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Multilevel Challenges and Opportunities in Social Capital Research

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Social capital refers to the resources derived from social relationships. Although the concept of social capital has been applied at the individual, group, and organizational levels of analysis, researchers have yet to fully embrace social capital's potential as a multilevel lens through which we might better understand management and organizational phenomena. With a central objective of advancing social capital's potential as a multilevel theoretical perspective, the authors make two contributions to the management literature. First, the authors comprehensively review two decades of management research to highlight how social capital has been empirically applied across levels of analysis. Second, based on the shortcomings and challenges revealed through the literature review, the authors identify and discuss avenues for future multilevel research, including suggestions for both macro and micro researchers.

Keywords: *social capital; networks; embeddedness; multilevel research; research methods*

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Researchers are developing more sophisticated understandings of management phenomena by utilizing multilevel lenses (Hitt, Beamish, Jackson, & Mathieu, 2007). Employing a multilevel perspective highlights the various contexts in which individual and collective behaviors occur and how these behaviors influence the nested levels of social organization (i.e., individuals within teams within organizations within industries). The concept of social capital offers enormous potential for better understanding multilevel management and organizational phenomena. Indeed, because it deliberately deals with the nesting of organizational entities, social capital is fundamentally a multilevel theoretical perspective.

Management researchers have examined social capital at multiple levels of analysis, primarily as it influences individual and collective (e.g., team and organization) outcomes. For example, studies focusing on the individual level of analysis have examined various outcomes such as compensation (e.g., Belliveau, O'Reilly, & Wade, 1996; Burt, 1997a; Seibert, Kraimer, & Liden, 2001), placement on a board of directors (Lester, Hillman, Zardkoohi, & Cannella, 2008), entrepreneurship (Baron & Markman, 2003), and knowledge creation (McFadyen & Cannella, 2004). Examples of outcomes occurring at the collective level of analysis include creativity (e.g., Perry-Smith & Shalley, 2003), entrepreneurship (e.g., Shane & Stuart, 2002), IPO failure (e.g., Fischer & Pollock, 2004), access to financial resources (Florin, Lubatkin, & Schulze, 2003; Gopalakrishnan, Scillitoe, & Santoro, 2008), and firm competitiveness (Wu, 2008). In addition, social capital's relationship to performance has been examined at the individual (e.g., Seibert et al., 2001), team (e.g., Tsai, 2000), and organizational (e.g., Stam & Elfring, 2008) levels.

Although research in social capital has occurred at multiple levels of analysis, researchers have largely limited their studies to a single level of analysis and have failed to fully recognize that social capital can have alternative meanings, antecedents, and consequences at different levels (Adler & Kwon, 2002). In fact, the advancement of the social capital concept has been inhibited by multifaceted abstract definitions, differing theoretical perspectives, and inconsistent operationalizations. For example, Burt (1992, p. 9) defined social capital at the individual level of analysis as the "friends, colleagues, and more general contacts through whom you receive opportunities to use your financial and human capital." On the other hand, Putnam (1995, p. 67) defined social capital at a macro level by positioning social capital as the "features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit." Additionally, Portes and Sensenbrenner's (1993, p. 1323) widely cited definition explicitly expresses social capital in terms of "a collectivity." In total, Adler and Kwon's (2002) review listed 23 distinct definitions of social capital within the management literature, suggesting that scholars are pursuing this research using various perspectives that include either micro or macro conceptualizations, or both.

Since Adler and Kwon's (2002) endeavor to increase dialogue across varying social capital perspectives, scholars have increasingly utilized a more comprehensive view of social capital in their definitions, often implying a multilevel perspective but seldom explicitly suggesting it. In fact, many scholars now draw upon Adler and Kwon's broad definition of social capital, which is given as the goodwill available to individuals or groups that is derived from the structure and content of an actor's social relations. Nahapiet and Ghoshal's (1998, p. 243) definition, in which social capital is "the sum of actual and potential resources embedded within, available through, and derived from the network of relationships possessed by individuals or

social units,” is also frequently cited. But despite a broadening overarching conceptual perspective of social capital, minimal research has explicitly modeled social capital at multiple levels of analysis. In essence, scholars continue to maintain separate micro and macro streams of research, failing to acknowledge the broader, and inescapable, aggregates in which an actor—individual or collective—is embedded.

To bridge gaps between research approaching social capital from micro and macro perspectives, this article advances social capital research by explicitly examining the multilevel challenges and opportunities that exist in this growing field of study. Our first contribution is to provide a comprehensive review of social capital research in management that highlights how social capital is being utilized within and across levels of analysis. Building from the traditional debate between bridging and bonding forms of social capital and Adler and Kwon’s (2002) internal and external delineation, we note the broad range of perspectives and topics being examined using a social capital lens. This diversity of rapidly growing social capital research has led to a rich, yet complex, body of research in which micro and macro viewpoints are largely disconnected.

Our second contribution consists of an extensive discussion of multilevel research challenges and opportunities that focuses on how future studies of social capital can narrow the proverbial micro–macro gap. In other words, we contribute to the management literature by illustrating that the social capital perspective is a powerful lens through which to better understand the dynamic multilevel social systems that pervade the people and organizations we study. Herein, we first identify those empirical studies that either implicitly or explicitly incorporated multilevel methods, including unique, network-based cross-level approaches. Examining such studies reveals some of the best practices noted in current social capital research. Then, to perpetuate such exemplary social capital research, we provide a thorough exploration of areas for future multilevel research, which includes suggestions for both macro and micro researchers.

Social Capital Research in Management Journals, 1989-2008

Method

To uncover potential challenges and opportunities for multilevel research using social capital constructs and perspectives, we first needed to capture the current state of research on social capital in the management domain. To do so, we analyzed relevant journal articles from 1989 through 2008; this 20-year time period covers all relevant peer-reviewed management publications since Coleman (1988), which is widely acknowledged as the founding paper on social capital and has been cited more than 7,500 times according to Google Scholar.

Following Duriau, Reger, and Pfarrer (2007), we used a two-stage strategy to survey articles on social capital. First, we searched 14 major management journals using EBSCO and ABI/INFORMS databases with “social capital” as the keyword. These journals have been previously used in similar management reviews (e.g., Short, Ketchen, Shook, & Ireland, 2010; Short, Payne, & Ketchen, 2008) and represent those journals with the most influence

on the management field (Podsakoff, MacKenzie, Bachrach, & Podsakoff, 2005). In total, our initial search yielded 245 articles over the 20-year time frame. Two authors examined each of the initial articles to determine if they were appropriate for inclusion in the review. An article had to utilize social capital as a key research construct, rather than merely mention the term, to be included; the 8 disagreements regarding inclusion were discussed until a consensus was reached. In total, 109 articles (80 empirical, 29 conceptual) were identified for final inclusion in the review. We focused our review on the 80 empirical articles, although conceptual articles were utilized to gain additional insight into various issues as needed. Table 1 lists the sampled articles by journal; note that two journals, *Organizational Behavior and Human Decision Processes* and *Personnel Psychology*, were included in our initial search but revealed no appropriate articles.

To systematically assess the 80 empirical articles and accentuate multilevel issues, an organizing framework was needed (cf. Aguinis, Pierce, Bosco, & Muslin, 2009). We developed a four-quadrant typology based on two categorical dimensions. These dimensions were specifically chosen to highlight multilevel issues inherent in social relationships. One axis represents the unit of analysis being studied in the research; that is, we identified whether the research considered individuals or collectives (i.e., groups and/or organizations) as the level of analysis. This distinction is important because of the nature of business networks and most network data, which depict connections both within and across actors that are individuals or collectives (Borgatti & Foster, 2003). The other axis represents social capital's locus of activity. We adopted Adler and Kwon's (2002) notions of internal and external ties when describing where actors draw their social capital resources. Building on this viewpoint, we are specifically concerned with whether actors draw social capital from within their focal collectivity (i.e., workgroup, organization, etc.) or from social structures existing external to their focal collectivity. The first of these, known often as the "bonding" view of social capital, suggests that persons derive social capital from the internal forces within their collective. This is achieved primarily as the collective matures and strong recursive bonds develop between actors who interact frequently (i.e., Coleman's [1988] view of social capital as network closure). The latter view, dubbed by many scholars as a "bridging" view of social capital (i.e., Burt's [1982, 1992, 1997a, 1997b, 2000, 2001, 2005, 2007] brokering of structural holes view), represents the value of resources derived from connections spanning structural holes in a network.

By intersecting the two dimensions, the four resulting quadrants are (a) Social Capital of Individuals With Internal Ties (Individual/Internal), (b) Social Capital of Collectives With Internal Ties (Collective/Internal), (c) Social Capital of Individuals With External Ties (Individual/External), and (d) Social Capital of Collectives With External Ties (Collective/External). This classification system is useful in that it allows us to more easily compare and contrast articles by highlighting the theoretical and methodological issues surrounding the operationalization of the social capital construct as they pertain to multilevel issues.

Two authors first analyzed each article and assigned it to a quadrant—or, in some cases, multiple quadrants. Then, these same two authors each coded half of the sampled articles according to various characteristics associated with four major themes: (a) how social capital is conceptualized, (b) how social capital is measured and operationalized, (c) the antecedents and/or outcomes of social capital, and (d) the sample and source of data used in the study. These themes follow Rousseau's (1985) suggestion that scholars should simultaneously

