castellucci (2013) summed these three factors to a single measure that significantly correlates with PER ($\beta = .80$, $p < .001$). Furthermore, both leagues employ PER to assess players’ skill level in one season. Thus, we measured a player’s skill level with his season PER.

Leader-member skill distance. Inspired by prior research measurements of technological distance between firms (Benner & Waldfoegel, 2008; Gilsing et al., 2008), we calculated leader-member skill distance in a team as follows:

$$leader - member\ skill\ distance = leader\ PER - \frac{1}{N-1} \sum_{i=1}^{N-1} member_i PER, \quad (1)$$

Where N is team size, and $\frac{1}{N-1} \sum_{i=1}^{N-1} member_i PER$ is all members’ mean PER. We measured

leader-member skill distance with the difference between leader skill level and members’ mean.

¹Hollinger has been an NBA analyst since 1996, who has published four annual books investigating the performance of NBA teams and players. His main focus is on the sport statistics.

Team cooperation. We used “team assists” during a season to measure cooperation among players in a team. First, an assist is defined as: a player who passes the ball to a teammate in a way that leads to a score by field goal, meaning that he was “assisting”. The definition of team assist in basketball teams is comparable to team cooperation defined as interactions and communications directly associate with team tasks. Just as a team’s team cooperation in firms associates with communicating and connecting among teammates, the most important interactions in basketball teams is assisting. Besides, both leagues view assist as players’ ability to cooperate with teammates. For instance, the official NBA website will release every player’s number of points, rebounds, and assists after every game: points and rebounds refer to offending and defending; assists refer to cooperating. We, therefore, used “team assists” to measure team cooperation in a season.

$$team\ cooperation = \frac{2 \times number\ of\ team\ assits}{team\ size \times (team\ size - 1)}. \quad (2)$$

Control variables. In NBA models, we controlled for leader salary, leader skill level, leader age, number of games the leader played, team past playoffs, first-year players on team, NBA tenure of team’s players, the number of all-star, the number of final most valuable player (MVP), defensive rating, and the number of attendance in one season of a team. In CBA models, players’ salary is missing because of its confidentiality. Despite attendance is not available in CBA, we substituted it with team’s stadium size. In CBA international players play significant roles in teams’ performance, so we added two controls: foreign leader that is set to one if leader is international player and zero otherwise, and the number of foreign players. Also, we took natural logarithm of attendance, leader’s salary, and stadium size.

3.2.3. Quantitative findings

Tables 1 and 2 provide the summary statistics and correlations for the variables of teams in

both leagues. The correlation between leader-member skill distance and leader's skill is .73 and .96 in NBA and CBA, respectively. Since we posit the link between leader-member skill distance and team performance is inverted U-shaped in individualist cultures, we calculated the square of leader-member skill distance, which is highly correlated with leader-member skill distance. The high correlations between these variables can cause multicollinearity. To address this concern, we orthogonalized these variables (leader-member skill distance, leader-member skill distance², and leader skill in NBA; leader-member skill distance and leader skill in CBA) before entering them into models (Hiatt, Sine, & Tolbert, 2009). In particular, we used a Gram-Schmidt procedure, as implemented in the *orthog* command in Stata 11.0, which generates new orthogonalized variables. After orthogonalizing these variables, all variance-inflation factors (VIF) are less than 3.0 in both leagues. Finally, we addressed multicollinearity between main effects and interactive terms by centering involved variables: team cooperation and leader-member skill distance in both leagues (Cronbach, 1987).

[Insert TABLE 1 and 2here]

Table 3 presents the results in NBA teams. We first ran a base model with controls only in Model 1. Then we added the predictor variables in Models 2, 3, and 4. In Hypothesis 1, we argued that the link between LMSD and team performance is inverted U-shaped in individualist cultures. Model 2 shows in NBA teams LMSD positively relates to team performance ($\beta = 3.85, p < .001$), whereas LMSD² negatively associates with team performance ($\beta = -2.60, p < .10$). Figure 2 illustrates the inverted U-shape in NBA teams. Hence, Hypotheses 1 is supported.

Hypothesis 2 posits that more cooperation will strengthen the positive effect of LMSD on team performance in individualist cultures. Models 3 and 4 show the first-order interaction between team cooperation and LMSD positively (fixed-effect model (FE): $\beta = 2.12, p = .17$;

random-effect model (RE): $\beta = 2.28, p < .05$) affects team performance, while their second-order interaction negatively (FE: $\beta = -4.86, p < .05$; RE: $\beta = -4.04, p < .10$) relates to team performance in NBA. This result indicates that team cooperation strengthens the positive effect of LMSD on team performance (Li, Wei, & Liu, 2010; Liu, Li, & Wei, 2009; Wei et al., 2014). To gain more insights into Hypothesis 2, we conducted simple slope tests and plotted the relationship in Figure 3 with Matlab 7.0. In the tests, we split team cooperation into two groups: low, two standard deviations below the mean; high, two standard deviations above the mean. Panel A shows as the level of team cooperation increases, the increasing rate of the inverted U-shape augments accordingly. These results support Hypothesis 2.

