

5 HOW BOARD INDUSTRY EXPERTISE ORIGIN AFFECTS STRATEGIC RESOURCE ALLOCATION

Abstract

Research has produced inconclusive results about the effect of board industry expertise on the reallocation of strategic resources. We develop the notions of domestic and international industry expertise and theorize that they convey unique human and social capital that shape outside directors' understanding of how strategic actions are linked to organizational outcomes. We test our predictions on a refined interpretation of the strategic change measure that captures distinct patterns in how boards orchestrate the redeployment of strategic resources both for organizational growth and decline scenarios. Based on a panel of large European firms, we find strong support that boards with more domestic industry expertise are associated with strategic resource reallocations that emphasize the primary need of change (*"top-line focus"*) while boards with more international expertise simultaneously reconfigure other resources to avoid losing strengths along with weaknesses (*"bottom-line focus"*). We also find that these distinct strategic preferences deteriorate as the co-working experience among outside directors and the CEO increases. Thus, our study offers a refined view of how board expertise shapes corporate strategy and reconciles previously inconsistent findings of prior studies.

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5.1 INTRODUCTION

An increasing portion of research in strategic management and strategic leadership focuses on how corporate boards shape firm strategy (Golden & Zajac, 2001; Greve & Zhang, 2017; Haynes & Hillman, 2010; Kor & Sundaramurthy, 2009; Oehmichen, Schrapp, & Wolff, 2017; Westphal & Bednar, 2005; Westphal, Seidel, & Stewart, 2001; Westphal & Zajac, 1997; Zhang & Greve, 2018; Zhu & Chen, 2015). Drawing on resource dependence theory (Pfeffer & Salancik, 1978), scholars have argued that outside directors' prior experiences reflect knowledge, skills and relationships that may enhance the quality with which boards exercise their primary two functions of monitoring and resource provision (Hillman & Dalziel, 2003) which, in turn, shapes strategic firm outcomes (Diestre, Rajagopalan, & Dutta, 2015; Feldman & Montgomery, 2015; Hillman, 2005; Kroll, Walters, & Wright, 2008; McDonald, Westphal, & Graebner, 2008; Tuschke, Sanders, & Hernandez, 2014). In particular, outside directors' industry expertise, defined as role-specific experience within the industry of a focal firm, has been recognized as a critical resource that influences strategy formulation (Kor & Sundaramurthy, 2009; Oehmichen et al., 2017). However, while some scholars have found that board industry expertise significantly predicts change in how firms reallocate strategic resources (Oehmichen et al., 2017), there is evidence that industry expertise may be associated with less openness to altering opinions and integrating new perspectives when faced with new developments (Almandoz & Tilcsik, 2016; Furr, Cavarretta, & Garg, 2012; Kor, 2003) which has led some scholars to conclude that boards with higher collective industry expertise "are less likely to encourage strategies that differ from those of industry competitors and from historical norms" (Haynes & Hillman, 2010: 1159). Despite the pivotal role of the board as a strategic leadership group (Baysinger & Hoskisson, 1990; Forbes & Milliken, 1999), the effect of industry expertise on how boards allocate strategic resources has thus remained unclear.

We suggest that our understanding of board industry expertise and strategic resource allocation require a more careful conceptualization to reconcile prior findings and fully unpack the effects of industry expertise on firm strategy. In particular, we emphasize the role of the context in the accumulation of industry expertise. Outside directors may gather industry expertise through a variety of forms, such as interlocking directorships, managerial positions, or occupational experience within a focal industry (Haynes & Hillman, 2010). In our study, we distinguish whether outside directors have acquired industry experience within a single country or across multiple country contexts. In doing so, we draw on insights from the comparative corporate governance literature which posits that “corporate governance interrelates with variations in internal and external strategic resources that shape a firm’s interdependence with market, sectoral, regulatory, or institutional environments (Aguilera, Filatotchev, Gospel, & Jackson, 2008: 476). Strategic responses are thus not universalistic but interdependent with the diversity, fluctuations and idiosyncrasies of the broader environment facing the firm (Child, 1997; Scott, 2003). We develop a model that moves beyond the monolithic, context-free conceptualization of industry expertise by accounting for the pervasive influence of the country as a decision context (Doidge, Karolyi, & Stulz, 2007). We build on the idea that the decision context shapes outside directors’ understanding of problems, solutions, and how organizational practices are linked to organizational outcomes (Hitt & Tyler, 1991; Sutcliffe & Huber, 1998; Tuggle, Schnatterly, & Johnson, 2010) which, in turn, will affect how boards govern and what advice they will provide to top management. We thus respond to calls in the literature for a better understanding of potentially complementary patterns in industry expertise (Carpenter & Westphal, 2001), and, more explicitly, we answer an important question put forward by Johnson, Schnatterly, and Hill (2013: 253) as a next research frontier: “Does industry-specific expertise vary based on country”?

To reveal the strategic preferences of outside directors with different industry expertise origins, we draw on a refined version of the strategic change construct (Finkelstein & Hambrick, 1990; Oehmichen et al., 2017; Quigley & Hambrick, 2012; Westphal et al., 2001; Zhang & Rajagopalan, 2010). We build on the same set of strategic dimensions that prior research has identified as being indicative of the firm's "fundamental pattern of present and planned resource deployments" (Hofer & Schendel, 1978: 25). However, instead of only considering absolute changes in these dimensions, we account for directionality of change in a firm's strategic resource allocation to obtain a more nuanced reflection of its strategic profile (Geletkanycz & Hambrick, 1997). Specifically, the disaggregation of strategic change allows us to show that resource reallocations both aimed at organizational growth or decline can either be driven by a *bottom-line focus* (e.g., sales increase at a higher rate than expenses; sales decrease at a lower rate than expenses) or by a *top-line focus* (e.g., sales increase at a lower rate than expenses; sales decrease at a higher rate than expenses). We theorize that outside directors who have acquired extensive levels of industry experience across several country contexts have made more diverse experiences with potential benefits and risks of strategic responses to industry-specific opportunities and threats and have consequently developed a more comprehensive view on strategic resource allocation decisions. Based on a sample of European firms and fixed-effects panel models, we find that, consistent with our theoretical prediction, international industry expertise is associated with the more comprehensive bottom-line focus while domestic industry expertise is associated with the resource allocation profile of a top-line focus.

Drawing on the pervasive question whether strategy is shaped by boards or by the CEO (e.g., Westphal & Fredrickson, 2001; Zhu & Chen, 2015), we also investigate how outside directors' distinct strategic preferences interact with the influence of the CEO on strategic resource allocation profiles. Using the notion of CEO-board tenure overlap (Carroll &

Harrison, 1998), we show that the effects of outside directors on strategic resource allocations deteriorate as co-working experience increases. Our findings lend support to the time-variant notion of board expertise (Brown, Anderson, Salas, & Ward, 2017), and provide further explanation for previously inconclusive results on the strength and direction of the relationship between board industry expertise and strategic resource allocation (Haynes & Hillman, 2010; Oehmichen et al., 2017).

