2 A REVIEW OF THE BOARD EXPERTISE LITERATURE AND A FUTURE RESEARCH AGENDA

Abstract

Management literature offers substantial insight about corporate boards and their impact on firm outcomes. While much of this research has focused on board structure and surface-level demographics, a growing body of literature is investigating outside directors' prior experiences and resulting expertise. Despite the proliferation of research, scholars have often used board expertise as a context to test discrete theory, and conclusions have rarely been discussed and linked across domains. Consequently, the literature offers fragmented theoretical mechanisms and inconsistent empirical findings on the basic question of how outside directors' expertise impacts the firm. We synthesize strategic management, corporate governance, strategic leadership and organizational behavior research to delineate the sources, contingencies and outcomes of board expertise. We then develop an integrative model to identify potential frictions that affect board expertise outcomes and offer a future research agenda to advance our understanding of how board expertise influences boardroom processes and firm outcomes.

2.1 INTRODUCTION

How is the experience, and resulting expertise, of outside directors linked to firm outcomes? Various disciplines have used corporate boards as their subject of research; however, conclusive answers to this question remain elusive. Since the separation of ownership and control (Berle & Means, 1932), much of the initial research has focused on director independence (Jensen & Meckling, 1976), which has been to shown to be an unreliable predictor of key outcomes such as firm performance (Dalton, Daily, Ellstrand, & Johnson, 1998). Building on resource dependence theory (Pfeffer & Salancik, 1978), scholars have subsequently examined director ability with respect to advice-giving, conveying legitimacy or providing resources and found more consistent evidence in support of their effects on firm outcomes (Dalton, Daily, Johnson, & Ellstrand, 1999). Fueled by influential articles that integrated agency and resource dependence theories to develop the notion of board capital (Hillman & Dalziel, 2003), researchers have intensified their efforts to understand the influence of experiential attributes on how boards exercise their two primary functions of monitoring and resource provision. Although empirical evidence has lent support to investigating director- and board-specific attributes more thoroughly, director expertise, broadly defined as “knowledge about a certain domain, awareness of the main problems in it, and skills at solving those problems” (Rindova, 1999: 962; Sullivan, 1990), has remained a double-edged sword that is associated with both beneficial and detrimental outcomes.

Perhaps most obviously, research has emphasized that more experiences imply human and social capital gains because of the exposure to more diverse practices, perspectives and thoughts, and broader social networks. Relevant experience therefore improves outside directors’ ability to question, assess, inform, and influence managerial action (e.g., Beckman, Schoonhoven, Kim, & Rottner, 2014; Carpenter & Westphal, 2001; Haynes & Hillman, 2010; Kor & Sundaramurthy, 2009; Tian, Haleblian, & Rajagopalan, 2011). Conversely, there is evidence that greater expertise may promote complacency and overconfidence (Almandoz & Tilcsik, 2016) and that directors may possess expertise but fail to contribute it to the firm because they misjudge fellow board members' receptivity to their inputs (Westphal & Bednar, 2005), lack motivation to demonstrate competence (Veltrop, Molleman, Hooghiemstra, & van Ees, 2017) or face external demands that strain their capacity to effectively exercise board service (Khanna, Jones, & Boivie, 2014). Even capable directors who are highly motivated and serve on well-functioning boards may be subject to bounded rationality (Cyert & March, 1963) and rely on heuristics or simplifying strategies (Tversky & Kahnemann, 1974). For example, outside directors appear to develop preferences based on their experiences, which lead them to mimic familiar strategic actions rather than utilize their capabilities to tailor responses to the focal firm (e.g., Zhang & Greve, 2018). Additionally, the effectiveness of outside director expertise may be contingent upon the firm environment (Hillman, Cannella, & Paetzold, 2000). Finally, executive behavior may undermine board expertise because CEOs and top managers may avoid interactions with high-expertise directors when they anticipate an unfavorable power balance (Garg & Eisenhardt, 2017) or seek to demonstrate dominance and superiority by deliberately pursuing strategies that contradict the domain expertise of outside directors (Zhu & Chen, 2015). Consequently, outside director expertise has been associated with a variety of outcomes ranging from firm growth (Kor & Sundaramurthy, 2009) to firm failure (Almandoz & Tilcsik, 2016), from strategic change (Haynes & Hillman, 2010) to strategic persistence (Westphal & Bednar, 2005) and from more interactions between the board and CEO (Westphal, 1999) to fewer interactions (Garg & Eisenhardt, 2017).

This short synopsis illustrates the various consequences and interdependencies that must be explained when studying board expertise. Therefore, we seek to organize this body of work and advance our understanding of board expertise as a research phenomenon. In contrast to other aspects of board composition, such as demography, the influence of outside director expertise has received little attention in earlier reviews. In addition, those that did capture experience- or expertise-related aspects have framed it along a human and social capital logic, which, as the above summary indicates, may be an important yet by no means comprehensive perspective to integrate the cumulative knowledge on board expertise. Specifically, with our work, we seek to extend the influential review by Johnson, Schnatterly, and Hill (2013) on "board composition beyond independence". While their review provided a much-needed systemization of the board literature, the authors foregrounded issues of demographics, human and social capital while backgrounding the specific notions of experience and expertise. One explanation is illustrated in Figure 2.1; the research on outside director expertise has only recently surged, nearly doubling since the publication of Johnson and colleagues' study. At the time of its publication in 2013, Krause, Semadeni, and Cannella (2013: 1629) noted that "to date, little research has explored how directors' expertise impacts the firms on whose boards they serve". This statement complements the succinct summary of board expertise research offered earlier by McDonald, Westphal, and Graebner (2008: 1156), which we believe continues to hold today:

> There has been relatively little recent systematic consideration of specific board member characteristics that would render directors best able to effectively execute their advice and counsel functions. […] There have been few, if any, systematic efforts to conceptually elaborate this basic notion by delineating the nature and sources of directors' expertise, and by describing how that expertise might be linked to the relative success of specific firm strategic actions. There have been still fewer *empirical* studies of these issues. By extension, little attention has been given to the boundary conditions under which director expertise might have stronger or weaker effects on performance outcomes.

Given the recent advances in the field, we address this gap by comprehensively synthesizing the prior work that has explored experience- and expertise-related attributes of boards. We are, to the best of our knowledge, the first to develop an integration that delineates the sources of outside directors' experience and expertise and explore key contingencies and implications. Our multitheoretic integration combines accumulated research based on more traditional human and social capital arguments in addition to those from psychological and behavioral literatures and, to a lesser extent, organizational learning and institutional perspectives. In doing so, we aim at providing a more complete understanding of how outside directors' experiences, and subsequent expertise, shape board processes and outcomes.

With this review, we make several contributions to the literature. First, we systematically categorize the sources of board expertise and the multilevel contingencies that influence firm performance, strategic choices, and board-related outcomes. Second, we reconcile conflicting findings in the growing literature on board expertise by offering new interpretations and combinations of prior research findings. Third, we build an integrative model that alerts researchers of potential frictions and interdependencies and allows us to reveal which areas have been studied adequately and where important gaps remain. Fourth, we develop an agenda for future research designed to fill critical gaps, connect the dots, and address new areas that need additional research focus.

Insert Figure 2.1 about here

2.2 WHAT DO WE KNOW ABOUT BOARD EXPERTISE?

We conducted a comprehensive and systematic search of leading management journals used in prior reviews (Johnson et al., 2013; Short, 2009) and performed a keyword search with terms related to board experience and expertise.[1] We then extended our review by identifying relevant

[1] Consistent with prior research, we searched for eligible articles in the highest ranked management journals: *Academy of Management Journal (AMJ), Academy of Management Review (AMR), Administrative Science Quarterly (ASQ), Journal of Management (JOM), Journal of Management Studies (JMS), Organization Science (OS),* and the *Strategic Management Journal (SMJ)*. The keywords we used were different combinations and variations of *board, board of directors, boardroom, chair, outside director, governance, capital, composition, characteristics, resources, experience, expertise, expert, skills,* and *knowledge.* Full study details are reported in the Appendix.

references in the articles returned in our initial search. We retained all articles that have tested how outside directors' experiences and capabilities manifest in firm- and board-level outcomes. Since prior research typically has not considered board expertise as a distinct research phenomenon, we needed to make several decisions in determining each article's eligibility for inclusion and the category to which we assign it. First, since we aim at unpacking specific sources, mechanisms and outcomes of outside director expertise, we focus on quantitative empirical studies in our review. Therefore, conceptual (e.g., Hambrick, Misangyi, & Park, 2015) and qualitative (e.g., Garg & Eisenhardt, 2017) articles were not included in our primary review sample; however, key conclusions from those works were integrated in the general discussion. The same holds for articles that were published outside our focal domains but contribute to our understanding of board expertise. Second, we only included studies in which the board of directors was a central subject of analysis. For example, board interlock studies that primarily focused on organizational and environmental factors without explicitly discussing the role of the board were excluded (e.g., Haunschild, 1993, 1994; Mizruchi & Stearns, 1988, 1994; Stearns & Mizruchi, 1993). In turn, studies on interlocks that considered implications of directors' experience on other boards and discussed how external board memberships may inform outside directors' strategic preferences, knowledge or expertise were included (e.g., Kor & Sundaramurthy, 2009; Krause et al., 2013; Westphal & Zajac, 1997). Third, in allocating a focal experience to a specific source of expertise, we relied on the respective article's arguments. For example, some studies have operationalized financial expertise as a result of bank employment (e.g., Almandoz & Tilcsik, 2016), while others have considered financial expertise from a more managerial perspective (Veltrop et al., 2017). In the former case, we assigned the source of expertise to occupational experience and in the latter case to functional experience. Similarly, several studies have examined firm or board tenure. Here, some scholars have emphasized that tenure enhances firm- or industry-specific expertise (e.g., Brown, Anderson, Salas, & Ward, 2017; Kesner, 1988; Krause, Semadeni, & Withers, 2016), and others have highlighted that co-working experience with fellow board members influences board members' mutual interactions and have explored the subsequent effects on board decision making (e.g., Sauerwald, Zhiang, & Peng, 2016; Tian et al., 2011; Tuggle, Schnatterly, & Johnson, 2010a). In these cases, the sources of expertise were assigned to firm/industry experience and board-related experience, respectively.

During our analysis of the board expertise literature, we identified four key areas along which we organize our review of the prior research: (1) sources of outside directors' expertise; (2) modes of aggregating board expertise; (3) performance, strategic and board-related outcomes of expertise; and (4) multilevel contingencies that affect the relationship between board expertise and outcomes. Figure 2.2 summarizes the state of the research on board expertise in a comprehensive framework. Below, we synthesize the accumulated findings within each of the four areas.

Insert Figure 2.2 about here

Sources of Outside Director Expertise

Scholars have focused on several experience-based attributes and their effects on board- and firm-level outcomes. Below, we categorize the research along six sources of experience that may be related to the board, function, occupation, strategic issues, firm or industry and broader context.

Board experience. This first category consists of role-specific experiences of outside directors in executive or nonexecutive capacities as well as experiences made with specific intra-board events or dynamics. For example, scholars have studied outside directors who are active CEOs (De Villiers, Naiker, & van Staden, 2011), who are either active or previous CEOs

(Marcel & Cowen, 2014; Tian et al., 2011), who have been CEOs and experienced specific incidents such as board reforms during their CEO tenure (Westphal & Zajac, 1997), or who have never been CEO (Feldman & Montgomery, 2015). CEO-directors have not only garnered focus because of the unique perspectives they bring to the organization but also because they tangibly illustrate the conflicting provisions made by agency and resource dependence theories. On the one hand, CEO-directors can arguably offer rich advice and guidance to the incumbent CEO and management team, which emphasizes their resource provision role; on the other hand, they may identify more with executive roles than portfolio directors, which raises essential agency concerns. The chair, as the CEO's counterpart or even "boss" (Krause, 2017), has received considerably less attention; only one study in our sample has incorporated a specific measure referring to chair experience, or more precisely, the lack thereof (Feldman & Montgomery, 2015). More commonly, scholars have examined outside directors' senior leadership and top management experience, typically under the assumption that it reflects business expertise and proficiency in shaping strategic outcomes (Golden & Zajac, 2001; Hillman et al., 2000; Khanna et al., 2014; Kroll, Walters, & Le, 2007), reaction to crises (Marcel & Cowen, 2014), board involvement (Kesner, 1988) or the relationship with the CEO (Westphal, 1999). Similarly, experience in serving as outside director, both outside the focal company or within the focal company, has received scholarly scrutiny. Researchers have used this category of experience to infer the ability to serve as outside director (De Villiers et al., 2011; Johnson, Schnatterly, Bolton, & Tuggle, 2011; Krause et al., 2016; Sundaramurthy, Pukthuanthong, & Kor, 2014), make conclusions about the quality of relationships among directors inside the boardroom (Sauerwald et al., 2016; Tian et al., 2011) as well as the diversity of thought and perspectives they can contribute to board decision making (Tuggle et al., 2010a) or the depth of connections to board members outside the focal company (Beckman et al., 2014; Marcel & Cowen, 2014). A related line of inquiry has focused on specific characteristics of the mandate; for example by isolating the effects of experience serving as a demographic minority on a board (Westphal & Milton, 2000) or experience in supervising a CEO who is demographically similar to the CEO of the outside director's current mandate (Zhu & Westphal, 2014).

