

## RESEARCH NOTES AND COMMENTARIES

# OUTSIDE DIRECTORS' INDUSTRY-SPECIFIC EXPERIENCE AND FIRMS' LIABILITY OF NEWNESS

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*This study makes a contribution to the growing literature on the board's resource provision role by examining a specific type of resource provision (i.e., industry experience supplementing) and demonstrating the criticality of the liabilities of newness to this particular role. In this study, we find that among younger entrepreneurial firms, a dearth of top management industry experience is offset by the presence of outside directors with significant managerial industry experience, providing evidence of experience supplementing by outside directors. Our study highlights that the notion of experience supplementing at the upper echelons prevails in young firms as they try to alleviate the burdens of the liability of newness. Experience supplementing underscores board-management collaboration during early years of firm development. Copyright © 2008 John Wiley & Sons, Ltd.*

## INTRODUCTION

Board composition and the roles of outside directors (i.e., nonmanagement members of the board) have been central themes in board governance research. Primary functions of outside directors involves monitoring managers on behalf of shareholders (Dalton *et al.*, 1998; Eisenhardt, 1989; Fama, 1980) and providing the firm with resources essential for firm survival and success (Hillman, Cannella, and Paetzold, 2000; Hillman and Dalziel,

2003; Pfeffer and Salancik, 1978). With regard to the latter role, research suggests that outside directors can be sought for providing the firm with knowledge and advice (e.g., Baysinger and Butler, 1985; Westphal, 1999), access to strategically related external organizations (Carpenter and Westphal, 2001; Daily and Dalton, 1994; Pearce and Zahra, 1992; Useem, 1984), and the legitimacy they confer (e.g., Certo, Daily, and Dalton, 2001b).

Despite the growing literature on the resource provisional role of the board of directors, little is known about how firm-specific factors may affect the centrality of the resource provision function (Hillman and Dalziel, 2003; Lynall, Golden, and Hillman, 2003; Zajac and Westphal, 1994). In particular, there has been very little empirical investigation into how management capabilities

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determine the need for the provision of human capital by outside directors (Finkelstein and Hambrick, 1996; Zahra and Pearce, 1989). Further, while it has been suggested that the liabilities of newness (Stinchcombe, 1965) may affect boards' resource provision (Certo, 2003; Lynall *et al.*, 2003), there has been limited empirical research to date to directly investigate whether the liability of newness affects the centrality of resource provision by outside directors.

Thus, this study examines two firm-specific conditions that may influence the resource provision role of firms' outside directors. Specifically, we investigate (1) whether the collective endowment of industry experience among the firm's top managers affects the amount of industry experience provided by outside directors, and (2) whether the firm's liability of newness moderates this resource provision. We focus on industry-specific experience in this study because this particular type of experience among outside board members serves as a critical source of both human capital (Boeker, 1997; Carpenter and Westphal, 2001; Kor and Sundaramurthy, 2008; Zald, 1969) and social capital (Certo, 2003; Certo *et al.*, 2001b; Certo *et al.*, 2001a) that boards potentially can provide to firms. We test these relationships utilizing a longitudinal sample of entrepreneurial technology firms.

This research note contributes to the growing literature on the board's resource provision role by testing a *specific type of resource provision—industry experience supplementing—* and by demonstrating the criticality of the liabilities of newness to this particular role. This investigation provides new empirical knowledge about how outside directors' industry experience composition differs based on firm-specific needs—an area that has been underresearched, especially through empirical studies (Carpenter and Westphal, 2001; Finkelstein and Hambrick, 1996; Zahra and Pearce, 1989).