We contribute to the strategic management and corporate governance literatures in multiple ways. First, we introduce different types of industry expertise that advance our understanding of how industry experts on boards shape strategic decision processes. We provide support to the notion that single- and multiple-country industry expertise have distinct effects on the firm's strategic resource allocation profile. In doing so, we "clarify the conditions and functional form" of the effect of board industry expertise on firm outcomes (Johnson et al., 2013: 241) and contribute to the board capital literature (Haynes & Hillman, 2010; Hillman & Dalziel, 2003) by deconstructing the 'board capital depth' dimension. As suggested by Hillman and Dalziel (2003), we advance the theoretical development of board capital by thoroughly delineating the effects of one specific type of board expertise (i.e., board industry expertise). Second, by capturing the interactive effects between the board and CEO we further unmask the conditions under which different corporate elites matter most. Third, we offer an alternative operationalization and interpretation of the strategic change construct which, while being closely related to prior approaches, offers new potential to assess the implications of different directions of strategic change. Fourth, with our refined conceptualizations of board industry expertise and strategic change, we theoretically integrate the weak (Haynes & Hillman, 2010) and contradicting (Haynes & Hillman, 2010; Oehmichen et al., 2017) results of previous inquiries into the board industry expertise-strategic resource allocation relationship.

5.2 BACKGROUND

Board Expertise and Strategic Firm Outcomes

A growing number of studies have demonstrated that boards predict strategic firm outcomes such as mergers and acquisitions (Gulati & Westphal, 1999; Kroll et al., 2008; McDonald et al., 2008), new market entry (Diestre et al., 2015), sales growth (Kor & Sundaramurthy, 2009), executive succession and CEO selection (Tian, Halebian, & Rajagopalan, 2011; Westphal & Fredrickson, 2001), and strategic change (Carpenter & Westphal, 2001; Golden & Zajac, 2001; Goodstein, Gautam, & Boeker, 1994; Haynes & Hillman, 2010; Oehmichen et al., 2017). A key assumption of recent work is that outside directors' knowledge, skills and experiences are reflective of unique resources and expertise that increase directors' ability to perform critical board functions. As a result, the contribution of outside directors to the board and firm will vary based on their individual biography.

We add to this line of research by developing theory on how the origin of industry expertise held by outside directors may shape how boards perform their two key functions, resource provision and monitoring. To capture the effect of industry expertise on how boards counsel and control top management on strategic decisions, we draw on the integrated view proposed by Hillman and Dalziel (2003). This integrated view builds on resource dependence theory (Pfeffer & Salancik, 1978) and focuses on specific board characteristics as resources or "board capital" to explain the functioning of the board. Scholars have typically referred to the combination of director human and social capital as an effective proxy for directors' capacity to provide benefits to the firm (Haynes & Hillman, 2010; Hillman & Dalziel, 2003).

Human capital is defined as resources in the form "innate and learned abilities, expertise, and knowledge" (Castanias & Helfat, 2001: 662), and social capital is defined as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (Nahapiet &

Ghoshal, 1998: 243). The role of human and social capital of boards (Kor & Sundaramurthy, 2009; Oehmichen et al., 2017; Sauerwald, Zhiang, & Peng, 2016; Tian et al., 2011) and, more recently, individual directors (Krause, Semadeni, & Withers, 2016) have received considerable attention. Most prior studies accounted for the interdependent nature of human and social capital (Nahapiet & Ghoshal, 1998) by integrating the theorizing on their effects.

Industry Expertise and Strategic Resource Allocation

Prior literature has emphasized that industry expertise reflects human and social capital-enhancing experiences that increase directors' ability to anticipate, evaluate and respond to industry-specific opportunities, threats and uncertainty, thereby increasing capacity for action to initiate strategic resource reallocations (Haynes & Hillman, 2010; Kor & Misangyi, 2008; Oehmichen et al., 2017). Industry expertise, acquired through interlocking directorships, managerial positions, or occupational experience, therefore informs what is operationally and professionally appropriate and may lead industry experts to develop a specific concept about the optimal allocation of strategic resources (Spender, 1989). However, there is also evidence that industry expertise may promote complacent behavior (Almandoz & Tilcsik, 2016) and that boards may benefit more from heterogeneity in industry expertise (Beckman, Schoonhoven, Kim, & Rottner, 2014; Tuggle et al., 2010; Westphal & Bednar, 2005).

A shared assumption among most researchers who have either emphasized beneficial effects of industry depth (i.e., intra-industry expertise) or the importance of industry breadth (i.e., heterogeneity in industry backgrounds) has been that the mere affiliation with a focal industry is expected to convey a universal understanding about how the industry functions as a whole (Hambrick, Geletkanycz, & Fredrickson, 1993; Spender, 1989). However, there is evidence that directors perceive the same industry differently due to variation in the salience and interpretation of attributes shaping its environment. For example, Sutcliffe and Huber

(1998) have examined executives' homogeneity of perceptions along five determinants of the organizational environment (i.e., instability, munificence, complexity, hostility, and controllability). While they found strong congruence in perceptions based on affiliation with a particular firm, there seems to be less consensus in how directors perceive a particular industry. The two sources of inconsistency in how directors frame the industry environment refer to assessments of industry hostility and controllability. Notably, these are the two dimensions that prior research has identified as critical in predicting the propensity (Dutton & Jackson, 1987; Jackson & Dutton, 1988; Johnson, 1992), magnitude (Jackson & Dutton, 1988), and the specific type of change in strategic resource allocations (Thomas, Clark, & Gioia, 1993). These findings suggest that, even within an industry, firms respond differently to industry-specific opportunities and threats based on their sense-making of the industry environment. Consequently, industry experts may experience different strategic responses to the same developments within a focal industry. Prior research has highlighted the importance of these experiential differences for strategic resource allocation decisions because "directors' strategic preferences are influenced by their beliefs and prior experiences" (Westphal & Fredrickson, 2001: 1131) and "specific types of experience are influential in shaping the orientation of a board toward strategic change" (Golden & Zajac, 2001: 1105).

5.3 THEORY AND HYPOTHESES

In theorizing the effects of industry expertise origin on strategic resource reallocation, we build on three key conclusions outlined in the background section: (1) previous industry experience predicts outside directors' ability to detect the need for and initiate strategic resource reallocations (Kor & Misangyi, 2008; Oehmichen et al., 2017), but (2) the specific experiences that individual outside directors make within a focal industry may differ (Sutcliffe & Huber, 1998; Trahms, Ndofor, & Sirmon, 2013), and (3) these experiential differences may lead to

variation in the preferred resource allocation profile (Golden & Zajac, 2001; Marcel, Barr, & Duhaime, 2011; Westphal & Fredrickson, 2001). Consequently, we center our theorizing on the assumption that industry expertise may generally strengthen the ability to identify the *need* for strategic resource reallocations, but different industry expertise origins may promote distinct strategic preferences about the appropriate *means*.

