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The Role of Top Management Teams in Firm Responses to Performance Shortfalls

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Abstract

Past research rooted in the Behavioral Theory of the Firm has extensively examined the impact of performance feedback on organizational change and risk taking, finding robust effects that performance shortfalls enhance the risk taking of firms. We argue that the strength of this effect is likely to be contingent on the attributes of the firm's top management team. To enhance our understanding of which firms are more likely to be sensitive to performance cues, we draw on the Upper Echelon Theory to theorize that key structural attributes of the top management team—tenure and gender diversity, size, and pay disparity—affect how top executives interpret poor performance

and act upon it through engagement in strategic risk taking. Results show that top management teams with greater tenure diversity, smaller size, and smaller pay disparity among members engage in more strategic risk taking following performance shortfalls.

Keywords

performance feedback, strategic risk taking, top management teams

Introduction

Organizational change and risk taking are central topics in the field of strategic management. One of the main theoretical frameworks focusing on those topics is the Behavioral Theory of the Firm (BTOF) (Cyert and March, 1963). It argues that firms compare current performance to predetermined aspiration levels and when performance is below those aspirations firms begin to search for solutions to address the performance gap (Cyert and March, 1963; Greve, 1998, 2003a). Prior research has shown with relative consistency that when firms fall short of their aspirations—that is, find themselves in a negative attainment discrepancy position—they are more open to pursuing various risky activities, such as changes in radio format (Greve, 1998), research and development (R&D) investments (Chen and Miller, 2007; Greve, 2003a), forming partnership ties (Baum et al., 2005; Shipilov et al., 2011), foreign market entry (Ref and Shapira, 2017), strategic group divergence (Schimmer and Brauer, 2012), and risk taking (Bromiley, 1991; Lim and McCann, 2014; Miller and Chen, 2004). In sum, the worse performance gets the more likely firms will engage in risk taking.

While the impact of poor performance on risk taking has been extensively examined, scholars have not fully examined how the attributes of the top management team (TMT) impact firm responses to performance cues. We believe that examining the contingent effect of TMT attributes on the performance to risk taking relationship has the potential to offer insights for the following reasons. The BTOF argues performance information affects the motivations of managers to undertake action (Cyert and March, 1963). For the mechanism to work, managers need to notice and encode that performance information as well as coordinate action to move forward aggressively. Thus, the degree to which performance cues drive action are contingent on the information being seen and used in a coordinated way. The Upper Echelon Theory (UET) is a natural fit as a moderating theory since it argues that the characteristics of managers and teams influence both the information managers notice and encode as well as the ability of teams to coordinate action (Finkelstein et al., 2009). To better understand how the characteristics of the TMT can affect behavioral responses to performance cues, we integrate UET and BTOF to theorize on the TMT's role in firm responses to poor performance.

UET posits that firms are reflections of their top executives, that the attributes of top executives influences the information they attend to and process, and that the strategic choices firms make are a direct outcome of the “collective cognitions, capabilities, and interactions of the entire TMT” (Hambrick, 2007: 334; Hambrick and Mason, 1984). In this vein, prior research has shown that the way a TMT is structured influences the dynamics within the TMT and ultimately affects how executives interpret the situations they face and thus act upon them (see for review, Carpenter et al., 2004).

The basic premise of our article is that performance cues affect the motivation of managers to undertake action. Yet, for this mechanism to work, the TMT needs to be structured in a way that allows

managers to encode poor performance and coordinate an effective course of action. Thus, the degree to which performance cues drive action is contingent on how TMTs interpret performance information and execute a coordinated response. We examine four structural attributes of TMTs that reflect team demography, composition, and compensation—team tenure and gender diversity, team size, and team pay disparity—and are especially impactful on the ability to reach decision consensus and commitment to a risky course of action. We see these four attributes as being most likely to impact TMT dynamics, including team members' coordination, joint decision making, and decision implementation, and thus affect the team's ability and willingness to recognize poor performance and address it by engaging in strategic risk taking.¹

First, building out of prior research, we argue that greater TMT tenure and gender diversity are likely to trigger greater conflict within a team, reduced cooperation and collaboration, resulting in greater difficulty for the team to reach consensus on a common course of action (Horwitz and Horwitz, 2007; O'Reilly et al., 1989; Williams and O'Reilly, 1998). As a result, TMT tenure and gender diversity are expected to undermine the firm's responsiveness to performance shortfalls resulting in less strategic risk taking following poor performance.

Second, TMT size is associated with greater diversity of opinions and perspectives which generates more interpersonal conflict among top executives and inhibits coordination and cooperation among team members (Simsek et al., 2005). As a result, it is more difficult for larger TMTs to agree on a common course of action in the face of performance shortfalls likely leading to less strategic risk taking when performance drops below aspirations.

Finally, TMT pay disparity generates interpersonal conflict among top executives (Bloom and Michel, 2002) which reduces their willingness to collaborate and engage in joint decision making (Henderson and Fredrickson, 2001; Milgrom and Roberts, 1988), undermines their ability for collective work, and inhibits commitment to pursuing a common course of action (Cowherd and Levine, 1992; Hambrick, 1995). As a result, TMT pay disparity is expected to hinder TMT cohesion and cooperation leading to less strategic risk taking following poor performance.

In sum, we seek to address the following research question: *How do TMT tenure and gender diversity, TMT size, and TMT pay disparity moderate the relationship between negative attainment discrepancy and firm strategic risk taking?*

This article aims to contribute to existing research in several ways. First, we integrate UET and the BTOF to argue that performance cues and TMT characteristics jointly influence firm strategic risk taking. While poor performance might serve as motivation to undertake action and trigger strategic risk taking, it is TMT characteristics that determine how responsive the firm is likely to be to these performance cues. By focusing on TMT tenure and gender diversity, TMT size, and TMT pay disparity, we show that structural attributes of the TMT play an important role in further understanding firm behavior under uncertainty.

Second, this article responds to calls for more thorough examination of the human element and human behavior in the BTOF (Gavetti et al., 2007). For example, Mahoney (2005) posits that the foundation of BTOF emphasizes that "organizations must take into account the motivational, attitudinal, and relational aspects of human behavior" (p. 2). While a handful of studies have looked at the role of CEOs

and board of directors in how firms address performance shortfalls (Desai, 2016; Lim and McCann, 2014; Wangrow et al., 2019), this study focuses on the whole TMT and its role in firm responses to performance cues.

Finally, this article extends a growing body of performance feedback research looking at the role of context on the relationship between prior performance and firm risky behaviors. While prior research has examined various industry- and firm-level variables (Audia and Greve, 2006; Joseph et al., 2016; Mishina et al., 2010; Vissa et al., 2010; Wiklund and Shepherd, 2003), this study draws attention to moderating variables residing at the team-level of analysis.

Theory and hypotheses

One of the main theories in strategic management that focuses on organizational change and risk taking is BTOF. According to the theory, performance feedback is a key driver of firms' engagement in search behaviors and risk taking. In particular, firms have predetermined aspiration goals against which they compare their current performance (Cyert and March, 1963; Greve, 1998). When performance falls below those aspirations, negative attainment discrepancy leads firms to break away from their routinized behavior toward non-routine decision making (Bromiley, 2005). As performance drops farther below aspiration levels, firms are more likely to move away from the status quo and pursue risky initiatives (Cyert and March, 1963). Stated differently, negative attainment discrepancy encourages problemistic search for solutions to address weak performance and bring the firm back to its predetermined aspiration levels (Bromiley, 1991; Greve, 2003a). Prior research provides evidence that as performance falls below aspirations, firms undertake various risky activities, such as R&D investments (Greve, 2003a), partnership ties (Baum et al., 2005; Shipilov et al., 2011), foreign market entry (Ref and Shapira, 2017), divestitures (Desai, 2016; Kuusela et al., 2017), and risk taking (Chen and Miller, 2007; Lim and McCann, 2014).

Since the relationship between poor performance and risky activities has been extensively examined in prior research and we only use this main relationship to set the stage for the moderation arguments, we do not formulate a formal hypothesis. Still, consistent with prior research we expect that negative attainment discrepancy will lead to greater levels of firm strategic risk taking.

While prior literature has extensively examined the impact of performance feedback on firm search behaviors and risk taking, this body of research has been largely silent regarding the role of the TMT in how firms respond to performance cues. As part of their role for guiding firm strategy, TMTs are responsible for assessing firm performance, deciding on whether performance is satisfactory or not, and intervening when performance falls short of aspirations. Stated differently, TMTs are directly involved in implementing the firm's responses to performance cues (Cyert and March, 1963; Gavetti et al., 2012).