[Insert TABLE 3 here]

[Insert FIGURE 2 AND 3 here]

Table 4 illustrates the results in CBA teams. We first ran Model 5 contained controls only. Then we added the predictor variables in Models 6, 7, 8, and 9. Hypothesis 3 indicates that LMSD and team performance is positively and monotonically associated in collectivist cultures. Model 6 shows in CBA teams LMSD positively relates to team performance ($\beta = 1.20, p < .001$). Model 7, however, shows the link between LMSD² and team performance is not significant ($\beta = .15, p = .53$). Also, after adding LMSD² into Model 7, R-square is almost the same with Model 6, meaning LMSD² does not contribute to the whole model's fitness. Results of Models 6 and 7 indicate an inverted U-shaped relationship does not exist in CBA. Figure 2 depicts the linear shape in support of Hypothesis 3.

Hypothesis 4 posits more team cooperation weakens LMSD's effect on team performance in collectivist cultures. As Models 8 and 9 show, the interaction between team cooperation and LMSD negatively (FE: $\beta = -.49, p < .10$; RE: $\beta = -.21, p = .30$) affects team performance in CBA.

These results demonstrate that team cooperation weakens LMSD's positive effect. Figure 3's panel B shows that LMSD has a weaker effect on team performance in the case of more team cooperation in CBA teams. High or low level of team cooperation is measured by two standard deviations above or one standard deviation below the mean. Considering the fixed-effect model's result as significant, but not the random-effect model's result, we think that Hypothesis 4 is partially supported.

[Insert TABLE 4here]

3.2.4. Robustness checks

An alternative indicator of leader-member skill distance. Because we used the mean of members' PER to measure members' skill level of a team, extreme values will play roles in assessing leader-member skill distance. To address this concern, we substituted the mean with the median of members' PER:

$$\text{leader} - \text{member skill distance} = \text{leader PER} - \text{median members PER}, \quad (3)$$

Tables 5 and 6 show that the results are relatively consistent with our previous findings.

[Insert TABLE 5 and 6 here]

An alternative indicator of team cooperation. Largely because of the trickle-down effect, more cooperative leaders can directly trigger more cooperative behaviors among team members due to learning and imitating (Liu, Liao, & Loi, 2012). For that, we employed team leader's assists as an alternative to measure team cooperation, and the results are relatively consistent with our prior findings in both NBA and CBA teams. In terms of Hypothesis 1, our results show that LMSD positively relates to NBA team performance ($\beta = 6.64, p < .001$), whereas LMSD² negatively associates with NBA team performance ($\beta = -10.56, p < .10$). In terms of Hypothesis 2, our results show LMSD positively relates to NBA team performance ($\beta = 5.82, p < .05$), while

LMSD² negatively associates with team performance ($\beta = -9.02, p < .10$). To test Hypothesis 3, our results show that LMSD positively relates to CBA team performance ($\beta = 0.02, p < .10$). To test Hypothesis 4, our results show first-order interaction between team cooperation and LMSD negatively ($\beta = -0.01, p < .10$) affects CBA team performance.

4. Discussion

4.1. Theoretical implications

This study contributes to organizational theory in following four ways. First, job-related skill is an important form of team's deep-level heterogeneity. According to work team definition, one of the significant factors for both leaders and members in teams is the job-related skill for team tasks (Cohen & Bailey, 1997; Hackman, 1987). Also, Liang, Shih, and Chiang (2015) suggest that "our focal diversity dimensions may be somewhat limited and other aspects could be considered in future work" (p.9). However, there has been no specific empirical study to examine the influence of job-related skill difference on team performance. Drawing on prior research, we extend team heterogeneity literature by not only theorizing why leader-member skill distance may affect team performance, but also empirically find leader-member skill distance as significantly associated with team performance in both individualist and collectivist cultures. Our findings suggest that job-related skill difference is a robust predictor for team performance, which has been underexplored in prior research.

Second, prior research has shown that the link between team diversity and team output is highly complicated, thus suggesting that this relationship is sensitive to various contingencies: leadership (Kearney & Gebert, 2009), task complexity (Van Dijk, Van Engen, & Van Knippenberg, 2012), and functional diversity (Kearney, Gebert, & Voelpel, 2009). However, above-mentioned studies have implicitly assumed individuals in teams are "atomistic players" as independent from

each other. Based upon the relational perspective, our research counters this assumption.

Specifically, our findings reveal that team cooperation will amplify the positive impact of leader-member skill distance on team performance in individualist cultures, while it will attenuate the positive impact in collectivist cultures. Hence, our study extends beyond the “atomistic” research on team heterogeneity by highlighting individuals in teams as “relational players” embedded in cooperative networks.

