The moderating effect of board size on the relationship between diversification and tourism firm performance

ABSTRACT

This study examines the effects of diversification strategy and board size on firm performance, as well as the moderating effect of board size on the relationship between diversification strategy and firm performance in the Chinese tourism industry from 2008 to 2015. The results show that related diversification positively influenced Chinese tourism firm performance, and unrelated diversification negatively influenced it. Board size was found to negatively moderate the relationship between related diversification and firm performance and to positively moderate the relationship between unrelated diversification and firm performance. In addition, the results imply that small boards are beneficial to Chinese tourism firms when both related and unrelated diversification strategies are implemented.

Keywords:

Board size; diversification; firm performance; tourism; relatedness.

INTRODUCTION

Different forms of diversification have been examined in the hospitality literature, such as business segment diversification (Lee et al., 2011), brand diversification (Choi et al., 2011), geographical diversification (Kang and Lee, 2015), and related and unrelated diversification (Park and Jang, 2013b) in developed economies. However, diversification has rarely been studied as a business strategy in the tourism context, or in the world's largest developing economy, China, which has become a popular emerging market for international hotel developers since joining the World Trade Organization (WTO) (Chen, 2013). There is a real need for empirical evidence of the effect of diversification on tourism firms in developing economies such as China, as diversification is a pervasive phenomenon in the Chinese tourism industry (Wang and Xu, 2009).

Researchers have found that diversification is a determinant of firm performance in both the tourism (e.g., Wang and Xu, 2008) and hotel industries (e.g., Tang and Jang, 2010). On the one hand, diversification can facilitate firms to make better use of their resources and knowledge accumulated over time across different business units, resulting in synergy by sharing their resources among related businesses and by reducing transaction and financing costs, and in turn enhancing firm performance (Palepu, 1985). On the other hand, diversifying into unrelated businesses may lead to the diversion of a firm's resources and make it difficult for management to maintain control (Wang and Xu, 2009). The relationship between the level of relatedness of diversification and firm performance in the Chinese tourism context has not been thoroughly explored and our research aims to fill this research gap.

One critical constituent of devising corporate strategies, including diversification, is the board of directors. There is a trade-off between small and large board size in corporate governance.

From the perspective of resource dependence theory, a large board may be preferred because it enhances a firm's ability to establish linkages with other firms and to gain essential resources for development (Wang et al., 2017). Nevertheless, a small board encourages more genuine debate and cohesiveness, and less social loafing (Firstenberg and Malkiel, 1994). However, from the perspective of agency theory, it assumes the potential for conflict between principals (shareholders), who may emphasize maximizing shareholder value, and agents (managers), who may engage in diversification in pursuit of personal interests and lower employment risks (Jensen, 1986). Many studies (e.g., Ntim et al., 2017; O'Connell and Cramer, 2010) have indicated that smaller boards are effective in monitoring and assessing management performance and larger boards increase the obstacles to communication and information-sharing, thus reducing their ability to monitor management, which leads to agency problems. However, Yermack (1996) also supported that diversified firms normally prefer a larger board because of the need for experts in the diverse fields in which such firms operate.

The aforementioned contradictory theoretical support about the effect of board size on firm performance lead to multiple empirical results in different contexts. Sun and Zhang (2000) found board size to be negatively associated with firm performance in terms of Tobin's *Q*, return on assets (ROA), and return on equity (ROE). Wang *et al.* (2017) argued that the relationship between board size and firm performance was nonlinear and showed that a board of ten members maximized the performance based on a sample of seven hotel firms in Taiwan. However, board size alone may be insufficient to explain firm performance variation as a board is likely to influence a firm's strategic directions and behaviors that lead to different effects on firm performance (Finkelstein and Hambrick, 1996). First, the inconsistent empirical outcomes (of the relationship between board size and firm performance) and contradictory theoretical views

motivated us to investigate the possible combined effects of board size and diversification on firm performance. Second, a small sample size and a scope of a single hotel business segment are two key limitations noted in the study of Wang *et al*. (2017). Therefore, our study not only expands the sample size in a different context and the research scope including other segments of tourism business (e.g., tourism travel service and agency and tourism attraction management), but also shows how the different diversification strategies may have influenced firm performance by considering the trade-off between a large board and a small board.

Examining board size as a potential moderator, Kim and Rasheed (2014) found that board heterogeneity in terms of board tenure and board functional diversity positively moderates the relationship between unrelated diversification strategy and firm performance. However, no evidence on the relation between related diversification and board size was shown in their study. Furthermore, some scholars (e.g., Park and Jang, 2013a, b) have investigated the effect of related diversification on firm performance from a resource-based view proposing that the creation of "synergy" via resource sharing among business units within a firm leads to a premium in firm performance. Nevertheless, the role board size plays on the synergy effect toward improving firm performance remains unanswered in prior research. Additionally, Kumar (2013) pointed out a potential issue for firms that particularly pursue related diversification: an increase of internal competition for acquiring internal resources due to their scarcity and limitation to be shared within a firm. Therefore, it is critical to understand the role of board size plays for firms that specially pursue a related diversification strategy on whether it mitigates or worsens internal competition for sharing scarce and limited internal resources.

Ultimately, the main research goal of this study is to investigate the moderating effect of board size on the relationship between diversification strategy (i.e., related and unrelated types)

and Chinese tourism firm performance. In doing so the study contributes to the body of knowledge on diversification and corporate governance in the tourism field, to the debate on the trade-off between a large and a small board, and to the applications of resource-based theory, agency theory, and resource dependence theory in corporate strategy and corporate governance in the tourism field.

LITERATURE REVIEW

Diversification

Diversification is considered to be an important business strategy for increasing market share and profitability. A firm's diversification strategy is a way to pursue additional growth and benefits and an adaptive response to market changes (Kim and Rasheed, 2014). According to resource-based theory, diversification generates synergy and economies of scope through internalization, whereby core resources for building competitive advantage can be properly allocated, thus improving firm performance (Li and Greenwood, 2004). For instance, synergy can be built by sharing a firm's tangible resources, common managerial and technological knowledge, and its distinctive competitive advantages among business units, and by leveraging them in new product areas (Tanriverdi and Venkatraman, 2005). Ahuja and Novelli (2017) suggested that diversification also influences firms' innovation by diversifying their opportunities to access resources.

Jacquemin and Berry (1979) defined diversification in terms of the degree of relatedness within all product segments. The relatedness of diversification refers to the extent to which businesses and products share similar firm resources and skills, as well as the same customers and technologies (Tanriverdi and Venkatraman, 2005). As relatedness increases, firms tend to concentrate on specific areas for innovation (Ahuja and Novelli, 2017). From the perspective of

resource-sharing, two main types of diversification strategy can be identified according to the degree of relatedness: related and unrelated diversification (Palepu, 1985). Related diversification is defined as a firm operating different business units in related industries; unrelated diversification relates to a firm operating in substantively different industries that share few common resources (Bettis, 1981).

