



The influence of board interlocks on firm performance: In the context of geographic diversification in the restaurant industry

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ABSTRACT

Given the strategic importance of resources and service that interlocking directors bring to a firm, this study aims to examine the influence of board interlocks on financial performance in the restaurant industry based on the resource dependence theory. Further, as the primary purpose, this study incorporates geographic diversification as a pivotal contingent factor, playing a moderating role on the board interlocks-firm performance relationship. This study found not only a positive main effect of board interlocks on financial performance, but also a positive moderating effect of geographic diversification on the relationship between board interlocks and firm performance. These findings contribute to the corporate governance literature by providing a unique dimension that geographic diversification is a salient factor adjusting the effect of board interlocks on firm performance in the restaurant industry. The results further offer implications for managers and shareholders of restaurant firms when electing directors as representatives of shareholders.

1. Introduction

In the modern corporate era, a board of directors heavily involves in strategic decision-making and organizational outcomes of firms (Finkelstein & Mooney, 2003). Although CEOs and other top executives have generally played the most significant role in a strategic decision-making process (Hambrick & Mason, 1984), the board of directors, as a team elected to represent shareholders, has exerted implicit power over a wide range of strategic choices. Accordingly, boards affect firm performance by monitoring top executives and providing appropriate resources a firm needs to obtain a competitive advantage (Finkelstein et al., 2009; Hillman & Dalziel, 2003). Due to the pivotal role of a board, firms need to consider multiple qualifications of candidates when assembling the board, focusing particularly on what capital and resources newly elected directors are expected to bring to the firm (Nahapiet & Ghoshal, 1998; Coleman, 1988; Ooi et al., 2015).

Among multiple factors considered when evaluating a board candidate's capabilities, board interlocks have been one of the most controversial issues due to their consequences for firm performance (Zona et al., 2018; Horton et al., 2012). Board interlocks refer to a situation where directors of a firm hold multiple directing positions in other firms simultaneously, which generates specific firm-to firm links (Mizruchi, 1996). To date, multiple studies have attempted to unravel the intricate relationship between board interlocks and firm performance in various industries, but empirical results have been inconclusive with mixed

findings (Devos et al., 2009; Drees; Heugens, 2013; Keiser, 2002).

In like manner, contrasting viewpoints exist in the literature regarding the relationship between board interlocks and firm performance. On the one hand, grounded on the resource dependence theory (Pfeffer & Salancik, 2003), directors who hold multiple directorate positions act as a crucial liaison, connecting a focal firm with external environments and resources that the firm requires for successful operations (Davis, 1991). That is, board interlocks facilitate a firm's ability to coordinate appropriately with strategically related other firms, thereby reducing managerial uncertainty and improving firm performance in the end (Mizruchi, 1996; Devos et al., 2009). On the other hand, agency theorists argue that since interlocking directors are likely to downplay their monitoring role when holding multiple directorships, managerial opportunism arises (Drees; Heugens, 2013; Perry & Peyer, 2005). Similarly, considering that board interlocks may cause an excessive burden on directors, such directors may not be actively committed to taking a role of providing necessary resources to a specific firm, which insignificantly or even negatively affects a focal firm's performance (Devos et al., 2009; Ferris, Jagannathan, & Adam, 2003).

Notwithstanding the contrasting organizational outcomes that board interlocks may lead to, board interlocks have frequently occurred in various industries for decades (Finkelstein et al., 2009). The restaurant industry is not atypical, where interlocking directorates have traditionally been preferred (Keiser, 2002). For example, McDonald's Corporation possessed eleven directors in 2019, of which ten held board

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seats in other firms (e.g., healthcare, real estate, and investment banking firms) that seem to be strategically related (McDonald's Corp., 2020). Although board interlocks have been commonplace in the restaurant industry due to this strategic importance, no empirical examination on the financial effect of board interlocks has been widely conducted in the hospitality literature. Even though Keiser (2002) investigated board interlocks in the US hospitality and tourism industry, the study only used descriptive statistics (e.g., the number of board members and industry links generated by board interlocks) without proposing a relational hypothesis to more rigorously and properly scrutinize consequences of board interlocks. Similarly, Song et al. (2017) examined the impact of board composition on firm performance in the restaurant industry simply by focusing on the proportion of inside and outside directors in restaurant firms. The authors found that a high proportion of inside directors positively affects financial performance, whereas a high proportion of outside directors adversely influences financial performance. Given insufficient empirical studies, a valid and precise empirical examination of the relationship of board interlocks with firm performance is called for in the hospitality industry context.

In particular, since the function and effectiveness of a board of directors varies based on industry-specific characteristics (Guillén, 2000; Guillet & Mattila, 2010), the relationship between board interlocks and firm performance may differ in the restaurant industry from that of other industries. More specifically, some idiosyncratic aspects of the restaurant industry, characterized by geographically diffused properties along with diverse portfolios in terms of ownership structure (i.e., owned-operated, franchising, and management contract), require a broader range of resources and capabilities to conduct customized management for each specific location and, at the same time, to incorporate management of overall properties located in different locations (Guillet et al., 2013; Kang & Lee, 2015). What is more, operations in the restaurant industry are highly vulnerable to external factors, including seasonality, economic conditions, and quickly-changing consumer demands, which necessitate prudent and flexible decision-making (Sun & Lee, 2013). Also, due to capital intensity in real estate components which generates a high level of operational risks, a firm's effort to mitigate the risks utilizing top-decision makers' careful decisions with sufficient capital and resources seems salient for achieving competitive advantage in the restaurant industry (Guillet et al., 2013; Guillet & Mattila, 2010). To effectively cope with both internal and external challenges around a restaurant firm while lessening managerial risks, interlocking directors' roles and the resources that they bring to a firm can become of paramount in the restaurant industry.