Third, teams tend to function differently across highly different contexts (Zellmer-Bruhn & Gibson, 2006), but most extant research on team diversity has been done with a single-culture assumption (e.g., Bresman & Zellmer-Bruhn, 2013; Pieterse, Van Knippenberg, & Van Dierendonck, 2013; Zellmer-Bruhn & Gibson, 2006). What is overlooked is the question about how cultures, a significant context for organizations (Liu, 2007; Smith, Dugan, & Trompenaars, 1996), will affect the link between team heterogeneity and team effectiveness. Moreover, several scholars have called for more research into the impacts of cultures on teams (Bresman & Zellmer-Bruhn, 2013; Pieterse, Van Knippenberg, & Van Dierendonck, 2013). Specifically, our cross-cultural findings challenge the above conventional wisdom: in individualist cultures the link between job-related diversity and team performance is in an inverted-U shaped pattern, while in collectivist cultures such a relationship is positive; in individualist cultures, team cooperation will augment leader-member skill distance’s positive effect on team performance, while in collectivist cultures team cooperation will attenuate the leader-member skill distance’s positive effect on team performance. Our findings thus enrich the knowledge on the role of different cultures on team behaviors.

Finally, our study also contributes to the methodology literature because of its research design. Several researchers have recognized risk of common method variance (CMV) in their

studies, and Liang, Shih, and Chiang (2015) even encourage that “future studies should thus strive to improve this research design further by getting additional, different participants, and/or more objective performance measures”(p.9). Our research design follows this critical call. First, our research adopted a mixed-method design with both quantitative and qualitative methods, which can avoid “puerile science” and bring reality and theory closer together (Anderson, Herroit, & Hodgkinson, 2001). Second, we used the objective data of teams in NBA and CBA to measure the key variables, such as leader-member skill distance, team cooperation, and team performance, which are capable of reducing the risk of CMV embedded in prior studies.

4.2. Managerial implications

Deciding whom to put on a project team is a serious challenge facing managers and team leaders. For managers in individualist cultures, such as U.S. and Europe, when building a team, they should keep the skill difference between leaders and members in mind. According to our findings, neither a highly skillful nor an unskillful leader is an optimal option to achieve the best team performance. Actually, a moderately skillful leader is more likely to take the whole team to an effective task completion. Further, our findings also highlight the positive effect of strong team cooperation mostly in individualist cultures, but not much in collectivist cultures. For such reason, managers and team leaders should facilitate communicating, assisting, and cooperating in their teams in individualist cultures.

An opposite case emerges when managers build teams in collectivist cultures, including China, Japan, and other East Asia countries. Our findings show that assigning the most skillful leader for a team will be the best option for managers. Even though our common sense would suggest that managers and team leaders, in both cultures, should encourage connecting, assisting, and interacting in their teams, but our findings interestingly counter the above view: the strongest

team cooperation could jeopardize team capabilities to acquire tasks in collectivist cultures.

Hence, the managers in collectivist cultures should not overstress communicating, assisting, and interacting in teams; instead, they should encourage team members to do their best jobs alone—at least as much as possible. Finally, foreign multinational firms operating in East Asia can also learn from our findings so as to best cope with their teams more effectively in such countries in East Asia, such as China, South Korea, and Japan.

4.3. Limitations and future research directions

Our results need to be interpreted in light of certain limitations. First, we acknowledge that basketball teams have some idiosyncratic features that might make it difficult to reproduce our results exactly in normal teams in the context of firms. We are cautious about claiming empirical generalizability for the results. Basketball teams in both NBA and CBA accomplish their goals merely through beating rivals in a competitive arena, but no obvious rivals exist for most teams in firms.

For future research, we call for more attention to the issue of leader-member skill distance as a special type of deep-level heterogeneity. Although some scholars have acknowledged its significance, very few studies have examined this concept, leaving many interesting questions unanswered. Also, future research is encouraged to study the mechanisms via member-member cooperation and leader-members cooperation to affect team effectiveness. Finally, researchers have tested theories in organizational behavior and strategy with subjective data, such as coding and survey, which may cause subjective bias. In contrast, the objectivity of games' outcomes in NBA and CBA will eliminate the potential bias inherent in prior measures. Hence, we encourage future scholars to engage in theory-building in management and organizational studies, such as organizational learning, knowledge-based view, social network dynamics, and performance

management, from the sport perspective and data.

5. Conclusions

In this study, we seek to contribute to current team heterogeneity research by countering its two basic assumptions: atomistic and single-culture assumptions. Specifically, we shed light on how team effectiveness is influenced by leader-member skill distance at different levels of team cooperation and in different cultures. We have bridged and extended the previously separated research on team cooperation and IC dimension to explore those critical, yet underexplored, factors that affect the association between leader-member skill distance and team effectiveness. We find that team heterogeneity and team cooperation will affect team effectiveness in different fashions between individualist and collectivist cultures. One finding about the negative impact of team cooperation in collectivist cultures is especially counter-intuitive. Future research is required in other contexts than sport and beyond China and US as the representatives of individualistic and collectivistic cultures.