Diversification and Firm Performance

The effect of diversification strategy on firm performance has been a key topic in strategic management research. Many studies (e.g., Palepu, 1985; Park and Jang, 2013a) have argued that related diversification is superior to unrelated diversification in terms of enhancing firm performance. From a practical perspective, unused resources can be fully utilized by implementing diversification strategies to develop a firm. A firm can accumulate skills, knowledge, and experience in specific areas, so that it may continue to invest in related areas as a growth strategy. Therefore, related diversification helps a firm to share facilities, raw materials, marketing networks, experience, skills, and other firm-specific resources among all business units or products. The rationale for the optimization of firm performance by related diversification is based on economies of scope and scale and the hypothesized synergy effect among business units (Park and Jang, 2013a). From the perspective of resource-based theory, for example, as hotel firms mainly offer service-related products, employees can easily apply the skills and knowledge gained from previous training regarding one service-related product to others (Yang et al., 2017).

Berger and Ofek (1995) warned that diversification is disadvantageous for the improvement of firm performance, leading to what is known as the “diversification discount.” Agency

problems from top management teams could lead to this diversification discount (Tang and Jang, 2010). Park and Jang (2013b) suggested that agency theory offers a theoretical rationale for diversification, leading to worse firm value but a gain of private benefits for managers. Berger and Ofek (1995) found that firms overinvesting in unrelated businesses have a higher diversification discount. A diversification discount is more likely to be associated with unrelated diversification, since it is closely associated with overinvestment behaviors (Park and Jang, 2013b). O'Brien et al. (2014) also suggested that unrelated diversification reduces firm value because of the agency costs involved. This study's first hypotheses are therefore developed as follows:

Hypothesis 1a: Related diversification positively influences Chinese tourism firm performance.

Hypothesis 1b: Unrelated diversification negatively influences Chinese tourism firm performance.

Board Size and Firm Performance

Different theoretical ideas underpin the various roles of the board of directors. For instance, agency theory highlights the role of control or monitoring (e.g., Sundaramurthy and Lewis, 2003) and resource dependence theory explains the role of the board of directors in providing resources by linking a firm to critical resources in the environment (e.g., Korac-Kakabadse et al., 2001). Barroso et al. (2011) suggested that directors' knowledge, experience, education, and expertise are essential sources of competence and capabilities, which contribute to firm performance from the perspective of resource-based theory. Additionally, a larger board contains members who have more diverse sets of skills and knowledge, which may help the firm to acquire and evaluate information, and provide opinions (Korac-Kakabadse et al., 2001).

However, some opposing views note that small boards tend to be more focused and participative and are more efficient in monitoring a firm than a large board (Garg, 2007). While the business environment changes and the takeover market becomes active, the growth of information from external environments reinforces the importance of prompt and effective decisions. Mikkelson and Partch (1997) indicated that takeover threats may require firms to react and respond promptly by making effective decisions; larger boards are more costly and less prompt in reaching a consensus. Thus, the capability of a board to make quick decisions declines as its size increases. Many studies (e.g., Cheng et al., 2008; Sun and Zhang, 2000; Yermack, 1996) have supported a negative relationship between board size and firm value; Wang et al. (2017) showed an inverted U-shaped relationship. The relationship between board size and firm performance as revealed by previous studies seems inconsistent. The contradictory views about the effect of board size on firm performance derive mainly from the adoption of different theories: resource dependence theory, resource-based theory, and agency theory.

The Moderating Effect of Board Size

Directors from the board are expected to evaluate a firm's diversification strategy holistically, considering its business scope, risks, and consequences for firm performance (Kim and Rasheed, 2014). When a firm pursues growth by implementing diversification strategies (i.e., related or unrelated diversification), board directors are often seen as important resources. Hence, diversification choices, strategy implementation, and consequences for firm performance are closely related to the decisions of ongoing processes of advisory and informational communication by the board (Kim and Rasheed, 2014). Larger boards are equipped with a greater range of competence and expert knowledge than smaller ones (Korac-Kakabadse et al.,

2001), so that firms may build better external links that are needed for the implementation of a diversification strategy.

From the perspective of resource dependence theory, larger boards possess more interlocking directorships with other firms and boards, which can assist them in forming external connections to obtain critical resources from the external environment (Williams et al., 2005). Interlocking directors with extra-industry ties can connect a firm to new business investments. Unrelated diversification strategies would be preferred by such a board. The more interlocking directors there are in the board, the more information and necessary resources can be captured by firms for the development of new businesses. However, one important factor that may affect the accessibility and quality of this information and these resources is the centrality of a firm in an interlocking directorate network: the more central a firm's position, the better its access to useful information and resources (Martin et al., 2015). In light of these mechanisms, board size could exert an influence on the success of diversification strategies. In particular, board size could have a significant effect on a firm's pursuit of unrelated diversification strategies, as boards of directors are channels through which to obtain essential external resources for the operation of businesses in unrelated industries. However, it is difficult to determine the effect of a large board on the consequences of diversification for firm performance because the quality of information and accessibility of resources via interlocking directorate networks depend on firms' centrality.

From the perspective of agency theory, the interests of shareholders and managers are different. Jensen (1986) stated that the primary goals of shareholders and managers are the maximization of shareholders' value and diversification to spread employment risk, respectively. The decision to diversify may benefit managers because of the power and prestige associated with managing a bigger firm, but it may have a destructive effect on the firm's value. Wang et al.

(2017) suggested that the agency problem is correlated to the size of a firm's board. The agency problem may be more pronounced in a large board. Jensen (1993) argued that the Chief Executive Officer (CEO) in a large board has greater power in decision-making processes than in a small board, as he or she may control the board and stifle objective debate, initiative, and effective decision-making in a big group-coordination process; the monitoring function of the board may therefore be less effective. Another possible explanation for the cause of ineffective decision-making in a larger board is that a large board may have more bureaucratic problems than a small board and therefore be less functional (Ahmed et al., 2006). CEOs tend to take advantage of the less effective monitoring and decision-making of large boards to make decisions that serve their own private interests. In China, Fan et al. (2007) found that if a CEO is politically connected to local or central government, he or she tends to be powerful in decision-making processes, the participation of professionals in management is relatively low, and that more bureaucratic problems are encountered by publicly traded Chinese firms. The existence of potential agency problems in publicly traded Chinese firms may therefore be serious. Combining what Tang and Jang (2010) proposed regarding the way in which agency problems cause diversification discounts, and Berger and Ofek's (1995) findings regarding the way in which overinvestment in unrelated businesses destroys firms' value, a larger board may reinforce negative relationships between unrelated diversification and firm performance by above mechanisms.

