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Diversification and performance in the hotel industry: Do board size and family representation matter?

Abstract

Purpose – This study aims to empirically examine the relationship between industrial diversification and firm performance and the moderating effects exerted on that relationship by board size and family representation on the board.

Design/methodology/approach – Secondary financial data were collected for hotel firms listed on the Hong Kong Stock Exchange (HKSE) during the period 2005 to 2016. Subsequently, a bivariate correlation and a fixed-effects panel regression analysis were performed on the data.

Findings – The empirical results showed a positive effect of diversification on firm performance until firms reached an optimal level of diversification (0.34); beyond that level, the effect was negative. In addition, firms with a larger board tended to show better performance when the level of diversification increased from medium to high, and firms with lower family representation on the board tended to exhibit better performance when the level of diversification increased from low to medium.

Practical implications – Theoretical and managerial implications are suggested in terms of balancing the size of a firm's board and with regard to family representation on a board from the perspectives of resource dependence theory and socioemotional wealth (SEW), the diversification of hotel firms, and future research.

Originality/value – A limited number of studies have considered diversification as a corporate-level strategy in the hospitality field and in the unique context in which a service-oriented economy is dominant, such as in Hong Kong. The effect of board composition on the relationship between diversification and performance has rarely been investigated theoretically and empirically. Apart from providing managerial implications for corporate governance in the hospitality field, this study also offers theoretical generalizability, from the perspectives of resource dependence theory and SEW, to examine the moderating effects of board size and family representation on the board on the relationship between diversification and firm performance.

Keywords: Board size, Family representation, Diversification, Firm performance, Hotel industry

Paper type: Research paper

Introduction

In the hospitality literature, different types of diversification—product (Yang *et al.*, 2017), segment (Lee *et al.*, 2011; Lee and Jang, 2007), brand (Kang and Lee, 2014; Wang and Chung, 2015), related/unrelated (Park and Jang, 2012), geographical (Kang *et al.*, 2012), and international (Tang and Jang, 2010)—have been investigated in association with firm performance. With the exception of related/unrelated diversification (e.g., Park and Jang, 2012), hospitality-related diversification has largely been studied as a business-level strategy, which focuses solely on a hotel or restaurant unit, rather than as a corporate-level strategy spanning various industries. Thus, research related to the relationship between corporate-level diversification and firm performance in the hospitality industry has been scarce.

Geographically, much of the diversification research has focused on the U.S. hospitality industry (e.g., Kang and Lee, 2014; Park and Jang, 2012; Wang and Chung, 2015), with a few exceptions examining hospitality diversification (at the business level) in Beijing (Yang *et al.*, 2017) and Taiwan (Chen and Chang, 2012). Given that diversification is generally viewed as a corporate-level strategy, the effect of hospitality firms operating businesses in other industries on their firm performance has not been explored in the Asian context. In this study, Hong Kong, an iconic international hub for business and trade, was chosen as the research context due to its uniqueness. The service industry dominates the Hong Kong economy; in 2014, it accounted for 93% of the GDP (Research Office of Legislative Council Secretariat, 2016). Little is known about the relationship between industrial diversification and firm performance in the Hong Kong hotel industry.

Furthermore, the existing empirical evidence in the hospitality literature concerning the relationship between diversification and firm performance is inconsistent. For instance, Park and Jang (2012) have suggested that the relationship between diversification and restaurant firm performance is nonlinear on the basis of the costs and benefits of related and unrelated diversification strategies. Lee and Jang (2007) have found that hotel firms' diversification strategies do not trigger their profit growth and that a hotel's market or segment diversification strategy does not improve firm performance, either. However, Lee *et al.* (2011) have asserted that the relationship between segment diversification and firm performance is nonlinear. Such inconclusive results trigger the need for further examining the relationship between diversification and firm performance in the hospitality industry regarding what contextual factors may intervene in that relationship. One such possible factor is the board of directors, which is highly likely to affect a firm's strategic directions and hence its performance (Finkelstein and Hambrick, 1996).

Recent hospitality studies such as those of Song *et al.* (2017) and Wang *et al.* (2018) have found a nonlinear relationship between board size and firm performance: the proportion of insider board members positively affects firm performance, and a higher proportion of outside board members corrodes firm performance from the perspectives of agency theory, resource dependence theory, and stewardship theory, respectively. In contrast with prior management research, a trade-off between a small and large board was found in corporate governance. Small boards are advanced in terms of their communication and monitoring and thus they can help

reduce agency problems (Nitm *et al.*, 2017). From the perspective of resource dependence theory, however, large boards with diversified expertise can facilitate firms' acquisition of relevant knowledge and resources when entering a new market or industry (Wang *et al.*, 2018).

