Strategic goal interdependence approach to dynamic capability and the effects of customer integration and market dynamism: evidence from China

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ABSTRACT
Based on the theory of cooperation and competition, this study proposed goal interdependence with downstream company as an important enabler of firms’ dynamic capability. Moreover, we examined both how and when cooperative and competitive goals affect dynamic capability by considering customer integration as a mediator and market dynamism as an important contingency. We tested our moderated mediation model by using survey data from a cross-industry sample of 233 firms in China. Results of structural equation analyses suggest that firms and downstream companies that recognize strategic goal interdependence as cooperation rather than competition develop customer integration. With customer integration, firms’ dynamic capability is promoted. Additionally, the moderated mediation analysis revealed that the positive indirect relationship between cooperative goal and dynamic capability with the linkage of customer integration is weaker for higher levels of market dynamism, but the negative indirect effect of competitive goal on the dynamic capability through customer integration does not depend on market dynamism. Based on these findings, we discussed how our findings extend dynamic capability research, the theory of cooperation and competition and provide implications for practice.

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Cooperative goal; competitive goal; dynamic capability; customer integration; market dynamism

Introduction
The past 10 years have witnessed increasing focus on the antecedents of dynamic capability in strategy field (Qaiyum & Wang, 2018). Dynamic capability refers to a firm’s higher-level capacity to integrate, build, and reconfigure internal and external competences to respond to rapidly changing environments (Teece, Pisano, & Shuen, 1997). Teece (2007) asserted that dynamic capability includes three types of abilities, (1) to sense new opportunities and threats in its environment, (2) to seize those opportunities and (3) to sustain competitive edge through improving, integrating, and, when imperative, reconfiguring the business enterprises key tangible and intangible assets and activities’. In companies, dynamic capability is able to achieve new forms of competitive advantage (Reuter, Foerstl, Hartmann, & Blome, 2010), improve organizational performance (Jantunen, Tarkiainen, Chari, & Oghazi, 2018; Zhou, Zhou, Feng, & Jiang, 2017), and promote innovation (Lin, Su, & Higgins, 2016). Recent research shows that international diversification, intellectual capital, information technology, leadership styles, internal conditions, HR systems, and social capital affect the generation of dynamic capability (Lopez-Cabrales, Bornay-Barrachina, & Diaz-Fernandez, 2017; Mikalef & Pateli, 2017; Qaiyum & Wang, 2018; Rodrigo-Alarcón, García-Villaverde, Ruiz-Ortega, & Parra-Requena, 2018). Besides, being different from these findings, Salvato and Vassolo (2018) asserted that dialogue is an important inter-personal level cause of dynamic capability. But most of recent literatures reported that dynamic capability is an organizational-level capability (Gruchmann & Seuring, 2018; Qaiyum & Wang, 2018; Xu, Guo, Zhang, & Dang, 2018). According to these research studies, we consider dynamic capability as an important macro-level capacity.

The past literatures indicate that as a way to maintain competitive advantage, dynamic capability is necessary due to the turbulence of the current environment (Lopez-Cabrales et al., 2017; Qaiyum & Wang, 2018). Constructing dynamic capability has become increasingly critical for companies in both developed and developing countries because both global marketing and technological environments have become extremely turbulent. According to Qaiyum and Wang (2018), an external turbulent environment forces companies to explore beyond current technologies and markets to alter their resource base by developing dynamic capability. Besides, there is a broad agreement in the strategic management literature...
that an organization’s output is a function of its strategic behaviour, and that an organization’s strategic behaviour is driven by its strategic goals (Spyropoulou, Katsikeas, Skarmeas, & Morgan, 2018). However, research on the drivers of dynamic capability has only begun, and no past studies have ever addressed the role of strategic goal interdependence within a supply chain in fostering dynamic capability. It is timely and important for researchers to adopt a strategic goal interdependence perspective to investigate how, and when, and to what extent strategic goal interdependence contributes to the development of this dynamic capability.