Functional experience. A smaller subset of studies has examined outside directors' specific functional background. For example, operational expertise (Krause et al., 2013), financial expertise (Veltrop et al., 2017) or experience in output-oriented functions (Tuggle et al., 2010a) have been shown to benefit the firm. Interestingly, despite these positive implications of functional backgrounds in marketing and sales, research and development or engineering, Tuggle et al. (2010a) do not find effects for heterogeneity in outside directors' functional backgrounds, concluding that some experience backgrounds may stimulate effective boardroom discussions while others hinder it. This observation is also mirrored in the finding that outside directors' functional expertise heterogeneity may induce skepticism about the extent to which directors share each other's concerns, which may lead to less candid discussions and strategic persistence (Westphal & Bednar, 2005). However, most scholars examining functional heterogeneity found that the diverse experiences, preferences and views it reflects is associated with better strategic decision making (Haynes & Hillman, 2010), higher legitimacy (Marcel & Cowen, 2014) and closer interactions with the CEO (Westphal, 1999).

Occupational experience. Studies attending to this category of expertise have nearly exclusively utilized a resource dependence logic, hypothesizing that specific occupations or occupational heterogeneity convey valuable insight and resources that lead to beneficial firm outcomes. For example, researchers have focused on experience acquired in public or governmental agencies emphasizing the knowledge, legitimacy and resource access that political linkages may accord to the firm (Hillman, 2005; Lester, Hillman, Zardkoohi, & Cannella, 2008; Sun, Hu, & Hillman, 2016). Additionally, experience as a founder appears to be indicative of important capabilities in evaluating and advising top management teams (Feldman & Montgomery, 2015; Kor & Sundaramurthy, 2009). Similarly, lawyers on the board may provide valuable analytical skills that may help to assess and comply with regulatory policies (De Villiers et al., 2011; Hillman et al., 2000; Marcel & Cowen, 2014). Hillman et al. (2000) provide a general taxonomy of occupational backgrounds and show that different types of occupations appear to be associated with unique resources that may be more or less useful to the firm depending on its regulatory and competitive environment. Finally, conflicting evidence exists in terms of the optimal mix of occupational backgrounds at the board. While Haynes and Hillman (2010) find that more occupational heterogeneity benefits the firm through greater breadth of knowledge, experiences and social ties, Golden and Zajac (2001) caution that moderate heterogeneity in occupational experiences may be more favorable because excessive occupational variety may impair the development of a shared understanding of the focal firm's industry dynamics.

Strategic issue experience. The most influential body of work on board expertise pertains to the analysis of outside directors' experiences with specific strategic issues. Studies that captured this category of expertise have, on average, approximately 58% higher citation numbers and 26% higher citation numbers when controlling for the fact that this substream has the longest tradition among our six categories of expertise[2]. The largest segment within this line of research analyzes outside directors' merger and acquisition (M&A) experience (Beckman & Haunschild, 2002; Kroll, Walters, & Wright, 2008; McDonald et al., 2008; Zhu & Chen, 2015). The research interest in boards' role in M&A-related processes is not surprising given (1) that acquisition decisions are among the most consequential decisions a board can

[2] The average publication year in our sample is 2009. Studies on board-level expertise relating to strategic issues have, on average, been published in 2007. The average number of citations per study across the entire sample was 102 as of July 2018, which separates into 141 citations for studies on strategic issue experience versus 89 citations for others. When accounting for average citations per year since the study has been published, the corrected citation numbers are 8.1 versus 10.2 citations per study and year since publication.

take; (2) the substantial challenges that are endemic to acquisition decisions such as information overload or time constraints; and (3) that acquisitions require particularly high levels of foresight and strategic vision. Consequently, various aspects of outside directors' acquisition expertise have been studied, such as experience with certain deal volumes, values, premia, relatedness or the product market in which acquisitions occurred. The majority of these studies suggest that outside directors' acquisition experience is associated with a wide array of information to make better causal inferences, which subsequently improves the firm's M&A success (Beckman & Haunschild, 2002; Kroll et al., 2008; McDonald et al., 2008).[3] A similar congruence between outside directors' strategic issue experience and the strategic orientation of the firm has been found for new product market entry (Diestre, Rajagopalan, & Dutta, 2015), overall corporate diversification (Westphal & Zajac, 1997), and the propensity to engage in mimetic decision making (Westphal, Seidel, & Stewart, 2001). Carpenter and Westphal (2001) elucidate a key mechanism beyond the findings by showing that outside directors' experience in companies with similar strategy may be positively associated with their ability to contribute to boardroom discussions, monitor management and provide advice. However, Zhu and Chen (2015) point to an interesting nuance with their finding that firms may in fact pursue the opposite strategy from what one could infer from outside director's strategic issue experience. Using acquisition propensity and international diversification as two key manifestations of firm strategy, the researchers find initial support that outside directors' experiences shape strategic outcomes in the expected direction. However, the effect reverses in the presence of narcissist CEOs who may not only be unreceptive to outside directors' expertise but instead seek to

[3] Goranova, Priem, Ndofor, and Trahms' (2017) provide interesting further insight. The researchers' findings indicate that, through their monitoring ability, outside directors may constrain the CEO's discretion to pursue value-destroying M&A deals; however, at the same time, they may fail to enable the CEO to pursue value-creating deals. Thus, Goranova and colleagues find board monitoring to be associated with both lower M&A losses and lower M&A gains (i.e., lower M&A performance extremeness). The study also captures the effect of outside directors' prior M&A experience but then aggregates it into a composite measure with several board structural variables; this is why the isolated effect of experience could not be assessed and why the study was not included in the review sample.

demonstrate superiority by doing just the opposite from what outside directors have extensive experience in. The introduction of CEO personality complements Westphal and Fredrickson (2001), who provide evidence that outside directors appoint CEOs who they believe will align corporate strategy with their strategic preferences. These findings emphasize that executive and board effects on strategy may not only mask each other but may also be contingent upon key actors' personalities; this illustrates that disentangling the specific influence of corporate elites remains a pervasive challenge in the strategic leadership and upper echelons literatures.

Firm/industry experience. Perhaps the most straightforward link between any category of outside director expertise and the quality with which boards exercise their primary responsibilities stems from firm or industry experience. As outside directors spend more time serving in a focal firm or industry, their domain-specific knowledge and social relationships with relevant stakeholders increase. Consistent with its intuitive relevance, firm and industry expertise is also the category of expertise that has most often been investigated by the studies captured in our sample (25%). Overall, studies finds that outside directors' industry expertise may improve boards' understanding of the strategic context, which may offset the lack of top management industry expertise (Kor & Misangyi, 2008) and enhance the capacity and openness for strategic actions (Beckman et al., 2014; Golden & Zajac, 2001; Oehmichen, Schrapp, & Wolff, 2017; Tuggle et al., 2010a). Several scholars also find positive performance implications of board industry expertise such as firm growth (Kor & Sundaramurthy, 2009) and better stock market performance (Sundaramurthy et al., 2014). However, there is also evidence that excessive industry expertise may promote complacency (Almandoz & Tilcsik, 2016; Sundaramurthy et al., 2014) and conformance with historical norms and industry central tendencies which restrict strategic change (Haynes & Hillman, 2010). In terms of the individual role of industry experts at the board, there is support that outside directors assess fellow board members with industry expertise more favorably (Krause et al., 2016) and are more likely to be appointed to board committees (Kesner, 1988), although the latter may not hold to the same extent for female directors (Bilimoria & Piderit, 1994). In contrast to other types of expertise, industry experience may not necessarily lead to a higher status at the board (Veltrop et al., 2017). A possible reconciliation may be that the more favorable assessment refers to chairs who may be assessed with more goodwill and possess greater general human and social capital as well as that the overall assessment of director capabilities appears to be time-variant (Brown et al., 2017). In terms of group-level implications, Westphal and Bednar (2005) show that heterogeneity in industry expertise, in contrast to other categories of expertise, is unlikely to result in inertial board dynamics; this is supported by Tuggle et al. (2010a), who conclude that slight faultlines resulting from heterogeneity in firm or industry expertise may promote the dialectical inquiry, and only very strong faultlines trigger conflict and disagreement on the board. Firm expertise has been shown to not automatically result in benefits to firm (De Villiers et al., 2011), which may be explained by the finding that the productive potential of firm expertise appears to be contingent upon the environmental context (Hillman et al., 2000).

Context experience. The most nascent stream of expertise-related research on outside directors pertains to contextual experience, which refers to outside directors' exposure to any dominant characteristic of the external environment such as nations, regions, cultures, political or institutional regimes. Our search returned only a few studies that explicitly examined outside directors' context-specific experience. Notably, Carpenter, Pollock, and Leary (2003) develop a reasoned risk-taking view by showing that board international experience may mitigate the risk assessment of internationalization activities and therefore affect the firm's consequent strategic behavior.[4] Beckman and colleagues (2014) also consider the geographical exposure

[4] Although beyond the scope of this review, it should be noted that the international business literature also has evinced insights on antecedents (Oxelheim, Gregorič, Randøy, & Thomsen, 2013) and outcomes (Miletkov, Poulsen, & Wintoki, 2017) of director foreignness and international experience. This line of research generally finds that more international firms both attract and benefit more from board members, although the performance effect may be contingent on the supply of qualified domestic directors.

of outside directors, although they restrict their consideration to a domestic context (i.e., U.S. states) and aggregate it with other experiential characteristics. Overall, the researchers' findings suggest that context-specific experiential heterogeneity is associated with more and deeper knowledge and relationships held by outside directors which manifests in the emergence of diverse alliance portfolios. Finally, Zhang and Greve (2018) show that boards' problemistic search and opportunity exploration is influenced by outside directors' experience-based preferences acquired through exposure to Anglo-Saxon environments.

Aggregation of Board Expertise

We identified three main approaches scholars have used to aggregate different forms of expertise. Those approaches include additive measurements of outside directors' expertise, the measurement of board expertise heterogeneity and matching-based approaches. Consistent with prior research, we refer to the former two approaches as composition and compilation models, respectively (Haynes & Hillman, 2010; Kozlowski & Klein, 2000). The aggregation of different forms of expertise has not only methodological but also conceptual implications that we discuss below.