Specifically, we distinguish whether outside directors have acquired industry expertise exclusively within the domestic context of a focal firm or if they possess international industry expertise. In general, both forms of industry expertise increase outside directors' familiarity with industry-specific practices, regulatory provisions, technologies, customer preferences, and competitors (Kor & Misangyi, 2008). However, these aspects are likely to differ across countries (Doidge et al., 2007). Specifically, corporate governance and strategic decision making are interrelated with country-specific market, economic, sociopolitical and institutional factors (Aguilera et al., 2008) which form unique country-specific resource environments that promote (or constrain) specific strategic choices based on differences in how firms coordinate, learn, and reconfigure capabilities within their national context (Jackson & Deeg, 2008). In other words, the country context may engender cues about expectations, desired behaviors, and how to construe strategic actions (Sutcliffe & Huber, 1998) based on which outside directors develop different perceptions and interpretations of the environment that, in turn, accentuate the salience of specific strategic actions (Sharma, 2000; Tripsas & Gavetti, 2000).

Since industry experience acquired within a single context is more likely to confer a similar sense-making of the industry environment, fewer strategic options may be salient to respective directors (Trahms et al., 2013). Thus, outside directors with domestic industry expertise may have accumulated narrower perspectives about how strategic responses are linked to organizational outcomes (Hitt & Tyler, 1991; Sutcliffe & Huber, 1998; Tuggle et al., 2010). While they may be able to detect industry trends and the need for strategic change, they

may have been exposed to fewer strategic choices that they can draw on in formulating strategic responses. Therefore, outside directors who have only acquired domestic industry expertise are likely to possess less diverse first-hand experiences and social networks that facilitate the identification, assessment and implementation of different strategic actions. We argue that this dearth of experience influences the perception about how strategic resources may best be orchestrated. Specifically, we hypothesize that outside directors with domestic industry expertise will rather adopt a *top-line focus* in supervising strategic resource reallocations: They are expected to devise decisions focused on the primary need of a focal strategic initiative with less attention being paid to secondary concerns. For example, they may encourage the pursuit of organizational growth initiatives with less focus on cost-related implications (i.e., upper right quadrant in Figure 5.1), or initiatives aimed at organizational decline with less focus on maintaining operational strength (i.e., upper left quadrant in Figure 5.1).

Outside directors who have accumulated experiences across diverse contexts may more fully grasp the complex and ambiguous array of interdependencies associated with specific strategic responses. In a challenging economic environment that in many industries is characterized by global competitiveness, pressures for specialization, low-margins and shorter product-life cycles, international industry expertise may increase exposure to a broader set of strategic responses and their implications. We submit that international industry expertise exposes outside directors to more first-hand experiences about the applicability and effectiveness of unique strategic responses. Additionally, outside directors with international industry expertise may command greater external social capital which provides motivation and opportunity to exchange tacit knowledge about appropriate strategic responses to industry-specific opportunities and threats with knowledgeable individuals outside the domestic industry context (Brown et al., 2017; Tian et al., 2011). In monitoring and counseling top management on resource allocation decisions that deviate from prior strategy, this will be

reflected in more critical and comprehensive assessments of individual strategic actions, which we hypothesize will result in a *bottom-line focus*: Outside directors with international industry expertise are likely to draw from a larger repository of knowledge and relationships to guide management towards the comprehensive implications that specific resource reallocations, both aimed at organizational growth and organizational decline, may have. For example, they may encourage organizational growth initiatives that equally account for cost-related concerns (i.e., lower right quadrant in Figure 5.1), or advise on initiatives aimed at organizational decline while seeking to maintain operational strength (i.e., lower left quadrant in Figure 5.1). That may be achieved by discouraging strategic responses that have been proven ineffective in other contexts, encouraging alternative responses that have been proven effective in other contexts; or advising on the implementation of a focal strategic response to realize potential efficiency gains.

In sum, we expect that industry expertise will generally enhance human and social capital and, in turn, the ability to identify *when* strategic resources should be reallocated, but we hypothesize that the origin of industry expertise may be associated with distinct inclinations about *how* the redeployment should be implemented in order to achieve the strategic goal. While the overall effectiveness of different strategic preferences held by outside directors will eventually depend on the fit with the strategic needs and context of the focal firm, we expect that boards with more domestic industry expertise are associated with strategic resource reallocations that emphasize the primary need of change while boards with more international expertise simultaneously reconfigure other resources to avoid losing strengths along with weaknesses.

Hypothesis 1a: Board domestic industry expertise is associated with top-line focused strategic resource reallocations.

Hypothesis 1b: Board international industry expertise is associated with bottom-line focused strategic resource reallocations.

Industry expertise and CEO-board tenure overlap

Besides their dissimilar experiences, a typical feature of board members is that they initially possess little firm-specific knowledge and co-working experience, and gradually develop shared experiences that add to their individual backgrounds (De Villiers, Naiker, & van Staden, 2011; Kesner, 1988; Krause, Withers, & Semadeni, 2018). Hence, we introduce a contingency to explain how boards coordinate and act on the different experiences possessed by individual members over time. Building on the notion of CEO-tenure overlap, we expect that board cohesion and cooperation will increase over time which will mitigate the strength with which individual experiences manifest in firm-level outcomes (Carroll & Harrison, 1998).

Little co-working experience among outside directors and CEO implies that distinct expertise resides within different individuals. Research on information processing and transactive memory, defined as “group memory system that details the expertise possessed by group members along with an awareness of who knows what within the group”, shows that the distribution of special expertise within a group provides access to information for some members that others may not have (Reagans, Argote, & Brooks, 2005; Rulke & Rau, 2000: 373). Board members and CEOs may initially be more likely to act according to their individual understanding and interpretation of the strategic context facing the firm. At these earlier stages, it may thus be difficult to recognize, share, and coordinate cognitive frameworks and unique expertise that board members have acquired from past experiences (Littlepage, Robison, & Reddington, 1997). For example, Miller, Burke, and Glick (1998) found in their study of top management team cognitive diversity that, contrary to common assumptions, cognitive diversity among executives inhibits comprehensive examinations of current opportunities and

threats as well as extensive long-range planning. Diverse and fragmented information are likely to converge over time as directors have more opportunities to express concerns and share tacit knowledge that informs their understanding of the firm and its environment. As Tian et al. (2011: 736) point out, “directors who share long co-working experience are likely to develop a group-level mutual knowledge based on their first-hand understanding of one another’s expertise and through the face-to-face interactional dynamics among themselves”.