Kumar (2013) discussed a single issue regarding cooperation within an organization pursuing related diversification strategies. Such firms are required to ensure that all business divisions are not only interconnected for financial transfers, but also for production lines and the sharing of resources. Therefore, an increase in sharing activities between all divisions and business units of

the firm leads to an increase in internal competition for common or scarce resources and an increase of the potential to exercise power and influence activities within the organization. Some divisions or business units acquire exact values upon sacrificing other divisions' or business units' benefits derived from shared activities (Kumar, 2013).

Zhou (2011) also found significant coordination costs in the pursuit of related diversification strategies when transactions are shared within a firm. The competition for acquiring internal resources may become more intensive in firms with larger boards, as coalition-building can enhance managers' power and influence with directors of the board (Williams et al., 2005). Cheng et al. (2008) suggested that larger boards tend to have more communication and coordination problems in corporate governance. Elsayed (2011) found that asymmetric information usually causes communication and coordination problems in large boards, whose monitoring power would be weakened. Larger boards are more likely to have coordination difficulties and increased communication and information-sharing costs (Yermack, 1996). Considering the emergence of coordination costs and cooperation problems and the potential for increasing disagreement among directors about internal resource allocation, larger boards may be disadvantageous for the implementation of related diversification and the improvement of firm performance.

The moderating effects of board size on the relationships between related and unrelated diversification and firm performance are little studied. However, a positive moderating effect of board size on the relationship between unrelated diversification and firm performance is proposed in this study, as an increase in board size may heighten the possibility of agency problems in decision-making processes. Nevertheless, a negative moderating effect of board size on the relationship between related diversification and firm performance is also suggested in this

study, as an increase in board size leads to an increase in coordination and information-sharing costs, and exacerbates cooperation problems (increasing competition for internal resource allocation) when firms pursue related diversification. Two further hypotheses are developed as follows:

Hypothesis 2a: Board size positively moderates the relationship between unrelated diversification and Chinese tourism firm performance.

Hypothesis 2b: Board size negatively moderates the relationship between related diversification and Chinese tourism firm performance.

METHODOLOGY

Models

This study employed panel regression analysis, which can control the heterogeneity of individual firms and reduce multicollinearity problems, estimation bias, and problems associated with specifying the time-varying relationship between dependent and independent variables. In pursuing the research goal of the study, four models were specified. Model (1) examined the effects of related and unrelated diversification on firm performance. The moderating effect of board size on the relationship between related diversification and firm performance was examined in Model (2). The moderating effect of board size on the relationship between unrelated diversification and firm performance was examined in Model (3). Finally, Model (4), consisting of the previous three equation measures combined, examined the simultaneous effects of the studied constructs on firm performance.

$$ROA(ROE)_{i,t} = \alpha_1 + \beta_1 RD_{i,t} + \beta_2 URD_{i,t} + \beta_3 BS_{i,t} + \beta_4 Size_{i,t} + \beta_5 Age_{i,t} + \beta_6 Debt_{i,t} + \beta_7 FIX_{i,t} + \beta_8 BI_{i,t} + \beta_9 Ownership_{i,t} + Year_{Dummy} + Firms_{Dummy} + \varepsilon_1 \ldots\ldots \quad (1)$$

$$ROA(ROE)_{i,t} = \alpha_2 + \beta_{10}RD_{i,t} + \beta_{11}BS_{i,t} + \beta_{12}RD_{i,t} * BS_{i,t} + \beta_{13}Size_{i,t} + \beta_{14}Age_{i,t} + \beta_{15}Debt_{i,t} + \beta_{16}FIX_{i,t} + \beta_{17}BI_{i,t} + \beta_{18}Ownership_{i,t} + Year_{Dummy} + Firms_{Dummy} + \varepsilon_2 \ldots\ldots (2)$$

$$ROA(ROE)_{i,t} = \alpha_3 + \beta_{19}URD_{i,t} + \beta_{20}BS_{i,t} + \beta_{21}URD_{i,t} * BS_{i,t} + \beta_{22}Size_{i,t} + \beta_{23}Age_{i,t} + \beta_{24}Debt_{i,t} + \beta_{25}FIX_{i,t} + \beta_{26}BI_{i,t} + \beta_{27}Ownership_{i,t} + Year_{Dummy} + Firms_{Dummy} + \varepsilon_3 \ldots\ldots (3)$$

$$ROA(ROE)_{i,t} = \alpha_4 + \beta_{28}RD_{i,t} + \beta_{29}URD_{i,t} + \beta_{30}BS_{i,t} + \beta_{31}RD_{i,t} * BS_{i,t} + \beta_{32}URD_{i,t} * BS_{i,t} + \beta_{33}Size_{i,t} + \beta_{34}Age_{i,t} + \beta_{35}Debt_{i,t} + \beta_{36}FIX_{i,t} + \beta_{37}BI_{i,t} + \beta_{38}Ownership_{i,t} + Year_{Dummy} + Firms_{Dummy} + \varepsilon_4 \ldots\ldots (4)$$

ROA and *ROE* are the dependent variables reflecting Chinese tourism firm performance; *RD* represents related diversification; *URD* represents unrelated diversification; *BS* is board size; *Size* represents firm size measured by the natural logarithmic form of the total number of firm employees; *Age* is the natural logarithmic form of the time in years since a firm's incorporation; *Debt* represents debt ratio; *FIX* is the fixed-asset ratio; *BI* represents the degree of board independence; *Ownership* is the concentration ratio of the five largest shareholders' ownership; and $\varepsilon_{1,2,3,4}$ are error terms.

Dependent Variables

This study used ROA (Kang and Lee, 2014; Wang and Xu, 2009) and ROE (Moon and Sharma, 2014) as measures of tourism firm performance. It adopted adjusted ROA from Kang and Lee

(2014), or the ratio of operational income to book value of total assets at the end of the fiscal year. Operational income is more appropriate than net income for reflecting the fundamental gaining ability of a firm's operations (Kang et al., 2010). ROE was estimated by dividing net income by average shareholder equity (Moon and Sharma, 2014), which reflects how effectively firm management uses investors' funds. Using two measures of firm performance also improves the robustness of the estimation.

Independent Variables

The diversification measures are based on pioneering studies (e.g., Jacquemin and Berry, 1979) regarding the application of entropy in the measurement of diversification. Park and Jang (2012) reported that entropy diversification measurements are objective and decomposable. The application of entropy in the measurement of diversification involves measures of both related and unrelated diversification entropy, and has been widely used, particularly in the hospitality industry (e.g., Park and Jang, 2012; Park and Jang, 2013a; Park and Jang, 2013b). The formula for calculating related diversification entropy is:

$$RD(Related\ diversification\ entropy) = \sum_{j=1}^{M} DR_j\, P_j \quad \ldots\ldots \quad (5)$$

where DR_j is the diversification of related businesses within industry groups; *M* is the number of industry groups; and P_j is the sales percentage of total sales represented by the *j*th industry group. The higher the *RD* value, the higher the degree of related diversification pursued by the firm.