Contradictory theoretical views and empirical results exist regarding the relationship between board composition and firm performance. Therefore, although the board is a critical constituent in devising corporate strategy, solely investigating the effect of the board on firm performance may be insufficient because corporate strategy may also be a determinant of superior firm performance. Thus, this study intends to investigate the moderating effect of the board, in terms of board size, on the relationship between industrial diversification and firm performance.

Hong Kong publicly-listed firms are characterized by their concentrated ownership in the form of either a controlling shareholder or a family owner (Leung *et al.*, 2014). In terms of the percentage of family ownership of all publicly-listed firms, Hong Kong has been ranked third in Asia, with 32% of all corporate assets in Hong Kong controlled by ten distinguished business families (Leung *et al.*, 2014). Indeed, it is not unusual for family members to be appointed as board directors in Hong Kong's publicly-listed firms (Leung *et al.*, 2014). Whether and to what extent family members on the board may have played a role in influencing Hong Kong hotel firm performance has not been investigated. From the perspective of socioemotional wealth (SEW), family members on a family-controlled board may not intend to support firm diversification because in doing so they could potentially lose control of important firm resources, thus corroding their SEW (non-financial aspects that meet the family's affective needs) (Gomez-Mejia *et al.*, 2010). Thus, this study also attempts to fill the research void by investigating the moderating effect of family representation on a board on the relationship between industrial diversification and the performance of Hong Kong publicly-listed hotel firms.

Literature Review

Diversification and firm performance

The relationship between diversification and firm performance is a key topic in the strategic management literature. Nachum (2004) has defined industrial diversification as firms' business activities that cover more than one type of product or market segment. Some pioneering diversification studies (e.g., Palepu, 1985; Rumelt, 1982) focusing on developed economies have advocated that diversification is positively related to firm performance from the perspective of resource-based theory. Researchers have extended their interests in the context of developing economies. A recent study by Bhatia and Thakur (2018) has supported the notion that the extent of diversification is positively related to firm performance, finding that diversified firms have a significant diversification premium in the Indian context. Gyan *et al.*'s (2017) study, based on 319 Malaysian firms, has found that industrial diversification positively contributes to the improvement of firm performance. Additionally, Shen *et al.* (2018) have studied close to 4,000 Chinese private firms and have found that the degree of diversification is positively related to firm performance and that diversified firms perform better than focused ones. It seems that a consensus has therefore been reached on the basis of recent studies from developing economies.

However, some downsides of diversification for firm performance have also been revealed by scholars. Lang and Stulz (1994) have found that diversification can be disadvantageous to the

improvement of firm performance, with this disadvantage being known as “diversification discount.” Tong (2011) has argued that agency problems may destroy value for diversified firms. Another consistent argument, proposed by Montgomery (1994), is that a manager may push a firm toward diversification to increase the firm’s need for his or her own particular skills. Other than an increase in agency problems with increased diversification, Hashai (2015) has argued that the marginal costs (e.g., coordination and integration costs) of diversification also tend to grow disproportionately. Increased diversification not only creates costly complexity, but also increases internal information asymmetries as the increase in the scope of businesses and bounded rationality constrain management’s capability to deal with massive information from different business units (Schommer *et al.*, 2018).

In the hospitality literature, Wang and Xu (2009) have found a positive relationship between product diversification and return on equity (ROE) in Chinese attraction management firms, but an insignificant relationship in Chinese hotel firms. However, using data from 377 urban hotels in Beijing, Yang *et al.* (2017) have found that product diversification is positively related to hotel performance. Chen and Chang (2012) have also found that hotel firms with a higher level of product diversification tend to have a higher profit growth rate, but that such growth is coupled with increased instability. These prior empirical studies related to diversification, however, have not considered diversification at the corporate level.

Nonlinear relationship between diversification and firm performance

Some scholars have proposed that the relationship between diversification and firm performance is nonlinear (e.g., Palich *et al.*, 2000; Park and Jang, 2012). Palich *et al.* (2000) have pointed out that although benefits are created by diversification, at some point diversification also comes with major costs. Markides (1995) has identified a series of possible costs when a firm increases the scope of its products and operations, such as control and effort losses, coordination costs, costs related to diseconomies, inefficiencies from conflicts across businesses, and internal capital market inefficiencies. Tallman and Li (1996) have argued that when a firm expands its strategic resources, failure could occur if its product scope exceeds its resources, management scope, and management capabilities. Top management may face growing strain when they try to manage an increasingly disparate and less familiar portfolio of businesses (Grant *et al.*, 1988).