More importantly, examining the effect of board interlocks on firm performance becomes meaningful in organizational situations where directors of a firm actively perform their roles and get involved in a core decision-making process of a firm (Keiser, 2002; Barroso-Castro et al., 2017). In other words, since directors do not intervene every detailed management activity dissimilar as top executives do, contingent situations where a firm needs the directors' resources and capabilities should be contemplated for thoroughly examining the board interlocks-firm performance relationship. The present study proposes that the degree of geographic diversification acts as a pivotal contingent factor which can better explain the financial implications of board interlocks in the restaurant industry. This proposition is relevant to incremental managerial complexity and external turbulence incurred by an increase in the level of geographic diversification of a restaurant firm (Keats & Hitt, 1988; Park et al., 2017). As a firm diversifies geographically, information-processing demand increases, which generates more costs and requires more efforts in handling various managerial challenges successfully (Carter & Lorsch, 2003). In this regard, CEOs and other top executives may not fully be able to cope with demanding challenges, solely based on their own resources and capital; this causes firms to call for the additional expertise, capital, and know-how which interlocking directors can provide (Barroso et al., 2011; Carpenter & Westphal, 2001).

Accordingly, given insufficient empirical efforts to investigate the relationship between board interlocks and firm performance in the hospitality literature, and the idiosyncratic characteristics of the restaurant industry which require active roles of interlocking directors, this study aims to examine whether board interlocks significantly influence organizational outcomes, as measured by a firm's financial performance. More significantly, as its primary purpose, this study investigates the moderating role of geographic diversification on the relationship of board interlocks with firm performance, so as to capture the effect of board interlocks on firm performance in a more comprehensive manner. To our best knowledge, this study is the first attempt to empirically examine the relationship between board interlocks and firm performance and the moderating effect of geographic diversification in the restaurant industry. Thus, this study's findings can expect to add values with originality to the hospitality literature. In addition, finding the moderating role of geographic diversification can also expect to contribute to the corporate governance literature by providing empirical evidence that the functions and effectiveness of board interlocks are contingent on geographic diversification, an important strategy of the restaurant industry. Further, the results of this study will suggest practical guidelines for professionals and stakeholders in the restaurant industry as to how a restaurant firm can compose a board for generating better organizational outcomes.

2. Literature review and hypotheses development

2.1. The relationship between board interlocks and firm performance

Board capital, defined in the corporate governance literature as the human and relational capital that a board provides to a firm (Hillman & Dalziel, 2003), has been regarded as an antecedent of a board to effectively take its roles (e.g., monitoring and resource provision) (Coleman, 1988). Specifically, whereas the human capital of a board comprises directors' experience, expertise, knowledge, and reputation, relational capital implies the sum of resources derived from directors' networks and relationships with other individuals and organizations (Nahapiet & Ghoshal, 1998). Among the multiple types of board capital, board interlocks, recognized as a key source of relational capital, have been dealt with repeatedly in the literature, due to their benefits and costs in relation to firm performance (Fich & Shivdasani, 2006; Horton et al., 2012; Phan et al., 2003).

The resource dependence theory is a prominent perspective supporting benefits obtained from board interlocks (Pfeffer, 1972; Mizuchi, 1996; Pfeffer & Salancik, 2003). Resource dependence theorists argue that performance of an organization relies on an ability to obtain requisite resources from external environments, including reciprocal exchanges with other firms (Taljaard et al., 2015; Carter et al., 2003). In this regard, board interlocks, acting as a catalyst for linkage among firms, are deemed as a pivotal tactic which enables a firm to obtain critical resources from other firms, leading to better firm performance by lessening resource constraints (Hillman & Dalziel, 2003; Westphal, 1999). Similarly, researchers argue, grounded on the resource dependence theory, that board interlocks serve as inter-organizational ties which allow access to diverse intangible resources, including market information, desirable corporate practices of other firms as benchmarks, and managerial know-how, transmitted by interlocking board members across firms (Beckman & Haunschild, 2002; Davis, 1991). These benefits are likely to decrease environmental uncertainty, thereby obtaining competitive advantage in the end (Beckman et al., 2004). Consistent with the resource dependence theory, multiple studies found a positive and significant relationship between board interlocks and firm performance (Drees; Heugens, 2013; Horton et al., 2012).

