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RESEARCH ARTICLE

Does Board Co-Working Experience Influence Directors' Decisions Toward Internationalization?

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Abstract Despite the importance of board capital in a firm's corporate strategic orientation and the high degree of international expansion that many firms have experienced in recent years, little or no research has explored how board capital affects a firm's internationalization decision. Drawing upon resource dependence theory, this study argues that board capital may help increase the firm's degree of internationalization and that board co-working experience may facilitate the contribution of directors with human and social capital to firm internationalization. The results indicate that board capital (directors' international experience, directors' industry-specific experience and directors' board appointments) is positively associated with internationalization and that board co-working experience has a positive moderating influence on the board capital-internationalization relationship. One important implication of the empirical evidence is that firms trying to expand internationally should consider nominating directors with rich human and social capital to the board because such directors can provide strategic advice and facilitate access to critical information and valuable resources needed for internationalization. Additionally, those international firms might be advised to consider board tenure when appointing board directors because board co-working experience allows directors to integrate their knowledge of the firm's internal affairs with their expertise in the area of international strategy and to combine their knowledge properly to address firm-

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specific issues, consequently enabling them to address international issues effectively.

Keywords Internationalization · Board human capital · Board social capital · Board co-working experience · Resource dependence theory

1 Introduction

Because the ongoing globalization process has changed the business landscape, internationalization strategies have never been more important (Barroso et al. 2011). Friedman (2005) suggests that a firm's international strategies are critical because globalization has made the world flat. Therefore, the question of how firms manage and cope with the uncertainty and complexity arising from internationalization is one of the most pressing issues (Kim and Mauborgne 1996). Sanders and Carpenter (1998) suggest that a critical determinant of a firm's ability to successfully address the complexity that accompanies internationalization is its board of directors. Resources that directors bring to the firm shape the nature of its international diversification (Hitt et al. 2006a) and affect the likelihood of its success in international markets (Hitt et al. 2006b). Despite the high degree of international expansion that many firms have experienced in recent years and the importance of the board in shaping corporate internationalization decisions, few studies have related boards to internationalization (Rivas et al. 2009; Barroso et al. 2011). Furthermore, these few works on boards have primarily focused on easily accessible variables, such as insider/outsider ratios, board size and directors' shareholding (Sanders and Carpenter 1998; Zahra et al. 2007), overlooking a gap that might exist between what directors are expected to achieve and the resources (e.g., information, knowledge, experience and social ties) they possess (Kor and Sundaramurthy 2009).

Resource dependence theory states that an organization's corporate strategic orientation is linked to opportunities that are available to access required resources (Pfeffer and Salancik 1978). Resource dependence theorists suggest that board capital (the sum of human and social capital) shapes how directors govern and offer advice and affect the ideas and resources that they provide (Hillman and Dalziel 2003; Dalziel et al. 2011). Accordingly, a board needs human capital, defined as knowledge and skills obtained through work experience, and social capital, defined as the resources accessible through networks of relationships to make the best decisions (Tian et al. 2011). Specifically, experience, such as international experience and industry-specific experience, enables directors to develop knowledge of opportunities for expansion into new international markets and knowledge of how to manage relationships and operations in the new environment (Hitt et al. 2006b; Barroso et al. 2011). Directors' board appointments help generate valuable social capital and can be beneficial to international firms by facilitating access to critical information and valued resources (Kor and Sundaramurthy 2009; Ortiz-de-Mandojana et al. 2012). Building on resource dependence theory, this study examines how firm internationalization is influenced by two types of board human capital—directors' international experience and directors' industry-specific experience—and board social capital—directors' board appointments.

In addition to having appropriate resources for international expansion, firms must effectively manage those valuable resources to achieve a competitive advantage in international markets (Hitt et al. 2006b). Forbes and Milliken (1999) argue that interaction difficulties that prevent directors from achieving their full potential can occur because boards of directors are characterized as large, episodic and interdependent. Disagreements or even conflicts may arise in boards when directors interpret and analyze international issues differently and hold different opinions about what responses to these issues are appropriate. Such disagreements or conflicts may consequently decrease directors' commitment to the board (Mace 1986) and hinder the exchange of information, knowledge and experience, which in turn would slow decision integration for internationalization and the pace of strategic decisions (Eisenhardt 1989). In light of the foregoing arguments, directors' human and social capital may result in different perspectives and provide a wider array of resources; conversely, diversity of opinions and viewpoints may create conflicts among directors and consequently constrain firm outcomes. Hitt et al. (2006b, p. 1141) suggest that "longer relationships tend to afford stability and continuity that contribute to norms of reciprocity and trust, which in turn generate referrals and endorsements". Accordingly, this study introduces board co-working experience (i.e., overlapping in directors' tenures) as the moderator and investigates its influence on the board capital-firm internationalization relationship.

This study tests the hypotheses using a dataset of electronics firms listed on the Taiwan Stock Exchange over the sample period 2006–2010. Taiwanese electronics firms are well suited to the purpose of this study because Taiwan is a small, open economy with limited domestic markets and scarce natural resources. To establish themselves in foreign markets and to secure low-cost labor and raw materials, Taiwanese electronics firms have diversified their production bases to many countries (e.g., China, Vietnam and India) and have sold their electronics products (e.g., IC chips and notebooks) worldwide (Chen 2011).

This study makes two major contributions to the literature. First, despite the importance of internationalization for today's businesses and the active participation of board directors in corporate strategic orientation, few studies have investigated how board capital contributes to firm internationalization. This study, which is based on resource dependence theory, investigates the effect of board capital on firm internationalization and thus should advance both the corporate governance and the international strategy literatures. Second, responding to calls in previous studies for research investigating whether overlap on directors' characteristics can reduce the effect of differences on their other characteristics (Johnson et al. 2013), this study introduces board co-working experience as a moderator of the board capital-firm internationalization relationship and thus expands our understanding of how board characteristics affect an organization's outcomes.

2 Literature Review and Hypotheses

2.1 Internationalization

Internationalization has become an increasingly important strategy for firms seeking sustained competitive advantage (Nachum and Zaheer 2005). Operating internationally can allow firms to achieve several potential benefits; firms can develop economies of scale, gain unique knowledge, extend innovative capabilities, exploit entrepreneurial opportunities, increase market power (Lu and Beamish 2001), obtain new resources, transfer core competencies to new markets, reduce costs and improve performance (Hitt et al. 2006a).

Nevertheless, the internationalization process is accompanied by tremendous uncertainty and complexity due to firms' liability of foreignness (Zaheer 1995), which derives from operating in different cultural, institutional and competitive markets (Hitt et al. 2006b). The diversity of cultures, customers, suppliers, rivals and regulations places pressure on corporate leaders of international firms to fragment their attention geographically (Sanders and Carpenter 1998). Additionally, the uncertainty and complexity are due to tremendous competitive pressures for international firms to extract synergies across product, geographic and other markets (Roth and O'Donnell 1996). International firms are thus required to place a premium on swift and internationally coordinated action and to have the ability to coordinate and integrate their geographically dispersed resources (Kim and Mauborgne 1993). Moreover, uncertainty can derive from a shortage of resources. Without appropriate resources (e.g., knowledge, information, experience and financial resources) and the ability to manage these resources effectively for international expansion, firms are unlikely to be successful in international markets (Hitt et al. 2006b). Melin (1992) suggests that knowledge about international markets is important for firms conducting business abroad to overcome the "psychic distance" caused by differences in language, culture, business practices and legislation.