Composition models. A staggering 79% of studies investigating experience- and expertise-related effects rely on composition models. Composition models measure similar unit-level contributions, which, in the studies we surveyed, has most often been done by calculating the sum, means or proportions of outside directors who possess a specific type of expertise. Certain scholars have also examined the proportion of directors who possess combinations of different types of expertise. For example, in one intermediate step of their analysis, Tuggle et al. (2010a) construct a measure that creates four groups of directors based on their firm *and* industry experience (i.e., insider–intraindustry experience, insider–interindustry experience, outsider–intraindustry experience, and outsider–interindustry experience). Similarly, Westphal and Zajac (1997) examine the implications of outside directors who are active CEOs *and* have experienced specific forms of change either in the company where they serve as CEO or at other companies where they have served as outside directors. The prevalent theoretical reasoning beyond composition models roots in resource dependence theory (Pfeffer & Salancik, 1978), and scholars have hypothesized that a larger quantity of a focal type of expertise enhances the board’s resource and capability base. However, as the above summary has shown, examining the proportion of directors who share the same type of expertise within a focal expertise category may yield different, sometimes opposing, outcomes compared with an analysis of the collective dispersion of various types of expertise within a respective category (e.g., Tuggle et al., 2010a). For example, the beneficial outcomes associated with a specific type of expertise may be offset by the presence of another type of expertise within the same category, which is difficult to capture with composition models. In other words, outcomes may vary for the same type of expertise and under the same boundary conditions confronting the board and firm, depending on the operationalization of the variable (e.g., proportion of outside directors with financial expertise versus collective functional background diversity).

Compilation models. Compilation models are used to approximate the heterogeneity of outside directors’ expertise. Contrary to composition models, this aggregation does not build on resource dependence arguments; instead, it explores implications for the process of shared decision making in diverse groups. Consistent with diversity research, the accumulated findings from board expertise research reveal that two competing forces may be at work. On the one hand, more heterogenous groups may process ambiguous and diverse information better, particularly when confronting the highly complex tasks that boards routinely do (Bantel & Jackson, 1989; Eisenhardt & Schoonhoven, 1990; Tushman & Nadler, 1978). Additionally, heterogeneous groups may possess superior competitive and adaptive capabilities (Hambrick, Cho, & Chen, 1996) as well as broader networks (Nahapiet & Ghoshal, 1998). On the other hand, social identity theorists have proposed that dissimilar individuals may be inclined to view each other negatively, which impedes cohesion and creates conflict, disagreement and the emergence of subgroups (Lau & Murnighan, 1998; Tajfel, 1978; Turner, 1987). Although experience- and expertise-related attributes are less easily observable than demographic characteristics, studies have shown that they may yet provide a salient basis for in-group categorization (e.g., Westphal & Bednar, 2005). Collectively, the above observations may explain why composition and compilation models have produced partly contradictory results in the context of board expertise research.

Matching models. Only a few studies (5%) have adopted a matching model in studying outside director expertise. Those models consider the prior expertise of outside directors in conjunction with specific characteristics of the focal firm. For example, Zhu and Westphal (2014) investigate the similarity between the firm's incumbent CEO and CEOs who newly appointed outside directors have been exposed to while serving at other boards. The authors consider seven major demographic characteristics and use factor analysis to reduce the data into a similarity index. Creative research designs like the above promise significant contributions and may alleviate some of the concerns associated with composition and compilation models. However, an obvious but important difficulty lies in identifying a relevant criterion against which outside director expertise is matched and in developing a plausible theoretical reasoning for the hypothesized relationship.

Outcomes of Board Expertise

Scholars have examined various outcomes of outside director expertise. Approximately 20% of the surveyed studies used various measures of firm performance, and approximately 40%

have adopted dependent variables referring to strategic firm outcomes or board-level outcomes, respectively.

Firm performance. The earlier research examining the performance implications has often relied on structural variables (e.g., proportion of outside directors, independence, and CEO duality), which produced inconclusive results (Dalton et al., 1998). Studies more deeply examining the actual ability that outside directors can contribute to the firm through their expertise often found specific performance implications, albeit mixed ones. For example, political expertise has been shown to convey access to information, resources and legitimacy, which improves the firm's links to its external environment in a U.S. context and strengthens accounting-based firm performance (Hillman, 2005). A subsequent study examining political expertise in the Chinese context finds a negative effect on accounting-based firm performance because board-political linkages may shield blockholders against market-based and regulatory disciplinary forces, which encourages rent appropriation (Sun et al., 2016). Other studies have analyzed the human and social capital-enhancing effects of board expertise and found positive effects on accounting-based performance measures (Khanna et al., 2014; Krause et al., 2013). In one post hoc analysis, Khanna et al. (2014: 566) find that their effects do not hold with market-based measures, reasoning that "because the concept of director capabilities is relatively new, it is less likely that the market is cognizant of the board's capabilities or incorporates those capabilities into its valuation". However, both Hillman (2005) and Feldman and Montgomery (2015) show that higher board expertise may be associated with increases in Tobin's Q, which they attribute to the increased resource provision capabilities. A subset of studies focuses on young entrepreneurial firms launching an IPO (Kroll et al., 2008; Sundaramurthy et al., 2014). These studies show that board expertise improves IPO performance. Other studies show that CEO and legal experience may alert outside directors to threats and opportunities in the domain of sustainability, which subsequently improves firm environmental performance (De Villiers et al., 2011). Finally, Almandoz and Tilcsik (2016) find that expertise may also become a liability by demonstrating that banking expertise may promote cognitive entrenchment and overconfidence, which increases the probability of bank failure. Collectively, studies exploring the performance effects of outside director expertise do not suggest that there is a universalistic relation between board expertise and firm financial performance; instead, they point to its inherently context-dependent nature.

Strategic choices. Scholars who have examined strategic firm outcomes have examined corporate growth, diversification and strategic resource allocation. The first set of studies hypothesize and find that acquisition-related experiences lead to specific strategic preferences, which manifest in focal firms' acquisition behaviors (Greve & Zhang, 2017; Zhang & Greve, 2018; Zhu & Chen, 2015). Relatedly, Beckman and colleagues (2013) suggest that, in the context of alliance formation, not only strategic issue experience (i.e., experiences related to alliances) but also outside directors' heterogeneity in experiences may predict alliance patterns. Others have explored acquisition performance implications and concluded that outside directors can capitalize on their accumulated knowledge and are more engaged in acquisition processes, which leads to lower premiums paid for acquisition targets (Beckman & Haunschild, 2002) and more beneficial stock market reactions to acquisition announcements (Kroll et al., 2008; McDonald et al., 2008). More generally, Kor and Sundaramurthy (2009) find that outside directors' firm- and industry-specific experience improve their ability to scrutinize managerial action and lead to higher firm growth. The second set of studies focus on the effects of outside director expertise on the corporate diversification of the firm. In this context, expertise may reflect prior learning and better knowledge of unfamiliar markets (Diestre et al., 2015) or reduce the perceived riskiness of new ventures (Carpenter et al., 2003), both of which generally enhances firms' propensity to diversify. However, using social exchange arguments, Westphal and Zajac (1997) demonstrate that outside directors may also be effective at limiting top management's preference for unrelated diversification. The third set of studies show that board expertise also affects other elements in the firm's strategic orientation. Notably, several scholars found that multiple forms of board expertise improve director ability to identify and prioritize potential industry-specific threats and opportunities, which translates into a higher propensity to initiate strategic change (Golden & Zajac, 2001; Haynes & Hillman, 2010; Oehmichen et al., 2017; Westphal & Fredrickson, 2001). Westphal and colleagues (2001) add that expertise may not only shape the content of strategic decisions but that outside directors may subconsciously re-enact previously experienced strategic decision-making processes, which affects the final outcomes. Drawing on behavioral and social categorization theories, scholars have also cautioned that expertise heterogeneity may impede outside directors' ability to formulate a shared understanding of the firm's strategic direction (Westphal & Fredrickson, 2001) and that it may trigger pluralistic ignorance that results in strategic persistence (Westphal & Bednar, 2005).

Board outcomes. At the board level, a portion of the existing knowledge is linked to the director selection literature (Withers, Hillman, & Cannella, 2012). For example, Lester et al. (2008) predict and find that political expertise increases the probability of board appointments, although the effect is mitigated by a deterioration of the underlying human and social capital over time. The deterioration of expertise is also reflected in negative investor reactions to unexpected director deaths, which, after a prime period, decrease with increasing director tenure (Brown et al., 2017). Others find that outside directors' experiences with a specific CEO improve their social acceptability among demographically similar CEOs, which increases the likelihood of a board appointment (Zhu & Westphal, 2014). Additionally, social capital-enhancing experiences (e.g., multiple board memberships) make outside directors more attractive to complex firms with high-status board members (Johnson et al., 2011) and, once on the board, business and firm-specific expertise predict committee membership (Bilimoria

& Piderit, 1994; Kesner, 1988). Kor and Misangyi (2008) add that top management team and board-level expertise may be complementary by showing that a lack in top management industry experience can be offset by the presence of outside directors with significant managerial industry experience. Related research finds that the specific type of expertise that firms seek when appointing new outside directors may be contingent on whether the firm operates in a regulated or deregulated environment (Hillman et al., 2000). Marcel and Cowen (2014) examine the opposite phenomenon, director exit, and find that firms appear to particularly value the human and social capital embedded in higher expertise during times of crisis. That finding is also supported by empirical evidence that shows how director expertise is associated with improved monitoring and advice-giving (Carpenter & Westphal, 2001; Westphal, 1999), more board-level attention devoted to discussions about crucial strategic issues (Tuggle et al., 2010a) as well as higher board involvement (Westphal & Milton, 2000) and conformity (Veltrop et al., 2017). At the individual level, greater expertise is also associated with a more positive perception by board colleagues, as Krause et al. (2016) show exemplarily for the chair position. However, this finding may not necessarily hold for other board members (Veltrop et al., 2017). Finally, outside directors' expertise has also been shown to affect CEO-related issues. For example, board decisions on CEO appointments are perceived more favorably by investors when outside directors have greater human and social capital (Tian et al., 2011), and CEO compensation may be more sensitive to current (Brown et al., 2017) and future (Westphal & Zajac, 1997) firm performance, although the former appears to diminish with increasing tenure of outside directors. Others find that more board-level experience in non-focal firms leads outside directors to adhere to normative pressures of the corporate elite rather than shareholder preferences, which manifest in higher excess CEO returns. Conversely, outside directors serving longer on a focal board may have a stronger interest in satisfying the stakeholder expectations of the focal firm, which leads to lower excess CEO returns (Sauerwald et al., 2016). Still others show that outside directors who have experience with demographically similar CEOs tend to be more sympathetic with the incumbent CEO and favor higher compensation (Zhu & Westphal, 2014).

Multilevel contingencies

Most studies have examined various contingencies that may affect the relationship between types of board expertise and outcomes. However, 30% of the studies we surveyed do not hypothesize interactions effects.[5]

Individual-level contingencies. Studies that have investigated the moderating effects of individual director attributes provide a nuanced view on important mechanisms underlying the relationship between outside director expertise and firm outcomes.[6] Counter-intuitively, scholars have shown that expertise does not necessarily breed influence over board decisions (Veltrop et al., 2017), and more involved directors may become entrenched more quickly due to more frequent interactions and deeper relationships built through their involvement (Brown et al., 2017). Veltrop and colleagues (2017) find that outside directors' individual performance orientation matters in that directors with low performance orientation are unlikely to be influential during board deliberations. Zhu and Yoshikawa (2016) add that identification with the focal firm may be an important contingency that improves outside directors' engagement in managerial monitoring and resource provision. However, if outside directors perceive that fellow board members are not concerned about strategic issues, they are less likely to contribute their own expertise to the firm (Westphal & Bednar, 2005). Furthermore, outside directors who

[5] We only considered moderating hypotheses when one of the interaction terms referred to a specific type of board expertise. Studies that only included interaction effects on non-board related hypotheses were not considered (e.g., Kroll et al., 2007). We also explored whether there are temporal trends but found the proportion of studies that do not include interaction hypotheses to be relatively stable over time; 27% of studies published before 2008 do not hypothesize interaction effects, compared to 32% of studies published since.

[6] We classified moderators as related to the individual level when the primary theoretical reasoning was based on director-specific behavior although, in certain cases, scholars have subsequently relied on group-level operationalizations to test their assertions.

also serve as executives at another firm tend to favor outside CEO succession more to the extent that their home company is strategically different from the focal company on which board they serve (Westphal & Fredrickson, 2001). This effect is more pronounced for longer manager-directors' home company tenure. Thus, it appears that those outside directors attempt to initiate strategic change through CEO succession to match the strategic orientation they are more familiar with. Tian and colleagues (2011) complement these findings and show that the individual social capital of outside directors is associated with CEO appointments in that outside directors with stronger internal social capital tend to promote CEOs internally, whereas outside directors with more external social capital instead hire CEOs externally. There is further evidence that directors who are demographically different from the incumbent CEO are more sympathetic with him or her to the extent that they have previously served as an outside director in a company with a CEO who is demographically similar to the incumbent CEO (Zhu & Westphal, 2014). Relatedly, directors who are a demographic minority on their board may benefit from prior experience serving as a demographic minority (Westphal & Milton, 2000), which may be particularly important for female directors who appear to experience lower recognition, including when possessing high levels of expertise (Bilimoria & Piderit, 1994).