Table 1
Social Capital Research in Major Management Journals, 1989-2008

<i>Academy of Management Journal (AMJ)</i>	<i>Journal of Business Venturing (JBV)</i>
Balkundi & Harrison, 2006 (1, 2, 4)	Baron & Markman, 2003 (3)
Barden & Mitchell, 2007 (3, 4)	Bates, 1997 (3)
Belliveau, O'Reilly, & Wade, 1996 (1)	Bollingtoft & Ulhøi, 2005 (4)
Bouty, 2000 (3)	Davidsson & Honig, 2003 (1, 3)
Burt, 2007 (1, 3)	
Carroll & Teo, 1996 (1)	<i>Journal of Management (JOM)</i>
Fischer & Pollock, 2004 (2, 4)	Borgatti & Foster, 2003 (conceptual)
Florin, Lubatkin, & Schulze, 2003 (2, 4)	Ireland, Hitt, & Vaidyanath, 2002 (conceptual)
Lester, Hillman, Zardkoohi, & Cannella, 2008 (1)	
McFadyen & Cannella, 2004 (3)	<i>Journal of Management Studies (JMS)</i>
Oh, Chung, & Labianca, 2004 (2)	Arregle, Hitt, Sirmon, & Very, 2007 (conceptual)
Pennings, Lee, & Van Witteloostuijn, 1998 (4)	Delmestri, Montanari, & Usai, 2005 (3)
Seibert, Kraimer, & Liden, 2001 (1)	Gopalakrishnan, Scillitoe, & Santoro, 2008 (4)
Shaw, Duffy, Johnson, & Lockhart, 2005 (2)	Jack, 2005 (3)
Somaya, Williamson, & Lorinkova, 2008 (4)	Reed, Lubatkin, & Srinivasan, 2006 (2, 4)
Stam & Elfring, 2008 (2, 4)	Rhee, 2004 (1)
Subramaniam & Youndt, 2005 (2)	Wu, 2008 (4)
Tsai & Ghoshal, 1998 (2)	Youndt, Subramaniam, & Snell, 2004 (2, 4)
<i>Academy of Management Review (AMR)</i>	<i>Journal of Organizational Behavior (JOB)</i>
Adler & Kwon, 2003 (conceptual)	Anderson, 2008 (1, 3)
Bhappu, 2000 (conceptual)	Balkundi, Kilduff, Barsness, & Michael, 2007 (2)
Bolino, Turnley, & Bloodgood, 2002 (conceptual)	Lamertz, 2002 (1)
Dess & Shaw, 2001 (conceptual)	Pearce & Randel, 2004 (1)
Greenhaus & Powell, 2006 (conceptual)	Wong, 2008 (2, 4)
Inkpen & Tsang, 2005 (conceptual)	
Kostova & Roth, 2003 (conceptual)	<i>Management Science (MS)</i>
Leana & Van Buren, 1999 (conceptual)	Grewel, Lilien, & Mallapragada, 2006 (1, 4)
Nahapiet & Ghoshal, 1998 (conceptual)	Kalnins & Chung, 2006 (2)
Oh, Labianca, & Chung, 2006 (conceptual)	Levin & Cross, 2004 (3)
Peredo & Chrisman, 2006 (conceptual)	Shane & Stuart, 2002 (3)
<i>Administrative Science Quarterly (ASQ)</i>	<i>Organization Science (OS)</i>
Burt, 1997 (1)	Batjargal & Liu, 2004 (3)
Galaskiewicz, Bielefeld, & Dowell, 2006 (4)	Belliveau, 2005 (1)
Maurer & Ebers, 2006 (4)	Budros, 1999 (conceptual)
Reagans & McEvily, 2003 (1, 3)	Burt, Hogarth, & Michaud, 2000 (1)
Reagans, Zuckerman, & McEvily, 2004 (2)	Cross & Sproull, 2004 (1)
Xiao & Tsui, 2007 (1)	Gargiulo & Benassi, 2000 (1)
<i>Entrepreneurship Theory & Practice (ETP)</i>	Gittelman, 2007 (4)
Carney, 2005 (conceptual)	Ibarra, Kilduff, & Tsai, 2005 (conceptual)
De Carolis & Saporito, 2006 (3)	James, 2000 (1)
Downing, 2005 (conceptual)	Leana & Pil, 2006 (1, 3)
Jones, Makri, & Gomez-Mejia, 2008 (3)	Reagans & Zuckerman, 2001 (2)
Lester & Cannella, 2006 (conceptual)	Walker, Kogut, & Shan, 1997 (4)
Morse, Fowler, & Lawrence, 2007 (conceptual)	Wang & He, 2008 (2)
Mosey & Wright, 2007 (3)	
Packalen, 2007 (conceptual)	<i>Strategic Management Journal (SMJ)</i>
Pearson, Carr, & Shaw, 2008 (conceptual)	Acquaah, 2007 (4)
Sharma, 2008 (conceptual)	Blyler & Coff, 2003 (conceptual)
Sirmon & Hitt, 2003 (conceptual)	

(continued)

Table 1 (continued)

Wiklund & Shepherd, 2008 (3)	Chung, Singh, & Lee, 2000 (4)
Wright, Liu, Buck, & Filatotchev, 2008 (3)	Geletkanycz, Boyd, & Finkelstein, 2001 (3)
Yiu & Lau, 2008 (4)	Hite & Hesterly, 2001 (conceptual)
Zahra, Nielsen, & Bogner, 1999 (conceptual)	Khanna & Rivkin, 2001 (4)
Zhang, Souitaris, Soh, & Wong, 2008 (4)	Koka & Prescott, 2002 (4)
<i>Journal of Applied Psychology (JAP)</i>	Lounsbury & Glynn, 2001 (conceptual)
Aquino & Lamertz, 2004 (conceptual)	Lovas & Ghoshal, 2000 (1)
Bono & Anderson, 2005 (1)	Luo, 2003 (3)
Oh & Kilduff, 2008 (3)	Moran, 2005 (1)
Thompson, 2005 (1)	Park & Luo, 2001 (4)
	Rowley, Behrens, & Krackhardt, 2000 (4)
	Tsai, 2000 (4)
	Yli-Renko, Autio, & Sapienza, 2001 (4)

Notes: The parenthetical notations build on the organizing scheme laid out in Figure 1 to indicate the associated quadrant(s) if the study was empirical: Quadrant 1—Individual/Internal; Quadrant 2—Collective/Internal; Quadrant 3—Individual/External; Quadrant 4—Collective/External. The “conceptual” notation also includes review articles.

consider levels of theory, measurement, and analysis when examining multilevel research. If there was ambiguity in the coding of a characteristic, the first coder marked his choices and then turned the article over to the other coder for consideration, who was blinded to the first coder’s choices. If, following the second coder’s decisions, there was a mismatch in the coding, the article was discussed until a resolution was made.

Results

The results of our review reveal that there have been 18 empirical articles (23%) that can be assigned to Quadrant 1 (individual level with internal ties), 9 articles (11%) that can be assigned to Quadrant 2 (collective level with internal ties), 18 articles (23%) that can be assigned to Quadrant 3 (individual level with external ties), and 21 articles (26%) that can be assigned to Quadrant 4 (collective level with external ties). The remaining articles fall into more than one quadrant. Examining the articles differently, we found that 36 articles (45%) use social capital as a key concept for individual-level research (Quadrants 1 and 3), as opposed to 30 published articles (38%) that focused upon a collective level of analysis (Quadrants 2 and 4). Also, if dividing the articles by whether they were concerned with internal (Quadrant 1 and 2) or external ties (Quadrants 3 and 4), we found 27 (34%) focused on internal and 39 (49%) focused on external. Altogether, we found a highly diverse set of management studies utilizing the social capital construct at multiple levels of analysis. Figure 1 illustrates these quadrants and gives some basic characteristics of each.

Definitions and Conceptualizations. As Adler and Kwon (2002) noted, definitions of social capital have varied. Most of the articles in our sample base their definitions on either Burt’s

Figure 1
Typology and Characteristics of Empirical Studies of Social Capital

Internal Ties	<i>Quadrant 1: Individual/Internal</i> <u>General Definition:</u> Assets and resources made available through social relationships that an individual can use to their personal benefit. <u>Dominant Perspective:</u> Structural Holes <u>Studies in Quadrant:</u> 18 (+7) <u>Dominant Journals:</u> <i>AMJ</i>, <i>OS</i>	<i>Quadrant 2: Collective/Internal</i> <u>General Definition:</u> Assets and resources made available through relationships within the social structure of the collective (i.e., group or organization) that can be utilized by the collective. <u>Dominant Perspectives:</u> Structural Holes & Strong Ties/Network Closure <u>Studies in Quadrant:</u> 9 (+7) <u>Dominant Journal:</u> <i>AMJ</i>
	<i>Quadrant 3: Individual/External</i> <u>General Definition:</u> Assets and resources made available through social relationships that span boundaries, and through which both the individual and the collective can draw upon and benefit. <u>Dominant Perspectives:</u> Structural Holes & Strong Ties/Network Closure <u>Studies in Quadrant:</u> 18 (+6) <u>Dominant Journal:</u> <i>ETP</i>	<i>Quadrant 4: Collective/External</i> <u>General Definition:</u> Assets and resources made available to the collective through network ties that span boundaries to other collectives, and through which the collective many benefit. <u>Dominant Perspective:</u> Strong Ties/Network Closure <u>Studies in Quadrant:</u> 21(+9) <u>Dominant Journal:</u> <i>SMJ</i>
Individual Social Capital		Collective Social Capital

Note: Numbers in parentheses represent studies that fall into the quadrant but are part of an article that examines social capital in multiple ways (i.e., falls into multiple quadrants). *AMJ* contained the most multi-quadrant studies with six. *AMJ* = *Academy of Management Journal*; *OS* = *Organizational Science*; *ETP* = *Entrepreneurship Theory & Practice*; *SMJ* = *Strategic Management Journal*.

(1982, 1992, 1997a, 2000) or Coleman's (1988, 1990) conceptualization of social capital. Across his multiple studies, Burt has consistently viewed social capital as "brokerage opportunities in a network" (1997b, p. 355). Burt's perspective is one of external linkages and generally focuses on the benefits that accrue from networks that are rich in structural holes (Adler & Kwon, 2002). In comparison, Coleman (1990, p. 302) defines social capital as "some aspect of social structure that facilitates certain actions of individuals within the structure." Coleman's perspective is one of linkages among individuals or groups internal to a collectivity (Adler & Kwon, 2002). Of the 80 empirical papers reviewed, 25 (31%) cited the works of Burt in reference to their stated definition, whereas 28 (35%) cited Coleman. Other articles commonly utilized for developing a definition of social capital include Adler and Kwon (2002), Nahapiet and Ghoshal (1998), and Bourdieu (1986), which were cited 17, 17, and 13 times, respectively. Overall, the stated definition of social capital appears to be

Table 2
Theoretical Foundations and Operationalizations for Social Capital Construct

Theoretical Perspective	Number of Articles	Key Operationalization Examples
Bridging of structural holes (Burt, 1982, 1992, 1997b, 2000)	30	Network constraint: An index measuring the extent of redundant connections for an individual or collective (i.e., node) (e.g., Burt, 1992) Betweenness centrality: An index measuring the shortest path between one node and other nodes in a network (e.g., Shaw, Duffy, Johnson, & Lockhart, 2005)
Strong ties and network closure (Coleman 1988, 1990)	28	Affiliation matrix of "core discussion networks": represents the affiliation of each actor with all other actors. (e.g., Fischer & Pollock, 2004) Ratio of sum of tie strengths divided by total possible (e.g., Oh, Chung, & Labianca, 2004)
Embeddedness (Granovetter, 1985; Uzzi, 1996, 1997)	17	Aggregate of business ties (e.g., Pennings, Lee, & Van Witteloostuijn, 1998) History of prior exchanges (e.g., Barden & Mitchell, 2007; Wu, 2008)
Social resource theory (Lin, 1999, 2001, 2002; Lin, Ensel & Vaughn, 1981; Lin, Vaughn & Ensel, 1981)	13	Sum of personal, business and other stakeholder linkages (e.g., Florin, Lubatkin, & Schulze, 2003) Access to information and resources (e.g., Seibert, Kraimer, & Liden, 2001)
Strength of weak ties (Granovetter, 1973)	9	Number of ties (e.g., Rhee, 2004) Weak vs. strong ties (e.g., McFadyen & Cannella, 2004)
Multiple dimensions of social capital (Nahapiet & Ghoshal, 1998)	8	Open-ended interviews to assess extent of structural (e.g., frequency, intensity), relational (e.g., norms, contracts), and cognitive (e.g., goals, drivers) Dimensions of social capital (e.g. Maurer & Ebers, 2006) Survey items capturing structural, relational, and cognitive dimensions (e.g., Tsai & Ghoshal, 1998)
Model of social capital (Adler & Kwon, 2002)	5	Internal social capital: Density of ties—number of connected ties divided by the total number possible; and in-degree centrality—number of ties directed at a node (e.g., Balkundi & Harrison, 2006) External social capital: Embedded ties to external stakeholders (e.g., Fischer & Pollock, 2004)

somewhat uniform across the various empirical studies. Most scholars generally agree that social capital represents the resources an individual or a collective gains through a social structure or network of relationships (Lin, 2001).

Although the definitions tended to generally concur across studies, the conceptualizations (i.e., the theoretical foundations) of social capital were much more varied. In other words, scholars differed widely and frequently on their explanations of how social capital is derived and how it influences outcomes. To better understand the nature of the various conceptual perspectives, we coded the articles according to eight major theoretical perspective(s) used to conceptualize social capital. Table 2 lists these eight theoretical categorizations in order of descending popularity.