In the hospitality industry, Kang *et al.* (2011) have found that U.S. casino firms’ product diversification has an inverted U-shaped relationship with their Tobin’s Q ratio and ROA. These results are in line with those of Lee *et al.*’s (2011) study, which found that the relationship between market segment diversification and a firm’s adjusted return is an inverted U-shape. A study by Tang and Jang (2010) based on 482 U.S. hotel firms has found a U-shaped relationship between international diversification and a firm’s excess market value. Park and Jang (2012) have found that both related and unrelated diversification have a nonlinear relationship with firm performance.

The contradictory theoretical views regarding the relationship between diversification and firm performance have been discussed in the prior literature. From the perspective of resource-based theory, Park and Jang (2012) have suggested that firms benefit from diversification

because of its economies of scale and scope effects as well as the synergy it creates among all related business units—findings in line with the argument of Palich *et al.* (2000), that a moderate level of diversification increases firm performance. From the perspective of transaction cost theory, Williamson (1981) has theorized that transaction costs increase while a product or service is being transferred from one stage to another, particularly because new technological capabilities are required to produce new products or services. Jones and Hill (1988) have hypothesized that diversification increases internal bureaucratic costs, which leads to deteriorating firm performance. Further, an increase of diversification beyond a certain level yields fewer opportunities for firms to create synergy (Stimpert and Duhaime, 1997), and the coordination and transaction costs caused by the increase in diversification may outweigh its benefits (Hitt *et al.*, 1997). Schommer *et al.* (2018) have advocated that an increase in diversification generates costly complexity and increases information asymmetries; diversification is commonly perceived as having an inverted U-shaped relationship with firm performance as the marginal costs of diversification gradually outperform its marginal benefits with increased diversification (Pierce and Aguinis, 2013). In light of these theories, firm performance seems to vary with diversification in a nonlinear relationship.

Therefore, a nonlinear relationship between diversification and firm performance is proposed in this study: when a firm's degree of diversification increases to a certain point, the benefits of diversification for firm performance will reach a maximum and then decrease gradually, coupled with an increase in relevant costs (Nachum, 2004). As industrial diversification encompasses diverse product lines and businesses within firms, the effect of industrial diversification on firm performance has been viewed as being equivalent to that of product diversification in the Hong Kong context (Wan, 1998). We therefore propose the following hypothesis:

Hypothesis 1: The relationship between diversification and firm performance is nonlinear in hotel firms.

The effects of board size

The board of directors is a significant constituent in the formulation of a firm's strategy. While a firm adopts diversification as a strategy to grow its business, board members often play a role in providing supportive and necessary information and resources to the firm (McDonald *et al.*, 2008). Kim and Rasheed (2014) have argued that making diversification choices and implementing them are ongoing processes of advisory and informational communication by the board. Firms with large boards may benefit from more comprehensive advice for and evaluation of their diversification decisions and presumably can build better external links, which are likely to be needed in implementing diversification, than firms with small boards (Goodstein *et al.*, 1994). Having access to critical resources from external environments is key to successful diversification, particularly for firms that are operating businesses in unrelated industries. Such firms have to connect with external resources or generate additional resources to gain competitive advantages in other industries.

A major provision of the Hong Kong Code on Corporate Governance Practices aims to balance the composition of different types of board directors in publicly-listed firms. Although there is no limitation on the size of a board in Hong Kong firms, one rule dictates that a firm's board must have at least three independent non-executive directors representing at least one third of the board, thus emphasizing representation by outside directors. Leung *et al.* (2014) have suggested that firms with adequate representation by outside directors tend to have lower agency costs. Sanders and Carpenter (1998) have argued that outside directors are often experienced in industrial diversification and can thus instill confidence in investors if a firm plans to enter other industries; the experience that outside board directors bring from other industries can exert positive effects on industrial diversification and firm performance.

From the perspective of resource dependence theory, Wang *et al.* (2018) have stated that large boards may consist of diversified expertise, facilitating firms' acquisition of relevant knowledge and resources while entering a new market or industry. Larger boards may also contain more interlocking directorships with other firms and boards, which in turn can assist them in forming external connections to gain critical external resources (Williams *et al.*, 2005), which are vital to the success of firm diversification (Pan *et al.*, 2018). Large boards can lead to greater external linkages and allow firms better access to scarce external resources, which can be leveraged to build competitive advantages in an existing/new market and industry (Wang *et al.*, 2018).

In light of the above arguments, it is possible that board size influences the success of a firm's diversification efforts. The board of directors is a channel through which essential external resources and experience can be gained for a firm to operate businesses in other industries, thus possibly enhancing firm performance. The effects of board size on the relationship between firm performance and industrial diversification strategy has rarely been studied. Therefore, we propose:

Hypothesis 2: Board size positively moderates the relationship between diversification and firm performance.

