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Board Composition Beyond Independence: Social Capital, Human Capital, and Demographics

Scott G. Johnson
Oklahoma State University
Karen Schnatterly
University of Missouri-Columbia
Aaron D. Hill
Oklahoma State University

Board composition is a critical element in the ability of the board to impact firm outcomes. While much of this research has focused on size and independence, there is growing literature that investigates the composition of directors' demography, human capital, and social capital. The purpose of this article is to synthesize this diverse literature. The authors first review the literature on board demographics, human capital, and social capital composition research. In doing so, they highlight the theoretical and methodological approaches utilized. Finally, they suggest avenues for future research that can advance our understanding of the effects of board composition.

Keywords: *boards of directors; macro topics; demographics and composition; decision making; micro topics*

Corporate boards have long been a subject of research in a variety of disciplines. However, there is little consensus as to what a board should look like or even what kinds of people make the best board members. Jensen and Meckling (1976) first theorized about the functions of "non-independent" (insider) directors and "independent" (outsider) directors on boards, and dozens of studies have subsequently attempted to link board independence to firm

Corresponding author: Scott G. Johnson, Department of Management, Spears School of Business, Oklahoma State University, Stillwater, OK 74078, USA

E-mail: Scottgj@okstate.edu

performance. However, 22 years later, Dalton, Daily, Ellstrand, and Johnson's (1998) meta-analysis found no systematic relationship between the board's independence and firm performance. In a different vein, Pfeffer and Salancik (1978) theorized that the board serves as a mechanism to access resources from the external environment. Over 20 years later, this resource dependence view was partially supported by a meta-analysis (Dalton, Daily, Johnson, & Ellstrand, 1999) showing that board size, a variable associated with the number of links the board has to its environment, was positively correlated with firm performance; however, this analysis was unable to establish the direction of causality or the mechanism underlying this relationship.

Alongside investigations that employ easily measured attributes such as board independence or board size has been a growing body of research on directors' experiences, skills, and other characteristics. Researchers have used a number of terms for these director attributes, but we organize our review into three general categories: demographics, human capital, and social capital. Our review provides three primary contributions to this growing literature. First, we provide an overview of the studies in each category with some conclusions and questions for future research. Second, we bring attention to this growing body of literature and catalog the attributes investigated and theoretical approaches (Table 1) as well as the types of measures used (Table 2). Finally, we offer four recommendations to build on this body of research.

The Literature Review: What We Know

We reviewed theoretical and empirical studies published in leading management journals from 1990 through 2011. We chose the year 1990 as a starting point for our analysis because one of the first studies to provide an integrative model that included the personal characteristics of directors was published in 1989 (Zahra & Pearce, 1989). We recognize that many studies use different terms for board characteristics, so we searched for articles that use the term *board* or *board of directors* and terms that signal research on the demographics, human capital, or social capital of the board.[1] Following Short (2009), we included all articles from *Academy of Management Journal* (*AMJ*), *Academy of Management Review* (*AMR*), *Administrative Science Quarterly* (*ASQ*), *Journal of Management* (*JOM*), *Journal of Management Studies* (*JMS*), *Organization Science* (*OS*), and the *Strategic Management Journal* (*SMJ*). We extended our review by also searching the references of articles returned in our first search to identify additional articles.

While reviewing the articles, we removed those in which the hypotheses or propositions were unrelated to board characteristics, those that did not address board characteristics other than size and independence, and those that merged the characteristics of the board with non–board member managers, thus confounding the effect of the board characteristics. We also omitted articles that were focused on boards of not-for-profit and private. In most of the studies, board composition was an antecedent linked to a firm-level outcome. Many of these studies investigated a dependent variable closely related to the functioning of the board such as strategic decisions or board process. In addition, some looked at potential moderators of these relationships while others also investigated the antecedents of board characteristics or determinants of the boards' demographic, human capital, or social capital composition,

Table 1
Empirical Board Characteristics Research in Management Published 1990-2011

Journal[a]	Article	Level[b]	Variable[c]	Type[d]	Theoretical Frame[e]
AMJ	Kosnik (1990)	B	IV	H	Agency
	Mallette and Fowler (1992)	B	IV	H	Agency; hegemony
	Stearns and Mizruchi (1993)	B	IV	H	Interlocks
	Bilimoria and Piderit (1994a)	C; D	IV	H/S	Experience-based bias
	Daily and Dalton (1994)	B	IV	S	Threat rigidity
	Daily, Johnson, Ellstrand, and Dalton (1998)	C	IV	S	Agency
	Westphal (1999)	B	IV/DV	S	Agency
	Carpenter and Westphal (2001)	D	IV	S	Networks
	Kroll, Walters, and Le (2007)	B	IV	H	Agency; RD
	Westphal and Stern (2007)	D	IV/DV	D/S	Behavioral
	Hillman, Shropshire, and Cannella (2007)	B	IV	D/S	Resource dependence
	G. Chen, Hambrick, and Pollock (2008)	B	DV	S	Prestige; upper echelons
	Kang (2008)	B; C	IV	S	Signaling and attribution
	Lester, Hillman, Zardkoohi, and Cannella (2008)	D	DV	H/S	RD; human/social capital
	Tuggle, Schnatterly, and Johnson (2010)	B	IV	H	Upper echelons; faultlines
	Cowen and Marcel (2011)	B; D	IV/DV	H/S	RD
	He and Huang (2011)	B	IV	S	Informal hierarchy
ASQ	Wade, O'Reilly, and Chandratat (1990)	B	IV	H	Agency
	Davis (1991)	B	IV	S	Networks
	Boeker (1992)	B	IV	S	Agency; power
	Alexander, Fennell, and Halpern (1993)	B	IV	D	Group conflict
	Haunschild (1993)	B	IV	S	RD
	Palmer, Jennings, and Zhou (1993)	B	IV	S	Networks
	Haunschild (1994)	B	IV	S	RD
	Mizruchi and Stearns (1994)	B	IV	H	Agency; hegemony
	Ocasio (1994)	B	IV	S	Power
	Zajac and Westphal (1996)	D	IV/DV	H	Reputation
	Westphal and Zajac (1997)	B	IV	H	Reciprocity
	Haunschild and Beckman (1998)	B	IV	S	RD
	Gulati and Westphal (1999)	B	IV	S	Networks
	Westphal and Milton (2000)	D	IV/M	D/S	Categorization; networks
	Westphal and Khanna (2003)	D	IV/M	H/S	Social distancing
	Anderson and Reeb (2004)	B; C	IV	S	Agency; stewardship
	Westphal and Bednar (2005)	B	IV	D/S	Pluralistic ignorance
	Westphal and Stern (2006)	D	IV/DV	S	Interpersonal influence
	Stern and Westphal (2010)	D	IV/DV	S	Interpersonal attraction
JOM	Judge and Dobbins (1995)	B	IV/DV	S	Agency
	Sundaramurthy, Rechner, and Wang (1996)	B	IV	H/S	Loyalty; identification
	Pearce (1995)	D	IV	H	Behavioral
	Beekun, Stedham, and Young (1998)	B; C	IV	H	Agency
	Hillman, Cannella, and Harris (2002)	D	IV/DV	D	RD; status
	Kor and Sundaramurthy (2009)	B	IV/M	H/S	Human/social capital
	de Villiers, Naiker, and van Staden (2011)	B	IV	H/S/D	Agency; RD
JOMS	Frankforter, Berman, and Jones (2000)	B	IV	S	Agency; networks
	Hillman, Cannella, and Paetzold (2000)	B; D	DV	H/S	RD
	Stiles (2001)	B	IV	S	Agency; structuration

(continued)

Table 1 (continued)

