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How do incentives motivate absorptive capacity development? The mediating role of employee learning and relational contingencies☆

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ABSTRACT

This study explores the antecedents of a firm's absorptive capacity by examining the role of innovation incentives. Building on expectancy theory and equity theory, we argue that innovation incentives enhance absorptive capacity through promoting employees learning; and the effectiveness of incentives is positively moderated by teamwork (i.e., horizontal relation) but negatively moderated by transformational leadership (i.e., vertical relation). To test our hypotheses, we employ a multi-respondent research design based on a sample of 102 Chinese automotive companies. The results show strong support for the hypotheses and demonstrate the positive impact of innovation incentives on a firm's absorptive capacity through the mediating role of employee learning, as well as the moderating effect of the relational context in shaping the influences of innovation incentives.

1. Introduction

Absorptive capacity (AC) is defined as "a firm's ability to recognize the value of new information, assimilate it, and apply it to commercial ends" (Cohen & Levinthal, 1990, p. 128). AC can be viewed as one of a firm's fundamental learning capabilities, which is closely related to successful product innovation and superior performance (Lane, Koka, & Pathak, 2006; Lewin, Massini, & Peeters, 2011; Zahra & George, 2002). Given its significant implications, researchers are interested in understanding the causal factors of AC and propose various antecedents, including prior related knowledge (Cohen & Levinthal, 1990), R&D investment (Huang, Lin, Wu, & Yu, 2015), organizational capabilities and mechanisms (Jansen, Van Den Bosch, & Volberda, 2005), and knowledge management processes (Lewin et al., 2011).

Despite these rich insights, prior studies on the drivers of AC tend to overlook the influence of *employee participation* and *motivating factors* provided by the organization, which are key elements in the "micro-foundation" of organizational capability (Chen & Huang, 2009; Foss, 2011). While motivation and capability are distinct constructs, employees' motivation and participation are indispensable to the development of firm capabilities, given that a firm's knowledge and capability ultimately resides within and among individual employees (Ebers & Maurer, 2014; Minbaeva, Pedersen, Björkman, Fey, & Park, 2003; Volberda, Foss, & Lyles, 2010). Based on expectancy theory (Vroom, 1964), incentives link desirable future gains for employees to their achievement of organizational goals, making them motivated to exert effort to meet organizational expectations (Cadsby, Song, & Tapon, 2007; Trevor, Reilly, & Gerhart, 2012). Innovation incentives, defined as the firm's use of strategic compensation tactics that reflect employees' learning and innovative efforts (Wei & Atuahene-Gima, 2009; Yanadori & Marler, 2006), relate positively to the exchange, acquisition and creation of new knowledge, such that they are highly relevant for enhancing employees' motivation and ability to learn new knowledge, which subsequently lead to the development of AC.

Moreover, how the relational context in the workplace shall shape the effectiveness of innovation incentives is under-studied. According to equity theory, incentives are inevitably socially and relationally constructed, because social comparison processes are likely to occur when incentives are given to employees in a differentiated manner (Greenberg, Ashton-James, & Ashkanasy, 2007). This suggests that individual employees do not respond to their own incentives in isolation, but instead are influenced by their *relative* standing among their peers (Shaw, Gupta, & Delery, 2002; Trevor et al., 2012). Inadequately allocated incentives could evoke feelings of injustice and dysfunctional competition that in turn undermine social behaviors and performance (Pfeffer & Langton, 1993; Siegel & Hambrick, 2005; Yanadori & Cui,

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2013). Overall, equity theory explains the conditions under which innovation incentives would be effective in developing AC, what remains understudied is how the perception is formed and affected by the relational context in the workplace.

To bridge these gaps, we consider the role of innovation incentives in developing firms' AC through promoting employee learning, a critical micro-level process underpinning organizational capability. Furthermore, we study how workplace relationships moderate the effectiveness of innovation incentives on AC. In particular, we emphasize two distinct dimensions of social relations in the workplace: teamwork, which consists of the horizontal relationships among coworkers, and transformational leadership, a vertical relationship between a leader and subordinates. Building on expectancy and equity theory, we argue that innovation incentives foster AC through employee learning, and the positive effect of incentives on AC is enhanced by teamwork but attenuated by transformational leadership.

The results from a multi-informant survey of Chinese automotive companies provide support for our hypotheses, leading to several theoretical contributions. First, this study establishes the organizational incentives-capability link by emphasizing the micro-foundation of organizational capability, namely, the indispensable role of employee learning, which is demonstrated to mediate the effect of incentives on AC. Second, we incorporate equity theory to highlight the importance of the two relational factors as moderators of the effectiveness of innovation incentives. Our findings reveal contrasting moderating effects of teamwork and transformational leadership. Third, we introduce social comparison and justice assessment processes to transformational leadership research. By revealing the negative interaction between transformational leadership and innovation incentives, our findings provide a more nuanced and balanced understanding of transformational leadership.

2. Theoretical background and hypothesis development

Since Cohen and Levinthal's (1990) seminal work, the concept of absorptive capacity has evolved and expanded from a static view, which focuses on prior knowledge, to a more dynamic, process-based perspective, which emphasizes collective capability (Lane et al., 2006; Zahra & George, 2002). In this paper, we define absorptive capacity as a set of organizational routines and processes by which firms identify and understand information from external sources, share and transfer the knowledge among different parts of the organization, and harvest and employ the knowledge to create new knowledge and commercial outputs (Lane et al., 2006; Lewin et al., 2011; Zahra & George, 2002). As one crucial organizational capability, the performance implications of AC are well-recognized, such as exploiting strategic opportunities, facilitating intra- and inter-organizational learning, accelerating innovation process, and contributing to financial performance (Foss, Lyngsie, & Zahra, 2013; Huang et al., 2015; Kostopoulos, Papalexandris, Papachroni, & Ioannou, 2011). Prior studies also examine various drivers of AC. For example, Jansen et al. (2005) argue that firms need combinative capabilities to be able to synthesize and apply new knowledge; therefore, organizational mechanisms associated with those combinative capabilities enhance AC. In a multinational corporation setting, Schleimer and Pedersen (2013a) focus on organizational mechanisms such as decentralization, normative integration, and innovative culture as determinants of AC. To summarize, most prior studies consider macro-level, knowledge-based, or structure-related drivers of AC.

However, a firm's knowledge and capability ultimately reside within and among individual employees (Yanadori & Cui, 2013). Employees' motivation, capability, and effort to acquire, assimilate, and apply new knowledge is critical to the development of AC (Chang, Gong, Way, & Jia, 2013; Minbaeva et al., 2003). Yet employees' self-interests do not necessarily align with those of the firm, so incentives are required to motivate employees to exert their efforts to achieve organizational goals (Cadsby et al., 2007). According to expectancy theory (Vroom, 1964), individual motivation and efforts to perform depend strongly on the instrumentality or rewards of that activity. In the workplace, employees receive cues about incentives and attempt to infer the likelihood that a given level of performance will result in certain outcomes, and then act accordingly (Belogolovsky & Bamberger, 2014). Guided by expectancy theory, many empirical studies find a positive link between incentives and employee motivation and performance (e.g., Cadsby et al., 2007; Shaw et al., 2002). In this study, we examine how innovation incentives facilitate AC via employee learning.

Whereas expectancy theory focuses on the *absolute* value of incentives, equity theory highlights their *relative* value (Adams, 1965). The main argument underlying equity theory is that people naturally acquire and use social comparisons to develop their equity assessments, which forms and shapes employees' perception of the fairness of the organization. As such, it is not just the *absolute* value but also the *relative* value of incentives that drive a person's emotion and motivation. Perceived inequitable treatment of oneself threatens economic self-interest, causes distress, and encourages action to restore justice; perceived inequitable treatment of others may violate moral standards, as everyone deserves to be treated in a fair and just manner (Bernerth & Walker, 2012). Therefore, equity theory explains the conditions under which innovation incentives would be effective in developing AC, namely incentives will only take effect when allocated in a fair manner as perceived by employees. In support, empirical research demonstrates that pay dispersion yields motivating benefits only when it occurs for legitimate reasons or with perceived justice (Aime, Meyer, & Humphrey, 2010; Shaw et al., 2002); and the negative effect of pay dispersion is most salient when the reward allocation cannot be justified (Pfeffer & Langton, 1993).

However, equity theory implicitly grounds justice on an equity-based reward allocation rule such that those who contribute most should receive the greatest share of the outcomes. Yet other types of reward allocation rules exist, such as need-based (i.e., outcomes are distributed based on individual needs) and equality-based (i.e., outcomes are distributed equally) (Morand & Merriman, 2012). Moreover, an individual's judgment of justice or equity may not be based on objective “facts”, but rather be distorted by *subjective* interpretations (Ryan, 2016). Specifically, workplace relational contexts may moderate the incentive-AC relation. As social relations in the workplace influence how employees receive and process information they use in their social comparisons to form justice perceptions, they should critically shape employees' attitudinal and behavioral reactions to differential incentives (Duffy, Scott, Shaw, Tepper, & Aquino, 2012).