Combined, the uncertainty and complexity arising from internationalization increase the information-processing and resource-marshaling demands placed upon firms and their corporate leaders (Sanders and Carpenter 1998). It follows that firms operating in foreign business environments need corporate leaders capable of reducing uncertainty and of addressing the complexity that accompanies internationalization by collecting, gathering and processing relevant information efficiently and by acquiring and managing essential resources for internationalization effectively.

2.2 Resource Dependence Theory: Board Capital and Internationalization

Uncertainty is harmful because it obscures the firm's control of resources, choice of strategies and day-to-day functioning (Pfeffer and Salancik 1978; Rivas et al. 2009). Resource dependence theory states that boards can be a mechanism for coping with uncertainty by providing advice and counsel, legitimacy, channels for communicating information between the firm and the environment and access to important constituents outside the firm (Pfeffer and Salancik 1978; Hillman and Dalziel

2003). Boards of directors play an important part in the management of the firm because they actively participate in the choice and implementation of strategic decisions, advising managers and observing the consequences of those decisions (Barroso et al. 2011). Directors' knowledge, experience, information and access to external networks can aid in information gathering and strategic problem solving (Zahra and Filatotchev 2004). In light of the logic of resource dependence theory and the importance of directors as strategic-issue-processing groups (Forbes and Milliken 1999), directors may reduce uncertainty and handle the complexity of internationalization by bringing knowledge and expertise, providing ongoing advice, facilitating access to resources and building external relationships (Barroso et al. 2011).

Based on resource dependence theory, Hillman and Dalziel (2003) initially introduce the concept of board capital as the sum of directors' human and social capital and suggest that board capital can reduce uncertainty and aid in the formulation of strategy or other important firm decisions. Additionally, resource dependence theorists document that board capital exerts a significant influence on firm strategy, such as strategic change (Haynes and Hillman 2010) and R&D spending (Dalziel et al. 2011). Research on board capital draws on work on human capital (Becker 1993) and social capital (Nahapiet and Ghoshal 1998), defines board human capital as directors' experience, knowledge and expertise and defines board social capital as the resources available to directors through their networks of relationships (Hillman and Dalziel 2003; Tian et al. 2011).

Specifically, Johnson et al. (2013) suggest that human capital is the skills and experiences that directors bring to the decision-making process, such as knowledge of an industry and familiarity with a specific event such as investing internationally, and that such experiences affect what directors focus on and how they frame decisions. They also suggest that directors' social capital in the form of director ties is a conduit for the flow of resources, information and advice both into and out of the organization, affecting decision-making processes. Accordingly, this study, based on resource dependence theory, argues that a firm's internationalization depends on the degree to which directors have developed human capital through their international experience and industry-specific experience and have developed social capital in the form of directors' board appointments through which directors facilitate access to critical resources.

2.2.1 Directors' International Experience (Board Human Capital) and Internationalization

Entering the international marketplace, which has a variety of cultural, economic and political systems, is highly complicated and results in more varied and complex managerial work (Gomez-Mejia 1988; Carpenter 2002). Johnson et al. (2013) suggest that a director with experience in investing internationally may have greater influence when international issues are discussed. Via international experience, directors can develop not only a better understanding of internationalization and foreign business environments but also the relationship of such strategies to a particular target company's industry (Kroll et al. 2008). Accordingly, directors' international experience representing specific knowledge, skills and experiences may help international firms address their liability of foreignness.

Numerous scholars argue that internationally experienced individuals can have cultural knowledge in terms of cognitions, values and norms of countries where they spend their international assignments (Kaczmarek and Ruigrok 2013) and that their perceptions and personalities thus tend to be more internationally-oriented (Sambharya 1996; Slater and Dixon-Fowler 2008). Accordingly, directors with international experience will have a more open-minded attitude toward other cultures, may be more aware of international issues, and may be inclined to view international opportunities favorably, thus facilitating the gathering, analysis and interpretation of information about opportunities around the globe (Carpenter and Fredrickson 2001; Nielsen 2010; Barroso et al. 2011). Additionally, via international experiences, directors may develop a global mindset that increases their confidence in the ability to estimate risk and returns associated with internationalization accurately (Nielsen and Nielsen 2011). Moreover, international experience may allow directors to become familiar with the environment quickly (Chen et al. 2009; Rivas 2012); to better understand government policy, multinationals' foreign competitors and customers (Carpenter et al. 2000) and relationships among worldwide operations and capabilities (Carpenter et al. 2001); and to accumulate knowledge of business practices, possess superior insights to manage diverse national and product settings (Herrmann and Datta 2002) and develop new and innovative solutions as issues arise (Slater and Dixon-Fowler 2008). Such directors may assist firms in scanning, organizing and reorganizing resources and capabilities rapidly (Carpenter et al. 2000) and in coordinating and controlling international operations (Carpenter et al. 2001; Oxelheim et al. 2013). In summary, internationally experienced directors are more capable of addressing the challenges, difficulties and complexities associated with internationalization and, as a result, of being more aggressive in committing resources in international operations.

A few studies on firm expansion have argued for decreasing marginal returns from experience (Yelle 1979). However, prior research finds only a linear effect of international experience on internationalization and that the quadratic effect is insignificant (Barkema et al. 1997; Carpenter and Fredrickson 2001). Therefore, this study proposes the following hypothesis:

Hypothesis 1: There is a positive relationship between directors' international experience and internationalization.

2.2.2 Directors' Industry-Specific Experience (Board Human Capital) and Internationalization

Industry-specific experience, one form of human capital, is tacit knowledge about an industry's structure, technologies, competitive conditions, consumer needs, supplier capabilities and regulations (Kor and Sundaramurthy 2009; Le et al. 2013). Aharoni et al. (2011) suggest that managerial knowledge, skills and problem-solving ability are viewed as international firms' resources embodied within human capital, and these resources can be leveraged for competitive advantage in the international marketplace. Additionally, Kor and Misangyi (2008) contend that directors with industry experience can provide advice, legitimacy, information and industry connections that help firms overcome their liability of newness. Applying the concept of Aharoni et al. (2011) to this study and following the arguments of prior research, this study assumes that firms may leverage directors' industry-specific human capital to facilitate internationalization.

Directors, via their firsthand work experience in the firm's industry, are likely to develop a more nuanced understanding of the industry (Tian et al. 2011) and thus are more capable of bringing and illuminating critical elements of the industry environment and of focusing management attention on the most important areas of consideration (Kroll et al. 2008; Chen 2014). Specifically, the industry-specific knowledge and skills enable directors to understand the industry's current dynamics, evaluate investment and growth paths, manage competitive dynamics (Kor and Misangyi 2008), and consequently lead firms to better international strategic formulations and implementations.