According to the UET (Hambrick and Mason, 1984), firms are reflection of their top executives and the interactions and dynamics among members of the TMT determine firms' strategic choices. In this vein, prior research suggests that TMT structure plays a key role in shaping internal team dynamics and thus influences how TMT members interpret the situations surrounding them and respond to those situations (Hambrick, 2007). In line with these arguments, we can expect that when the structural attributes of the TMT facilitate coordination and cooperation among its members, the latter are better

able and willing to engage in joint decision making and pursue a common course of action. In contrast, when TMT structural attributes undermine the ability and willingness of top executives to work collectively, the whole TMT struggles in agreeing on and implementing a common course of action.

Translating this logic to situations of poor performance, TMT structure should play a key role in how TMT members interpret negative attainment discrepancy, decide on the necessity to address it, and engage in strategic risk taking in order to close the performance gap. Since engaging in strategic risk taking is a rather complex endeavor associated with major capital investments that are uncertain, difficult to reverse (Kor, 2006; Lim and McCann, 2014; Palmer and Wiseman, 1999), and have critical “implications for the form and fate of firms” (Quigley and Hambrick, 2012: 841), pursuing strategic risk taking requires effective coordination, collaboration, and agreement among members of the TMT.

Below, we focus on four TMT structural attributes—team tenure and gender diversity, team size, and team pay disparity—that have been shown to strongly impact the internal dynamics, coordination, and joint decision making and implementation of the TMT (Barkema and Shvyrkov, 2007; Hambrick et al., 2015; Henderson and Fredrickson, 2001; Siegel and Hambrick, 2005; Wiersema and Bantel, 1992) and thus are likely to act as moderating conditions to the relationship between negative attainment discrepancy and strategic risk taking.

The moderating role of TMT tenure and gender diversity

TMT tenure and gender diversity reflect the heterogeneity among top executives in terms of their tenure in the firm and gender, respectively. At the front end of the process, greater diversity is likely to increase the cognitive diversity of the TMT and the range of options identified to address performance shortfalls (Horwitz and Horwitz, 2007). As a result, top executives get exposed to different opinions and knowledge sets (Cox et al., 1991; Williams and O’Reilly, 1998) which facilitates the identification of diverse courses of action. Furthermore, greater TMT tenure and gender diversity can generate task-related conflict and stimulate more debate and identification of novel ideas and alternatives (Barkema and Shvyrkov, 2007; Jehn, 1997; Kolev and McNamara, 2020).

However, as the decision process moves forward, greater tenure and gender diversity may hinder effective team functioning by reducing cohesion and integration among team members (O’Reilly et al., 1993; Wagner et al., 1984) which undermines joint decision making and coordinated action. In particular, TMT tenure and gender diversity negatively affect cooperative interactions and relations among team members. Drawing on self-categorization theory, scholars have argued that individuals prefer interactions with and feel more comfortable around others who are similar to them (Tsui et al., 1992; Williams and O’Reilly, 1998). A homogeneous TMT (one consisting of executives with similar tenures or same gender) tends to share a common perspective and understanding of the surrounding context (Finkelstein and Hambrick, 1990) which facilitates better communication and coordination among its members. In contrast, members of a heterogeneous TMT are likely to exhibit defensive behaviors and mistrust toward top executives with different tenures or of the opposite gender which reduces willingness to communicate and exchange information within the team (Ancona and Caldwell, 1992; Smith et al., 1994; Zenger and Lawrence, 1989). Thus, the more diverse the TMT, the more difficult for team members to engage in joint decision making, formulate a uniform position, and pursue a common course of action. For example, Hambrick and colleagues offer evidence that tenure-diverse TMTs are less responsive to attacks by their competitors (Hambrick et al., 1996). Similarly,

research has shown that gender diversity inhibits the implementation of strategic decisions, such as acquisitions (Chen et al., 2016), divestitures (Kolev and McNamara, 2020), and strategic change (Triana et al., 2013). These arguments suggest that “even though heterogeneous teams might have more diverse information at their disposal, their diversity may also impair collaboration, information, and joint decision making” (Simsek et al., 2005: 72).

Considering all these arguments, we expect TMTs with greater tenure and gender diversity to be less responsive to negative attainment discrepancy and engage in lower degree of strategic risk taking.

- *Hypothesis 1a.* TMT tenure diversity will moderate the relationship between negative attainment discrepancy and strategic risk taking, such that greater TMT tenure diversity will weaken the relationship.
- *Hypothesis 1b.* TMT gender diversity will moderate the relationship between negative attainment discrepancy and strategic risk taking, such that greater TMT gender diversity will weaken the relationship.

The moderating role of TMT size

A larger TMT reflects a greater diversity of opinions, perspectives, and viewpoints (Wiersema and Bantel, 1992). While some past research argues that team size is positively related to an extensive pool of ideas and solutions to firm problems (Harrison, 1975; Hoffman and Maier, 1961; Shaw, 1981), it is inherently challenging for larger teams to identify a single best solution and agree on a common course of action (Dowell et al., 2011). Larger teams are more likely to experience reduced coordination making it more difficult for team members to collaborate (Shaw, 1976; Simsek et al., 2005). For example, Desai (2016) argues that larger corporate boards experience more problems with reaching a consensus on and subsequently pursuing a common course of action because they must reconcile the diverse perspectives of multiple directors. Furthermore, as TMT size increases top executives have fewer opportunities for interaction and reciprocity (Thornburg, 1991) which decreases the amount of communication among them (Zenger and Lawrence, 1989). If TMT members are unable or unwilling to share their opinions on how to solve performance problems, they are less likely to engage in joint decision making. Finally, larger TMTs are more fragmented and prone to contentious interactions among team members. In particular, Amason and Sapienza (1997) provide evidence that team size increases interpersonal conflict which diminishes top executives’ willingness for collaboration and joint decision implementation (e.g. Veiga, 1991). Ultimately, TMT size is more likely to “inhibit task integration” (Simsek et al., 2005: 73) and prevent team members from engaging in more strategic actions (Hambrick et al., 1996).

Following the earlier arguments, we argue that when faced with poor performance, firms with larger TMTs will engage in less strategic risk taking compared to firms with smaller TMTs. In particular, as TMT size grows, top executives would experience lower coordination and more interpersonal tensions (Amason and Sapienza, 1997) preventing them from agreeing on a coherent strategy and reaching a consensus on how to respond to performance shortfalls.

- *Hypothesis 2.* TMT size will moderate the relationship between negative attainment discrepancy and strategic risk taking, such that greater TMT size will weaken the relationship.

The moderating role of TMT pay disparity

Finally, greater TMT pay disparity is expected to undermine executives' willingness and ability to address performance gaps by engaging in strategic risk taking. We outline several reasons why TMT pay disparity, by hindering the agreement and collaboration among TMT members, would weaken firm responsiveness to performance shortfalls. First, greater pay disparity could increase willingness to withhold information from other TMT members and even sabotage their efforts resulting in reduced attention to existing problems and lower desire to effectively address them (Dye, 1984; Eisenhardt and Bourgeois, 1988; Henderson and Fredrickson, 2001; Milgrom and Roberts, 1988). When TMT members withhold information from their counterparts, the whole TMT is likely to experience impaired collaboration, joint decision making, and commitment to organizational goals (Cowherd and Levine, 1992; Ridge et al., 2014; Siegel and Hambrick, 2005). As a result, TMT members are demotivated and limited in recognizing not only the seriousness of attainment discrepancies, but also in identifying the most beneficial strategies to address those performance gaps. In other words, greater pay disparity undermines TMT's ability and willingness to search for alternative courses of action when faced with negative attainment discrepancy.

Second, the existence of large pay gaps within the TMT signals "differentials in executives' importance, stature, and roles" and enforces "feelings of resentment" toward the higher paid TMT members (Siegel and Hambrick, 2005: 262). The latter members "may respond with condescension, aloofness, and social distancing toward their seemingly less worthy counterparts" (Siegel and Hambrick, 2005: 263). Furthermore, TMT members are likely to perceive large pay disparity as unjust, engage in invidious comparisons (Deutsch, 1985), and experience feelings of relative deprivation and inequality (Bloom, 1999; Bloom and Michel, 2002; Cowherd and Levine, 1992; Crosby, 1976). This would lead to more interpersonal conflict among TMT members (Bloom and Michel, 2002) which is particularly detrimental to TMT functioning and collaboration. For example, prior research shows that interpersonal conflict prevents group integration (Cowherd and Levine, 1992; Hambrick, 1995; Harrison et al., 2002; Siegel and Hambrick, 2005; Williams and O'Reilly, 1998), impedes ability to agree on strategic decisions, discourages motivation to engage in collective effort and group work (Baugh and Graen, 1997; Siegel and Hambrick, 2005), and interferes with task completion (Deutsch, 1969). As a result, the TMT experiences greater difficulty in achieving consensus on a common course of action and is less likely to pursue strategic decisions (e.g. Chen et al., 2016; Hogg and Terry, 2000). Yet, such decisions are critical for addressing poor firm performance. Ultimately, greater TMT pay disparity would negatively affect the ability and willingness of the TMT to engage in strategic risk taking when performance drops below aspiration levels.