Our results show that many scholars utilized the works of Burt and Coleman, both separately and combined, to ground their social capital research. The relatively high number of combined uses (13 articles) is remarkable because most scholars have historically differentiated, and often contrasted, Burt's structural holes theory, which is based on weak ties and open networks, with Coleman's view of social capital, which is based on strong ties and network closure. However, scholars seem to be subscribing to a more complementary view (e.g., Burt, 2000, 2001, 2005). Adler and Kwon (2002, p. 35), for instance, state, "Many of the phenomena we study as organizational researchers involve both forms of social capital [i.e., bridging and bonding] simultaneously." In our review, 12 of the 13 articles that were assigned to more than one quadrant represent current approaches to simultaneously developing social capital from internal (bonding) and external (bridging) perspectives. Furthermore, these studies included approaches from an individual perspective (e.g., Davidsson & Honig, 2003; Leana & Pil, 2006) and collective perspective (e.g., Fischer & Pollock, 2004; Wong, 2008).

Measuring Social Capital. Our analysis revealed that scholars use a wide variety of operationalizations for social capital. To better organize these many operationalizations and improve our ability to compare articles, we created five nonexclusive classifications including (a) tie-based measures (e.g., presence of a tie or ties, number of ties, strength of ties), (b) scale items, (c) network measures (e.g., centrality, constraint, density), (d) relational measures (e.g., frequency of interaction, trust, social similarity), and (e) social resources (e.g., tenure, third-party referral, reputation/status). Including studies that utilized multiple measures of social capital (or the networks presumably contributing to the level of social capital), we noted 52 tie-based measures, 16 scale measures, 24 network measures, 26 relational measures, and 6 measures that were based on social resources. Table 2 lists several ways social capital has been operationalized in studies following the various theoretical perspectives previously discussed.

Antecedents and Outcomes. Overwhelmingly, social capital has been utilized in the management literature as an independent variable. Of the 80 reviewed articles, social capital was utilized as an independent variable in 73 (91%), although 20 of those 73 studies also utilized it as an intervening variable (i.e., moderator or mediator). Also, we found that 26 of the 80 (33%) empirical studies utilized longitudinal data, with an additional 18 (23%) using an analysis technique or methodology to minimize reverse causality concerns such as adopting a lagged dependent variable (e.g., Somaya, Williamson, & Lorinkova, 2008). Hazard models and event studies were the more prevalently used longitudinal methods (e.g., Fischer & Pollock, 2004; Lester et al., 2008).

Explaining performance is a popular goal for social capital studies; performance was measured at multiple levels of analysis including the individual (e.g., Belliveau, 2005; Burt, 1997a, 2007; Seibert et al., 2001), group (e.g., Oh, Chung, & Labianca, 2004; Reagans, Zuckerman, & McEvily, 2004), project (e.g., Delmestri, Montanari, & Usai, 2005; Grewal, Lilien, & Mallapragada, 2006), and organizational (e.g., Florin et al., 2003; Reed, Lubatkin, & Srinivasan, 2006) levels. Within these levels, performance was measured in various ways. For instance, at the individual level, performance measures included compensation (e.g., Carroll & Teo, 1996)

and career advancement (e.g., Xiao & Tsui, 2007). At the organizational level, performance was measured in terms of objective financial measures (e.g., Park & Luo, 2001; Rowley, Behrens, & Krackhardt, 2000), subjective financial measures (e.g., Yiu & Lau, 2008), innovation scores (e.g., Gittelman, 2007; Maurer & Ebers, 2006; Moran, 2005), and firm survival (Fischer & Pollock, 2004; Kalnins & Chung, 2006; Shane & Stuart, 2002).

Another key outcome can generally be described in terms of resources for individuals and collectives. Many studies examined the relationship between social capital, generally measured in terms of attributes of social relationships, and the acquirement and exchange of both tangible and intangible resources. For instance, Anderson (2008) demonstrated in his study of managers that the size of their networks (i.e., social capital) is related to the relevance and diversity of information available. Similarly, Reagans and McEvily (2003) found support for both internal and external network views of social capital in which both network cohesion and range had a positive effect on knowledge transfer between employees within a contract research and development firm.

Although these outcomes are interesting and varied, there is a relative dearth of studies that analyze social capital antecedents specifically; some studies seem to examine antecedents, but they do not do so explicitly (e.g., Anderson, 2008). Furthermore, the few studies that do study antecedents tend to utilize cross-sectional survey designs (three of six) and are largely based at the individual level (in Quadrants 1 and 3) (e.g., Bono & Anderson, 2005; Carroll & Teo, 1996; Oh & Kilduff, 2008).

We also found relatively little attention given to curvilinear relationships or to how social capital might change over time. Regarding curvilinear effects, only a handful of the studies (6) we reviewed tested for some type of curvilinear relationship; this is surprising because the examination of curvilinear effects can help us understand how a relationship can change over the range of both the independent and dependent variables. As for time considerations, it appears that social capital researchers have heeded Adler and Kwon's (2002) call for more longitudinal studies to develop a more dynamic understanding of social capital; roughly, one-third of the empirical articles (26 of 80 articles) incorporated some type of control for reverse causality. However, whereas a number of studies address reverse causality, causality is often assumed regarding the presence of certain relationships or network structures and various outcomes. In other words, most studies focused on the relationship between a measure of social capital (e.g., network characteristic) and some outcome variable, assuming that it is the benefits of the network that lead to positive outcomes. However, it is plausible that the outcomes that are being measured lead to the creation of relationships and positive network attributes. For example, one can easily comprehend how a skilled, knowledgeable, and successful scientist could be sought out by others seeking to gain access to those assets. Thus, in this case, the formation of social relationships would be an outcome of the human capital possessed by an individual and could eventually lead to either positive or negative outcomes, which may feed back to influence future social relationships. McFadyen and Cannella's (2004) finding of diminishing returns to interpersonal relationships confirms the complexity associated with social relationships and various outcomes, especially when one considers the relationship over time. As with several other studies, these researchers lagged their dependent variable to control for reverse causality.

Sample and Source Data. The empirical studies in our review were drawn from a wide variety of sources with a high degree of heterogeneity. At the individual level of analysis (Quadrants 1 and 3), respondents included managers, entrepreneurs, salespeople, former government officials, CEOs, top management team members, consultants, employees, researchers, academics, school teachers and officials, movie directors and producers, and scientists. Of the 36 individual-level studies, 10 (28%) sampled individuals from outside the United States, including people from Italy, France, Scotland, Sweden, China, and South Korea. Sample sizes ranged from 19 to more than 2,000 individuals. Methods of data collection for individual-level social capital took a variety of forms: 21 articles (58%) used only surveys, 12 articles (33%) used archival data, 11 articles (31%) combined survey data with archival data, and 8 studies (22%) utilized qualitative or interview data. Thus, for individual-level studies, surveys are the preferred method for measuring social capital.

At the collective level of analysis (Quadrants 2 and 4), observations included work groups, multiple business units of large conglomerates, single business firms, student groups, IPOs, project-based teams, and nonprofits, among many other types. Sample sizes ranged from an ethnographic study of a single business incubator (Bollingtoft & Ulhøi, 2005) to 95,642 syndication dyads composed of 986 stock offerings multiplied by 97 investment banks (Chung, Singh, & Lee, 2000). Of the 30 collective studies, 13 (43%) utilized international (non-U.S.) samples from South Korea, Norway, Denmark, Germany, Ghana, China, Sweden, and many others countries. Notably, Khanna and Rivkin's (2001) study of business groups drew samples from Argentina, Brazil, Chile, India, Indonesia, Israel, Mexico, Peru, the Philippines, South Africa, South Korea, Taiwan, Thailand, and Turkey. Data collection methods included 23 articles (29%) that used survey data only; 22 articles (28%) that collected data from archival sources; 24 articles (30%) that collected both survey and archival data; 6 articles (7%) that used case methods, qualitative, or interview data; and 5 studies (6%) that used some other methodology such as meta-analysis or simulation. So compared to individual-level studies, researchers studying collectives tended to rely more extensively on archival sources, though often in conjunction with surveys.

Social Capital Research and Multilevel Modeling

Despite the widely varied research utilizing the social capital concept with several scholars traversing the internal versus external delineation (e.g., Davidsson & Honig, 2003; Fischer & Pollock, 2004; Leana & Pil, 2006; Stam & Elfring, 2008; Youndt, Subramaniam, & Snell, 2004), our review of the relevant management literature revealed relatively limited evidence of multilevel research, although opportunities seem abundant. Multilevel research issues are of increasing concern to management scholars and appear to be particularly relevant to those interested in social capital (Hitt et al., 2007).

Kozlowski and Klein (2000) identify three broad types of multilevel models that are relevant to the existing social capital literature in management: (a) single-level models where lower level properties are manifest as higher level constructs (i.e., shared or configural); (b) cross-level models that include independent and dependent constructs that are at different levels of analysis; and (c) homologous models, which specify that the relationships and

constructs in a model are generalizable across levels. Of these types, our review of the literature shows that empirical studies of social capital in management that analyze cross-level relationships between constructs are rare. More frequent, although not necessarily common, are those studies that contain multilevel components that incorporate shared or configural components (i.e., single-level models) in the measurement of social capital. Organized according to Kozlowski and Klein's modeling types, the following sections discuss these issues more fully.

Single-Level Models

Single-level models include basic individual-level models that essentially ignore context. Unit-level models, on the other hand, are single-level models in which the relationships between constructs are specified at a single level of theory and analysis but incorporate lower level data to tap higher level constructs; the two types of unit-level models are discussed as shared and configural. Constructs that are conceptualized and operationalized based on the shared properties of individual-level responses represent shared constructs. Configural measures, on the other hand, are summarizations of individual-level or lower level data but do not coalesce like shared constructs (Kozlowski & Klein, 2000).

Social capital that is conceptualized as a shared construct and measured by aggregating individual-level data (e.g., measuring the mean) should establish the degree to which the observations demonstrate restricted within-unit dispersion (Kozlowski & Klein, 2000). In the studies we reviewed, scholars were mixed in their explicit analysis of within-unit dispersion. For example, Subramaniam and Youndt (2005) did not report analyzing the dispersion or level of agreement between respondents with their measure of a firm's social capital based on survey responses from the two highest-ranking executives (usually the CEO and president) and the vice president of human resources. Alternatively, some authors explicitly examined the agreement between multiple respondents, thereby strengthening the multilevel measurement properties of social capital in their respective studies. For example, Tsai and Ghoshal's (1998) study of collective social capital (i.e., within business units) was assessed through survey responses of three key decision makers of each business unit in the study. These authors utilized sociometric techniques to elicit relational data by listing other business units within the firm and having respondents indicate the nature of their relationships along multiple dimensions. Then, to aggregate the responses, the authors computed convergence indices to capture the level of consistency across multiple responses for a given collective (i.e., business unit). In another example, Youndt et al. (2004) used the mean of two survey respondents per organization for all of their analyses, including their measure for social capital. However, to ensure that the data could be aggregated that way, they first calculated the interrater agreement for each of the variables.

The alternative approach of incorporating multilevel measures of social capital into the unit-level analyses is to incorporate configural measures. Network properties such as density provide potential measures of configural constructs. Rather than consider actors as the unit of analysis, network studies generally consider dyadic relationships the unit of analysis, which can be aggregated to the node or network levels. Moreover, network measures

represent structural and relational properties of these relationships, suggesting a multilevel perspective from the outset. As Brass (2000, p. 564) notes, "Social network analysis assumes that actors are embedded, with other actors, in a complex web of relationships." Thus, many measures capture collective social capital in terms of patterns or configurations of lower level relationships. For example, Stam and Elfring (2008) surveyed expert respondents (i.e., founding teams of entrepreneurial firms) to capture collective measures from lower level data. Specifically, these scholars utilized a sociometric roster method that listed all other firms in the industry and asked respondents to indicate the presence and strength of the relationship between firms; they then computed network-based measures of the firm's collective social capital. In another configural example, Koka and Prescott (2002) constructed relational data of alliances between firms in the steel industry and used eigenvector centrality coupled with counts of interfirm ties to measure the firm's external social capital. Finally, Reagans et al. (2004) and Reagans and Zuckerman (2001) used network density (the mean strength of connections between team members) to measure the collective's internal social capital.