Contrastingly, a stream of researchers relying on the agency theory has addressed probable costs arising from board interlocks (Fich, 2005; Perry & Peyer, 2005). More specifically, agency theorists have underscored the monitoring role of the board in preventing potential

managerial entrenchment and protecting shareholder wealth (Fama & Jensen, 1983; Al-Najjar, 2014). As a director of a focal firm holds multiple directorships of other firms, this interlocking director may monitor top executives of the focal firm less strictly, since he or she tends to focus on maintaining his or her own social status, while forgoing restrictions on top executives' management activities (Westphal & Khanna, 2003). In other words, a busy interlocking director may not be able to concentrate on the focal firm's operations with careful monitoring, as such capabilities may diffuse in multiple positions (Ferris, Jagannathan, & Adam, 2003; Devos et al., 2009). Thus, based on the agency theory, board interlocks may cause managerial opportunism followed by an increase in CEO power relative to a board's power (Fich & White, 2003), increased executive pay (Geletkanycz et al., 2001), and lucrative golden parachutes (Wade et al., 1990), thereby negatively impacting a firm's performance. However, other agency theorists argue that a board with plentiful social and human capital, including external ties obtained by board interlocks, can effectively evaluate and monitor top executives, compared with a board with relatively inferior capital, since the board with plentiful capital is more knowledgeable about top executives' management activities and market situations from accumulated industrial experience, expertise, and know-how (Hillman & Dalziel, 2003; Osmo, 2008; Lai et al., 2012). So, although the agency theory has mainly been adopted as a theoretical underpinning for addressing potential pitfalls of board interlocks, its arguments have not produced a consensus in terms of its consequences. Using the agency theory, multiple studies have found a negative effect of board interlocks on firm performance (Fich, 2005; Devos et al., 2009; Fich & Shivdasani, 2006) while a few studies have found an insignificant relationship between board interlocks and firm performance (Fligstein & Brantley, 1992; Meeusen; Cuyvers, 1985).

2.2. The effect of board interlocks on firm performance in the restaurant industry

As restaurant firms frequently elect interlocking directors affiliated with other firms, board interlocks result in benefits and costs simultaneously. However, considering industry-specific characteristics of the restaurant industry which determine the functions and importance of board interlocks, this study postulates that board interlocks positively and significantly affect firm performance, grounded on the resource dependence theory. More specifically, a restaurant firm's success hinges on handling numerous challenges from properties consisting of diverse business portfolios (e.g., diverse ownership types, product compositions, and brands) in various geographic locations (Sun & Lee, 2013). Since regulations, economic conditions, customer demands, and cultural backgrounds of multipoint markets may differ vastly from a firm's original home base market, resources and know-how the firm originally possesses may not efficiently translate to other market situations (Guillet & Mattila, 2010). In order for a restaurant firm to adapt to each market's external conditions and operate successfully, a customized value chain system needs to be forged separately for each market, which increases initial costs of entering new markets, risks of potential market failures, and managerial complexity while amalgamating individual properties' management under a corporate-level management system (Song et al., 2017; Choi et al., 2011). These unique operational idiosyncrasies of the restaurant business make the management process more demanding with greater operational risks compared to other industries (Kang & Lee, 2015).

In the process of dealing with complex organizational structures and turbulent external changes, external ties formulated by board interlocks may enable a restaurant firm to build a strong relationship with strategically related firms, which bolsters the firm's value chain system and reduces managerial uncertainty (Mizruchi, 1996; Keiser, 2002). In other words, firms sharing common directors via board interlocks may be more likely to cooperate with each other via affiliations and contracts seeking common interests, which results in mutual benefit (Beatty &

Zajac, 1994; Zahra & Pearce, 1989). For example, if a director of a restaurant firm is also on the board of an investment banking firm, he or she may facilitate the restaurant firm's financing when additional capital is needed to expand its business or stabilize financial structure.

Furthermore, directors who are knowledgeable about various market conditions and managerial activities, owing to diverse directorate experience in other firms, may provide proper guidance for executive managers to more effectively employ external resources and allocate them into appropriate positions (Haunschild, 1993; Palmer, 1983). For example, if an interlocking director of a focal restaurant firm takes another directing role in a real estate firm, the relevant market information and knowledge accumulated from engaging in the real estate firm's management can be crucial for the restaurant firm when entering new markets and reducing operational risk of having properties in multiple locations.

In addition to the benefits of board interlock as outlined above, there are contrasting arguments in the literature. An increase in board interlocks of a restaurant firm may promote managerial opportunism (Fama & Jensen, 1983). That is, weakened monitoring, stemming from intense workloads and dispersed attention of interlocking directors, may lead to conditions where CEO and top executives entrench themselves at the expense of other stakeholders' interests, causing information asymmetries across detailed operational situations (Fama & Jensen, 1983; Song & Kang, 2019). However, considering that interlocking directorships are notably characterized by outside directors and, on average, more than two-thirds of total directors consist of outside board members in the restaurant industry (Keiser, 2002), a board with multiple interlocking outside directors may secure independence from a CEO's control over the board (Beatty & Zajac, 1994; Zahra & Pearce, 1989). Additionally, Hillman and Dalziel (2003) and Osmo (2008) argued that the appropriate number of interlocking directors is helpful for a board to impartially and validly monitor top executives' management activities, utilizing their relevant knowledge and expertise obtained from diverse interlocking backgrounds and social ties with other firms in varied markets and industries. In this light, potential monitoring costs caused by an increase in board interlocks may be marginalized in the restaurant industry. Accordingly, since benefits may outweigh costs of board interlocks in the restaurant industry's organizational structure and operational system, this study hypothesizes as follows.

H1. The relationship between board interlocks and firm performance in the US restaurant industry is significant and positive.