- *Hypothesis 3.* TMT pay disparity will moderate the relationship between negative attainment discrepancy and strategic risk taking, such that greater TMT pay disparity will weaken the relationship.

Methods

Sample

The data for the study covers the period 1999–2014. This is a relatively long period of time which includes multiple cycles of economic growth, downturn, and recovery and reduces the likelihood that

unusual economic conditions are driving the results. Consistent with prior research (Chen and Miller, 2007; Lim and McCann, 2014; Miller and Chen, 2004), we selected a sample consisting of manufacturing firms with 4-digit SIC codes from 2000 to 3999. The data for all variables were obtained from two primary sources: firm-level variables came from Compustat and TMT characteristics were accessed through Execucomp. After merging the two datasets, the final sample for testing the proposed hypotheses consists of 3265 firm-year observations (489 firms with an average of 6.7 years per firm).

Dependent variable

The dependent variable in this study is *strategic risk taking*. It is proxied by three risk dimensions: (1) R&D expenses, measured in millions of dollars; (2) capital expenditures, measured in millions of dollars; and (3) long-term debt, measured in millions of dollars (Devers et al., 2008; Miller and Bromiley, 1990). A factor analysis of the three risk dimensions revealed a single factor capturing 71% of the variance with an Eigenvalue of 2.14 and all factor loadings exceeding 0.62. Following prior work (Crossland et al., 2014; Miller and Bromiley, 1990; Wowak et al., 2016), R&D expenses and capital expenditures were scaled by firm sales (sales were measured in millions of dollars) and long-term debt was scaled by shareholders' equity (equity was measured in millions of dollars). Finally, we summed these three ratios (Haynes and Hillman, 2010) to create strategic risk taking. Higher values of the dependent variable represent greater degree of risk taking by the firm.

Independent variables

Attainment discrepancy represents the difference between firm performance in period $t-1$ and aspiration levels in period $t-2$. Consistent with prior research, we calculated firm performance as the ratio of return to assets (ROA; Desai, 2016; Iyer and Miller, 2008; Lim and McCann, 2014). BTOF argues that managers consider both historical and social aspirations (Bromiley, 1991; Greve, 1998; Greve, 2003a). Historical aspirations are the ROA of the focal firm 1-year prior to observed performance (period $t-2$). Social aspirations reflect the performance of comparable firms (Cyert and March, 1963; Festinger, 1954). Yet, "external observers (such as researchers) may have difficulty ascertaining the appropriate social reference point" (Ref and Shapira, 2017: 1423) which could be one of the main reasons that prior research using social aspirations has produced weaker and in some cases statistically insignificant results (Iyer and Miller, 2008; Kim et al., 2015; Lim and McCann, 2014). As a result, and consistent with other studies (Moliterno and Wiersema, 2007; Ref and Shapira, 2017), we decided to utilize only historical aspirations.

Yet, to explore empirically whether managers in this sample pay attention to social aspirations (measured as the mean ROA of firms in the same 4-digit Standard Industrial Classification (SIC) code as the focal firm), we followed recommendations by Desai (2016) and conducted several tests. In particular, we estimated models that included attainment discrepancy based on historical aspirations, attainment discrepancy based on social aspirations, and control variables (listed below). A Wald test ($\chi^2 = 8.8$; 2 df, $p < 0.05$) confirmed that attainment discrepancy based on historical aspirations improved model fit and provided additional information over a model including only attainment discrepancy based on social aspirations and control variables. However, a Wald test ($\chi^2 = 0.10$; 2 df, $p = 0.95$) for attainment discrepancy based on social aspirations showed no model improvement over a model already including attainment discrepancy based on historical aspirations and control variables.

This suggests that “performance relative to social aspirations do not add information beyond models that already incorporate historical aspirations” (Desai, 2016: 868).

Finally, consistent with prior research on aspiration levels (Baum et al., 2005; Greve, 2003a; Harris and Bromiley, 2007; Iyer and Miller, 2008), we used a spline function (Greene, 2003) to account for differences in the slope of the attainment discrepancy curve depending on whether firms are above or below the aspiration point. The respective attainment discrepancy variables are as follows: *positive attainment discrepancy* equals ROA_{t-1} minus aspirations (i.e. ROA_{t-2}) when ROA_{t-1} exceeds aspirations and 0 when ROA_{t-1} is below aspirations; similarly, *negative attainment discrepancy* equals ROA_{t-1} minus aspirations (i.e. ROA_{t-2}) if ROA_{t-1} is below aspirations and 0 when ROA_{t-1} exceeds aspirations. As a result, positive attainment discrepancy is always assigned non-negative values and negative attainment discrepancy always gets a non-positive value.

The remaining moderating variables are associated with TMT characteristics and it is important to discuss what constitutes the firm’s TMT. The TMT is defined as the CEO plus the highest paid firm executives listed in Execucomp. Those executives usually possess the title of CEO, chairman, chief operating officer, chief financial officer, president, or vice-president and as such, they represent the key decision makers who are responsible for implementing the firm’s strategic choices. Such definition is consistent with prior operationalizations of the TMT (Carpenter and Fredrickson, 2001; Michel and Hambrick, 1992; Siegel and Hambrick, 2005) and descriptive statistics revealed that the average size of six TMT members in our sample is in line with findings in prior research (Carpenter and Fredrickson, 2001; Michel and Hambrick, 1992; Sanders and Carpenter, 1998).

TMT tenure diversity reflects the heterogeneity in terms of firm tenure for top executives and is measured with the coefficient of variation of the firm tenure of all TMT members (standard deviation of the team’s tenure divided by the mean tenure of the team; Allison, 1978). In a supplementary analysis, we used diversity in terms of tenure on the TMT and obtained consistent results (see Table 1A in Supplemental Appendix A).

TMT gender diversity is measured by Blau’s index of heterogeneity: $(1 - \sum p_i^2)$, where p_i is the proportion of TMT members in each of the i categories (Blau, 1977). Gender diversity ranges from 0 (all TMT members are of the same gender) to 0.5 (there is an equal number of male and female TMT members).

TMT size is calculated as the total number of top executives comprising the firm’s TMT (Carpenter and Fredrickson, 2001).

TMT pay disparity represents the difference in pay between the CEO and the rest of the firm’s TMT (Carpenter, 2002; Carpenter and Sanders, 2002; Henderson and Fredrickson, 2001) and is calculated as CEO total pay divided by average pay of the rest of the TMT members (Siegel and Hambrick, 2005). Total pay includes short-term and long-term compensation (Lambert et al., 1993) with short-term compensation being the sum of salary and bonus and long-term compensation consisting of restricted stock, stock options, and long-term incentive plans (Fredrickson et al., 2010; Ridge et al., 2013).

Control variables

We included several control variables that are likely to impact strategic risk taking. We accounted for the lagged value of the dependent variable (*prior strategic risk taking*) and the *industry strategic risk*

taking (estimated as the average level of strategic risk taking in each 4-digit SIC code industry²; Chen, 2008; Miller and Chen, 2004). Following prior research (Desai, 2008, 2016), we included *positive attainment discrepancy*. Since larger firms have more resources to allocate to various strategic initiatives (Carpenter et al., 2001; Carpenter and Fredrickson, 2001), we controlled for *firm size* measured as the log of firm assets (Audia and Greve, 2006). Slack resources have been theorized to lead to more organizational change (Iyer and Miller, 2008) and we calculated *slack* as current assets over current liabilities (Iyer and Miller, 2008). In addition, we accounted for *free cash flow* measured as (operating income—taxes—interest expense—depreciation—preferred dividend—common dividend)/equity (Haleblian et al., 2012). *Diversification* is calculated as the entropy measure (Jacquemin and Berry, 1979). *Sales growth* represents the annual rate of change in firm sales (e.g. Batt, 2002).

We also included several TMT variables that are likely to affect strategic risk taking: *TMT average tenure* (Simsek et al., 2005), *TMT average age*, and *TMT age diversity* (coefficient of variation of the age of all TMT members; Knight et al., 1999; Tihanyi et al., 2000). Finally, we controlled for time effects by including *year dummies*. All independent and control variables were measured in period t–1.