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References

Anderson, N., Herroit, P., & Hodgkinson, G.P. (2001). The practitioner-research divide in industrial work and organizational (IWO) psychology: Where we are now, and where do we go from here? *Journal of*

- Occupational and Organizational psychology*, 74, 391–411.
- Benner, M., & Waldfogel, J. (2008). Close to you? Bias and precision in patent-based measures of technological proximity. *Research Policy*, 37, 1556–1567.
- Bessarabova, E. (2014). The effects of culture and situational features on in-group favoritism manifested as deception. *International Journal of Intercultural Relations*, 39, 9–21.
- Bian, Y. (1997). Bring strong ties back in: Indirect ties, network bridges, and job searchers in China. *American Sociological Review*, 62, 366–385.
- Bresman, H., & Zellmer-Bruhn, M. (2013). The structural context of team learning: Effects of organizational and team structure on internal and external learning. *Organization Science*, 24, 1120–1139.
- Brown, S.P., & Leigh, T.W. (1996). A new look at psychological climate and its relationship to job involvement, effort, and performance. *Journal of Applied Psychology*, 81, 358–368.
- Castelfranchi, C., Falcone, R., & Marzo, F. (2006). Being trusted in a social network: Trust as relational capital. *Proceedings of Trust 2006-4th International Conference on Trust Management*, Pisa, 16–26.
- Chen, C.C., Chen, X.-P., & Meindl, J.R. (1998). How can cooperation be fostered? The cultural effects of individualism-collectivism. *Academy of Management Review*, 23, 285–304.
- Chen, C. C., Chen, Y. R., & Xin, K. (2004). *Guanxi* practices and trust in management: A procedural justice perspective. *Organization Science*, 15, 200–209.
- Chen, C.C., Peng, M.W., & Saporito, P.A. (2002). Individualism, collectivism, and opportunism: A cultural perspective on transaction cost economics. *Journal of Management*, 28, 567–583.
- Christen, M., Iyer, G., & Soberman, D. (2006). Job satisfaction, job performance, and effort: A reexamination using agency theory. *Journal of Marketing*, 70, 137–150.
- Cohen, S.G., & Bailey, D.E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management*, 23, 239–290.
- Cronbach, L.J. (1987). Statistical tests for moderator variables: Flaws in analyses recently pro-posed. *Psychological Bulletin*, 102, 414–417.
- Dirks, K.T. (2000). Trust in leadership and team performance: Evidence from NCAA basketball. *Journal of Applied Psychology*, 85, 1004–1012.
- Eppler, M.J., & Sukowski, O. (2000). Managing team knowledge: Core processes, tools and enabling factors. *European Management Journal*, 18, 334–341.
- Ertug, G., & Castellucci, F. (2013). Getting what you need: How reputation and status affect team performance, hiring, and salaries in the NBA. *Academy of Management Journal*, 56, 407–431.
- Farh, J.L., Hackett, R. D., & Liang, J. (2007). Individual-level cultural values as moderators of perceived organizational support–employee outcome relationships in China: Comparing the effects of power distance and traditionality. *Academy of Management Journal*, 50, 715–729.
- Gilsing, V., Nooteboom, B., Vanhaverbeke, W., Duysters, G., & van den Oord, A. (2008). Network embeddedness and the exploration of novel technologies: Technological distance, betweenness centrality and density. *Research Policy*, 37, 1717–1731.
- Hackman, R.H. (1987). The design of work teams. In J. L. Lorsch (Ed.), *Handbook of organizational behavior*: 315–342. Englewood Cliffs, NJ: Prentice-Hall.
- Harrison, D. A., & Klein, K. J. (2007). What's the difference? Diversity constructs as separation, variety, or disparity in organizations. *Academy of Management Review*, 32, 1199–1228.
- Harrison, D. A., Price, K. H., & Bell, M. P. (1998). Beyond relational demography: Time and the effects of surface- and deep-level diversity on work group cohesion. *Academy of Management Journal*, 41, 96–107.
- Hiatt, S. R., Sine, W. D., & Tolbert, P. S. (2009). From Pabst to Pepsi: The deinstitutionalization of social practices and the creation of entrepreneurial opportunities. *Administrative Science Quarterly*, 54, 635–667.

- Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Sage: Newbury Park.
- Hofstede, G. (1991). *Culture and organizations: Software of the mind*. McGraw-Hill: London.
- Hollinger, J. (2005). *Pro basketball forecast: 2005-2006*. Dulles, VA: Potomac.
- Huff, L., & Kelley, L. (2005). Is collectivism a liability? The impact of culture on organizational trust and customer orientation: A seven-nation study. *Journal of Business Research*, 58, 96–102.
- Kearney, E., & Gebert, D. (2009). Managing diversity and enhancing team outcomes: The promise of transformational leadership. *Journal of Applied Psychology*, 94, 77–89.
- Kearney, E., Gebert, D., & Voelpel, S.C. (2009). When and how diversity benefits teams: The importance of team members' need for cognition. *Academy of Management Journal*, 52, 581–598.
- Khatri, N., Tsang, E. W. K., & Begley, T. M. (2006). Cronyism: A cross-cultural analysis. *Journal of International Business Studies*, 37, 61–75.
- Klein, K.J., Lim, B.C., Saltz, J.L., & Mayer, D.M. (2004). How do they get there? An examination of the antecedents of centrality in team networks. *Academy of Management Journal*, 47, 952–963.
- Kwon, S.W., & Auenius, P. (2008). Nations of entrepreneurs: A social capital perspective. *Journal of Business Venturing*, 25, 315–330.
- Levin, D.Z., & Cross, R. (2004). The strength of weak ties you can trust: The mediating role of trust in effective knowledge transfer. *Management Science*, 50, 1477–1490.
- Levinthal, D.A., & March, J.G. (1993). The myopia of learning. *Strategic Management Journal*, 14, 95–112.
- Li, Y., Wei, Z., & Liu, Y. (2010). Strategic orientations, knowledge acquisition, and firm performance: The perspective of the vendor in cross-border outsourcing. *Journal of Management Studies*, 47, 1458–1482.
- Liang, H.Y., Shih, H.A., & Chiang, Y.H. (2015). Team diversity and team helping behavior: The mediating roles of team cooperation and team cohesion. *European Management Journal*, 33, 48–59.
- Liao, H., Chuang, A., & Joshi, A. (2008). Perceived deep-level dissimilarity: Personality antecedents and impact on overall job attitude, helping, work withdrawal, and turnover. *Organizational Behavior and Human Decision Processes*, 106, 106–124.
- Liu, D., Liao, H., & Loi, R. (2012). The dark side of leadership: A three-level investigation of the cascading effect of abusive supervision on employee creativity. *Academy of Management Journal*, 55, 1187–1212.
- Liu, S. (2007). Living with others: Mapping the routes to acculturation in a multicultural society. *International Journal of Intercultural Relations*, 31, 761–778.
- Liu, S. (2011). Acting Australian and being Chinese: Integration of ethnic Chinese business people. *International Journal of Intercultural Relations*, 35, 406–415.
- Liu, Y., Li, Y., & Wei, Z. (2009). How organizational flexibility affects new product development in an uncertain environment: Evidence from China. *International Journal of Production Economics*, 120, 18–29.
- Ma, R., Huang, Y-C., & Shenkar, O. (2011). Social networks and opportunity recognition: A cultural comparison between Taiwan and the United States. *Strategic Management Journal*, 32, 1183–1205.
- Mayer, R.C., Davis, J.H., & Schoorman, F.D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20, 709–734.
- Oyserman, D., Coon, H.M., & Kimmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin*, 128, 3–72.
- Pieterse, N., Van Knippenberg, D., & Van Dierendonck, D. (2013). Cultural diversity and team performance: The role of team member goal. *Academy of Management Journal*, 56, 782–804.
- Reagans, R., Zuckerman, E., & McEvily, B. (2004). How to make the team: Social networks vs. demography as criteria for designing effective teams. *Administrative Science Quarterly*, 49, 101–133.
- Schaubroeck, J., & Lam, S. K. S. (2002). How similarity to peers and supervisor influences organizational