In examining the single-level modeling research, it seems that a major challenge associated with such research involves the conceptual connection between the lower level data and the higher level construct. In most cases, scholars are assuming that sources of social capital (i.e., social network attributes) are representative of social capital (i.e., the resources embedded in or derived from networks such as information, trust, reputation, status, reciprocity, etc.). Hence, many studies do not directly measure social capital but rather analyze the source(s) of social capital. This finding can be interpreted in two ways. First, perhaps this implies that most scholars view social capital as a black box through which benefits are expected to flow. And because it is conceptually unclear how social capital is developed and how it produces benefits for the actor, scholars simply assume that processes take place that transform the opportunities presented by social networks into higher levels of performance, or some other outcome. Second, this finding could suggest that social capital is not easily amenable to objective quantitative measurement (e.g., Adler & Kwon, 2002). In particular, it is difficult to conceptually and empirically disentangle social capital from human capital. This issue was recently discussed in Lester et al.'s (2008) study of former government officials who are selected to serve as corporate board members. Their resolution was to "not attempt to isolate the effect of one from the other [human capital or social capital], or determine whether a director candidate was selected specifically because of human or social capital" (p. 1001).

Social network research has been previously criticized for not measuring the intervening mechanisms that link relationships and network connections with outcomes (Anderson, 2008; Lin, 2001). We found three notable examples that diverged from the practice of measuring network properties as social capital: Seibert et al. (2001), Levin and Cross (2004), and Wong (2008). In these studies, the authors modeled social resources as a mediator of the relationship between network characteristics and benefits. Following these examples and the general definitions provided in Figure 1, we argue that scholars should be mindful of properly aligning conceptualizations and measurements in single-level modeling. Moreover, as exemplified in the previously mentioned studies, future research should focus on differentiating between resources (e.g., knowledge, information) and the sources of those resources, which reside outside of the individual or collective actor.

Cross-Level Models

Of the articles we reviewed, a few examined cross-level relationships between individual-level social capital and outcomes at the collective level. For instance, Shaw, Duffy, Johnson, and Lockhart's (2005) study of turnover and social capital losses sets out to make collective-level (i.e., firm) predictions based on the accumulation of social capital at the individual level. They find that social capital losses from employee turnover—measured as Freeman's (1979) betweenness centrality—affects firm performance, ultimately supporting the public-good view of social capital benefit to the organization (e.g., Leana & Van Buren, 1999). In another example, Shane and Stuart (2002) empirically associate an individual's social capital to firm performance in their study of early-stage organizations. In this study, founders with direct and indirect relationships with venture investors were determined to be most likely to receive investment funding and least likely to fail. Such direct-effect studies are the most basic type of cross-level model.

Frog-pond models are another type of cross-level model that seems particularly relevant to social capital research because these models highlight the relative effect of an entity's standing within a higher level entity (Brass, 2000; Kozlowski & Klein, 2000). Frog-pond models are founded on the notion that, depending on the size of the pond (i.e., the context), the same-size "frog" could be considered small or large. Empirically these models are considered cross-level in that the consequences of some lower level construct depends on the higher level average of this construct (Kozlowski & Klein, 2000). Two of Burt's studies suggest brokerage generally fits such a perspective. First, Burt (1997a) finds the value of a manager's social capital through brokerage of structural holes is contingent on the number of people doing the same work within an organization. Second, Burt (2007, p. 119) finds there is a lack of returns to secondhand brokerage, defined as "moving information between people to whom one is only connected indirectly." Results across three study populations in Burt (2007) find the social capital of brokerage is a local phenomenon. Thus, it appears that the success of an individual's brokerage activities depends on where the individual stands relative to the group average; this suggests that the outcomes of a lower level construct (individual brokerage) depends on the higher level (collective brokerage) average for this construct.

Two studies, in particular, offered unique, network-based cross-level approaches that offer promise for future scholars. First, Grewal et al. (2006) specifically examined the relationship of collective (project) performance with social capital at both the individual (Quadrant 1) and collective (Quadrant 4) levels. This study uses two-mode affiliation networks to examine embeddedness at two levels of analysis—individuals and projects—and finds that project embeddedness in networks, rather than the individual's embeddedness, is more predictive of project success. Two-mode affiliation networks consist of actors who are connected to one another through events (Faust, 1997; Wasserman & Faust, 1999); in this case, the actors are software developers and the events are open-source software projects.

The use of two-mode affiliation networks (e.g., Wasserman & Faust, 1994) is one approach to the study of cross-level relationships that is unique to network data and shows a promising ability to bridge the gap between micro and macro conceptions of social capital. As an example, consider network organizations in which semiautonomous firms maintain

repetitive exchanges and relational forms of governance (Bradach & Eccles, 1989; Eccles, 1981; Jarillo, 1988; Powell, 1990). The use of two-mode affiliation networks would allow a researcher to analyze firms (the actors) that are connected through events such as contracted projects (e.g., construction projects, films) to model the effects of firm-level and interfirm-level social capital on performance outcomes. Another promising approach using two-mode affiliation networks would be to simultaneously analyze the social capital of board interlocks at the individual director level as well as the social capital derived through interfirm relationships. This could be accomplished by constructing an affiliation matrix of directors (rows) by firms (columns) with a designation for when an actor belongs to an event (i.e., the actor is a board member in a firm). Network measures, such as centrality, density, and constraint, could be computed at the individual and firm levels and then regressed against performance outcomes.

Second, the study by Barden and Mitchell (2007) tested a model that assessed both individual-level and collective-level experiences on the likelihood of subsequent interorganizational exchange using player trades between Major League Baseball clubs. In their study, they utilized Cox regression analysis to predict the likelihood of an exchange between organizations based on the exchange experiences of leaders. Although Barden and Mitchell minimized the discussion of social capital and focused on social embeddedness—embeddedness is argued to facilitate mutual understanding, trust, and commitment (i.e., social capital)—the multilevel approach is exemplary and worthy of emulation.

Although cross-level empirical studies of social capital in the management literature are relatively rare, many of the theoretical models incorporate cross-level relationships. Additionally, although most organizational cross-level models describe the top-down impact of the higher level constructs on lower level constructs (Kozlowski & Klein, 2000), cross-level theories of social capital theory often reverse these effects and model ties between lower level nodes and their impact on higher level constructs such as organizational or group performance. For instance, Tsai and Ghoshal's (1998) cross-level study modeled the effects of constructs at the dyadic level of analysis (e.g., social interaction, trust, and resource exchange between employees) on constructs at the firm level of analysis (product innovations). Also, Kostova and Roth's (2003) micro-macro model of social formation proposed business-unit-level perceptions about headquarters and about the subunit's relationships with headquarters will be influenced strongly by the individual social capital of boundary spanners of the subunit. And in another study, Bolino, Turnley, and Bloodgood (2002) noted that individual citizenship behaviors of employees enhance organizational performance through the development of social capital.

Overall, we see great potential for cross-level modeling in social capital research. Specifically, an increased understanding of how different types of social capital develop from different social networks would be an especially fruitful direction. For instance, an actor being more central in a network tends to increase information redundancy (i.e., validation), whereas filling structural holes allows for more diverse information (i.e., breadth). In both cases, social capital is being expanded through social networks. However, the nature of the social capital—information validity versus information breadth—is very different and is attained through different approaches to managing social relationships. The benefits of these different types of social capital will also impact outcomes in different ways.

Social capital research could also be expanded through a more explicit use of time, particularly as it relates to social capital and network change processes. Although time has recently gained some momentum in the management sciences as a central topic of study (cf., Goodman, Lawrence, Ancona, & Tushman, 2001; Perez-Nordtvedt, Payne, Short, & Kedia, 2008), there still remains only a limited amount of research that explicitly incorporates time into multi-level modeling. Indeed, we agree with other management scholars who have argued that temporal issues should be more explicitly examined when developing organizational theories (e.g., George & Jones, 2000). For social capital research, advances in growth modeling offer tremendous potential to advance our understanding of social capital dynamics by modeling changes in social capital over time.

Growth modeling involves modeling change in a dependent variable over time. Often these models are extensions of multilevel analyses in which time is used as a level-one predictor and the error covariance structure is specifically modeled to address the nonindependence and autocorrelation in responses. Furthermore, growth modeling would allow for individual variability in levels and patterns of social capital over time. As a first step, growth modeling would take multiple measures of an individual's or collective's social capital and regress time on social capital, where the variability in intercepts and slopes in the level-one model could be allowed to vary randomly (Bliese & Ployhart, 2002). Then, the patterns of change in social capital over time would be modeled by theoretically derived predictor variables and cross-level interactions at multiple levels of analysis (Short, Ketchen, Bennett, & du Toit, 2006). This method allows the researcher to model the effects of time as well as incorporate predictor variables from multiple levels of analysis. For example, Shaw et al.'s (2005) study found a curvilinear relationship between social capital losses and firm performance. Using social capital losses as a dependent variable, researchers could employ growth modeling to identify predictors of a curvilinear relationship between time and social losses at both individual and collective levels of analysis. For network-based measures of social capital, SIENA is a program specifically designed to analyze longitudinal network data (Snijders, Steglich, Schweinberger, & Huisman, 2007) and may provide a number of potentialities for modeling change in social capital (e.g., Moody, McFarland, & Bender-deMoll, 2005; White, Owen-Smith, Moody, & Powell, 2004), although social capital has not been explicitly examined in this way to date.

Homologous Models

Homologous models "specify that constructs and the relationships linking them are generalizable across organizational entities" (Kozlowski & Klein, 2000, p. 44). Two main assumptions underlie homologous models. The first assumption is that the model's constructs retain some theoretical similarity across levels (Bliese, 2000; Rousseau, 1985). As discussed previously, researchers tend to apply social capital theory to various levels of analysis and largely assume that the nature of the relationships between constructs is similar at the various levels. Thus, it seems that social capital theory, at least from a fundamentals perspective, is theoretically approached as a homologous model because of the implicit

assumption that levels of analysis really do not matter. Interestingly, however, we did not find any direct reference to homology in our review of the literature.

The second underlying assumption is concerned with “whether X-Y relationships observed at one level of analysis are comparable to those obtained between similar variables at different level of analysis” (Chen, Bliese, & Mathieu, 2005, p. 378). Our review of the literature has largely supported the argument that greater amounts of social capital are beneficial to the individual or collective. However, as noted throughout this article, we still do not fully understand the nature of social capital at these various levels. Indeed, it is likely that, with the development of more specific theory and the application of more robust analytic techniques, we will discover that more subtle differences do exist across levels. Therefore, although we recognize that taking a homologous perspective may be useful in that it helps one to understand the fundamentals of social capital theory, we are reluctant to fully support this viewpoint because (a) social capital theory is still theoretically immature in management, particularly as it pertains to multilevel issues; and (b) there is insufficient research available at multiple levels of analysis to make valid generalizations. We believe that future research into social capital should consider testing for homologous models; this would be analogous to testing for validity across samples, but instead of testing across samples, the phenomenon is tested across levels of analysis (Chen et al., 2005).