We accounted for the possibility that the moderating TMT variables might be endogenous.³ In particular, a TMT might not be randomly chosen and as a result the relationships between TMT characteristics and firm strategic risk taking might be driven by omitted variables. For example, the tenure diversity, gender diversity, size, and pay disparity of the TMT could be driven by executive turnover mandated by the board of directors and by external conditions surrounding the firm. An appropriate way to address potential endogeneity of the TMT variables is by conducting a two-stage procedure (e.g. Chin et al., 2013; Sanders and Hambrick, 2007). In the first stage, each of the four moderating TMT variables (measured in time t–1) served as a dependent variable and was regressed on several firm, board, and industry variables (measured in time t–2) and year dummies. Those variables were firm size, level of diversification, prior performance, prior strategic risk taking, board independence, and CEO duality. In addition, for each of these four moderating TMT variables, we identified relevant instrumental variables such as TMT turnover (measured in time t–2 and operationalized as the sum of the annual number of new executive additions and exits from the team) (e.g. Karaevli, 2007; Tushman and Rosenkopf, 1996), industry munificence (Dess and Beard, 1984), industry average TMT tenure diversity, and industry average TMT pay disparity. As required, these variables were significant predictors of the four moderating TMT variables but were not significantly related to the ultimate dependent variable firm strategic risk taking (e.g. Quigley and Hambrick, 2012). Next, we examined whether the instrumental variables met the requirements of relevance and exogeneity (Kennedy, 2008; Semadeni et al., 2014). The significant F-statistic confirmed instrument relevance and the non-significant Sargan statistic confirmed instrument exogeneity (Bascle, 2008). We further examined whether TMT tenure diversity, TMT gender diversity, TMT size, and TMT pay disparity were endogenous—a non-significant Durbin-Wu-Hausman test did not reject the null hypothesis that those four variables were exogenous. Finally, we calculated the predicted values for each of the four moderating TMT variables. In the second stage, we used those predicted values as endogeneity controls in the regressions with our ultimate dependent variable strategic risk taking. The endogeneity controls were not significant predictors of strategic risk taking and did not change the

results reported here.⁴ We also applied the same endogeneity approach to the key independent variable attainment discrepancy and obtained consistent results.

Estimation method

We utilized a panel data design with multiple observations per firm. Relying on ordinary least squares (OLS) was inappropriate due to concerns for autocorrelation and lack of independence among observations within a firm (Bliese, 2000; Certo and Semadeni, 2006). As a result, we used generalized estimation equations (GEE; Crossland et al., 2014; Kolev and McNamara, 2020; Quigley and Hambrick, 2012). GEE models offer maximum likelihood estimates, effectively account for non-independence of multiple observations per firm, and control for unobserved differences across firms (Hanley et al., 2003; Liang and Zeger, 1986). In addition, GEE models are appropriate when some of the variables are relatively stable over time as is the case with TMT characteristics. GEE models require the specification of a distribution family, link function, and correlation structure. We used a Gaussian distribution, identity link function, and an exchangeable correlation structure.

We handled extreme outliers by winsorizing the following variables at the 99th percentile (Kolev et al., 2017; McNamara et al., 2008): strategic risk taking, slack, free cash flow, sales growth, negative attainment discrepancy, positive attainment discrepancy, and TMT pay disparity. All variables were standardized with a mean of zero and standard deviation of one prior to calculating interaction terms in order to reduce multicollinearity concerns. The variance inflation factors for all substantive variables did not exceed 2.21 which further reduces concerns over multicollinearity (Cohen et al., 2003).

Results

Table 1 provides descriptive statistics and correlation coefficients. Table 2 shows the GEE regression models testing the hypotheses.

Table 1. Descriptive statistics and correlations.^a

Variables	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Strategic risk taking	0.69	1.52	-4.24	10.56	1															
2. Strategic risk taking lagged	0.72	1.52	-3.64	10.56	0.40	1.00														
3. Industry strategic risk taking	0.86	2.27	-4.05	17.60	0.14	0.08	1.00													
4. Firm size	7.11	1.57	1.80	12.27	0.02	0.01	0.04	1.00												
5. Slack	3.18	2.33	0.65	13.81	-0.05	-0.08	-0.02	-0.31	1.00											
6. Free cash flow	0.07	0.66	-6.65	6.13	0.01	-0.17	0.01	0.10	-0.02	1.00										
7. Diversification	0.32	0.43	0	1.77	0.01	0.01	-0.05	0.33	-0.28	0.03	1.00									
8. Sales growth	0.12	0.31	-0.56	1.59	0.02	-0.01	0.04	-0.04	0.06	0.06	-0.08	1.00								
9. TMT average tenure	10.25	4.24	0.60	33	-0.04	-0.05	0.01	0.22	-0.01	0.04	0.15	-0.04	1.00							
10. TMT average age	53.04	3.05	38.75	71.20	0.00	0.01	0.04	0.13	-0.06	0.05	0.22	-0.04	0.40	1.00						
11. TMT age diversity	0.10	0.06	0	0.29	-0.02	-0.03	-0.01	-0.15	0.11	-0.03	-0.06	0.02	0.15	-0.07	1.00					
12. Positive attainment discrepancy	0.04	0.10	0	0.66	0.04	0.06	0.07	-0.14	0.00	-0.07	-0.11	0.18	-0.11	-0.07	0.01	1.00				
13. Negative attainment discrepancy	-0.05	0.10	-0.63	0	-0.10	-0.11	-0.04	0.16	0.02	0.11	0.10	0.21	0.11	0.10	-0.04	0.18	1.00			
14. TMT tenure diversity	0.57	0.26	0	2.45	-0.01	-0.03	-0.03	-0.07	-0.00	-0.02	-0.04	-0.01	-0.20	-0.06	-0.03	0.02	-0.08	1.00		
15. TMT gender diversity	0.09	0.15	0	0.50	-0.02	-0.02	0.01	0.03	-0.04	0.05	-0.03	-0.01	-0.09	-0.12	-0.04	-0.03	0.01	0.00	1.00	
16. TMT size	6.07	1.30	3	14	0.01	0.02	-0.02	0.12	-0.11	-0.01	0.08	-0.09	-0.08	0.02	-0.19	-0.01	-0.05	0.04	0.03	1.00
17. TMT pay disparity	3.25	2.17	0.26	14.05	-0.00	0.01	0.01	0.15	-0.10	0.03	0.10	-0.00	-0.14	-0.05	-0.11	-0.03	0.03	0.03	0.04	0.19

SD: standard deviation; TMT: top management team.

^aN ute value than 0.04 are significant at the 0.05 level.**Table 2.** GEE regression of factors predicting strategic risk taking.

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	0.740***	0.743***	0.740***	0.736***	0.741***	0.743***
	(0.100)	(0.099)	(0.100)	(0.100)	(0.099)	(0.099)
Strategic risk taking lagged	0.509***	0.509***	0.510***	0.505***	0.506***	0.502***
	(0.097)	(0.097)	(0.097)	(0.097)	(0.097)	(0.096)
Industry strategic risk taking	0.154 ⁺	0.156 [*]	0.154 ⁺	0.152 ⁺	0.153 ⁺	0.154 ⁺
	(0.079)	(0.078)	(0.078)	(0.079)	(0.079)	(0.079)
Firm size	0.044	0.048	0.044	0.047	0.042	0.050
	(0.037)	(0.037)	(0.037)	(0.036)	(0.037)	(0.036)
Slack	-0.018	-0.016	-0.018	-0.014	-0.017	-0.013
	(0.034)	(0.034)	(0.034)	(0.033)	(0.034)	(0.033)
Free cash flow	0.140 ⁺	0.139 ⁺	0.140 ⁺	0.137 ⁺	0.143 ⁺	0.141 ⁺
	(0.081)	(0.082)	(0.081)	(0.081)	(0.081)	(0.081)

Diversification	0.005	0.005	0.005	0.004	0.005	0.004
	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.030)
Sales growth	0.022	0.022	0.022	0.022	0.023	0.024
	(0.043)	(0.043)	(0.043)	(0.042)	(0.043)	(0.042)
TMT average tenure	-0.035	-0.034	-0.035	-0.036	-0.033	-0.032
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
TMT average age	0.001	0.002	0.001	0.003	0.002	0.003
	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)
TMT age diversity	-0.005	-0.004	-0.005	-0.005	-0.004	-0.004
	(0.030)	(0.031)	(0.030)	(0.030)	(0.030)	(0.031)
Positive attainment discrepancy	0.042	0.043	0.043	0.044	0.044	0.045
	(0.042)	(0.042)	(0.042)	(0.042)	(0.041)	(0.042)
Negative attainment discrepancy	-0.107**	-0.096**	-0.107**	-0.113**	-0.109**	-0.098**
	(0.039)	(0.039)	(0.039)	(0.040)	(0.039)	(0.039)
TMT tenure diversity	0.005	-0.004	0.005	0.005	0.009	-0.002
	(0.031)	(0.031)	(0.031)	(0.031)	(0.032)	(0.032)
TMT gender diversity	-0.016	-0.015	-0.016	-0.016	-0.016	-0.013
	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
TMT size	-0.019	-0.018	-0.018	-0.012	-0.019	-0.014
	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)
TMT pay disparity	-0.025	-0.029+	-0.025	-0.024	-0.019	-0.024
	(0.021)	(0.022)	(0.021)	(0.021)	(0.021)	(0.022)
Negative attainment discrepancy×TMT tenure diversity (Hypothesis 1a)		-0.049*				-0.064*
		(0.028)				(0.030)
Negative attainment discrepancy×TMT gender diversity (Hypothesis 1b)			0.004			-0.010
			(0.036)			(0.036)
Negative attainment discrepancy×TMT size (Hypothesis 2)				0.051*		0.035+
				(0.025)		(0.025)
Negative attainment discrepancy×TMT pay disparity (Hypothesis 3)					0.048*	0.058*
					(0.022)	(0.026)
Wald Chi ²	214.2***	218.3***	215.1***	229.1***	236.5***	244.2***

TMT: top management team. N = 3265 Robust standard errors in parentheses. Two-tailed significance tests are used for control variables and one-tailed tests for hypothesized variables. +p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001.