- advancement in different cultures. *Academy of Management Journal*, 45, 1120–1136.
- Smith, P.B., Dugan, S., & Trompenaars, F. (1996). National culture and the values of organizational employees: a dimensional analysis across 43 nations. *Journal of Cross-Cultural Psychology*, 27, 231–264.
- Staw, B.M., & Hoang, H. (1995). Sunk costs in the NBA: Why draft order affects playing time and survival in professional basketball. *Administrative Science Quarterly*, 40, 474–494.
- Stewart, G. L., & Barrick, M. R. (2000). Team structure and performance: Assessing the mediating role of intrateam process and the moderating role of task type. *Academy of Management Journal*, 43, 135–148.
- Triandis, H.C. (2004). The many dimensions of culture. *Academy of Management Executive*, 18, 88–93.
- Triandis, H. C., Bontempo, R., Villareal, M. J., Asai, M., & Lucca, N. (1988). Individualism and collectivism: Cross-cultural perspectives on self-ingroup relationships. *Journal of Personality and Social Psychology*, 54, 323–338.
- Tsui, A.S., Egan, T., & O'Reilly, C.A. (1992). Being different: Relational demography and organizational attachment. *Administrative Science Quarterly*, 37, 549–579.
- Tsui, A.S., & O'Reilly, C.A. (1989). Beyond simple demographic effects: The importance of relational demography in superior-subordinate dyads. *Academy of Management Journal*, 32, 402–423.
- Van Der Vegt, G. S., Bunderson, J. S., & Oosterhof, A. (2006). Expertness diversity and interpersonal helping in teams: Why those who need the most help end up getting the least. *Academy of Management Journal*, 49, 877–893.
- Van Dijk, H., Van Engen, M.L., & Van Knippenberg, D. (2012). Defying conventional wisdom: A meta-analytical examination of the differences between demographic and job-related diversity relationships with performance. *Organizational Behavior and Human Decision Processes*, 119, 38–53.
- Webber, S. S., & Donahue, L. M. (2001). Impact of highly and less job-related diversity on work group cohesion and performance: A meta-analysis. *Journal of Management*, 27, 141–162.
- Wei, Z., Yang, D., Sun, B., & Gu, M. (2014). The fit between technological innovation and business model design for firm growth: Evidence from China. *R&D Management*, 44, 288–305.
- Wright, P.M., Smart, D.L., & McMahan, G.C. (1995). Matches between human resources and strategy among NCAA basketball teams. *Academy of Management Journal*, 38, 1052–1074.
- Xiao, Z., & Tsui, A.S. (2007). When brokers may not work: The cultural contingency of social capital in Chinese high-tech firms. *Administrative Science Quarterly*, 52, 11–31.
- Yamaguchi, I. (2013). A Japan–US cross-cultural study of relationships among team autonomy, organizational social capital, job satisfaction, and organizational commitment. *International Journal of Intercultural Relations*, 37, 58–71.
- Zaidman, N., & Malach-Pines, A. (2014). Stereotypes in bicultural global teams. *International Journal of Intercultural Relations*, 40, 99–112.
- Zellmer-Bruhn, M., & Gibson, C. (2006). Multinational organization context: Implications for team learning and performance. *Academy of Management Journal*, 49, 501–518.

APPENDIX: The Geographic Scope of Teams in NBA and CBA

Regions of NBA teams: Arizona, California, Canada, Carolina, Colorado, District of Columbia, Florida, Georgia, Illinois, Indiana, Louisiana, Massachusetts, Michigan, Minnesota, New York, North Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Utah, and Wisconsin.

Regions of CBA teams: Beijing, Fujian, Guangdong, Jiangsu, Jilin, Liaoning, Shandong, Shanghai, Shanxi, Tianjin, Xinjiang, and Zhejiang.

Fig. 1. The proposed conceptual framework.

Fig. 2. Direct effects comparison between NBA and CBA teams.

Panel A

Panel B

Fig. 3. Interactive effects comparison between NBA and CBA teams.

Table 1
Descriptive statistics and correlations of NBA teams.

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Team performance	40.29	12.49													
2. Internal cooperation	12.06	3.44	.36***												
3. Leader-members skill distance	10.50	8.53	.13	−.08											
4. Leader salary	15.73	1.03	.32***	.14	−.06										
5. Leader skill rating	22.74	6.32	.21***	−.05	.73***	−.02									
6. Team past playoffs	0.54	0.51	.51***	.15**	.07	.30***	.14								
7. First-year players on team	2.52	1.34	−.28***	−.35***	−.03	−.14	−.07	−.21***							
8. NBA tenure of team	81.60	22.78	.27***	−.34***	.14	.19***	.17**	.34***	−.26***						
9. Number of all-star	0.84	0.88	.63***	.19***	.11	.34***	.19***	.38***	−.18**	.34***					
10. Number of games the leader played	62.37	23.15	.34***	.30***	−.18**	.40***	−.27***	.12	−.13	−.02	.22***				
11. Leader age	25.92	3.65	.23***	.08	−.06	.43***	−.07	.24***	−.11	.27***	.31***	.01			
12. Attendance	13.46	0.14	.57***	.24***	.12	.27***	.14	.39***	−.13	.20***	.39***	.24***	.18**		
13. Final MVP	0.03	0.16	.23***	.01	.07	.11	.09	.15**	−.12	.16**	.21***	.03	.11	.17**	
14. Defensive rating	106.2	3.54	−.57***	−.07	−.02	−.19**	−.08	−.38***	.19**	−.29***	−.37***	−.13	−.15**	−.24***	−.21***

N = 299. * *p* < .05, ** *p* < .01, *** *p* < .001.

Table 2

Descriptive statistics and correlations of CBA teams.