Board-level contingencies. In addition to individual factors, scholars have also explored how aggregate board-level contingencies affect the relationship between director expertise and firm outcomes. In the presence of expertise heterogeneity, board meeting informality (i.e., more off-site meetings, higher agenda openness, and greater frequency of meetings) either has no or a negative effect on boardroom discussions; however, it can mitigate the negative effects of strong expertise-related faultlines by fostering acceptance between the different subgroups (Tuggle et al., 2010a). Based on the notion that ownership increases the likelihood that director-owners will be more vigilant and devote more time and attention to a focal mandate, Kroll et al. (2008) show that board expertise may complement agency issues in that board expertise manifests most strongly in firm outcomes when directors have high expertise *and* hold equity in the firm. However, this finding should be interpreted with caution because there is also evidence for a positive moderating effect of board independence (McDonald et al., 2008), lending support to a more traditional agency theoretic argumentation.[7] Finally, there is evidence that board busyness is neutralizing the beneficial effects of board expertise (Khanna et al., 2014; Kor & Sundaramurthy, 2009). These findings imply that the increased information processing demands reflected in an excessive number of other board memberships strain outside directors' capacity to contribute their expertise to the focal firm.

CEO- and top management team-level contingencies. Not surprisingly, many scholars have shown that the characteristics of the CEO and top management interact with the effectiveness of outside director expertise. Most importantly, the relative power between the CEO and the board reduces (Golden & Zajac, 2001; Haynes & Hillman, 2010; Sauerwald et al., 2016) or even reverses (Zhu & Chen, 2015) the extent to which outside directors' expertise-related inclinations manifest in firm outcomes. The same is true when CEOs have previously been associated with high-status firms (Zhu & Chen, 2015). However, there is also evidence for a more symbiotic relationship between board expertise and the top management team: Carpenter and colleagues (2003) show that the effect on strategic outcomes is greatest when both outside and inside directors have high levels of expertise. Relatedly, Kor and Misangyi (2008) find evidence of *experience supplementing* where a lack of top management team expertise can be substituted by outside directors' expertise. Furthermore, and consistent with agency theory, scholars have found a significant and positive interaction between outside director expertise and both the top management (Carpenter et al., 2003) and CEO (Westphal,

[7] It should be noted that the studies by Kroll and colleagues (2008) and McDonald and colleagues (2008) are particularly well comparable because they examine the effect of a similar type of outside director expertise (acquisition expertise) on a similar dependent variable (acquisition performance).

1999) ownership, indicating that managerial incentives may diminish the need for high board expertise.

Organizational contingencies. Perhaps the most important organizational contingency refers to firm performance. Studies produce consistent support that low performance (Sundaramurthy et al., 2014; Westphal & Fredrickson, 2001), performance below aspiration (Westphal & Bednar, 2005) or declining operational efficiency (Krause et al., 2013) emphasize the relationship between outside directors' experiences and firm outcomes. It appears that boards can shift from a regular to a 'crisis mode' and become more involved when facing stakeholder discontent which, in turn, emphasizes the impact of their expertise. At the same time, it becomes more difficult for firms to attract high-expertise outside directors when the organization is facing irregularities, such as financial restatements, or when it is being perceived as a low-status firm (Diestre et al., 2015). In addition, it appears that board expertise is more consequential in firms that are younger (Kor & Misangyi, 2008; Sundaramurthy et al., 2014) and rapidly growing (Almandoz & Tilcsik, 2016). Moreover, board experience interacts with organizational experience in the sense that an organization is less likely to pursue a specific strategic action that is consistent with outside directors' expertise if organizational members have no prior experience with it (Diestre et al., 2015) and more likely if the opposite case (Beckman & Haunschild, 2002; Diestre et al., 2015). Finally, powerful investors have been shown to be effective at enforcing their values and preferences *vis-à-vis* board members; this may affect how board expertise manifests in firm outcomes. Specifically, the presence of institutional investors positively moderates the relationship between board expertise and financial alignment of CEO compensation, indicating that institutional investors encourage more shareholder-friendly actions (Sauerwald et al., 2016). Conversely, in the presence of blockholders, higher board expertise reflected in political linkages may lead to wealth appropriation of minority shareholders (Sun et al., 2016), showing that board expertise cannot only mitigate but also aggravate agency problems.

Environmental contingencies. A key role of the board is to connect the firm to external factors that generate uncertainty and external dependencies (Pfeffer, 1972). Several studies in our sample have studied boards' role as rejoinder to the firm environment by focusing on different sources of environmental uncertainty and dependency. For example, scholars have distinguished regulated from unregulated environments (Hillman, 2005; Hillman et al., 2000; Sun et al., 2016). In the former scenario, the firm's major dependency is with the regulatory body, whereas in the latter case, uncertainty primarily emanates from market-specific sources such as competitors, suppliers or consumers. Consequently, researchers find that these different contexts also require different knowledge, skills and networks from outside directors to effectively navigate the firm's external environment. A second set of studies explores complexity and uncertainty arising from stable versus turbulent economic contexts. For example, Carpenter and Westphal (2001) find that the specific knowledge structure associated with outside directors' strategically heterogenous experiences is beneficial under conditions of turbulence, whereas outside directors' expertise with the current firm strategy is particularly important in stable environments. Almandoz and Tilcsik (2016) find that, for high-expertise boards that succumb to entrenchment and overconfidence, decision uncertainty resulting from unpredictable markets amplifies the negative effects, indicating that turbulence may increase the liability of high-expertise boards. A third set of studies explore implications of the home-country (Oehmichen et al., 2017) and local (Sun et al., 2016) institutional environments. These scholars find that more developed institutions provide means of safeguards and additional information that reduces the relative effect of outside director expertise. Although the collective findings on the interaction effects between board expertise and environmental contingencies provide support to the notion that environmental factors render specific types of expertise more or less useful, notably, only one study has explicitly investigated how boards actually adapt in response to changing environmental needs (Hillman et al., 2000). That finding directly speaks to the observation made by Hillman et al. (2009, p. 1141) who note that “the dynamic nature of boards (i.e., changing composition as environmental needs change) appears to be a nearly normative convention, although this has received little empirical testing”.

2.3 A FUTURE RESEARCH AGENDA ON BOARD EXPERTISE

Our literature review shows that research on board expertise has recently made substantial advances. However, our review also suggests that multiple mechanisms may influence the magnitude and direction of the relationship between board expertise and outcomes. Pockets of research pertaining to different theoretical traditions have evinced several convincing yet partly contradictory explanations of how expertise may shape board processes and decision making. These findings should caution researchers to revert to universalistic assumptions, such as ‘more expertise is generally better’, when crafting arguments and developing appropriate research designs to study board expertise. In integrating the collective insights of the prior literature, we intend to offer to researchers a model that concisely illustrates key factors that may determine how board expertise is linked to firm outcomes. Our objective is to alert researchers of potential frictions in this link and to provide a cause for thought regarding the theoretical specificity of future board expertise studies.

Figure 2.3 depicts our integrative model of the accumulated review findings. In short, we submit that the implications of board expertise will depend on the following: (1) the type of expertise and mode of its aggregation; (2) the influence of behavioral attributes and dynamics; (3) the resulting board processes; and (4) the alignment between the board and its internal and external environment. Our integrative model makes visible the key challenge in board expertise research. The collective body of research suggests that the four frictions we have identified are additive; that is, if only one friction emerges, it is likely to affect the relationship between board expertise and outcomes decisively. In addition, the four frictions have distinct theoretical underpinnings, and a comprehensive view on them requires developing a multitheoretic understanding of board expertise as a research phenomenon. In the following, we offer first steps in that direction by elaborating for each of the four potential frictions the key conclusions for researchers and by illustrating where potential for future research lies.

Insert Figure 2.3 about here

Outside Director Expertise

Most researchers have built on the premise that outside directors' experiences and the resulting expertise provide idiosyncratic knowledge, skills and networks that influence board processes and firm outcomes. At its core, this research stands in the tradition of upper echelons theory (Hambrick, 2007; Hambrick & Mason, 1984), which posits that top management team characteristics reflect executives' values, beliefs, cognition, knowledge and skills; a view that has subsequently been extended to outside directors within the strategic leadership literature (Finkelstein, Hambrick, & Cannella, 2009).

One key conclusion from our review is that the choice of a specific type of expertise and the mode of aggregating outside director expertise to a board-level construct are associated with distinct challenges that researchers should be aware of. For example, the effects of a focal type of expertise may be offset by the presence of another type of expertise, including within the same category of expertise (e.g., Tuggle et al., 2010a). This finding reflects the first potential friction that may critically affect the link between board expertise and outcomes. When choosing the type and aggregation of experience- or expertise-related measures, we encourage researchers to explicitly theorize and test the interplay of different types of expertise within a specific category of expertise, particularly when relying on composition models. Ambiguity may also reside within a focal type of expertise. We advocate a finer-grained conceptualization of outside director expertise to explain differences among apparently similar types of expertise. For example, several studies have investigated the implications of industry expertise and produced partly contradictory findings (e.g., Almandoz & Tilcsik, 2016; Haynes & Hillman, 2010; Oehmichen et al., 2017; Sundaramurthy et al., 2014). One explanation may be that the construct has often been modeled in a relatively monolithic manner. It may be conceivable that boards whose collective industry expertise primarily originates from the home country of the focal firm may have a different level of industry embeddedness than boards whose outside directors have acquired industry expertise across a variety of geographical and institutional contexts. Thus, it may be worthwhile to study how such differences affect the overall knowledge structure, skills and networks of boards and to investigate the implications for the strategic behavior of the firm.

Furthermore, most research has explicitly or implicitly assumed that outside directors individually may not possess a comprehensive set of knowledge, skills and networks but rather benefit from the complementary expertise they possess as a group (e.g., Hambrick et al., 2015; Kor & Sundaramurthy, 2009). While this notion of specialization is intuitively appealing as a logical consequence of the high task complexity confronting modern boards, it may be worthwhile to scrutinize this assumption more thoroughly. For example, the recent advances in the research on intrapersonal career variety of CEOs (Crossland, Zyung, Hiller, & Hambrick, 2014) could motivate research that examines more closely the specific types and combinations of expertise held by a focal outside director. Respective research efforts could make important contributions to our understanding of board expertise by delineating the interplay between directors' intrapersonal expertise variety and the expertise held by the board as a whole.[8]

Moreover, Figure 2.2 reveals that two aspects appear to be particularly under-researched. First, few researchers have explicitly conceptualized the contextual experience of outside directors and we believe that this dearth of studies promises interesting further research avenues. Adding to the proposition regarding international industry expertise noted above, we suggest that investigating the main effects of contextual expertise may produce equally insightful findings. For example, exposure to different institutional regimes may be a previously overlooked source of expertise. Building on the premise that external actors confronting the firm are situated within institutional contexts that shape their shared normative and cognitive frameworks, outside directors who have been exposed to these shared frameworks may be better able to appreciate the interests, values, motivations and behaviors of different institutional constituents, such as suppliers of capital, consumers, or regulatory agencies. Hence, expertise, and not only cooptation, may help boards to manage the firm's external dependencies. Second, only a few studies have adopted matching models. We believe that this approach may be particularly fruitful in studying specific strategic choices of the firm. For example, matching models may enable researchers to extend beyond the examination of more generic relationships between outside directors' quantity of acquisition expertise and acquisition performance by linking their experiential attributes with characteristics of potential acquisition targets to better understand target selection choices. Those and similar research designs may prove helpful in further unpacking the subtle role of board expertise in explaining how organizations evolve and transform.