The formula for calculating unrelated diversification entropy is:

$$URD(Unrelated\ diversification\ entropy) = \sum_{j=1}^{M} P_j\ \ln\left(\frac{1}{P_j}\right) \quad \ldots\ldots \quad (6)$$

where *M* is the number of industry groups; P_j is the percentage of the firm's total sales represented by the *j*th industry group. The higher the *URD* value, the more unrelated

diversification the firm pursues. Board size (*BS*), another independent variable in this study, is exemplified by the total number of directors on the board (Cheng et al., 2008; Kim, 2005).

Categorization of Related and Unrelated Businesses

Previous hospitality studies implemented entropy-diversification measures to categorize related and unrelated businesses based on standard industrial classification (SIC) codes (e.g., Park and Jang, 2012; Park and Jang, 2013a). For instance, businesses are viewed as related if their SIC codes share the same first two digits; otherwise, they are categorized as unrelated. However, using the Chinese Standard Industrial Classification (CSIC) codes categorize firms in the tourism industry in China as related and unrelated is problematic. The CSIC code for tourist attraction management and operation (N785) does not share two digits with travel service-related businesses (L727), although they are related within the tourism industry based on the definition given in Cooper and Hall (2008), who separated the industry into six categories: tourism marketing, tourist carriers, tourism accommodation, tourism attractions, miscellaneous tourism services, and tourism regulation. Therefore, hotel businesses (i.e., CSIC codes H611, H612, and H619), tourist attraction management (N785), and travel service-related businesses (L727) were viewed as related businesses in this study; other businesses were viewed as unrelated.

Control Variables

Firm size (*Size*) was measured by the natural logarithm of the total number of employees of a firm as Kang and Lee (2014) pointed out that the excessive skewness of firm size can be adjusted by using the natural logarithm form. Firm age (*Age*) was utilized to control the learning effect of a firm in relation to its decision-making and firm performance. Therefore, the natural logarithmic

form of the time since a firm's incorporation was used in this study (Banalieva and Sarathy, 2011). The effect of capital structure on firm performance was controlled by using debt ratio (i.e., debt to total assets). The fixed-asset ratio (*FIX*), one of the control variables in this study, may have a positive effect on firm performance, as a greater fixed-asset ratio may lead to a higher market share. The ratio was calculated as the fixed assets of a firm divided by its total assets. Two final control variables were the degree of independence of the board (*BI*) and ownership concentration. Li et al. (2015) found that both BI and ownership concentration had positive effects on firm performance in Chinese firms. In this study, BI was the percentage of the number of independent directors divided by the total number of boards of directors. Ownership concentration was measured by the ratio of shares owned by the five largest shareholders to the total number of shares (Li et al., 2015).

Estimation Methods

Three tests were conducted to ensure the validity of the estimations: the Fisher-type unit-root test, the Breusch-Pagan test, and the Wooldridge first-order serial correlation test (Wooldridge, 2010). As the Fisher-type unit-root test allows unbalanced panel data, it was appropriate for testing the existence of the unit-root in the dependent variables of this study. The results of the Breusch-Pagan tests revealed heteroscedasticity in ROA and ROE. Thus, estimation with ordinary least square (OLS) was rejected because of the failure to meet the OLS assumption. An alternative estimation technique, a "robust" regression method with corrected standard errors, was adopted to resolve the issue of heteroscedasticity.

Two general estimating methods for linear panel data models were employed in this study: the fixed and random effects methods. The Hausman test was conducted to determine which was the

more efficient and consistent method between the fixed effects and random effects methods (Wooldridge, 2010). The null hypothesis of the Hausman test is that the error term of the random intercept and explanatory variables are not correlated. Rejection of the null hypothesis indicates that the fixed effects method applied to linear panel data models is more appropriate if the critical statistic is less than 0.05; otherwise, the random effects method is the more consistent and efficient without a rejection of the null hypothesis. The results of the Hausman tests (see Table 4 and Table 5) indicated that the fixed effects method was suitable for all models, (1) to (8). This study also considered possible endogeneity in model estimation. Firm performance may be affected by the degree of diversification and, at the same time, a good or bad business outcome can also prompt a firm to consider diversifying into other businesses in order to enhance competitive advantage or seek growth (Kang and Lee, 2014). To address a possible endogeneity issue, the Durbin-Wu-Hausman test was conducted to assess the significance of endogeneity in the fixed effects models (1) to (8). A two-stage least squares (2SLS) approach with instrumental variables would have been applied if a significant endogeneity issue were found in a model. This study included two instrumental variables with one period lag of related diversification and unrelated diversification variables. The validity of the two instrumental variables was also tested by setting *RD* and *URD* as dependent variables and RD_{-1} and URD_{-1} as independent variables. RD_{-1} and URD_{-1} were both highly associated with *RD* and *URD* at the 1% significance level, which indicated that the instrumental variables used were statistically valid.

Data

Eight years of panel data (2008–2015) from Chinese tourism firms listed on the main boards of the Shanghai and Shenzhen stock exchanges were collected from the WINS database and Sina

and Sohu financial websites. This study selected firms according to the CSIC system codes published in 2011 by the National Bureau of Statistics of China, focusing on industries with three-digit CSIC codes in the hotel business (e.g., H611, H612, and H619), tourist attraction management (N785), and travel service-related businesses (L727). Wang and Xu (2009) mentioned two criteria for selecting Chinese tourism firms in this context. First, firms must operate businesses in the mentioned industry groups; second, firms must have the highest revenue in their industry group. Ultimately, 26 firms (see Table 1 below) were selected based on these criteria: seven hotel firms, nine tourist attraction operating firms, and ten travel service-related firms. The period 2008–2015 was selected because Chinese accounting principles were changed in late 2006 and the newly released Accounting Standards for Business Enterprises (ASBE) took effect on January 1, 2007. A total of 190 firm-year observations were subject to data analysis, using Stata.

[Please Insert Table 1 here]

RESULTS

Descriptive Statistics

The descriptive statistics are shown in Table 2. *ROA* had a mean of 0.046 and a standard deviation of 0.068. The mean and standard deviation of *ROE*, were 0.079 and 0.121, respectively. The mean of related diversification was 0.562, with a standard deviation of 0.353. The mean of unrelated diversification was 0.436, with a standard deviation of 0.353. The average board size of all selected firms was 12 people. The control variables of *Size* and *Age* were in a natural logarithmic form, ranging from 5.024 to 9.521 and from 0.693 to 3.296, respectively. The ranges of *Debt* and *FIX* as control variables were from 0.024 to 1.310 and from 0.003 to 0.916, respectively. Some firms may have had a debt ratio over 1 because they suffered losses in certain

years and negative retained earnings could have resulted in negative firm equity. Additionally, the degree of board independence ranged from 0.143 to 0.545. Lastly, the most fragmented and concentrated ownership structures were 0.026 and 0.808, respectively.