Journal[a]	Article	Level[b]	Variable[c]	Type[d]	Theoretical Frame[e]
	Filatotchev and Toms (2003)	B	IV	H	RD
	Ruigrok, Peck, and Keller (2006)	B	IV	H/S	Agency; networks
	Stevenson and Radin (2009)	C; D	IV	H/S	Human capital
	Dalziel, Gentry, and Bowerman (2011)	B	IV	H/S/D	Agency; RD: cognition
	S. Johnson, Schnatterly, Bolton, and Tuggle (2011)	D	IV/DV	S	Status
OS	Boeker and Wiltbank (2005)	B	IV	H	Agency
	Connelly, Johnson, Tihanyi, and Ellstrand (2011)	B	IV	H	Networks
	Hillman, Shropshire, Certo, Dalton, and Dalton (2011)	D	IV	H/S	Agency; exit/voice/ loyalty
SMJ	Pearce and Zahra (1991)	B	IV	D/H/S	Power
	R. A. Johnson, Hoskisson, and Hitt (1993)	B	IV	H	Control; upper echelons
	Goodstein, Gautam, and Boeker (1994)	B	IV	D	Group conflict
	Daily (1996)	C	IV	S	Agency
	Sundaramurthy (1996)	B	IV	S	Loyalty
	Daily, Certo, and Dalton (1999)	B	DV	D	Progress
	Golden and Zajac (2001)	B	IV	D/H/S	Group dynamics
	Westphal and Fredrickson (2001)	B	IV	H	Decision making
	Filatotchev and Bishop (2002)	B	IV	S	Interlocks
	Kassinis and Vafeas (2002)	B	IV	D/S	Agency; reputation
	Jensen and Zajac (2004)	B; D	IV	H	Agency; upper echelon
	Kor and Misangyi (2008)	B	DV	H	RD
	Kroll, Walters, and Wright (2008)	B	M	H	Agency; RD
	McDonald, Westphal, and Graebner (2008)	B	IV		Expertise
	Zhang (2008)	B; C	IV	S	Agency; RD
	Haynes and Hillman (2010)	B	IV	H/S	RD
	Adams, Licht, and Sagiv (2011)	D	IV	S	Social identification
	Gore, Matsunaga, and Yeung (2011)	C	IV		Agency
	Mahmood, Zhu, and Zajac (2011)	B	M	S	Networks
	Tian, Haleblian, and Rajagopalan (2011)	B	IV	H/S	Agency; capital

[a]*AMJ* = *Academy of Management Journal*, *ASQ* = *Administrative Science Quarterly*, *JOM* = *Journal of Management*, *JOMS* = *Journal of Management Studies*, *OS* = *Organization Science*, and *SMJ* = *Strategic Management Journal*.
[b]Level of analysis of the study: (B) board as a whole, (C) committees, or (D) individual directors.
[c]Board characteristic(s) modeled as (IV) independent variable(s), (M) moderator(s), or (DV) dependent variable(s).
[d]Type of board characteristic(s) investigated: (D) demography, (H) human capital, or (S) social capital.
[e]The term *Networks* was utilized to capture an array of theories that rely on relationships between board members and other entities, while Resource Dependence Theory is abbreviated as RD to conserve space.

including environmental factors or the characteristics of the current board. Table 1 summarizes the empirical studies we reviewed within the management literature, including their board characteristics, level of analysis, and theoretical frame. We omit strictly theoretical articles from Table 1 but, where appropriate, call attention to them in our literature review, particularly where they present opportunities for future research. Using the same approach without

Table 2
Examples of Measures Used

Characteristic	Examples of Measures Utilized
Demographics	
Age	
	Director/count—Of years old (Bilimoria & Piderit, 1994a; 1994b)
	Group/ratio—Average (Bilimoria & Piderit, 1994b; Golden & Zajac, 2001; Post, Rahman, & Rubow, 2011)
	Group/other—Standard deviation (Ahn & Walker, 2007; Bohren & Strom, 2010)
Education	
	Director/binary—Attended elite school (Bond, Glouharova, & Harrigan, 2010); holding degree (Singh, 2007)
	Group/count—With certain degrees (Daily & Dalton, 1994; Wincent, Anokhin, & Ortqvist, 2010; Dalziel, Gentry, & Bowerman, 2011)
	Group/other—Blau's Heterogeneity Index of Ivy League (Westphal & Bednar, 2005)
Ethnic, racial, and other minorities	
	Director/binary—Minority (Hillman, Cannella, & Harris, 2002; Westphal & Stern, 2007)
	Group/binary—One or more minority directors (Daily & Dalton, 2003; Staples, 2008)
	Group/count—Of minority directors (Carter, D'Souza, Simkins, & Simpson, 2010)
	Group/ratio—Of minority directors (Staples, 2008; Wang & Coffey, 1992)
Gender	
	Director/binary—Gender (Adams & Ferreria, 2009; Bilimoria & Piderit, 1994a; Westphal & Stern, 2007)
	Group/binary—One or more females (Hillman, Cannella, & Paetzold, 2000; Hillman, Shropshire, & Cannella, 2007)
	Group/count—On board (Daily, Certo, & Dalton, 1999; Farrell & Hersch, 2005)
	Group/ratio—On board (Nielsen & Huse, 2010; Wang & Coffey, 1992)
	Group/other—Blau's Heterogeneity Index of Gender (Westphal & Bednar, 2005)
Heterogeneity	
	Director/other—Index with four elements (Westphal & Khanna, 2003)
	Group/other—Index with four elements (Westphal & Bednar, 2005)
Human capital	
Experience	
	Director/binary—CEO (Stevenson & Radin, 2009); business job (Bilimoria & Piderit, 1994a); House, Senate, Cabinet member (Fahlenbrach et al., 2010; Lester et al., 2008); functional role (Zelechowski & Bilimoria, 2004); specific experience (van der Walt & Ingley, 2003)
	Director/count—years in Congress or Cabinet (Lester, Hillman, Zardkoohi, & Cannella, 2008)
	Director/other—composite with six elements (Westphal & Milton, 2000)
	Group/binary—fired previous CEO (Dahl, 1994); one or more employed with financial entities (Mizruchi & Stearns, 1994; Stearns & Mizruchi, 1993); one or more advice and counsel, monitoring, support specialist, or venture capitalist (Kroll, Walters, & Le, 2007); one or more with specific experience (Stearns & Mizruchi, 1993; Tian, Haleblian, & Rajagopalan, 2011)
	Group/count—founders not currently on top management team (TMT) (Kor & Sundaramurthy, 2009); with specific expertise (Dalziel et al., 2011; Kassinis & Vafeas, 2002); with at least 5 years more experience in finance than other functions (Jensen & Zajac, 2004); professions (Wincent et al., 2010)
	Group/ratio—lawyers, economists, and engineers (Rose, 2007); CEOs (Tian et al., 2011; Westphal & Zajac, 1997); venture capitalists (Boeker & Wiltbank, 2005; Bruton, Fried, & Hisrich, 1997; Y. R. Chen & Chuang, 2009); experts (An & Jin, 2004); output orientation (Tuggle, Schnatterly, & Johnson, 2010)
	Group/other—weighted measure of diversity (Siciliano, 1996); standard deviation (Kosnik, 1990); Blau's Heterogeneity Index (Tuggle et al., 2010; Westphal & Bednar, 2005); Gibbs-Martin Index (Goodstein, Gautam, & Boeker, 1994); Herfindahl Index (Beekun, Stedham, & Young, 1998)
Tenure	
	Director/binary—above or below tenure of CEO (Pearce, 1995)
	Director/count—of years on board (Bilimoria & Piderit, 1994b; Hillman, Shropshire, Certon, Dalton, & Dalton, 2011; Ocasio, 1994)

(continued)

Table 2 (continued)