[8] Anecdotal accounts from interviews we conducted with a global board search consultancy and several chairs from Fortune Global 500 firms appear to support the notion of intrapersonal expertise variety. Our interview partners repeatedly emphasized that directors need to "fill the whole board seat". According to this logic, being an expert in one domain is necessary but not sufficient to effectively executing board service.

In sum, we do not question the principal assumption that outside directors' experiences are reflective of human and social capital gains. However, we believe that research can be advanced by providing explicit theoretical justification for the choice of specific types, combinations, and aggregation of board expertise because it appears that these choices and the corresponding research design may have non-trivial implications for the results that researchers will obtain.

Behavioral Dynamics

A second potential friction that only few studies have accounted for results from varying levels of outside directors' capacity or motivation to contribute their capabilities to the firm. In fact, one of the most central questions pertaining to board expertise research is how individual directors act on their expertise. Thus far, it appears that expertise promotes a continuum of behaviors that determine its usefulness for the organization. Specifically, high-expertise outside directors (1) may have an objective information advantage that consistently increases decision-making quality, (2) may rely on heuristics and simplifying strategies that may occasionally lead to superior or inferior decisions, or (3) may disregard situational demands and simply repeat past actions and behaviors they are most familiar with. Thus, it is not always clear how outside directors use their personal experiences as a reference point in monitoring and supporting management.

Behavioral theory (Cyert & March, 1963; March & Simon, 1958) provides useful insights that may help to approximate behavioral tendencies. For example, the notion that bounded rationality has a higher likelihood of manifesting under conditions of high information processing demands has been captured by certain researchers based on the concept of board busyness (Khanna et al., 2014; Kor & Sundaramurthy, 2009). Board-level judgments and decision making are routinely associated with high levels of complexity and ambiguity (Boivie, Bednar, Aguilera, & Andrus, 2016; Forbes & Milliken, 1999; Zajac & Westphal, 1996) and impose substantial information processing demands on outside directors (Galbraith, 1974; Tushman & Nadler, 1978). Therefore, it appears important to consider the temporal, attentive and cognitive capacity of outside directors before making conclusions regarding how a given level of expertise will eventually translate into outcomes. However, it should be noted that the concept of board busyness as a potential capacity-straining source is somewhat contested in the literature because it may not only reflect costs but also benefits in the form of larger networks that outside directors can rely on (Ferris, Jagannathan, & Pritchard, 2003; Fich & Shivdasani, 2006; Harris & Shimizu, 2004). Future research that uses related constructs as interaction terms may attempt to capture the ex-ante capacity of outside directors; for example, by inferring overall capacity from the degree of task complexity they had previously been exposed to and discount the negative effects of information processing demands relative to directors' overall capacity. Relatedly, we also encourage scholars to build on Brown and colleagues' (2017) finding that more involvement of individual directors is associated with sooner entrenchment and therefore decreased decision-making quality, which is somewhat contradictory to the busyness argument. It appears that unlocking the full potential of outside directors' expertise requires a fine-tuned configuration of specific behavioral attributes. Therefore, we believe that new prescriptive knowledge about more versus less optimal levels of director capacity or involvement would help to resolve inconsistencies in the extant board expertise literature.

A separate approach to address potential behavioral contingency may be to test whether outside directors have acted based on preferences or on superior information. For example, researchers investigating strategic outcomes based on board expertise may also explore the performance implications of the particular strategic action. While a focal study may in both cases generate important contributions, either by revealing behavioral biases that inform strategic actions or by showing that certain experiences indeed lead to better decisions, such an approach will help gain clarity regarding the adequate theoretical reasoning. A further aspect that warrants researchers' focus is that individuals may also vary based on motivational dispositions to demonstrate their expertise (Veltrop et al., 2017). Researchers may be well-advised to include this possibility in their considerations. Arguably, it is difficult to assess individual capacity and motivation from archival data, and the most thorough approach may require qualitative research designs. However, the fact that most studies have been silent on the possibility that high-expertise outside directors may lack the necessary capacity or motivation to contribute their expertise to the firm may explain some of the contradictory findings. Therefore, we believe that there are suitable reasons to account more systematically for individual behavioral contingency in board expertise research.

Board Process

The third potential friction may emerge within the boardroom. Extant evidence suggests that the presence of high-expertise outside directors may trigger group processes that crucially affect outcomes. Initially, there are many rational arguments why groups with more experts would be more likely to arrive at superior decisions (for an overview see: McDonald et al., 2008). However, those arguments implicitly assume that the board functions as a social group, a state that we refer to as *cohesive* in Figure 2.3. Scholars have noted a variety of arguments that challenge this optimistic assumption, ranging from social categorization (Westphal & Bednar, 2005; Zhu & Westphal, 2014), status characteristics (Veltrop et al., 2017) and social exchange arguments (Westphal & Zajac, 1997) to the emergence of group faultlines (Tuggle et al., 2010a), dysfunctional group decision-making processes (Almandoz & Tilcsik, 2016), and power relations within the board (Ocasio, 1994). Overall, this research cautions that expertise may lead to differentials in status, influence, or mutual assessment that pose barriers to group functioning, a state we refer to as *disjointed* in Figure 2.3. On disjointed boards, members may be much less likely to apply their expertise in defining and solving complex problems.

Future board expertise research may account for factors that determine the group functioning of the board. One promising research direction pertains to the role of the chair. Although recent research has demonstrated that chairs, and not only CEOs, are key determinants of firm success (Withers & Fitza, 2017)[9], the research on this key actor remains in its infancy (Krause, 2017; Krause et al., 2016). Exploring the chair-board interface more thoroughly may help to predict whether boards will become cohesive or disjointed (Garg & Eisenhardt, 2017). Upper echelons scholars have previously made important advances in unpacking a similarly important interface between the CEO and top management (e.g., Buyl, Boone, Hendriks, & Matthyssens, 2011; Georgakakis, Ruigrok, & Greve, 2017). We argue that insights from this literature may be helpful in examining how the chair shapes board processes. Specifically, we encourage researchers to explore how chairs may facilitate the integration of varying levels of expertise held by outside directors, which is a notion similar to that of the "CEO as an integrator" in the CEO-top management interface literature.

Relatedly, recent findings show that an additional means of shaping the board process and interactions may lie in establishing the right location and frequency of board meetings (Tuggle et al., 2010a). The influence of board meeting formats has otherwise garnered minimal scholarly focus in the context of board expertise research; thus, we advocate that future studies more closely examine how different formats may shape boardroom interactions and subsequent cohesion and eventually affect the propensity with which outside directors contribute their expertise to the board. Specifically, future research may more systematically capture how the

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[9] Withers and Fitza (2017) find that chairs explain 9.2% of variance in firm performance, which compares to 14.1% for the CEO.

context and timing of board discussion channels attention, shapes cognitive frames and eventually affect firm outcomes (Ocasio, 1997; Tuggle et al., 2010a; Tuggle, Sirmon, Reutzel, & Bierman, 2010b).[10]

Given the minimal time that outside directors spend with each other, it would appear particularly crucial that chairs actively foster group cohesion, design board meetings mindfully and anticipate and resolve potential sources of conflict, disagreement or complacency. We submit these aspects may be crucial pieces in understanding how board expertise translates into firm outcomes. More generally, research in this vein could also contribute to a more nuanced view of how information flows within the boardroom, a question that to date has remained relatively obscure.

Alignment with the Internal and External Environment

The fourth potential friction refers to the alignment between the board and the internal or external environment of the organization. Whereas the previous three frictions could each be illustrated along a related theoretical logic, the fourth friction may be shaped by multiple mechanisms pertaining to different theoretical lenses. First, similar to the detrimental outcomes of disjointed boards, the effect of board expertise will also be shaped by the relationship between the board and top management. For example, our review has emphasized the role of agency theoretic concerns such as the top management's relative power over the board (e.g., Golden & Zajac, 2001; Haynes & Hillman, 2010; Sauerwald et al., 2016) or the financial incentivization of executives (e.g., Carpenter et al., 2003; Westphal, 1999). An increase in both

[10] We obtained anecdotal support for the importance of these contextual factors during a recent interview with the chair of a multinational company with a market capitalization of $50 billion. Specifically, this chair noted that scheduling board meetings immediately prior to quarterly earnings announcements inevitably directs attention to more monitoring- and compliance-related topics, whereas later meetings typically promote discussions regarding more strategic issues. Consequently, an outside director with substantial strategic issue expertise may be less able to fully utilize his or her expertise in the former scenario and more so in the latter. Thus, it appears that simple indicators such as the date of a board meeting will render specific forms of expertise more or less important.

constructs has been shown to attenuate the impact of board expertise. Zhu and Chen (2015) have integrated political and personality theories to show how CEO personality characteristics may affect the magnitude and direction with which board expertise manifests in firm outcomes. Additionally, drawing on the original conception of resource dependence as an exchange theory, scholars have recently argued that managers may actively avoid interactions with high-expertise boards which may hinder them in exercising their service role (Garg & Eisenhardt, 2017).

Collectively, these findings reveal that even boards that possess the right expertise, are not subject to unfavorable behavioral contingency, and act cohesively as a group may continue to confront important barriers in contributing their expertise to the firm. Therefore, we recommend that the future research on board expertise may explicitly investigate the interaction between the board and top management to explore tendencies that may affect the relationship between board expertise and firm outcomes. Prior research has shown that top management seeks to influence boards in multiple ways (Westphal & Bednar, 2008); however, we believe that potential remains for sufficiently disentangling the continuum of relationships between the board and top management. At the extreme ends, the top management may either maintain a symbiotic relationship with the board or actively undermine it. Between those two extremes lie many different orientations that top management teams may adopt *vis-á-vis* its board, and this specific orientation may play an essential role in understanding how the experiences and expertise of the board are being implemented in strategic decision making. Although this orientation may also be influenced by power or firm performance (Krause et al., 2013; Sundaramurthy et al., 2014; Westphal & Bednar, 2005; Westphal & Fredrickson, 2001), it appears that there is variation in how key decision makers make sense of the role of the board which, in turn, is likely to affect how board expertise is utilized within the firm. In this context, research has made recent advances by inferring from proxy statements different orientations of how chairs view their role (Krause, 2017) and how fellow board members view the chair (Krause et al., 2016). We propose that researchers devote additional attention to the board-top management relationship, ideally by gathering first-hand information about how the CEO and other executives view the board and its implications on the extent to which board expertise affects outcomes. This stream of research could subsequently be extended to capture the orientation of powerful external stakeholders (e.g., lenders and influential investors) towards the board.

Furthermore, the alignment between boards and the external environment is a second important contingency. The accumulated findings presented in this review lend strong support to the context-dependent nature of board expertise. Based on institutional and resource dependence arguments, the research on board interlocks has helped to explain why specific board compositions may promote mimetic behavior (e.g., Westphal et al., 2001) and how board cooptation may alleviate dependencies with the external environment (e.g., Mizruchi & Stearns, 1988, 1994; Stearns & Mizruchi, 1993). Additionally, the institutional (e.g., Oehmichen et al., 2017; Sun et al., 2016), regulatory (e.g., Hillman, 2005; Hillman et al., 2000) and industry (e.g., Carpenter & Westphal, 2001) environment appear to pose distinct contextual demands that shape the effectiveness of different types of board expertise.

However, much of the existing knowledge presented in this review refers to U.S. public companies; only 12% of the studies we surveyed used non-U.S. samples. This should motivate researchers to broaden their focus and extend analytical efforts to other countries shaping the world economy. Notwithstanding the increased data collection efforts for non-U.S. environments, such approaches may lead to greater generalizability of the cumulative body of knowledge on board expertise. Since the role and responsibilities of boards differ across jurisdictions (OECD, 2017), broader sampling may also elucidate important country-specific idiosyncrasies that influence the effects of board expertise. Relatedly, although most of U.S.

companies included in prior studies were large organizations with multinational operations, scholars who did investigate environmental aspects typically restricted their focus to the domestic context. Here, new contributions may be possible, for example by considering how host-country institutional environments may interact with board expertise, which may lead to the identification of new forms of expertise that help companies navigate the diverse international environments they are exposed to.