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Team performance	17.13	7.93														
2. Team cooperation	5.79	2.34	.59***													
3. Leader-member skill distance	19.44	4.95	.06	-.11												
4. Leader skill rating	27.23	4.81	.16*	-.02	.96***											
5. Team past playoffs	0.51	0.66	.16*	.05	-.04	-.01										
6. First-year players on team	4.29	2.80	-.12**	-.30***	.09	.06	-.05									
7. CBA tenure of team	44.48	16.81	.22**	.00	-.05	-.03	.21**	-.50***								
8. Number of all-star	1.16	1.14	.41***	.26***	-.14	-.07	.12	-.23**	.19							
9. Number of games the leader played	30.91	11.48	.39***	.34***	.02	-.05	.03	-.09	.15	.01						
10. Leader age	27.08	3.72	.02	-.08	.14	.11	.09	-.11	.22**	-.07	.04					
11. Stadium size	8.62	0.44	-.10	-.04	.05	-.00	-.14	-.01	-.12	-.05	.01	.13				
12. Final MVP	0.03	0.18	.24**	.12	-.02	.01	.02	-.08	.17	.38***	.09	-.10	.06			
13. Defensive rating	101.26	6.10	-.56***	-.34***	.16*	.13	-.07	.22**	-.28***	-.36***	-.14	.00	-.07	-.23**		
14. Foreign leader	0.81	0.38	-.16*	-.09	.22**	.24**	-.17	.10	-.21**	-.34***	-.07	.21**	-.02	-.38**	.25**	
15. Number of foreign players	2.54	1.21	-.06	-.34***	.18*	.26**	-.14	.29***	-.10	-.13	-.31***	-.00	-.02	-.05	.22**	.40***

$N = 159$. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3Regression estimates of NBA teams^a.

	Fixed-effect Model (FE)			Random-effect Model (RE)
	Model 1	Model 2	Model 3	Model 4
<i>Control variables</i>				
Leader salary	0.28 (0.53)	0.51 (0.52)	0.52 (0.52)	−0.07 (0.45)
Leader skill rating	2.45*** (0.54)	2.71*** (0.55)	3.65*** (0.71)	2.96*** (0.57)
Team past playoffs	0.96 (1.18)	0.99 (1.15)	1.14 (1.14)	1.85* (0.91)
First-year players on team	0.02 (0.44)	0.05 (0.43)	0.05 (0.42)	0.37 (0.34)
NBA tenure of team	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.02 (0.02)
Number of all-star	2.42** (0.81)	2.08* (0.80)	2.05* (0.80)	3.17*** (0.60)
Number of games the leader played	0.07** (0.02)	0.09*** (0.02)	0.10*** (0.02)	0.09*** (0.02)
Leader age	−0.10 (0.16)	−0.09 (0.16)	−0.04 (0.16)	0.06 (0.13)
Attendance	15.92* (6.83)	16.14*** (6.66)	15.49* (6.66)	13.86*** (6.02)
Final MVP	2.36 (2.66)	2.15 (2.58)	2.25 (2.56)	1.91 (2.29)
Defensive rating	−2.06*** (0.19)	−1.99*** (0.19)	−2.00*** (0.19)	−1.63*** (0.14)

Team cooperation	0.99 (0.70)	0.93 (0.68)	0.15 (0.78)	1.34* (0.63)
<i><u>Direct effects</u></i>				
Leader-member skill distance (LMSD)		3.85*** (1.20)	3.40* (1.38)	1.28* (0.56)
LMSD ²		-2.60+ (1.36)	-5.73* (2.64)	-2.45 (1.70)
<i><u>Interaction effects</u></i>				
Team cooperation × LMSD			2.12 (1.34)	2.28* (0.99)
Team cooperation × LMSD ²			-4.86* (2.34)	-4.04+ (2.13)
Constant	31.30 (97.07)	16.73 (94.46)	25.05 (94.45)	14.72 (64.58)
<i>N</i>	291	291	291	291
<i>R</i> ²	0.78	0.80	0.81	0.78

a (1) Unstandardized coefficients are shown, and numbers in parentheses are standard errors.

(2) Nine year-dummy variables are included but not reported here.

(3) + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$ (Two-tailed tests).

(4) We report within R^2 in random-effect model.

Table 4Regression estimates of CBA teams^a.

	FE				RE
	Model 5	Model 6	Model 7	Model 8	Model 9
<i>Control variables</i>					
Leader skill rating	1.71 ^{**} (0.57)	1.52 ^{***} (0.54)	1.54 ^{***} (0.55)	1.48 ^{***} (0.54)	2.13 ^{***} (0.47)
Team past playoffs	0.40 (0.53)	0.17 (0.51)	0.20 (0.52)	0.24 (0.51)	0.70 (0.51)
First-year players on team	0.49 ^{***} (0.16)	0.45 ^{**} (0.15)	0.44 ^{**} (0.15)	0.48 ^{***} (0.15)	0.52 ^{***} (0.16)
CBA tenure of team	0.08 [*] (0.03)	0.07 [*] (0.03)	0.07 [*] (0.03)	0.08 [*] (0.03)	0.02 (0.03)
Number of all-star	0.88 [*] (0.39)	0.86 [*] (0.38)	0.87 [*] (0.38)	0.82 [*] (0.37)	1.36 ^{***} (0.37)
Number of games the leader played	0.16 ^{***} (0.04)	0.15 ^{***} (0.04)	0.15 ^{***} (0.04)	0.16 ^{***} (0.04)	0.22 ^{***} (0.04)
Leader age	0.18 ⁺ (0.11)	0.18 ⁺ (0.10)	0.17 ⁺ (0.10)	0.17 ⁺ (0.10)	0.11 ⁺ (0.10)
Stadium size	—	—	—	—	−0.89 (0.77)
Final MVP	−2.13 (2.05)	−2.70 (1.97)	−2.64 (1.98)	−2.56 (1.96)	−1.43 (2.07)
Defensive rating	−0.56 ^{***} (0.08)	−0.52 ^{***} (0.08)	−0.53 ^{***} (0.08)	−0.53 ^{***} (0.08)	−0.53 ^{***} (0.06)
Foreign leader	−1.74 (1.29)	−1.78 (1.24)	−1.71 (1.98)	−2.01 (1.24)	−1.89 ⁺ (1.08)