CEOs may play a particularly important role in this context because they may be a valuable conduit of firm-specific information that helps outside directors to put their individual understanding of the “industry recipe” for success (Hambrick et al., 1993; Spender, 1989) into perspective of the unique strategic needs of a focal firm. This may also attenuate social categorization tendencies (Webber & Donahue, 2001) which prior board research has found to impede the effectiveness boardroom discussions about strategy (Tuggle et al., 2010). Collectively, these arguments suggest that longer co-working experience may promote shared assessments among the board and CEO about critical issues facing the firm which may itself constitute a strategic resource of the board that mitigates the effect of individual director expertise (Tian et al., 2011). Accordingly, we formulate our second hypothesis as:

Hypothesis 2: The effects of board industry expertise origin on strategic resource allocation profiles disappear when outside directors and the CEO share common experiences.

5.4 DATA AND METHODS

Sample and Data

Our study examined an initial sample of the 400 largest listed firms headquartered in Germany, the Netherlands, Switzerland and the United Kingdom over six consecutive years from 2009

to 2014. The four countries captured diverse characteristics in their respective institutional and governance arrangements with implications for the specific roles and responsibilities of the board. For example, Switzerland has a comparably weak minority investor protection which compares to strong minority investor protection in the U.K. There is variance in the legal system (e.g., common law in the U.K.; civil law in Germany), mandated co-determination (mandatory in Germany but not in the other sample countries), and the type of prevalent board structures (e.g., two tier board structure in the Netherlands; one tier board structure in the U.K.). Testing our hypotheses against these diverse national contexts raises our confidence of the robustness of our effects. Additionally, our research context is particularly suitable because corporate boards in our four sample countries are more international than boards in other regions of the world (Spencer Stuart, 2017) which allows us to capture sufficient variance in our main independent variables. Moreover, the four countries also present an economically viable context. Over the study period they on average accounted for 22.4% of the world's largest companies outside the U.S. as measured by total revenues in the Fortune Global 500 ranking.

Our sample companies were listed on the primary or secondary stock market and have been identified based on their market capitalization at 2009 year-end. Firms had to meet the following three criteria to be included in the final sample: First, they were classified as large firms based on the European Commission's Union's definition throughout the study period (i.e., they had more than 250 persons employed and an annual revenue of over €50 million) (European Commission Recommendation 2003/361/EC). Second, they had continuous operations throughout the study period and did not become target of an M&A transaction. Third, they were not subsidiaries of another company. The application of the inclusion criteria resulted in a sample of 300 companies. In total, 85 companies were listed in Switzerland, 77 in the United Kingdom, 77 in Germany and 61 in the Netherlands. These firms were active in 58

industries based on their two-digit SIC industry classification. The final sample includes an unbalanced panel with 717 firm-year observations over the 6-year study period. We conducted Kolmogorov-Smirnov two-sample tests to determine whether our final sample differed from the initial sample with respect to our dependent variable (i.e., strategic resource allocation) or other key firm characteristics (i.e., size and performance). The results showed no statistically significant difference between the two samples in these characteristics, indicating that both samples reflect the same population. We obtained firm data from Thomson Reuters Eikon, Thomson Reuters Datastream and Orbis. Board data were retrieved from the BoardEx database. Missing data were hand-collected from federal sources, firms' investor relation offices and corporate annual or financial reports.

Dependent Variable

Strategy and strategic resource allocation can be measured in various ways (for an overview see Golden & Zajac, 2001). We followed prior research that used Mintzberg's (1978) conception of strategy as a pattern of actions and calculated *strategic resource allocation* using a composite measure that reflects the firm's strategic resource allocation profile (Finkelstein & Hambrick, 1990; Oehmichen et al., 2017; Quigley & Hambrick, 2012; Westphal et al., 2001; Zhang & Rajagopalan, 2010). In constructing the composite measure, we relied on four ratios, (1) plant and equipment newness (net P&E/gross P&E); (2) nonproductive overhead (selling, general, and administrative expenses/sales); (3) inventory levels (inventories/sales); and (4) financial leverage (total debt/equity). A change in these ratios over time indicates the reallocation of strategic resources. Specifically, we calculated the difference between two subsequent years. To account for industry trends, we subtracted the industry mean. *Strategic resource allocation* was then calculated as the average of the z-scores of the industry-adjusted

differences of the four ratios between two subsequent years.¹⁴ Since we did not use the absolute values of z-scores, our strategic resource allocation variable reflects whether a deviation is rather driven by a relative increase (or decrease) in the nominator or the denominator of the four ratios. Specifically, a negative sign of our dependent variable indicates a *bottom-line focus* (e.g., sales increase at a higher rate than expenses; sales decrease at a lower rate than expenses), and a positive sign indicates a *top-line focus* (e.g., sales increase at a lower rate than expenses; sales decrease at a higher rate than expenses). Figure 5.1 summarizes the different manifestations that our dependent variable can adopt. Consistent with prior research, we winsorized strategic resource allocation at the 1% level to alleviate the influence of extreme observations (Crossland, Zyung, Hiller, & Hambrick, 2014).

 Insert Figure 5.1 about here

Independent Variables

We constructed three board industry expertise variables reflecting different types of industry expertise held among outside directors. We followed the approach by Haynes and Hillman (2010) and first identified all directors who (1) held prior positions in for-profit firms within the focal 4-digit *Industry Classification Benchmark* (ICB) code, and (2) maintain current board directorates within the industry.¹⁵ We then measured *industry expertise* as the summed proportions of outside directors with experience in the focal industry either through industry occupation or industry interlocks. As a next step, we identified the country of domicile of each of the companies where directors have held current or past intra-industry positions. *Domestic industry expertise* was then measured as the summed proportion of outside directors with prior

¹⁴ Using sums yielded estimates that are consistent with the use of averages.

¹⁵ In two robustness checks we used the 2-digit and 3-digit ICB codes, respectively. Both tests produced estimates consistent with the 4-digit ICB code.

industry occupation or current industry interlocks within the home country of a focal firm. *International industry expertise* was measured as the summed proportion of outside directors with prior industry occupation or current interlocks outside the home country of a focal firm. All three industry expertise variables were thus distributed along an index of industry embeddedness between 0 and 2, with higher values indicating a higher degree of embeddedness for the respective type of industry expertise. Cronbach's alpha between domestic and international industry expertise was 0.148, indicating that both variables reflect distinct dimensions of industry expertise.

Moderating Variable

To test Hypothesis 2, we measured *CEO tenure overlap* as pairwise average overlap in team tenure between outside directors and the CEO, using the formula proposed by Carroll and Harrison (1998). Specifically, we used the formula:

$$Tenure\ overlap = \frac{1}{N} \sum_{i \neq j} \min(u_i, u_j),$$

where u_i is the team tenure of the i^{th} directors in years and N is the number of pairwise comparisons. The adoption of this measure is consistent with prior research that studied board co-working experience (Tian et al., 2011).

Controls

To account for factors that might provide alternative explanations for our dependent variable or confound the effects of board industry expertise, we included 17 control variables at the board, firm, industry, and institutional level.