2.3. The moderating effect of geographic diversification

In the restaurant industry, geographic diversification with diverse brand portfolios has been a core corporate strategy for expanding a firm's business activities (Kang & Lee, 2015; Song et al., 2017). By implementing geographic diversification, a restaurant firm expects to escape from market saturation with high rivalry, taking advantage of operational risk reduction, economies of scale, economies of scope, and market power (Palich et al., 2000; Choi et al., 2011). Given that each property of a restaurant firm is operated independently due to the simultaneity of production and consumption, a restaurant firm's operations and organizational structure incorporating multiple properties dispersed across various locations is likely to become more complex than firms that work solely in one location (Kang & Lee, 2015). Additionally, since the restaurant business is highly volatile to idiosyncratic external factors in each location, such as unique culture, consumer behaviors, and regulations, implementing geographic diversification across multiple regions can cause increased operational risks with high uncertainty (Park et al., 2017; Song et al., 2017).

In this regard, a firm's incremental complexity of management and sensitivity to external factors owing to geographic diversification may make the value of board interlocks more prominent in the restaurant industry. Specifically, a board including interlocking directors who,

directly and indirectly, have been more involved in managerial situations where a firm's management process requires capabilities and keen insights for sophisticated information processing may be more capable of mitigating uncertainty and establishing core competency (Forbes & Milliken, 1999; Carter & Lorsch, 2003; Barroso-Castro et al., 2017). According to resource dependence theorists, uncertainty and complexity caused by operations in multiple markets provoke the reliance on a board's capital since CEO and other top executives may not successfully address intricate and unsuspected managerial challenges (Galaskiewicz & Wasserman, 1989). A restaurant firm's geographic expansion also has greater need of interlocking directors' broad networks, expert knowledge, and key information, in successfully dealing with indigenous challenges in newly entered geographic markets, and in integrating operations across increased geographic units. Moreover, as the degree of a restaurant firm's geographic diversification increases, interlocking directors can reinforce their external resources, both in quantity and quality, by gaining supplementary resources and learning from markets in new locales. Although interlocking directors do not directly make strategic decisions or implement tactics on a daily basis, board members essentially support executive managers' vital decisions (Haunschild, 1993; Palmer, 1983), employing external resources obtained from participation in a variety of interlocking directorates. Given the strategic importance of geographic diversification in the restaurant industry, which makes interlocking directorates more indispensable, geographic diversification may be a valid and critical contingent factor in more thoroughly examining the impact of board interlocks on firm performance. Accordingly, this study hypothesizes that as the degree of geographic diversification increases, the positive influence of board interlocks on firm performance may be magnified.

H2. The moderating effect of geographic diversification on the relationship between board interlocks and firm performance in the US restaurant industry is significant and positive.

3. Methods

3.1. Data

The sample consists of all publicly traded US restaurant firms, based on the North American Industry Classification System (NAICS) code 722511 (full-service restaurants) and 722513 (limited-service restaurants), which file their 10-Ks (a firm's annual reports) and DEF 14A (other definitive proxy statements) in the Electronic Data Gathering, Analysis and Retrieving (EDGAR) system. The sample period spans fiscal years 1993–2019. Data for board interlocks and control variables relevant to corporate governance structure and board composition (i.e., board size, board independence, and CEO duality) were obtained from DEF 14A and BoardEX database, which supply directors' biographies and relational networks of publicly traded firms and other private entities, mainly based in the US and in European countries (Singh, 2007). We also collected data regarding firm performance, geographic diversification, and firm-level control variables (i.e., firm size, leverage ratio, and total dividends) from 10-Ks.

Prior to testing our hypotheses, this study conducted preliminary tests to check multiple assumptions for deriving consistent and unbiased estimates in panel regression analysis. For checking multicollinearity, this study used the variance inflation factor (VIF). All variables' VIF values were less than 10, with maximum value of 2.88, which is within the acceptable range (Kutner et al., 2005). In other words, the variance of estimates would not be inflated due to severe correlations among explanatory variables (Kutner et al., 2005). For normality, this study conducted the Jarque-Bera test for checking skewness and kurtosis of a dependent variable, Tobin's q (Gujarati, 2009). Since the results of the test showed violation of the normality assumption, this study determined to use a natural log of Tobin's q. By employing a studentized residual plot and Durbin-Watson d test, this study detected violation of

homoscedasticity and autocorrelation. Thus, Newey-West standard errors known as heteroscedasticity- and autocorrelation-consistent standard errors were adopted for coefficient estimation (Hoechle, 2007; Gujarati, 2009). Further, for addressing independence and linearity assumptions, this study utilized studentized residuals and Cook's distance for eliminating outliers and influential cases. Specifically, when firm-year observations had studentized residuals with absolute values larger than 3, the observations were considered as outliers and subsequently eliminated (Chatterjee & Hadi, 1986). Similarly, influential cases having the Cook's distance larger than 1 were deleted (Anderson et al., 2016). After eliminating observations with missing values, outliers, and influential cases, this study obtained 405 firm-year observations for analyses.