## THE CONTINGENCY OF TOP MANAGEMENT INDUSTRY EXPERIENCE

As a critical form of managerial experience, industry-specific experience embeds the tacit knowledge of the opportunities, threats, competi-

tive conditions, technology, and regulations specific to an industry, as well as goodwill, with industry players such as buyers and suppliers (Bailey and Helfat, 2003; Boeker, 1997; Cooper, Gimeno-Gascon, and Woo, 1994; Harris and Helfat, 1997; Mosakowski, 1993). Because new developments in many aspects of the industry such as technology and competition follow a path-dependent pattern, knowledge of prior conditions can help managers understand the industry's current dynamics (Arthur, 1994). Managerial familiarity with technology and market conditions in a specific industry is a critical determinant of success among entrepreneurial firms (Roberts and Berry, 1985) because it enables managers to detect emerging opportunities and new trends in the industry (Rubenson, 1989) and helps in evaluating alternative paths of investments and growth (Kor, 2003). Experiential knowledge of customer preferences and competitors' commitments and competencies is instrumental to product positioning and in managing competitive dynamics (Boeker, 1997; Gimeno *et al.*, 1997).

Despite its merits, top management teams differ significantly from one another in their levels of knowledge and experience, and some entrepreneurial teams exhibit shortages of industry-specific experience (Carpenter, Sanders, and Gregersen, 2001; Finkelstein and Hambrick, 1996; Harris and Helfat, 1997). Such management teams are more likely to make critical mistakes and fail to respond to industry opportunities and threats in a timely fashion (Castanias and Helfat, 1991; Schefczyk and Gerpott, 2001; Schoonhoven, Eisenhardt, and Lyman, 1990). In the absence of managerial experience in the industry, survival chances of new ventures drop significantly (Bruderl, Preisdorfer, and Zeigler, 1992) as they struggle to gain strong market positions (Kor, 2003).<sup>1</sup>

When there is a shortage of industry experience among top managers, higher quality decisions can be made when outside directors who are knowledgeable about the industry give advice and counsel to managers regarding strategy formulation choices and implementation challenges (Johnson, Daily, and Ellstrand, 1996; Westphal, 1999). Kroll,

<sup>1</sup> Although our concern here is with the absence of such experience, it is important to recognize that extensive industry experience may result in commitment to certain industry perceptions and recipes, which may prevent strategic changes and adaptation to the environment (Finkelstein and Hambrick, 1996; Huff, 1982; Porac, Thomas, and Baden-Fuller, 1989; Spender, 1989).

Walters, and Le (2007) show that the advice and counsel of outside directors with industry experience is beneficial to the performance of young entrepreneurial firms. As such, tacit (experiential) knowledge of the focal firm's industry, technology, competition, and regulations is foundational to the human capital of outside directors (Becker, 1964; Certo, 2003; Kor and Sundaramurthy, 2008). Outside directors with experience in the focal firm's industry can *supplement managers' experience* in making strategic decisions on major investments, competitive dynamics, and product (re)positioning. Especially in industries with complex technologies and regulations, outside directors with relevant knowledge can give valuable advice to managers and more effectively contest management proposals (Carter and Lorsch, 2004; Gimeno *et al.*, 1997; Kor and Sundaramurthy, 2008; Zald, 1969).

Outside directors' industry experience can also be beneficial to the firm as it often brings goodwill and ties with key industry players and access to information and resource networks within the industry (Carpenter and Westphal, 2001; Daily and Dalton, 1994; Pearce and Zahra, 1992; Useem, 1984). With this relational capital, outside directors can help the firm acquire critical resources and initiate new business relationships (Certo *et al.*, 2001b; Hillman & Dalziel, 2003; Nahapiet and Ghoshal, 1998; Pfeffer and Salancik, 1978). Directors' previous experience in different firms in the focal industry increases the number of links with various industry players, which then creates more leads (for the focal firm) to potential business partners as well as superior information for assessing the commitment and trustworthiness of partners (Eisenhardt and Schoonhoven, 1996).