[Please Insert Table 2 here]

Table 3 summarizes the correlations among all variables. There was a positive and statistically significant correlation between firm performance measures (*ROA* and *ROE*) and related diversification at the 1% level, but they were not significantly associated with unrelated diversification or board size. *Size* was positively and significantly related to *ROA* and *ROE*, implying that larger firms performed better. *Age*, *Debt*, and *FIX* were negatively and significantly related to *ROA* at the 1% level, whilst *Age* and *FIX* were also negatively and significantly related to *ROE* at the 1% level. *BI* had no significant correlation with *ROA* and *ROE* but was found to be significantly and negatively correlated with *BS*. This implies that larger boards exhibited a relatively low degree of board independence. Finally, ownership concentration was positively and significantly related to *ROA* and *ROE*, indicating that the more concentrated ownership is, the better the firm performance.

[Please Insert Table 3 here]

Main Analysis

Table 4 summarizes the results of the panel regression of models (1) to (4) employing fixed effects with *ROA* as the dependent variable. The Durbin-Wu-Hausman test results show that there were no significant endogeneity issues in the four models (Model (1): $F = 0.678$, $p = 0.509$; Model (2): $F = 0.843$, $p = 0.360$; Model (3): $F = 0.045$, $p = 0.832$; Model (4): $F = 0.164$, $p = 0.849$).

[Please Insert Table 4 here]

Model (1) examined the effects of related and unrelated diversification on firm performance and the results show a positive and significant coefficient of related diversification (0.073) at the 1% significance level. Hypothesis 1a was thus supported. Among the control variables in Model (1), *Size* and *Ownership* were positively associated with *ROA* at the 10% and 1% significance levels, respectively, while *Debt and BI* were negatively associated with *ROA* at the 1% and 10% significance levels, respectively. Model (2) investigated the moderating effects of board size on the relationship between related diversification and firm performance and the coefficient of *RD* (0.110) was significant at the 5% level. A negative and significant coefficient (-0.070) of the interaction variable of *RD*BS* was evident, thus supporting Hypothesis 2b. Among the control variables in Model (2), *Debt* was negatively associated with *ROA* at the 1% significance level, and *Ownership* was positively associated with *ROA* at the 1% significance level. Model (3) examined the moderating effects of board size on the relationship between unrelated diversification and firm performance. Negative and significant coefficients of *URD* (-0.174) and the interaction variable of *URD*BS* (0.017) were evident in Model (3), supporting Hypothesis 2a. Model (4) combined the previous three models and gave consistent results, besides the interaction variable of *RD*BS*. That is, among the control variables in Models (3) and (4), the effects of *Debt*, *FIX*, and *Ownership* on the dependent variable were consistent: *Debt* and *FIX* were negatively associated with *ROA*; and *Ownership* was positively and significantly associated with *ROA*.

Table 5 shows the results of the panel regression of models (5) to (8) employing fixed effects, with *ROE* adopted as the dependent variable to increase the robustness of the estimation. The Durbin-Wu-Hausman test results show that there were no significant endogeneity issues in

these four models (Model (5): $F = 0.550$, $p = 0.759$; Model (6): $F = 1.372$, $p = 0.241$; Model (7): $F = 0.302$, $p = 0.582$; Model (8): $F = 1.029$, $p = 0.598$).

[Please Insert Table 5 here]

Model (5) examined the effects of related and unrelated diversification on firm performance. The results show a positive and significant coefficient of related diversification (0.033) at the 10% level and a negative and significant coefficient of unrelated diversification (-0.136) at the 1% level. *BS* was negatively associated with *ROE* at the 5% significance level. Hypotheses 1a and 1b were thus also supported. Model (6) investigated the moderating effects of board size on the relationship between related diversification and firm performance and the coefficient of *RD* (0.106) was significant at the 5% level. A negative and significant coefficient (-0.070) of the interaction variable of *RD***BS* was evident, thus supporting Hypothesis 2b. A negative and significant coefficient of *URD* (-0.127) and a positive and significant interaction variable of *URD***BS* (0.015) were evident in Model (7), supporting Hypothesis 2a. Model (8) combined the previous three models and gave consistent results. Lastly, among the control variables across Models (5) to (8), the effects of *Debt*, *BI*, and *Ownership* on the dependent variable were consistent: *Debt* and *BI* were negatively associated with *ROE*; and *Ownership* was positively and significantly associated with *ROE*.

In comparison with the results of the two estimations using *ROA* and *ROE*, respectively, as a performance measure, the positive effect of related diversification on *ROA* was much stronger than on *ROE*, (*ROA*, *RD*=0.073; *ROE*, *RD*=0.033). In contrast with that of an insignificant effect of unrelated diversification on *ROA* in Model 1, a significant and negative effect of unrelated diversification on *ROE* was found in Model 5. Regarding the moderating effect of board size, using either *ROA* or *ROE* led to the same conclusions that board size moderated negatively the

relationship between related diversification and performance and positively between unrelated diversification and performance.

Figure 1 shows the way in which large boards hindered the positive effect of related diversification on *ROA* and *ROE*, and small boards helped boost it. Additionally, large boards reinforced the negative effect of unrelated diversification on *ROA* and *ROE*, and there were sharp decreases in *ROA* and *ROE* as unrelated diversification rose. Small boards mitigated the negative effect of unrelated diversification on *ROA* and *ROE*, as shown in Figure 1.

[Please Insert Figure 1 here]

DISCUSSION

The hypothesis of a positive effect of related diversification on firm performance was supported no matter *ROA* or *ROE* was employed as a performance measure; however, a negative effect of unrelated diversification was only found on influencing *ROE*, but not *ROA*, in the study. Based on the DuPont analysis (Phillips, 2015), *ROA* is an essential component of *ROE* and a key indicator of how efficient a firm uses its assets to generate profits without considering firm leverage. Therefore, it is likely that the different results obtained by employing *ROA* and *ROE* were found in our study was due to a firm's leverage level. Park and Jang (2013b) also highlighted that unrelated diversification would increase firm leverage. Considering the fact that the major difference between the measures of *ROA* and *ROE* is whether firm leverage is considered in the denominator of the formula, the effect of unrelated diversification on *ROE* might be more significant than on *ROA*.