Number of foreign players	0.91 ⁺ (0.48)	0.94 [*] (0.46)	0.92 [*] (0.47)	0.96 [*] (0.46)	0.90 [*] (0.38)
Team cooperation	1.25 ^{***} (0.26)	1.21 ^{***} (0.25)	1.19 ^{***} (0.25)	1.25 ^{***} (0.25)	0.76 ^{**} (0.22)
<i>Direct effects</i>					
Leader-member skill distance (LMSD)		1.20 ^{***} (0.35)	1.15 ^{***} (0.36)	1.18 ^{***} (0.35)	1.07 ^{**} (0.34)
LMSD ²			0.15 (0.23)	—	—
<i>Interaction effect</i>					
Team cooperation × LMSD				−0.49 ⁺ (0.29)	−0.21 (0.24)
Constant	46.39 ^{***} (9.94)	43.97 ^{***} (9.53)	44.95 ^{***} (9.68)	44.45 ^{***} (9.46)	55.26 ^{***} (11.06)
<i>N</i>	159	159	159	159	159
<i>R</i> ²	0.75	0.77	0.77	0.78	0.75

a (1) Unstandardized coefficients are shown, and numbers in parentheses are standard errors.

(2) Nine year-dummy variables are included but not reported here.

(3) ⁺*p* < .10, ^{*}*p* < .05, ^{**}*p* < .01, ^{***}*p* < .001 (Two-tailed tests).

(4) We report within *R*² in random-effect model.

Table 5Regressions with alternative leader-member skill distance of NBA teams^a.

	Model 10 (OLS)	Model 11 (FE)	Model 12 (RE)
<i>Direct effects</i>			
Leader-member skill distance (LMSD)	3.13*** (0.78)	3.86*** (0.97)	3.16*** (0.79)
LMSD ²	-5.81* (2.47)	-5.05* (2.11)	-4.96* (2.29)
<i>Interaction effects</i>			
Team cooperation × LMSD	1.74** (0.62)	1.77** (0.77)	1.70** (0.60)
Team cooperation × LMSD ²	-5.19* (2.09)	-4.54* (2.11)	-4.50* (2.29)
Constant	8.08 (49.91)	-4.81 (92.48)	16.11 (61.48)
<i>N</i>	291	291	291
<i>R</i> ²	0.80	0.82	0.80

a (1) Unstandardized coefficients are shown, and numbers in parentheses are standard errors.

(2) Nine year-dummy variables and controls are included but not reported here.

(3) ⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$ (Two-tailed tests).

(4) Leader-member skill distance is equal to the difference between leader's PER and the median of members' PERs.

(5) We report within R^2 in random-effect model.

Table 6Regressions with alternative leader-member skill distance of CBA teams^a.

	Model 13(FE)	Model 14(RE)	Model 15(FE)	Model 16(RE)	Model 17(FE)	Model 18(RE)
<i>Direct effects</i>						
Leader-member skill distance (LMSD)	1.36 ^{***} (0.36)	1.08 ^{**} (0.36)	1.34 ^{**} (0.36)	1.08 ^{**} (0.36)	1.30 ^{***} (0.36)	1.10 ^{**} (0.37)
LMSD ²			0.12 (0.37)	0.05 (0.36)	—	—
<i>Interaction effect</i>						
Team cooperation × LMSD					−0.60 ⁺ (0.31)	−0.18 (0.27)
Constant	36.65 ^{***} (9.08)	52.92 ^{***} (11.66)	37.37 ^{***} (9.36)	53.13 ^{***} (11.79)	38.48 ^{***} (9.38)	52.28 ^{***} (11.72)
<i>N</i>	159	159	159	159	159	159
<i>R</i> ²	0.76	0.73	0.77	0.75	0.77	0.74

a (1) Unstandardized coefficients are shown, and numbers in parentheses are standard errors.

(2) Nine year-dummy variables and controls are included but not reported here.

(3) ⁺*p* < .10, * *p* < .05, ** *p* < .01, *** *p* < .001 (Two-tailed tests).

(4) Leader-member skill distance is equal to the difference between leader's PER and the median of members' PERs.

(5) We report within *R*² in random-effect models.