At the board level, we measured *board size* as the natural logarithm of number of outside directors sitting on the board of a focal company. Board size may affect the collective

knowledge available at the board and the quality of interactions among outside directors, thereby potentially influencing how boards strategize (Dalton, Daily, Ellstrand, & Johnson, 1998). We further controlled for board independence as it may influence the board's effectiveness to exercise its key responsibilities (Hillman & Dalziel, 2003; Peng, 2004). *Board independence* was measured as the proportion of outside directors that have been reported independent in the respective firm's proxy statements. Furthermore, research has shown that external information-processing demands may restrict the extent to which outside directors utilize their expertise in a focal firm (Khanna, Jones, & Boivie, 2014; Kor & Sundaramurthy, 2009). We approximated external demands by calculating the average number of board memberships currently held outside the focal firm with our *board busyness* variable. Since we hypothesized a potential influence of domestic vs. international industry expertise in our main effects, we also proxied the overall internationality of the board. We used the Blau (1977) index to compute *board nationality diversity* among all outside directors of a focal board. Additionally, although there is conflicting evidence regarding the magnitude and direction, prior research has found that CEO succession may be an important adaptive event that shapes strategic resource allocation (Quigley & Hambrick, 2012). We therefore measured *CEO succession* as a dummy variable that took the value 1 when a CEO succession event took place in the respective year and 0 otherwise. The same logic was applied to capture potential effects of a *chair succession* event.

At the firm level, we controlled for prior firm performance. We used Tobin's Q, calculated as the market value divided by the book value of assets, to measure *prior firm performance*. We accounted for the presence of extreme outliers in the Tobin's Q measure by winsorizing the variable at the 1st and 99th percentile levels. We used a market-based instead of an accounting-based measure because it is less reliant on short-term financial performance and reflects external expectations that may inform board behavior (He & Huang, 2011; Keats &

Hitt, 1988).¹⁶ We included *firm size* as the natural log of annual gross sales to capture possible size effects that may affect board decision making (Finkelstein & Hambrick, 1996). Furthermore, we captured firm internationalization as a potential channel of information and networks, thereby possibly substituting the importance of outside directors' international industry expertise. *Firm internationalization* was measured as foreign sales as a percentage of total sales. We also controlled for financial leverage as a reflection of obligations to debt holders which may affect strategic initiatives pursued by the firm (Jensen, 1986). We measured financial *leverage* as long-term debt divided by total assets. Additionally, because a board's contribution to strategy may be affected by decision uncertainty and the predictability of the firm's operating environment (Almandoz & Tilcsik, 2016), we controlled for firm *risk* as the coefficient of the variation of the three-year return on equity. Finally, we included one-year *sales growth* which has been found to be an important predictor of strategic firm outcomes (e.g., Brush, Bromiley, & Hendrickx, 2000).

At the industry level, we controlled for key characteristics of the industry environment. Although our dependent variable accounts for resource allocation trends within a focal industry, we aimed at capturing additional indicators that reflect environmental conditions. Specifically, we used *industry munificence* as an indication of resource abundance within a focal industry, *industry dynamism* as an indication of industry instability or volatility and *industry complexity* as an indication of the heterogeneity in the environment and concentration of resources (Dess & Beard, 1984). We computed the logarithm of cumulative net sales within each industry over the previous five-year period, including the focal year. We then regressed net sales on the previous five years (Boyd, 1995; Keats & Hitt, 1988). We exponentiated the slope and respective standards errors from this regression equation in order to obtain our

¹⁶ Despite our theoretical reasoning, our results remained robust when using return on assets as an alternative, accounting-based measure to measure prior firm performance.

measure for *industry munificence* and *industry dynamism*, respectively. We used the squared sum of each firm's market share within their industry as our measure for *environmental complexity* which adopted values between zero and one. Values closer to zero reflected a larger dispersion within the focal industry which is indicative of higher complexity. Similar to previous research, we standardized all industry measures across the full sample to facilitate interpretation (Krause et al., 2018).

We also included institutional controls following prior research that has emphasized the importance of the institutional environment for the relationship between board expertise and strategic change (Oehmichen et al., 2017). Specifically, this research found that institutions may provide means of regulatory safeguards and convey information which may reduce the extent to which board industry expertise manifests in strategic resource allocation. We constructed *institutional diversity* by identifying for each firm the strength and quality of the formal institutional environment it has been exposed to across home and host markets. We used three steps to compute the variable: First, we used the approach proposed by Holmes, Miller, Hitt, and Salmador (2013) to develop a comprehensive set of indicators that reflect each country's institutional environment. Second, we collected information on the number and location of undertakings, including consolidated group companies, affiliated companies and investments in joint ventures of our sample companies for each year during our study period to determine a focal firm's exposure to individual countries. Third, we used the approach outlined by Arregle, Miller, Hitt, and Beamish (2016) and computed bias-corrected weighted mean Euclidean distances, representing the institutional diversity facing a focal firm across the markets where it operates.

Statistical analysis

We employ a fixed-effects panel regression to analyze the data. We adopt a fixed-effects model because our theoretical constructs and relationships build on a within-firm interpretation (Certo, Withers, & Semadeni, 2017). Specifically, our hypothesized main effects suggest that an increase in a focal type of board industry expertise will be associated with strategic resource allocation relative to the previous level of strategic resource allocation within a firm.¹⁷ Fixed-effects estimators are not without limitations. Fixed-effects models (1) consider the panel-level error term to be time-invariant which may be an unrealistic assumption and (2) estimate the panel-level error term with dummy variables which leads to a loss in degrees of freedom (Certo & Semadeni, 2006). However, fixed-effects models significantly alleviate potential endogeneity of explanatory variables (Sun, Hu, & Hillman, 2016; Wooldridge, 2002). In contrast to random-effects models, fixed-effects models allow to control for all factors that vary across firms but not over time, and those that vary over time but are constant across firms, thus controlling for unobserved firm and year effects (Allison, 2009). The Hausman test for orthogonality of random effects yielded a significant result, rejecting the null hypothesis that the estimated panel-level error term was uncorrelated with independent variables. Since fixed-effects models are not restricted by this assumption they were identified as the preferable estimation technique (Greene, 2008). We used heteroscedasticity-consistent Huber-White standard errors to mitigate concerns that the variances of the error terms are not equal. To be conservative, all significance tests are two-tailed. Finally, we lagged all independent, moderating, and control variables by one year to further mitigate potential endogeneity.

¹⁷ A between-firm interpretation of our main effect would suggest that firms with more board industry expertise will engage in more strategic resource reallocations than firms with less board industry expertise.

5.5 RESULTS

Table 5.1 presents descriptive statistics and pairwise correlations. Not surprisingly, both domestic and international industry expertise are positively and significantly correlated with industry expertise. While the correlation between domestic and international industry expertise is negative, it is only marginally significant and small in magnitude ($b = -0.04$, $p = 0.09$), indicating that outside directors with different types of industry expertise do not merely represent different companies in our sample.¹⁸ Table 5.1 also reveals that outside directors with more international industry expertise are associated with (1) larger, more successful and more international companies, (2) larger and more international boards, (3) higher levels of board independence but also (4) higher levels of busyness. Variance inflation factors suggest that multicollinearity is not a concern with all variables being less than 2.4 and at an average of 1.4, thereby well below the generally accepted limit of 10 (Cohen, Cohen, West, & Aiken, 2003).