Meanwhile, firms have been recognizing that it’s fairly necessary to form partnership with other organizations to enhance its capabilities (Chang, Chen, & Huang, 2015). Customer integration, or named downstream integration in some studies, as an important way to cooperate with the downstream partner, refers to the collaboration and information-sharing practices between a focal firm and its critical partner, in order to become more responsive to market needs and customer requirements (Wong, Boon-Itt, & Wong, 2011). Research works produced driving forces for customer integration from different perspectives, such as the vertical integration perspective (Guan & Rehme, 2012) and the supply chain management perspective (Richey, Roath, Whipple, & Fawcett, 2010). Meanwhile, many studies have investigated the influence of customer integration. In this regard, the consequences of customer integration have been examined based on value creation (Vargo, 2008), product innovation (Lau, Tang, & Yam, 2010), new product development (He, Lai, Sun, & Chen, 2014), and operational performance (Chavez, Yu, Gimenez, Fynes, & Wiengarten, 2015). However, we still don’t know whether there is an effect of customer integration on dynamic capability.

Moreover, researchers have argued that with cooperative goals, organizations, and downstream partner will feel trust and then develop long-term relationships with each other (Wong, Tjosvold, & Zhang, 2005a). Building a long-term relationship and trust between organizations is the basement for inter-organization integration (Prajogo & Olhager, 2012). However, relatively few research studies have been conducted to investigate the linkage between goal interdependence and customer integration. Specifically, how organizations consider that their strategic goals are related would affect their interaction and then influence their outcomes (Wong, 2002; Wong, Tjosvold, & Zhang, 2005b).

Our study contributes to relevant literatures by proposing that cooperative goals, rather than competitive goals, between firms and the downstream partner can help firms promote customer integration, this relationship, in turn, affects the improvement of dynamic capability. According to the theory of cooperation and competition (Chen & Tjosvold, 2006; Deutsch, 1949), at the organizational level, cooperative goal refers to the goal structure when the strategic goal attainment of one organization helps the strategic goal attainment of another organization. Competitive goal refers to the goal structure when the strategic goal attainment of one organization hinders the strategic goal attainment of another organization. We propose that cooperative goal interdependence with downstream partners can stimulate dynamic capability by prompting firms to engage in inter-organizational integration. But the competitive goal will weaken dynamic capability by hindering firms to engage in inter-organizational integration. Thus, by considering the path effects and mediating mechanisms both theoretically and empirically, we further contribute to research on goal interdependence and dynamic capability, as we not only emphasize the causal relationships among variables but also open the black box of how goal interdependence affects dynamic capability.

Furthermore, previous studies have shown the influence of the market dynamics on the linkage from strategic orientation to dynamic capability (Zhou & Li, 2010), the role of market dynamism in the relationship between customer integration and dynamic capability remains less well explored. We contribute to prior research by considering when goal interdependence and customer integration is most effective in stimulating dynamic capability. By analysing this contingency role of the market dynamism, our study answers a call for more research on the boundary conditions concerning the determinants of dynamic capability but not the consequences of this type of firm capability.

Overall, we contribute to a novel understanding about the importance of goal interdependence for promoting dynamic capability. Our resulting moderated mediation framework synchronously considers both how and when cooperative goal and competitive goal affect dynamic capability (see Figure 1). The remainder of the paper is organized as follows. Section 2 reviews the past literatures, which research on strategic goal interdependence, customer integration and dynamic capability, and following this, and develops a hypothetical model of mediating Figure 1. The hypothesized model.
and moderating mechanism to discuss how and when strategic goal interdependence affect dynamic capability. Section 3 provides a justification of the research design. Section 4 presents the findings of this research and Section 5 discusses the implications of theory. The study’s managerial implications, limitations and future research direction are discussed in Section 6.

**Literature review and hypothesis development**

**Cooperative and competitive goal, customer integration, and dynamic capability**

Cooperative goal between the firm and the downstream company on the supply chain can enhance the firm’s dynamic capability because it promotes the emergence of customer integration. Adversely, competitive goal is going to frustrate dynamic capability by hindering it from customer integration. Customer integration involves strategic information sharing and deep collaboration between a firm and its critical customers (individual or organization) so as to jointly improve visibility and develop a strategic plan (Wong et al., 2011). Customer integration provides the focal firm the chance for a responsive understanding of market expectations and opportunities, which contributes to a timely and accurate response to customer needs (Swink, Narasimhan, & Wang, 2007) by fitting supply and demand (Lee, Padmanabhan, & Whang, 1997). Prajogo and Olhager (2012) argued that trust and long-term relationship between firms and its suppliers can intensify supplier integration such as information technology linkage and information sharing; customer integration also can be promoted by trust and long-term relationship between the firm and its downstream organization. Accordingly, prior studies found that cooperative goal interdependence with supplier, rather than competitive goal interdependence with supplier, helps build trust and long-term relationship for organizations, and the competitive goal even has a negative effect on these interactions (Wong, Tjosvold, Wong, & Liu, 1999). Based on this discussion, the following hypotheses are proposed:

- **Hypothesis 1**, Cooperative goal is positively related to customer integration.
- **Hypothesis 2**, Competitive goal is negatively related to customer integration.