3.2. Models and estimation methods

To investigate the influence of board interlocks on firm performance and the moderating role of geographic diversification, this study adopted a panel regression analysis. Two models for testing hypotheses are as follows:

$$H1: \text{Tobin's } q_{it} = \alpha_0 + \alpha_1 \text{BINT}_{t-1} + \alpha_2 \text{DOGD}_{t-1} + \alpha_3 \text{SIZE}_{t-1} + \alpha_4 \text{LEV}_{t-1} + \alpha_5 \text{DIV}_{t-1} + \alpha_6 \text{BS}_{t-1} + \alpha_7 \text{DUAL}_{t-1} + \varepsilon_{it}$$

$$H2: \text{Tobin's } q_{it} = \alpha_0 + \alpha_1 \text{BINT}_{t-1} + \alpha_2 \text{DOGD}_{t-1} + \alpha_3 \text{BINT}_{t-1} \times \text{DOGD}_{t-1} + \alpha_4 \text{SIZE}_{t-1} + \alpha_5 \text{LEV}_{t-1} + \alpha_6 \text{DIV}_{t-1} + \alpha_7 \text{BS}_{t-1} + \alpha_8 \text{DUAL}_{t-1} + \varepsilon_{it}$$

Where Tobin's q represents financial market-based firm performance; BINT represents the number of board interlocks in a board of a focal restaurant firm; GD represents the degree of geographic diversification; SIZE represents a firm's size; LEV indicates a firm's leverage ratio; DIV represents total dividends; BS indicates board size; DUAL represents CEO duality.

This study used a one-year time lag, given that a year is a reasonable period for board interlocks and other explanatory variables in the models to be reflected in firm performance (Sanders & Tuschke, 2007). Thus, all independent variables including control variables in the models were measured at time (t-1), while Tobin's q, the dependent variable in this study, was measured at time (t).

For coefficient estimation, this study employed the two-way fixed effects (FE) method for addressing omitted variable bias due to unobservable time-specific and firm-specific heterogeneities (Gujarati, 2009; Wooldridge, 2002). In other words, coefficient estimation using the pooled OLS estimation may be inconsistent and biased because of unobservable heterogeneities. For choosing either the fixed effects method or the random effects method, this study conducted the Hausman test and the results of the Hausman test indicated a significant difference ($\chi^2 = 36.25$, $p\text{-value} < 0.005$), thus, the two-way fixed effects method was adopted.

3.3. Firm performance measure

For measuring firm performance, this study adopted Tobin's q, a financial market-based performance measure. Multiple previous studies have argued that Tobin's q is a better performance measure than both accounting-based (e.g., ROA and ROE) and stock return measures (e.g., EPS) (Montgomery, 1994). Specifically, while Tobin's q is an unbiased estimate of present firm value obtained by measuring firm performance at a point in time, other accounting-based measures and stock return measures are *ex post* measures over sample periods (Lang & Stulz, 1994). This study employed the approximate Tobin's q proposed by Chung and Pruitt (1994), measured as $(\text{MVE} + \text{PS} + \text{DEBT})/\text{TA}$, where MVE represents a firm's stock price times the number of common shares outstanding; PS is defined as the liquidating value of outstanding preferred stock; DEBT indicates the value of short-term liabilities, net of short-term assets plus the book value of long-term debt; and TA is the book value of total assets.

3.4. Board interlocks measure

Board interlocks were measured by counting the total number of firm-to-firm links generated by a restaurant firm's interlocking directors in a given year, following the literature (Fich & White, 2005; Pombo & Gutiérrez, 2011). For example, among five directors of a restaurant firm, if two directors are affiliated with other seven and five firms respectively as board members, then the total number of board interlocks in the given year is twelve.

3.5. Other explanatory variables

For measuring the degree of geographic diversification, the Berry-Herfindahl index was adopted. The Berry-Herfindahl index ($1 - \sum S_i^2$) has been frequently employed in the literature as an appropriate measure of diversification (Denis et al., 2002) since it integrates both the number and the weight of each entity (Kang & Lee, 2014). The Berry-Herfindahl index is obtained by subtracting the Herfindahl index ($\sum S_i^2$), the degree of concentration, from 1, where S_i indicates the number of restaurant properties in each state divided by the total number of properties in the US. A rationale for choosing a state as a unit of geographic diversification is that each state shows relatively distinctive market conditions and characteristics (e.g., regulations, cultural backgrounds, and economic conditions), and a majority of restaurant firms in the US have relied upon interstate geographic diversification as a core expansion strategy (Choi et al., 2011).

Five control variables were included in models. This study controlled for a firm's size (SIZE) which was measured by the log of total assets since larger firms are likely to enjoy market power advantage and economies of scale, thereby obtaining better performance (Chauvin & Hirschey, 1993). Next, to control for benefits and costs from the use of debt, a firm's leverage (LEV) was incorporated (Brealey & Myers, 2003). Dividends (DIV), measured by the sum of common and preferred dividends, was considered as another control variable, given that the total amount of dividends significantly affects firm performance, particularly Tobin's q (Lang & Stulz, 1994). Regarding corporate governance dimensions, since a larger board size may result in more frequent board interlocks and confound the impact of board interlocks on firm performance, we controlled for board size (BS), measured by the number of board members on a board (Guest, 2009). Next, CEO duality (DUAL) implies the power of CEO, which may weaken roles and functions of a board of directors and influence organizational outcomes in the end (Datta et al., 2009; Finkelstein & Mooney, 2003). Accordingly, CEO duality (DUAL) was included in our models by assigning the value of 1 if CEO of a firm holds the role of chairman of the board simultaneously, and 0 otherwise.