Top-level managers and outside directors often collaborate at the upper echelons in developing strategic choices and solutions (Finkelstein and Hambrick, 1996; Jensen and Zajac, 2004; Westphal and Fredrickson, 2001). Yet the amount of advice and guidance that managers need from outsiders is likely to be a function of the availability of industry experience in the top management team. Shortages of industry-specific knowledge and social capital (i.e., connections) among managers call for appointment of outsiders with industry experience to the firm's board (Filatotchev and Bishop, 2002; Lorsch and MacIver, 1989). When the top managers have limited industry experience, their experience will be supplemented by outside directors who have significant industry experience.

*Hypothesis 1: The lower the levels of industry experience in the top management team, the higher the levels of industry experience among outside directors.*

## THE CONTINGENCY OF FIRMS' LIABILITY OF NEWNESS

Outside directors' industry expertise may be especially important for firms that are subject to the liability of newness. Liability of newness occurs when young firms lack resources, slack, and the legitimacy of older firms and struggle to develop business relationships with suppliers and customers (Stinchcombe, 1965; Zald, 1969). This condition is recognized as a major factor in contributing to the disproportionately high rates of failure among venture firms (Bruderl and Schussler, 1990; Freeman, Carroll, and Hannan, 1983). Due to limited resources, these organizations possess little power and influence over market and competitive conditions (Romanelli, 1989). Lacking the safety net of interorganizational linkages and trust of familiar industry players, young firms operate at a disadvantage in forming new strategic partnerships, experience vulnerability to opportunism (due to working with unfamiliar partners and lack of alternative partners to choose from), and endure precariousness in relationships (Morse, Fowler, and Lawrence, 2007; Stinchcombe, 1965). In the absence of history and a track record in the industry, these firms are compelled to signal legitimacy in order to establish reliable exchange relationships (Hannan and Freeman, 1984). Legitimacy can be signaled through industry expert outside directors especially when managers cannot send a signal themselves due to a void in their industry experience.

In firms with vulnerability to the liability of newness, outside directors with industry experience can be highly sought for their legitimacy, advice, and industry connections (Finkelstein and Hambrick, 1996; Goodstein and Boeker, 1991; Zald, 1969). Experienced directors claim high status and tend to have more attractive opportunities for board service than less experienced directors. Willingness of these prestigious directors to serve on the company board increases the focal firm's legitimacy by sending positive signals to the markets and industry players about the quality of the

firm and its future prospects (Certo, 2003). Pfeffer and Salancik (1978) note that 'prestigious or legitimate persons or organizations represented on the focal organization's board provide confirmation to the rest of the world of the value and worth of the organization' (Pfeffer and Salancik, 1978:145). In support of this argument, Certo *et al.* (2001b) show that having experienced and prestigious outside directors on entrepreneurial firm boards benefits firms as their presence serves to decrease underpricing on the first day of public trading of firms' stocks. With the endorsement of experienced directors, firms will have an improved ability to initiate and secure business relationships with customers, suppliers, and channel members. Firms are also likely to have healthier relationships as they will have access to more information about potential partners' competencies and trustworthiness through the industry network of outsiders (Eisenhardt and Schoonhoven, 1996). Thus, by boosting a firm's external legitimacy and strengthening its social network ties within the industry, experienced outside directors may help venture firms partially overcome their liability of newness (Morse *et al.*, 2007).

Later on, the importance of the reinforcement of managers' industry experience by industry expert outside directors may diminish as firms mature and develop stronger legitimacy, slack, and knowledge assets (Zald, 1969). Once operated successfully for a period of time, the firm is likely to improve its credibility and have diminished need to signal legitimacy through its top management team or board members' backgrounds. Mature and established firms may still benefit from outside directors' provision of advice, counsel, legitimacy, and external relationships, but they are not as vulnerable and needy as young entrepreneurial firms. Thus, we predict that firm age will moderate the negative relationship between top managers' and outsiders' levels of industry experience such that this negative relationship will weaken as the firm's exposure to the liability of newness dissipates.