In turn, because of its responsive and adaptive nature, customer integration can enhance the firm’s dynamic capability. Customer integration does well in promoting frequent customer contact and the evaluation of customer satisfaction and customer expectations (Swink et al., 2007). As such, a company can gain deeper understandings about the needs of downstream organization and customer, and as a result, try to find ways to satisfy market demands by improving distinguishing, forecasting, learning and reconfiguring capabilities. Customer integration is usually considered as a necessity and a key competency for enterprise (Closs & Savitskie, 2003). Teece (2007) identifies three core processes of organizational dynamic capability, sensing, seizing, and transforming. Moreover, more detailed than Wong et al.’s (2011) definition, customer integration is deemed as the collaboration and information sharing course. According to Vickery, Jayaram, Droge, and Calantone (2003), manufacturing plants use customer integration practices to assimilate and incorporate customer expectations and needs, and then become more responsive. Supporting these standpoints, from the performance perspective, Lansiti and Clark (1994) empirically test the correlation between customer integration capability and dynamic capability performance. Finally, these arguments lead to the following hypothesis.

- **Hypothesis 3**, Customer integration is positively related to dynamic capability.

Therefore, considering that cooperative goal, rather than competitive goal, can stimulate dynamic capability by promoting customer integration that enhances information sharing and long-term relationship, we propose the following indirect relationships.

- **Hypothesis 4**, Customer integration mediates the positive relationship between cooperative goal and dynamic capability.
- **Hypothesis 5**, Customer integration mediates the negative relationship between competitive goal and dynamic capability.

**The moderating role of market dynamism**

This study proposed that the influence of customer integration on dynamic capability is subject to the level of market dynamism. Market dynamism refers to the degree to which external market factors are in a continual process of change (Achrol & Stern, 1988). It is the result of variability in technology, price, product availability, and support services. External turbulence caused by market dynamism makes it more difficult to predict future (Aldrich, 1979) and generates control problems. On the one hand, when external environment is highly dynamic, the following uncertainty may do harm to the organization for taking activity for responding to the frequently changing needs, predicting market demands, adjusting strategic direction to fit the dynamic environment (González-Beníto, Aguinis, Boyd, & Suárez-González, 2012). Furthermore, in a highly turbulent market environment, although customer integration can help the firm gain information such
as product price, market needs, and customer expectation from downstream organization, the effectiveness and efficiency for adapting to the circumstance may be impaired (He et al., 2014). On the other hand, when the firm faces stable market environment greatly, and is subjected to less ambiguous circumstances, it would be apt to help the company visualize the whole situation of market. Therefore, we predict that customer integration is more likely to strengthen dynamic capability when the level of market dynamism is low than it is high. Based on this rationale, the following hypothesis is proposed.

Hypothesis 6, Market dynamism moderates the relationship between customer integration and dynamic capability; this relationship is stronger when market dynamism is low rather than high.

Specially, with regard to the negative effect of competitive goal on dynamic capability through customer integration, we argued that the moderated role of market dynamism in this mediation model could weaken this passive influence, as it is all the supply chain that is impacted by the whole external market turbulence. In other words, although market dynamism has a negative effect on the focal firm, this circumstance negatively affects its downstream companies as well. For instance, when the product price, customer expectation, and market needs change, almost all the company on supply chain will be influenced no matter what the nature of goal dependence among these organizations is, because they are dependent on each other anytime. Thus, market dynamism has a negative effect on the indirect relationship between goal interdependence (both cooperative goal and competitive goal) and dynamic capability through the linkage of customer integration. Considering these discussions, we proposed two second-stage moderated mediation models as follows.

Hypothesis 7, Market dynamism moderates the indirect relationship between cooperative goal and dynamic capability in such a way that the positive indirect effects through customer integration are stronger for lower levels of market dynamism.