Areas for Future Multilevel Social Capital Research

The discussion of key multilevel research issues offered in the preceding section highlights a number of plausible opportunities for future social capital research in management. Pursuant to the primary purpose of this article, we now specifically develop potential opportunities for multilevel research. We believe that additional discussion is needed because “the study of multilevel phenomena in organizations involves a complex interplay between methods and statistics on one hand and theory development on the other” (Bliese, Chan, & Ployhart, 2007, p. 551). Table 3 shows several possibilities for future research across a broad range of topics; these were selected as representative of the eight largest divisions of the Academy of Management. Although certainly not exhaustive, these multilevel examples demonstrate the applicability of the social capital perspective to a wide variety of topics that have traditionally been examined by either micro-level or macro-level scholars. Although a full dialogue of each of these is beyond the scope of this study, the following paragraphs explore several of these in more detail in an effort to stimulate thought and encourage future multilevel social capital research.

Multilevel Research Suggestions for Micro-Level Scholars

Within the traditional domain of micro-level scholarship, our review of the literature uncovered a number of pertinent opportunities relating to topics such as personality traits (Thompson, 2005), social competence (Baron & Markman, 2003), leadership (Bono & Anderson, 2005),

Table 3
Multilevel Research Opportunities Involving Social Capital

Academy of Management Division	Multilevel Social Capital Research Topic Example	Potential Research Questions
Business Policy and Strategy	Analyzing the internal and external relationship of top management teams and governing boards to determine social capital's impact on firm performance	1. What is the relationship between board members' or top management team members' human capital, social capital, and firm performance? 2. Do inside and outside directors maintain different types of networks or different levels or types of social capital? Are TMT networks different from director networks? 3. Do board members' informal external ties provide different forms of social capital than formal board ties (e.g., interlocks)? How does social capital impact board effectiveness? 4. Do TMT members derive their power from informal or formal social relationships? 5. What are the interrelationships between the social capital of board members and TMT members, the social capital of the firm, and firm performance? 6. Does the individual and collective social capital of board members' and TMT members' contribute to firm performance differently? Does firm performance impact social capital?
Entrepreneurship	Exploring the relationship between social capital and entrepreneurial outcomes including successful organizational formation, growth, innovation, and survival	1. For start-ups, what types of social capital are derived from various groups such as venture capitalists, underwriters, and investment bankers? Which matters the most for survival? 2. Do individual entrepreneur's network ties and social capital differ from team entrepreneurs? How and why? 3. How do network relationships and social capital at different levels of analysis (i.e., individual entrepreneur, firm, and industry) relate to entrepreneurial behaviors and outcomes? 4. What is the relationship between entrepreneurial orientation and social capital?
Human Resources	Exploring the relationships between human resource decisions, social structures and social capital at the individual, group, and organizational levels	1. To what degree does voluntary turnover result in social capital losses? 2. What effect does diversity in regards to team member's strength of ties, content of ties, and formality of ties affect the group's collective social capital? 3. Are relationship management capabilities considered in hiring and rewarding employees? 4. Under what type of social structure does knowledge become a collective entity rather than an individual one? 5. Under what type of organizational social structure does a group's social capital transfer to individual team members or produce benefits for the organization?
International Management	Examining the creation and utilization of social capital in foreign subunits of multinational corporations (MNCs)	1. How does social capital affect the relationship between headquarters and foreign subunits of MNCs? 2. Does social capital reduce problems associated with opportunism in MNCs? 3. Is social capital derived from structural or relational sources more effective with different types of international strategies? 4. Is the social capital formed in an MNC more likely to be a private or public good? Is one preferred over the other?
Organization and Management Theory	Exploring the role of social in managing resource dependencies and transaction costs in interorganizational relationships	1. Do relationally (e.g., trust) or structurally (e.g., central actors) embedded relationships have stronger relationships with resource dependencies or transaction costs? 2. What are the interrelationships between a manager's social capital, an organization's social capital derived from interorganizational relationships, and performance outcomes?

(continued)

Table 3 (continued)

Academy of Management Division	Multilevel Social Capital Research Topic Example	Potential Research Questions
Organizational Development and Change	Understanding how social capital accruing from employee relationship influence organization change efforts and outcomes	3. In vertical interorganizational relationships (i.e., supply chains), what are the performance outcomes associated with collective social capital at the interfirm, supply-chain level as compared to individual firm-level social capital?
		4. What role does the institutional context of the broader environment play in developing interorganizational networks and organizational-level social capital?
Organizational Behavior	Examining leader social relationships and their influence on decisions, behaviors, and group or organizational outcomes	1. How does social capital impact a firm's ability to design and implement change efforts?
		2. From a system's perspective, what role does social capital play in the performance of the organization?
Technology and Innovation Management	Understanding the role of social capital in the development of intellectual capital and the firm's ability to innovate	3. Do participative management techniques result in bonding social capital? Do participative management techniques limit or promote bridging social capital?
		4. In organizations with high levels of social interaction between members, are employees more satisfied, more productive, and/or have higher quality of work life?
		1. How does an organization's social structure influence the relationship between a leader's internal and external ties, the creation of the leader's social capital and performance outcomes at the individual, group, and firm level?
		2. Is the leader's position in the informal network (e.g., advice network) or formal network (hierarchical position) more predictive of leader success?
		3. How does an organization's social capital influence the leader's social capital to firm performance relationship?
		4. Does the organization's social structure represent a contingency factor affecting a leader's ability to leverage social capital?
		1. To what degree are bridging and bonding views of social capital complementary with respect to innovation outcomes and the creation of knowledge?
		2. What types of social structures (e.g., relationally or structurally based) are most conducive to innovativeness?
		3. What is the relationship between social capital and incremental and radical innovations?
		4. How does social capital developed from internal and external social relationships differ for R&D teams? Do different outcomes result?
		5. In the production of social capital, does technology provide an acceptable substitute for face-to-face interactions?

and teams (Balkundi & Harrison, 2006). Specifically regarding leadership, which is a key topic in the Organizational Behavior division, scholars have previously acknowledged the importance of studying leader-member relationships within the context of the organization as a whole (e.g., House, Rousseau, & Thomas-Hunt, 1995; Sparrowe & Liden, 1997). But despite theoretical support for the importance of networks to leadership, only a few studies have conducted multilevel empirical research to address this issue. Relevant to social capital, Goodwin, Bowler, and Whittington (2009) recently tested components of leader-member exchange (LMX) theory within the context of informal organizational networks, finding that organization-wide advice centrality was positively associated with LMX quality. This exemplary multilevel

study sets the stage for a number of potential studies. For instance, future research could examine how network centrality relates to both individual and organizational level outcomes that have been associated with LMX quality in previous research. Specifically, the cross-level moderation effect of organization-wide network characteristics on the LMX quality to job satisfaction relationship might be a study with potential.

Human resource management is another area where social capital has great potential. Currently, the social capital research related to human resource issues has been empirically based on the interaction of human and social capital (e.g., Reed et al., 2006; Subramaniam & Youndt, 2005; Youndt et al., 2004). This line of research suggests the importance of managing both human and social capital to team and organizational-level performance. For instance, Leana and Van Buren (1999) developed a multilevel model in which employment practices, such as award and selection systems, can impact the development of social capital and, ultimately, organizational-level outcomes. However, despite advances in this area, researchers have yet to fully explore the relationship between human capital and social capital and how to develop both through human resource practices such as staffing (Dess & Shaw, 2001; Ployhart, 2006). For instance, one could examine if individual human capital differences (i.e., knowledge, skills, and abilities) contribute to the development of social relationships and social capital at other levels of analysis. More specific to human resource management, scholars could potentially examine how different personnel selection practices (e.g., interviews, ability tests, personality tests) influence the amount of social capital accumulated by groups and organizations. This type of study would likely utilize a shared measure of social capital in terms of trust or knowledge, in which within-unit scores (means) are utilized to construct a collective-level (e.g., team, department, business unit, organization) score. However, configural measures could also be used to construct collective-level (i.e., higher level) social capital scores, when there is limited dispersion. For example, eigenvector centrality seems particularly well suited for such a situation.

For scholars interested in organization development and change (ODC), social capital may also offer a solid theoretical perspective with which to "make predictions about how and why organizations change" (Armenakis & Bedeian, 1999, p. 311). But although some researchers have already associated successful change efforts with the informal social relationships between employees (Gant, Ichniowski, & Shaw, 2002), this line of research has not been heavily explored. Within the traditional domain of ODC, we note a number of social-capital-related issues and phenomenon that, although primarily studied in other management domains, may be relevant. For example, turnover (e.g., Dess & Shaw, 2001), team/group performance (e.g., Balkundi & Harrison, 2006; Balkundi, Kilduff, Barsness, & Michael, 2007), fairness (e.g., Lamertz, 2002), and leadership (e.g., Barden & Mitchell, 2007) are potential topics that can enhance our understanding of how organizations change. In fact, previous efforts that examine social phenomena, such as participative management and self-directed work teams, often utilize interventions at the individual level of analysis with the expectation of higher level effects (Macy, Farias, Rosa, & Moore, 2007). Thus, incorporating multilevel social capital modeling approaches should provide beneficial areas of inquiry for the ODC field.

Finally, the predominantly micro-level domain of groups and teams research represents another area with much opportunity to leverage multilevel social capital perspectives (Balkundi & Harrison, 2006). Oh, Labianca, and Chung (2006) lay a solid foundation for future research

in their development of group social capital, which is defined as “the set of resources made available to a group through members’ social relationships within the social structure of the group and in the broader formal and informal structure of the organization” (p. 569). Basically, these authors argue that to achieve greater group effectiveness, an optimal configuration of conduits through which social capital resources flow must be developed and maintained. This optimal configuration balances internal closure relationships with external bridging relationships to deliver information, solidarity, and trust (e.g., Oh et al., 2004, 2006). Future research could test these arguments empirically to determine if an optimal level exists or if equifinality may be present. Equifinality is defined as the state of achieving a particular outcome (e.g., high team effectiveness) through various paths or configurations (Gresov & Drazin, 1997; Payne, 2006). Such a study would build on previous studies that suggest that a configurations perspective of social capital is warranted (e.g., Stam & Elfring, 2008; Wong, 2008) by examining how various configurations of team social relationships impact information exchange, knowledge, or team effectiveness.

Multilevel Research Suggestions for Macro-Level Scholars

For macro-level scholars, our review of the literature suggests many opportunities for future research falling within the broad topic areas of corporate governance and upper echelons (e.g., Acquaah, 2007), strategic alliances (e.g., Rowley et al., 2000), and multinational corporations (MNCs) (e.g., Kostova & Roth, 2003), among many others. Within the domains of the Business Policy and Strategy and Entrepreneurship divisions, our review revealed a specific interest in understanding how social capital, both individual (e.g., CEO or founder) and collective (e.g., top management teams), influences firm outcomes such as financial performance (e.g., Acquaah, 2007; Baron & Markman, 2003; Reed et al., 2006) and survival (e.g., Fischer & Pollock, 2004; Kalnins & Chung, 2006; Pennings, Lee, & Van Witteloostuijn, 1998). But although these and other more macro-level domains have received significant attention, we see abundant research opportunities using multilevel modeling approaches.

On the subject of boards, scholars have long posited that the social capital of individual board members influences their ability to govern (Adler & Kwon, 2002). However, in recent research, corporate boards have been discussed more as a group or team in which individuals bring together multiple perspectives, knowledge, and connections to be utilized by the collective (e.g., Conger, Lawler, & Finegold, 2001; Payne, Benson, & Finegold, 2009). Keeping with this perspective, there appears to be significant opportunity to explore both individual board members’ social capital and a board’s collective social capital and their effects on various outcomes including board effectiveness, strategic decision making, and corporate performance. Furthermore, it would be interesting to determine to what extent the context influences these relationships. For instance, in a recent panel data study of technology-based entrepreneurial firms, Kor and Sundaramurthy (2009) found that human and social capital of outside directors have additive and interactive effects on firm growth; extending this study to examine other types of firms (e.g., nonprofits, service-intensive) or environments (e.g., emerging economies) would be enlightening.