Year dummies calculated in the models but excluded from table for brevity.

Model 1 includes control and independent variables only. It is important to acknowledge that a negative coefficient for negative attainment discrepancy indicates that as performance falls farther below aspirations, firms pursue more strategic risk taking. Indeed, the coefficient is negative and statistically significant ($\beta = -0.107$, $p < 0.01$, see Model 1).

Models 2–6 test the moderation hypotheses. Hypothesis 1a argued that TMT tenure diversity would weaken firm responsiveness to negative performance cues. Yet, the findings are opposite to Hypothesis 1a. In particular, the interaction term of TMT tenure diversity and negative attainment discrepancy is negative and significant ($\beta = -0.049$, $p < 0.05$, see Model 2). What this means is that firms with more diverse TMTs in terms of members' tenure are more responsive to performance shortfalls. Figure 1 offers visual representation of the moderation effect. As negative attainment discrepancy moves farther to the left and away from the zero point (the zero point represents performance equal to aspirations), the slope of the relationship between negative attainment discrepancy and strategic risk taking is steeper for firms with greater TMT tenure diversity. Hypothesis 1b proposed that TMT gender diversity would weaken the main relationship between negative attainment discrepancy and strategic risk taking. Since the interaction term of TMT gender diversity and negative attainment discrepancy is not statistically significant (see Model 3), we fail to support Hypothesis 1b. Hypothesis 2 proposed that TMT size would weaken firm responsiveness to poor performance. The interaction term of negative attainment discrepancy and TMT size is positive and significant ($\beta = 0.051$, $p < 0.05$, see Model 4) providing support for the hypothesis. Figure 2 shows that the slope of the negative attainment discrepancy-strategic risk taking relationship is less steep for firms with larger TMTs. Finally, Hypothesis 3 theorized that TMT pay disparity would weaken the relationship between performance shortfalls and strategic risk taking. Looking at the results, the interaction term of negative attainment discrepancy and TMT pay disparity is positive and significant ($\beta = 0.048$, $p < 0.05$, see Model 5) lending support for Hypothesis 3. The visual representation of this moderating effect in Figure 3 indicates that firms with greater TMT pay disparity are less responsive to poor performance.

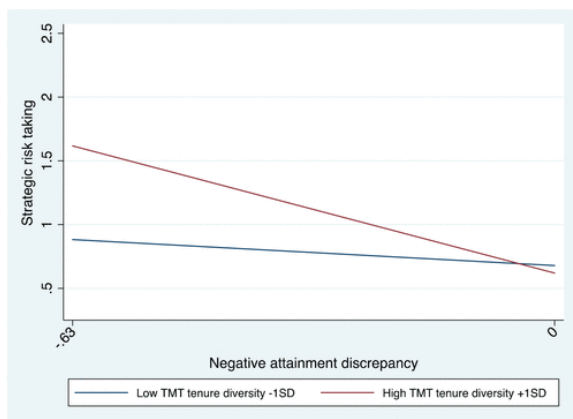


Figure 1. Interaction of negative attainment discrepancy and TMT tenure diversity.

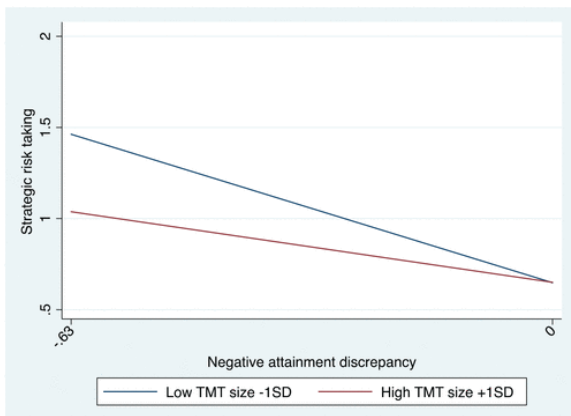


Figure 2. Interaction of negative attainment discrepancy and TMT size.

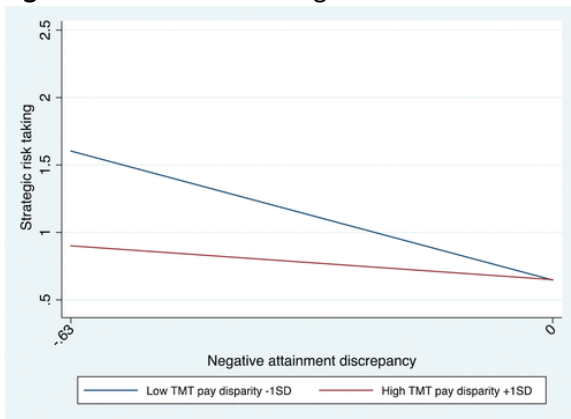


Figure 3. Interaction of negative attainment discrepancy and TMT pay disparity.

Robustness checks

We conducted multiple robustness checks to examine whether additional control variables might impact the hypothesized relationships. In particular, we controlled for proximity to bankruptcy, CEO gender, board size, director independence, CEO duality, and board gender diversity. The results remained consistent with the ones reported in the article. Furthermore, we re-estimated the models using random effects regressions and obtained very similar results.

Discussion

In this article, we integrated UET and BTOF to better understand the role of the TMT in firm responses to negative performance cues. While TMTs are directly responsible for guiding firm strategy and implementing various strategic choices in response to different stimuli (Cyert and March, 1963; Hambrick, 2007), their role in addressing poor performance has been overlooked in prior studies on performance feedback. By addressing this gap in prior literature, our study hopes to shed more light on why some firms are more responsive to and better equipped to address firm financial problems. We theorized that TMT structure impacts the internal dynamics and relationships among members of the team and affects how they interpret negative attainment discrepancy, formulate a course of action, and undertake strategic risk taking in response to such discrepancy. Our findings revealed that TMT tenure diversity, TMT size, and TMT pay disparity are critical contingencies that moderate the relationship between negative attainment discrepancy and strategic risk taking.

Contrary to Hypothesis 1a, we found that TMT tenure diversity facilitated responsiveness to poor performance. What this result suggests is that the greater cognitive heterogeneity associated with more tenure-diverse TMTs leads to a broader mind-set, sharing of a greater number of alternatives (Barkema and Shvyrkov, 2007; Horwitz and Horwitz, 2007), and higher likelihood of identifying high potential, risky options as a response to poor performance. As a result, greater TMT tenure diversity enables TMTs to address poor performance by undertaking more strategic risk taking. These findings offer insight on the question of whether diversity benefits associated with greater information outweigh the strains from diversity in reaching a conclusion and successfully implementing a course of action. Our findings are consistent with some prior research that has argued that while a diverse TMT might exhibit internal conflicts and strains, such a team has “a broad potential repertoire . . . to conceive and launch actions” which “should outweigh the dampening effects of internal strains” (Hambrick et al., 1996: 665). Stated differently, while TMT tenure diversity could generate some interpersonal conflict which undermines cooperation among top executives, this effect is compensated by the task-related conflict generated by greater TMT tenure diversity which encourages information exchange and joint decision making (Pelled, 1996; Pelled et al., 1999). As a result, the diverse competencies and experiences possessed by top executives with different tenures could be utilized to implement an effective course of action (Bezrukova et al., 2009; Hutzschenreuter and Horstkotte, 2013), including greater strategic risk taking in the face of poor performance.

We did not find support for Hypothesis 1b—in our sample, TMT gender diversity does not appear to play a role in managerial responses to performance cues. This result is in line with prior research showing that surface-level characteristics are less likely to have a deep and long-lasting impact on interpersonal conflict and coordination (Naranjo-Gil et al., 2008) since surface-level diversity dissipates over time (Harrison et al., 1998). We take these findings as indication that gender diversity is not a potent driver of internal team dynamics in terms of responding to poor firm performance.