*Hypothesis 2: The negative relationship between top managers' industry experience and outside directors' industry experience weakens as the firm's exposure to the liability of newness diminishes.*

## METHODS

### Sample and variables

We test our hypotheses in a sample of entrepreneurial firms that went public between 1990 and 1995 in the technology-intensive medical and surgical instruments industry (Standard Industrial Classification code 384) in the United States. We collected data for these firms from their initial public offering year through 1999, which produced 394 observations from 78 firms. Our data come from initial registration statements (i.e., the prospectus), proxy statements, and the Compustat database. We retrieved prospectus data through Primark's New Issues Database. The prospectus data were then supplemented by data from proxy statements and Compustat.

The dependent variable, *outside directors' industry experience*, is measured as the average number of managerial positions directors previously held in the medical and surgical instruments industry (Kor and Sundaramurthy, 2008). Unlike general work experience, managerial industry experience indicates a higher level of responsibility, which accentuates learning industry-specific skills and knowledge that are critical for effective performance (Tesluk and Jacobs, 1998). This measure is an indicator of the amount and breadth of industry-specific knowledge because each additional managerial position held in the industry makes outside directors more familiar with the key assets and strategies of different industry players (Eisenhardt and Schoonhoven, 1996; Kor, 2003). Managerial knowledge of the industry opportunities, threats, competitive conditions, technology, and regulations is foundational to industry-specific human capital (Boeker, 1997; Bruderl *et al.*, 1992; Castanias and Helfat, 2001; Certo, 2003; Spender, 1989). Equally important, with every additional managerial position in the industry, the director makes new contacts with different industry players including customers, suppliers, and distributors, and as a result the director has improved access to industry information and resource networks. Eisenhardt and Schoonhoven note that:

top management teams whose members have worked for many firms within an industry are more likely to have connections with firms that are potential alliance partners than teams whose members have worked for only a few

firms within the industry. Executives who have worked for many firms probably have more leads to alliance partners (either directly to former employers or indirectly to past suppliers and customers) and more relationships to draw upon in assessing the commitment and trustworthiness of partners. They are also likely to be better known throughout the industry and thus have leads back to the focal firm (Eisenhardt and Schoonhoven, 1996: 141).

Thus, managerial experience in the industry serves as a proxy for the outsiders' level of industry-specific knowledge and the ability to access industry networks (Certo, 2003; Hillman, and Dalziel, 2003). The fact that an executive has served in many managerial positions suggests that this person is consistently sought after in the market (for executives) because of managerial capabilities that are desirable in this industry (Harris and Helfat, 1997).<sup>2</sup>

We measure *top management team (TMT) industry experience* as the average number of previous managerial positions managers held in the industry, because with every managerial position held in the industry, managers become more knowledgeable about the key assets, strategies, players, and specific conditions in the industry (Eisenhardt and Schoonhoven, 1996). *Firm age* (i.e., the number of years since the firm's founding) is used as a time-based, continuous indicator of firm's entrepreneurial development and liability of newness (Dodge, Fullerton, and Robbins, 1994; Hannan and Freeman, 1984; Kazanjian, 1988; Koberg, Uhlenbruck, and Sarason, 1996). Our sample indicates sufficient variance in firm age and represents firms with different levels of exposure to the liability of newness.

We control for several variables that may influence outside directors' experience level. We control for average firm tenure in the top management team (*TMT firm tenure*) as an indicator of experience in the focal firm. We include the number

of executives in the top management team (*TMT size*) as an indicator of the collective management resources available to a firm, which may influence the need for outside directors' guidance for managers. *TMT average age* is controlled because age and cognitive abilities can be correlated (Hambrick and Mason, 1984). We control for *venture capital ownership percentage* because venture capitalist owners are known to have a hands-on approach to monitoring and advice giving (Kor, Mahoney, and Watson, 2008). We also control for the *percentage of stock ownership in TMT*, measured as the average level of common stock ownership among top managers, because ownership as an incentive mechanism may diminish the need for the monitoring of managers (Beatty and Zajac, 1994). Further, we control for the proportion of outside directors on boards, as the *outsider ratio* is a commonly used indicator of board vigilance (Dalton *et al.*, 1998). Finally, we control for *firm size*, measured as firm's total assets, and *return on assets*, because both may influence resource availability and the vulnerability of the firm as an entrepreneurial entity (Hannan and Freeman, 1984).