Characteristic	Examples of Measures Utilized
	Group/count—maximum number of service years allowed (Golden & Zajac, 2001)
	Group/ratio—average (Kor & Sundaramurthy, 2009; Mallette & Fowler, 1992; Musteen, Datta, & Kemmerer, 2010; R. A. Johnson, Hoskisson, & Hitt, 1993; Rutherford & Buchholtz, 2007); average relative to CEO (Wade, O'Reilly, & Chandratat, 1990)
	Group/other—coefficient of variation (Kosnik, 1990); variance (R. A. Johnson et al., 1993; Tuggle et al., 2010); standard deviation (Tuggle et al., 2010); degree of tenure overlap (Tian et al., 2011)
Social capital	
Ties to entities	
	Director/binary—political party (Fan, Wong, & Zhang, 2007; Lester et al., 2008)
	Director/count—interlocks (Bilimoria & Piderit, 1994a); board seats held (Ferris, Jagannathan, & Pritchard, 2003; Hillman et al., 2011; S. Johnson et al., 2011)
	Director/other—index of relatedness (Carpenter & Westphal, 2001)
	Group/binary—one or more on board of alliance partner (Gulati & Westphal, 1999); tie to a backdating firm (Bizjak, Lemmon, & Whitby, 2009)
	Group/count—interlocks (Frankforter, Berman, & Jones, 2000; Ruigrok, Peck, & Keller, 2006); board seats held (Kassinis & Vafeas, 2002; Kor & Sundaramurthy, 2009); links to firms with specific phenomena (Bizjak et al., 2009; Connelly, Johnson, Tihanyi, & Ellstrand, 2011; Davis, 1991; Haunschild, 1993; Palmer, Jennings, & Zhou, 1993)
	Group/ratio—average of external directorships held (Hunton & Rose, 2008; Tian et al., 2011)
	Group/other—interlock centrality (Davis, 1991; Mahmood, Zhu, & Zajac, 2011)
Personal relationships	
	Director/binary—prior relationship with members of board (Stevenson & Radin, 2009); affiliated (Hillman et al., 2011)
	Director/other—cliques (Stevenson & Radin, 2009)
	Group/binary—if average tenure of outsiders was above CEO (Sundaramurthy, 1996); family on nominating committee (Anderson & Reeb, 2004)
	Group/ratio—appointed by CEO (Frankforter et al., 2000; Ocasio, 1994; Wade et al., 1990; Westphal, 1999); affiliated (Anderson & Reeb, 2004; Daily, 1996; Daily & Dalton, 1994; Jones, Makri, & Gomez-Mejia 2008; Platt & Platt, 2012); CEO perceived as friends (Westphal, 1999;Westphal & Bednar, 2005)
Status/prestige	
	Director/binary—attended an elite school (Bond et al., 2010); one or more of: experience at prominent firms in the focal industry, experience at firms generally recognized as prestigious, and/or degrees from elite educational institutions (G. Chen, Hambrick, & Pollock, 2008)
	Director/other—index of status (Westphal & Khanna, 2003)
	Group/count—board memberships (Cahine, Filatotchev, & Zahra, 2011); "high status" in: education, military, business, political, or community (S. Johnson, Schnatterly, Bolton, & Tuggle, 2011)
	Group/other—composite with four elements (Westphal & Khanna, 2003)
Others	
Busyness	
	Group/binary—over half of directors serve on two or more boards (Fich & Shivdasani, 2007; Jiraporn, Kim, & Davidson, 2008); average of external directorships ≤ to sample mean (Zhang, 2008)
	Group/count—meetings held (Jackling & Johl, 2009)
	Group/ratio—outside directors who serve on boards (Ferris et al., 2003; Hoitash, 2011; Jiraporn et al., 2008); seats held per director (Ferris et al., 2003; Jiraporn et al., 2008); average of seats held (Jackling & Johl, 2009)

limiting journal titles, we found over 300 additional articles that met our search criteria, which we draw on for our review but omit from Table 1 owing to space constraints.

The primary justification behind using easily measured director characteristics as proxies for unobservable constructs lies in upper-echelons theory (Hambrick, 2007; Hambrick & Mason, 1984). These characteristics reflect directors' cognitive frames, skills, experiences, relationships, and personal attributes. We first discuss demographic attributes of directors (age, education, gender, race, and ethnicity)[2] followed by the human capital and then the social capital attributes of the board. In each instance, as we review the literature we highlight concerns but comment on future research after summarizing extant work.

Director Demographics

Key demographic characteristics include age, educational background, gender, race, and ethnicity (Carpenter, Geletkanycz, & Sanders, 2004; Joshi, Liao, & Roh, 2011). Researchers typically assume that demographic characteristics affect directors' cognition, behaviors, and decision making and subsequently impact firm-level outcomes (Forbes & Milliken, 1999).

Age. A number of studies find that older executives are less likely to initiate changes (cf. Bantel & Jackson, 1989; Wiersema & Bantel, 1992) and that younger boards are associated with greater strategic change (Ahn & Walker, 2007). However, Golden and Zajac (2001) find that the percentage of directors over age 50 is positively related to strategic change while Platt and Platt (2012) find that the average age of directors in firms that succumb to bankruptcy is significantly lower than in firms that do not, suggesting that older directors have valuable experience. These results indicate that director age may be related to more than one underlying construct. Indeed, some view director age as a double-edged sword, indicating valuable experience but also higher risk aversion (Katz, 1982; Miller, 1991; Platt & Platt, 2012). Others suggest that average age alone is not a useful measure. For instance, Kim and Lim (2010) find that greater age diversity is associated with higher firm value measured as Tobin's Q.

Cumulatively, extant research suggests that the effect of director age on firm outcomes is equivocal because it is a proxy for both experience and risk aversion. To clarify these relationships, we suggest that future researchers interested in experience explore more detailed measures described in the human capital section of this article. For researchers focusing on risk aversion, other measures of director or board characteristics may be more appropriate. For example, a number of factors, such as a director's primary employment or incentives, may be associated with risk preferences (e.g., Golden & Zajac, 2001; Stearns & Mizruchi, 1993; Westphal, 1999). There is also room to contribute to this literature by establishing more clearly how director age and board age heterogeneity are related to experience and risk aversion.

Education. The educational level and prestige of educational institutions are thought to affect directors' cognition and decision making. Studies show that educational backgrounds can have no (Daily & Dalton, 1994; Rose, 2007) or a positive (Kim & Lim, 2010) impact on firm value. Other studies find that director education affects innovation. Dalziel, Gentry, and Bowerman (2011) find that the advanced educational degrees of outside directors negatively impact R&D expenditures but that the number of Ivy League degrees on the board is positively related to such expenditures. Similarly, Wincent, Anokhin, and Ortqvist (2010) find that the total number of college degrees on the board positively impacts innovative performance. Bond, Glouharova, and Harrigan (2010) find that educational background within a sample of British directors affects whether they affiliate themselves with political pressure groups advocating stronger relationships with continental Europe. The variety of findings in this area suggests that educational background may represent many different underlying constructs: social status, similarity in socialization, access to friendship ties, or cognitive similarity. Thus, while information on educational background may be easy to gather, further work is needed to understand the link between educational variables and underlying social or cognitive constructs.

Gender. A considerable body of work has been conducted on the effects of director gender, much of which takes the stance that gender diversity affects board cognition, dynamics, and decision making and in turn, firm-level outcomes. Terjesen, Sealy, and Singh (2009) reviewed 180 academic publications that cumulatively suggest gender diversity affects board dynamics but not the firm's bottom line. As a case in point, Bohren and Strom (2010: 1290) note that the "evidence on gender diversity is scant and conflicting," with studies finding positive, negative, and no relationship between gender and firm value. Scholars offer a number of reasons for this, ranging from endogenous drivers of board composition (Adams & Ferreira, 2009) to industry or cultural differences (Arfken, Bellar, & Helms, 2004). Research has begun to address this question by including more nuanced variables and more proximal outcomes than firm performance. For example, Adams and Ferreira (2009) find that women directors attend a higher percentage of meetings than their male counterparts and male attendance is greater as the board is more gender diverse, while Nielsen and Huse (2010) find that gender diverse boards have less conflict and are associated with more strategic control and board development activities. Another stream of this literature argues that there may be some critical number of women on a board that makes a difference. Post, Rahman, and Rubow (2011), for instance, find that three women on the board (versus a percentage) seems to be a critical threshold and at that level there are positive associations with corporate social responsibility. Given the "black box" problem of associating board variables and firm performance, analyzing more proximal outcomes is a promising approach for future research.

Race and ethnicity. Less attention has been given to the racial and ethnic aspects of board demographics, a fact that has been attributed to low levels of such diversity in the boardroom (van der Walt & Ingley, 2003). The few studies in this area generally argue that like gender, diversity brings different cognitive perspectives and affects group dynamics and decision making, which in turn impacts firm-level outcomes. The notion that racial and ethnic diversity impacts decision making has received some support, while the impact of these directors on performance has been inconclusive. For example, studies find that multinational and ethnically diverse boards are positively related to decisions such as cross-national acquisitions (Staples, 2008) and corporate social responsibility (Post et al., 2011; Wang & Coffey, 1992). However, Oxelheim and Randoy (2003) find that foreign-born directors are associated with higher value for a sample of Scandinavian firms, while Carter, D'Souza, Simkins, and Simpson (2010) find no systematic evidence that ethnically diverse boards affect financial performance of major U.S. firms. In sum, board research on race and ethnicity is parallel to that on gender—implications for firm performance are mixed, but there is evidence that board processes are affected by board diversity, and more proximal outcomes and nuanced measures may offer valuable insights.