4. Analyses and results

4.1. Descriptive statistics

Table 1 shows descriptive statistics of variables obtained in this study from 405 firm-year observations. Tobin's q, a dependent variable, had a mean value of 0.261 with a standard deviation of 1.153, ranging from 0.261 to 8.092. The statistics indicate that, on average, US restaurant firms are underestimated in the market, compared to their book value. Board interlocks (BINT) ranged from 0 to 53 along with a mean of 19.05, which shows sufficient variation for analyses. Particularly, a maximum value of BINT was 53 when the number of a board of directors of a certain firm in a given year was 10, which implies that, on average, a director of the firm has more than five simultaneous directorships. The degree of geographic diversification had a mean of 0.773 with a standard deviation of 0.269. It shows that business activities of restaurant firms are notably dispersed domestically. The mean value of firm size (SIZE) was 5.442, ranging from 0.199 to 8.868, and leverage ratio (LEV) showed a mean of 0.252 with a standard deviation of 0.365. Total

Table 1
Summary of descriptive statistics.

Variables	N	Mean	Std. Dev	Min	Max
Tobin's q	405	1.825	1.153	0.261	8.092
BINT _{t-1}	405	19.05	9.038	0	53
DOGDT _{t-1}	405	0.773	0.269	0	0.960
SIZE _{t-1}	405	5.442	1.532	0.199	8.868
LEV _{t-1}	405	0.252	0.365	0	3.297
DIV _{t-1}	405	7.960	33.81	0	288.9
BS _{t-1}	405	7.857	2.051	3	15
DUAL _{t-1}	405	0.622	0.485	0	1

Notes: Tobin's q represents firm performance measured by market value to book value ratio; BINT represents board interlocks measured by the number of firm-to-firm links occurred by multiple directorships of directors of a focal firm; DOGD represents the degree of geographic diversification measured by the Berry-Herfindahl index; SIZE represents a firm's size measured by the log of total assets; LEV represents a firm's debt-to-asset ratio; DIV represents total dividends of common and preferred stocks; BS represents board size measured by the number of a board of directors; DUAL represents CEO duality measured by a dummy variable, assigning 1 for the case in which a CEO also holds the position of the chairman of the board of directors and 0 otherwise.

dividends (DIV) ranged from 0 to 288.9 with a mean of 7.960. For control variables relevant to corporate governance structure, board size had a mean value of 7.857, ranging from 3 to 15. Finally, among 405 firm-year observations, while 251 observations showed CEO duality, non-CEO duality occurred in 154 observations.

Table 2 reports the results of Pearson's correlation analyses of variables in the models. Interestingly, BINT had an insignificant correlation with Tobin's q. However, it should be noted that this bivariate relationship was estimated without considering other influential factors, such as board size, firm effect, and year effect as done in main analysis models. DOGD positively and significantly correlated with Tobin's q at the 5% significance level. Among control variables, while SIZE and DUAL showed a positive and significant association with Tobin's q, LEV negatively correlated with Tobin's q. Also, there was an insignificant association between DIV and Tobin's q. And, board interlocks (BINT) and board size (BS) were positively and significantly correlated with each other at the 5% significance level. That is, on average, an increase in board size (BS) likely leads to a larger number of board interlocks (BINT), which may confound the effect of board interlocks on firm performance.

4.2. Main analyses and hypotheses testing

Table 3 shows the results of main analyses using the two-way fixed effects estimation method. There was a positive and significant relationship between board interlocks (BINT) and Tobin's q, which supports H1 ($\beta = 0.022$, p-value = 0.011). A unit increase in the number of board interlocks, on average, results in a 2.2% increase in Tobin's q. That is, the more a restaurant firm possesses interlocking directors, the more the firm is likely to enjoy better market evaluation, compared with the replacement costs of the firm's assets. The degree of geographic diversification (DOGDT) did not show a significant effect on firm performance (p-value = 0.774). For control variables, only board size (BS) showed a negative and significant impact on Tobin's q, while other control variables had no significant linear relationship with Tobin's q. The insignificant coefficients of four control variables might happen because our models already control for firm-effects.

In terms of a moderating effect of the degree of geographic diversification (DOGDT), the interaction term (BINT X DOGDT) showed a positive and significant impact on Tobin's q ($\beta = 0.078$, p-value = 0.011), supporting H2. In other words, an increase in the degree of geographic diversification (DOGDT) magnifies the effect of board interlocks (BINT) on Tobin's q. Similar to the results in Model (1) for testing H1, when other factors including firm effects and year-effects are constant, on average, only board size (BS) had a negative and significant effect on

Table 2
Summary of Pearson's correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Tobin's q	1.000							
(2) BINT _{t-1}	0.043	1.000						
(3) DOGD _{t-1}	0.269***	0.300***	1.000					
(4) SIZE _{t-1}	0.231***	0.571***	0.653***	1.000				
(5) LEV _{t-1}	-0.069**	-0.051	-0.226***	-0.190***	1.000			
(6) DIV _{t-1}	0.049	0.424***	0.119**	0.374***	0.021	1.000		
(7) BS _{t-1}	-0.170***	0.585***	0.114**	0.467***	-0.105**	0.380***	1.000	
(8) DUAL _{t-1}	0.089***	0.106**	0.043	0.197***	0.023	0.080	0.072	1.000

Notes: ***p < 0.01, **p < 0.05.