The effect of family representation

As family ownership concentration is significant in Hong Kong firms, family shareholders generally maintain their ownership over generations and thus family members are routinely appointed as a firm's senior executives and/or board members (Leung *et al.*, 2014). In such cases, a higher representation of controlling family members on the board is likely to lead to another type of agency problem, which has attracted the attention of scholars: conflicts of interest between majority and minority shareholders (Leung *et al.*, 2014). An understanding of the effects of family representation on the board on the relationship between corporate strategy and firm value in public firms deserves further research as it is vital to the decision-making process of a board (Villalonga and Amit, 2006). Anderson and Reeb (2004) have pointed out two uncertainties leading to conflicts of interest between controlling family members and other shareholders: first, whether controlling family members will divert and underinvest firm resources through dispatching special dividends; second, whether controlling family members proactively support low-risk strategies to preserve their family wealth.

Astrachan and Jaskiewicz (2008) have argued that, for emotional reasons, family-controlled firms tend to bolster strategies that help enhance family visibility and dominance in the firm. Therefore, in investigating the effect of family representation on the board on the relationship between corporate strategy (diversification in this study) and firm performance, the concept of SEW can be applied. Gómez-Mejía *et al.* (2007, p. 106) define SEW as the “*non-financial aspects of the firm that meet the family’s affective needs, such as identity, the ability to exercise family influence, and the perpetuation of the family dynasty.*” From the perspective of SEW, family members may be resistant to diversification decisions because of concerns about uncertainty, delegation, and newly-involved parties from outside the family (Gomez-Mejia *et al.*, 2010). In addition, diversification may require external funding, through either issuing additional shares or obtaining bank loans. A higher debt level may increase a firm’s dependence on outsiders. Therefore, family members may be reluctant to support diversification strategies. Diversification may also require additional managerial talent and expertise that may not be possessed by family members, thus increasing the complexity of the firm’s management and making family members feel afraid of losing control and corroding their SEW. In light of a tendency of family board members to preserve their own SEW while their firm pursues diversification, high family representation on a board may lead to relevant firm resources being preserved by the controlling family, thereby increasing the difficulty of acquiring the resources needed for diversification and in turn corroding the firm’s performance. Therefore, we hypothesize the following:

Hypothesis 3: The degree of family representation on the board negatively moderates the relationship between diversification and firm performance.

Methodology

Models

Panel regression analyses were conducted to test the hypotheses. Equation (1) examines the effect of industrial diversification on firm performance, which is related to Hypothesis 1.

$$ROA(ROS)_{i,t} = \alpha_1 + \beta_1 ID_{i,t} + \beta_2 ID_{i,t}^2 + \beta_3 Size_{i,t} + \beta_4 Debt_{i,t} + \beta_5 FIX_{i,t} + \beta_6 DIV_{i,t} + \varepsilon_1 \dots \dots \dots, (1)$$

where *ROA* as a dependent variable is the adjusted return on assets; *ROS* as the other dependent variable is the adjusted return on total sales; *ID* stands for industrial diversification and *ID*² is a squared term; *Size* represents firm size; *Debt* stands for debt ratio; *FIX* is the fixed-asset ratio; *DIV* is a dummy for paying dividends with a value of 1 if a firm paid dividends and a value of 0 otherwise; and ε is the error term. Seventeen “firm” dummy variables and 12 “year” dummy variables were included in the analyses but they are not presented in Equations (1) to (3) due to space limitations.

A quadratic industry diversification term (*ID*²) was included to test a nonlinear relationship between industrial diversification and firm performance, echoing Tang and Jang’s (2010) method. The significance of the coefficient of *ID*² is that it would denote a nonlinear relationship between industrial diversification and firm performance.

Equation (2) was specified as follows in testing Hypothesis (2) for a positive moderating effect of board size on the relationship between industrial diversification and firm performance. The interaction terms of industrial diversification and board size were added to Equation (1) to derive Equation (2) (Tang and Jang, 2010).

$$ROA(ROS)_{i,t} = \alpha_2 + \beta_7 ID_{i,t} + \beta_8 ID_{i,t}^2 + \beta_9 BS_{i,t} + \beta_{10} ID_{i,t} * BS_{i,t} + \beta_{11} ID_{i,t}^2 * BS_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Debt_{i,t} + \beta_{14} FIX_{i,t} + \beta_{15} DIV_{i,t} + \varepsilon_2 \dots \dots \dots, (2)$$

where *BS* is board size. If $\beta_9 \neq 0$ and $\beta_{10} = 0$, *BS* has no moderating effect and is simply an independent variable; if $\beta_9 \neq 0$, $\beta_{10} \neq 0$, *BS* is a quasi-moderator, which is defined as a variable that not only interacts with the independent variable but is also an independent variable itself; and if $\beta_9 = 0$, $\beta_{10} \neq 0$, *BS* is a pure moderator that enters into interaction with an independent variable while having a negligible correlation with the dependent variable (Sharma, 2003).