## Analysis and results

We test our hypotheses with panel data that include repeated observations on the same set of cross-sectional units. The results of the Hausman test for orthogonality suggest that the individual effects are correlated with other regressors; thus, we used fixed effects regression to produce unbiased regression coefficients (Greene, 2000). Table 1 provides descriptive statistics and correlations, and Table 2 presents the results of the two-tailed regression analyses.

As shown in Model 1 of Table 2, the relationship between managers' and outside directors' industry experience is negative as predicted by Hypothesis 1 (Model 1,  $p < 0.10$ ). In support of Hypothesis 2, the interaction of TMT industry experience and firm age is positive (Model 2,  $p < 0.05$ ). As shown in Figure 1, this positive moderating effect weakens (and eventually eliminates) the negative relationship between TMT industry experience and outsider industry experience as firms age.

Based on these results, we performed a *post hoc* analysis where we examined the relationship between outside director and top management industry experience across the subsamples of younger (i.e., when firm age is equal or less than

<sup>2</sup> We recognize that our measure does not capture whether industry expertise in the outside director group is sourced by all outsiders versus a single (or a few) outside director(s). Yet, capturing the distribution of industry expertise among outsiders on the board is not the purpose of our study. Presence or lack of similarity in director background characteristics is important to board processes (Milton and Westphal, 2000); however, our theory focuses on the *level* of industry experience outsiders can provide to the firm. We thank one of the anonymous referees for helping us clarify this point.

Table 1. Descriptive statistics and correlations

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1. TMT industry experience	1.38	0.69										
2. TMT firm tenure	5.82	3.25	-0.34***									
3. TMT size	5.97	2.04	-0.13*	0.19***								
4. TMT average age	46.10	4.58	0.04	0.38***	0.23***							
5. Venture capital ownership %	0.11	0.19	0.14**	-0.35***	-0.10*	-0.28***						
6. Average % of stock ownership in TMT	0.16	0.18	-0.13*	0.16**	-0.05	0.13*	-0.14**					
7. Outside ratio	0.69	0.16	0.02	-0.15**	0.02	-0.24***	0.19***	-0.32***				
8. Firm size	0.07	0.19	0.00	0.42***	0.25**	0.21***	-0.16***	-0.07	0.01			
9. ROA	-0.29	0.57	-0.11*	0.26***	0.07	0.11*	-0.25***	0.03	-0.03	0.19***		
10. Firm age	9.82	6.69	-0.22***	0.53***	0.14**	0.25***	-0.26***	-0.07	0.01	0.12*	0.25***	
11. Outside director industry experience	1.02	0.77	0.25***	-0.12*	-0.02	0.15**	-0.13**	-0.04	0.03	0.00	-0.09+	-0.20***

*n* = 394. Firm size (i.e., total assets) is in billions of U.S. dollars.  
 + *p* < 0.10 \* *p* < 0.05 \*\* *p* < 0.01 \*\*\* *p* < 0.001

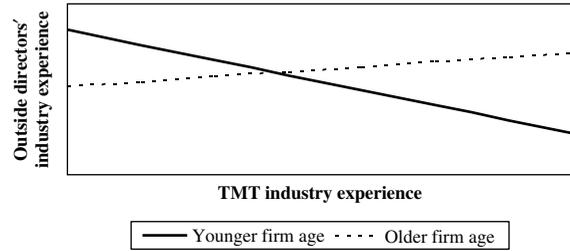


Figure 1. Moderating effect of firm age on the relationship between outside director and TMT industry experience

the sample median) and older (i.e., when firm age is greater than the sample median) entrepreneurial firms. These results show that Hypothesis 1 is supported among younger entrepreneurial firms (Model 3, *p* < 0.01) but not older firms (Model 4), which helps to explain the weak support for the negative relationship in the full sample.