The positive effect of related diversification on firm performance in Chinese tourism firms implies that the benefits of sharing common resources and the effect of synergy within firms enhanced firm profitability, which is consistent with the research of Palepu (1985) and Park and

Jang (2013a, 2013b). From the perspective of resource-based theory, Chinese firms operating tourist attractions should continue to diversify into related businesses along their supply chain and to share common resources and tactics to improve their performance by, for example, providing accommodation services, transportation services, and dining services within or around the attractions they operate (Wang and Xu, 2009).

On the other hand, the negative effect of unrelated diversification on firm performance in Chinese tourism firms suggests that the cost of moving into unrelated businesses outweighs its potential benefits. The agency costs may explain the phenomenon of diversification discounts, as managers may engage in overinvestment in unrelated businesses, upholding private interests and incentives at the expense of shareholders (O'Brien et al., 2014). These results are consistent with those of Park and Jang (2013b), who found that unrelated diversification raises debt levels because firms with unfavorable performance are inclined to implement unrelated diversification projects, seeking potential growth elsewhere. As the results of this study show, unrelated diversification is not a promising strategy for Chinese tourism firms, as it was found to be negatively associated with firm performance. The negative effect of board size on firm performance in Chinese tourism firms also echoes the research of Sun and Zhang (2000) in other sectors in China. In Chinese culture, informal personal relationships are essential when operating businesses in an inter-organizational context and can directly or indirectly influence businesses performance (Lee et al., 2017). Yu et al. (2018) stated that relationship-based trust can lead to managers becoming free-riders who operate firms to satisfy their own interests, and these managers' abilities no longer meet their firms' growing needs, thereby leading to more agency problems that further corrode firm performance. Osnes (2011) found that it is more difficult for owners to recognize managers' free-riding behavior in large firms.

More importantly, this study found board size to not only negatively moderated the relationship between related diversification and firm performance, but also positively moderated the relationship between unrelated diversification and firm performance. The negative moderating effect of board size on the relationship between related diversification and firm performance implies that larger boards exacerbate the coordination problem of internal resource allocation in related diversification-oriented firms. They also increase competition for internal resources. This weakens the positive effect of related diversification on firm performance in Chinese tourism firms. As related diversification is built by transferring core competence and sharing common resources, as the business' scope increases, the internal market through which internal resources are obtained becomes larger, and internal competition therefore increases (Kumar, 2013). The positive moderating effect of board size on the relationship between unrelated diversification and firm performance implies that larger boards may encounter more agency problems. In China, the links among people (*guanxi*) may be more complex than first assumed. Firms with larger boards may encounter more difficulties in communication and coordination; managers may therefore take advantage of their power and influence within the board. Such inefficiency in decision-making is disadvantageous for the optimization of firm performance. Furthermore, CEOs tend to take a dominant position in the group decision-making process in firms with a large board. The legal requirements regarding board size in China stipulate between five and 19 members for publicly listed firms, with a minimum of two independent directors on the board. Larger boards normally have more than four independent directors who come from outside the organization, from academic institutions, law firms, banks, and the top management teams of firms in other industries. Fan et al. (2007) found that, when a CEO is politically connected, the board in question tends to be more bureaucratic and exhibits

low levels of participation from professionals in management, thereby limiting the effectiveness of the board's decision-making.

From the perspective of resource dependence theory, a large board with more directors possessing diverse skills and knowledge benefits a firm diversifying into new businesses (Korac-Kakabadse et al., 2001). However, whether such benefits are realized in reality remains unknown. Therefore, firms with a large board may present more free-riding board members who contribute less because of a relationship-based business culture. The problem of free-riders among board members weakens the monitoring function and increases the potential for agency problems in Chinese publicly listed firms (Deng and Wang, 2006). Sun et al. (2017) pointed out that CEOs' political ties can help firms to obtain critical resources, new market entry opportunities, and support for their firms' product diversification. Directors in large boards in Chinese firms may be less influential and essential than CEOs to the outcomes of their firms' diversification, thereby limiting the merits of a large board in Chinese firms. A small board may be better for the incorporation of diversification strategies in the Chinese context.

CONCLUSION

This study has examined rarely discussed topics in the context of Chinese tourism firms and contributes to the extant body of knowledge by providing empirical evidence of the effects of related and unrelated diversification strategies applied in a specific context. The results regarding the moderating effect of board size on the relationships between diversification strategies and firm performance further shed light on the interrelationship among the constructs.

Based on the resource-based theory supporting a traditional view that the "synergy" effect created within firms pursuing related diversification can lead to a superior performance, this study cautions a potential issue of internal competition resulting from acquiring internal

resources among the business units within such firms. This study echoed and empirically supported Kumar (2013) on this issue related to firms that highly leverage relevant internal resources to expand business. More importantly, this study showed that when different types of diversification strategies are implemented by firms, the different effects exerted by board size were clearly evident. Improving upon previous studies (e.g., Wang et al., 2017) arguing the contradictory theoretical views on the effect of board size, in our study the agency theory was plausibly applied to argue for the reinforcement of a negative effect of unrelated diversification on firm performance in firms with a small board; and, the resource dependence theory was reasonably adopted to propose the mitigation of a negative effect of unrelated diversification on firm performance in firms with a large board. Last, this study has not only provided empirical evidence and enriched the literature on diversification in the tourism context, but also provided evidence against contradictory theoretical views and inconsistent results concerning the effect of board size on firm performance. This study has pioneered the investigation of the combined effect of diversification strategy and board size because investigating the sole effect of either diversification strategy or board size on firm performance may be one-sided, thus leading to inconsistent outcomes.

For practitioners in the Chinese tourism context, related diversification appears to be a more effective strategy for improving firm performance than unrelated diversification. Hotel firms and firms that provide travel-related services in highly competitive industries tend to operate unrelated businesses, which is not conducive to good firm performance. In general, small boards are beneficial for related diversification strategy-oriented Chinese tourism firms because of the advantages of effective monitoring function and efficiency of decision-making that come with small boards. Small boards also mitigate the negative effect of unrelated diversification on firm

performance due to a reduction of agency and bureaucratic problems. This study also found that firms with a small board tend to pursue a corporate strategy of engaging in both related and unrelated diversification.

This study is not free of limitations. The sample only contained publicly listed firms on Chinese stock exchanges and is thus not representative of unlisted firms. Future research should examine how agency problems may be less influential and internal transaction costs may be less obvious in private firms, which may lead to different results. Furthermore, the effect of board size cannot represent the effect of board composition. Therefore, it is necessary to explore the effects of board composition in future research. A qualitative study may be also needed to explore the details of the information-sharing process and the involvement of different types of director in diversification-related decision-making within a firm's board.

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TABLES

Table 1. Summary of 26 publicly-listed Chinese tourism firms.