Along this line of inquiry, we examine how two distinct dimensions of social relations in the workplace—horizontal relationships among coworkers, and vertical relationships between leaders and subordinates—influence the efficacy of innovation incentives for the development of AC. In particular, we address the horizontal relationship using the concept of *teamwork*, defined as the quality of the interactions and collaborations among organizational members (Hoegl & Gemuenden, 2001; Hoegl, Weinkauf, & Gemuenden, 2004). For the vertical relationship, we consider *transformational leadership*, which occurs when leaders emphasize employee development by acknowledging individual differences, elevating employees' interests, generating awareness and acceptance of the purpose of work, and providing employees with confidence to perform beyond expectations (Birasnav, 2014; Dvir, Eden, Avolio, & Shamir, 2002; Kang, Solomon, & Choi, 2015).[1]

[1] Transactional leadership instead focuses on supervision and mandates compliance through rewards and punishments. We consider transformational leadership because it is widely recognized as more effective for promoting innovative behavior than is transactional leadership (e.g., Birasnav, 2014). Moreover, transactional leadership might overlap conceptually with innovation incentives, which also contain an element of contingent rewards (Walumbwa, Wu, & Orwa, 2008).

2.1. Innovation incentives, employee learning, and AC

Firms are heterogeneous in terms of the levels of various capabilities, whose development and configuration are heavily influenced by deliberate managerial discretion (Helfat & Peteraf, 2003; Zollo & Winter, 2002). Given specific resources, appropriate governance mechanisms can be viewed as a "valve" installed, which channel the flow of firm resources toward their efficient deployment, thereby affecting the level of capability (He & Wang, 2009).

We argue that innovation incentives act as an important antecedent of AC. Incentives represent one fundamental governance mechanism mostly suitable when involving high levels of innovative knowledge resources (He & Wang, 2009). AC development involves (1) a high degree of information asymmetry between managers and the functioning actors with regard to efficient ways to create value from a firm's resources, and (2) substantial discretion in making decisions about the deployment of knowledge resources. In such situations, innovation incentives align the interest of employees with that of the firm and encourage them to exert effort, thereby enhancing the efficient deployment of firm human capital and promoting AC.

Further, both organizational learning theorists and AC scholars have argued that a firm's AC resides in its individual employees (Chang et al., 2013; Cohen & Levinthal, 1990; Minbaeva et al., 2003). Volberda et al. (2010, p. 944) even argue that AC is supervenient on individual employees in the sense that "there is no organization level AC without individual level AC." Therefore, the cognition, motivation, and action of employees with respect to their knowledge acquisition, sharing, and utilization shape a firm's AC. Among all, employee learning is a critical process that mediates the effect of innovation incentives on AC (Minbaeva, Pedersen, Björkman, & Fey, 2013; Yao & Chang, 2017).

As learning is an ongoing and iterative process characterized by asking questions, seeking feedback, experimenting, bringing up errors, discussing and reflecting on results, and making subsequent changes (Edmondson, 1999), learning behaviors not only consume substantial time and effort, but also have the potential for erecting embarrassment or the threat of being viewed as incompetent. In this respect, innovation incentives provide utility for employees to take initiatives and exert effort to participate in learning activities (Gottschalg & Zollo, 2007; Zhao & Chadwick, 2014). Such incentives come in various forms, including oral praise, promotion opportunities, competitive salaries, and bonuses. Without sufficient incentives, employees tend to revert to a comfortable effort level and be satisfied with the status quo. Further, because specific incentives tied to skills and knowledge enhancement provides positive feedback to employees when they engage in learning, employees are likely to feel motivated to keep learning and display a high rate of skill growth (Dierdorff & Surface, 2008). Greater accumulated prior knowledge in turn enhances employees' ability to identify and assimilate related new knowledge (Yao & Chang, 2017).

Although innovation incentives may cause social comparison and dysfunctional competition among employees, we believe that the positive effect of innovation incentives on AC through encouraging employees to learn is more prominent, because employee competition becomes dysfunctional only when perceived unfairness regarding incentives reaches over a certain level. Overall, we propose that:

Hypothesis 1. Employee learning mediates the positive effect of innovation incentives on the firm's absorptive capacity.

2.2. Moderating role of teamwork

An organization is a nexus of social relations with an emphasis on collaborative work toward common goals among members. We conceptualize *teamwork* as the high-quality interactions among organizational members (Hoegl et al., 2004; Hoegl & Gemuenden, 2001). In most situations, teamwork is desirable, because it promotes communication and understanding among members based on mutual trust, respect, and caring (Jones & George, 1998). Teamwork should positively moderate the impact of innovation incentives on AC by enhancing its positive effects as well as mitigating the potential negative ones.

First, although innovation incentives motivate extra effort in learning and innovation, employees' individual efforts could be fragmented or redundant (Summers, Humphrey, & Ferris, 2012). When teamwork is present, organizational members are better orchestrated, such that individual efforts could complement and reinforce one another (Crawford & Lepine, 2013; Zhao & Anand, 2009). Second, teamwork complements incentives in promoting knowledge sharing through the development of trust. Innovation incentives can encourage knowledge sharing and integration between colleagues, but without mutual trust, the extent of such sharing is rather limited, especially concerning tacit knowledge (Li, Poppo, & Zhou, 2010). Therefore, teamwork complements incentives by encouraging voluntary and thorough knowledge sharing (Osterloh & Frey, 2000; Quigley, Tesluk, Locke, & Bartol, 2007). Third, when engaging in innovation projects, teamwork could enable collective risk sharing among organizational members (Chen, Kirkman, Kanfer, Allen, & Rosen, 2007), further boosting individual risk-taking behavior that the innovation incentives have induced.

At the same time, teamwork may mitigate the detrimental consequences of social comparison and avoid dysfunction competition among employees (Duffy et al., 2012; Lam, Van der Vegt, Walter, & Huang, 2011). As mentioned earlier, incentives may become ineffective or even backfire when employees perceive unfairness in the incentive allocation. Yet, unfair perceptions often stem from people's biased self-assessments, in that they exaggerate their own contributions and performance but have a limited understanding or appreciation of others' job efforts or performance (Zenger & Marshall, 2000). By facilitating information flows and promoting good interpersonal relationships, teamwork reduces biased views of the contributions offered by oneself and by coworkers. Reward allocations then can be conducted with clear justifications and the negative emotions associated with incentives, such as unfairness or jealousy, can be alleviated (Duffy et al., 2012; Sedikides, Campbell, Reeder, & Elliot, 1998; Zenger & Marshall, 2000). With strong teamwork, low-performing employees might see how much others have contributed and are entitled to the higher incentives, such that they should be motivated to elevate their own performance rather than holding a grudge or undermining others (Greenberg et al., 2007; Tai, Narayanan, & McAllister, 2012). Team support also helps low-performing employees close the gap with high performers and further reduces the negative impact of social comparisons (Hoegl & Gemuenden, 2001; Lam et al., 2011).

In sum, we suggest that:

Hypothesis 2. Teamwork enhances the positive relationship between innovation incentives and absorptive capacity.

2.3. Moderating role of transformational leadership

In workplaces, managers represent a critical influence on employees' motivation, behaviors, and performance (Barrick, Thurgood, Smith, & Courtright, 2015). We focus on transformational leadership, in which leaders consider *individual* differences and stimulate followers to improve their performance (Dvir et al., 2002; Kang et al., 2015). Transformational leaders appreciate each subordinate's uniqueness and seek to support each individual separately; they spend time coaching, listening, and helping those in need, and they aim to assign employees their most suitable task (Wu, Tsui, & Kinicki, 2010). Furthermore, transformational leaders encourage employees to challenge existing assumptions, reframe problems, and come up with novel solutions. Previous empirical studies also support the argument that transformational leadership has a positive effect on employee efficiency and innovation (e.g., Dvir et al., 2002; Kang et al., 2015).

However, previous literature mostly notes the positive effect of

transformational leadership on employee behaviors, while rarely discussing its potential interaction with an organization's incentive schemes. We argue that transformational leadership may negatively moderate the impact of incentives on AC for two main reasons. First, the justice rule underlying transformational leadership is incompatible with that of innovation incentives. The justice rule for innovation incentives is equity-based, namely, promoting greater rewards for better performance. In contrast, transformational leaders tend to rely on need-based rules in their attempts to provide individualized considerations according to employees' needs, regardless of their performance (Jansen, George, Van Den Bosch, & Volberda, 2008). The role of innovation incentives then gets downplayed, because the utilitarian or calculative logic that underlies innovation incentives is incompatible with the ethos of transformational leaders (Klein & Kim, 1998; Shamir, House, & Arthur, 1993), thereby resulting in a negative interaction between incentives and transformational leadership.

Second, transformational leadership may arouse and exacerbate the *potential* negative effect of innovation incentives due to social comparisons and dysfunctional competition among employees. In China with a high power distance, personal consideration and support from the leaders represent valuable resources and signal high status (Zhang, Li, Ullrich, & van Dick, 2015). Transformational leaders influence subordinates by developing close and individualized relationships with them (Carter & Armenakis, 2013; Wang, Law, & Hackett, 2005). Although transformational leaders form differentiated relationships with subordinates according to their unique situations, subordinates likely perceive a lack of neutrality, fairness, or equity (Harris, Li, & Kirkman, 2014). If employees attribute differentiated reward outcomes to the dissimilarity of leader-employee relationships, rather than to differences in employees' efforts and performance (Eberly, Holley, Johnson, & Mitchell, 2011), innovation incentives likely have weaker and potentially detrimental effects. Employees may even aggressively compete with their coworkers for a greater share of leaders' attention and favorable treatment (Vidyarthi, Liden, Anand, Erdogan, & Ghosh, 2010). Therefore, we predict that:

Hypothesis 3. Transformational leadership reduces the positive relationship between innovation incentives and absorptive capacity.