Hypothesis 8, Market dynamism moderates the indirect relationship between competitive goal and dynamic capability in such a way that the negative indirect effects through customer integration are stronger for lower levels of market dynamism.

Research method and data

Sample and data

Survey investigation was employed to collect data for testing our moderated mediation frameworks. The sample of this study covers manufacturing industry and productive service industry in China, such as electronic equipment manufacture, apparel industry, and warehousing service enterprise. Our sample distributes in major cities such as Xiamen, Beijing, Wuhan, Guangzhou, Shihezi, and so on. Because this study focuses on the firm’s top managers’ self-reported data, in order to reduce the influence of common method bias on empirical research results, we took several steps. Firstly, in accordance with Feldman and Lynch’s (1988) recommendations, we carefully place survey questions, use the linguistic terms and phrases locally and naturally. Secondly, the appearance order of variables does not follow the hypothesized sequence (goal interdependence → customer integration → dynamic capability). Thirdly, we adopt a statistical method to estimate the common method bias in order to test its influence on empirical results. To test the extent to which our data are likely to suffer from common method bias, we performed Harman’s single-factor test. The principal component analysis result showed that the first principle factor extracted from 26 items only explained 26.88% of variance. In brief, the ex-ante process and ex-post analysis indicated that the common method bias didn’t exert serious influence on our study.

As a developing country, China faced several difficulties in data collection. Hoskisson, Eden, Lau, and Wright (2000) made it clear that there are some issues faced by researchers in the strategy field of emerging countries such as, challenge in investigating subjects randomly, and representatively; difficulty in gaining access to top managers; lack of trust between researchers and respondents. Indeed, many literatures from developing countries, such as Pakistan and India, reported similar results (Ali, Peters, & Lettice, 2012; Aslam, Blome, Roscoe, & Azhar, 2018; Ryan & Tipu, 2013). For example, Aslam et al. (2018) who collected data in Pakistan reported that the response rate was only 8.2%. This study also encountered the similar difficulty. For instance, many respondents chose not to trust the investigators and decided not to answer questions on questionnaire honestly. And even most of top managers rejected to provide data. As a result, the usable response rate is very low. Totally, assisted by friends, EMBA platform and relatives, 500 firms were mailed the survey instrument. Of the firms connected, 348 surveys were returned with 233 provided full and complete data and deemed usable resulting in an effective response rate of 46.6%.

The descriptive analysis revealed that of all the firms, 80.7% were manufacturing enterprises, 19.3% were service companies; 57.1% were private enterprises under domestic funding, 30.9% were private enterprises with foreign funding, 12% were state-owned enterprises; 44.6% firms were founded between 3 and 15 years, 36.1% firms were founded between 16 and 45 years,
19.3% firms were founded more than 45 years; 55.8% had 30–500 employees companies, 14.2% had 500–1000 employees companies, 30% had above 1000 employees companies.

**Questionnaire**

We measured variables in this study by using multi-item scales that we adapted from prior literatures and verified their reliability and validity through various analyses. All items were measured on a five-point scale where 1 = ‘strongly disagree’ and 5 = ‘strongly agree.’

**Dynamic capability**

Scale for dynamic capability was developed from Ho and Tsai (2006) and Teece and Pisano (1994) was used under Chinese context. Eight items were used to measure this construct. Items for this variable were, ‘our company can sense development opportunities from external environment’, ‘our company can quickly respond to downstream companies’ (or critical customers’) needs’, ‘our company can provide personalized products and services for downstream companies (or critical customers)’, ‘our company can quickly enter target market’, ‘in order to cope with the rapidly changing environment, departments of our company can coordinate with each other efficiently’, ‘for meeting the unique needs of downstream companies (or critical customers), our company can integrate operational process in various departments’, ‘in our company, the departments’ objectives can be highly coordinated with the company’s strategic objective’, ‘our company can timely adjust business portfolio to fit strategic goal’. Reliability (coefficient alphas) of the scale was 0.83.