Demographic diversity. Most board research considers each demographic characteristic separately, although some combine multiple demographic variables by measuring how similar board members are to each other across multiple dimensions (Westphal & Bednar, 2005; Westphal & Milton, 2000). This research does not hypothesize how isolated characteristics affect cognition but rather how heterogeneity in a dimension or multiple dimensions affects the dynamics of the board. For example, the diversity of board demographics has been linked to conflict that constrains action or limits the CEO (Goodstein, Gautam, & Boeker, 1994; Kosnik, 1990) as well as to greater compliance and less conflict (Westphal & Bednar, 2005; Westphal & Milton, 2000; Westphal & Stern, 2006, 2007). Greater diversity can also be a method to balance tradeoffs between creating cohesion and gathering different perspectives (Bilimoria & Piderit, 1994b; Farrell & Hersch, 2005) and may also be viewed as a way to access a wider array of resources (Arfken et al., 2004; Burke, 1997). Thus, depending on the context, diversity may facilitate positive outcomes for the firm, or it may constrain them, or it may balance them (e.g., Forbes & Milliken, 1999; Sundaramurthy & Lewis, 2003). As we highlight in our Future Research section, the investigation of contextual factors may help reconcile the conflicting findings.

Demographic summary. Most of the research on director demographics argues that these characteristics affect cognition and decision making; however, as our review highlights, there is no consistent relationship between any demographic characteristic and firm performance. There are at least three possible reasons for the lack of a clear relationship, and each reason suggests directions for future research. First, board relationships with complex and distal outcomes such as firm performance are hard to assess. As a result, studying outcomes such as specific decisions or activities that can more directly be attributed to the board would be valuable (Finkelstein, Hambrick, & Cannella, 2009; Rutherford & Buchholtz, 2007). Second, measurement problems add to the inconsistent nature of these results (Dalton & Dalton, 2011; Filatotchev & Bishop, 2002). For example, several demographic variables (e.g., education) are highly correlated with human or social capital variables, and other characteristics may interact with financial (Y. R. Chen & Chuang, 2009) or reputational (Westphal & Stern, 2006, 2007) variables. Finally, these relationships may be nonlinear or contingent on contextual factors that interact with demographics. We offer some solutions to these concerns in the Future Research section.

Human Capital

Human capital characteristics are the skills and experiences that individual directors bring to the decision-making process. These can range from knowledge of an industry, experience as a CEO, experience in finance or venture capital, familiarity with a specific event such as firing a CEO, and overall familiarity with the firm. Such experiences affect what directors pay attention to and how they frame decisions.

Industry experience. Industry familiarity influences how directors process information and may affect which directors have influence in the boardroom. While many countries discourage collusion by prohibiting directors who are currently employed at a firm within an industry from sitting on the board of any other firm in that industry, firms may attempt to recruit board members who are not actively employed within the industry but who have previous industry experience working. Such experience has been shown to be positively associated with sales growth (Kor & Sundaramurthy, 2009) and stock market reactions following both acquisitions (Walters, Kroll, & Wright, 2008) and CEO successions (Tian, Haleblian, & Rajagopalan, 2011). However, there may be "blind spots" associated with such experience. Some studies find that the probability of environmental lawsuits increases with more industry-based directors (Kassinis & Vafeas, 2002) and that boards tend to hire new CEOs from strategically similar firms (Westphal & Fredrickson, 2001). In sum, this research indicates that industry experience has an effect, but, as we discuss in the Future Research section, scholars can clarify the conditions and functional form of this effect.

Experience as CEO. Directors who have been CEOs bring executive experience to the board, which serves as a "sounding board" on which the organization can draw (Rosenstein, Bruno, Bygrave, & Taylor, 1993: 100). Indeed, when CEOs are appointed as directors, the firm enjoys a positive stock market reaction (Fahlenbrach, Low, & Stulz, 2010). Platt and Platt (2012), however, find that nonbankrupt firms have more CEOs on the board than bankrupt firms, and Wang and Dewhirst (1992) find that CEO-directors are more focused on governmental compliance. Despite this tendency for CEO-directors to have different priorities than other directors, they do not appear to have greater influence than other directors (Fahlenbrach et al., 2010; Stevenson & Radin, 2009). Thus, CEO-directors do in fact influence firms, but the mechanisms remain unclear.

Venture capital experience. Directors who represent venture capital (VC) firms have expertise in financing and a vested interest in the financial success of the firm and therefore are likely to be more informed and attentive to the firm's operations (Fried, Bruton, & Hisrich, 1998; Fried & Hisrich, 1995). It is perhaps not surprising that boards with a higher percentage of VC directors are more likely to make changes to the top management team (Boeker & Wiltbank, 2005; Bruton, Fried, & Hisrich, 1997) and are associated with stronger corporate governance (Filatotchev, Wright, & Arberk, 2006). Similarly, Kroll, Walters, and Le (2007) find that having at least one venture capitalist on the board is positively associated with post-IPO financial performance. Given the value that these directors appear to bring, it is interesting to note that Rosenstein et al. (1993) find that CEOs do not value VC directors' advice more highly than that of other directors, suggesting that, as with CEO-directors, additional investigation aimed at understanding how these individuals impact the firm is necessary.

Financial expertise. Financial expertise on the board has been found to affect a range of firm issues, including debt strategies (Mizruchi & Stearns, 1994; Stearns & Mizruchi, 1993), earnings management (An & Jin, 2004), and the decision to dismiss auditing firm Arthur Anderson earlier (K. Y. Chen & Zhou, 2007). Perhaps in part due to the benefits associated with financial expertise, Chhaochharia and Grinstein (2007) document a significant increase in the number of financial experts on U.S. boards from 1997 to 2003. It should be noted, however, that Jensen and Zajac (2004) find that the effect of financial directors on firm diversification and acquisition strategies are sensitive to how this expertise is measured, which suggests that researchers need to clarify how they measure financial expertise, provide a clear reason for using a specific measure, and conduct robustness checks across multiple measures.

Experience with specific activities. Specific responsibilities of the board include approving acquisitions and firing the CEO. These are important yet relatively rare strategic actions. Prior experience with these decisions can inform future decision making. For example, the amount of prior acquisition experience on the board is positively related to post-acquisition performance (Kroll, Walters, & Wright, 2008; McDonald, Westphal, & Graebner, 2008). Similarly, Dahl (1994) finds that boards that have fired a previous CEO are more likely to make such changes in the future while de Villiers, Naiker, and van Staden (2011) find that environmental performance is higher in firms that have more legal experts on the board, presumably because they are more cognizant of liability and potential costs associated with poor environmental performance. In general, specific experiences sway decisions related to those experiences and their subsequent outcomes, suggesting a wealth of potential future research questions regarding the impact of specific types of experience. For instance, prior experience with internationalization or fraud may allow a director to manage similar issues more successfully in the future.

Human capital heterogeneity. Scholars have investigated the mix of occupations on the board with conflicting conclusions. Some focus on the potential for a diversity of opinions to create conflict, finding, for example, that occupational heterogeneity inhibits strategic change (Goodstein et al., 1994) and allows the CEO to exert greater control (Alexander, Fennell, & Halpern, 1993). However, such diversity may be beneficial in accessing resources (Siciliano, 1996) and is positively related to the adoption of outcome-based controls for evaluating the CEO (Beekun, Stedham, & Young, 1998). So while heterogeneous experiences appear to affect board processes, questions about how, when, and why they do so remain unanswered. Two potential explanations are offered by Golden and Zajac (2001): First, the effect is not linear—some diversity is beneficial, but after a certain point constrains action (i.e., is an inverted U); and second, the effect only materializes when the board is willing and able to act. Haynes and Hillman (2010) suggest that since occupational heterogeneity is only one relevant aspect of board capital, multiple human and social capital elements as well as heterogeneity must be considered interdependently. This research highlights the complex and contextual nature of human capital diversity, and future studies need to explore both how various aspects interact with each other and contextual factors. We explore this further in the Future Research section.