 Insert Table 5.1 about here

Table 5.2 presents the models of our fixed-effects regression. Model 1 provides the regression results with all controls and the base effect of overall industry expertise. The estimated coefficient of industry expertise (irrespective of origin) is positive ($b = 0.014$) with a confidence interval of [0.003, 0.025] at the 95% significance level which is consistent with prior research (Golden & Zajac, 2001; Oehmichen et al., 2017). Hypotheses 1a and 1b predict that the origin of industry expertise will affect the direction of change in our dependent variable. Model 2 shows that domestic industry expertise is positive ($b = 0.031$) with a confidence interval of [0.011, 0.051] at the 95% significance level, and international industry expertise is

¹⁸ Across our 717 board-year observations, 69% of boards had any form of industry expertise, 41% had domestic industry expertise, and 46% had international industry experience. The 10 most prevalent countries (excluding our sample countries) where outside directors had acquired international industry expertise were the U.S., France, Belgium, China (incl. Hong Kong), South Africa, Canada, Sweden, India, Australia, and Italy.

negative ($b = -0.032$) with a confidence interval of $[-0.056, -0.006]$ at the 95% significance level. Both findings thus provide strong support for Hypotheses 1a and 1b.

Insert Table 5.2 about here

Model 3 and Model 4 present the results of hypothesis testing for Hypothesis 2; that is, the effects of domestic and international board industry expertise on strategic resource allocation depending on the contingency of CEO-board tenure overlap. To test these effects, we divided the sample into two subsamples (low and high CEO-board tenure overlap) based on whether the contingency variable was below or above the median in our sample. Hypothesis 2 predicts that in firms with less CEO-board tenure overlap, the underlying main effects between strategic preferences reflected in the origin of industry expertise and strategic resource allocation will increase while these effects will disappear when CEO-board tenure overlap is high. As shown in Model 3, the distinct effects of domestic and international board industry expertise are highest under conditions of low CEO-board tenure overlap. Specifically, the coefficient for domestic industry expertise is positive ($b = 0.041$) with a confidence interval of $[0.014, 0.068]$ at the 95% significance level and the coefficient for international industry expertise is negative ($b = -0.034$) with a confidence interval of $[-0.063, -0.005]$ at the 95% significance level. Model 4 shows that the origin of board industry expertise does not predict strategic resource allocation under conditions of high CEO-board tenure overlap. Hypothesis 2 thus receives strong support. Moreover, the differences in the adjusted R-squared measures between Models 3 and 1 and Models 4 and 1 indicate substantial improvements in the model fit. Further, the F-statistic is highest for Model 3 and lowest for Model 4, reflecting that the overall significance of the relationships between the explanatory variables and our dependent variable are strongest in the former and weakest in the latter model.

To assess the substantive effect of our findings, we computed the effect sizes of an increase from low (1 s.d. below the mean) to high (1 s.d. above mean) levels of domestic and international industry expertise, respectively. *Ceteris paribus*, the strategic resource allocation is predicted to increase by 1.3 percentage points as domestic industry expertise increases from 1 standard deviation below to 1 standard deviation above the mean, and to decrease by 1.7 percentage points for a respective change in the international industry expertise variable. To better illustrate the implication of this effect size we use the example of the inventory levels (inventories/sales) component of the strategic resource allocation measure. The sample median for this ratio is 0.12 and median inventory levels are \$1.2 billion resulting in median sales of \$9.8 billion. Holding all variables constant and setting inventory levels to \$1.2 billion, firms with boards who have more domestic industry expertise generate sales of \$8.8 billion, which compares to \$11.4 billion in sales for firms whose boards have more international industry expertise; an increase in sales of about 30%. Conversely, holding all variables and sales at \$9.8 billion constant shows that firms with high domestic board industry expertise require \$1.3 billion in inventories to generate these sales compared with \$1.0 billion for firms whose boards have high international industry expertise. These examples show that the effects of different board industry expertise origins are not only statistically significant but also substantive in their magnitude. We elaborate on performance and other implications in the discussion section.

Our findings remained robust when we replicated our regressions (1) with different aggregations (i.e., sums) and combinations of the four strategic resource allocations components, (2) with individual components of the strategic resource allocation measure, (3) with different industry operationalizations of our main independent variables (i.e., based on 2-digit and 3-digit ICB codes), or (4) with return on assets instead of Tobin's Q as a measure of prior firm performance. To corroborate whether the interaction effect was driven by CEO-board tenure overlap and not by other forms of tenure, we recalculated our models using

average board tenure and tenure overlap among outside directors only. In both cases, we obtained significant results that are consistent with our main models, albeit at lower significance levels and with smaller effect sizes. That emphasizes our initial theoretical prediction regarding the important influence of the CEO on strategic resource allocation profiles. Finally, we examined possible country and regional effects of the locations where outside directors have acquired international industry expertise. Specifically, we tested whether strategic resource allocation profiles are determined (1) by industry expertise in one of the large world economies (i.e., U.S. or China), or (2) by industry expertise in any of the 17 sub-regions proposed by the United States Statistics Division (2011). We were not able to relate country- or region-specific industry expertise to a distinct resource allocation profile, indicating that it is indeed outside directors' collective domestic vs. international industry expertise that drives the effects on strategic resource allocation.

5.6 DISCUSSION

Building on resource dependence theory, we posit and find that the origin of industry expertise is associated with strategic preferences that manifest in distinct strategic resource allocation profiles. In particular, we predict that the specific human and social capital acquired through international industry expertise result in bottom-line focused change whereas the knowledge, skills and networks acquired through domestic industry expertise promote top-line focused change. Additionally, we propose that co-working experience among the CEO and board attenuates the effect of outside directors' strategic preferences on strategic resource reallocations. We find empirical support for our theoretical predictions. Our study makes both theoretical and phenomenological contributions by clarifying the conditions and functional forms of different types of board industry expertise, adding to our understanding about the relative influence of the board and the CEO on strategy, offering an alternative

operationalization and interpretation of the strategic change construct, and reconciling previously inconsistent findings on the relationship between board expertise and change in strategic resource allocation profiles.