**Goal interdependence**

We measure cooperative goal with a four-item scale and competitive goal with a five-item scale initially adapted from Wong, Tjosvold, and Yu (2005) and widely used in the previous study in China (Wong, Fang, & Tjosvold, 2012). The items for cooperative goal scale were, ‘Our downstream partners (or critical customers) and we ‘swim or sink’ together’, ‘Our downstream partners (or critical customers) and we seek compatible goals’, ‘Our downstream partners (or critical customers) and we work each other to succeed’, ‘When our downstream partners (or critical customers) and we work together, we usually have common goals’. Reliability (coefficient alphas) of this scale was 0.83. The items for competitive goal scale were, ‘Our downstream companies (or critical customers) structure things in ways that favour their own goals rather than our goals’, ‘Our downstream companies (or critical customers) and we have a ‘win–lose’ relationship’, ‘Our downstream companies (or critical customers) and we like to show that we are superior to each other’, ‘Our downstream companies’ (or critical customers’) goals are incompatible with our goals’, ‘Our downstream companies (or critical customers) give high priority to the things they want to accomplish and low priority to the things we want to accomplish’. Reliability (coefficient alphas) of the scale was 0.73.

**Customer integration**

We measure customer integration with a four-item scale which was initially developed from Frohlich and Westbrook (2001), Flynn, Huo, and Zhao (2010), Narasimhan and Kim (2002) and was used in Chinese context. Four items were, ‘in order to sense the real need of downstream companies (or critical customers), our company worked out formal processes’, ‘our company actively interacts with downstream companies (or critical customers) for improving products and service’, ‘our company bend itself to building long-term relationship with downstream companies (or critical customers)’, ‘our company actively shares information platform with downstream companies (or critical customers)’. Reliability (coefficient alphas) of the scale was 0.72.

**Market dynamism**

The five-item market dynamism scale was taken from Jansen, Vera, and Crossan’s (2009) study. The five items were, ‘market environment changes frequently and intensely in the local market’, ‘downstream companies (or clients) regularly ask for new products and services’, ‘there are continuous changes of market environment’, ‘in one year, our market changed a lot’, ‘the volumes of products and services to be provided change frequently’. Reliability (coefficient alphas) of the scale was 0.78.

**Control variables**

The firm’s age, firm’s size, firm’s ownership, and industry type may affect the firm’s dynamic capability. We considered those variables as control variables in this study. The number of full-time employees indicates the firm’s size (1 = ‘30–500 people’, 2 = ‘501–1000 people’, 3 = ‘above 1000 people’). The firm’s age (1 = ‘3–15 year’, 2 = ‘16–45 year’, 3 = ‘above 45 year’) and the firm’s size are ordinal variables. The firm’s ownership (1 = state-owned enterprises, 2 = private enterprises under domestic funding, 3 = private enterprises with foreign funding) and industry type (1 = manufacturing industry, 2 = service industry) are nominal variables. Both nominal variables were translated into dummy variables for structural model analyses and percentile bootstrap CI regression analyses.
Table 1. Means, standard deviations, correlations and AVE.

| Variables       | Cooperative goal | Competitive goal | Customer integration | Dynamic capability | Market dynamism |
|-----------------|------------------|------------------|----------------------|--------------------|-----------------|
| Cooperative goal| (0.78)            |                  |                      |                    |                 |
| Competitive goal|                  | 0.07             |                      |                    |                 |
| Customer integration | 0.49**          | −0.14*           |                      | 0.71               |                 |
| Dynamic capability | 0.63**           | −0.12            | 0.54**               | (0.77)             |                 |
| Market dynamism | 0.36**           | −0.01            | 0.29**               | 0.48**             | (0.74)          |
| Mean            | 3.73             | 2.72             | 3.99                 | 3.89               | 3.88            |
| SD              | 0.73             | 0.78             | 0.59                 | 0.52               | 0.61            |

Note: Square root AVE estimates show in the brackets along table diagonal; 
\( N = 223; ^* p < .01, ^*^ p < .05. \)

**Instrument validity**

We first reduced the number of each variable scale items to three indicators in accordance with Mathieu and Farr’s (1991) research. And then, we applied CFA to evaluate the validity of instruments employed in this study. The model fit indices were \( \chi^2 = 142.27, \chi^2/df = 1.78, CFI = 0.95, TLI = 0.94, \) and RMSEA = 0.06. The estimates of loadings were between 0.62 and 0.86. Thus, the measurement model was acceptable (Hu & Bentler, 1999), indicating that the instrument validity was convergent. Furthermore, the average variance extracted (AVE) estimates were higher than 0.50 and greater than squared correlation between the corresponding variables (see Table 1).