3. Methods

3.1. Sample and data collection

We tested our hypotheses with 102 Chinese automotive assembly companies. This empirical context is particularly suitable for investigating AC for several reasons. First, with its long history of technological evolution, the automotive industry is now a highly dynamic network, featuring continuous innovations (Dilk, Gleich, Wald, & Motwani, 2008). Second, Chinese automotive companies are relative latecomers to the industry, such that the most relevant knowledge already exists elsewhere, which means that firms' ability to identify, acquire, and leverage external knowledge is particularly critical for their performance (Zhao, Anand, & Mitchell, 2005). Third, this empirical setting features relatively wide variance in managerial practices, strategies, and innovation capabilities, due to the dynamic, uncertain nature of the Chinese market (Zhou & Wu, 2010). Fourth, the single-industry and single-country sample limits potential confounds, by ensuring better comparability across firms (Ben-Oz & Greve, 2015).

Table 1
Respondent profile.

	Work experience in the auto industry/year	Work experience with the company/year	Tenure in the current position/year
Top managers	16.5	12.3	5.0
HR managers	15.7	13.1	4.5
R&D managers	16.9	12.5	4.5
Core R&D employees	14.7	10.7	4.9

We reviewed relevant literature and developed the English-based questionnaire, and then translated it into Chinese and back translated it into English to ensure consistencies. We undertook two rounds of discussion with a team of Chinese industry and academic experts and revised the questionnaire accordingly. We also conducted a pilot study with 20 Chinese automotive company managers, to ensure the clarity of questions. To facilitate our data collection, we solicited sponsorship from the National Development and Reform Commission of China, which is the key planning branch in China's national government, and the Chinese Society of Automotive Engineering, a nationwide, nonprofit support organization for automotive and related industries. With the help of these organizations, we sent questionnaires to all 105 companies in the whole-car manufacturing sector[2] and received responses from all of them. We ensured the anonymity and confidentiality of all respondents and confirmed that the sponsors would have access only to the results in aggregated form. We also made clear to all respondents that there were no right or wrong answers. These efforts helped reduce potential social desirability biases.

We adopted a multiple-respondent, multiple-source research design to mitigate the threat of common method bias. To obtain high quality information from the company representatives with the best insights into the different constructs, we surveyed four respondents from each company: the top manager, human resource (HR) manager, R&D manager, and one key R&D engineer. We assured that the respondents are informative of the questions given their abundant experience in the automobile industry, the focal firm, as well as the current position. Table 1 presents the detailed descriptive information of the respondents. In addition, we collected objective data from the China Automotive Technology and Research Center, including firm age, firm size, R&D intensity, and foreign equity share. After dropping three firms with excessive missing data, we obtained a final sample of 102 firms. In the final sample, the average firm age was 17.46 years, and average sales in the previous year were RMB 7634 million (~US$1017 million). Further, R&D intensity varied from 0 to 0.4, and foreign equity share ranged from 0 to 0.9.

3.2. Measures

3.2.1. Dependent variable

3.2.1.1. Absorptive capacity. In line with its original definition (Cohen & Levinthal, 1990), we adopted a process-based conceptualization of absorptive capacity and measured AC as a second-order construct with three first-order factors – knowledge acquisition, integration, and commercialization (Schleimer & Pedersen, 2013b). We adapted the specific measures of AC from prior literature. Knowledge acquisition refers to acquiring new external knowledge and information on market trends, competitors' dynamics and policy changes (Ebers & Maurer, 2014; Jansen et al., 2005). Assimilating and integrating new knowledge entails the transfer of knowledge across different units and departments within the organization (Ali & Park, 2016; Ben-Oz & Greve, 2015; Jansen et al., 2005). Commercializing external knowledge is the exploiting of new knowledge to successfully develop new products (Jansen et al., 2005). We asked top managers to evaluate their firms' capability to acquire, integrate, and commercialize external knowledge. Top managers served as the informants, because they should be most knowledgeable about their firms' capabilities. The measure was distinct from R&D intensity ($r = 0.15$). The questionnaire items and validity

[2] Whole-car manufacturing is the biggest subsector in the Chinese automotive industry by industrial output value (63%), followed by vehicle component (24%), vehicle engine (6%), refitted vehicle (4%), and motorcycle (3%).

Table 2
Construct measurement items and validity assessment.

Model fit: $\chi 2$ (234) = 297.68; RMSEA = .052, CFI = .97, TLI = .96, IFI = .97.		SFL	AVE	CR
Absorptive capacity: To what extent does your company possess the capabilities in the following areas (1: none, 5: fully. Respondent: top managers)				
1. *Acquisition* (AVE = 0.78, CR = 0.92)		0.77	0.78	0.91
Obtaining market demand in advance using scientific and effective market research methods	0.85			
Accurately obtaining competitor dynamics in advance	0.91			
Interpreting policies and regulation dynamics in advance	0.89			
2. *Integration* (AVE = 0.82, CR = 0.90)		0.92		
Knowledge coordinating, exchanging, and integrating among employees in the same department	0.87			
Knowledge coordinating, exchanging, and integrating across different departments (e.g., R&D, marketing, and manufacturing)	0.94			
3. Commercialization (AVE = 0.87, CR = 0.93)		0.95		
Product marketing	0.93			
Brand building and managing	0.94			
Innovation incentives: (1: strongly disagree, 5: strongly agree. Respondent: R&D managers)				
1. In terms of promotion and salary raises, we give priority to employees who actively engage in innovation activities.		0.78	0.62	0.83
2. We recognize and reward employees for their knowledge-sharing initiatives.		0.84		
3. We give commendation and praise to employees for their knowledge exchange and improvement.		0.75		
Employee learning: (1: strongly disagree, 5: strongly agree. Respondent: R&D managers)				
1. Our employees take the initiatives to learn during work.		0.86	0.67	0.86
2. Our employees often learn from their past experience and errors.		0.82		
3. Our employees are not satisfied with the status quo and always think of ways to improve and innovate.		0.77		
Teamwork: (1: strongly disagree, 5: strongly agree. Respondent: key R&D employees)				
1. Our employees enjoy harmonious interpersonal relationships and mutual trust.		0.94	0.82	0.93
2. Our employees take initiative in helping one another analyze and solve problems.		0.92		
3. Our employees manifest a strong team spirit at work and are willing to sacrifice their own interest for the good of the whole.		0.86		
Transformational leadership: (1: strongly disagree, 5: strongly agree. Respondent: HR managers)				
1. Our leaders are good at guiding employees to conduct internal transformations and reforms to adapt to external changes.		0.78	0.73	0.93
2. Our leaders are open to advice and criticism and accept them when appropriate.		0.81		
3. Our leaders have strong communication capability when dealing with employees.		0.87		
4. Our leaders collect employee feedback promptly and seriously and make good use of it.		0.88		
5. Our leaders value and acknowledge employees' career development.		0.94		
Environment dynamism: To what extent do you evaluate the external environment in terms of (1: very low, 5: very high. Respondent: top managers)				
1. Difficulty maintaining existing market share		0.51	0.50	0.73
2. Competition for raw material or parts		0.94		
3. Fluctuations in the cost of raw material or parts		0.57		

Notes: SFL = standardized factor loading; AVE = average variance extracted; CR = composite reliability; RMSEA = root mean square error of approximation, CFI = comparative fit index, TLI = Tucker-Lewis index, IFI = incremental fit index.

analysis results are in Table 2.

3.2.2. Independent variables

3.2.2.1. Innovation incentives. No prior measure is available for innovation incentives, so we developed a three-item scale that reflected its definition (Wei & Atuahene-Gima, 2009; Yanadori & Marler, 2006). Three items assessed the extent to which the company values employee behaviors related to innovation and knowledge sharing, through tangible (salary increase, promotion) or intangible (oral praise) rewards. The R&D managers completed these items, because they are the ones most familiar with and directly in charge of implementing such incentives in R&D units. In this way, we measured incentives using *subjective data* instead of objective data, given that there is good grounding in the HRM literature that subjective perceptions of an HR practice are better predictors of workers' job behavior than an objective HR practice (Nishii, Lepak, & Schneider, 2008).

3.2.2.2. Employee learning. The construct of employee learning captures the level of which individual employees actively engage in learning and innovation activities (Edmondson, 1999). It was rated by R&D managers with 3 items, namely (1) our employees take the initiatives to learn during work; (2) our employees often learn from their past experience and errors; (3) our employees are not satisfied with the status quo and always think of ways to improve and innovate.

3.2.2.3. Teamwork. Following Hoegl and Gemuenden (2001), we measured teamwork with four items that captured interpersonal relationship, trust, communication, coordination, support, and cohesion among employees. Because employees are the ones engaging in team activities, they are the ideal respondents for this measurement. Accordingly, we asked the key R&D employee as informant to assess teamwork quality *as a whole*. We used the wording of "our" to reflect members' shared beliefs, reflecting a referent-shift consensus model (Chan, 1998).