First, our study shows that the monolithic, context-free understanding of industry expertise requires refinement. While prior studies have assumed that industry expertise conveys a generic sense about how the industry functions as a whole, our study suggests that it may reflect different experiences which have idiosyncratic effects on outside directors' strategic preferences. We contribute to the literature that has shown that the same experiential measure may have unique implications when accounting for additional characteristics that interrelate with a focal experience (Hillman, Nicholson, & Shropshire, 2008; Zhu & Westphal, 2014). Specifically, we find strong support that industry expertise origin may inform how outside directors assess and pursue strategic actions. As such, we respond to prior calls to explore whether industry expertise may vary based on country (Johnson et al., 2013), which we find does indeed seem to be the case. In that regard, our results mirror research in the domain of comparative corporate governance that has highlighted the importance of the country context for how boards govern (e.g., Aguilera et al., 2008; Aguilera & Jackson, 2003, 2010). Few, if any, studies have explored how these country differences may affect outside directors' experiences and, subsequently, impact strategic outcomes in firms on whose boards they serve. The importance of context in which experiences have been acquired have implications for our understanding of human and social capital. While prior studies have highlighted conditions that enhance or deteriorate both forms of capital, our findings imply that a quantitative enhancement can be associated with qualitative differences and, in turn, different strategic implications for the firm. The possibility that heterogeneity may reside within what is seemingly an identical attribute shared by board members (i.e., industry expertise) opens new perspectives on studying group-level processes. For example, Almandoz and Tilcsik (2016) have shown that the

representation of industry experts may lead boards to succumb to overconfidence and complacency due to a lack of diverse perspectives. Our findings imply that industry expertise may not be a sufficient attribute to infer a shared cognitive frameworks among outside directors when it comes to evaluating and responding to strategic challenges. We encourage future research to account for that possibility because it may affect the appropriate theoretical reasoning of why certain board compositions may be associated with specific outcomes. More generally, future research on board expertise may more systematically examine variations within seemingly similar types of experiences to better understand how boards exercise their monitoring and resource provision roles.

Second, we contribute to the long-contested question which corporate elites shape strategy (Carpenter, Pollock, & Leary, 2003; Golden & Zajac, 2001; Westphal et al., 2001; Zhu & Chen, 2015). We find support for the idea that strategic preferences among outside directors, and between the board and the CEO, appear to converge over time. While this may also be a reflection of the relative power between the board and CEO (e.g., Golden & Zajac, 2001; Haynes & Hillman, 2010; Sauerwald et al., 2016; Zhu & Chen, 2015), it lends support a recent finding that the effects of director expertise appear to be time-variant (Brown et al., 2017). That has important implications both for theory and for practice. Baysinger and Hoskisson (1990: 72) have argued that “astute CEOs learn what the dispositions of the board are, conduct themselves in a manner compatible with these dispositions, and, thus, initiate and implement decisions that comport with the board’s concept of strategy”. However, it appears that these dispositions are neither consistent among board members nor are they stable over time. Despite recent advances (Garg & Eisenhardt, 2017), research on the CEO-board relationship is still nascent and we encourage future research to unpack more thoroughly the mechanisms that shape this important relationship. More generally, this would also contribute to our

understanding about how information flows within the boardroom and how boards and CEOs jointly shape the strategy of the firm.

Third, by allowing for directionality in the strategic change measure, we reveal two distinct strategic resource allocation profiles. While being closely related to prior approaches, we look more carefully into how relative changes in the underlying ratio can be interpreted. We find that the origin of industry expertise appears to be associated with different choices about the redeployment of strategic resources. Our findings seem to challenge the existence of generic “industry recipes” (Hambrick et al., 1993; Spender, 1989) which we attribute to the fact that corporate elites make sense of the industry environment in different ways based on the context in which they have experienced it (Sutcliffe & Huber, 1998). Prior research has found that found industry characteristics produce only small effect sizes on reconfigurations in the deployment of strategic resources and our results may elucidate an important mechanism that explains these findings (Hitt & Tyler, 1991). The novelty of our findings may in part be due to the fact that prior empirical work on board expertise has been primarily based on U.S. samples. Since U.S. boards tend to be less international than European boards (Spencer Stuart, 2017), researchers may not have been able to isolate the cross-country effects that our study reveal. Our findings therefore substantiate prior calls to introduce new research contexts to board research (Johnson et al., 2013). Furthermore, despite offering a conceptual and empirical refinement of the strategic change measure, we cannot infer performance effects. Prior research has typically emphasized normative interpretations where less strategic change is characterized as “inertial and imitative”, and more strategic change indicates “novelty”, “quantum changes”, and “distinctiveness” (Crossland et al., 2014: 653). Our findings are consistent with that notion in that for each type of industry expertise we test in our models we find a significant association with strategic change (irrespective of directionality). That seems to lend support to the general idea that industry expertise increases the capacity for action (Kor & Sundaramurthy, 2009;

Oehmichen et al., 2017). Although the introduction of directionality has allowed us to identify different strategic preferences held by outside directors based on the origin of their industry expertise, those do not allow for conclusions about which preferences are most effective. As Oehmichen et al. (2017: 654) note, “the empirical conceptualization of strategic change does not address whether change is appropriate in a given situation or whether the change is undertaken in the correct direction”. Depending on the specific situation of the firm, different strategic resource allocation profiles may be more or less successful (Venkatraman & Prescott, 1990). Although the *bottom-line focus* discussed in our study may intuitively promise to be more successful than a *top-line focus*, various scenarios are conceivable where the firm may temporarily benefit from the latter (e.g., corporate transformations, policy changes, exogenous shocks). Hence, future research may be warranted to explore in greater depth how board industry expertise affects the quality, and not only change in, strategy.

Finally, we reconcile prior findings on the relationship between board industry expertise and strategic resource allocation profiles (Haynes & Hillman, 2010; Oehmichen et al., 2017). We have shown that the effects of industry expertise are best observable when accounting for the origin of industry expertise, the co-working experience between the board and CEO, and directionality in strategic change. This may explain why earlier studies that did not account for these subtler features have produced inconsistent results. In that regard, our study points to the inherently contingent nature of relationship between board expertise and firm outcomes. Future research may explore additional contingencies that may affect this important relationship, such as the role of the top management team, individual behavioral tendencies of outside directors, or the broader fit between outside directors’ industry expertise and the strategic needs of the firm. Those studies could make important contributions to our understanding about how boards strategize and why an apparently similar board composition may result in different outcomes.