**Analyses and results**

A structural equation analysis was used to test these proposed causal relationships and verify the moderation model. The structural model (see Figure 2) was tested with AMOS21.0 following Joreskog and Goldberger’s (1975) ‘multiple indicators and multiple causes’ model with both formative and reflective items.

The interaction effect of market dynamism and customer integration was modelled in AMOS following the original work of Kenny and Judd (1984). Based on Kenny and Judd’s (1984) research, Mathieu, Tannenbaum, and Salas (1992), Cortina, Chen, and Dunlap (2001) made some improvements to simplify and strengthen the analysis procedures in structural equation modelling. The path weight (\( \lambda = 0.75 \)) from the latent interaction variable to its indicator and the variance (\( \delta = 0.58 \)) of this indicator were calculated from the following formulas (Cortina et al., 2001),

\[
\lambda = \sqrt{(\alpha_1 \times \alpha_2 + r^2)/(1 + r^2)}; \quad \delta = \omega (1 - \lambda^2)
\]

where \( \alpha_1 \) and \( \alpha_2 \) are the reliabilities of customer integration and market dynamism, respectively, and \( \omega \) is the variance of the interaction indicator. Meanwhile, \( r \) is the correlation between the components of the product. We need to compute the path weight \( \lambda \) from exogenous latent product to endogenous latent product of the two variables and calculate the variance \( \delta \) of the product of these two variables. Besides, we also followed Cortina et al.’s (2001) report to model control variables in AMOS. Overall, we achieved an acceptable model fit (\( \chi^2/df = 1.94, CFI = 0.93, TLI = 0.91, \) and RMSEA = 0.06).

Firstly, as argued, the cooperative goal had a significant positive effect on customer integration (\( \beta = 0.81, C.R. = 7.71, p < .01 \)), as proposed in Hypothesis 1. Competitive goal exerted a significant negative effect on customer integration (\( \beta = -0.23, C.R. = -3.27, p < .01 \)), as proposed in Hypothesis 2.

As expected by this study, customer integration had a strong effect on dynamic capability (\( \beta = 0.60, C.R. = 6.21, p < .01 \)), as proposed in Hypothesis 3. In order to examine the mediating role of customer integration on the capability effect of cooperative goal and competitive goal, given this significant relationship, two other models (cooperative goal → customer integration → dynamic capability, competitive goal → customer integration → dynamic capability) were tested by using PROCESS Macro provided by Hayes (2013) in SPSS20.0. Repeated 2000 times bootstrapping calculation, as for the indirect effect of cooperative goal on dynamic capability, results showed that the 95% bootstrap confidence interval (boot LLCL = 0.09, boot ULCL = 0.30) did not include zero and the effect estimate value was 0.18 with Boot SE = 0.05, supporting Hypothesis 4. Meanwhile, the direct effect of cooperative goal on dynamic capability was significant with the effect value 0.39 (boot LLCL = 0.28, boot ULCL = 0.51, Boot SE = 0.06), suggesting that this mediation effect was partial and the percentage of mediation effect was 31.58%. Furthermore, as for the indirect effect of competitive goal on dynamic capability, the 95% bootstrap confidence interval (boot LLCL = −0.15, boot ULCL = −0.02) did not include zero and the effect estimate value was −0.08 with Boot SE = 0.03, supporting Hypothesis 5. The direct effect of competitive goal on dynamic capability was not significant for the zero included in the confidence interval (boot LLCL = −0.18, boot ULCL = 0.04, Boot SE = 0.05) indicating that it’s a full mediation. What needs to be emphasized was that in these PROCESS procedures, we controlled the effect of four control variables on dynamic capability by inputting these variables into models as covariates in accordance with Hayes (2013) claim.
Secondly, market dynamism negatively moderated the effect of customer integration on dynamic capability \((\beta = -0.27, \text{C.R.} = -3.47, p < 0.01)\), supporting Hypothesis 6. Figure 3 illustrates the patterns of how customer integration and market dynamism jointly influence dynamic capability. As expected, customer integration had more positive effects on dynamic capability for low market dynamism than for high market dynamism, supporting a significant moderating effect and being the same as the result of structural equation analysis.