Organizational tenure. As directors spend more time serving on boards, they build organization-specific expertise and their relationships to organizational stakeholders also change. For example, Hillman, Shropshire, Certo, Dalton, and Dalton (2011) find that shareholders are discontented with the monitoring of longer-tenured directors. Yet Kosnik (1990) finds a positive relationship between director average tenure and a firm's resistance to greenmail, while still others find that board tenure is unassociated with shareholder relations (Mallette & Fowler, 1992; Sundaramurthy, Rechner, & Wang, 1996; Wade, O'Reilly, & Chandratat, 1990). Research on the influence of tenure on firm outcomes has also been inconclusive. For example, average outsider tenure is negatively related to annual sales growth (Kor & Sundaramurthy, 2009) and director tenure variance is positively related to the discussion of entrepreneurial issues during board meetings (Tuggle, Schnatterly, & Johnson, 2010). In contrast, R. A. Johnson, Hoskisson, and Hitt (1993) report no significant relationships between both the average and variance of director tenure and corporate restructuring decisions. A potential explanation for the mixed results is that tenure has a nonlinear effect, and some studies in fact find an inverted-U relationship between director tenure and both corporate reputation (Musteen, Datta, & Kemmerer, 2010) and strategic change (Golden & Zajac, 2001). Here again, additional research clarifying these conflictive results is needed. Theoretical work on the evolution of directors over their tenure offers promising opportunities in this area (e.g., Lynall, Golden, & Hillman, 2003; Shen, 2003).

Human capital summary. As our review highlights, there is no category of experience that has unequivocal benefits and even diversity of experiences has mixed effects. Extant research uncovers a number of benefits and problems associated with director human capital, but as with demographics, the literature is far from definitive. Possible explanations for the inconsistent nature of these relationships also mimic the director demography literature: The impact of board capital on distal outcomes may be difficult to assess, measurement difficulties may confound analysis, and relationships may be curvilinear or context dependent. In sum, it is clear that human capital affects the board's activities since directors' experiences and proficiencies affect their cognitions and decisions. While we highlight these concerns here, later in the article we offer an agenda that research on director human capital can advance by addressing these issues as well as exploring interactions among multiple forms of human capital and specifically the tradeoffs between positive and negative aspects of different types of experience.

Social Capital

Directors' social relationships affect how both individual directors and the board as a whole function. Broadly, social capital can be divided into three types: directors' ties to other firms, personal relationships with firm managers, or social standing.

Ties to other firms. Outside directors are tied to the firm in which they have full-time employment. This is a "single" tie that links one director's home firm to the focal firm. When the CEO of the focal firm sits on the board of a director's home firm, this is a "double" tie, more commonly known as a director interlock. Through these ties, information and resources can flow into and out of firms and impact the firm for both good and ill.

Carpenter and Westphal (2001: 653) argue that the "behavior of directors depends on the strategic perspective and base of expertise provided by their appointments to other boards." A director with a valuable tie can provide a form of vicarious experience. For example, directors with ties to private equity deals increase the likelihood of private equity deals at the focal firm (Stuart & Yim, 2010) and those with ties to firms expanding into China influence successful expansion there (Connelly, Johnson, Tihanyi, & Ellstrand, 2011). Ties can also influence decisions such as the adoption of an M-form structure (Palmer, Jennings, & Zhou, 1993) and acquisitions (Haunschild, 1993, 1994). Research indicates that such relationships are contingent, however. Haunschild and Beckman (1998) find that the CEO's membership in the Business Roundtable reduces the influence of board ties while media coverage increases it, as does the similarity of the interlocked partner such that more similar interlocks are more influential.

Alternately, ties can be harmful to shareholders and entrench the management of the focal firm and coordinated action among directors is possible when directors are interlocked. For example, a CEO-director voting to raise the salary of the focal firm's CEO may expect reciprocal treatment. Thus, interlocked directors "may not be sufficiently independent" (Ruigrok, Peck, & Keller, 2006: 1211), which compromises their effectiveness and leads them to favor management interests over shareholder interests. Shareholders in fact react negatively to interlocks (Devos, Prevost, & Puthenpurackal, 2009; Hillman et al., 2011), and this is perhaps justified by interlocked firms' tendencies to engage in actions beneficial to management but harmful to shareholders (Bizjak, Lemmon, & Whitby, 2009; Davis, 1991; Frankforter, Berman, & Jones, 2000). Cumulatively, the lack of independence of interlocked directors as well as the adverse reactions from shareholders and self-interested actions of directors may help explain the fact that U.S. firms significantly decreased the percentage of interlocked directors between 1997 and 2003 (Chhaochharia & Grinstein, 2007). In sum, information and resources travel through director ties, influencing focal firms. This influence can be in the form of new ideas for the focal firm, often to the benefit of firm shareholders. However, when directors' independence is compromised, the influence has the potential to increase managerial entrenchment to the detriment of shareholders' interests.

Some argue that sitting on multiple boards makes directors too busy to adequately monitor the focal firm (e.g., Ferris, Jagannathan, & Pritchard, 2003; Jackling & Johl, 2009). For example, Beasley (1996) finds that a decrease in the number of directorships held by outsiders lowers the likelihood of financial statement fraud, presumably because these directors are increasingly able to monitor. Similarly, studies (Fich & Shivdasani, 2007; Hoitash, 2011; Jiraporn, Kim, & Davidson, 2008) find that busy directors are associated with less monitoring, excessive CEO compensation, and poorer firm performance. However, Ferris et al. (2003) find no impact on performance associated with board members sitting on additional boards. Alternately, board members with external directorships are more able to gather information regarding potential CEOs (Khurana, 2001, 2002), and thus these connections decrease the likelihood of dismissal of a newly hired CEO (Zhang, 2008). There is also evidence supporting the association between boards with more ties and both firm value (Bohren & Strom, 2010) and higher rates of sales growth in U.S. high-technology firms (Kor & Sundaramurthy, 2009).

Personal relationships and affiliations. Social capital in the form of personal or loyalty relationships has been argued to affect the incentives of directors (Adler & Kwon, 2002; Westphal, 1999), group dynamics (Forbes & Miliken, 1999), and may compromise their independence but also may facilitate more open communication. These relationships can be based on a business tie (e.g., a buyer or supplier, consultant, or lawyer), often called "affiliated directors";[3] on a perception of "owing" the CEO since the CEO was primarily responsible for asking the board member to join the board, often called “appointed directors” (Wade et al., 1990; Zajac & Westphal, 1996); or on a broad “personal” relationship such as being friends or family members of the CEO (Jones, Makri, & Gomez-Mejia, 2008; Rhee & Lee, 2008).

Affiliated and appointed relationships have been shown to be associated with both the adoption of anti-takeover devices aimed at entrenching the CEO as opposed to creating shareholder value (Frankforter et al., 2000; Sundaramurthy, 1996) and to be positively associated with bankruptcy (Daily & Dalton, 1994; Platt & Platt, 2012). These directors are more likely to support the CEO in adopting policies that entrench the CEO in some way, whether this is a golden parachute (Wade et al., 1990) or other anti-takeover provisions (Frankforter et al., 2000). However, directors with these relationships have been found to be more willing to dismiss the CEO of a poorly performing firm (Boeker, 1992). Other studies, however, find that these relationships have no impact on CEO compensation (Daily, Johnson, Ellstrand, & Dalton, 1998), the incidence and type of bankruptcy filing (Daily, 1996), or the rate of CEO turnover (Ocasio, 1994).

Personal relationships between directors and the CEO may influence the advisory and access roles of these directors (Jones et al., 2008; Rhee & Lee, 2008). Research finds a positive association between these relationships and the level of advice and counsel provided on strategic issues (Westphal, 1999) and the quality of financial reporting (Hoitash, 2011). Directors with friendship ties are also more able to express their concerns with the firms’ strategy (Westphal & Bednar, 2005). However, these ties may not be directly related to firm performance (Wincent et al., 2010). Directors with affiliated, appointed, or personal ties have also been found to be more influential on the board than directors without these ties (Stevenson & Radin, 2009), and these directors have even more influence when the CEO is also the chair of the board. These findings suggest that ties to other organizations act as a conduit for information, while friendship ties seem to strengthen the acceptability of that information.

Social standing. Director status, prestige, stigma, and reputation can be an informational signal to external stakeholders about the organization (Certo, 2003). Directors with prestige or status are likely to seek to maintain and enhance their social standing (S. Johnson, Schnatterly, Bolton, & Tuggle, 2011). For example, researchers find a negative relationship between market value and interlocks to fraudulent firms (Kang, 2008) and that the departure of these individuals from these boards increases firm value, suggesting that the social connections of directors send strong signals to the market and that status or prestige can be lost (Fich & Shivdasani, 2007). Similarly, directors with multiple directorships who sit on the audit committee are significantly less likely to accept an auditor’s restatement recommendation, presumably because they are more concerned about a loss of standing than they are about lack of transparency in accounting (Hunton & Rose, 2008). Status clearly works in conjunction with other characteristics, whether it is ties to other entities or experience with specific events or other characteristic. It is also a characteristic that has many measurement problems, as we discuss later.