Internationalization is often associated with increased numbers of internationally diverse buyers and suppliers (Martin et al. 1998) and increased competition in industry (Gimeno et al. 2005), which make the environment facing international firms often more difficult and complex for decision-making (Barroso et al. 2011). Directors who have experience related to the industry are likely to have more information about potential partners' competencies and trustworthiness that enable firms to have healthier relationships (Kor and Misangyi 2008), thus reducing the uncertainty associated with internationalization. Additionally, via their industry familiarity, directors have more information and resources about the markets and the industry, which enable the detection of new trends in the international market.

In summary, following the logic of Aharoni et al. (2011) and prior research, directors' industry-specific experience can be leveraged for competitive advantage in the international market and is a critical determinant of internationalization success. As a result, firms increase their willingness to expand internationally. Barroso et al. (2011) suggest that directors possessing specific experience in the industry to which the firm belongs should be in a superior position to advise management concerning international strategic decisions. Accordingly, this study proposes the following hypothesis:

Hypothesis 2: There is a positive relationship between directors' industry-specific experience and internationalization.

2.2.3 Directors' Board Appointments (Board Social Capital) and Internationalization

Resources are critical in the development and implementation of firm strategies (Hitt et al. 2001). Khanna et al. (2014) suggest that access to large and diverse information networks is beneficial with respect to deliberations about specific decisions, such as the choice of an acquisition target. Therefore, to be successful in international markets, firms must possess timely information and essential resources and effectively manage these resources for international expansion (Hitt et al. 2006b).

Directors' social capital in the form of directors' board appointments has been viewed as a source of information, knowledge and experiences (Tian et al. 2011), and this study further develops arguments based on that view. Directors' board appointments enable directors to build connectivity with other directors and executives (Hillman and Dalziel 2003), facilitating the communication, flow and accumulation of relevant, high-quality and timely information and knowledge (Carpenter and Westphal 2001; Tian et al. 2011). These factors in turn enable firms to be well informed about environmental events and trends and to identify and assess promising opportunities (Kor and Sundaramurthy 2009) in international markets. Additionally, directors' board appointments enable them to develop a comprehensive view of strategic and management issues and to generate innovative alternatives and solutions for international expansion because they observe the decision-making process firsthand and witness the consequences of those decisions via their directorships in other firms (Carpenter and Westphal 2001; Chen 2014). Moreover, directors' board appointments may provide valuable access to financial resources outside the firm (Hillman and Dalziel 2003; Chen 2013), consequently reducing internationalization risk resulting from financial constraints. In summary, the arguments presented above suggest that directors' board appointments may help reduce uncertainty in international operations by providing critical information and essential resources for internationalization, consequently increasing firms' willingness to internationalize.

Conversely, some researchers argue that directors' board appointments can be associated with costs because serving on too many boards may lead to lower involvement and commitment to its board members (Kor and Sundaramurthy 2009). Nevertheless, international environments are volatile and present great risks, thus demanding earlier and faster access to more timely information and critical resources. Resource dependence theory suggests that directors' board appointments form connections to the environment and other firms and can thereby contribute to their ability to perform the provision of resource functions (Pfeffer and Salancik 1978; Hillman and Dalziel 2003). To strengthen the number and range of information and resources that they can access, international firms need to recruit well-connected directors to their boards. Given the nature of internationalization and the perspective of resource dependence theory, this study proposes that directors with more board appointments can contribute to securing abundant essential resources for internationalization (Carpenter and Westphal 2001). Thus, the following hypothesis is proposed:

Hypothesis 3: There is a positive relationship between directors' board appointments and internationalization.

2.3 Directors' Co-working Experience and the Board Capital-Internationalization Relationship

According to the foregoing discussion, board capital providing expertise and detailed insight, bringing information and experience and facilitating access to resources could contribute to internationalization. However, Forbes and Milliken

(1999) argue that boards of directors characterized as large, episodic and interdependent are very likely to be vulnerable to "process losses" (Steiner 1972)—interaction difficulties that prevent directors from achieving their full potential. Therefore, when facing complex issues, disagreements or even conflicts may arise in boards because directors interpret and analyze issues differently and hold different opinions about what the appropriate responses to these issues are (Dutton and Jackson 1987; Forbes and Milliken 1999). Such disagreements or conflicts may consequently decrease directors' commitment to the board (Mace 1986) and hinder the exchange of information, knowledge and experience, which in turn could slow the pace of strategic decision (Eisenhardt 1989).

International issues and tasks are often complex and ambiguous (Hitt et al. 2006a). Directors with different backgrounds and experiences may have different perspectives on internationalization situations, which consequently hinder the pace of strategic decision. Researchers argue that in uncertain environments, the cohesiveness and cooperation of directors in exchanging information, discussing and evaluating the merits of competing alternatives and reaching well-reasoned decisions are critical to the quality of strategic decision-making (Eisenhardt et al. 1997; Barkema and Shvyrkov 2007; Cannella et al. 2008). Specifically, Tuggle et al. (2010) suggest that shared tenure on a firm's board could create shared frames of reference and shared experiences, reflecting greater homogeneity of perspectives. Accordingly, this study assumes that board co-working experience may influence the effect of board capital on firm internationalization.

Board co-working experience provides directors with opportunities to share, recognize and coordinate their individual knowledge, expertise and experience (Tian et al. 2011) because directors will develop an understanding of each other's skills, limitations and idiosyncratic habits (Kor 2006). This understanding is important because directors' tacit knowledge, special expertise or unique experience provide some directors access to information that others do not have (Tian et al. 2011). Additionally, such understanding among directors increases directors' confidence in the ability and credibility of one another, enabling them not only to cope well with the uncertainty associated with risky internationalization decisions but also to be positive about the analyzability and predictability of the international environment (Kor 2006). Accordingly, because directors with international experience and industry-specific experience and directors' board appointments increase the quality of thoughts and the airing of different viewpoints, board co-working experience promotes consensus that actively mitigates conflicts between directors because directors tolerate multiple viewpoints and opinions and respect each other's expertise and judgment. In summary, board co-working experience makes directors better able to integrate their knowledge of the firm's internal affairs with their expertise in the area of international strategy and to combine their knowledge properly to address firm-specific issues effectively, thereby enabling them to effectively address international issues, which in turn promotes firm internationalization.