Finally, in analyzing the existing board expertise research that also captured aspects of the firm and its environment, we noted that only 23% of studies had incorporated dedicated reflections on endogeneity concerns. An endemic challenge to the research on any form of board composition is that specific characteristics of the board may be endogenous to non-board-related factors. For example, research designs that do not account for the dynamic relationship between current governance and past firm performance may be biased (Wintoki, Linck, & Netter, 2012). Considering the contradictory and inconclusive prior findings in board expertise research, we encourage scholars seeking to study board expertise to adopt endogeneity-robust research methods (e.g., Beckman et al., 2014; Krause et al., 2013; Oehmichen et al., 2017) to increase our confidence in the causality of the effects and alleviate concerns regarding artifacts and spurious findings. Alternatively, although it does not mitigate endogeneity concerns to the same extent, the board expertise research may also borrow from comparative corporate governance research to study how different combinations of board expertise types may substitute or complement each other under different contextual conditions using qualitative comparative analysis (e.g., Misangyi & Acharya, 2014).

Implications and Conclusion

Perhaps the greatest challenge that our multitheoretic integration of the board expertise literature revealed is the apparent tradeoff between a parsimonious use of theory and an accurate reflection of the key mechanisms underlying the link between board expertise and key outcomes at the firm and board level. While there is little doubt that outside directors differ based on their individual experiences in how they interpret, assess, and act on the specific issues and challenges they confront, we seem to be far away from being able to make unequivocal and generalizable predictions about how these differences manifest in outcomes. While we contend that it is not feasible for future research to theoretically and empirically capture all eventualities, we do advocate for more comprehensive reflections on the possible contingencies shaping this multifaceted relationship, particularly when interpreting empirical findings. With our review, we have sought to extend beyond the generic observation that the expertise of outside directors should mirror the demands of the firm to also elucidate the subtle interdependencies that shape the magnitude and direction of board expertise outcomes. In that context, we have highlighted new research questions and methodological suggestions that promise important new contributions. Ultimately, the effects of board expertise may perhaps be best understood by studying it as a process. Scholars who seek to comprehensively study board expertise as a research phenomenon are encouraged to adopt qualitative methodologies to capture how and when potential frictions may emerge, which strategies boards may use to alleviate them and what the eventual outcomes are. With boards being increasingly under the public spotlight, we believe that future studies of board expertise will not only yield significant theoretical insights about boards’ roles in effectively governing the firm but generate equally important contributions on board practices that are relevant for chairs, board members, investors, and policy-makers.

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Figure 2.1 Board Expertise Publications in Key Management Journals

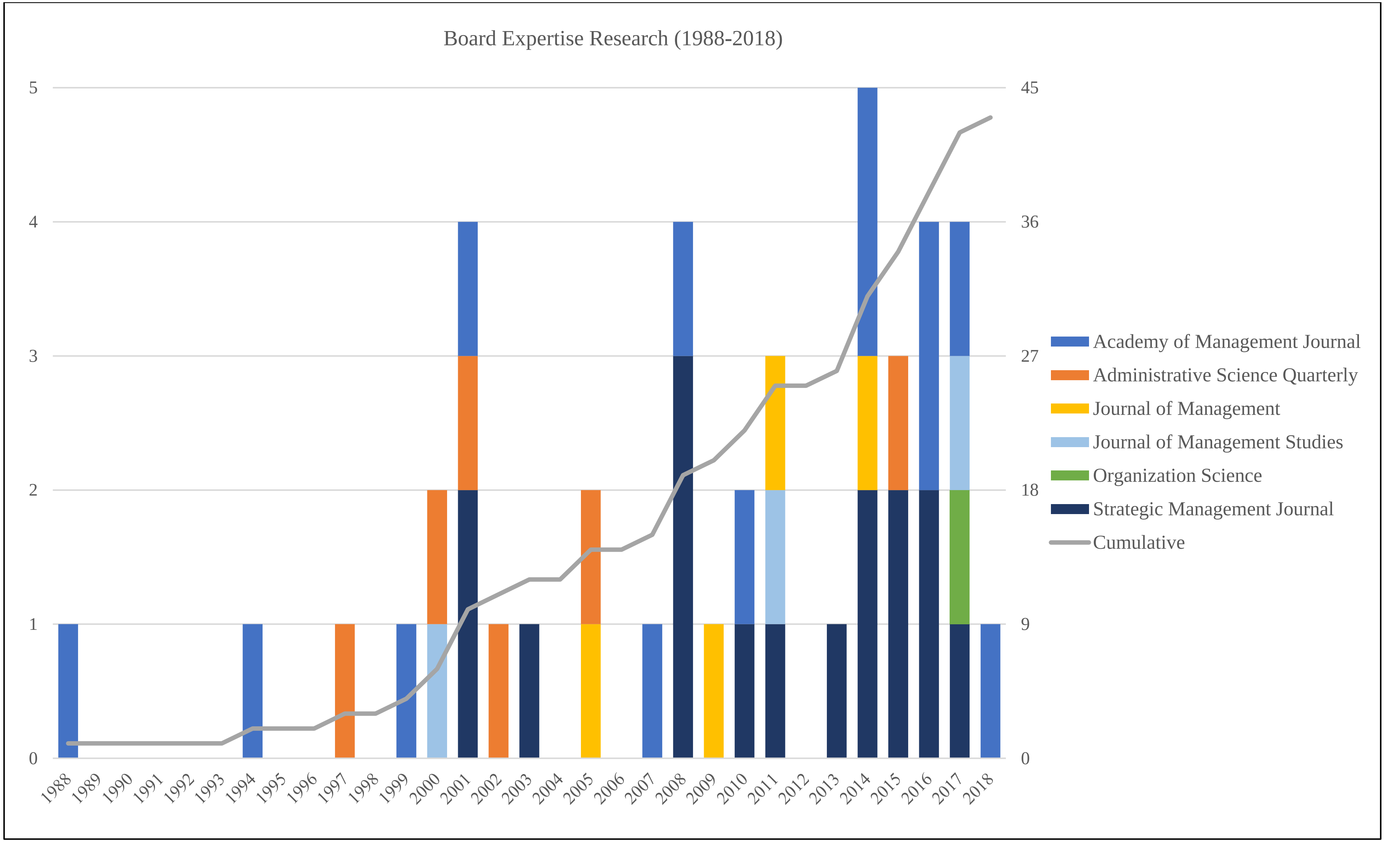
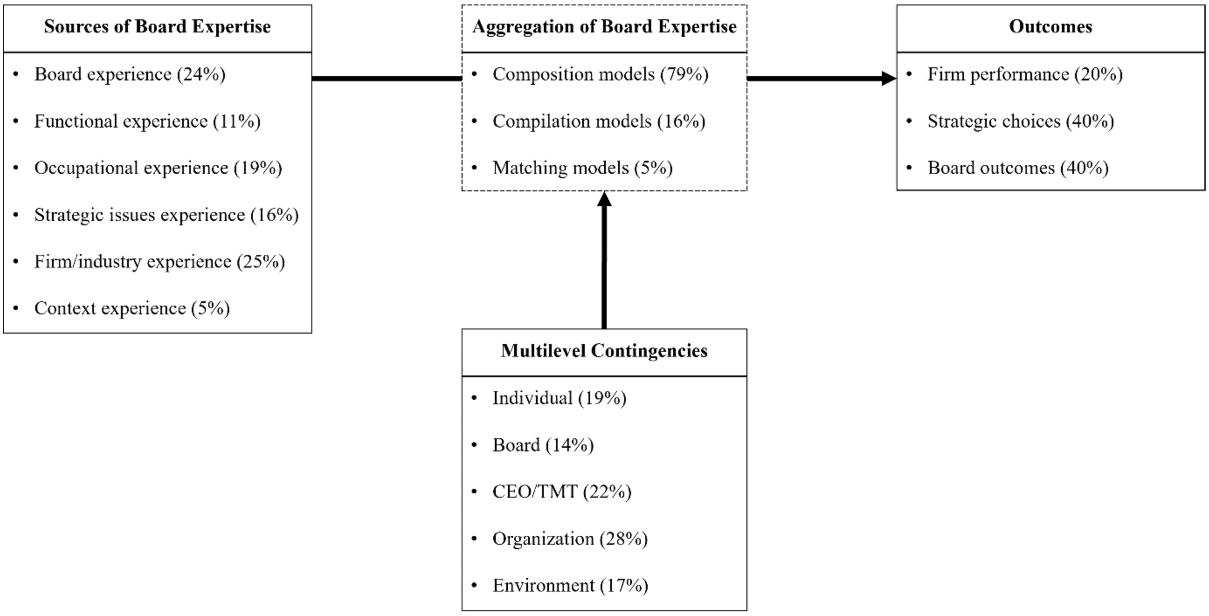
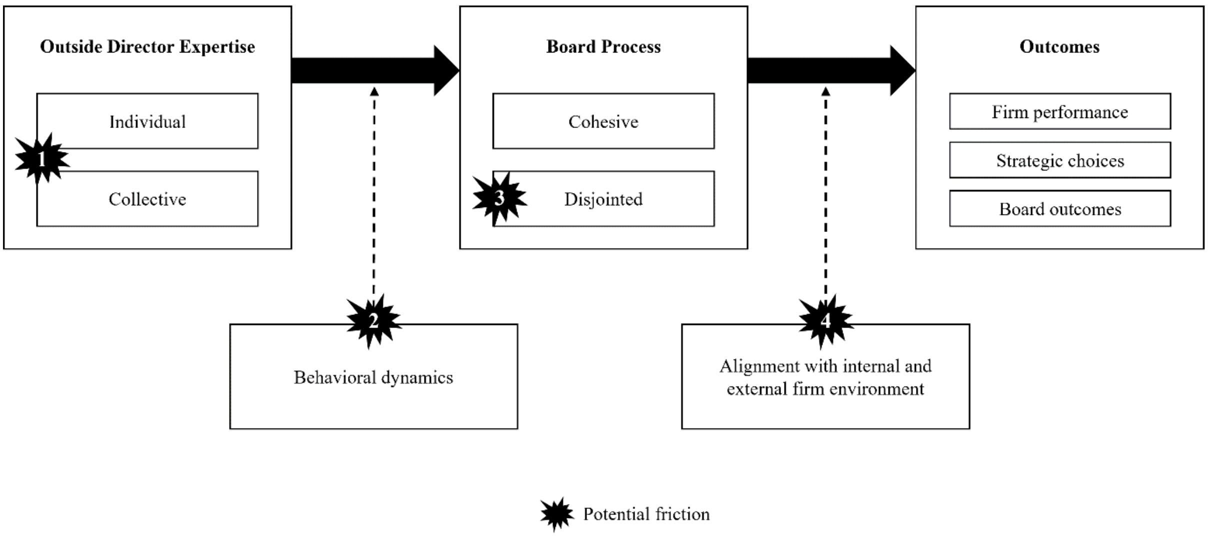


Figure 2.2 Categorization of Board Expertise Research



Notes. Percentages indicate the prevalence relative to all relationships tested within each of the four depicted areas across all studies.