3.2.2.4. Transformational leadership. We measured top mangers' transformational leadership, which constitutes a powerful organizational influence (Barrick et al., 2015), according to specific leadership behaviors associated with stimulating, guiding, and supporting employees (Detert & Burris, 2007). HR managers, who are the most knowledgeable about their firms' HR practices, rated the five-item scale.

3.2.3. Control variables

We controlled for three sets of variables. First, we controlled for firm-level variables, including *firm age* (i.e., age of the firm in years), *firm size* (i.e., natural logarithm of annual sales in the previous year), *R &D intensity* (i.e., ratio of R&D expenses to revenue), and *foreign equity shares* (i.e., percentage of shares owned by a foreign parent). Second, we controlled for HR-related variables. *Employee training* directly contributes to the development of employee knowledge and capabilities, so it could influence a firm's AC (Chang et al., 2013). *Employee composition* consists of two factors: (1) the proportion of employees holding a college degree and (2) the proportion of newly hired employees. Both factors have direct impacts on a firm's current knowledge base and thus on its AC. The HR managers, using five-point Likert scales, rated them. Third, we controlled for *environmental dynamism,* defined as the degree

of instability in the environment (i.e., market share, competition, and raw material supply). Decision makers' perceptions of the level of environmental dynamism likely prompt them to adjust their firms' new knowledge exploration and exploitation behaviors and thus influence AC (Ben-Oz & Greve, 2015). The top managers, using three items, rated this construct.

3.3. Measurement validity

Following Gerbing and Anderson (1988), we conducted a confirmatory factor analysis to test the convergent and discriminant validity of the constructs (see Table 2). The overall measurement model fit index indicated satisfactory fit (χ^2 (234) = 297.68; confirmatory fit index = 0.97; Tucker-Lewis index = 0.96; incremental fit index = 0.97; root mean square error of approximation (RMSEA) = 0.05). The standardized factor loadings for each construct were highly significant; items belonging to the same constructs correlated highly with one another (ranging from 0.52 to 0.87) and had low cross-loadings with items from the other constructs. We also computed composite reliabilities and average variances extracted (AVE); they all exceeded the recommended thresholds of 0.7 and 0.5, respectively, demonstrating the convergent validity of our measures. Next, we calculated the square root of the AVE of each construct and compared it with the inter-construct correlations. These results indicated that the square root of each AVE was much higher than its relevant inter-construct correlations (see Table 3), in support of discriminant validity (Fornell & Larcker, 1981). Table 3 contains the means, standard deviations, and intercorrlations for all variables.

4. Results

To test the mediation hypothesis, we followed the multistep approach (Baron & Kenny, 1986). At the first stage, this research established regression models to examine the relationship between independent variable (innovation incentives) and the mediator (employee learning); we then regressed innovation incentives against the dependent variable (AC); finally, we regressed both innovation incentives and employee learning against AC. To indicate significant mediation, all these effects must be significant with the association between predictors and dependent variables reduced by adding the mediator. To provide a more rigorous test of the mediation hypothesis, we also conducted bootstrapping analyses and Sobel test using an SPSS macro (Preacher & Hayes, 2004). This macro further allows us to estimate the path coefficients and generates bootstrap confidence intervals for total and specific indirect effects. The number of resamples for estimating bias corrected bootstrap intervals was set at 5000 and the level of confidence was set at 95%.

For the two moderation hypotheses, we used moderated regression analysis with mean-centered techniques (Aiken & West, 1991). Model 1 only included the control variables and served as the baseline model. Model 2 added three explanatory variables, which addressed 34% of the total variance. The interactions of AC with teamwork and transformational leadership entered Models 3 and 4, respectively. Model 5 represented the full model. We inspected the variance inflation factors (VIF) for all variables across all five models, and the highest VIF was 1.99, well below the 10.0 cutoff, so multicollinearity is not a major concern. Table 4 summarizes the results.

As Table 4 suggests, incentives were significantly related to AC ($b = 0.21, p < .01$) and employee learning ($b = 0.45, p < .01$). When we included the mediator as a predictor variable in the model, employee learning is significantly associated with AC ($b = 0.25, p < .05$) and the relationship between incentives and AC reduced and became nonsignificant ($b = 0.15, p > .1$). The Sobel test confirmed the results (two-tailed significance test, Sobel z = 0.09, $p < .05$). Also, Table 5 indicates that the 95% bootstrapped confidence intervals around the indirect mediation effect did not contain zero (0.02, 0.19). Therefore, we found support for Hypothesis 1. As Table 6 suggests, the coefficient of the interaction between incentives and teamwork also was positive and significant (M5: $b = 0.22, p < .01$), in support of Hypothesis 2. In support of Hypothesis 3, the coefficient of the interaction between incentives and transformational leadership was negative and significant (M5: $b = -0.27, p < .01$). The results thus provided strong support for all our predictions.

To gain deeper insights into the two interaction effects, we followed Aiken and West's (1991) procedure and calculated the simple slopes of innovation incentives and AC at high and low levels (one standard deviation above or below the mean) of teamwork and transformational leadership (see Figs. 1 and 2). As Fig. 1 shows, incentives are strongly associated with AC when teamwork is high (simple slope $b = 0.29$, $p < .01$), but the effect is insignificant when teamwork is low ($b = -0.06, p > .10$). In contrast, incentives are positively associated with AC when transformational leadership is low ($b = 0.31, p < .01$), but the effect is insignificant when leadership is high ($b = -0.09$, $p > .10$). These results provide further evidence in support of Hypotheses 2 and 3.

Among the control variables, several appear to be related to AC. R&

Table 3
Correlation matrix and descriptive statistics.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Absorptive capacity	(**0.88**)												
2. Innovation incentives	0.43**	(**0.79**)											
3. Employee learning	0.48**	0.58**	(**0.82**)										
4. Teamwork	0.42**	0.37**	0.45**	(**0.90**)									
5. Transformational leadership	0.35**	0.25**	0.20**	0.19	(**0.85**)								
6. Firm age	−0.20*	−0.03	−0.05	−0.07	−0.06								
7. Firm size	0.22*	0.12	0.27**	−0.04*	0.23*	−0.09							
8. R&D intensity	0.15	0.01	0.01	0.02	0.05	−0.04	0.01						
9. Foreign equity share	0.07	−0.08	−0.06	0.02	−0.01	−0.23*	0.15	−0.07					
10. Employee training	0.16	0.30**	0.29**	0.26*	0.17	0.06	0.19	0.15	0.10				
11. Higher degree proportion	0.22*	0.19	0.19	0.05	0.09	−0.08	0.38**	0.02	0.05	0.41**			
12. New employee proportion	0.17	0.08	0.08	0.25*	0.11	−0.29**	0.11	0.07	0.07	−0.06	0.20*		
13. Environment dynamism	0.06	0.03	0.03	0.09	0.09	0.17	0.05	0.15	−0.12	0.04	0.00	−0.18	(**0.71**)
Min	2.00	1.00	2.00	1.25	1.80	1.00	0.47	0.00	0.00	1.00	1.00	1.00	2.00
Max	5.00	5.00	5.00	5.00	5.00	58.00	16.51	0.42	0.89	5.00	5.00	5.00	5.00
Mean	3.61	3.42	4.03	3.88	4.29	17.46	11.23 m	0.03	0.11	2.55	3.55	2.03	3.70
Standard deviation	0.78	0.95	0.75	0.83	0.74	16.71	2.55	0.04	0.20	1.46	1.41	1.01	0.67

Note 1: All multi-item constructs were measured by the mean value of multiple items.
Note 2: N = 102. Bold figures on the diagonal are the square root of the average variance extracted for the constructs.
Note 3: m = million ** $p < .01$, * $p < .05$ (two-tailed).

Table 4
Regression results of the mediating role of employee learning.

	DV: employee learning		DV: absorptive capacity		
	M1–1	M1–2	M2–1	M2–2	M2–3
Control variables					
Firm age	−0.07 (−0.66)	−0.04 (−0.44)	−0.16 (−1.56)	−0.13 (−1.41)	−0.12 (−1.34)
Firm size	0.25* (2.27)	0.26** (3.03)	0.14 (1.35)	0.11 (1.18)	0.04 (0.47)
R&D intensity	−0.08 (−0.79)	−0.03 (−0.41)	0.11 (1.09)	0.14† (1.68)	0.15† (1.81)
Foreign equity share	−0.13 (−1.28)	−0.07 (−0.90)	0.07 (0.07)	0.05 (0.57)	0.07 (0.79)
Employee training	0.26* (2.43)	0.05 (0.50)	0.09 (0.80)	−0.12 (−1.26)	−0.13 (−1.30)
Higher degree proportion	−0.07 (−0.66)	−0.07 (−0.76)	0.11 (0.94)	0.14 (1.38)	0.15 (1.59)
New employee proportion	0.13 (1.21)	0.01 (0.09)	0.10 (0.97)	−0.03 (−0.32)	−0.03 (0.35)
Environment dynamism	0.14 (1.39)	0.08 (1.02)	0.09 (0.81)	0.01 (0.10)	−0.01 (−0.14)
Direct effects					
Teamwork		0.28** (3.22)		0.30** (3.15)	0.23* (2.33)
Transformational leadership		−0.04 (−0.46)		0.19* (2.20)	0.21* (2.35)
Innovation incentives		0.45** (5.09)		0.26** (2.75)	0.15 (1.42)
H1: employee learning					0.25* (2.23)
R^2	0.16	0.47	0.14	0.38	0.42
Adjusted R^2	0.09	0.40	0.06	0.31	0.34
$\triangle R^2$		0.31**		0.25**	0.03*

Note 1: Absorptive capacity was rated by top managers; transformational leadership was rated by HR Managers; teamwork was rated by core R&D employees; innovation incentives were rated by R&D managers; employee learning was rated by R&D managers.
Note 2: Highest variance inflation factor = 1.89.
Note 3: N = 102.
Numbers in parentheses are t-values (two-tailed).
** $p < .01$.
* $p < .05$.
† $p < .10$.