Table 3
Summary of results from main analyses using two-way fixed effects method.

Variables	(1)	(2)
	FE	FE
BINT _{t-1}	0.022** (0.008)	-0.048 (0.026)
DOGD _{t-1}	0.202 (0.699)	-1.279 (0.754)
BINT X DOGD _{t-1}		0.078** (0.029)
SIZE _{t-1}	-0.128 (0.092)	-0.133 (0.094)
LEV _{t-1}	-0.119 (0.102)	-0.095 (0.105)
DIV _{t-1}	0.001 (0.001)	0.001 (0.001)
BS _{t-1}	-0.059** (0.027)	-0.050** (0.025)
DUAL _{t-1}	0.042 (0.060)	0.066 (0.067)
Constant	0.716 (0.731)	1.842*** (0.668)
Wald Chi ²	1423.32***	1457.83***
Year FE	Yes	Yes
Observations	405	405

Notes: Newey-West standard errors in parentheses; ***p < 0.01, **p < 0.05.

Tobin's q at the 5% significance level, while other control variables showed an insignificant effect.

5. Discussions and implications

This study aims to examine the relationship between board interlocks and firm performance in the US restaurant industry. Further, as the primary purpose, this study attempts to incorporate geographic diversification as a pivotal contingent factor on the relationship between board interlocks and firm performance by examining the moderating role of geographic diversification. From results of the analyses, we found a positive and significant relationship between board interlocks and a firm's financial performance, Tobin's q. This supports previous empirical studies with arguments based on the resource dependence theory (Drees & Heugens, 2013; Horton et al., 2012; Phan et al., 2003), which is the current study's theoretical underpinning for explaining advantages generated from interlocking directors in the restaurant industry. The positive effect of board interlocks on financial performance in the restaurant industry indicates that the benefits of board interlocks exceed their costs regarding organizational outcomes. A possible explanation is that, as a restaurant firm elects new directors who also take roles as directors in other strategically related firms, such as ingredient wholesalers of the restaurant firm, the linkages occurred by board interlocks are conducive to reducing transaction costs and safely establishing value chain systems for obtaining competitive advantage. The firm-to-firm networks generated by board interlocks enable a restaurant firm to obtain both indispensable tangible (e.g., financing and stable supply chain systems) and intangible resources (e.g., advice and counseling of

interlocking directors), leading to better operational outcomes and optimistic market evaluation in the end.

For the moderating role of geographic diversification, we found that the effect of board interlocks on firm performance is magnified in circumstances where a restaurant firm heavily implements geographic diversification. Specifically, greater complexity and managerial uncertainty in accordance with geographic diversification of a restaurant firm may provoke interlocking directors' active participation in decision-making processes. As a restaurant firm's owners and top executives call for interlocking directors' supports and social ties accrued by virtue of their work experience in handling multiple challenges during geographic diversification and new market entries, the impact of board interlocks on firm performance may be enlarged.

To the best of our knowledge, this study is the first attempt to examine the board interlocks-firm performance relationship in the restaurant industry context, thereby contributing to the tourism and hospitality literature pertaining to corporate governance. Although there have been multiple efforts examining the effect of board composition on firm performance, concentrating on board size (Zheng & Tsai, 2019), board diversity (Ooi et al., 2015; Song et al., 2020), board independence (Im & Chung, 2017), and CEO duality (Song & Kang, 2019) in the tourism and hospitality industry, the current study is the first one to identify the effect of board interlocks on firm performance in the restaurant context, thus enriching understandings of corporate governance structure in the hospitality and tourism industry.

Furthermore, by revealing a positive and significant effect of board interlocks on firm performance in the restaurant context, this study expects to contribute to corporate governance literature as a whole by strengthening the internal validity of a significant relationship between board interlocks and firm performance, supporting the proponents of the resource dependence theory. In detail, corporate governance is a dynamic and complicated process, interrelated with industry-specific and firm-specific contingencies (Madanoglu et al., 2018). Thus, organizational outcomes associated with board interlocks in a firm or an industry may not be carelessly applied to others, which grants credibility to previous contradictory and inconclusive empirical findings (e.g., Horton et al., 2012; Fich, 2005) in varied industries, and at the same time, induces an interesting empirical question. In addition, while board interlocks frequently take place in the restaurant industry to benefit from interlocking directors' interorganizational ties and other resources (Ooi et al., 2015), board interlocks possibly generate costs such as managerial opportunism caused by wakened monitoring, which leads to the situation in which executives of a restaurant firm likely to pursue their own interests (Drees & Heugens, 2013), utilizing information asymmetries about dynamic market changes and detailed operational situations in multipoint markets (Guillet et al., 2013; Im & Chung, 2017). These contradicting findings and theoretical viewpoints existing in the present corporate governance literature motivate an investigation of the effect of board interlocks, using a sample consisting of firms in a specific industry. Accordingly, by focusing on the restaurant industry possessing idiosyncratic characteristics (e.g., diverse brand portfolios and separation of ownership and management), the current study revealed a positive impact of board interlocks on firm performance, supporting the

resource dependence theory.