On the other hand, some researchers argue that longer board co-working experience may create groupthink (Forbes and Milliken 1999) that suppresses the insights, creativity and expertise of directors (Barkema and Shvyrkov 2007). However, international firms must respond quickly to market, to opportunities and to competitors' moves to weaken their threats. Board co-working experience favors trust and coordination between board members that consequently facilitates their exchanging and processing of critical information and knowledge (Kim and Cannella 2008; Stevenson and Radin 2009), which in turn enable the board to function and make internationalization decisions efficiently and effectively. Therefore, this study proposes that the positive effect of board capital on firm internationalization will be enhanced by longer board co-working experience. The corresponding hypothesis is formulated as follows:

> *Hypothesis 4: Board co-working experience positively moderates the relationship between board capital (i.e., directors' international experience, directors' industry-specific experience and directors' board appointments) and internationalization.*

3 Data and Method

3.1 Sample and Analysis

To test the proposed hypotheses, this study considers electronics firms listed on the Taiwan Stock Exchange. The electronics industry in Taiwan is an interesting setting for this study for two reasons. First, Taiwan is a small, open economy with limited domestic markets and scarce natural resources. To establish themselves in foreign markets and to secure low-cost labor and raw materials, Taiwanese firms have diversified their production bases to countries such as China, Vietnam, India, Mexico, and the Czech Republic (Chen 2011). The electronics industry in particular is chosen because Taiwan is known for producing electronics products. Taiwanese electronics firms have produced most of the world's personal computers and have held large shares of the global market for other consumer electronics products since the 1990s. Taiwanese electronics firms have long been the world's No. 1 or No. 2 producer of integrated circuit (IC) chips and flat-panel displays supplied to Apple, Microsoft, Intel, HP and Sony (Taiwan Yearbook 2012) (Chen 2014). Second, Taiwanese firms often look to and utilize their boards to build legitimacy and to obtain critical resources for new initiatives (Wu et al. 2008). Numerous scholars argue that the resource dependence function of boards is relatively more pronounced in Taiwanese firms than in Western firms (Young et al. 2001; Chen et al. 2013). To improve corporate governance and consequently attract foreign capital, regulatory changes in Taiwan have emphasized the qualifications of boards of directors. For instance, the board of directors should possess industrial knowledge, a perspective of the international market and the ability to lead and make decisions. Additionally, the Taiwan Company Act stipulates that a company's business operations should be executed pursuant to resolutions adopted by the board of directors. Therefore, directors are very likely to participate actively in making strategic decisions such as internationalization.

This study employs panel data that involve repeated observations on the same set of cross-sectional units (Hsiao 2003) for regression analysis. With panel data for the analysis, this study uses general linear squares (GLS) models that can correct for the presence of autocorrelation and heteroscedasticity (Kmenta 1986; Wooldridge 2002;

Lu and Beamish 2004). To ensure that the direction of causality is from board capital to internationalization and not the reverse (Finkelstein and Hambrick 1996; Lee and Park 2008), to observe the effect of firms' ownership and governance features on their strategic choices over time (Geletkanycz and Hambrick 1997; Chen 2011) and to mitigate potential endogeneity problems (Deutsch 2007; Kor and Sundaramurthy 2009), this study lags all of the independent and control variables by one year. That is, the dependent variable (i.e., firm internationalization) from 2007 to 2010 is regressed against the independent variables (i.e., board capital) and control variables from 2006 to 2009. To further address the endogeneity problem, a two-way fixed-effects approach is used to control for any time-invariant firm-specific factors that relate to both firm internationalization and board capital, mitigating concerns about omitted variables (Masulis et al. 2012). Finally, firm-years with missing data or with changes at fiscal year-end are excluded. Therefore, the final sample includes 162 electronics firms and generates 648 observations (162 firms × 4 years).

The regression Eq. (1) tests the effects of board human and social capital on internationalization (H1–H3).

$$\begin{aligned} Internationalization_{it} = \beta_0 &+ \beta_1(Directors'\ International\ Experience)_{it-1} \\ &+ \beta_2(Directors'\ Industry\text{-}Specific\ Experience)_{it-1} \\ &+ \beta_3(Directors'\ Board\ Appointments)_{it-1} \\ &+ \beta_4(Control\ Variables)_{it-1}. \end{aligned} \tag{1}$$

To investigate whether directors' co-working experience strengthens or weakens the effects of board human and social capital on internationalization, the following moderated regression Eq. (2), based on Eq. (1), is utilized.

$$\begin{aligned} Internationalization_{it} = \beta_0 &+ \beta_1(Directors'\ International\ Experience)_{it-1} \\ &+ \beta_2(Directors'\ Industry\text{-}Specific\ Experience)_{it-1} \\ &+ \beta_3(Directors'\ Board\ Appointments)_{it-1} \\ &+ \beta_4(Board\ Co\text{-}Working\ Experience)_{it-1} \\ &+ \beta_5(Directors'\ International\ Experience \\ &\times Board\ Co\text{-}Working\ Experience)_{it-1} \\ &+ \beta_6(Directors'\ Industry\text{-}Specific\ Experience \\ &\times Board\ Co\text{-}Working\ Experience)_{it-1} \\ &+ \beta_7(Directors'\ Board\ Appointments \times Board\ Co \\ &\text{-}Working\ Experience)_{it-1} \\ &+ \beta_8(Control\ Variables)_{it-1} \end{aligned} \tag{2}$$

where control variables include leverage, firm performance, log(firm size), innovation, advising intensity, institutional ownership, management ownership and board size.

Financial data (including foreign sales, foreign assets, total sales, total assets, return on equity, debt ratio, total number of employees, advertising expenditures and R&D expenditures), board size, institutional ownership and management ownership are drawn from the Taiwan Economic Journal Data Bank. Data on board tenure, directors' international experience, directors' current or past work experience and total number of board directorships held by the board members at other firms are manually drawn from company annual reports. The data are also checked against and supplemented by the company website, *The Manager Directory in Taiwan*, published by the China Credit Information Service, and *Who's Who in the Republic of China*, published by the Central News Agency.

3.2 Dependent Variable

A firm's degree of internationalization can be measured in several ways. The dimensions of foreign sales and foreign assets address a firm's dependence on foreign markets and resources (Sanders and Carpenter 1998). Consistent with prior research (Sambharya 1996; Sanders and Carpenter 1998), this study uses the two popular variables of foreign sales to total sales (FSTS) and foreign assets to total assets (FATA) to capture the scale of internationalization. These two variables are highly correlated ($r = 0.82$, $p < 0.001$). Following the procedures of Sanders and Carpenter (1998), this study integrates these two variables into a composite measure of internationalization.

3.3 Independent Variables

3.3.1 Directors' International Experience

International experience, one measure of human capital, is defined as international educational and/or work experience (Herrmann and Datta 2005). Each director is coded one for having such experience or zero otherwise in this analysis. Directors' international experience is then measured as the percentage of board members coded one (Barroso et al. 2011).

3.3.2 Directors' Industry-Specific Experience

Industry-specific experience is another measure of board human capital. Following Barroso et al. (2011) and Chen et al. (2016), this study considers a director who has occupied two or more posts in the electronics industry to be highly experienced and a director who has held one or no such posts to be poorly experienced or inexperienced. Directors' industry-specific experience is measured as the percentage of board members who are highly experienced in the electronics industry.

3.3.3 Directors' Board Appointments

This study defines board social capital in terms of the directors' board appointments. Because the levels of social capital could be overinflated due to the size of the board

(Khanna et al. 2014), this study measures directors' board appointments by counting the number of other directorships for each director and then averaging across all directors on the focal board (Tian et al. 2011; Chen 2014; Khanna et al. 2014).