Hypothesis 3 was tested by formulating Equation (3) to detect a negative moderating effect of family representation on the relationship between industrial diversification and firm performance.

$$ROA(ROS)_{i,t} = \alpha_2 + \beta_{16} ID_{i,t} + \beta_{17} ID_{i,t}^2 + \beta_9 FamRe_{i,t} + \beta_{18} ID_{i,t} * FamRe_{i,t} + \beta_{19} ID_{i,t}^2 * FamRe_{i,t} + \beta_{20} Size_{i,t} + \beta_{21} Debt_{i,t} + \beta_{22} FIX_{i,t} + \beta_{23} DIV_{i,t} + \varepsilon_3 \dots \dots \dots, (3)$$

where *FamRe* is the degree of family representation on a board.

Dependent variables

This study adopted two accounting-based ratios, *ROA* and *ROS*, as firm performance measures. A firm's *ROA* is one of the most commonly used accounting ratios in gauging a firm's performance in diversification-performance studies (e.g., Kang and Lee, 2014; Wang and Xu, 2009). Furthermore, *ROS* has also been used in investigating the relationship between diversification and firm performance in service firms (e.g., Capar and Kotabe, 2003). Although *ROA* and *ROS* may be highly correlated (Hitt *et al.*, 1997), this study assessed the robustness of the model results by using both performance measures. These asset-based performance measures are appropriate because hospitality firms normally create value from their fixed-asset properties. In this study, *ROA* and *ROS* were adjusted following the example of Park and Jang (2012): *ROA* was calculated as net profit adding interest divided by total assets at the beginning of the period, and *ROS* was calculated as net profit adding interest divided by total sales at the end of the period.

Independent variables

The Berry-Herfindahl index was employed in this study to measure industrial diversification. This index, shown in Equation (4), has been used in many studies (e.g., Hitt *et al.*, 1997; Kang and Lee, 2014). Wan (1998) has stated that information on Hong Kong's listed firms is available publicly at a broad industry level rather than at the product level. On the basis of Wan's (1998) study, we used industry diversification rather than product diversification to reflect the measure of diversification in this study.

$$Industrial\ diversification\ (Berry - Herfindahl\ Index) = 1 - \sum_{i=1}^N S_i^2; 0 < H \leq 1 \dots, (4)$$

where S_i is the percentage of sales from a specific industry out of the total sales of a firm and N is the number of industrial segments in which the firm operates businesses. The spectrum ranges from zero to one, wherein a bigger value denotes a more industrially-diversified firm. To solve Equation (4), we adopted the six-digit Hong Kong Standard Industrial Classification (HKSIC) Version 2.0, which denotes industry segments. For instance, HKSIC 550100, 550900, and 563100 denote hotels, guesthouses and other accommodation activities, and bars and lounges, respectively, whereas HKSIC 681100 and 681200 respectively represent real estate development and real estate leasing, industries in which Hong Kong hotel firms commonly diversify their resources. Therefore, the formula measuring the degree of industrial diversification (ID) can be applied as $1 - \sum_{i=1}^N S_i^2 = 1 - [(the\ percentage\ of\ sales\ from\ HKSIC\ 550100)^2 + (the\ percentage\ of\ sales\ from\ HKSIC\ 550900)^2 + \dots + (the\ percentage\ of\ sales\ from\ HKSIC\ 681100)^2]$. Board size (BS), an independent variable in this study, was equal to the total number of directors on a board (Cheng *et al.*, 2008). The degree of family representation on a board was measured by the percentage of firm-controlling family members on a board relative to the total number of board members (Silva *et al.*, 2006). Lastly, this study also created four interaction terms, $ID * BS$, $ID^2 * BS$, $ID * FamRe$, and $ID^2 * FamRe$, to test the hypothesized positive moderating effect of board size (BS) and the negative moderating effect of family representation ($FamRep$) on a board, respectively, on the relationship between industrial diversification and firm performance).

Control variables

Firm size ($Size$) was measured by the natural logarithm of a firm's total sales (e.g., Dang and Yang, 2018). The effect of capital structure on firm performance was controlled by using the debt ratio (i.e., debt to total assets). Moreover, the fixed-asset ratio (FIX) was calculated as the fixed assets of a firm divided by its total assets (Barton, 1988). Ferreira and Vilela (2004) have argued that dividend-paying affects a firm's policies regarding future cash holdings, which in turn influences firm performance. In this study, we included a dummy variable in the model to reflect the effect of dividend-paying.