Last, the result of a positive and significant moderating effect of geographic diversification, the primary concern of this study, adds a unique dimension to the corporate governance literature in that research on the moderating role of geographic diversification on the board interlocks-firm performance has not existed. Specifically, the effectiveness and functions of board interlocks should be contemplated in a conditional situation where an interlocking board actively participates in firms' management processes and decision-making. On the one hand, according to Carter and Lorsch (2003), interlocking directors' diverse social and human capital are likely to help handle various managerial challenges, which can reinforce the value of geographic diversification in the restaurant context. Whereas, incorporating operations of individual properties located in multiple markets possibly worsens a monitoring function, aggravating agency problem due to augmented organizational complexity (Park & Jang, 2013). Therefore, these benefits and costs regarding interlocking directors' functions and effectiveness, simultaneously occurred from geographic diversification, call for an empirical examination of the moderating effect of geographic diversification on the relationship between board interlocks and firm performance. In the context of the restaurant industry, the results of this study identify geographic diversification as a critical intervening factor that positively adjusts the value of board interlocks in terms of firm performance. This finding implies that especially for expanding operations into highly competitive, peculiar restaurant markets containing substantial uncertainty, benefits of successfully managing unpredicted, endemic issues, utilizing interlocking board members' abundant resources may outweigh costs generated from board interlocks.

In terms of practical implications, this study's results offer guidelines for practitioners and shareholders of a restaurant firm when selecting a board of directors as representatives of shareholders in protecting their interests. Firstly, this study recommends that restaurant firms compose their boards carefully to take advantage of value arising from board interlocks. This study found that one unit increase in board interlocks, on average, results in a 2.2% increase in Tobin's q , with a sample of 405 public US restaurant firm-year observations. However, among control variables included in our models, one unit increase in board size (the number of directors), on average, leads to a 5.9% decrease in Tobin's q . Given that board interlocks were significantly and positively correlated with board size, restaurant firms need to be cautious when attempting to increase the number of interlocking directors. That is, an increase in board interlocks accompanied by an increase in board size may backfire on firm performance. Thus, while maintaining a relatively small board, increasing the number of board interlocks is encouraged for a restaurant firm to fully benefit from interlocking directorships.

Next, considering that interlocking directors play a key role in acquiring necessary resources for successful operations and better financial performance of a restaurant firm, a firm's structural efforts to more effectively take advantage of board interlocks seems desirable. For example, more frequent official and unofficial board meetings are needed for stimulating active participation of outside interlocking directors in the decision-making processes of large-scale strategies (e.g., geographic diversification and M&A). Especially, in complex and volatile managerial situations following active geographic diversification, a firm should increase its level of board interlocks and utilize interlocking directors optimally for better performance. As an example, when entering new geographic markets, firms should employ interlocking directors who are affiliated with local organizations or who can bring relevant knowledge and information that best matches issues occurring in these geographic locations. Further, interlocking directors' external ties may provide a positive signal to shareholders of a firm. That is, when detailed information on external ties and other capital, including industry experience and backgrounds brought from interlocking directors, are underscored and clearly stated in official reports and other media channels, the firm may expect better market evaluation.

Several limitations exist in the study. Firstly, since this study

employed secondary data of publicly traded restaurant firms for analyses, it may have a generalizability issue when applying the results to other country and industry contexts. For future studies, consideration of both publicly traded and private firms in the restaurant industry and an examination of the board interlocks-firm performance relationship in other country contexts are suggested for improving external validity of this relationship. Secondly, although this study used the number of overall board interlocks as a measurement due to data availability, a more specific classification of types of board interlocks will broaden our understanding of the strategic importance and consequences of board interlocks. For example, classification depending on types of firms affiliated with a focal firm via board interlocks (e.g., strategically related firms and non-strategically related firms) may provide a more relevant and specific measurement of board interlocks. Thirdly, although this study employed geographic diversification in the restaurant industry as a contingent factor, which adjusts the effect of board interlocks on firm performance, other contingent variables indicating managerial situations, such as internationalization and corporate social responsibility activities, are encouraged to be employed as potential moderators in future studies.

Impact statement

This study expects to contribute to the US economy by providing guidelines for practitioners and shareholders of US restaurant firms when selecting a board of directors. Specifically, as restaurant firms increase a proportion of interlocking directors, based on the results of this study, they may expect better financial performance. Further, the economic benefits from board interlocks may be magnified while restaurant firms actively implement geographic diversification.

Besides shareholders and professionals of restaurant firms, this study's results also help other diverse stakeholders, including customers, suppliers, community, and potential investors of restaurant firms. Based on this study's results, such stakeholders may be able to better evaluate restaurant firms by reviewing corporate governance structure, particularly information on interlocking directors, and managerial situations such as geographic diversification. Accordingly, this study may add value to the society as a whole.

CRediT author statement

Hyoung Ju Song, Conceptualization, Methodology, Investigation, Software, Writing - original draft. Seoki Lee, Conceptualization, Investigation, Resources, Writing - review & editing, Supervision. Kyung Ho Kang, Methodology, Formal analysis, Writing - review & editing, Supervision

Declaration of competing interest

None

Acknowledgements

None.

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