Stock Code	Name of Firm	Stock Exchange	Data from years
	Hotel Firms		
000033	Shenzhen Century Plaza Hotel Co., Ltd	Shenzhen	2008-2015
000428	Huatian Hotel Group Co., Ltd	Shenzhen	2008-2015
000613	Hainan Dadonghai Tourism Centre (Holdings) Co., Ltd	Shenzhen	2008-2015
600754	Shanghai Jinjiang International Hotels Development Co., Ltd	Shanghai	2008-2015
600258	BTG Hotels Group Co., Ltd.	Shanghai	2008-2015
000524	Guangzhou Lingnan Group Holdings Co., Ltd	Shenzhen	2008-2015
601007	Jinling Hotel Co., Ltd	Shanghai	2008-2015
	Tourist Attraction Operating Firms		
000430	Zhangjiajie Tourism Group Co., Ltd	Shenzhen	2008-2015
000888	Emei Shan Tourism Co., Ltd	Shenzhen	2008-2015
000978	Guilin Tourism Co., Ltd	Shenzhen	2008-2015
002033	Lijiang Yulong Tourism Co., Ltd	Shenzhen	2008-2015
002059	Yunnan Tourism Co., Ltd	Shenzhen	2008-2015
300144	Songcheng Performance Development Co., Ltd	Shenzhen	2010-2015
600054	Huangshan Tourism Development Co., Ltd	Shanghai	2008-2015
600706	Qujiang Cultural Tourism Co., Ltd	Shanghai	2012-2015
600358	Dalian Sunasia Tourism Holding Co., Ltd	Shanghai	2008-2015
	Travel Service Related Firms		
000610	Xi'an Tourism Co., Ltd	Shenzhen	2008-2015
000802	Beijing Jingxi Culture and Tourism Co., Ltd	Shenzhen	2008-2015
002159	Wuhan Sante Cableway Group Co., Ltd	Shenzhen	2008-2015
002558	Chongqing New Century Cruise Co., Ltd	Shenzhen	2010-2015
002707	Beijing UTour International Travel Service Co., Ltd	Shenzhen	2013-2015
600138	China CYTS Tours Holding Co., Ltd	Shanghai	2008-2015
600358	China United Travel Co., Ltd	Shanghai	2008-2015
600640	Besttone Holding Co., Ltd	Shanghai	2012-2015
600749	Tibet Tourism Co., Ltd	Shanghai	2008-2015
601888	China International Travel Service Co., Ltd	Shanghai	2009-2015

Notes: Up to the 1st of August, 2017, the Shenzhen Century Plaza Hotel Co., Ltd (SZEX 000033) in the sample was delisted from Shenzhen stock market; the Chongqing New Century Cruise Co., Ltd (SZEX 002558) in the sample was changed to the Giant Network Group Co., Ltd (backdoor listing).

Table 2. Descriptive statistics.

Variable	N	Mean	Std. Dev.	Min	Max
ROA	190	0.046	0.068	-0.202	0.259
ROE	190	0.079	0.121	-0.557	0.682
RD	190	0.562	0.353	0.000	1.503
URD	190	0.436	0.353	0.000	1.482
BS	190	12.068	2.869	6.000	19.000
Size	190	7.315	1.038	5.024	9.521
Age	190	2.765	0.364	0.693	3.296
Debt	190	0.389	0.196	0.024	1.310
FIX	190	0.387	0.185	0.003	0.916
BI	190	0.298	0.076	0.143	0.545
Ownership	190	0.154	0.121	0.026	0.808

Notes: *ROA* is the return on assets; *ROE* is the return on equity; *RD* stands for the related diversification entropy; *URD* represents the unrelated diversification entropy; *BS* is the board size; *Size* stands for the firm size; *Age* is the natural logarithmic form of a firm's years since incorporation; *Debt* stands for the debt ratio; *FIX* is the fixed-asset ratio; *BI* stands for the board independence; *Ownership* is the ratio of ownership concentration.

Table 3. Pearson correlations of the variables.

	ROA	ROE	RD	URD	BS	Size	Age	Debt	FIX	BI	Ownership
ROA	1.000										
ROE	0.828**	1.000									
RD	0.478**	0.427**	1.000								
URD	-0.077	-0.071	-0.074	1.000							
BS	-0.052	-0.018	-0.055	-0.053	1.000						
Size	0.363**	0.426**	0.442	0.150*	0.224**	1.000					
Age	-0.239**	-0.189**	-0.074	-0.138	-0.049	-0.238**	1.000				
Debt	-0.391**	-0.079	-0.243**	-0.024	0.141	-0.029	0.157*	1.000			
FIX	-0.218**	-0.145*	0.039	-0.139	-0.194**	-0.324**	0.331**	0.152*	1.000		
BI	0.036	-0.008	0.183*	0.133	-0.589**	0.067	-0.238**	-0.115	-0.143*	1.000	
Ownership	0.326**	0.252**	0.359**	0.148*	-0.038	0.339**	-0.395**	-0.278**	-0.147*	0.103	1.000

Notes: *ROA* is the return on assets; *ROE* is the return on equity; *RD* stands for the related diversification entropy; *URD* represents the unrelated diversification entropy; *BS* is the board size; *Size* stands for the firm size; *Age* is the natural logarithmic form of a firm's years since incorporation; *Debt* stands for the debt ratio; *FIX* is the fixed-asset ratio; *BI* stands for the board independence; *Ownership* is the ratio of ownership concentration.* at the 5% significance level; ** at the 1% significance level.

Table 4. Estimations of panel regression (ROA as the dependent variable)

Variables	Model 1	Model 2	Model 3	Model 4
RD	0.073***	0.110**		0.112*
	(0.023)	(0.054)		(0.057)
URD	0.055		-0.174**	-0.174***
	(0.023)		(0.069)	(0.060)
BS	-0.004*	0.000	-0.009***	-0.006*
	(0.002)	(0.003)	(0.003)	(0.003)
RD*BS		-0.070*		-0.005
		(0.004)		(0.005)
URD*BS			0.017***	0.018***
			(0.006)	(0.005)
Size	0.013*	0.005	0.003	-0.000
	(0.011)	(0.010)	(0.011)	(0.011)
Age	0.017	0.039	0.058*	0.049
	(0.054)	(0.047)	(0.030)	(0.014)
Debt	-0.165***	-0.171***	-0.167***	-0.151***
	(0.044)	(0.025)	(0.037)	(0.027)
FIX	-0.042*	-0.049	-0.044*	-0.051**
	(0.024)	(0.033)	(0.026)	(0.023)
BI	-0.099	-0.099	-0.062	-0.088
	(0.103)	(0.078)	(0.087)	(0.087)
Ownership	0.506***	0.495***	0.559***	0.529***
	(0.086)	(0.084)	(0.068)	(0.065)
Constant	-0.027	-0.097	-0.038	-0.039
	(0.178)	(0.167)	(0.139)	(0.157)
F-value	6.85***	9.73***	25.16***	28.85***
Hausman test	chi2=73.07***	chi2=98.99***	chi2=140.72***	chi2=108.71***
Model selection	Fixed Effect	Fixed Effect	Fixed Effect	Fixed Effect
Within R-square	0.427	0.419	0.476	0.501
N	190	190	190	190

Notes: *ROA* is the return on assets; *RD* stands for the related diversification; *URD* represents the unrelated diversification; *BS* is the board size; *Size* stands for the firm size; *Age* is the natural logarithmic form of a firm's years since incorporation; *Debt* stands for the debt ratio; *FIX* is the fixed-asset ratio; *BI* stands for the board independence; *Ownership* is the ratio of ownership concentration; The robust standard errors are placed in parentheses; * at the 10% significance level; ** at the 5% significance level;*** at the 1% significance level.