In Hypotheses 7 and 8, we proposed that market dynamism moderates the indirect effect of goal interdependence on dynamic capability through customer integration. Specifically, we argued that market dynamism reduces the effect of customer integration on dynamic capability, i.e. second-stage moderation. Structural equation analysis showed that the interaction product of customer integration and market dynamism had a negative and significant effect on dynamic capability \((\beta = -0.27, p < .01)\). Under the consideration of the causal relationships, these findings supported the moderated role of market dynamism in the indirect effect through customer integration as proposed in Hypotheses 7 and 8, indicating a moderated mediation model (Preacher, Rucker, & Hayes, 2007). In order to gain further insights into how the indirect effects differ under the condition of market dynamism, we employed a bootstrapping procedure to quantify the indirect effects at low \((-1SD)\), mean, and high \((+1SD)\) levels of market dynamism (Preacher et al., 2007). Table 2 presents the indirect effects at three-level values of market dynamism and provided 95 percent confidence level intervals for these effects.

With regard to the first moderated mediation model, we can observe from Table 2 that the positive indirect effects of cooperative goal on dynamic capability by customer integration become weaker and weaker as the values of market dynamism increase. Furthermore, the
Table 2. Conditional indirect effects of goal interdependence on dynamic capability considering different level market dynamism.

| Market dynamism | Boot indirect effect | Boot S.E. | Boot 95% confidence intervals |
|-----------------|----------------------|-----------|-----------------------------|
| (a) Conditional indirect effect of cooperative goal | | | |
| Customer integration | $-1 (-1SD)$ | 0.21 | 0.06 | (0.11, 0.35) |
| 0 (Mean) | 0.13 | 0.04 | (0.06, 0.21) |
| $+1 (+1SD)$ | 0.05 | 0.05 | (−0.06, 0.15) |
| Index of moderated mediation | $-0.08$ | 0.04 | (−0.17, −0.01) |
| (b) Conditional indirect effect of competitive goal | | | |
| Customer integration | $-1 (-1SD)$ | $-0.08$ | 0.04 | (−0.16, −0.02) |
| 0 (Mean) | $-0.06$ | 0.03 | (−0.12, −0.01) |
| $+1 (+1SD)$ | $-0.04$ | 0.02 | (−0.10, −0.01) |
| Index of moderated mediation | 0.02 | 0.02 | (−0.01, 0.06) |

Note: Boot $n = 2000$; the four control variables were regarded as covariates in conditional indirect effect model for controlling their effects on dependent variable.

confident interval about the index of moderated mediation did not contain zero ($\beta = −0.08$), indicating that the first moderated mediation model was significant, thus supporting Hypothesis 7. About the second moderated mediation model, although the indirect effects were all statistically significant ($p < .01$) at low, mean, and high values of the market dynamism, and more than that, the negative indirect effects of competitive goal on dynamic capability were stronger at low rather than high levels of market dynamism, the index of moderated mediation was not significant because the confidence interval (boot $LLCL = −0.01$, boot $ULCL = 0.06$) included zero. So we can conclude that Hypothesis 8 was not supported in this study.

### Implications for theory

We contribute to earlier researches by showing how goal interdependence affects dynamic capability. We developed theoretical argument and find empirical evidence, indicating that cooperative goal, rather than competitive goal, enables the firm’s dynamic capability by enhancing customer integration. In this way, based on the theory of cooperation and competition, this study not only verified the relationship between goal interdependence and dynamic capability, but also opened the black box of how cooperative goal and competitive goal affect the capability of companies to overcome the influence of environmental turbulence by furthering insights into the potential mechanisms through which strategic goal interdependence stimulates dynamic capability. From the downstream perspective, our study confirms the standpoint that cooperative goal between firm and its supplier is an important locus for improving trust, open-minded communication and long-term relationship (Wong et al., 1999). Thus, by empirically showing that cooperative goal interdependence with downstream companies (or critical customers) is related to higher levels of dynamic capability, but competitive goal negatively affects this type of firm capability, our study supports Wong et al.’s (2005), Wong, Tjosvold, and Chen’s (2010), Wong et al.’s (2005a, 2005b), Tjosvold, Peng, Chen, and Su’s (2008) notion that goal interdependence can affect outcomes through influence interaction process between both sides.