Estimation methods

First, in checking the estimation assumptions for applying panel regression (Asteriou and Hall, 2016), the Levin-Lin-Chu unit-root test, the Breusch-Pagan test, and the Wooldridge first-order serial correlation tests were conducted and the "robust" regression method was used with corrected standard errors to mitigate any heteroscedasticity. Furthermore, to mitigate potential multicollinearity when the models contained multiplied interaction terms, this study used the mean-centering approach to generate the interaction terms of $ID * BS$ and $ID * FamRe$ (including ID , BS , and $FamRe$) (Lee *et al.*, 2014). The values of the variance inflation factors (VIFs) were all below ten, indicating that multicollinearity was not a serious issue in the regression analyses. Moreover, the Durbin-Wu-Hausman test was conducted to assess the significance of endogeneity in the estimation models.

Second, three methods for panel data analysis—the pooled ordinary least squares (OLS), fixed effects, and random effects methods—were considered in the estimation (Asteriou and Hall, 2016). The Hausman test was conducted to determine a more efficient and consistent method between the fixed effects model and the random effects model. The null hypothesis of the Hausman test is that the error term of the random intercept and explanatory variables are

uncorrelated. If the p -value is smaller than 0.05, the fixed effects model is more appropriate; otherwise, the random effects model is selected. Moreover, the F -test was conducted to determine whether the fixed effects model was more efficient than the pooled ordinary least squares (OLS) model; a smaller-than-0.05 p -value indicated that the fixed effects model was more suitable.

Data collection

The study followed a positivist research paradigm and selected a sample of 12 years (2005–2016) of panel data from hotel firms listed on the Hong Kong Stock Exchange (HKSE). Financial data, annual reports, and stock trading information of the sample firms were all collected from the Morningstar database. There were 24 HKSE-listed firms running hotel businesses, and this study selected firms according to HSIC Version 2.0, published in 2009 by the Census and Statistics Department of the Government of the Hong Kong Special Administrative Region. In the sample selection process, the focal industries were those with a HSIC code for hotel businesses (HSIC 550100; HSIC 550900), and firms were selected on the basis of the following three criteria: (1) operating a hotel business that accounted for the largest amount of the firms' total sales; (2) generating revenues in Hong Kong; (3) availability of firm data from 2005 to 2016. Ultimately, 17 hotel firms were selected (see Table 1). In this study, Stata (Version 14.0) was used to help process the collected data.

[Please insert Table 1 here]

Results

Descriptive statistics

Table 2 presents the descriptive statistics. The ROA ratios ranged from -0.196 to 0.353, with a mean of 0.031 and a standard deviation of 0.085. The ROS values spanned from -2.676 to 4.846, with a mean of 0.402 and a standard deviation of 1.174. The reason why some ROS values exceeded 1 was because the net profit from the consolidated income statement included the gains of fair value of investment properties and purchasing subsidiaries, which reflected a firm's operations at the corporate level. There were also a few firms suffering a loss in holding shares of other associated and financial investments, thus leading to a negative ROS . The range of the diversification measure was from 0 to 0.883, with a mean of 0.275 and a standard deviation of 0.191. The mean board size was nine persons, with the smallest and largest board sizes being 5 and 16 persons, respectively. On average, 27.8% of board members in a firm were family members. The highest proportion of family representation on a board was 90%. $Size$ was measured in a natural logarithmic form and ranged from 13.708 to 23.231. The ranges of $Debt$ and FIX as control variables were from 0.011 to 1.000 and from 0.010 to 0.962, respectively.

[Please insert Table 2 here]

Table 3 summarizes the correlations among all the variables. The values for ROA and ROS were highly correlated at the 1% level, which was consistent with finding in the prior literature. Furthermore, ROS was positively related to diversification. While $Size$ was insignificantly related to both ROA and ROS , it was positively and significantly related to diversification, implying that a larger board size may lead to greater industrial diversification, echoing the findings of Germain *et al.* (2014), who have proposed a positive relationship between board size and diversification of

business segment. The degree of family representation on a board was positively and significantly related to firm diversification, board size, and dividend-paying. *Size* was positively and significantly related to *ROA* at the 1% level but not to *ROS*. *Debt* was negatively associated with *ROS* at the 5% level but not with *ROA*. *DIV* was positively related to both *ROA* and *ROS* at the 1% level, consistent with the findings of Kim *et al.* (2015), who have suggested that dividend-paying helps increase firm value.

[Please insert Table 3 here]

Main analysis

Table 4 summarizes the results of the panel regression estimates, which included examinations of the effects of industrial diversification on firm performance and the moderating effects of board size and family representation on the relationships between those two constructs. Model (1) examined the effects of industrial diversification on firm performance measured as *ROA*, and the negative and significant coefficient of the squared term of industrial diversification (-0.480) indicated an inverted U-shaped relationship between industrial diversification and firm performance. This is consistent with the finding of Borda *et al.* (2017), that an inverted U-shaped relationship exists between diversification of business groups and *ROA*. Furthermore, Model (2) examined the effects of industrial diversification on firm performance measured as *ROS*; the negative and significant coefficients of the squared term of industrial diversification (-5.653) confirmed an inverted U-shaped relationship between industrial diversification and firm performance.