### DISCUSSION

In this study, we show that among younger entrepreneurial firms, a dearth of top management industry experience is offset by the presence of outside directors with significant managerial industry experience, providing evidence of *experience supplementing* by outside directors. Experience supplementing indicates an emphasis in promoting the combined human and social capital of managers and outsiders, and underscores board-management collaboration during early years of firm development.

Our findings corroborate the view that the resource provision role of outside directors is particularly crucial when firms are vulnerable to the liability of newness. Advice and counsel of business expert board members can be especially valuable to young entrepreneurial firms (Kor and Sundaramurthy, 2008; Kroll *et al.*, 2007), ‘whose typically modest size, young age, and limited organizational slack can result in acute vulnerability to poor managerial decisions’ (Certo *et al.*, 2001a: 648). Managerial mistakes can be a salient issue in early stages of development when firms tend to lack well-developed internal organizational systems including roles, relationships, decision-making heuristics, and incentives (Eisenhardt and Schoonhoven, 1996; Morse *et al.*, 2007). Outside directors with industry expertise can bolster the

Table 2. Fixed effects regression analysis of TMT industry experience on outside director industry experience

	Model 1 Full sample	Model 2 Full sample	Model 3 Younger firms	Model 4 Older firms
TMT industry experience	-0.12 <sup>+</sup> 0.07	-0.08 0.07	-0.33** 0.11	0.20* 0.08
TMT industry experience* Firm age		0.16* 0.06		
TMT firm tenure	-0.03 0.10	-0.02 0.10	-0.36 <sup>+</sup> 0.19	0.13 0.11
TMT size	-0.04 0.07	-0.04 0.07	-0.19 <sup>+</sup> 0.11	0.04 0.07
TMT average age	0.20** 0.08	0.17* 0.08	0.40** 0.13	0.03 0.09
Venture capital ownership %	-0.14** 0.05	-0.14** 0.05	-0.05 0.06	-0.35*** 0.07
Average % of stock ownership in TMT	0.02 0.05	0.02 0.05	-0.08 0.06	-0.09 0.14
Outsider ratio	-0.10 0.07	-0.08 0.07	-0.11 0.09	-0.17 <sup>+</sup> 0.10
Firm size	0.10 0.06	0.07 0.06	-0.14 0.21	0.12* 0.05
ROA	-0.03 0.04	-0.02 0.04	0.00 0.07	-0.08 0.06
Firm age	-0.10 0.19	-0.07 0.19	0.28 0.40	-0.03 0.22
F-value	3.42***	3.79***	4.74***	5.53***
Adjusted R-square	0.10	0.12	0.26	0.29
n	394	394	201	193

Standard errors are provided below coefficient estimates.  
<sup>+</sup> p < 0.10 \* p < 0.05 \*\* p < 0.01 \*\*\* p < .0001; two-tailed tests.

young firm’s weak information gathering capability and can help management to make more sound decisions in response to changing market and technology conditions in the industry (Coleman, 1988; Useem, 1984).

This specific type of resource provision by outside directors—*experience supplementing*—especially matters in efforts to boost the legitimacy of a young venture that is fighting for its survival. With prestigious outsiders on the board, firms may be able to reduce their exposure to the precariousness of trust relationships (Morse *et al.*, 2007; Stinchcombe, 1965), portray a more credible image (Certo, 2003), and have enhanced access to critical information and resource networks in the industry (Pfeffer and Salancik, 1978). With the endorsement of expert outside directors, managers can tell a more credible entrepreneurship story and make a stronger case when ‘selling’ the firm to industry constituents (Lounsbury and Glynn, 2001). Our findings underscore the centrality of resource provision benefits of boards in

entrepreneurial firms, which are sometimes overlooked in the board design process (Kroll *et al.*, 2007). An important implication of our findings is that when the firm’s survival is at stake, the resource provision (i.e., advice, legitimacy, and social capital) function of outside directors should be given primary attention.