There also appear to be opportunities for future research regarding interorganizational social capital and its relationship to firm performance. For example, studies might examine business group affiliations in emerging economies (e.g., Khanna & Rivkin, 2001), guanxi memberships of Chinese firms (e.g., Park & Luo, 2001), and information benefits derived from interorganizational relationships (e.g., Koka & Prescott, 2002). In the Organization Management and Theory division's row of Table 3, we identify a number of opportunities to further explore the role of social capital in interorganizational relationship success. In particular, the institutional context of the broader environment is likely to be an important factor regarding the types of interorganizational relationships and the potential benefits associated with those relationships (e.g., Walker, Kogut, & Shan, 1997). In fact, industry context is a relevant contingency factor in the social capital to firm performance relationship for strategic alliances in the steel and semiconductor industries (Rowley et al., 2000). Alternatively, Kale, Dyer, and Singh (2002) provide empirical evidence that firms with an alliance function have higher levels of alliance success. Therefore, an additional multilevel opportunity exists exploring the relationship between the individual alliance manager's or collective alliance function's internal social capital, the external firm-level social capital derived from strategic alliances, and alliance performance.

Future research could also more extensively examine the effects of external firm-level and supply-chain-level social capital on organizational outcomes such as sales, market share, or financial returns. Recent works by Autry and Griffis (2008) and Lawson, Tyler, and Cousins (2008) have addressed the social capital held within linked groups of firms working together in vertical alliances or supply chain networks. Though these articles represent an initial thrust toward understanding how the social capital of a firm embedded within a supply chain leads to firm-level success, two important questions remain unanswered: (a) How does the social capital of a firm relate to the success of the overall supply chain it resides within? and (b) Given that modern supply chain management theory suggests that entire supply chains compete with one another for customers' business (e.g., Lambert, Cooper, & Pagh, 1998), do entire supply chains possess and wield social capital versus others? In both cases, a hierarchical model of supply chain social capital would seem to be an appropriate next course of action toward the understanding of aggregated supply chain social capital.

For international management scholars, social capital provides a significant source of theory to help explain relationships between variables of interest. In fact, Kostova and Roth (2003) have proposed a multilevel model of social capital development within MNCs. They theorize a micro-macro model of social capital formation regarding how private forms of social capital are transformed into the public social capital of a foreign business unit. Multilevel approaches seem especially important in these instances in which foreign subsidiaries are nested within a parent MNC. This line of reasoning is consistent with that of scholars who have also described public forms of social capital as a characteristic of communities (e.g., Putnam, 1993) and nations (e.g., Fukuyama, 1995). As a result, international management research could benefit from incorporating multilevel perspectives of social capital into the research models given its ability to explain phenomena across many levels of analysis. Incorporating social capital of communities and nations further advances the "institution-based view" of strategy that has been developing in the international business literature. The institution-based view essentially suggests that strategic choices are the outcomes

of the interaction between organizations and institutions (Peng, 2002; Peng, Li, Pinkham, & Hao, 2009; Peng, Wang, & Yi, 2008). These top-down environmental forces are primary causal factors (i.e., predictor variables) that should be more extensively developed and studied in international business research. Historically, these forces are commonly treated as controls rather than focal variables (Peng, 2002, 2003).

Finally, we envision a significant number of opportunities for scholars interested in technology and innovation management (TIM). Already, social capital has been identified as an especially important factor in the relationship between intellectual capital and innovation (Bouty, 2000; Subramaniam & Youndt, 2005), as well as innovation and firm performance (Nahapiet & Ghoshal, 1998). In fact, an emergent view of the firm, referred to as the “intellectual capital–based view of the firm,” has become an important area in social capital research and has provided a good deal of information regarding how intellectual capital is produced and its resulting effects on firm performance (e.g., Reed et al., 2006). However, less is known about the behavioral and other micro-foundations of innovation that could provide a more fine-grained understanding of the role of social capital and intellectual capital in the relationship between innovation management and firm performance. Consequently, we view multilevel modeling approaches as essential next steps. For instance, scholars interested in innovation outcomes could explore the role of individual social capital compared to social capital at higher levels such as the team/group, department, project, or business unit levels.

Conclusion

Social capital is being utilized extensively in both macro- and micro-level research. However, researchers have yet to fully embrace social capital as a multilevel theoretical perspective with the potential to bridge domains. We suggest that if researchers embrace social capital as an inherently multilevel perspective, problems associated with definitions and operationalizations will be clarified and eventually alleviated. Contributing to such a progression in the extant literature, this article has taken a first step by highlighting gaps and identifying several new opportunities for research that can bridge levels.

References

- Acquaah, M. 2007. Managerial social capital, strategic orientation, and organizational performance in an emerging economy. *Strategic Management Journal*, 28: 1235-1255.
- Adler, P. S., & Kwon, S.-W. 2002. Social capital: Prospects for a new concept. *Academy of Management Review*, 27: 17-40.
- Aguinis, H., Pierce, C. A., Bosco, F. A., & Muslin, I. S. 2009. First decade of organizational research methods: Trends in design, measurement, and data-analysis topics. *Organizational Research Methods*, 12: 69-112.
- Anderson, M. H. 2008. Social networks and the cognitive motivation to realize network opportunities: A study of managers' information gathering behaviors. *Journal of Organizational Behavior*, 29: 51-78.
- Aquino, K., & Lamertz, K. 2004. Relational model of workplace victimization: Social roles and patterns of victimization in dyadic relationships. *Journal of Applied Psychology*, 89: 1023-1034.
- Armenakis, A. A., & Bedeian, A. G. 1999. Organizational change: A review of theory and research in the 1990s. *Journal of Management*, 25: 293-315.

- Arregle, J.-L., Hitt, M. A., Sirmon, D. G., & Very, P. 2007. The development of organizational social capital: Attributes of family firms. *Journal of Management Studies*, 44: 73-95.
- Autry, C. W., & Griffiths, S. E. 2008. Supply chain capital: The impact of structural and relational linkages on firm execution and innovation. *Journal of Business Logistics*, 29: 157-173.
- Balkundi, P., & Harrison, D. A. 2006. Ties, leaders, and time in teams: Strong inference about network structure's effects on team viability and performance. *Academy of Management Journal*, 49: 49-68.
- Balkundi, P., Kilduff, M., Barsness, Z. I., & Michael, J. H. 2007. Demographic antecedents and performance consequences of structural holes in work teams. *Journal of Organizational Behavior*, 28: 241-260.
- Barden, J. Q., & Mitchell, W. 2007. Disentangling the influence of leaders' relational embeddedness on interorganizational exchange. *Academy of Management Journal*, 50: 1440-1461.
- Baron, R. A., & Markman, G. D. 2003. Beyond social capital: The role of entrepreneurs' social competence in their financial success. *Journal of Business Venturing*, 18: 41-60.
- Bates, T. 1997. Financing small business creation: The case of Chinese and Korean immigrant entrepreneurs. *Journal of Business Venturing*, 12: 109-124.
- Batjargal, B., & Liu, M. 2004. Entrepreneurs' access to private equity in China: The role of social capital. *Organization Science*, 15: 159-172.
- Belliveau, M. A. 2005. Blind ambition? The effects of social networks and institutional sex composition on the job search outcomes of elite coeducational and women's college graduates. *Organization Science*, 16: 134-150.
- Belliveau, M. A., O'Reilly, C. A., III, & Wade, J. B. 1996. Social capital at the top: Effects of social similarity and status on CEO compensation. *Academy of Management Journal*, 39: 1568-1593.
- Bhappu, A. D. 2000. The Japanese family: An institutional logic for Japanese corporate networks and Japanese management. *Academy of Management Review*, 25: 409-415.
- Bliese, P. D. 2000. Within-group agreement, non-independence, and reliability: Implications for data aggregation and analyses. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions*: 349-381. San Francisco: Jossey-Bass.
- Bliese, P. D., Chan, D., & Ployhart, R. E. 2007. Multilevel methods: Future directions in measurement, longitudinal analyses, and nonnormal outcomes. *Organizational Research Methods*, 10: 551-563.
- Bliese, P. D., & Ployhart, R. E. 2002. Growth modeling using random coefficient models: Model building, testing, and illustrations. *Organizational Research Methods*, 5: 362-387.
- Blyler, M., & Coff, R. W. 2003. Dynamic capabilities, social capital, and rent appropriation: Ties that split pies. *Strategic Management Journal*, 24: 677-687.
- Bolino, M. C., Turnley, W. H., & Bloodgood, J. M. 2002. Citizenship behavior and the creation of social capital in organizations. *Academy of Management Review*, 27: 505-522.
- Bollingtoft, A., & Ulhoi, J. P. 2005. The networked business incubator—Leveraging entrepreneurial agency? *Journal of Business Venturing*, 20: 265-290.
- Bono, J. E., & Anderson, M. H. 2005. The advice and influence networks of transformational leaders. *Journal of Applied Psychology*, 90: 1306-1314.
- Borgatti, S. P., & Foster, P. C. 2003. The network paradigm in organizational research: A review and typology. *Journal of Management*, 29: 991.
- Bourdieu, P. 1986. The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education*: 241-258. New York: Greenwood.
- Bouty, I. 2000. Interpersonal and interaction influences on informal resource exchanges between R&D researchers across organizational boundaries. *Academy of Management Journal*, 43: 50-65.
- Bradach, J. L., & Eccles, R. G. 1989. Price authority and trust: From ideal types to plural forms. *American Review of Sociology*, 15: 97-118.
- Brass, D. J. 2000. Networks and frog ponds: Trends in multilevel research. In K. J. Klein and W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions*: 557-571. San Francisco: Jossey-Bass.
- Budros, A. 1999. A conceptual framework for analyzing why organizations downsize. *Organization Science*, 10: 69-82.
- Burt, R. S. 1982. *Toward a structural theory of action*. New York: Academic Press.
- Burt, R. S. 1992. *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.
- Burt, R. S. 1997a. The contingent value of social capital. *Administrative Science Quarterly*, 42: 339-365.