Social capital summary. Social capital influences the advice and counsel directors offer (Carpenter & Westphal, 2001; Westphal, 1999) and affects decision-making processes (Oh, Labianca, & Chung, 2006). This research suggests that directors’ social capital is a conduit for the flow of resources, information, and advice both into and out of the organization. Research on each social capital dimension has provided equivocal findings and indicates that the impact of each dimension is not independent of the others. For example, if ties are an information conduit, they are a potentially significant moderator of status. As with demography and human capital, this may stem from issues concerning the proximity of the outcome, measurement concerns, and the complexity of the relationships being investigated. We provide suggestions on how to move this research forward in the next section.

An Agenda for Future Research

Many studies highlight the influence of the demographic, human capital, and social capital characteristics of directors. However, as shown by this review, findings for many characteristics are inconclusive. Further, this research does not yet provide clear answers to the basic question of what kinds of directors make the most effective board. This is not surprising in a stream of research that is so broad and relatively recent. Scholars have a strong body of research on which to build and can significantly clarify our understanding of the functioning of corporate boards. Over the course of this review, three main categories have emerged as important both to resolve past contradictions and to clarify research going forward: (1) focusing on the appropriate level of analysis, (2) improving measurement, and (3) addressing methodological concerns. A fourth area where future research can contribute to our understanding of boards is in extending existing research to uncover more complex relationships. We explore each of these four areas in the following.

Focus on the Appropriate Level of Analysis

Board research may focus on subgroups, committees, or individual directors, but the majority of the research we reviewed aggregates attributes at these different levels of analysis to create board-level variables. While this approach is common, some studies suggest that such aggregation may overlook useful information. For instance, Jensen and Zajac (2004: 507) "highlight the pitfalls of using aggregate units of analysis" by demonstrating that insiders' functional expertise has different effects on strategic outcomes than that of outsiders. Another hazard of aggregate measures is that they may overlook and confound differential effects of individuals or subgroups within the board. For example, Finkelstein and colleagues (2009: 278) note that "several studies have shown that independent outside directors are more influential than affiliated outside directors" and that "diverse directors (defined at least two different ways) tend to be less involved in board meetings." A related issue is that board research is inherently multilevel in nature: Individuals are nested within subgroups that are in turn nested within the broader board as a whole. While failure to account for hierarchical structure when aggregating to a higher level of analysis may bias results, very few studies utilize multilevel methodologies (Dalton & Dalton, 2011; a notable exception is Hillman et al., 2011). Inquiries that parse out subgroup and director effects are needed to advance this domain, as are studies of interactions.

Subgroups on the board. Much research addresses differences in insiders versus outsiders (e.g., Anderson & Reeb, 2004; Daily, 1995; Jensen & Zajac, 2004), and scholars could build upon this research to differentiate other subgroups. Subgroups can form based on several different director characteristics: insider-affiliated-outsider directors, gender, race/ethnicity, or work experience, among others. Membership in these subgroups can moderate the effect of other director characteristics, for example, directors' insider-outsider positions moderate the effect of human and social capital on R&D spending (Dalziel et al., 2011). A better understanding of subgroups may also help explain why some director characteristics seem to have an effect only when they are represented above a critical threshold such as the finding that the influence of women directors is strongest when there are at least three women (Post et al., 2011). As yet unexplored is the question of whether influential subgroups form based on other director characteristics that are known to influence firm outcomes. For example, director industry experience and financial expertise affect strategic decisions and performance. Do such characteristics affect how directors align with each other in board meetings? Future research could also explore whether some characteristics are always salient, such as CEO-directors or gender, and what happens when these subgroups of characteristics overlap. Another type of board-defined subgroup is the board committee. There are two potential issues here: First, committees will have the same director characteristic issues as the board itself, and second, what is the influence of the presence of committees (beyond those required) on firm strategy and firm performance? Neither of these questions has been explored in depth.

Individual directors. When researchers move away from aggregate measures of board composition to look at individual directors, the complexity of the research questions multiply because each director is a bundle of interacting characteristics. For example, Stevenson and Radin (2009) demonstrate that directors' influence on board decisions varies depending on committee assignments. There are also situations where directors either cannot or will not perform their roles (Hillman & Dalziel, 2003; Shropshire, 2010) because power dynamics affect which directors have more influence (Daily & Dalton, 1994; Golden & Zajac, 2001; Haynes & Hillman, 2010; Pearce & Zahra, 1991) or because incentives influence the extent to which the director is willing to monitor and provide advice and counsel (Westphal, 1999). Recent work has begun to explore directors' personal values (Adams, Licht, & Sagiv, 2011) as another aspect that can affect board decisions. Finally, the context of the board meeting itself may affect the ability of some directors to be more influential than others (Tuggle et al., 2010; Wincent et al., 2010). For instance, we expect that frequency (number of meetings), formality (location; telephonic, virtual, or in-person), and attendance at meetings affect the influence of certain board members as well as when and whether certain aspects of board characteristics matter.

Further work is needed to untangle the many possible interactions among director characteristics, contextual factors, and behavior in the board room. For example, a board member with high status or with ties to more prestigious firms may have a disproportionate influence on the other directors. A director with experience in a certain area (acquisitions, investing internationally, firing a CEO) may have extra influence when those particular issues are discussed, but increase in influence may be moderated by ties to unsuccessful firms.

Research in this direction can clear up issues such as whether meeting attendance should affect how director characteristics are aggregated. It may be, for example, that the benefits of a high-status director are realized regardless of attendance at meetings but that the benefits of expertise require consistent participation in meetings. It may be that friendship ties or tenure in the firm determine whether a director can contribute in a conference call or virtual meeting or that subgroups form differently depending on the format of board meetings.

Aggregation and interaction of director attributes. When using individual attributes to create board-level variables, most research looks at how much or what proportion of a certain attribute is represented on the board, but some studies focus on heterogeneity—or the extent to which directors are similar or dissimilar to each other. As this review makes clear, there are many dimensions in which directors can be similar or different from each other, and these similarities or differences raise a number of questions. Research on faultlines on the board (Tuggle et al., 2010) suggests that multiple characteristics can be salient at the same time in groups. This theoretical perspective may help address questions of whether overlap on some characteristics reduces the impact of differences on other characteristics, for example, sharing an engineering background might make gender differences less important. A related question is which contextual factors affect these relationships at the board, subgroup, and director levels. Theories of how directors' multiple identities function in concert (Hillman, Nicholson, & Shropshire, 2008) can help clarify the differential effects of, for example, expertise, friendship with the CEO, and ties to external organizations. The influence of these characteristics may depend on the composition of the board or the type of decision being discussed. Both approaches may allow us to make better practical recommendations on how to structure both committees and the larger board.

Improve Measurement of Board Characteristics

We propose three issues that can be addressed to improve measurement in board research: the measures themselves, the theoretical specificity of the measures within each study, and the operational consistency of measures across studies.

Existing measures. Future research can build on existing research by refining and improving measures of board characteristics. We identified four categories of measures common to this line of research. *Binary measures* are often employed at the individual level of analysis to denote the possession of a particular characteristic, including demographic traits (Bilimoria & Piderit, 1994a; Hillman, Cannella, & Harris, 2002), or indicators of the presence of particular elements of human or social capital (S. Johnson et al., 2011; Stevenson & Radin, 2009). These are also used at the subgroup and board levels to address whether the committee or board possesses a certain characteristic (Daily & Dalton, 2003; Stearns & Mizruchi, 1993). *Count measures* are utilized in a similar fashion across levels of analysis to assess the amount of a certain characteristic such as experience (Filatotchev & Toms, 2003; Zajac & Westphal, 1996) and interlocks (Bilimoria & Piderit, 1994a; Connelly et al., 2011). *Ratio measures* are more common, particularly at the subgroup or board levels, where scholars employ a percentage to assess the relative number of directors who possess characteristics such as being an affiliated outsider (Anderson & Reeb, 2004; Daily & Dalton, 1994) or venture capital experience (Boeker & Wiltbank, 2005; Y. R. Chen & Chuang, 2009). Finally, those we label *other measures* are a broad category utilized to combine multiple factors into a single measure or to utilize a multifunctional equation to generate a measure and are commonly employed to assess manifold phenomena such as heterogeneity (Tuggle et al., 2010; Westphal & Bednar, 2005; Westphal & Milton, 2000) and relational constructs such as centrality (Davis, 1991; Mahmood, Zhu, & Zajac, 2011). These measures also include composite indices of variables such as status and experiences as well as dispersion measures such as the coefficient of variation and variance.