3.4 Moderator

Board co-working experience is calculated as the overlap in directors' board tenures based on the following formula: Tenure Overlap = $1/n\Sigma\min(u_i, u_j)$, where u_i is the board tenure of the ith director, and n is the number of pairwise comparisons (Tian et al. 2011; Chen et al. 2016).

3.5 Control Variables

This study controls for several variables that may influence a firm's internationalization. Leverage, measured as the book value of debt divided by total assets, is controlled for, given the argument that internationalization requires financing support, which means its likelihood of being undertaken relies on the firm's financial condition (Tihanyi et al. 2003). Firm performance, measured as return on equity, is controlled for because it may influence a firm's ability to cover the costs of doing business globally (Tihanyi et al. 2003). Firm size, measured as the logarithm of the number of employees, is controlled for, because large firms may possess greater resources that are conducive to internationalization (Barroso et al. 2011). Given the findings of past research, that is, that R&D intensity is associated with higher levels of international expansion (Herrmann and Datta 2005), innovation is controlled for and measured as the ratio of R&D expenditures to total sales. Advertising intensity, measured as the ratio of advertising expenditures to total sales, is controlled for because it may generate higher returns to international expansion (Lu and Beamish 2004). Institutional ownership, measured as the percentage of ownership by institutional investors, is included based on the argument that institutional investors, as equity owners, may affect international investment decisions (Tihanyi et al. 2003). Management ownership, measured as the percentage of ownership by managers, is controlled for, because previous studies argue that stock ownership may influence executives' risk propensity and incentives and consequently their strategic decision-making (Musteen et al. 2009). Board size, measured as the number of directors on a board, is controlled for (Oxelheim et al. 2013) based on the argument that larger boards tend to have the resources (Haleblian and Finkelstein 1993) required to operate successfully in international markets and thus positively affect firm internationalization (Jaw and Lin 2009).

4 Empirical Results

Table 1 presents the means and standard deviations for the variables used in the regression models. Also represented in Table 1 are the findings of the correlation analysis. The matrix shows modest correlations between the independent and control variables, suggesting that multicollinearity problems are unlikely. To further test for

Table 1 Descriptive statistics and correlations

Variables	Mean	S. D.	1	2	3	4	5	6	7	8	9	10	11	12
1. Internationalization (%)	0.42	0.20												
2. Directors' international experience	0.41	0.25	0.00											
3. Directors' industry-specific experience	0.71	0.24	0.01	0.24***										
4. Directors' board appointments	4.43	3.55	0.25***	0.11**	0.25***									
5. Board co-working experience (year)	5.23	3.90	0.01	−0.02	−0.04	0.02								
6. Leverage (%)	39.44	16.51	0.36***	0.05	0.10**	0.21***	−0.01							
7. Firm performance (%)	9.52	16.68	−0.11**	0.09*	−0.00	0.04	−0.06	−0.14***						
8. Firm size (log)	3.34	0.62	0.47***	0.14***	0.06	0.24***	0.02	0.37***	0.08					
9. Innovation (%)	4.51	4.94	−0.28***	0.04	0.06	−0.09*	0.02	−0.48***	−0.15***	−0.33***				
10. Advising intensity	0.06	0.06	0.00	0.06	−0.11**	−0.05	−0.02	−0.16***	−0.11**	−0.24***	0.28***			
11. Institutional ownership (%)	37.27	22.39	0.10*	0.18***	0.12**	0.28***	−0.02	0.01	0.34***	0.42***	−0.12**	−0.06		
12. Management ownership (%)	2.35	2.75	−0.07	−0.07	0.08*	−0.00	−0.06	−0.09*	0.12**	−0.18***	0.06	−0.02	−0.18***	
13. Board size	9.43	1.95	−0.10**	0.07	0.03	0.12**	−0.09*	−0.08*	0.05	0.21***	−0.01	−0.09*	0.25***	0.17***

Number of observations = 648

***, **, * Stand for significance within respectively the 0.1, 1 and 5% level multicollinearity, the values of variance inflation factors (VIFs) are inspected. The VIF values range between 1.021 and 1.631, and all of the values are strictly less than 2, demonstrating that the regression models are relatively free of potential multicollinearity problems. Additionally, this study conducts Durbin–Watson tests for autocorrelation, and none of the models suggests significant Durbin–Watson results.

Corporate governance is often complicated by endogeneity concerns (Minnick and Noga 2010). To address endogeneity, this study first uses a 1-year lag between the dependent variable and the independent variables and a fixed-effects model, as discussed in the previous section. However, as a further precaution, this study follows most prior research by employing instrumental variables that are correlated with the explanatory variables but that are not correlated with the error terms (Kor and Sundaramurthy 2009; Ramdani and van Witteloostuijn 2010; Chen 2014). This study constructs two instrumental variables, family ownership and average director compensation. Family ownership may be positively associated with a proportion of skilled and experienced directors, given the argument that family firms are more likely to select experienced and well-connected directors and retain them longer on their boards (Cannella et al. 2015). Additionally, compensation of board directors may attract and retain quality board members (Hempel and Fay 1994; Yermack 2004; Withers et al. 2012). Accordingly, this study uses family ownership and average director compensation as instrumental variables and runs two-stage least-squares instrumental variable (2SLS-IV) regressions to correct for potential endogeneity and to estimate the relationships among board capital, board co-working experience and firm internationalization.

Table 2 summarizes the lagged hierarchical regression analysis. Model 1 includes the control variables (leverage, firm performance, firm size, innovation, advertising intensity, institutional ownership, management ownership and board size) and shows that the control variables explain 89.26 percent of the variance in internationalization.

Model 2 includes the hypothesized effect of board capital in addition to the control variables. The change in the adjusted R^2 of 0.29 percentage points between Model 1 and Model 2 is statistically significant (Wald $\chi^2 = 16.10$, $p < 0.01$), suggesting that directors' international experience, directors' industry-specific experience and directors' board appointments jointly explain a significant percentage of the overall variance. Specifically, the coefficient for directors' international experience is significantly positive ($t = 2.18$, $p < 0.05$), supporting Hypothesis 1. The coefficient for directors' industry-specific experience is significantly positive ($t = 2.04$, $p < 0.05$), supporting Hypothesis 2. The coefficient for directors' board appointments is significantly positive ($t = 2.32$, $p < 0.05$), supporting Hypothesis 3.

Few studies have elaborated on the advantages and drawbacks of directors' international experience (Carpenter and Fredrickson 2001) and directors' board appointments (Kor and Sundaramurthy 2009) and thus proposed an inverted U-shaped effect. To test such an effect, this study initially enters directors' international experience (directors' board appointments) into a regression equation predicting internationalization and then enters directors' international experience squared (directors' board appointments), representing a quadratic function. However, none of the squared-term coefficients is significant. To preserve space, this study omits these results from the table. Accordingly, the curvilinear predictions do not hold.