Figure 2.3 Board Expertise: An Integrative Model



2.5 APPENDIX

Table 2.1 Empirical Research on Director-/Board-level Expertise and Experience

Authors	Method	Research Context	Perspective	Key Findings	Expertise	Measure	Outcome
Almandoz & Tilcsik AMJ 2016	Competing-risks regression; Inverse-probability-of-treatment-weighted method	1,307 firm-year observations of domestic U.S. banks from 1996–2012	Cognitive entrenchment; Group overconfidence; Task conflict	Banking expertise promotes cognitive entrenchment and overconfidence which increases the probability of bank failure under conditions of high decision uncertainty	Domain (industry) expertise	Proportion of outside directors who have served as Executive Vice President or higher in a bank	Organizational failure
Beckman & Haunschild ASQ 2002	GLS regression	458 acquisitions by large U.S. service and manufacturing firms between 1986–1997	Learning	Heterogeneous acquisition expertise is associated with lower acquisition premia because it provides a wide array of information to make better causal inferences; Results do not hold for diversity in industry expertise as boards may discount industry differences in acquisition experience more easily instead of reflecting more deeply on them	Acquisition expertise	Heterogeneity in experience with acquisition premiums, sizes and industries	Acquisition premium
Beckman, Schoonhoven, Rottner & Kim AMJ 2014	Semiparametric Cox event history model	4,741 firm-month observations of U.S. semiconductor firm founded between 1978–1985	Relational pluralism	Outside directors' heterogeneity in expertise promotes the emergence of diverse alliance portfolios because they have more knowledge of and relationships to broader range of alliance partners; The effect is negatively moderated by power asymmetry at the board which creates focus on a subset of board members that hinders the development of broad range of alliances	Geographic experience; Industry experience; Relational experience	Heterogeneity in geographic experience, industry experience and affiliation with organizational types	Diverse alliance portfolio
Bilimoria & Piderit AMJ 1994	Logistic regression	2,115 outside directors from 133 Fortune 500 firms in 1984	Experience-based-bias view	Experience-based characteristics do not predict board committee membership for females, indicating the presence of sex-based direct or interactive effects on the membership of board committees	Board-specific experience, Business experience	Tenure; Dummy for business vs. non-business occupation; Number of board memberships	Director appointment to board committee

Table 2.1 Empirical Research on Director-/Board-level Expertise and Experience (continued)

Authors	Method	Research Context	Perspective	Key Findings	Expertise	Measure	Outcome
Brown, Anderson, Salas & Ward OS 2017	Event study; Regression	274 unexpected director deaths and 11,807 firm-year observations of S&P 1,500 firms (cross-industry) from 2000–2012	Cognition; Social capital	Outside directors' firm-specific and industry knowledge increases with tenure but their independence and ability to provide new advice and monitoring may be offset as they assimilate and become socially influenced by top management, indicating that there is an inverted U-shaped relationship between outside directors' ability to perform their two key functions and tenure	Firm- and industry-specific expertise	Board tenure; Proportion of directors in prime tenure period	Stock market reaction to unexpected director death; CEO pay-for-performance sensitivity
Carpenter & Westphal AMJ 2001	Survey; Multiple regression	228 CEO and 492 outside director responses serving in U.S. industrial and service firms in 1995	Sociocognitive perspective	Directors who have experience with related strategies are more capable of contributing insight on a firm's current strategy because their direct strategic experience and access to strategic information through social networks informs their knowledge of structures used to monitor decisions or give advice on a focal board; Directors who have experience with different strategies are more capable of contributing insight on the implementation of alternative strategies in turbulent environments	Board experience at strategically related companies	Proportion of directors in firms related by product market, primary foreign market, product diversification or international diversification	Directors' perceived ability to contribute to board discussions; Board monitoring; Board advice interactions
Carpenter, Pollock & Leary SMJ 2003	OLS regression	97 young electrical and electronic equipment industry that completed IPO between 1990–1999	Agency; Behavioral	Board international experience enhances the positive association between top management ownership and post-IPO internationalization, reflecting that board international experience may alter the board's perceptions regarding the riskiness of activities and its ability to monitor those risk-taking activities which consequently affects firms' strategic behavior	International experience	Number of outside directors with international work experience or education	International diversification

Table 2.1 Empirical Research on Director-/Board-level Expertise and Experience (continued)

Authors	Method	Research Context	Perspective	Key Findings	Expertise	Measure	Outcome
De Villiers, Naiker & van Staden JOM 2011	Ordered logistic regression	2,151 firm-year observations of U.S. publicly traded firms from 2003–2004	Agency; Resource dependence	Directors with experience as active CEO and those with legal expertise are associated with stronger environmental performance because they may alert executives to new business opportunities that are in the domain of sustainable products, provide advice and direction with regard to environmental impacts of operational choices, and provide access to their human capital and their social networks where environmental expertise reside; Multiple directorships and board tenure are not associated with stronger environmental performance	Multiple directorships; Active CEO; Law experts; Firm-specific experience	Average number of boards on which directors serve; Proportion of board members who are active CEOs in other firms; Number of law experts; Board tenure	Environmental performance
Diestre, Rajagopalan & Dutta SMJ 2015	Event history analysis	8,876 firm-year observations of pharmaceutical companies from 2000–2006	Learning	Product market-specific experience of outside directors increases the likelihood of new product market entry because those directors have better access to market-specific information about consumers' preferences, expected trends, and the characteristics and behaviors of competitors in that market and, thus reduce uncertainty associated with new-market entry strategies; The effect is less pronounced for lower-status firms and those who recently had financial restatements	Board experience in firms entering new product markets	Scores for directors' overall experience with new-drug-introduction activities per product market	New product market entry
Feldman & Montgomery SMJ 2015	Regression	2,798 firm-year observations of Fortune 500 firms from 2004–2010	Agency; Resource dependence	Presence of directors who have large shareholdings, but lack business expertise reduces firm value, indicating that share ownership does not maximize shareholder value (as agency theory would predict) because it may be undermined by directors' lack of expertise	Lack of experience as CEO, Chair, board member or founder of a Fortune 500 firm	Number of directors who own >0.1% of outstanding shares but do not have experience as CEO, Chair, board member or founder of a Fortune 500 firm	Firm performance (Tobin's Q)

Table 2.1 Empirical Research on Director-/Board-level Expertise and Experience (continued)

Authors	Method	Research Context	Perspective	Key Findings	Expertise	Measure	Outcome
Golden & Zajac SMJ 2001	OLS regression	2,624 firm-year observations of U.S. hospitals from 1985–1990	Diversity / group decision making	Moderate heterogeneity in occupational experiences promotes more awareness and boardroom discussions about strategic change, yet high variety of occupations impedes the development of a shared understanding of industry change which decreases the inclination towards strategic change; Boards with more members from business-oriented professions are more likely to initiate strategic change	Occupational experience; Industry experience; Managerial experience	Squared sum of the proportion of board members serving in one of 14 occupations; Proportion of board members whose primary occupation were of a business or legal nature	Strategic change
Greve & Zhang AMJ 2017	Continuous-time event history analysis	24,151 acquisitions by Chinese listed firms between 2000–2012	Institutional; Coalitions	Outside directors' experience with specific institutional logics (old state socialism vs. new market capitalism) influences coalition building at the board which determines the initiation of market-oriented M&A strategies; Specifically, the more outside directors have state experience, the less likely it is for the firm to engage in market-oriented M&As	Experience with specific institutional logic (old state socialism vs. new market capitalism)	Proportion of board members with experience in state positions; Proportion of board members owning stock in the focal firm	Number of M&A activities; Acquisition performance
Haynes & Hillman SMJ 2010	OLS regression	236 observations of S&P 500 firms	Board capital	Heterogeneity in outside directors' expertise reflects greater breadth of knowledge, experiences, and social ties which provides the opportunity for firms to deviate both from previous strategies and from industry strategic norms (negatively moderated by CEO power); Industry expertise limits the degree of variation from previous resource allocation decisions and deviation from industry central tendencies	Functional expertise; Occupational expertise; Inter-industry expertise; Intra-industry expertise	Heterogeneity in functional, occupational, relational experiences; Proportion of industry ties	Strategic change

Table 2.1 Empirical Research on Director-/Board-level Expertise and Experience (continued)

Authors	**Method**	**Research Context**	**Perspective**	**Key Findings**	**Expertise**	**Measure**	**Outcome**
Hillman JOM 2005	OLS regression	300 U.S. firms from heavily regulated and less regulated industries in 2000	Resource dependence	Experience as politician is associated with improved market-based performance because it creates linkages to the political environment which helps the firm to reduce uncertainty and gain access to information, legitimacy, and/or resources; The effect is more pronounced within heavily regulated industries and it is not significant for accounting-based performance indicators	Political experience	Number of directors with political experience	Firm performance (Market capitalization; Tobin's Q; Return on sales; return on assets)
Hillman, Cannella & Paetzold JMS 2000	Loglinear analysis	240 firm-year observations of the U.S. airline industry from 1968–1988	Resource dependence	Firm-specific expertise and supporting expertise (e.g., expertise in law, banking, insurance, public relations) are more sought after at boards during regulation, and business expertise and expertise as *community influential* (e.g., expertise as politician, university faculty, member of clergy, leader of social or community organization) during deregulation, indicating that boards adapt to shifts in resource needs to maintain their function as link to the external environment	*Insider* (firm-specific expertise); *Business expert* (business expertise); *Support specialist; Community influential*	Dummies for: New director is insider; New director is business expert; New director is support specialist; New director is community influential	Change in board composition
Johnson, Schnatterly, Bolton & Tuggle JMS 2011	Three-stage least squares regression; Negative binominal regression; Logit regression	336 outside director appointments in the U.S. semiconductor industry from 1993–2007	Resource dependence; Status	Outside directors with high status/expertise attract new directors with higher social capital, indicating that individuals from high-status groups tend to seek proximity to people with similar social characteristics which leads social advantages to perpetuate over time	Experience as leading figure in one of five arenas (education, military, business, political, or community)	Number of current board members who have achieved high status in any of the five status arenas (education, military, business, political, or community) the existing directors sit	Board ties and status of newly appointed directors

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Kesner AMJ 1988	Chi-square analysis; hierarchical log-linear modelling	250 observations of Fortune 500 firms in 1983	Resource dependence	Business experience and long tenure are associated with membership in key board committees because respective directors are better equipped to deal with complicated committee proceedings	Business expertise; Firm-specific expertise	Dummy for business vs non-business expert; Tenure	Director appointment to board committee
Khanna, Jones & Boivie JOM 2014	GLS regression	1,754 firm-year observations of U.S. industrial and service firms from 2001–2003	Human capital theory; Information processing theory	Experience as executive makes board members more valuable to the extent that they have more relevant skills, and are able to generate abstract principles from specific situations, thereby improving firm performance; The effect is negatively moderated when board members hold multiple board memberships	Experience as member of the top management team	Number of years each director has spent in roles as top executive	Firm performance (Return on equity)
Kor & Misangyi SMJ 2008	Fixed-effects regression	394 observations of post-IPO U.S. entrepreneurial technology firms from 1990–1999	Resource dependence	Top management team industry experience supplements outside directors' industry experience at younger firms	Board industry expertise	Average number of managerial, intra-industry positions held by outside directors	Outside director industry experience
Kor & Sundaramurthy JOM 2009	Fixed-effects regression	326 observations of post-IPO U.S. entrepreneurial technology firms from 1990–1999	Board capital	Firm- and industry experience strengthen human and social capital which improves outside directors' ability to question, assess, inform, and influence managerial action	Board industry expertise; Experience as founder	Average number of managerial, intra-industry positions held; Number of founder-directors	Sales growth
Krause, Semadeni & Cannella SMJ 2013	GLS regression	1,903 firm-year observations of U.S. heavy manufacturing firms from 1998–2006	Board capital	Expertise as external COO or president impacts performance positively when the firm's efficiency is declining, indicating that functional expertise in non-operational fields will divert attention from the immediate needs of the firm; The effect becomes negative when the firm's efficiency is improving, indicating that when operations are not a concern, the assorted skills of other types of external executives can gain salience for the firm	Operational experience	Number of independent directors who serve as COO or president at their primary company	Firm performance (Return on assets)

Table 2.1 Empirical Research on Director-/Board-level Expertise and Experience (continued)