Overall, our TMT diversity findings also speak to the broader debate on the role of managerial diversity on firm strategic choices (Barkema and Shvyrkov, 2007; Haynes and Hillman, 2010; Nadolska and Barkema, 2014; Wiersema and Bantel, 1992). The results of Hypothesis 1a suggest that tenure heterogeneity does not overly inhibit reaching consensus in low performance conditions, likely because the threat of the situation creates the conditions necessary to impel action. Ultimately, the surrounding context represents a key contingency that could determine whether the benefits of tenure diversity, such as greater idea generation and identification of alternatives, outweigh the drawbacks of tenure diversity in terms of member agreement and joint decision making. Furthermore, the lack of support for Hypothesis 1b suggests that gender diversity could play a differentiated role on managerial decision making across various firm strategic activities (cf. Chen et al., 2016; Kolev and McNamara, 2020; Triana et al., 2013).

Regarding the remaining two hypotheses, the empirical results provided support for the theoretical arguments that larger TMTs and TMTs with greater pay disparity show lower responsiveness to poor performance. In particular, a larger number of top executives are likely to exhibit more interpersonal conflict leading to ineffective communication and collaboration among team members and ultimately to lower ability and willingness to pursue a common course of action in the face of performance

shortfalls. This finding is consistent with prior research on corporate boards finding that more directors have difficulty undertaking divestitures when performance deteriorates (Desai, 2016).

Similarly, greater TMT pay disparity is another contingency under which firms are less responsive to poor performance. Since pay disparity could generate interpersonal conflict (Bloom and Michel, 2002), reduced trust (Whyte, 1955), and withholding of information among TMT members (Henderson and Fredrickson, 2001), it undermines collaboration and implementation of a common course of action in the face of negative attainment discrepancy. Thus, allowing bigger pay gaps among TMT members appears to be an ineffective compensation design that could prevent firms from addressing their financial struggles.

Implications for theory and practice

This article incorporates UET into the BTOF to examine the joint impact of firm performance and TMT characteristics on strategic behavior. This allows for a better and more comprehensive understanding of the drivers of strategic decisions, especially decisions under uncertainty and performance problems. In particular, this article highlights the importance of TMT characteristics in affecting how managers interpret and encode performance information as well as coordinating action. When the TMT is structured in a way to facilitate these internal team processes, top managers are better positioned to effectively respond to performance threats.

To further explore the relative significance of the three statistically significant TMT attributes, we conducted supplementary analyses to test the relative strength of TMT tenure diversity, TMT size, or TMT pay disparity as moderators of the relationship between negative attainment discrepancy and strategic risk taking. We found no evidence that any of these had a larger moderating impact than the other two. The lack of statistically significant differences in the strength of the moderating TMT attributes suggests that if a firm's objective is to enhance its responsiveness to performance shortfalls, it can do it through alternative routes—by increasing TMT tenure diversity, by reducing TMT size, or by reducing TMT pay disparity.

Another contribution of the article is the focus on the human element in the BTOF. While a handful of studies have looked at the moderating role of CEOs and board of directors in performance feedback research (Desai, 2016; Lim and McCann, 2014; Wangrow et al., 2019), we specifically focused on the whole team of top executives and examined several TMT characteristics facilitating or inhibiting firm responsiveness to performance shortfalls. Thus, this article contributes to better understanding of the motivational and relational aspects of managerial behavior as important determinants of firm responses to performance cues (Gavetti et al., 2007; Mahoney, 2005).

In line with the findings that executives in our sample appear to prioritize historical aspirations over social aspirations, we were interested in examining whether executives responded differentially to different types of performance cues. In particular, we created attainment discrepancy measures based on annual stock-price returns and tested how firm top executives respond to market-based performance cues.⁵ The only coefficient that was marginally significant was the interaction of negative attainment discrepancy and TMT size ($p < 0.1$). This finding is in line with prior research suggesting that operating performance factors are more powerful predictors of managerial choices than market-based measures (Bromiley and Harris, 2014). We interpret these results as indication that executives focus

their attention to performance that is more directly under their control (such as ROA) and are less sensitive to performance cues over which they have little control (such as market-based performance). This finding is consistent with the controllability principle, which states that evaluation systems should be oriented around controllable performance criteria (Antle and Demski, 1988).

Finally, this article extends the contingency view of the BTOF. While majority of prior studies have looked at moderating factors residing at the industry- and firm-level of analysis (Audia and Greve, 2006; Vissa et al., 2010; Wiklund and Shepherd, 2003), we draw attention to factors at the team-level of analysis—the unit primarily responsible for addressing attainment discrepancies. Ultimately, by focusing on several TMT characteristics we provide evidence that while poor performance can serve as a “master switch” to drive search and risk taking (Greve, 2003b), it is various TMT characteristics that determine the level of firm responsiveness to performance cues. Thus, the article moves away from focusing on the well-established question “Does poor performance trigger firm strategic responses?” to examining the more specific question “When is the relationship between poor performance and strategic response more or less pronounced?”

The findings in the study also have important practical implications. First, it appears that if a firm is trying to address its financial problems through undertaking strategic risk taking, the involvement of a larger group of top executives might be less than optimal. Instead, if firms believe that strategic risk taking is the answer to closing existing performance gaps, they would be better served with a smaller but also more tenure-diverse team of key decision makers.

Second, designing the appropriate compensation of TMT members is an important component of addressing existing financial problems. In particular, a reduced pay disparity (or greater pay equality) among top executives could increase their motivation for collaboration, achieving consensus, and pursuing a common course of action in the face of deteriorating performance.

Finally, examining the effect sizes of the key variables in the study reveals the importance of prior performance and TMT characteristics as drivers of strategic risk taking. For example, when firms at the lowest end of performance in the sample (i.e. negative attainment discrepancy equals -0.63) increase their TMT tenure diversity by one standard deviation above the mean, strategic risk taking jumps by 29%. Similarly, for firms at the lowest end of performance, a one standard deviation increase in TMT size (i.e. adding an additional executive to the team) results in 17% decrease in strategic risk taking. Likewise, for firms at the lowest end of performance, a one standard deviation increase in TMT pay disparity leads to 23% decrease in strategic risk taking.

Limitations and future research

This study is not without limitations which point to potential directions for future research. First, while we focused on key structural attributes of the TMT, additional TMT characteristics might also moderate the relationship between performance shortfalls and strategic risk taking. For example, we also considered including functional and educational diversity. However, in assessing the availability of the detailed data needed to determine these attributes, we found that data were unavailable for about one-third of our sample, primarily for non-CEO executives from the earlier years of our sample. Thus, utilizing a broad time window that allows us to include varying economic conditions limited our ability

to include these measures. Future research, especially studies examining a current and near recent sample, may be able to more effectively capture these demographic constructs.

Personality traits, such as agreeableness or openness to experience, could also be examined in future research since they facilitate the internal dynamics of the TMT and thus play a contingent role on how firms respond to negative attainment discrepancy. Another characteristic of the TMT that could impact how firms respond to performance shortfalls is the level of discretion the team has over strategic choices. If TMT members experience greater discretion, they might be more open and willing to search for solutions to weak performance (see, for review, Wangrow et al., 2014). Furthermore, given prior evidence that various groups of firm leaders impact strategic decisions (e.g. Desai, 2016), future research could examine how the interactions between the TMT and the board of directors impact firm responses to poor performance. Does greater disparity, reflected in organizational tenure or pay, between these two groups facilitate or hinder strategic risk taking in the face of performance shortfalls? It would also be interesting to study whether TMT members sitting on the board improve communication and coordination between the two groups of decision makers and ultimately affect firm responses to performance cues.

Second, as with majority of prior UEP and BTOF research, we relied on secondary data which allowed us to only theorize but not observe directly the underlying mechanisms of TMT dynamics and functioning. Furthermore, to assess negative attainment discrepancies, we utilized only historical aspirations given difficulties with assessing social reference points (cf. Ref and Shapira, 2017). Future research could utilize additional techniques, such as survey data, content analysis, and case studies (Buyl et al., 2011), to capture more directly the interactions and relations among TMT members and identify the appropriate social comparisons that are utilized by firms.

Third, for comparative purposes with prior research (Chen and Miller, 2007; Lim and McCann, 2014; Miller and Chen, 2004), this study relied on a sample of manufacturing firms. It is important for future research to test the generalizability of the findings across different industries. It is reasonable to assume that various industries present different challenges for TMT functioning and dynamics and thus would impact how firms respond to performance cues. For example, industries with greater dynamism necessitate quick decisions (Baum and Wally, 2003) making collaboration and communication particularly important for a TMT to effectively respond to performance shortfalls. Thus, small TMTs and TMTs with lower pay disparity might be better equipped to respond to poor performance in highly dynamic industries.