Table 2 Results of regression analysis

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	0.2271* (2.08)	0.1569 (1.43)	0.1595 (1.44)	0.1581 (1.44)	0.1722 (1.57)	0.1501 (1.36)	0.1600 (1.46)
Control variables							
Leverage	−0.0002 (−0.36)	−0.0004 (−0.63)	−0.0004 (−0.62)	−0.0003 (−0.59)	−0.0004 (−0.69)	−0.0003 (−0.45)	−0.0003 (−0.52)
Firm performance	−0.0006^{+} (−1.86)	−0.0005^{+} (−1.77)	−0.0005^{+} (−1.76)	−0.0006^{+} (−1.82)	−0.0006^{+} (−2.06)	−0.0005^{+} (−1.67)	−0.0006^{+} (−1.90)
Firm size	0.0945** (3.12)	0.0901** (3.00)	0.0897** (2.97)	0.0896** (2.99)	0.0896** (2.99)	0.0937** (3.12)	0.0923** (3.10)
Innovation	0.0009 (0.52)	0.0007 (0.45)	0.0008 (0.46)	0.0009 (0.57)	0.0008 (0.48)	0.0012 (0.73)	0.0012 (0.72)
Advising intensity	−0.2122 (−1.01)	−0.1821 (−0.87)	−0.1817 (−0.87)	−0.1760 (−0.85)	−0.2082 (−1.01)	−0.2180 (−1.05)	−0.2182 (−1.06)
Institutional ownership	−0.0007 (−1.39)	−0.0007 (−1.48)	−0.0007 (−1.48)	−0.0006 (−1.31)	−0.0007 (−1.40)	−0.0006 (−1.35)	−0.0006 (−1.24)
Management ownership	−0.0106* (−2.45)	−0.0095* (−2.22)	−0.0095* (−2.22)	−0.0089* (−2.10)	−0.0088* (−2.07)	−0.0085* (−2.00)	−0.0080* (−1.91)
Board size	−0.0058 (−1.20)	−0.0036 (−0.74)	−0.0036 (−0.75)	−0.0031 (−0.66)	−0.0037 (−0.78)	−0.0032 (−0.67)	−0.0031 (−0.66)
Main effects							
Directors' international experience		0.0480* (2.18)	0.0479* (2.17)	0.0413^{+} (1.88)	0.0417^{+} (1.90)	0.0383^{+} (1.73)	0.0339 (1.54)
Directors' industry-specific experience		0.0390* (2.04)	0.0386* (2.00)	0.0332^{+} (1.73)	0.0340^{+} (1.78)	0.0300 (1.55)	0.0270 (1.40)
Directors' board appointments		0.0045* (2.32)	0.0046* (2.32)	0.0046* (2.39)	0.0042* (2.16)	0.0038^{+} (1.94)	0.0039* (1.99)
Board co-working experience			−0.0002 (−0.16)	−0.0007 (−0.59)	−0.0008 (−0.69)	−0.0009 (−0.72)	−0.0013 (−1.10)

Table 2 continued

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Moderated effects							
Directors' international experience × board co-working experience				0.0111** (3.14)			0.0066^{+} (1.69)
Directors' industry-specific experience × board co-working experience					0.0116** (3.31)		0.0069^{+} (1.74)
Directors' board appointments × board co-working experience						0.0006** (2.78)	0.0004^{+} (1.78)
Adjusted R^2 (%)	89.26	89.55	89.53	89.72	89.74	89.67	89.85
Change in adjusted R^2 (%)	N/A	0.29	-0.02	0.19	0.21	0.14	0.32
Wald χ^2 (hypothesized variable)	N/A	16.10**	0.03	9.88**	10.94**	7.72**	17.79**
F-statistics	32.26***	32.68***	32.42***	32.90***	32.98***	32.74***	32.98***

Numbers in parentheses are t-statistics. The change in adjusted R^2 of Model 2 is relative to the Model 1. The change in adjusted R^2 of Model 3 is relative to Model 2. The change in adjusted R^2 of Model 4, 5, 6 and 7 is relative to Model 3. Number of observations = 648

***, **, *, $^{+}$ Stand for significance within respectively the 0.1, 1, 5 and 10% level

To examine the influence of board co-working experience on the relationship between board capital and internationalization, the study includes a moderated multiple regression. To avoid the problem of multicollinearity between the predictor variables and the interaction terms, directors' international experience, directors' industry-specific experience, directors' board appointments and board co-working experience are centered by their means (Aiken and West 1991). The results of Models 4, 5 and 6 show that board co-working experience interacts with directors' international experience ($t = 3.14$, $p < 0.01$), directors' industry-specific experience ($t = 3.31$, $p < 0.01$) and directors' board appointments ($t = 2.78$, $p < 0.01$) in positively affecting internationalization. Overall, these findings support Hypothesis 4, that is, that the interaction of board co-working experience and board capital is positively related to internationalization.

Although overlapping board tenure is positively associated with reduced conflict, superior communication and flow of ideas, very high levels of co-working experience may suppress the insights, creativity and expertise of directors (Barkema and Shvyrkov 2007). Therefore, this study examines a possible inverted U-shaped moderating effect of board co-working experience on the board capital-firm internationalization relationship. The coefficients for the three interactions of board co-working experience squared with three board capital variables are not significant. Again, to preserve space, this study omits these results from the table. Therefore, an inverted U-shaped moderating effect of board co-working experience does not hold.

The results of Model 7 show that the findings are qualitatively identical if the three interaction terms are added simultaneously. The change in the adjusted R^2 of 0.32 percentage points between Model 3 and Model 7 is also statistically significant (Wald $\chi^2 = 17.79$, $p < 0.01$). Although the addition of the three interactions to the models does not explain much of the additional variance, it demonstrates the different components that constitute it, which enables a more fine-tuned perspective to emerge for the relationships between the different variables (Aiken and West 1991; Vermeulen and Barkema 2002; Chen 2011).

To examine these interaction effects further, this study uses the steps suggested by Aiken and West (1991) to graph these three interaction terms, in which board co-working experience is treated as a moderator variable of directors' international experience on internationalization (Fig. 1), directors' industry-specific experience on internationalization (Fig. 2) and directors' board appointments on internationalization (Fig. 3). The slopes of the simple regression lines in the three graphs vary significantly as the Z-values increase from low (one standard deviation below the mean of Z) to high (one standard deviation above the mean of Z). These results confirm the hypothesized moderating effect and support Hypothesis 4.