- Burt, R. S. 1997b. A note on social capital and network content. *Social Networks*, 19: 355-373.
- Burt, R. S. 2000. The network structure of social capital. In R. I. Sutton & B. M. Staw (Eds.), *Research in organizational behavior*: 345-423. Greenwich, CT: JAI.
- Burt, R. S. 2001. Structural holes versus network closure as social capital. In N. Lin, K. S. Cook, & R. S. Burt (Eds.), *Social capital: Theory and research*: 31-56. New Brunswick, NJ: Transaction Publishers.
- Burt, R. S. 2005. *Brokerage & closure: An introduction to social capital*. New York: Oxford University Press.
- Burt, R. S. 2007. Secondhand brokerage: Evidence on the importance of local structure for managers, bankers, and analysts. *Academy of Management Journal*, 50: 119-148.
- Burt, R. S., Hogarth, R. M., & Michaud, C. 2000. The social capital of French and American managers. *Organization Science*, 11: 123-147.
- Carney, M. 2005. Corporate governance and competitive advantage in family-controlled firms. *Entrepreneurship: Theory & Practice*, 29: 249-265.
- Carroll, G. R., & Teo, A. C. 1996. On the social capital of managers. *Academy of Management Journal*, 39: 421-440.
- Chen, G., Bliese, P. D., & Mathieu, J. E. 2005. Conceptual framework and statistical procedures for delineating and testing multilevel theories of homology. *Organizational Research Methods*, 8: 375-409.
- Chung, S., Singh, H., & Lee, K. 2000. Complementarity, status similarity and social capital as drivers of alliance formation. *Strategic Management Journal*, 21: 1-23.
- Coleman, J. S. 1988. Social capital in the creation of human capital. *American Journal of Sociology*, 94: S95-S120.
- Coleman, J. S. 1990. *Foundations of social theory*. Cambridge, MA: Harvard University Press.
- Conger, J. A., Lawler, E. E., & Finegold, D. L. 2001. *Corporate boards: Strategies for adding value at the top*. San Francisco: Jossey-Bass.
- Cross, R., & Sproull, L. 2004. More than an answer: Information relationships for actionable knowledge. *Organization Science*, 15: 446-462.
- Davidsson, P., & Honig, B. 2003. The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18: 301-331.
- De Carolis, D. M., & Saporito, P. 2006. Social capital, cognition, and entrepreneurial opportunities: A theoretical framework. *Entrepreneurship: Theory & Practice*, 30: 41-56.
- Delmestri, G., Montanari, F., & Usai, A. 2005. Reputation and strength of ties in predicting commercial success and artistic merit of independents in the Italian feature film industry. *Journal of Management Studies*, 42: 975-1002.
- Dess, G. G., & Shaw, J. D. 2001. Voluntary turnover, social capital, and organizational performance. *Academy of Management Review*, 26: 446-456.
- Downing, S. 2005. The social construction of entrepreneurship: Narrative and dramatic processes in the coproduction of organizations and identities. *Entrepreneurship: Theory & Practice*, 29: 185-204.
- Duriau, V. J., Rege, R. K., & Pfarrer, M. D. 2007. A content analysis of the content analysis literature in organization studies: Research themes, data sources, and methodological refinements. *Organizational Research Methods*, 10: 5-34.
- Eccles, R. G. 1981. The quasifirm in the construction industry. *Journal of Economic Behavior and Organization*, 2: 335-357.
- Faust, K. 1997. Centrality in affiliation networks. *Social Networks*, 19: 157-191.
- Fischer, H. M., & Pollock, T. G. 2004. Effects of social capital and power on surviving transformational change: The case of initial public offerings. *Academy of Management Journal*, 47: 463-481.
- Fleming, L., & Waguespack, D. M. 2007. Brokerage, boundary spanning, and leadership in open innovation communities. *Organization Science*, 18: 165-180.
- Florin, J., Lubatkin, M., & Schulze, W. 2003. A social capital model of high-growth ventures. *Academy of Management Journal*, 46: 374-384.
- Freeman, L. C. 1979. Centrality in social networks: Conceptual clarification. *Social Networks* 1: 215-239.
- Fukuyama, F. 1995. *Trust: The social virtues and the creation of prosperity*. New York: Free Press.
- Galaskiewicz, J., Bielefeld, W., & Dowell, M. 2006. Networks and organizational growth: A study of community based nonprofits. *Administrative Science Quarterly*, 51: 337-380.
- Gant, J., Ichniowski, C., & Shaw, K. 2002. Social capital and organizational change in high-involvement and traditional work organizations. *Journal of Economics and Management Strategy*, 11: 289-328.
- Gargiulo, M., & Benassi, M. 2000. Trapped in your own net? Network cohesion, structural holes, and the adaptations of social capital. *Organization Science*, 11: 183-196.

- Geletkanycz, M. A., Boyd, B. K., & Finkelstein, S. 2001. The strategic value of external directorate networks: Implications for CEO compensation. *Strategic Management Journal*, 22: 889-898.
- George, J. M., & Jones, G. R. 2000. The role of time in theory and theory building. *Journal of Management*, 26: 657-684.
- Gittelman, M. 2007. Does geography matter for science-based firms? Epistemic communities and the geography of research and patenting in biotechnology. *Organization Science*, 18: 724-741.
- Goodman, P. S., Lawrence, B. S., Ancona, D. G., & Tushman, M. L. 2001. Introduction to special topic forum on time and organizational research. *Academy of Management Review*, 26: 507-511.
- Goodwin, V. L., Bowler, W. M., & Whittington, J. L. 2009. A social network perspective on LMX relationships: Accounting for the instrumental value of leader and follower networks. *Journal of Management*, 35: 954-980.
- Gopalakrishnan, S., Scillitoe, J. L., & Santoro, M. D. 2008. Tapping deep pockets: The role of resources and social capital on financial capital acquisition by biotechnology firms in biotech-pharma alliances. *Journal of Management Studies*, 45: 1354-1376.
- Granovetter, M. S. 1973. The strength of weak ties. *American Journal of Sociology*, 78: 1360-1380.
- Granovetter, M. S. 1985. Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, 91: 481-510.
- Greenhaus, J. H., & Powell, G. N. 2006. When work and family are allies: A theory of work-family enrichment. *Academy of Management Review*, 31: 72-92.
- Gresov, C., & Drazin, R. 1997. Equifinality: Functional equivalence in organizational design. *Academy of Management Review*, 22: 403-426.
- Grewal, R., Lilien, G. L., & Mallapragada, G. 2006. Location, location, location: How network embeddedness affects project success in open source systems. *Management Science*, 52: 1043-1056.
- Hite, J. M., & Hesterly, W. S. 2001. The evolution of firm networks: From emergence to early growth of the firm. *Strategic Management Journal*, 22: 275-286.
- Hitt, M. A., Beamish, P. W., Jackson, S. E., & Mathieu, J. E. 2007. Building theoretical and empirical bridges across levels: Multilevel research in management. *Academy of Management Journal*, 50: 1385-1399.
- House, R. J., Rousseau, D. M., & Thomas-Hunt, M. 1995. The meso paradigm: A framework for the integration of micro and macro organizational behavior. *Research in Organizational Behavior*, 17: 71-114.
- Ibarra, H., Kilduff, M., & Tsai, W. 2005. Zooming in and out: Connecting individuals and collectivities at the frontiers of organizational network research. *Organization Science*, 16: 359-371.
- Inkpen, A. C., & Tsang, E. W. K. 2005. Social capital, networks, and knowledge transfer. *Academy of Management Review*, 30: 146-165.
- Ireland, R. D., Hitt, M. A., & Vaidyanath, D. 2002. Alliance management as a source of competitive advantage. *Journal of Management*, 28: 413-446.
- Jack, S. L. 2005. The role, use and activation of strong and weak network ties: A qualitative analysis. *Journal of Management Studies*, 42: 1233-1259.
- James, E. H. 2000. Race-related differences in promotions and support: Underlying effects of human and social capital. *Organization Science*, 11: 493-508.
- Jarillo, J. C. 1988. On strategic networks. *Strategic Management Journal*, 9: 31-39.
- Jones, C. D., Makri, M., & Gomez-Mejia, L. R. 2008. Affiliate directors and perceived risk bearing in publicly traded, family-controlled firms: The case of diversification. *Entrepreneurship: Theory & Practice*, 32: 1007-1026.
- Kale, P., Dyer, J. H., & Singh, H. 2002. Alliance capability, stock market response, and long term alliance success: The role of the alliance function. *Strategic Management Journal*, 23: 747-768.
- Kalnins, A., & Chung, W. 2006. Social capital, geography, and survival: Gujarati immigrant entrepreneurs in the U.S. lodging industry. *Management Science*, 52: 233-247.
- Khanna, T., & Rivkin, J. W. 2001. Estimating the performance effects of business groups in emerging markets. *Strategic Management Journal*, 22: 45-75.
- Koka, B. R., & Prescott, J. E. 2002. Strategic alliances as social capital: A multidimensional view. *Strategic Management Journal*, 23: 795-817.
- Kor, Y. Y., & Sundaramurthy, C. 2009. Experience-based human capital and social capital of outside directors. *Journal of Management*, 35: 981-1006.

- Kostova, T., & Roth, K. 2003. Social capital in multidimensional corporations and a micro-macro models of its formation. *Academy of Management Review*, 28: 297-317.
- Kozlowski, S. W. J., & Klein, K. J. 2000. A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions*: 3-90. San Francisco: Jossey-Bass.
- Lambert, D. M., Cooper, M. C., & Pagh, J. D. 1998. Supply chain management: Implementation issues and research opportunities. *International Journal of Logistics Management*, 9: 1-20.
- Lamertz, K. 2002. The social construction of fairness: Social influence and sense making in organizations. *Journal of Organizational Behavior*, 23: 19-37.
- Lawson, B., Tyler, B. B., & Cousins, P. D. 2008. Antecedents and consequences of social capital on buyer performance improvement. *Journal of Operations Management*, 26: 446-460.
- Leana, C. R., & Pil, F. K. 2006. Social capital and organizational performance: Evidence from urban public schools. *Organization Science*, 17: 353-366.
- Leana, C. R., & Van Buren, H. J., III. 1999. Organizational social capital and employment practices. *Academy of Management Review*, 24: 538-555.
- Lee, C., Lee, K., & Pennings, J. M. 2001. Internal capabilities, external networks, and performance: A study on technology-based ventures. *Strategic Management Journal*, 22: 615-641.
- Lester, R. H., & Cannella, A. A., Jr. 2006. Interorganizational familiness: How family firms use interlocking directorates to build community-level social capital. *Entrepreneurship: Theory & Practice*, 30: 755-775.
- Lester, R. H., Hillman, A. M. Y., Zardkoohi, A., & Cannella, A. A., Jr. 2008. Former government officials as outside directors: The role of human and social capital. *Academy of Management Journal*, 51: 999-1013.
- Levin, D. Z., & Cross, R. 2004. The strength of weak ties you can trust: The mediating role of trust in effective knowledge transfer. *Management Science*, 50: 1477-1490.
- Lin, N. 1999. Social networks and status attainment. *Annual Review of Sociology*, 25: 467-487.
- Lin, N. 2001. Building a network theory of social capital. In N. Lin, K. S. Cook, & R. S. Burt (Eds.), *Social capital: Theory and research*: 3-30. New Brunswick, NJ: Transaction Publishers.
- Lin, N. 2002. *Social capital: A theory of social structure and action*. Cambridge: Cambridge University Press.
- Lin, N., Ensel, W. M., & Vaughn, J. C. 1981. Social resources and strength of ties: Structural factors in occupational status attainment. *American Sociological Review*, 46: 393-405.
- Lin, N., Vaughn, J. C., & Ensel, W. M. 1981. Social resources and occupational status attainment. *Social Forces*, 59: 1163-1181.
- Lounsbury, M., & Glynn, M. A. 2001. Cultural entrepreneurship: Stories, legitimacy, and the acquisition of resources. *Strategic Management Journal*, 22: 545-565.
- Lovas, B., & Ghoshal, S. 2000. Strategy as guided evolution. *Strategic Management Journal*, 21: 875-897.
- Luo, Y. 2003. Industrial dynamics and managerial networking in an emerging market: The case of China. *Strategic Management Journal*, 24: 1315-1327.
- Macy, B. A., Farias, G., Rosa, J., & Moore, C. B. 2007. Built to change: High performance work systems and self-directed work teams: A longitudinal quasi-experimental field study. In R. W. Woodman & W. A. Pasmore (Eds.), *Research in Organization Change and Development*: 347-429. Oxford: JAI Press.
- Maurer, I., & Ebers, M. 2006. Dynamics of social capital and their performance implications: Lessons from biotechnology start-ups. *Administrative Science Quarterly*, 51: 262-292.
- McFadyen, M. A., & Cannella, A. A., Jr. 2004. Social capital and knowledge creation: Diminishing returns of the number and strength of exchange relationships. *Academy of Management Journal*, 47: 735-746.
- Moody, J., McFarland, D., & Bender-deMoll, S. 2005. Dynamic network visualization. *American Journal of Sociology*, 110: 1206-1241.
- Moran, P. 2005. Structural vs. relational embeddedness: Social capital and managerial performance. *Strategic Management Journal*, 26: 1129-1151.
- Morse, E. A., Fowler, S. W., & Lawrence, T. B. 2007. The impact of virtual embeddedness on new venture survival: Overcoming the liabilities of newness. *Entrepreneurship: Theory & Practice*, 31: 139-159.
- Mosey, S., & Wright, M. 2007. From human capital to social capital: A longitudinal study of technology-based academic entrepreneurs. *Entrepreneurship: Theory & Practice*, 31: 909-935.