Finally, the focus in this article was on how attainment discrepancy influences strategic risk taking and under what conditions the relationship is stronger or weaker. An important extension of this study is to examine whether and when strategic risk taking translates in improved future performance. We speculate that strategic risk taking undertaken by a TMT with greater tenure diversity (due to the availability of alternative perspectives and solutions) and a TMT with smaller size and lower pay disparity (due to members' ability and motivation to collaborate and work together) would result in improvements to financial performance.

Conclusion

In summary, this article represents an initial step toward integrating BTOF and UET to examine the contingent effect of TMT attributes on firm responses to performance cues. We theorize and find empirical support that certain TMT characteristics—TMT tenure diversity, TMT size, and TMT pay disparity—affect how managers interpret and encode performance information and coordinate a course of action in order to address firm performance.

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Supplemental material

Supplemental material for this article is available online.

Notes

- 1 We acknowledge that there are various TMT characteristics that could be potentially examined. However, to develop a parsimonious model, we focus on few that are most likely to: 1) allow comparison with prior findings in the literature; and 2) ensure accurate measurement and construct validity. For example, tenure diversity “has been the most common form of diversity studied by TMT scholars” (Hambrick et al., 2015: 450) allowing us to compare our findings on the impact of tenure diversity with prior research. It is also a demographic characteristic that can be measured cleanly. As Finkelstein and colleagues (2009: 50) note, “an executive’s tenure in the firm is open to essentially no measurement error”. Furthermore, TMT gender diversity, size, and pay disparity are easily observable characteristics by TMT members and should have lasting effects on TMT functioning and dynamics.
- 2 In robustness tests, we included industry dummies and obtained consistent results with the ones reported here. We would like to thank an anonymous reviewer for these suggestions.
- 3 We would like to thank an anonymous reviewer for suggesting endogeneity tests.
- 4 Detailed endogeneity analyses and other robustness tests are presented in Supplemental Appendix A.
- 5 We would like to thank an anonymous reviewer for this suggestion.

References

- Allison, PD (1978) Measures of inequality. *American Sociological Review* 43: 865–880.
- Amason, AC, Sapienza, HJ (1997) The effects of top management team size and interaction norms on cognitive and affective conflict. *Journal of Management* 23: 495–516.
- Ancona, DG, Caldwell, DF (1992) Demography and design: Predictors of new product team performance. *Organization Science* 3: 321–341.

- Antle, R, Demski, J (1988) The controllability principle in responsibility accounting. *The Accounting Review* 63: 700–716.
- Audia, PG, Greve, HR (2006) Less likely to fail: Low performance, firm size, and factory expansion in the shipbuilding industry. *Management Science* 52(1): 83–94.
- Barkema, HG, Shvyrkov, O (2007) Does top management team diversity promote or hamper foreign expansion? *Strategic Management Journal* 28: 663–680.
- Bascle, G (2008) Controlling for endogeneity with instrumental variables in strategic management research. *Strategic Organization* 6: 285–327.
- Batt, R (2002) Managing customer services: Human resource practices, quit rates, and sales growth. *Academy of Management Journal* 45: 587–597.
- Baugh, SG, Graen, GB (1997) Effects of team gender and racial composition on perceptions of team performance in cross-functional teams. *Group & Organization Management* 22(3): 366–383.
- Baum, JAC, Rowley, TJ, Shipilov, AV, et al. (2005) Dancing with strangers: Aspiration performance and the search for underwriting syndicate partners. *Administrative Science Quarterly* 50(4): 536–575.
- Baum, R, Wally, S (2003) Strategic decision speed and firm performance. *Strategic Management Journal* 24: 1107–1129.
- Bezrukova, K, Jehn, KA, Zanutto, EL, et al. (2009) Do workgroup faultlines help or hurt? A moderated model of faultlines, team identification, and group performance. *Organization Science* 20: 35–50.
- Blau, PM (1977) *Inequality and Heterogeneity*. New York: Free Press.
- Bliese, PD (2000) An introduction to multilevel modeling techniques. *Personnel Psychology* 53(4): 1062–1065.
- Bloom, M (1999) The performance effects of pay dispersion on individuals and organizations. *Academy of Management Journal* 42: 25–40.
- Bloom, M, Michel, JG (2002) The relationships among organizational context, pay dispersion, and managerial turnover. *Academy of Management Journal* 45: 33–42.
- Bromiley, P (1991) Testing a causal model of corporate risk-taking and performance. *Academy of Management Journal* 34(1): 37–59.
- Bromiley, P (2005) *The Behavioral Foundations of Strategic Management*. Malden, MA: Blackwell.
- Bromiley, P, Harris, JD (2014) A comparison of alternative measures of organizational aspirations. *Strategic Management Journal* 35(3): 338–357.
- Buyl, T, Boone, C, Matthyssens, P (2011) Upper echelons research and managerial cognition. *Strategic Organization* 9: 240–246.
- Carpenter, MA (2002) The implications of strategy and social context for the relationship between top management team heterogeneity and firm performance. *Strategic Management Journal* 23: 275–284.
- Carpenter, MA, Fredrickson, JW (2001) Top management teams, global strategic posture, and the moderating role of uncertainty. *Academy of Management Journal* 44(3): 533–545.
- Carpenter, MA, Geletkanycz, MA, Sanders, WG (2004) Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management* 30: 749–778.
- Carpenter, MA, Sanders, W (2002) Top management team compensation: the missing link between CEO pay and firm performance? *Strategic Management Journal* 23: 367–375.

- Carpenter, MA, Sanders, WG, Gregersen, HB (2001) Bundling human capital with organizational context: The impact of international assignment experience on multinational firm performance and CEO pay. *Academy of Management Journal* 44: 493–511.
- Certo, ST, Semadeni, M (2006) Strategy research and panel data: Evidence and implications. *Journal of Management* 32(3): 449–471.
- Chen, G, Crossland, C, Huang, S (2016) Female board representation and corporate acquisition intensity. *Strategic Management Journal* 37: 303–313.
- Chen, WR (2008) Determinants of firms' backward- and forward-looking R&D search behavior. *Organization Science* 19: 609–622.
- Chen, WR, Miller, KD (2007) Situational and institutional determinants of firms' R&D search intensity. *Strategic Management Journal* 28: 369–381.
- Chin, MK, Hambrick, DC, Treviño, LK (2013) Political ideologies of CEOs: The influence of executives' values on corporate social responsibility. *Administrative Science Quarterly* 58: 197–232.
- Cohen, J, Cohen, P, West, SG, et al. (2003) *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*. Mahwah, NJ: Erlbaum.
- Cowherd, D, Levine, D (1992) Product quality and pay equity between lower-level employees and top management: An investigation of distributive justice theory. *Administrative Science Quarterly* 37: 302–320.
- Cox, TH, Lobel, SA, McLeod, PL (1991) Effects of ethnic group cultural differences on cooperative and competitive behavior on a group task. *Academy of Management Journal* 34(4): 827–847.
- Crosby, F (1976) A model of egoistical relative deprivation. *Psychological Review* 83: 85–113.
- Crossland, C, Zyung, JY, Hiller, NJ, et al. (2014) CEO career variety: Effects on firm-level strategic and social novelty. *Academy of Management Journal* 57(3): 652–674.
- Cyert, RM, March, JG (1963) *A Behavioral Theory of the Firm*. Englewood Cliffs, NJ: Prentice-Hall.
- Desai, V (2016) The behavioral theory of the (governed) firm: Corporate board influences on organizations' responses to performance shortfalls. *Academy of Management Journal* 59: 860–879.
- Desai, VM (2008) Constrained growth: How experience, legitimacy, and age influence risk taking in organizations. *Organization Science* 19(4): 594–608.
- Dess, GG, Beard, DW (1984) Dimensions of organizational task environments. *Administrative Science Quarterly* 29(1): 52–73.
- Deutsch, M (1969) Conflicts: Productive and destructive. *Journal of Social Issues* 25: 7–41.
- Deutsch, M (1985) *Distributive Justice: A Social Psychological Perspective*. New Haven, CT: Yale University Press.
- Devers, CE, McNamara, G, Wiseman, RM, et al. (2008) Moving closer to the action: Examining compensation design effects on firm risk. *Organization Science* 19: 548–566.
- Dowell, GWS, Shackell, MB, Stuart, NV (2011) Boards, CEOs, and surviving a financial crisis: Evidence from the internet shakeout. *Strategic Management Journal* 32: 1025–1045.
- Dye, RA (1984) The trouble with tournaments. *Economic Inquiry* 22: 147–149.
- Eisenhardt, KM, Bourgeois, LJ (1988) Politics of strategic decision-making in high-velocity environments: Toward a midrange theory. *Academy of Management Journal* 31: 73–770.
- Festinger, L (1954) A theory of social comparison processes. *Human Relations* 7: 117–140.
- Finkelstein, S, Hambrick, DC (1990) Top management team tenure and organizational outcomes. *Administrative Science Quarterly* 35: 484–503.
- Finkelstein, S, Hambrick, DC, Cannella, AA (2009) *Strategic Leadership: Theory and Research on Executives, Top Management Teams, and Boards*. New York: Oxford University Press.