[Please insert Table 4 here]

Therefore, Hypothesis 1 was well supported. In addition, the linear terms measuring the effect of industrial diversification on firm performance were positive and significant, and the squared terms measuring the effect of industrial diversification on firm performance were negatively significant. By taking the first derivatives of *ROA* and *ROS* with respect to industrial diversification for the results of Models (1) and (2), the optimal points of diversification were as follows:

$$\frac{\partial ROA}{\partial ID} = 0.263 - 2 \times 0.480 \times ID = 0; ID \approx 0.27;$$

$$\frac{\partial ROS}{\partial ID} = 3.817 - 2 \times 5.653 \times ID = 0; ID \approx 0.34;$$

Significant coefficients of the interaction items of *BS* (0.113) and *ID* (-0.132) were found in Model (3), which supported the hypothesized positive moderating effect of board size. However, the moderating effect was not found in Model (4). Significant coefficients of the interaction items of *FamRe* (-10.707) and *ID* (25.097) were found in Model (6), which supported the hypothesized negative moderating effect of family representation. However, the moderating effect was not supported in Model (5).

Figure 1 presents the positive moderating effect of board size on the relationship between industrial diversification and firm performance in terms of *ROA*. Firms with a larger board tended to benefit more in terms of their performance when the level of diversification increased

from medium to high. This result is also supported by Pan *et al.* (2018), who has argued that firms growing rapidly by entering into new product lines or markets/industries have a greater need to recruit new directors who have specialized knowledge and skills in the new areas to ensure the success of diversification.

[Please insert Figure 1 here]

Figure 2 presents the negative moderating effect of family representation on a board on the relationship between industrial diversification and firm performance in terms of *ROS*. The findings indicate that when their level of industrial diversification increased from low to medium, firms with a lower degree of family representation on the board tended to (a) benefit more in terms of their *ROS* and (b) outperform firms with a higher family representation on the board. Resistance from controlling family members to decisions related to corporate diversification may corrode the diversification's success (Gomez-Mejia *et al.*, 2010). Finally, Table 5 presents a summary of all the hypotheses and results of this study.

[Please insert Figure 2 here]

[Please insert Table 5 here]

Discussion and conclusions

Conclusions

Using corporate financial data from 2005 to 2016, this study investigated and found an inverted U-shape relationship between industrial diversification and firm performance in 17 publicly-listed hotel firms in Hong Kong. In addition, board size was found to exhibit a positive moderating effect, and family representation on the board of directors a negative moderating effect, on the relationship between industrial diversification and firm performance.

Theoretical Implications

The inverted U-shaped relationship between industrial diversification and firm performance was evident in this study, which differs from Wan's (1998) study of 81 Hong Kong public firms covering the period 1991 and 1993, which demonstrates that industrial diversification was positively related to sales growth and negatively related to profitability. A possible explanation for the inconsistent results may be the change in Hong Kong's institutional environment. Garrido *et al.* (2014) have confirmed that the institutional environment affects the behavior of firms. For example, it can affect a firm's entry mode choices and product diversification decisions. However, the inverted U-shaped relationship result is consistent with the findings of other strategic management scholars (e.g. Borda *et al.*, 2017; Palich *et al.*, 2000; Schommer *et al.*, 2018). From the perspective of internal transaction cost theory, an increase in internal transaction costs occurs when a firm increases its degree of industrial diversification, and that effect dilutes the benefits of diversification (Kang and Lee, 2014). Kang and Lee (2014) have also argued that organization evolution theory may explain the potential negative effects of diversification better than transaction cost theory; they have suggested that as firms increase their degree of diversification, costs also increase to deal with new customers, suppliers, and competitors.

This study also attempted to address the rarely examined moderating effect of board size on the relationship between industrial diversification and firm performance. Our study echoes Kim and Rasheed's (2014) work, which, based on the hypothesis that a larger board contains additional knowledge, expertise, and experience from other industries, particularly from outsiders on the board, finds that board members' functional experience positively moderates the outcomes of a diversification strategy with regard to firm performance. The results of this study are also in line with the assumption of resource dependency theory, which advocates the notion that board members connect a firm with external resources for additional growth in other industries (Williams *et al.*, 2005). Our study found that a large board can help a firm improve its performance when the firm increases its level of industrial diversification from medium to high. In this mechanism, a large board benefits firms with a certain level of diversification because one of its merits is to provide more advice on diverse investment opportunities in other industries (Wang *et al.*, 2018). On the contrary, among firms with relatively low diversification in our study (see Figure 1), those with a small board outperformed those with a large board. Small boards may therefore be best suited to focused firms; this may be attributed to the merits of small boards, including less free-riding, easy communication and information sharing, more responsibility taking, and effective monitoring (Ahmed *et al.*, 2006).