Table 5
Mediation tests of employee learning (Bootstrapping two-tailed test).

Mediation model	Standardized coefficient	SE	LL 95% CI	UL 95% CI
Total effect				
Incentives on AC	0.22**	0.08	0.06	0.37
Direct effect				
Incentives on AC (mediated by employee learning)	0.12	0.09	−0.05	0.30
Indirect effect				
H1: incentives on AC (mediated by employee learning)	0.09*	0.05	0.02	0.19
Sobel test	0.09*	0.05	–	–

Note 1: N = 102.
** $p < .01$.
* $p < .05$.

D intensity shows a positive effect on AC (M5: $b = 0.20$, $p < .05$), confirming prior research that greater R&D intensity reflects higher levels of AC. Firm age negatively affects AC ($b = -0.19$, $p < .05$). This suggests that older firms tend to have lower AC. Firms with more employees holding higher degree are likely to have greater AC ($b = 0.19$, $p < .05$). Lastly, the role of employee training on AC is critical and worth mentioning. Countering our expectations, employee training has a positive but not significant effect on AC in M1 (with only control variables), and its effect becomes negative and marginally signifncant in the full model (M5: $b = -0.17$, $p < .1$). Although puzzling, a possible explanation for the unexpected results could be that internal training enhances the ability of learning new knowledge, but it may also crowd out the motivation to seek external knowledge that makes the firm overly self-referential and inward-looking, resulting in an even detrimental effect on AC.

4.1. Post-hoc analyses

We performed several additional analyses of our data (detailed results included in Appendix A). First, to assess whether a potential curvilinear relationship existed between innovation incentives and AC, we included the squared-term of incentives in the regression model. The results showed that the coefficient of innovation incentives was still positive and significant ($b = 0.26$, $p < .01$), but the coefficient of incentives squared-term was not ($b = 1.30$, $p > .1$). These findings provided no evidence for the curvilinear effect of incentives on AC.

Second, we measured incentives with responses of R&D employees and teamwork with responses of R&D managers. The results were highly consistent. Innovation incentives were positively associated with AC in all tested models (b ranged from 0.21 to 0.27, $p < .05$). The coefficient of the interaction between incentives and teamwork also was positive and significant (M5: $b = 0.29$, $p < .01$), supporting Hypothesis 2. The coefficient of the interaction between incentives and transformational leadership was negative and significant (M5: $b = -0.27$, $p < .01$), in support of Hypothesis 3.

Third, we have tested the potential moderated mediation of teamwork. As argued previously, only when teamwork is present, learning behaviors of organizational members are orchestrated, such that incentive-induced individual efforts could complement and reinforce one another in promoting the firm's AC. In support, the results show that with high levels of teamwork, incentives enhance AC through promoting employee learning ($b = 0.24$, $p < .01$); when teamwork is low, the indirect effect via learning of incentives on AC is not significant ($b = 0.06$, $p > .1$).[3]

Finally, following the original definition, we decomposed AC into its sub-dimensions, namely the organizational capabilities of identifying, integrating, and utilizing external knowledge, respectively. Regression analyses showed that the effect of innovation incentives, the positive

[3] As the moderation effect of transformational leadership on incentives is not directly related with employee learning, we would not expect a moderated mediation for transformational leadership.

Table 6
Regression results of moderating effects of teamwork and leadership.

	DV: absorptive capacity				
	M1	M2	M3	M4	M5
Control variables					
Firm age	−0.13 (−1.40)	−0.12 (−1.34)	−0.12 (−1.42)	−0.18* (−2.02)	−0.19* (−2.25)
Firm size	0.03 (0.27)	0.04 (0.47)	0.07 (0.75)	0.01 (0.12)	0.04 (0.41)
R&D intensity	0.14 (1.59)	0.15† (1.81)	0.15† (1.88)	0.19* (2.26)	0.20* (2.45)
Foreign equity share	0.06 (0.70)	0.07 (0.79)	0.09 (1.00)	0.08 (0.94)	0.10 (1.24)
Employee training	−0.03 (−0.30)	−0.13 (−1.30)	−0.14 (−1.48)	−0.15 (−1.57)	−0.17† (−1.84)
Higher degree proportion	0.14 (1.36)	0.15 (1.59)	0.18† (1.92)	0.15 (1.65)	0.19* (2.08)
New employee proportion	0.05 (0.48)	−0.03 (−0.35)	−0.02 (−0.25)	−0.09 (−0.93)	−0.08 (−0.93)
Environment dynamism	0.02 (0.21)	−0.01 (0.14)	0.01 (0.13)	−0.07 (−0.75)	−0.05 (−0.55)
Employee learning	0.45** (4.74)	0.25* (2.23)	0.23* (2.12)	0.32** (2.91)	0.32** (2.94)
Direct effects					
Teamwork		0.23* (2.33)	0.26** (2.66)	0.21* (2.23)	0.24* (2.63)
Transformational leadership		0.21* (2.35)	0.21* (2.44)	0.16† (1.86)	0.16† (1.88)
Innovation incentives		0.15 (1.42)	0.14 (1.34)	0.13 (1.28)	0.11 (1.15)
Interaction effects					
H2: innovation incentives × teamwork			0.18* (2.26)		0.22** (2.79)
H3: innovation incentives × transformational leadership				−0.23* (−2.59)	−0.27** (−3.07)
R^2	0.31	0.42	0.45	0.46	0.50
Adjusted R^2	0.24	0.34	0.37	0.38	0.42
ΔR^2			0.03*	0.04*	0.08**

Note 1: Absorptive capacity was rated by top managers; transformational leadership was rated by HR Managers; teamwork was rated by core R&D employees; innovation incentives were rated by R&D managers; employee learning was rated by R&D managers.
Note 2: Highest variance inflation factor = 1.99.
Numbers in parentheses are t-values (two-tailed).
** $p < .01$.
* $p < .05$.
† $p < .10$

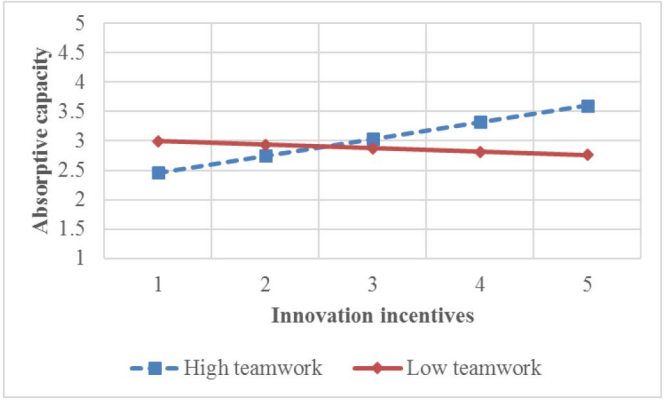

Fig. 1. Interaction effect: teamwork and innovation incentives (H2).

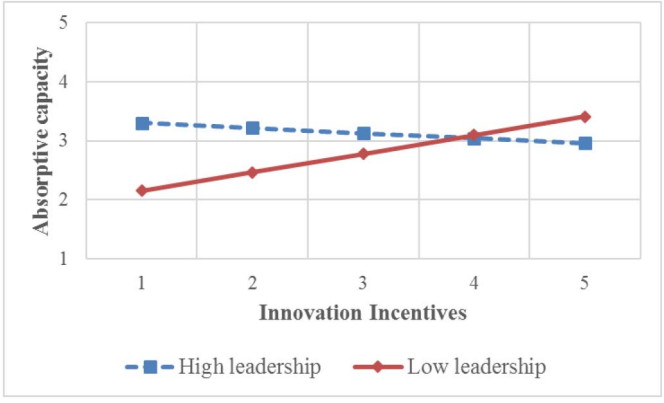

Fig. 2. Interaction effect: transformational leadership and innovation incentives (H3).

moderating effect of teamwork, and the negative moderating effect of transformational leadership were largely consistent across all three AC sub-dimensions. This offers additional support for our hypotheses.

5. Discussion and conclusion

Building on expectancy and equity theories, we examine how innovation incentives facilitate firms' AC. The results based on a multi-respondent survey of Chinese automakers highlight the mediation role of employee learning, as well as the importance of the relational contexts in shaping employees' subjective perceptions of justice that significantly influence the effectiveness of incentives. These findings note three pertinent issues for theory and management practices.