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Figure 5.1 Typology of Changes in Strategic Resource Allocation Profiles

“Top-line focus”	Resource allocation ratio > 0 <i>Example:</i> Sales decrease at higher rate than expenses	Resource allocation ratio > 0 <i>Example:</i> Sales increase at lower rate than expenses
	Resource allocation ratio < 0 <i>Example:</i> Sales decrease at lower rate than expenses	Resource allocation ratio < 0 <i>Example:</i> Sales increase at higher rate than expenses
	Organizational decline	Organizational growth

Table 5.1 Descriptive Statistics

	Variable	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1)	Strategic resource allocation ^a	0.00	0.02	1.00										
(2)	Industry expertise	0.30	0.36	0.04	1.00									
(3)	Domestic industry expertise	0.11	0.16	0.02	0.57***	1.00								
(4)	International industry expertise	0.13	0.23	-0.00	0.62***	-0.04†	1.00							
(5)	Board size	7.30	2.30	0.02	-0.03	-0.15***	0.13***	1.00						
(6)	Board independence	0.33	0.32	-0.04	0.08*	-0.17***	0.29***	0.12***	1.00					
(7)	Board busyness	2.25	0.69	-0.04	0.22***	0.06	0.29***	0.33***	0.23***	1.00				
(8)	Nationality diversity	0.45	0.30	0.03	0.18***	-0.16***	0.39***	0.28***	0.39***	0.29***	1.00			
(9)	Chair succession	0.13	0.33	0.03	-0.03	-0.02	0.03	-0.04	0.05	-0.03	0.01	1.00		
(10)	CEO succession	0.13	0.34	0.01	-0.03	-0.04	0.01	0.08*	0.03	0.01	0.00	0.20***	1.00	
(11)	CEO-board tenure overlap	0.52	0.29	0.04	0.05	0.07*	-0.07*	-0.07†	-0.10**	0.02	-0.09*	-0.20***	-0.47***	1.00
(12)	Prior performance ^a	2.90	2.67	-0.01	0.18***	0.06	0.15***	-0.15***	0.10**	0.00	0.08*	-0.07†	-0.06	0.01
(13)	Firm size	4.34	0.65	0.00	-0.04	-0.07†	0.02	0.64***	0.15***	0.51***	0.26***	-0.01	0.04	0.01
(14)	Firm internationalization	0.74	0.25	0.01	0.03	-0.10**	0.18***	0.06	0.30***	0.15***	0.32***	-0.02	-0.06	0.09*
(15)	Leverage	0.18	0.11	0.09*	0.08*	-0.04	0.01	0.13***	0.09*	0.11**	0.11**	-0.01	-0.02	-0.01
(16)	Risk	1.12	12.52	0.01	0.04	0.08*	0.01	-0.03	-0.03	-0.05	0.04	0.02	0.00	0.00
(17)	Sales growth	0.02	0.18	-0.24***	0.02	0.10**	0.01	-0.02	0.01	0.02	0.02	0.00	-0.05	0.04
(18)	Industry munificence	-0.04	0.88	0.03	-0.01	0.02	-0.10**	-0.02	-0.07†	-0.12**	-0.03	-0.05	0.01	-0.02
(19)	Industry dynamism	-0.14	0.82	-0.03	-0.01	-0.03	0.06	-0.03	0.09*	0.01	0.06	0.02	0.03	-0.02
(20)	Industry complexity	0.04	1.00	0.03	-0.07†	-0.06†	0.02	-0.06†	-0.02	-0.09*	0.04	-0.04	0.05	-0.04
(21)	Institutional diversity	0.10	0.10	-0.01	-0.03	-0.02	-0.04	-0.11**	0.09*	-0.18***	-0.09*	0.00	0.05	-0.18***
	Variable	Mean	SD	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	
(12)	Prior performance ^a			1.00										
(13)	Firm size			-0.17***	1.00									
(14)	Firm internationalization			-0.11**	0.11**	1.00								
(15)	Leverage			0.16***	0.12***	-0.11**	1.00							
(16)	Risk			-0.02	-0.07†	0.04	-0.02	1.00						
(17)	Sales growth			0.10*	0.01	0.02	-0.07†	0.04	1.00					
(18)	Industry munificence			-0.09*	-0.02	0.05	0.16***	-0.01	0.05	1.00				
(19)	Industry dynamism			-0.08*	-0.03	0.04	0.06	0.03	-0.13***	0.20***	1.00			
(20)	Industry complexity			0.05	-0.07†	-0.03	-0.06	0.04	-0.02	0.10**	0.39***	1.00		
(21)	Institutional diversity			0.06	-0.30***	-0.38***	0.10**	-0.03	-0.05	0.01	-0.04	0.00	1.00	

Notes. ^aWinsorized at the 1st and 99th percentile levels.

*** p<0.001, ** p<0.01, * p<0.05, † p<0.10.

Table 5.2 Fixed-effects Regression Predicting Strategic Resource Allocation

Variables	Full sample		Low overlap	High overlap
	Model 1	Model 2	Model 3	Model 4
Industry expertise	0.014* (0.005)			
Domestic industry expertise		0.031** (0.010)	0.041** (0.013)	0.016 (0.025)
International industry expertise		−0.032* (0.012)	−0.034* (0.015)	0.026 (0.036)
Board size	−0.001 (0.001)	−0.001 (0.001)	−0.002 (0.002)	0.002 (0.002)
Board independence	−0.006 (0.016)	−0.004 (0.016)	−0.028 (0.031)	0.015 (0.013)
Board busyness	−0.004 (0.004)	−0.004 (0.004)	−0.008 (0.005)	0.004 (0.007)
Board nationality diversity	0.016* (0.008)	0.024** (0.008)	0.021† (0.011)	0.030† (0.017)
Chair succession	0.003 (0.003)	0.004 (0.003)	0.009* (0.004)	−0.005† (0.003)
CEO succession	0.003 (0.003)	0.003 (0.003)	0.002 (0.004)	0.000 (0.007)
CEO–board tenure overlap	0.009 (0.006)	0.009 (0.006)		
Prior performance ^a	0.002** (0.001)	0.002** (0.001)	0.003* (0.001)	0.002*** (0.001)
Firm size	0.014 (0.011)	0.018 (0.012)	0.009 (0.013)	0.026 (0.042)
Firm internationalization	0.017 (0.019)	0.018 (0.019)	−0.017 (0.056)	0.047* (0.021)
Leverage	0.161*** (0.020)	0.158*** (0.020)	0.195*** (0.021)	0.228*** (0.035)
Risk	−0.000 (0.000)	−0.000 (0.000)	0.000 (0.000)	−0.001 (0.001)
Sales growth	−0.031*** (0.009)	−0.032*** (0.009)	−0.019* (0.008)	−0.039* (0.015)
Industry munificence	0.001 (0.001)	0.000 (0.002)	0.005† (0.003)	−0.001 (0.002)
Industry dynamism	−0.000 (0.001)	−0.001 (0.001)	−0.000 (0.001)	0.003 (0.005)
Industry complexity	−0.019 (0.027)	−0.015 (0.027)	−0.051† (0.027)	−0.003 (0.043)
Institutional diversity	−0.012 (0.025)	−0.019 (0.024)	−0.021 (0.026)	−0.113† (0.059)
Constant	−0.107* (0.050)	−0.125* (0.055)	−0.024 (0.074)	−0.231 (0.179)

Table 5.2 (continued)

Variables	Full sample		Low overlap	High overlap
	Model 1	Model 2	Model 3	Model 4
Adjusted R-squared (within), %	23.5	24.1	28.4	32.7
Δ R-squared ^b		0.6	4.9	9.2
F-statistic	8.40***	9.13***	11.19***	7.69***
Observations	717	717	359	358

Notes. Robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, † p<0.10.

^aWinsorized at the 1st and 99th percentile levels.

^bRelative to Model 1.