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Krause, Semadeni & Withers SMJ 2016	GEE regression; Content analysis	1,394 firm-year observations of S&P 500 firms from 2010–2012	Resource-based view	Chair human capital is associated with the board viewing the chair as a resource; Chair social capital is associated with an increased probability that an independent board chair is viewed as a resource, but it decreases the probability that a non-independent board chair is viewed as a resource	Firm-specific experience; Board-specific-experience; Experience as outside director; Industry expertise	Factor scores for human capital (firm tenure, tenure, industry expertise); Factors scores for social capital (board member-ships, industry expertise)	Boards viewing their chair as a resource
Kroll, Walters & Le AMJ 2007	OLS hierarchical regression	524 IPOs of U.S. entrepreneurial firms between 1996–1997	Agency; resource dependence	Contrary to agency theoretic expectations, a majority of original executives at the board of an IPO firm improves performance, indicating they may be better in maintaining control and entrepreneurial momentum and that the value of tacit knowledge is more crucial than agency concerns in younger firms	Top management experience within the focal firm	Proportion of outside directors with top management experience in the focal company	Post-IPO performance
Kroll, Walters & Wright SMJ 2008	OLS hierarchical regression	500 acquisitions of public targets made by public acquirers between 1997–2001	Agency; Learning	Boards with directors who have acquisition or target industry experience can capitalize on their accumulated knowledge and are more engaged in tasks related to controlling and guiding managerial decision making which manifests in significantly higher returns from acquisitions	Acquisition expertise; Target industry expertise	Number of outside directors with target industry experience, board experience at other acquirers; Dummy for CEO experience at an acquiring firm	Stock market reactions to acquisitions
Lester, Hillman, Zardkoohi & Cannella AMJ 2008	Maximum-likelihood survival time regression analysis	U.S. government officials who left office and were appointed to corporate boards between 1988–2003	Resource dependence	Political expertise predicts appointment to boards because firms expect it to alleviate threats and uncertainty (e.g., mitigate competition from abroad, avoid costly regulatory compliance, circumvent taxes); Time negatively moderates this relationship, indicating that both human and social capital resources can deteriorate over time	Political experience	Depth (political service tenure); Breadth (position in cabinet, Senate, or House)	Director appointment to board

Table 2.1 Empirical Research on Director-/Board-level Expertise and Experience (continued)

Authors	Method	Research Context	Perspective	Key Findings	Expertise	Measure	Outcome
Marcel & Cowen SMJ 2014	Logistic regression	412 director exits following 63 fraud events at NYSE and NASDAQ-listed companies between 2001–2004	Resource dependence	Outside directors' cumulative expertise is negatively associated with post-fraud director turnover, indicating that boards initiate director departures to repair organizational legitimacy by signaling a willingness to remedy governance weaknesses	Relational capital*;* *Business expert* (CEO experience); *Professional specialist* (Expertise as accountant, CFO; banker, lawyer, public relations or industry-specific professional)	Normalized eigenvector centrality within the director network; Dummies for: business expert and/or professional specialist	Director exit
McDonald, Westphal & Graebner SMJ 2008	Cochrane-Orcutt regression	1,916 acquisitions made by 489 large and mid-sized U.S. industrial and service firms from 1989–1998	Psychological theory; Group decision making	Director acquisition experience in the same industry or product market or with same type of relatedness as a focal acquisition leads to increased excess stock returns; The effect is positively moderated when board members with acquisition experience are independent	Board experience in firms engaging in acquisitions	Director experience with the same type of acquisition as the focal acquisition	Stock market reactions to acquisitions
Oehmichen, Schrapp & Wolff SMJ 2016	GMM regression	2,944 firm-year observations across industries from 16 European countries and the U.S. from 2005–2010	Board capital	Industry expertise enables directors to better identify and prioritize potential threats and opportunities, and initiate strategic change; Home country institutional quality negatively moderates the effect	Board industry expertise	Proportion of outside directors with board experience in the focal industry	Strategic change
Sauerwald, Lin & Peng SMJ 2106	GEE regression	8,197 firm-year observations of S&P 1,500 firms (cross-industry) from 1999–2010	Agency; Social networks	Experience serving on the same board improves monitoring because it allows directors to identify and sanction free riders at the board and provide social support to fellow independent directors; The effect is less pronounced when boards are faced with powerful CEOs and more pronounced when institutional ownership is higher	Shared networking experience among independent directors	Tenure overlap of independent directors	Excess CEO returns

Table 2.1 Empirical Research on Director-/Board-level Expertise and Experience (continued)

Authors	Method	Research Context	Perspective	Key Findings	Expertise	Measure	Outcome
Sun, Hu & Hillman AMJ 2016	Fixed-effects regression	2,854 firm-year observations of Chinese manufacturing firms from 2008–2011	Resource dependence; Agency	Political expertise is associated with blockholder rent appropriation and poor firm performance because board-political linkages shield blockholders against disciplinary forces of legal, regulatory market mechanisms; The effect is more salient in firms whose controlling blockholders are private, in firms operating in heavily regulated industries, and in those located in institutionally less-developed provinces	Political experience	Proportion of board members with political experience	Blockholder appropriation of corporate wealth; Firm performance (return on assets, profitability)
Sundaramurthy, Pukthuanthong & Kor SMJ 2014	OLS regression	Cross-sectional data from 360 biotechnology firms that completed an IPO between 1995–2010	Board capital	Board members' and CEOs' experience in serving on public company boards reduces IPO underpricing because it is a synergistic asset that improves communication between the board and CEO as well as the ability to act upon the needed changes and requirements to succeed in the post-IPO environment; Industry expertise held by board members and CEO is a synergistic signal for poorly performing firms to indicate IPO readiness, yet more board industry expertise at successful and older firms may promote complacency, inertia, and strategic persistence, hence increasing IPO underpricing	Board experience in serving on public companies; Industry expertise	Average number of public company boards directors served on; Average years of industry experience	IPO underpricing
Tian, Haleblian & Rajagopalan, SMJ 2011	OLS regression	208 CEO appointments in U.S. manufacturing firms from 1999–2003	Board capital	Experience implies access to better-quality information and more effective information-processing capabilities which leads to stock markets reacting favorably to new CEO appointments	Experience as CEO; Board industry expertise; Board co-working experience	Proportion of independent directors with CEO experience; Dummy for one or more director with industry experience; Tenure overlap	Stock market reaction to new CEO appointments

Table 2.1 Empirical Research on Director-/Board-level Expertise and Experience (continued)

Authors	Method	Research Context	Perspective	Key Findings	Expertise	Measure	Outcome
Tuggle, Schnatterly & Johnson AMJ 2010	Fixed-effects regression	1,067 firm-year observations of listed U.S. firms from 18 industries between 1994–2000	Upper echelons; Faultlines	Heterogeneity in tenure and firm/industry background leads to diversity in experiences and opinions which stimulate changes in strategy; Functional output experience predicts board discussion of entrepreneurial issues but heterogeneity in functional background does not, implying that some experience backgrounds facilitate board discussions, while others hinder it; Slight faultlines between expertise subgroups increase dialectical inquiry, whereas strong faultlines introduce conflict and disagreement over how to proceed	Board co-working experience; Functional expertise; Industry expertise	Tenure variance; Functional background heterogeneity; Firm/industry heterogeneity	Boards' attention to entrepreneurial issues
Veltrop, Molleman, Hooghiemstra & van Ees JOMS 2017	GLS regression	Survey among 154 directors of Dutch housing corporations; Interviews with 57 directors of 10 cross-industry firms	Board capital	Financial expertise increases directors' status and conformity within boards whereas industry expertise does not, indicating that expertise does not always breed influence; The relationship between financial expertise and status is positively moderated by directors' motivation to demonstrate competence	Financial expertise; Board industry expertise	Self-reported expertise on a seven-point Likert scale	Status and conformity at the board
Westphal AMJ 1999	OLS regression; Two-stage least squares regression	243 CEO and 564 outside director responses from U.S. industrial and service firms in 1995	Agency; Resource dependence	Director expertise is associated with more advice and counsel interactions (and subsequent firm performance) when board members and CEOs maintain strong relationships	Director expertise	Number of board positions held, functional areas worked in; Years spent as executive	Advice and counsel interactions between the CEO and board
Westphal & Bednar ASQ 2005	Heckman selection model; Instrument variable regression	456 observations of mid-sized U.S. industrial and service firms	Social categorization	Heterogeneity in outside directors' functional expertise reduces their willingness to express concerns following the assumption that other directors will not share them which eventually leads to strategic persistence under conditions of poor firm performance; The effects do not hold for industry expertise, because it may be less salient to outside directors	Functional expertise; Industry expertise	Heterogeneity in functional expertise; Heterogeneity in industry expertise	Strategic persistence

Table 2.1 Empirical Research on Director-/Board-level Expertise and Experience (continued)

Authors	Method	Research Context	Perspective	Key Findings	Expertise	Measure	Outcome
Westphal & Fredrickson SMJ 2001	Discrete-time event history analysis; Heckman selection model	5,278 firm-year observations of large and mid-sized U.S. industrial and service firms from 1984–1996	Cognitive / behavioral perspective	Boards members use CEO successions to initiate change that aligns corporate strategy with their preferences (i.e. they select new CEOs who have prior experience with board members' preferred strategy); Strategic change may not be driven by executives (as upper echelons theory suggests) but may reflect board members personal experiences	Strategic orientation of manager-directors' home firms	Difference between product market / geographic diversification at the focal firm and diversification of director home companies	Strategic change
Westphal & Milton ASQ 2000	Survey; OLS regression	526 outside director responses from U.S. industrial and service firms in 1995	Self-categorization	Minority role experience of outside directors may increase their influence over board decisions because they are able to create the perception of similarity to the demographic majority	Board experience serving as demographic minority	Aggregate number of years a director had demographic minority status serving at a board	Director influence over board decision making
Westphal & Zajac ASQ 1997	Event history analysis	3,170 firm-year observations of large U.S. industrial and service firms from 1982–1992	Social exchange	Outside directors who are CEO perceive a generalized obligation to support other CEOs and hence resist change; CEO-directors who have experienced board reforms at their home company are more positive towards board reforms, indicating that they seek to restore balance to social exchange relationships with fellow corporate leaders that have been disturbed by the CEO's prior loss of control over their own boards	CEO-directors experience with control-enhancing changes in board structure, compensation contingency or diversification	Proportion of outside directors who currently serve as CEO and have experienced changes in board structure, compensation contingency or diversification	Board structure (CEO duality, independence, CEO-board demographic similarity); CEO compensation contingency; Diversification
Westphal, Seidel & Stewart ASQ 2001	GLS regression	2,165 firm-year observations from the Fortune 500 from 1990–1994	Institutional	Board-level experience at firms that engage in mimetic isomorphism increases the propensity that the focal firm imitates industry competitors, indicating that direct observation of mimetic practices leads board members to accept them as normatively appropriate and support or initiate process imitation	Experience with mimetic decision making	Strategic similarity adopted by interlocks firms in terms of business strategy, acquisition activity and CEO compensation	Imitation of competitors' strategy

Table 2.1 Empirical Research on Director-/Board-level Expertise and Experience (continued)

Authors	Method	Research Context	Perspective	Key Findings	Expertise	Measure	Outcome
Zhang & Greve AMJ forthcoming	Ordered logistic regression	28,847 M&A and loan applications by Chinese listed firms between 2000–2012	Behavioral; Upper echelon; Dominant coalition;	Board members' past experiences with market competition and state control inform preferred acquisition choices and subsequent coalition formation, indicating that boards have multiple experience-based preferences along which they align when engaging in problemistic search or opportunity exploration	Market vs. state experience	Proportion of board members with market experience (stock ownership, work or education experience in Anglo-Saxon nation) versus state experience (state-agency or state-owned bank)	Acquisition type (internal, state-bridged, market-oriented); Acquisition nature (level of equity stake); State-bank loan
Zhu & Chen ASQ 2015	Heckman selection model	988 firm-year observations from the Fortune 500 from 1997–2006	Personality	Outside director experience predicts a focal firm's acquisition emphasis (marginally significant) and international diversification, yet the presence of CEO narcissism reverses the effects, indicating that narcissist CEOs tend to be unreceptive to the influence of other directors' prior experience and instead do the opposite to demonstrate his or her superiority; The effect is more pronounced when the CEO is powerful and has interlock ties to high status firms	Acquisition experience; International diversification experience	Average value of prior acquisitions or international diversification decisions experienced by outside directors	Acquisition emphasis; International diversification
Zhu & Westphal AMJ 2014	Feasible general least square regression	1,114 new director appointments and 613 subsequent CEO compensation decisions in 275 large U.S. industrial and service firms from 1995–2006	Social comparison	Directors are more likely to get appointed by a CEO to a board when they have experience with demographically similar CEOs because the appointing CEO relies on the judgment of similar CEOs in assessing whether the new director will be socially acceptable and support his/her leadership; Those directors support higher CEO compensation than demographically dissimilar directors without prior experience with demographically similar CEOs	Board experience with demographically similar CEOs	Factor scores reflecting similarity between focal CEO and other CEOs that new directors had prior experience with	Director appointment to board; CEO compensation