Table 5. Estimations of panel regression (ROE as the dependent variable)

Variables	Model 5	Model 6	Model 7	Model 8
RD	0.033*	0.106**		0.116**
	(0.018)	(0.050)		(0.047)
URD	-0.136***		-0.127**	-0.121**
	(0.051)		(0.052)	(0.052)
BS	-0.006**	0.004	-0.005**	-0.002
	(0.002)	(0.003)	(0.002)	(0.003)
RD*BS		-0.070**		-0.060*
		(0.003)		(0.003)
URD*BS			0.015***	0.015***
			(0.004)	(0.004)
Size	0.002	0.007	0.000	-0.001
	(0.009)	(0.009)	(0.009)	(0.009)
Age	0.013	0.003	0.017	0.009
	(0.041)	(0.043)	(0.041)	(0.040)
Debt	-0.051**	-0.058**	-0.051**	-0.040**
	(0.023)	(0.023)	(0.021)	(0.022)
FIX	-0.039	-0.046	-0.041	-0.045
	(0.030)	(0.031)	(0.029)	(0.029)
BI	-0.015**	-0.014**	-0.012**	-0.014**
	(0.006)	(0.006)	(0.006)	(0.006)
Ownership	0.454***	0.445***	0.498***	0.471***
	(0.104)	(0.106)	(0.100)	(0.099)
Constant	0.052	-0.032	0.054	0.297
	(0.126)	(0.130)	(0.121)	(0.121)
F-value	7.64***	5.73***	10.62***	12.87***
Hausman test	chi2=37.34***	chi2=27.08**	chi2=25.93**	chi2=41.89***
Model selection	Fixed Effect	Fixed Effect	Fixed Effect	Fixed Effect
Within R-square	0.298	0.259	0.341	0.375
N	190	190	190	190

Notes: ROE is the return on equity; RD stands for the related diversification; URD represents the unrelated diversification; BS is the board size; Size stands for the firm size; Age is the natural logarithmic form of a firm's years since incorporation; Debt stands for the debt ratio; FIX is the fixed-asset ratio; BI stands for the board independence; Ownership is the ratio of ownership concentration; The robust standard errors are placed in parentheses; * at the 10% significance level; ** at the 5% significance level;*** at the 1% significance

FIGURE

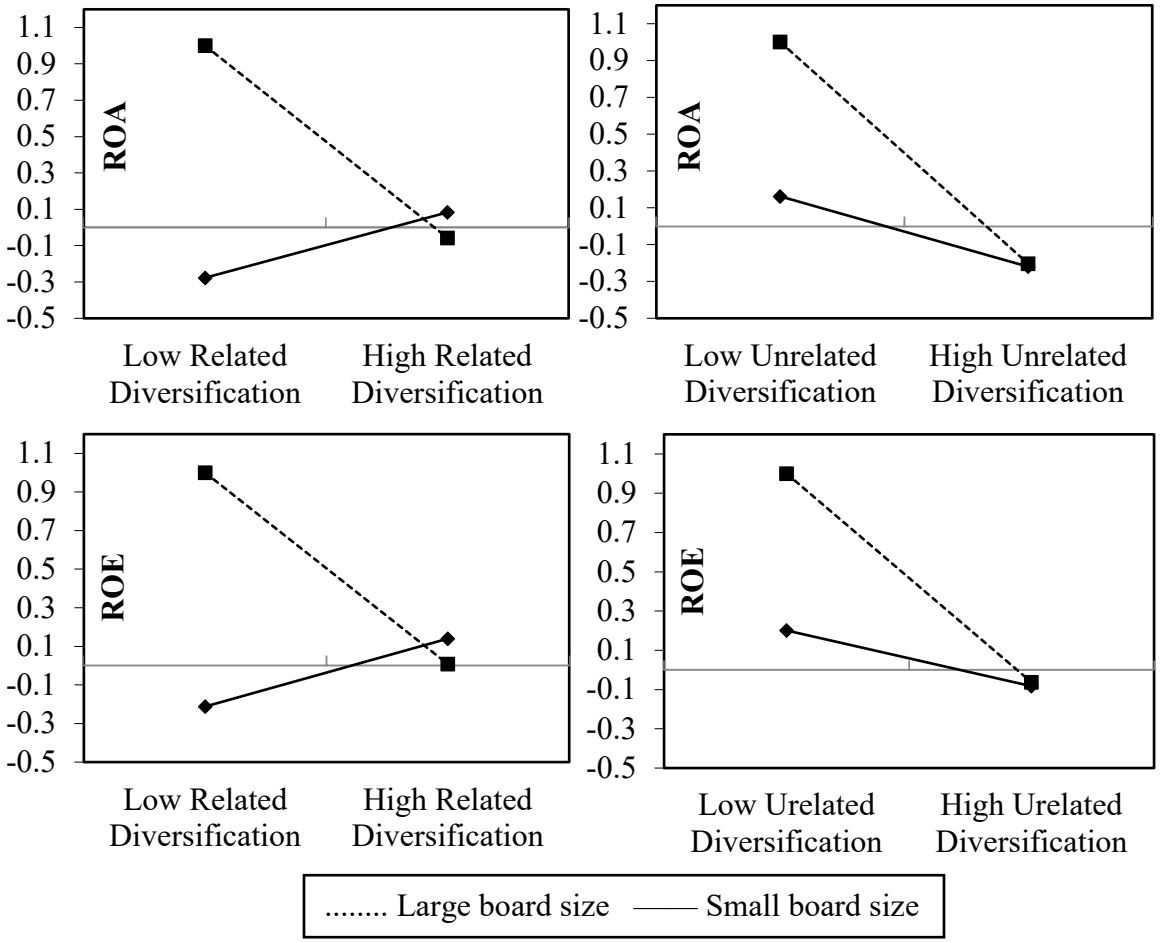

Figure 1. The moderating effects of board size