This study's finding of a significant, negative moderating effect of family representation on the board on the relationship between diversification and firm performance extends the work of Gomez-Mejia *et al.* (2010), who have found a negative relationship between family-controlled firms and their firms' diversification. Our study revealed that firms with a low degree of family representation on the board tended to perform better than firms with a high degree of family representation when the level of diversification was low to medium. A stronger negative moderating effect of family representation on the board was demonstrated at the low-to-medium diversification stage (see Figure 2). From the perspective of SEW, Gomez-Mejia *et al.* (2010) explained that family members are resistant to decisions related to diversification because of the uncertainties they may face, such as the potential loss of control over key firm resources, the possibility of weakening family influence if talents are recruited from outside the family, and excessive dependence on others. However, this study found that firms with high family representation on the board outperformed those with low family representation at the high diversification stage. Additionally, family members on a board may be resistant to diversification at the beginning as their SEW is corroded. However, as a firm grows, controlling families become more open to diversification so as to reduce business risks (Gomez-Mejia *et al.*, 2010). Firms with a high level of diversification and family representation on the board tended to spread business risks more to uphold their firm performance. Therefore, from a broad perspective of diversification as spreading business risk and enhancing performance, a high level of family representation on the board may mitigate the negative effects of diversification on firm performance when firms have a relatively high level of diversification (Alessandri and Seth, 2014).

This study also contributes to the debate on the relationship between diversification and firm performance by providing empirical evidence for the unique context of Hong Kong. Additionally, our study is the first using SEW to argue for a negative moderating effect of family

representation on the board on the relationship between diversification and firm performance; the findings regarding this influence enrich the literature on the applications of SEW to explain why controlling family board members act to preserve a firm's resources with the intent of making it more difficult to acquire the necessary resources for diversification, and, in so doing, contribute to the corrosion of firm performance. As another theoretical contribution, this study sheds new light on firm performance research by examining the effects of the board (board size and family representation on the board) along with a common corporate strategy (industrial diversification in this study) on firm performance, from a corporate governance point of view.

Practical implications

The results of our study show that industrial diversification could be an effective corporate strategy to help improve firm performance in the hotel business field until reaching an optimal diversification level (0.34), beyond which the benefits of diversification may be diluted by its generation of additional costs. Furthermore, a larger board size may help enhance the positive outcome from engaging in industrial diversification and in turn further improve firm performance. As the Hong Kong Code on Corporate Governance Practices does not restrict the number of board members for publicly-listed firms, increasing the number of board members to acquire needed industrial experience and render costs more affordable may help firms generate better outcomes from their industrial diversification. This study suggests that increasing the number of board directors could be vital and beneficial to firms that rapidly grow businesses in different industries. Nevertheless, it is also evident from the study's findings that having a small board could benefit firms with relatively low diversification.

Our study cautions firms against appointing more family members as board members, as doing so would have a negative moderating effect on the relationship between corporate strategy and firm performance. The study also implies that less-diversified firms should avoid a high level of family representation on the board because firm resources may be easily controlled by family members. A high level of family representation on the board corrodes firm performance by allowing family members to control key resources for diversification. On the contrary, in more diversified firms, a high level of family representation could mitigate the negative effects of over-diversification. Lastly, the application of SEW in this study can help managers understand family members' behavior or intention to preserve their SEW, which is important for reducing potential conflicts of interest during the decision-making process.

Limitations and future research

This study is not free of limitations. The generalizability of the study results are limited because the study sampled only publicly-listed hotel firms in Hong Kong. It will be necessary to conduct similar research on privately-owned firms and with a larger sample size, because the agency problem may be less prevalent in private firms and internal transaction costs may be of less concern, thus potentially leading to different results. Furthermore, this study assessed the effect of the board in terms of board size, which limits the findings to the specific benefits gained by a firm from the addition of new directors and the transfer of useful knowledge and skills from new directors as firms enter new industries. Therefore, for future research, we suggest a qualitative study to explore the involvement of different types of board directors in a directorate decision-

making process. An in-depth understanding of the processes of information sharing and knowledge and expertise transfer as firms diversify their businesses may contribute much to the field of corporate governance and strategic management. Another direction for future study would be to examine the possible moderating effect of external interdependences on corporate diversification and firm performance by investigating the effect of directorate interlocks which are related to access to external resources.

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