5 Discussion

This study provides evidence that board capital helps increase the firm's degree of internationalization and that board co-working experience facilitates the contribution of directors with human and social capital to strategic internationalization decisions. Therefore, this study contributes to the literature in two ways. First,

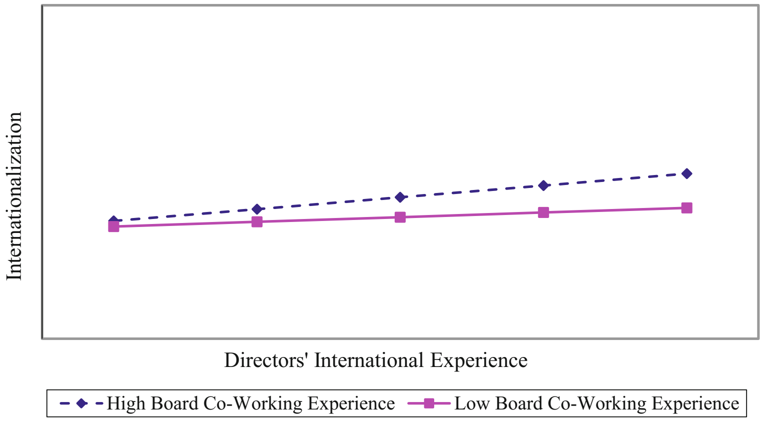

Fig. 1 Interaction effect of directors' international experience and board co-working experience

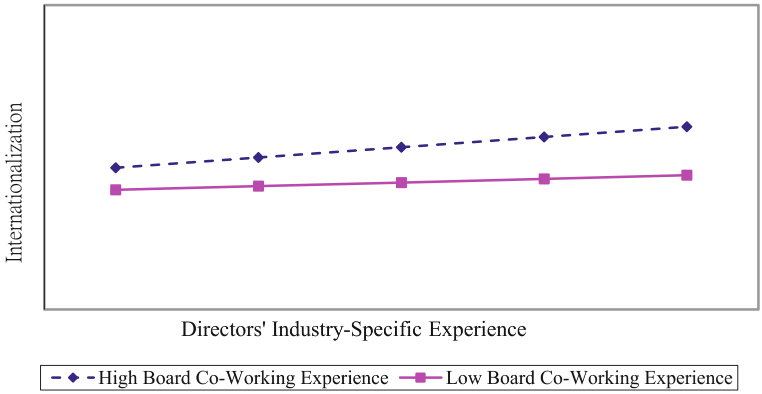

Fig. 2 Interaction effect of directors' industry-specific experience and board co-working experience

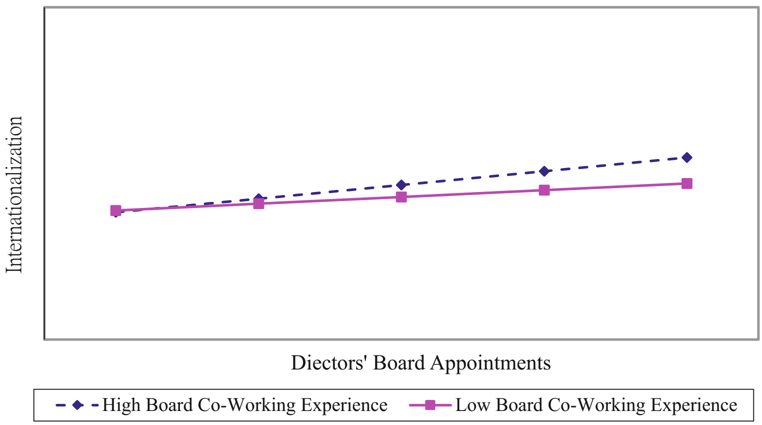

Fig. 3 Interaction effect of directors' board appointments and board co-working experience

recent corporate governance literature has increasingly emphasized the important role of the board in a firm's corporate strategic orientation (Kor and Sundaramurthy 2009; Pugliese et al. 2009). However, because internationalization strategies have never been more important for today's firms, few studies link boards to firm internationalization (Rivas et al. 2009; Barroso et al. 2011; Rivas 2012). As a strategic-issue-processing group (Forbes and Milliken 1999), the board is an active participant in the firm's management and thus plays an important role in the firm's internationalization strategies. Specifically, to make complex internationalization decisions, directors must have an in-depth understanding of the firm's business, its technology, its human assets, the specific conditions in the industries under which the firm operates, and access to information and skills in managing boardroom dynamics and processes (Kor and Sundaramurthy 2009). Accordingly, this study hopes to raise awareness about the importance of board capital (directors' international experience, directors' industry-specific experience and directors' board appointments) for internationalization by drawing on resource dependence theory. Prior research investigating board influence on organizational outcomes has primarily employed easily measured attributes such as board independence (e.g., Kor 2006) and board size (e.g., Ruigrok et al. 2006). Nevertheless, board composition/structure variables may not fully capture the knowledge and skills of directors (Kor and Sundaramurthy 2009) and the complex web of social relationship among directors (Combs et al. 2007). Researchers have thus called for future research building on resource dependence theory (Hillman et al. 2009) and focusing on the valued resources that directors bring to a firm to yield more productive results (Daily et al. 2003). By highlighting the positive effect of board capital on firm internationalization, this study should advance both corporate governance and international strategy research by enhancing our understanding of how board capital contributes to firm internationalization.

Second, the availability of board human and social capital does not guarantee their use (Zattoni et al. 2012). This study advances the corporate governance literature by theoretically arguing for and empirically demonstrating how board co-working experience facilitates a board's contribution to internationalization by encouraging the provision of advice, counsel and essential resources. Johnson et al. (2013) review the literature on board demographics, human capital and social composition research and conclude that findings concerning the influence of many characteristics are inconclusive. Therefore, they suggest that multiple characteristics can be salient at the same time in groups and thus provide a perspective on whether overlap on among certain characteristics reduces the effect of differences on other characteristics. Because board directors are characterized as elite and episodic decision-makers who need a comprehensive analysis process and varied knowledge and experience to address complex strategic issues (Forbes and Milliken 1999; Zattoni et al. 2012), and because each director brings a different and unique set of resources to a firm (Lester et al. 2008), communication, understanding and collaboration among directors should enable joint action by the directors and increase their influence (Stevenson and Radin 2009). Tian et al. (2011) suggest that boards with long co-working experience may be better able to interpret the strategic implications of the challenges and specify the firm's need to address those challenges. Accordingly, this study proposes that directors' board capital provides information, expertise and resources to the board; however, the capital's influence on firm internationalization depends on how these resources are integrated into the board's decision-making processes via co-working among board members. By showing that board capital is particularly helpful in making internationalization decisions when directors share long co-working experience, this study enriches our understanding of the effects of board characteristics on firm outcomes.

5.1 Managerial Relevance

This research has several implications for the electronics industry and other firms investing internationally. The positive associations of directors' international experience, directors' industry-specific experience and directors' board appointments with internationalization observed in this study suggest that electronics firms and other international firms should focus particularly on their directors' international experience, industry-specific experience and board appointments. Directors with international experience may be more aware of international issues and inclined to view international opportunities favorably, directors with industry-specific experience possess tacit knowledge of the industry and can quickly understand opportunities and constraints, and directors with more board appointments have increased access to critical information and valuable resources (Chen et al. 2016). Electronics firms and other international firms should exploit directors' rich resources to enhance organizational capabilities in coping with the uncertainty and complexity accompanying internationalization and thus to ultimately increase their willingness to operating internationally.