As an aid to future researchers, we catalogue the wide variety of board characteristics measures in Table 2. We recommend reviewing this table at the beginning of a new research project to see how related constructs have been measured in the past. Although choosing a type of measure to employ is a multifaceted decision, two particular issues related to this decision are paramount for moving the board characteristics research stream forward: both theoretical specificity and operational consistency across studies (cf. Brown, Beekes, & Verhoeven, 2011).

Increase theoretical specificity. Many measures of director characteristics can be linked to more than one of the underlying categories discussed in this review. An extreme example is a director with an engineering degree from a prestigious institution. This may simply indicate the level of education (a demographic characteristic), but it may also indicate an area of expertise (human capital) or status and network ties (social capital). To move the research stream forward, scholars must clearly specify the underlying theoretical construct they are attempting to measure so that they can make stronger links to theory. A good example of this approach is offered by Stearns and Mizruchi (1993), who develop theory that clearly delineates the type of financial expertise on the board to understand in more detail how directors' characteristics affect corporate financing rather than using general arguments about the value of a broadly defined measure of expertise. Similarly, hypotheses regarding director prestige would offer more insightful contributions if they were based on theory about why specific types of prestige are related to organizational outcomes (cf. Godfrey & Hill, 1995; Priem & Butler, 2001). Additionally, the theoretical relationship may not be linear, and may in fact be quite complicated. For example, it is reasonable to expect curvilinear or even step functions—that is, a board characteristic is only significant from zero to some count (two, three) or some ratio (30%, 60%), and not otherwise significant. We encourage researchers to think more deeply about the form of these relationships to increase our knowledge of the theoretical mechanisms underlying board characteristics.

Operational consistency. Knowledge can better accumulate across studies when constructs are operationalized consistently. While we realize that complex constructs can be measured in multiple ways and that methodological approaches necessitate such differences, the fact that there is little commonality across studies prevents comparisons of results and an aggregation of knowledge. This is not to suggest that a single method or measure is best or even desirable. Rather, the proliferation of multiple measures of the same construct assessed via multiple methods can overcome limitations of any single measure or method and strengthen our knowledge when utilized in concert (Boyd, Gove, & Hitt, 2005; Campbell & Fiske, 1959). Within the board characteristics research, there is ample room for convergence testing on commonly employed measures to ensure that extant measures assess the same construct (cf. Hinkin, 1995, 1998). If the measures converge, the robustness of the research domain is enhanced in that we know we can compare results across studies. If they do not converge, we may need to reconsider the findings of earlier studies: Extant measures do not agree as to what construct they are studying, and therefore inferences made across these measures are not reliable (Boyd et al., 2005; Campbell & Fiske, 1959; Edmondson & McManus, 2007).

Scholars can also build consistency by using the multiple extant measures to assess their focal construct. That is, when multiple measures exist, scholars should: (a) assess whether their findings are sensitive to the measure employed and (b) utilize techniques amenable to combining these measures to overcome the inherent limitations of any single measure. Similarly, while both social capital and demographic characteristics may affect board appointments individually, scholars note that these factors must be considered in combination (e.g., Burke, 1997; Maman, 2000; Zelechowski & Bilimoria, 2004). Such an approach requires using multiple measures in concert. For example, Sheridan and Milgate (2005) highlight how women must have both a high level of human capital as well as social prominence or connections to secure board appointments while Sun et al. (2009), noting that "quality" is a multifaceted construct, employ six dimensions of director human and social capital. Multiple measures also enable scholars to examine multiple forms of interactions of board characteristics variables.

Address Methodological Concerns

Endogeneity. The primary way in which the methodology of board characteristics research can be improved is by accounting for endogeneity (cf. Bascle, 2008; Hamilton & Nickerson, 2003). As Hambrick (2007: 338) notes, accounting for endogeneity in executive research is "not a technical nicety but, instead, is essential for gaining a grasp of the causal mechanisms that lie behind empirical associations." The issue in board research is that board composition is not exogenously determined but rather is affected by prior decisions and firm characteristics that in turn affect board decisions (for a recent review, see Adams, Hermalin, & Weisbach, 2010). Thus, any observed relationship between board composition and firm outcomes may in fact be caused by the factors that determined board composition in the first place. Future research should strive to model the determinants of board composition along with testing its effects.

Fortunately, a number of studies have explored the antecedents to board composition, laying the groundwork for future work that treats board composition as an endogenous variable. A good place to start is the recent review of director selection (Withers, Hillman, & Cannella, 2012). Although this review does not directly investigate antecedents of board composition, it does highlight the theoretical drivers that determine which directors end up on which boards. Another good source is Adams et al.'s (2010) work highlighting issues associated with endogeneity in board research. Some studies suggest that board members are invited to join boards for reasons that may affect their subsequent behavior. This can range from experience on boards that enacted governance reforms (Zajac & Westphal, 1996), to sitting on the boards of larger firms (Ferris et al., 2003), to political party affiliation (Etzion & Davis, 2008; Lester, Hillman, Zardkoohi, & Cannella, 2008), to friendships or affiliations even if more qualified directors are available (Bjornali & Gulbrandsen, 2010; Fan, Wong, & Zhang, 2007). Westphal and Stern (2006) examine the effect on board appointments resulting from director behaviors. They find that directors who engage in ingratiation toward a peer director and who provide advice and information are more likely to gain subsequent board appointments. On the other hand, those who exhibit monitoring and control behaviors are less likely, indicating that what we see as board behavior or the impact of boards on firm actions can vary depending on how and why board members ended up on these boards.

Also relevant to endogeneity issues are studies finding that firm attributes affect the capital of directors who are selected (e.g., Filatotchev & Bishop, 2002; Hillman, Shropshire, & Cannella, 2007). Kor and Misangyi (2008) find that entrepreneurial firms going public in technology-intensive industries seek out directors with industry-specific experience when current executives lack such experience. Scholars also note a similar relationship: Boards try to appoint directors with complementary or necessary skills as a need arises (An & Jin, 2004; Chhaochharia & Grinstein, 2007) and studies of how board composition affects firm outcomes must take into account reasons directors were selected to be on the board.

For a director to join a board, they must be selected; but there must also be a position available and they must agree to serve. Thus, board composition is also affected by directors' decisions to accept invitations and by boards' decisions to retain current directors. Directors are often very busy people, so something about the firm or the board has to be attractive for them to agree to serve (Withers et al., 2012). S. Johnson and colleagues (2011) find that higher-status boards are associated with new directors who have higher status. G. Chen, Hambrick, and Pollock (2008: 968) find that firms already possessing "a great deal of prestige tended to hire the greatest number of new, prestigious" directors, while those companies that lacked such prestige had to offer more compensation. Firm concerns can also affect who remains on the board, as we discussed in the section on director social capital, where directors may choose to leave a board if continued membership might harm their social capital. Studies examining firms longitudinally, focusing on changes in the firm and changes in the board as a time series, might shed some light on events that influence directors to join boards or depart from them, as well as the changes in the firm that are associated with adding directors with certain characteristics. We expect directors are likely to be "sticky"—once they are on the board, only an unusual event rather than a shifting firm need would remove them.

Controls. Another methodological concern is better controls for firm, nation, and industry effects. Grosvold and Brammer (2011: 116) claim, for example, "that as much as half of the variation in the presence of women on corporate boards is attributable to national institutional systems," a finding that led them to contend that cultural and legal changes appear "to play the most significant role in shaping board diversity." Additionally, industries vary with regard to their need for directors with certain demographic, human, or social capital characteristics.

For example, semiconductor firms may need directors with technological expertise while retail firms may need directors with sales or marketing expertise. Additionally, industries vary with regard to their regulation. Different regulations and regulatory intensity may influence board and committee composition, driving firms more toward legal or industry experts. In turn, such industry factors may influence the impact of a director's characteristics on board processes and decisions. Relatedly, directors may differ with regard to their ability and/or inclination to affect outcomes, and identifying individual differences in this regard may allow for more accurate tests of the underlying theoretical predictions.