- Nahapiet, J., & Ghoshal, S. 1998. Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23: 242-266.
- Oh, H., Chung, M.-H., & Labianca, G. 2004. Group social capital and group effectiveness: The role of informal socializing ties. *Academy of Management Journal*, 46: 860-875.
- Oh, H., & Kilduff, M. 2008. The ripple effect of personality on social structure: Self-monitoring origins of network brokerage. *Journal of Applied Psychology*, 93: 1155-1164.
- Oh, H., Labianca, G., & Chung, M.-H. 2006. A multilevel model of group social capital. *Academy of Management Review*, 31: 569-582.
- Packalen, K. A. 2007. Complementing capital: The role of status, demographic features, and social capital in founding teams' abilities to obtain resources. *Entrepreneurship: Theory & Practice*, 31: 873-891.
- Park, S. H., & Luo, Y. 2001. Guanxi organizational dynamics: Organizational networking in Chinese firms. *Strategic Management Journal*, 22: 455-478.
- Payne, G. T. 2006. Examining configurations and firm performance in a suboptimal equifinality context. *Organization Science*, 17: 756-770.
- Payne, G. T., Benson, G. S., & Finegold, D. L. 2009. Corporate board attributes, team effectiveness, and financial performance. *Journal of Management Studies*, 46: 704-731.
- Pearce, J. L., & Randel, A. E. 2004. Expectations of organizational mobility, workplace social inclusion, and employee job performance. *Journal of Organizational Behavior*, 25: 81-98.
- Pearson, A. W., Carr, J. C., & Shaw, J. C. 2008. Toward a theory of familiness: A social capital perspective. *Entrepreneurship: Theory & Practice*, 32: 949-969.
- Peng, M. W. 2002. Cultures, institutions, and strategic choices: Toward an institutional perspective on business strategy. In *Blackwell handbook of cross-cultural management*: 52-66. Malden, MA: Blackwell.
- Peng, M. W. 2003. Institutional transitions and strategic choices. *Academy of Management Review* 28: 275-296.
- Peng, M. W., Li, S., Pinkham, B., & Hao, C. 2009. The institution-based view as a third leg for a strategy tripod. *Academy of Management Perspectives* 23: 63-81.
- Peng, M. W., Wang, D. Y. L., & Yi, J. 2008. An institution-based view of international business strategy: A focus on emerging economies. *Journal of International Business Studies* 39: 920-936.
- Pennings, J. M., Lee, K., & Van Witteloostuijn, A. 1998. Human capital, social capital, and firm dissolution. *Academy of Management Journal*, 41: 425-440.
- Peredo, A. M., & Chrisman, J. J. 2006. Toward a theory of community-based enterprise. *Academy of Management Review*, 31: 309-328.
- Perez-Nordtvedt, L., Payne, G. T., Short, J. C., & Kedia, B. L. 2008. An entrainment-based model of temporal organizational fit, misfit, and performance. *Organization Science*, 19: 785-801.
- Perry-Smith, J. E., & Shalley, C. E. 2003. The social side of creativity: A static and dynamic social network perspective. *Academy of Management Review*, 28: 89-106.
- Podsakoff, P. M., MacKenzie, S. B., Bachrach, D. G., & Podsakoff, N. P. 2005. The influence of management journals in the 1980s and 1990s. *Strategic Management Journal*, 26: 473-488.
- Portes, A., & Sensenbrenner, J. 1993. Embeddedness and immigration: Notes on the social determinants of economic action. *American Journal of Sociology*, 98: 1320-1350.
- Powell, W. W. 1990. Neither market nor hierarchy: Network forms of organization. *Research in Organizational Behavior*, 12: 295-336.
- Ployhart, R. E. 2006. Staffing in the 21st century: New challenges and strategic opportunities. *Journal of Management*, 32: 868-897.
- Putnam, R. D. 1993. The prosperous community: Social capital and public life. *The American Prospect*, 13: 25-42.
- Putnam, R. D. 1995. Bowling alone: America's declining social capital. *Journal of Democracy*, 6: 65-78.
- Reagans, R., & McEvily, B. 2003. Network structure and knowledge transfer: The effects of cohesion and range. *Administrative Science Quarterly*, 48: 240-267.
- Reagans, R., & Zuckerman, E. W. 2001. Networks, diversity, and productivity: The social capital of corporate R&D teams. *Organization Science*, 12: 502-517.
- Reagans, R., Zuckerman, E., & McEvily, B. 2004. How to make the team: Social networks vs. demography as criteria for designing effective teams. *Administrative Science Quarterly*, 49: 101-133.
- Reed, K. K., Lubatkin, M., & Srinivasan, N. 2006. Proposing and testing an intellectual capital-based view of the firm. *Journal of Management Studies*, 43: 867-893.

- Rhee, M. 2004. Network updating and exploratory learning environment. *Journal of Management Studies*, 41: 933-949.
- Rousseau, D. M. 1985. Issues of level in organizational research: Multi-level and cross-level perspectives. *Research in Organizational Behavior*, 7: 1.
- Rowley, T., Behrens, D., & Krackhardt, D. 2000. Redundant governance structures: An analysis of structural and relational embeddedness in the steel and semiconductor industries. *Strategic Management Journal*, 21: 369-387.
- Seibert, S. E., Kraimer, M. L., & Liden, R. C. 2001. A social capital theory of career success. *Academy of Management Journal*, 44: 219-237.
- Shane, S., & Stuart, T. 2002. Organizational endowments and the performance of university start-ups. *Management Science*, 48: 154-170.
- Sharma, P. 2008. Commentary: Familiness: Capital stocks and flows between family and business. *Entrepreneurship: Theory & Practice*, 32: 971-977.
- Shaw, J. D., Duffy, M. K., Johnson, J. L., & Lockhart, D. E. 2005. Turnover, social capital losses, and performance. *Academy of Management Journal*, 48: 594-606.
- Short, J. C., Ketchen, D. J., Jr., Bennett, N., & du Toit, M. 2006. An examination of firm, industry, and time effects on performance using random coefficients modeling. *Organizational Research Methods*, 9: 259-284.
- Short, J. C., Ketchen, D. J., Jr., Shook, C. L., & Ireland, R. D. 2010. The concept of "opportunity" in entrepreneurship research: Past accomplishments and future challenges. *Journal of Management*, 36: 40-65.
- Short, J. C., Payne, G. T., & Ketchen, D. J. 2008. Research on organizational configurations: Past accomplishments and future challenges. *Journal of Management*, 34: 1053-1079.
- Sirmon, D. G., & Hitt, M. A. 2003. Managing resources: Linking unique resources, management, and wealth creation in family firms. *Entrepreneurship: Theory & Practice*, 27: 339-358.
- Snijders, T. A. B., Steglich, C. E. G., Schweinberger, M., & Huisman, M. 2007. *Manual for SIENA version 3.1*. Groningen, the Netherlands: University of Groningen, ICS/Department of Sociology; Oxford: University of Oxford, Department of Statistics.
- Somaya, D., Williamson, I. O., & Lorinkova, N. 2008. Gone but not lost: The different performance impacts of employee mobility between cooperators versus competitors. *Academy of Management Journal*, 51: 936-953.
- Sparrowe, R. T., & Liden, R. C. 1997. Process and structure in leader-member exchange. *Academy of Management Review*, 22: 522-552.
- Stam, W., & Elfring, T. 2008. Entrepreneurial orientation and new venture performance: The moderating role of intra- and extra-industry social capital. *Academy of Management Journal*, 51: 97-111.
- Subramaniam, M., & Youndt, M. A. 2005. The influence of intellectual capital on the types of innovative capabilities. *Academy of Management Journal*, 48: 450-463.
- Thompson, J. A. 2005. Proactive personality and job performance: A social capital perspective. *Journal of Applied Psychology*, 90: 1011-1017.
- Tsai, W. 2000. Social capital, strategic relatedness and the formation of intraorganizational linkages. *Strategic Management Journal*, 21: 925-940.
- Tsai, W., & Ghoshal, S. 1998. Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal*, 41: 464-476.
- Uzzi, B. 1996. The sources and consequences of embeddedness for the economic performance of organizations: The network effect. *American Sociological Review*, 61: 674-698.
- Uzzi, B. 1997. Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42: 35-67.
- Uzzi, B., & Lancaster, R. 2003. Relational embeddedness and learning: The case of bank loan managers and their clients. *Management Science*, 49: 383-399.
- Walker, G., Kogut, B., & Shan, W. 1997. Social capital, structural holes and the formation of an industry network. *Organization Science*, 8: 109-125.
- Wang, S., & He, Y. 2008. Compensating nondedicated cross-functional teams. *Organization Science*, 19: 753-765.
- Wasserman, S., & Faust, K. 1994. *Social network analysis: Methods and applications*. Cambridge: Cambridge University Press.
- Wasserman, S., & Faust, K. 1999. *Social network analysis: Methods and applications*. Cambridge: Cambridge University Press.
- White, D. R., Owen-Smith, J., Moody, J., & Powell, W. W. 2004. Networks, fields, and organizations: Micro-dynamics, scale and cohesive embeddings. *Computational & Mathematical Organization Theory*, 10: 95-117.

- Wiklund, J., & Shepherd, D. A. 2008. Portfolio entrepreneurship: Habitual and novice founders, new entry, and mode of organizing. *Entrepreneurship: Theory & Practice*, 32: 701-725.
- Wong, S.-S. 2008. Task knowledge overlap and knowledge variety: The role of advice network structures and impact on group effectiveness. *Journal of Organizational Behavior*, 29: 591-614.
- Wright, M., Liu, X., Buck, T., & Filatotchev, I. 2008. Returnee entrepreneurs, science park location choice and performance: An analysis of high-technology SMEs in China. *Entrepreneurship: Theory & Practice*, 32: 131-155.
- Wu, W.-P. 2008. Dimensions of social capital and firm competitiveness improvement: The mediating role of information sharing. *Journal of Management Studies*, 45: 122-146.
- Xiao, Z., & Tsui, A. S. 2007. When brokers may not work: The cultural contingency of social capital in Chinese high-tech firms. *Administrative Science Quarterly*, 52: 1-31.
- Yiu, D. W., & Lau, C.-M. 2008. Corporate entrepreneurship as resource capital configuration in emerging market firms. *Entrepreneurship: Theory & Practice*, 32: 37-57.
- Yli-Renko, H., Autio, E., & Sapienza, H. J. 2001. Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms. *Strategic Management Journal*, 22: 587-614.
- Youndt, M. A., Subramaniam, M., & Snell, S. A. 2004. Intellectual capital profiles: An examination of investments and returns. *Journal of Management Studies*, 41: 335-361.
- Zahra, S. A., Nielsen, A. P., & Bogner, W. C. 1999. Corporate entrepreneurship, knowledge, and competence development. *Entrepreneurship: Theory & Practice*, 23: 169-189.
- Zhang, J., Souitaris, V., Soh, P.-H., & Wong, P.-K. 2008. A contingent model of network utilization in early financing of technology ventures. *Entrepreneurship: Theory & Practice*, 32: 593-613.