Companies can enhance their ability to address challenges in the international environment by appointing board members with particular characteristics, skills or experience (Nielsen and Nielsen 2008). The positive relationship between board capital and internationalization also suggests that when the boards of electronics firms and other international firms search for new board members, they should consider the international experience, industry-specific experience and board appointments of potential directors and how new board members complement or reinforce the existing board. New members may allow a firm to obtain valuable strategic information and substantial resources, which would facilitate better internationalization decisions.

Board directors' capital may gather different perspectives and provide a wider array of resources; however, a diversity of opinions and viewpoints may create conflicts among directors. In particular, board directors' work is episodic and fragmented and lasts a limited amount of time. These factors can lead to higher conflicts in the board, consequently reducing directors' commitment to the board and their tendency to share experiences with one another. Therefore, determining how to sustain board directors' cooperation and cohesiveness is a critical issue for firms. This study finds a positive moderating influence of board co-working experience on the board capital-internationalization relationship, suggesting that board co-working experience promotes board members' consensus, which can actively cope with conflicts among directors, consequently enabling them to address international issues effectively. Accordingly, electronics firms and other international firms should consider board tenure when appointing board directors because greater board co-working experience allows directors to maintain collaborative working relationships with one another by facilitating access to group-level and firm-specific knowledge of other directors and promoting cooperative problem-solving activity, which are conducive to the initiation and implementation of internationalization.

5.2 Limitations and Future Studies

This study has several limitations that provide opportunities for further research. First, this study uses data on Taiwanese electronics firms to analyze the effect of board capital and the moderating role of board co-working experience on internationalization. The focus on a single sector and a single national context facilitates access to homogeneous data but presents complications in terms of generalizing the conclusions derived from the data. Analogous investigations replicating this research should focus on countries other than Taiwan or on other highly dynamic and complex industries (e.g., biotechnology), which would make the empirical results more generalizable beyond the country-specific or industry-specific context provided herein.

Second, this study focuses on a particular decision context, that is, internationalization. Further studies could explore the influence of board capital and board co-working experience on a firm's other critical strategies, such as strategic change, R&D investment, acquisitions and new CEO selection.

Third, this study uses directors' international experience and industry-specific experience to investigate the effect of board human capital on firm internationalization. Prior research has suggested that age (Kim and Cannella 2008) and functional experience (Singh et al. 2008) can serve as proxies for a director's human capital; however, garnering such information is very difficult in Taiwan. Future studies could employ alternative research designs and data-collection methods to obtain data on these director characteristics.

Fourth, nationality that influences the fundamental values, cognitions and behavior of board directors (Nielsen and Nielsen 2011) can serve as a proxy for board human capital and affect firm internationalization (Nielsen and Nielsen 2008). Some scholars suggest that foreign directors are better able to understand the international business environment, provide valuable knowledge about international employees, suppliers and customers, identify potential opportunities for foreign expansion and bring important expertise and network ties to the firm. All of these factors lead to better investment and operating decisions (Nielsen 2010; Oxelheim et al. 2013) and help reduce the costs of liability of foreignness (Nielsen and Nielsen 2013). Conversely, some argue that foreign directors may be less effective in monitoring management because of their geographical distance from corporate headquarters and their unfamiliarity with the accounting rules, regulations and governance standards of the company's country of origin (Masulis et al. 2012). Presently, few Taiwanese companies have foreign directors on the board. Future research could investigate the effect of director nationality on firm internationalization if foreign board directors were common in firms.

Fifth, in addition to directors' board appointments, degrees from elite institutions, memberships in external economic associations (Kim and Cannella 2008) and personal relationships and affiliations (Johnson et al. 2013) help generate valuable social capital and thus should be explored. Future research could use the aforementioned variables as proxies for board social capital to explore their effects on internationalization if such director information is available.

Sixth, as discussed in the previous section, this study models the nonlinear effect of directors' board appointments on firm internationalization, and the unreported results provide no support for a nonlinear effect. One possible explanation for this lack of support is that this study focuses on directors' overall directorships without distinguishing international directorates from domestic ones. International directorates may help directors to develop diverse network ties and social capital across different countries that are essential for managing the multinational corporation's international complexity. Schmid and Dauth (2014) argue that serving on the board of an international firm familiarizes decision makers with different management styles and challenges in foreign markets. However, to develop strong and valuable network ties with individuals in foreign countries, directors need to invest considerable amounts of time and social effort in different countries. Large numbers of international directorates imply frequent cross-country mobility and thereby reduce the likelihood that directors have sufficient time to develop and maintain strong ties in different countries. Accordingly, future studies using more fine-grained measures such as international directorates would complement the current study.

Seventh, this study primarily focuses on how board tenure overlap can reduce conflict, enhance communication and facilitate the flow of ideas and information among directors. However, very high levels of co-working experience may suppress the insights, creativity and expertise of directors (Barkema and Shvyrkov 2007). Therefore, the notion of an inverted U-shaped moderating effect on the relationship between board capital and firm internationalization may exist. As discussed in the previous section, the unreported results provide no support for this notion. Analogous investigations replicating this research may use more refined measurements that can directly capture the underlying board processes through which board members access, utilize, and synthesize one another's knowledge, skills and experiences (Tian et al. 2011; Chen 2014).

Eighth, board characteristics and effects are likely to vary with different organizational, industry and national contexts (Hambrick and Mason 1984; Yamak et al. 2014). This study focuses on investigating the moderating effect of board co-working experience on the relationship between board capital and firm internationalization. Further studies may examine how organizational, industry or national characteristics influence the effect of board capital on firm internationalization.

Ninth, researchers suggest that firms having directors with industry-specific experience will pursue firm growth (Kor and Sundaramurthy 2009) because experienced directors can provide advice, legitimacy, information and industry connections that help firms overcome their liability of newness (Kor and Misangyi

2008). This study follows the concepts of prior research and uses a sample of Taiwanese electronics firms to examine the effect of directors' industry experience on firm internationalization. As previously mentioned, Taiwan is a small, open economy with limited domestic markets and scarce natural resources. Therefore, Taiwanese electronics firms seek to pursue international expansion for growth to expand markets and obtain resources at lower cost. Undeniably, certain countries, such as US and China, have large domestic markets. Board directors with industry-specific experience in those countries may initially pursue expansion in their domestic market, rather than international expansion. Future research investigating growth issues may consider simultaneously examining the effect of directors' industry-specific experience on domestic growth and on international growth.

6 Conclusion

Although a firm's board of directors is a critical factor for firms to successfully address the complexity that accompanies internationalization, little research relates boards (particularly board capital) to internationalization. The findings of this study show not only that directors with human and social capital provide firms with ongoing advice and essential resources needed to internationalize successfully but also that these directors are more likely to provide resources for internationalization when they have longer co-working experience. This conclusion elucidates directors' resource dependence role in shaping firm internationalization and offers a new perspective on the effect of board capital. That perspective should inform future studies that seek to clarify how board directors influence a firm's strategic decisions, which are complex and uncertain and demand adequate resources.

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