We also show that with diminished liability of newness, the negative relationship between top managers’ and outside directors’ industry experience weakens. We attribute this finding to the reduced vulnerability and experience supplementing needs of the firm that has developed stronger legitimacy, slack, and knowledge assets over time (Zald, 1969). Put differently, as the processes of internal learning and coordination improve along with external legitimation and networks of exchange (Hannan and Freeman, 1984; Singh and Lumsden, 1990), there is lower need to signal legitimacy through top management teams’ or board members’ backgrounds. Yet, we recognize that other factors may also contribute to the weakened negative correlation between the outsider and TMT

experience. Along with the maturing process, firms develop organizational inertia and exhibit reduced propensity to undergo changes and transformations (Singh and Lumsden, 1990; Stinchcombe, 1965), including changes in board composition. Once the board is established, it is likely to follow the institutionalized norms and practices, which means that, as long as a director shows a good faith effort in fulfilling the basic duties (e.g., duty of care and duty of loyalty), she or he cannot be fired to make room for a director with more experience (Monks and Minow, 2001). Also, director nomination processes are largely affected by the social and friendship ties between managers and directors, which develop and get stronger over time (Westphal, 1999). Such ties make it difficult to replace existing directors even when there is increased need for director experience due to an emergence of industry experience deficiency in the management team. Likewise, director nominations can be influenced by managers' preferences to work with directors demographically similar to themselves (Westphal and Zajac, 1995), as having common knowledge, mindsets, and belief structures may result in directors and managers agreeing on critical decisions (Hambrick and Mason, 1984; McDonald and Westphal, 2003; Walsh, 1988). Due to these organizational, social, and behavioral factors, the negative correlation between management and director experience may weaken over time (Beatty and Zajac, 1994), and we may observe 'stickiness' in board composition where the firm's changing utility or economic (governance) needs are overridden by noneconomic factors.<sup>3</sup>

Our study is not without limitations. Because our sample was focused on technology-based, entrepreneurial firms, the findings may not generalize to other firms, and thus, future research will benefit from explorations in different firm settings. Future research would also benefit from examinations of whether and how complementary director and management capabilities may affect specific strategic choices and outcomes (e.g., strategic change, diversification, divestments, and downsizing). Further, a significant weakness of our study is in the measurement of industry experience given our use of the single indicator of the number of previous managerial positions in the industry.

<sup>3</sup> We are indebted to an anonymous referee for bringing this idea to our attention.

Additional measures should be considered to incorporate different aspects of directors' past industry knowledge and connections such as the length of industry experience and the number of prior industry board positions.

In conclusion, our study adds to the limited empirical research that consider boards and top management teams *simultaneously*, even though these groups often collaborate at the upper echelons to influence a firm's strategy and performance (e.g., Finkelstein and Hambrick, 1996; Jensen and Zajac, 2004; Kor, 2006; Shen, 2003; Westphal, 1999). We have shown that the *resource provision role* of outside directors, and in particular the provision of industry experience, is much highly valued and needed to *fill an experience vacuum in top management teams when the firm is subject to the liability of newness*. Our study is among the first to examine the effect of the liability of newness on important board characteristics, and this examination contributes to the understanding about the evolving board governance needs of firms, such as resource provision function needs. Firm age has been a central construct in organization theory, yet its implications have received little attention in corporate governance research. Our study highlights that because external legitimacy and industry connections are the *sine qua non* of survival among young firms, the notion of *experience supplementing at the upper echelons* prevails in these firms as they try to *alleviate or overcome the burdens of liability of newness*. Future research that further investigates the relationships between firms' evolving governance needs and the board of director characteristics looks promising.

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