First, we contribute to the literature on the antecedents of absorptive capacity, a dynamic capability critical to organizational innovativeness and long-term success (Lane et al., 2006; Zahra & George, 2002). Given the distinction between organizational capability and motivation, as well as the growing interest in microfoundation of capabilities among strategic management researchers (Foss, 2011), this study establishes the motivation-capability link by examining the critical role of employees in developing AC, echoing the idea that AC "is inherently a multi-level construct, the capability to absorb knowledge ultimately resides within individuals, while synergies are manifested at the organizational level" (Minbaeva et al., 2013, p. 7). We find that innovation incentives can facilitate the development of firms' AC, and such positive effect is achieved through promoting employee learning. Inspired by Zahra and George (2002), who divide AC into its potential and realized components, later studies suggest that each component of absorptive capacity may be influenced by a different set of antecedents (e.g., Ebers & Maurer, 2014; Jansen et al., 2005). We conduct additional analyses and find that the effect of incentives largely holds across different AC sub-dimensions (although the mediation role of employee learning seems to have decreased from potential to realized components of AC). This provides further evidence to suggest that managers aiming to develop AC should consider adopting innovation incentives in firms.

Second, we offer a more nuanced view of the effectiveness of incentives by considering the moderating role of the relational context. The fact that China being a relational society is likely to assign paramount importance to one's workplace relationships makes this study especially worthwhile. Because social comparison is an inevitable human act, driven directly by formally imposed incentive schemes (Greenberg et al., 2007), the relational work context could significantly influence social comparison processes. Studies of pay secrecy indicate that discouraging social comparison by limiting employees' access to relevant information can be counter-productive (Belogolovsky & Bamberger, 2014). Our study suggests that maintaining good teamwork and thus enhancing justice perceptions represents an effective solution. Through coherent interactions, team members obtain additional information about their efforts and rewards, then develop a less biased perception of justice, which would facilitate the development of AC. Therefore, if the firm initiates strong innovation incentives, managers should cultivate a strong sense of teamwork to ensure that employees are working in collaborative and supportive team environments in order to avoid dysfunctional competition.

Third, we contribute to the leadership literature by demonstrating a negative interaction between innovation incentives and transformational leadership. In stark contrast with the conventional wisdom, which holds that transformational leadership always promotes innovation and creativity (e.g., Shin & Zhou, 2003; Zhang, Tsui, & Wang, 2011), we find that this leadership style could hamper innovation incentives. Consistent with recent developments in leader-member exchange (LMX) research, which show that comparisons of relationships across employees can have significant consequences (Harris et al., 2014; Tse, Lam, Lawrence, & Huang, 2013; Vidyarthi et al., 2010), our findings highlight the essence of incorporating social comparison processes and equity assessments into transformational leadership research. Although transformational leaders may engage in differentiated behaviors with employees for strategic reasons, such as to tailor their individualized attention and support to the specific needs of followers in order to maximize the limited resources they hold (e.g., time, bonuses), such behaviors could have unintented consequences. This is an important issue especially in a culture that values high power distance like China, where personal consideration and support from leaders represent valuable resources and signal high status (Zhang et al., 2015). Therefore, when strong innovation incentives are in place, leaders should refrain from displaying differentiated consideration of individual employees. If leaders possess inherently strong transformational features, they should take special care to avoid any perception of favoritism in the workplace and make sure to clarify their decisions to increase the transparency of the incentive allocation processes.

Finally, some limitations of this study suggest avenues for future research. In terms of the data, its cross-sectional nature raises the question of causality, though the reverse logic is much less likely. Our data come from automotive assembly companies in China; this single-industry, single-country sample limits the generalizability of the findings. Additional research should use longitudinal data from other industries or countries to help address these concerns. Further, it would be ideal to cross-validate our findings using object data of innovation incentives, though the unavailability of such data has prevented us from conducting such analyses. Lastly, previous research suggests that tacit knowledge is more difficult to evaluate and reward, and its generation and transfer depend on the intrinsic motivations of the exchange parties (Li et al., 2010). Incentives likely are important means to motivate the transfer and integration of explicit knowledge, but other mechanisms are required to ensure tacit knowledge transfer. Therefore, we encourage researchers to consider different types of knowledge and examine the interplay of incentives and the relational context accordingly.

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Appendix A. Post hoc analyses

Table 1
Standardized coefficients of tests on a potential curvilinear relationship.

	DV: absorptive capacity			
	M1		M2	
	Standard coefficients	t-Value	Standard coefficients	t-Value
Control variables				
Firm age	−0.13	(−1.41)	−0.10	(−1.13)
Firm size	0.11	(1.18)	0.11	(1.27)
R&D intensity	0.14†	(1.68)	0.15	(1.77)
Foreign equity share	0.05	(0.57)	0.05	(0.56)
Employee training	−0.12	(−1.26)	−0.13	(−1.32)
Higher degree proportion	0.14	(1.38)	0.16	(1.66)
New employee proportion	−0.03	(−0.32)	−0.03	(−0.30)
Environment dynamism	0.01	(0.10)	0.00	(0.02)
Direct effects				
Teamwork	0.30**	(3.15)	0.30**	(3.18)
Transformational leadership	0.19*	(2.20)	0.20*	(2.26)
Innovation incentives	0.26**	(2.75)	0.26**	(2.71)
Test of curvilinear relationship				
Innovation incentives^2			0.13	(1.54)
R^2	0.38		0.40	
Adjusted R^2	0.31		0.32	

$\triangle R^2$	0.01

Note: Highest variance inflation factor = 1.44.
Numbers in parentheses are t-values (two-tailed).
** $p < .01$.
* $p < .05$.
† $p < .10$.

Table 2
Standardized coefficients of tests with alternative respondents.

	DV: absorptive capacity				
	M1	M2	M3	M4	M5
Control variables					
Firm age	−0.16 (−1.56)	−0.15† (−1.76)	−0.18* (−2.16)	−0.19* (−2.24)	−0.23** (−2.85)
Firm size	0.14 (1.35)	0.06 (0.69)	0.11 (1.30)	0.07 (0.85)	0.13 (1.61)
R&D intensity	0.11 (1.09)	0.16† (1.96)	0.17* (2.12)	0.20* (2.42)	0.21** (2.74)
Foreign equity share	0.01 (0.07)	0.07 (0.87)	0.06 (0.77)	0.07 (0.85)	0.06 (0.73)
Employee training	0.09 (0.80)	−0.11 (−1.19)	−0.11 (−1.21)	−0.15 (−1.65)	−0.16† (−1.79)
Higher degree proportion	0.11 (0.94)	0.14 (1.55)	0.15† (1.73)	0.15 (1.61)	0.16† (1.85)
New employee proportion	0.10 (0.97)	−0.04 (−0.49)	−0.04 (−0.50)	−0.08 (−0.80)	−0.08 (−1.02)
Environment dynamism	0.08 (0.81)	−0.01 (−0.13)	0.01 (−0.06)	−0.08 (−0.97)	−0.08 (−0.97)
Direct effects					
Teamwork		0.34** (3.68)	0.38** (4.23)	0.39** (4.21)	0.44** (5.01)
Transformational leadership		0.21* (2.54)	0.19* (2.40)	0.17* (2.10)	0.14† (1.84)
Innovation incentives		0.27** (3.11)	0.22* (2.60)	0.27** (3.15)	0.21* (2.58)
Interaction effects					
Innovation incentives × teamwork			0.26** (3.21)		0.29** (3.77)
Innovation incentives × transformational leadership				−0.23** (−2.65)	−0.27** (−3.29)
R^2	0.14	0.43	0.49	0.48	0.55
Adjusted R^2	0.06	0.37	0.42	0.40	0.48
$\triangle R^2$		0.29**	0.05**	0.05**	0.08**

Note 1: Absorptive capacity was rated by top managers; transformational leadership was rated by HR managers; teamwork was rated by R&D Managers; innovation incentives were rated by core R&D employees.
Note 2: Highest variance inflation factor = 1.47.
Numbers in parentheses are t-values (two-tailed).
** $p < .01$.
* $p < .05$.
† $p < .10$.

Table 3
Moderation analysis of conditional indirect effect (via learning) of incentives on AC at different levels of teamwork.

Moderation model	Standardized coefficient	SE	LL 95% CI	UL 95% CI
Conditional indirect effect				
−SD (Low teamwork)	0.06	0.05	−0.04	0.18
+SD (High teamwork)	0.24**	0.09	0.08	0.44

** $p < 0.01$.

Table 4
Standardized coefficients of tests on AC sub-dimensions.