Multilevel analyses. Finally, as we noted earlier in our discussion of focusing on the appropriate level of analyses and the inherently multilevel nature of individual characteristics being nested in the larger board, we echo Dalton and Dalton (2011: 409) in calling for scholars to incorporate multilevel analyses to account for the hierarchical or nested nature of board research: As they note, not only can failure to use a multilevel approach lead to biased results, but doing so "can provide information about the unexplained variability" at various levels and be a "useful diagnostic about which level has the most promise as the focus of future research."

In sum, addressing these methodological concerns will allow scholars to better establish causal relationships and isolate mechanisms connecting board composition to outcomes. As a result, not only can we gain a deeper theoretical insight, but such analyses will also allow scholars to make practical recommendations regarding how to construct an organization's board.

Extending Existing Research to Uncover More Complex Relationships

In addition to focusing on the three aforementioned issues, a fourth way future research can break new ground is to extend research while at the same time, considering the level of analysis, improving measurement and addressing methodological concerns given that these issues are interdependent. This can be achieved through utilizing new sources of information, new contexts, and addressing mechanism-based research questions.

New sources of information. Most board capital research utilizes secondary data, perhaps owing to the difficulty in generating adequate responses from direct inquiries of executives (Cycyota & Harrison, 2006; Hambrick & Mason, 1984). Although a number of scholars have been successful in direct inquiry via survey (R. A. Johnson et al., 1993; Stern & Westphal, 2010; Stevenson & Radin, 2009) or interview (Judge & Dobbins, 1995; Stiles, 2001), less traditional approaches may be necessary to augment current understanding. For instance, Finkelstein et al. (2009: 290) note that "the greatest research breakthroughs will come from studies that adopt qualitative methodologies." In a similar vein, a number of scholars argue for using a multimethod research agenda including alternative approaches such as simulations, outlier samples, laboratory experiments, and case analyses to help uncover knowledge that may be difficult to obtain through secondary data, surveys, or interviews (e.g., Finkelstein et al., 2009; Hambrick, 2007; Hitt, Gimeno, & Hoskisson, 1998; Joshi et al., 2011). While these less traditional investigations pose unique challenges, the insights that can be gained may add to our knowledge in ways that traditional approaches cannot. For instance, Buyl, Boone, and Matthyssens (2011: 243) call for augmenting secondary data with alternative approaches such as case studies, lab studies, and a well-designed simulation "to explore how participants with particular characteristics and in teams with particular compositional features access, weigh, and interpret information and make decisions." This is not to suggest that scholars rely solely on these alternative approaches, but rather that multimethod approaches can be beneficial. Indeed, studies of both work teams and group decision making with a more micro-organizational focus have utilized such techniques in concert with more traditional approaches. The study of boards could likewise benefit from employing such techniques. Alternative methodologies may be particularly useful in uncovering mediating processes that link director capital to organizational outcomes but that are hard to capture in archival or survey data (cf., Finkelstein et al., 2009). That is, archival and survey approaches "often provide distant measures of the presence, content, and effects of constructs" related to processes and therefore alternative approaches are critical to "uncovering unique insights that are unavailable from archival data and quantitative measures alone" (Bingham, Eisenhardt, & Furr, 2007: 34). Scholars could also benefit from improved access to directors through exchanging access for services like consulting or training. In short, any way to improve access to information is worth considering as we seek to uncover new knowledge.

New research contexts. Most of the studies we reviewed look at multi-industry samples of large U.S. public companies. We see several potential ways to improve research by selecting different samples. For instance, some research finds theoretical support in single industries (Hillman et al., 2002; S. Johnson et al., 2011), and there is room to expand these results by looking at more industries. Additionally, while investigation in a number of country contexts has been ongoing, are there director characteristics that change in importance across countries? Does a female director have more influence in France, the United Kingdom, or Japan? Does financial expertise vary in influence by country or industry? Does industry-specific expertise vary based on country? Are there some characteristics that are "converging" in the way that some scholars argue some governance dimensions are more general? Do multinationals from different countries have more similar board composition to each other than they do to firms within their own home countries?

Mechanism-based research questions. Much of the research on corporate boards might be described as assuming a composition-conduct-performance relationship (Adams et al., 2010). These studies frequently assume that certain compositional attributes (independence, director experience, social ties) will lead to certain conduct in the board room, leading to firm-level outcomes. We recommend that more studies analyze the mechanisms underlying these relationships (Bromiley & Johnson, 2005). For example, research could investigate how director attributes affect director behavior before looking for a direct, curvilinear, or other functional form effects on firm performance. Another common assumption in this line of research is that directors possess the ability and willingness to make their characteristics have an effect. However, it is possible that certain directors lack the ability and/or inclination to influence the firm, and their effect on subsequent outcomes will not be manifest. Future research can benefit from understanding mechanisms that may affect the degree to which characteristics associated with “potential” to influence outcomes result in the “actual” influence being realized. This question is in part related to methodological approaches as well, as researchers may need to take nontraditional approaches to address this question. Further, most of the work of the board takes place during meetings, and these meetings have different frequencies, lengths, and locations as well as varying degrees of formality. Scholars have also begun to delve into the informal relationships that emerge between board members (He & Huang, 2011) and the dynamics of group formation (Wincent et al., 2010). We are just beginning to investigate whether these issues impact the outcomes of board decision making (Beekun et al., 1998; Tuggle et al., 2010). Additionally, many boards are beginning to hold virtual meetings. This will impact board composition in that geographic diversity will likely be increased. Will the quality of discussion and therefore the impact on the firm be enhanced? Or reduced? Will this change the importance of certain characteristics? How do we account for informal relationships and processes that might not be documented in traditional sources? There is an extensive literature on group meetings in the organizational behavior literature that can be integrated into board process research.

As we noted earlier, any extension to existing research should still focus on the appropriate level of analysis, improve measurement, and address methodological concerns, as these issues are not independent of each other. Indeed, in any extension, taking these points into account will strengthen the contributions of that work.

Conclusion

Our review of studies on board composition beyond independence has revealed a growing literature demonstrating that the demographic, human capital, and social capital characteristics of directors have important effects on firm outcomes. At the same time, these studies highlight the need to extend this research. Our discussion of future research suggests in particular that more attention is needed with respect to issues of aggregation and the effects of entities other than the board as a whole (e.g., individuals, committees) as well as the contextual nature of relationships. Furthermore, less traditional methodologies that do not rely on extant archival databases and surveys may be necessary to gain a more fine-grained understanding of the impact of boards on firms. Scholars also need to be clear about the specificity of theoretical arguments and employ consistent measurement to enable aggregating knowledge. There is also an opportunity to strengthen empirical analyses while both investigating the mechanisms of governance and extending prior findings to different contexts.

Notes

1. Search terms for demographics were *demographic(s)*, *age*, *race*, *gender*, *ethnicity*, *minority*, and *education* while search terms for human capital were *human capital*, *experience*, *tenure*, and *skill(s)*. For social capital, we searched for *social capital*, *tie(s)*, *interlock(s)*, *multiple boards*, *network(s)*, *affiliation*, *affiliated*, *interdependent*, *reciprocal*, *multiple seats*, *status*, *elite(s)*, *reputation*, *prestige*, *stigma*, *friendship(s) gray*, and *family*. We also searched by the general terms *capital*, *composition*, and *characteristics*.

2. Although functional background has been identified as a demographic characteristic (Carpenter, Geletkanycz, & Sanders, 2004; Joshi, Liao, & Roh, 2011), this can be confused with experience or expertise within a function, which can also be considered a form of human capital (Becker, 1964; Coleman, 1988). We categorized functional background as human capital since most board research treats it in this fashion.

3. The SEC requires that directors must disclose information about any affiliation that may potentially compromise their ability to make objective decisions, which includes former employees, family members, and those involved in business or financial relationships to the firm such as customers, suppliers, bankers, legal counsel, and creditors (see Daily & Dalton, 1994; Daily, Johnson, Ellstrand, & Dalton, 1998). Although some of these affiliations may fall under "personal relationships," we follow prior research and define these individuals as "affiliated directors" despite the likelihood that they may have a personal relationship with the CEO. Where researchers have been specific and examined personal relationships exclusively, we report that.

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