Interestingly, our empirical research manifested that the indirect positive effect of cooperative goal on dynamic capability by promoting customer integration depends upon market dynamism, such that the effect is weakened because of the impact of high market turbulence. We provided a nuanced understanding of cooperative goal as an important enabler for dynamic capability by analysing when it is more effective. Prior research works just considered organizational integration, environmental dynamism and capability in isolation (e.g. Iansiti & Clark, 1994; Wong et al., 2011), or just examined the moderating effect of environmental uncertainty on the relationship between dynamic capability and its consequence (Li & Liu, 2014). Our study provides a contingency perspective and reveals that the market dynamism is the important boundary conditions for the effectiveness of cooperative goal in enabling dynamic capability. By doing so, more generally, our research contributes to the body of evidences indicating that external environment can affect the effectiveness of organizational strategic goals (Bourgeois, 1985; Spyropoulou et al., 2018) and influence the efficacy of supply chain integration (Wong et al., 2011).

Also interestingly, we did not find the empirical support for the proposed moderated mediation model, interpreting that market dynamism negatively moderates the indirect effect of competitive goal on dynamic capability through customer integration. That’s to say, the indirect effect of competitive goal through customer integration does not appear to depend on the level of market uncertainty. However, it is important to observe that the negative indirect effect of competition were all significant under any levels of market dynamism, though the negative effect becomes weaker and weaker along with the...
value of moderating variable higher and higher. Overall, this pattern of results regarding market dynamism that environmental uncertainty can reduce the negative effectiveness of strategic competitive goal interdependence with downstream companies (or critical customers), but this helpful effect may not be crucial in affecting the firm’s dynamic capability. Compared with low-level market dynamism, the high-level market dynamism provides high uncertainty to almost all the firms on supply chain. Future research, for instance, may further insight into the influence of environmental uncertainty on goal interdependence in supply chain context. Overall, our findings indicate that while market dynamism negatively moderates the positive effect of customer integration on dynamic capability, but it does not affect the role of competitive goal in impeding dynamic capability, or at least, not through customer integration.

In summary, the current research advances the literature based on the theory of cooperation and competition for a better understanding of how and when goal’s interdependence stimulates dynamic capability by building a ‘goal → interaction → outcome’ framework. We do so by proposing two second-stage moderated mediation frameworks based on the theory of cooperation and competition. Prior studies about the antecedents of dynamic capability tend to focus on the how (Chien & Tsai, 2012) question. However, the when question is also an important issue as we consider the condition under which dynamic capability is affected. What’s more, focusing only on one of the two questions may result in superficial understanding. Since dynamic capability is the highly meaningful capacity for those firms existing in dynamic environment, understanding both the underlying mechanisms and when these mechanisms are more likely to stimulate dynamic capability provides a more comprehensive perspective on the proposed solutions. As such, our study highlights the importance to consider the mediating and moderating effects simultaneously for enhancing the understanding of how cooperative goal stimulating organizational capability.

Managerial implications, limitations and future research directions

Managerial implications

May be limited, the current study, if successfully replicated in other contexts, has important implications for developing dynamic capability, especially in China. The results of this research suggest that strategic cooperative goal interdependence with downstream companies (or critical customers) can coordinate promote their long-term relationships, trust building, information sharing platform, communication routine and resources exchange for improving products and services, in turn, enhance the firm’s dynamic capability. These findings verify Wong et al.’s (1999) argument that Guanxi is valuable for networking between the focal firm and its supplier. But exceeding Wong et al.’s (1999) standpoint, we find the relationship between cooperative goal and customer integration can help the company develop dynamic capability which is regarded as a high-level capability enhancing other types of capabilities. Furthermore, market turbulence is an important external factor that does harm to the firm’s dynamic capability promoted by cooperative interdependence with downstream companies through the improvement of external integration.

Limitations and future research directions

Future studies may consider the effect of independent goal on supply chain integration and firm capability. Besides, in this study, we argue that market dynamism may influence all the companies on supply chain, but it is not verified empirically. Future research can consider environmental uncertainty as an important antecedent of goal interdependence. More than that, some researchers recommend the use of native scale in order to research local subjects. Although the instruments applied in this study have been almost used in Chinese context, they are not native scales and developed from the studies under western situation. If possible, future studies can develop native measures based on grounded theory to compare it with western instruments and verify the findings of the current research. Finally, although we took great care to minimize the common method by designing questionnaire carefully, future studies could attempt to provide a longitudinal analysis in order to increase confidence in the causal claim of our model.

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