	AC-identification			AC-integration			AC-utilization		
Control variables									
Firm age	−0.04 (−0.40)	−0.04 (−0.47)	−0.11 (−1.22)	0.02 (0.15)	0.02 (0.24)	0.07 (0.07)	−0.14 (−1.49)	−0.14 (−1.44)	−0.19* (−2.00)
Firm size	0.10 (1.00)	0.07† (0.71)	0.15 (1.61)	0.05 (0.53)	−0.01 (−0.06)	0.07 (0.74)	0.17† (1.80)	0.15 (1.48)	0.18† (1.84)
R&D intensity									

	0.13	0.15	0.18*	0.13	0.14	0.15	0.13	0.13	0.16†
	(1.39)	(1.76)	(2.04)	(1.40)	(1.50)	(1.54)	(1.41)	(1.44)	(1.73)
Foreign equity share	−0.02	0.03	0.04	0.18†	0.20*	0.20*	0.13	0.14	0.15
	(−0.22)	(0.33)	(0.45)	(1.81)	(2.00)	(2.08)	(1.41)	(1.47)	(1.59)
Employee training	−0.02	−0.05	−0.07	−0.12	−0.13	−0.14	−0.13	−0.13	−0.15
	(−0.11)	(−0.53)	(−0.71)	(−1.05)	(−1.18)	(−1.26)	(−1.19)	(−1.23)	(−1.45)
Higher degree proportion	0.09	0.16	0.18†	0.05	0.07	0.09	0.06	0.07	0.08
	(0.87)	(1.66)	(1.81)	(0.42)	(0.62)	(0.79)	(0.59)	(0.66)	(0.78)
New employee proportion	0.09	0.11	0.06	0.02	0.02	0.11	−0.08	−0.08	−0.12
	(0.89)	(1.19)	(0.69)	(0.14)	(0.12)	(1.14)	(−0.84)	(−0.85)	(−1.20)
Environment dynamism	−0.01	−0.01	−0.01	0.10	0.08	0.16	−0.02	−0.03	−0.05
	(−0.13)	(−0.09)	(−0.09)	(1.00)	(0.81)	(1.56)	(−0.23)	(−0.30)	(−0.48)
Direct effects									
Teamwork	0.29*	0.21†	0.31**	0.24*	0.18†	0.24*	0.22*	0.22*	0.24*
	(2.49)	(1.93)	(3.18)	(2.23)	(1.79)	(2.86)	(2.22)	(2.22)	(2.44)
Transformational leadership	0.14	0.15	0.12	0.17†	0.17	0.17	0.18†	0.18†	0.14
	(1.50)	(1.55)	(1.35)	(1.67)	(1.55)	(1.56)	(1.99)	(1.90)	(1.51)
Innovation incentives	0.23*	0.09	0.24*	0.22*	0.11	0.22†	0.26*	0.22†	0.26*
	(2.09)	(0.69)	(2.44)	(2.09)	(0.95)	(1.92)	(2.63)	(1.94)	(2.64)
Employee learning		0.32*			0.24†			0.09	
		(2.43)			(1.87)			(0.73)	
Interaction effects									
Innovation incentives × teamwork			0.39**			0.23*			0.12
			(4.39)			(2.37)			(1.32)
Innovation incentives × transformational leadership			−0.24*			−0.06			−0.19†
			(−2.66)			(−0.61)			(−1.96)
R^2	0.35	0.49	0.51	0.26	0.29	0.31	0.33	0.33	0.36
Adjusted R^2	0.26	0.40	0.42	0.17	0.19	0.20	0.24	0.24	0.27
$\triangle R^2$			0.16**		0.02†	0.03*			0.03*

Note 1: Highest variance inflation factor = 1.48.
Numbers in parentheses are t-values (two-tailed).
** $p < .01$.
* $p < .05$.
† $p < .10$.

References

Adams, J. S. (1965). Inequity in social exchange. *Advances in Experimental Social Psychology, 2*, 267–299.

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions.* Newbury Park, CA: Sage.

Aime, F., Meyer, C. J., & Humphrey, S. E. (2010). Legitimacy of team rewards: Analyzing legitimacy as a condition for the effectiveness of team incentive designs. *Journal of Business Research, 63*(1), 60–66.

Ali, M., & Park, K. (2016). The mediating role of an innovative culture in the relationship between absorptive capacity and technical and non-technical innovation. *Journal of Business Research, 69*(5), 1669–1675.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182.

Barrick, M., Thurgood, G., Smith, T. A., & Courtright, S. H. (2015). Collective organizational engagement: Linking motivational antecedents, strategic implementation, and firm level performance. *Academy of Management Journal, 58*(1), 111–135.

Belogolovsky, E., & Bamberger, P. (2014). Signaling in secret: Pay for performance and the incentive and sorting effects of pay secrecy. *Academy of Management Journal, 57*(6), 1706–1733.

Ben-Oz, C., & Greve, H. R. (2015). Short- and long-term performance feedback and absorptive capacity. *Journal of Management, 41*(7), 1827–1853.

Bernerth, J., & Walker, H. J. (2012). Reexamining the workplace justice to outcome relationship: Does frame of reference matter? *Journal of Management Studies, 49*(5), 945–969.

Birasnav, M. (2014). Knowledge management and organizational performance in the service industry: The role of transformational leadership beyond the effects of transactional leadership. *Journal of Business Research, 67*(8), 1622–1629.

Cadsby, C. B., Song, F., & Tapon, F. (2007). Sorting and incentive effects of pay for performance: An experimental investigation. *Academy of Management Journal, 50*(2), 387–405.

Carter, M., & Armenakis, A. (2013). Transformational leadership, relationship quality, and employee performance during continuous incremental organizational change. *Journal of Organizational Behavior, 34*(7), 942–958.

Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology, 83*(2), 234–246.

Chang, S., Gong, Y., Way, S. A., & Jia, L. (2013). Flexibility-oriented HRM systems, absorptive capacity, and market responsiveness and firm innovativeness. *Journal of Management, 39*(7), 1924–1951.

Chen, C. J., & Huang, J. W. (2009). Strategic human resource practices and innovation performance—The mediating role of knowledge management capacity. *Journal of Business Research, 62*(1), 104–114.

Chen, G., Kirkman, B. L., Kanfer, R., Allen, D., & Rosen, B. (2007). A multilevel study of leadership, empowerment, and performance in teams. *Journal of Applied Psychology, 92*(2), 331–346.

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly, 35*(1), 128–152.

Crawford, E., & Lepine, J. (2013). A configural theory of team processes: Accounting for the structure of taskwork and teamwork. *Academy of Management Review, 38*(1), 32–43.

Detert, J., & Burris, E. (2007). Leadership behavior and employee voice: Is the door really open? *Academy of Management Journal, 50*(4), 869–884.

Dierdorff, E. C., & Surface, E. A. (2008). If you pay for skills, will they learn? Skill change and maintenance under a skill-based pay system. *Journal of Management, 34*(4), 721–743.

Dilk, C., Gleich, R., Wald, A., & Motwani, J. (2008). State and development of innovation networks: Evidence from the European vehicle sector. *Management Decision, 46*(5), 691–701.

Duffy, M. K., Scott, K. L., Shaw, J. D., Tepper, B. J., & Aquino, K. (2012). A social context model of envy and social undermining. *Academy of Management Journal, 55*(3), 643–666.

Dvir, T., Eden, D., Avolio, B., & Shamir, B. (2002). Impact of transformational leadership on follower development and performance: A field experiment. *Academy of Management Journal, 45*(4), 735–744.

Eberly, M. B., Holley, E. C., Johnson, M. D., & Mitchell, T. R. (2011). Beyond internal and external: A dyadic theory of relational attributions. *Academy of Management Review, 36*(4), 731–753.

Ebers, M., & Maurer, I. (2014). Connections count: How relational embeddedness and relational empowerment foster absorptive capacity. *Research Policy, 43*(2), 318–332.

Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly, 44*(2), 350–383.
Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50.
Foss, N. J. (2011). Invited editorial: Why micro-foundations for resource-based theory are needed and what they may look like. *Journal of Management, 37*(5), 1413–1428.
Foss, N. J., Lyngsie, J., & Zahra, S. (2013). The role of external knowledge sources and organizational design in the process of opportunity exploitation. *Strategic Management Journal, 34*(12), 1453–1471.
Gerbing, D., & Anderson, J. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research, 25*(2), 186–192.
Gottschalg, O., & Zollo, M. (2007). Interest alignment and competitive advantage. *Academy of Management Review, 32*(2), 418–437.
Greenberg, J., Ashton-James, C. E., & Ashkanasy, N. M. (2007). Social comparison processes in organizations. *Organizational Behavior and Human Decision Processes, 102*(1), 22–41.
Harris, T. B., Li, N., & Kirkman, B. L. (2014). Leader–member exchange (LMX) in context: How LMX differentiation and LMX relational separation attenuate LMX's influence on OCB and turnover intention. *The Leadership Quarterly, 25*(2), 314–328.
He, J., & Wang, H. C. (2009). Innovative knowledge assets and economic performance: The asymmetric roles of incentives and monitoring. *Academy of Management Journal, 52*(5), 919–938.
Helfat, C. E., & Peteraf, M. A. (2003). The dynamic resource-based view: Capability lifecycles. *Strategic Management Journal, 24*(10), 997–1010.
Hoegl, M., & Gemuenden, H. G. (2001). Teamwork quality and the success of innovative projects: A theoretical concept and empirical evidence. *Organization Science, 12*(4), 435–449.
Hoegl, M., Weinkauf, K., & Gemuenden, H. G. (2004). Interteam coordination, project commitment, and teamwork in multiteam R&D projects: A longitudinal study. *Organization Science, 15*(1), 38–55.
Huang, K. F., Lin, K. H., Wu, L. Y., & Yu, P. H. (2015). Absorptive capacity and autonomous R&D climate roles in firm innovation. *Journal of Business Research, 68*(1), 87–94.
Jansen, J. J., George, G., Van Den Bosch, F. A. J., & Volberda, H. W. (2008). Senior team attributes and organizational ambidexterity: The moderating role of transformational leadership. *Journal of Management Studies, 45*(5), 982–1007.
Jansen, J. J., Van Den Bosch, F. A. J., & Volberda, H. W. (2005). Managing potential and realized absorptive capacity: How do organizational antecedents matter? *Academy of Management Journal, 48*(6), 999–1015.
Jones, G. R., & George, J. M. (1998). The experience and evolution of trust: Implications for cooperation and teamwork. *Academy of Management Review, 23*(3), 531–546.
Kang, J. H., Solomon, G. T., & Choi, D. Y. (2015). CEOs' leadership styles and managers' innovative behaviour: Investigation of intervening effects in an entrepreneurial context. *Journal of Management Studies, 52*(4), 531–554.
Klein, H., & Kim, J. (1998). A field study of the influence of situational constraints leader-member exchange, and goal commitment on performance. *Academy of Management Journal, 41*(1), 88–95.
Kostopoulos, K., Papalexandris, A., Papachroni, M., & Ioannou, G. (2011). Absorptive capacity, innovation, and financial performance. *Journal of Business Research, 64*(12), 1335–1343.
Lam, C. K., Van der Vegt, G. S., Walter, F., & Huang, X. (2011). Harming high performers: A social comparison perspective on interpersonal harming in work teams. *Journal of Applied Psychology, 96*(3), 588–601.
Lane, P. J., Koka, B. R., & Pathak, S. (2006). The reification of absorptive capacity: A critical review and rejuvenation of the construct. *Academy of Management Review, 31*(4), 833–863.
Lewin, A. Y., Massini, S., & Peeters, C. (2011). Microfoundations of internal and external absorptive capacity routines. *Organization Science, 22*(1), 81–98.
Li, J. J., Poppo, L., & Zhou, K. Z. (2010). Relational mechanisms, formal contracts, and local knowledge acquisition by international subsidiaries. *Strategic Management Journal, 31*(4), 349–370.
Minbaeva, D. B., Pedersen, T., Björkman, I., & Fey, C. F. (2013). A retrospective on: MNC knowledge transfer, subsidiary absorptive capacity, and HRM. *Journal of International Business Studies, 45*(1), 52–62.
Minbaeva, D., Pedersen, T., Björkman, I., Fey, C. F., & Park, H. J. (2003). MNC knowledge transfer, subsidiary absorptive capacity, and HRM. *Journal of International Business Studies, 34*(6), 586–599.
Morand, D. A., & Merriman, K. K. (2012). "Equality theory" as a counterbalance to equity theory in human resource management. *Journal of Business Ethics, 111*(1), 133–144.
Nishii, L. H., Lepak, D. P., & Schneider, B. (2008). Employee attributions of the " why " of HR practices: Their effects on employee attitudes and behaviors, and customer satisfaction. *Personnel Psychology, 61*(3), 503–545.
Osterloh, M., & Frey, B. (2000). Motivation, knowledge transfer, and organizational forms. *Organization Science, 11*(5), 538–550.
Pfeffer, J., & Langton, N. (1993). The effect of wage dispersion on satisfaction, productivity, and working collaboratively: Evidence from college and university faculty. *Administrative Science Quarterly, 38*(3), 382–407.
Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*(4), 717–731.
Quigley, N. R., Tesluk, P. E., Locke, E. A., & Bartol, K. M. (2007). A multilevel investigation of the motivational mechanisms underlying knowledge sharing and performance. *Organization Science, 18*(1), 71–88.
Ryan, J. C. (2016). Old knowledge for new impacts: Equity theory and workforce nationalization. *Journal of Business Research, 69*(5), 1587–1592.
Schleimer, S. C., & Pedersen, T. (2013a). The driving forces of subsidiary absorptive capacity. *Journal of Management Studies, 50*(4), 646–672.
Schleimer, S. C., & Pedersen, T. (2013b). The effects of MNC parent effort and social structure on subsidiary absorptive capacity. *Journal of International Business Studies, 50*(4), 646–672.
Sedikides, C., Campbell, W. K., Reeder, G. D., & Elliot, A. J. (1998). The self-serving bias in relational context. *Journal of Personality and Social Psychology, 74*(2), 378–386.
Shamir, B., House, R., & Arthur, M. (1993). The motivational effects of charismatic leadership: A self-concept based theory. *Organization Science, 4*(4), 577–594.
Shaw, J., Gupta, N., & Delery, J. (2002). Pay dispersion and workforce performance: Moderating effects of incentives and interdependence. *Strategic Management Journal, 23*(6), 491–512.
Shin, S. J., & Zhou, J. (2003). Transformational leadership, conservation, and creativity: Evidence from Korea. *Academy of Management Journal, 46*(6), 703–714.
Siegel, P. A., & Hambrick, D. C. (2005). Pay disparities within top management groups: Evidence of harmful effects on performance of high-technology firms. *Organization Science, 16*(3), 259–274.
Summers, J. K., Humphrey, S. E., & Ferris, G. R. (2012). Team member change, flux in coordination, and performance: Effects of strategic core roles, information transfer, and cognitive ability. *Academy of Management Journal, 55*(2), 314–338.
Tai, K., Narayanan, J., & McAllister, D. (2012). Envy as pain: Rethinking the nature of envy and its implications for employees and organizations. *Academy of Management Review, 37*(1), 107–129.
Trevor, C., Reilly, G., & Gerhart, B. (2012). Reconsidering pay dispersion's effect on the performance of interdependent work: Reconciling sorting and pay inequality. *Academy of Management Journal, 55*(3), 585–610.
Tse, H. H., Lam, C. K., Lawrence, S. A., & Huang, X. (2013). When my supervisor dislikes you more than me: The effect of dissimilarity in leader-member exchange on coworkers' interpersonal emotion and perceived help. *Journal of Applied Psychology, 98*(6), 974–988.
Vidyarthi, P. R., Liden, R. C., Anand, S., Erdogan, B., & Ghosh, S. (2010). Where do I stand? Examining the effects of leader-member exchange social comparison on employee work behaviors. *Journal of Applied Psychology, 95*(5), 849–861.
Volberda, H. W., Foss, N. J., & Lyles, M. A. (2010). Perspective—Absorbing the concept of absorptive capacity: How to realize its potential in the organization field. *Organization Science, 21*(4), 931–951.
Vroom, V. H. (1964). *Work and motivation.* New York: Wiley.
Walumbwa, F. O., Wu, C., & Orwa, B. (2008). Contingent reward transactional leadership, work attitudes, and organizational citizenship behavior: The role of procedural justice climate perceptions and strength. *The Leadership Quarterly, 19*(3), 251–265.
Wang, H., Law, K., & Hackett, R. (2005). Leader-member exchange as a mediator of the relationship between transformational leadership and followers' performance and organizational citizenship behavior. *Academy of Management Journal, 48*(3), 420–432.
Wei, Y. S., & Atuahene-Gima, K. (2009). The moderating role of reward systems in the relationship between market orientation and new product performance in China. *International Journal of Research in Marketing, 26*(2), 89–96.
Wu, J. B., Tsui, A. S., & Kinicki, A. J. (2010). Consequences of differentiated leadership in groups. *Academy of Management Journal, 53*(1), 90–106.
Yanadori, Y., & Cui, V. (2013). Creating incentives for innovation? The relationship between pay dispersion in R&D groups and firm innovation performance. *Strategic Management Journal, 34*(12), 1502–1511.
Yanadori, Y., & Marler, J. H. (2006). Compensation strategy: Does business strategy influence compensation in high-technology firms? *Strategic Management Journal, 27*(6), 559–570.
Yao, F. K., & Chang, S. (2017). Do individual employees' learning goal orientation and civic virtue matter? A micro-foundations perspective on firm absorptive capacity. *Strategic Management Journal, 38*(10), 2041–2060.
Zahra, S., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review, 27*(2), 185–203.
Zenger, T. R., & Marshall, C. R. (2000). Determinants of incentive intensity in group-based rewards. *Academy of Management Journal, 43*(2), 149–163.
Zhang, X. A., Li, N., Ullrich, J., & van Dick, R. (2015). Getting everyone on board the effect of differentiated transformational leadership by CEOs on top management team effectiveness and leader-rated firm performance. *Journal of Management, 41*(7), 1898–1933.
Zhang, A. Y., Tsui, A. S., & Wang, D. X. (2011). Leadership behaviors and group creativity in Chinese organizations: The role of group processes. *The Leadership Quarterly, 22*(5), 851–862.
Zhao, Z. J., & Anand, J. (2009). A multilevel perspective on knowledge transfer: Evidence from the Chinese automotive industry. *Strategic Management Journal, 30*(9), 959–983.
Zhao, Z. J., Anand, J., & Mitchell, W. (2005). A dual networks perspective on inter-organizational transfer of R&D capabilities: International joint ventures in the Chinese Automotive Industry. *Journal of Management Studies, 42*(1), 127–160.
Zhao, Z. J., & Chadwick, C. (2014). What we will do versus what we can do: The relative effects of unit-level NPD motivation and capability. *Strategic Management Journal, 35*(12), 1867–1880.
Zhou, K. Z., & Wu, F. (2010). Technological capability, strategic flexibility, and product innovation. *Strategic Management Journal, 31*(5), 547–561.
Zollo, M., & Winter, S. (2002). Deliberate learning and the evolution of dynamic capabilities. *Organization Science, 13*(3), 339–351.