- Fredrickson, JW, Davis-Blake, A, Sanders, WG (2010) Sharing the wealth: Social comparisons and pay dispersion in the CEO's top team. *Strategic Management Journal* 31: 1031–1053.
- Gavetti, G, Greve, HR, Levinthal, DA, et al. (2012) The behavioral theory of the firm: Assessment and prospects. *Academy of Management Annals* 6: 1–40.
- Gavetti, G, Levinthal, D, Ocasio, W (2007) Neo-carnegie: The carnegie school's past, present, and reconstructing for the future. *Organization Science* 18(3): 523–536.
- Greene, WH (2003) *Econometric Analysis*. Upper Saddle River, NJ: Prentice Hall.
- Greve, HR (1998) Performance, aspirations, and risky organizational change. *Administrative Science Quarterly* 43(1): 58–86.
- Greve, HR (2003a) A behavioral theory of R&D expenditures and innovations: Evidence from shipbuilding. *Academy of Management Journal* 46(6): 685–702.
- Greve, HR (2003b) *Organizational Learning from Performance Feedback: A Behavioral Perspective on Innovation and Change*. Cambridge: Cambridge University Press.
- Haleblian, JJ, McNamara, G, Kolev, K, et al. (2012) Exploring firm characteristics that differentiate leaders from followers in industry merger waves: A competitive dynamics perspective. *Strategic Management Journal* 33(9): 1037–1052.
- Hambrick, DC (1995) Fragmentation and the other problems CEOs have with their top management teams. *California Management Review* 37: 110–127.
- Hambrick, DC (2007) Upper echelon theory: An update. *Academy of Management Review* 32: 334–343.
- Hambrick, DC, Cho, TS, Chen, M-J (1996) The influence of top management team heterogeneity on firms' competitive moves. *Administrative Science Quarterly* 41: 659–684.
- Hambrick, DC, Humphrey, SE, Gupta, A (2015) Structural interdependence within top management teams: A key moderator of upper echelons predictions. *Strategic Management Journal* 36: 449–461.
- Hambrick, DC, Mason, PA (1984) Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review* 9: 193–206.
- Hanley, JA, Negassa, A, Edwardes, MD, et al. (2003) Statistical analysis of correlated data using generalized estimating equations: An orientation. *American Journal of Epidemiology* 157: 364–375.
- Harris, J, Bromiley, P (2007) Incentives to cheat: The influence of executive compensation and firm performance on financial misrepresentation. *Organization Science* 18(3): 350–367.
- Harrison, DA, Price, KH, Bell, MP (1998) Beyond relational demography: Time and the effects of surface-and deep-level diversity on work group cohesion. *Academy of Management Journal* 41: 96–107.
- Harrison, DA, Price, KH, Gavin, JH, et al. (2002) Time, teams, and task performance: Changing effects of surface-and deep-level diversity on group functioning. *Academy of Management Journal* 45(5): 1029–1045.
- Harrison, EF (1975) *The Managerial Decision-Making Process*. Boston, MA: Houghton Mifflin.
- Haynes, KT, Hillman, A (2010) The effect of board capital and CEO power on strategic change. *Strategic Management Journal* 31(11): 1145–1163.
- Henderson, A, Fredrickson, J (2001) Top management team coordination needs and the CEO pay gap: A competitive test of economic and behavioral views. *Academy of Management Journal* 44: 96–117.

- Hoffman, LR, Maier, NRF (1961) Quality and acceptance of problem solutions by members of homogenous and heterogenous groups. *Journal of Abnormal and Social Psychology* 58: 27–32.
- Hogg, MA, Terry, DI (2000) Social identity and self-categorization processes in organizational contexts. *Academy of Management Review* 25(1): 121–140.
- Horwitz, SK, Horwitz, IB (2007) The effects of team diversity on team outcomes: A meta-analytic review of team demography. *Journal of Management* 33: 987–1015.
- Hutzschenreuter, T, Horstkotte, J (2013) Performance effects of top management team demographic faultlines in the process of product diversification. *Strategic Management Journal* 34: 704–726.
- Iyer, DN, Miller, KD (2008) Performance feedback, slack, and the timing of acquisitions. *Academy of Management Journal* 51(4): 808–822.
- Jacquemin, AP, Berry, CH (1979) Entropy measure of diversification and corporate-growth. *Journal of Industrial Economics* 27(4): 359–369.
- Jehn, KA (1997) A qualitative analysis of conflict types and dimensions in organizational groups. *Administrative Science Quarterly* 42: 530–557.
- Joseph, J, Klingebiel, R, Wilson, AJ (2016) Organizational structure and performance feedback: Centralization, aspirations, and termination decisions. *Organization Science* 27: 1065–1083.
- Karaevli, A (2007) Performance consequences of new CEO “outsiderness”: Moderating effects of pre- and post-succession contexts. *Strategic Management Journal* 28: 681–706.
- Kennedy, P (2008) *A Guide to Econometrics*, 2nd edn. Oxford: Blackwell.
- Kim, JY, Finkelstein, S, Halebian, J (2015) All aspirations are not created equal: The differential effects of historical and social aspirations on acquisition behavior. *Academy of Management Journal* 58(5): 1361–1388.
- Knight, D, Pearce, CL, Smith, KG, et al. (1999) Top management team diversity, group process, and strategic consensus. *Strategic Management Journal* 20: 445–465.
- Kolev, K, Wiseman, RM, Gomez-Mejia, L (2017) Do CEOs ever lose? Fairness perspective on the allocation of residuals between CEOs and shareholders. *Journal of Management* 43: 610–637.
- Kolev, KD, McNamara, G (2020) Board demography and divestitures: The impact of gender and racial diversity on divestiture rate and divestiture returns. *Long Range Planning* 53: 101881.
- Kor, YY (2006) Direct and interaction effects of top management team and board compositions on R&D investment strategy. *Strategic Management Journal* 27: 1081–1099.
- Kuusela, P, Keil, T, Maula, M (2017) Driven by aspirations, but in what direction? Performance shortfalls, slack resources and resource-consuming vs. resource-freeing organizational change. *Strategic Management Journal* 38(5): 1101–1120.
- Lambert, R, Larcker, D, Weigelt, K (1993) The structure of organizational incentives. *Administrative Science Quarterly* 38: 438–461.
- Liang, K-Y, Zeger, SL (1986) Longitudinal data analysis using generalized linear models. *Biometrika* 73: 13–22.
- Lim, ENK, McCann, BT (2014) Performance feedback and firm risk taking: The moderating effects of CEO and outside director stock options. *Organization Science* 25(1): 262–282.
- Mahoney, JT (2005) *Economic Foundations of Strategy*. Thousand Oaks, CA: SAGE.
- McNamara, GM, Halebian, J, Dykes, BJ (2008) The performance implications of participating in an acquisition wave: Early mover advantages, bandwagon effects, and the moderating influence of industry characteristics and acquirer tactics. *Academy of Management Journal* 51(1): 113–130.

- Michel, JG, Hambrick, DC (1992) Diversification posture and top management characteristics. *Academy of Management Journal* 35: 9–37.
- Milgrom, P, Roberts, J (1988) An economic approach to influence activities in organizations. *American Journal of Sociology* 95(suppl): 154–179.
- Miller, KD, Bromiley, P (1990) Strategic risk and corporate performance: An analysis of alternative risk measures. *Academy of Management Journal* 33: 756–779.
- Miller, KD, Chen, WR (2004) Variable organizational risk preferences: Tests of the March-Shapira model. *Academy of Management Journal* 47(1): 105–115.
- Mishina, Y, Dykes, BJ, Block, ES, et al. (2010) Why “Good” firms do bad things: The effects of high aspirations, high expectations, and prominence on the incidence of corporate illegality. *Academy of Management Journal* 53(4): 701–722.
- Moliterno, TP, Wiersema, MF (2007) Firm performance, rent appropriation, and the strategic resource divestment capability. *Strategic Management Journal* 28: 1065–1087.
- Nadolska, A, Barkema, HG (2014) Good learners: How top management teams affect the success and frequency of acquisitions. *Strategic Management Journal* 35: 1483–1507.
- Naranjo-Gil, D, Hartmann, F, Maas, VS (2008) Top management team heterogeneity, strategic change and operational performance. *British Journal of Management* 19: 222–234.
- O’Reilly, C, Caldwell, D, Barnett, W (1989) Work group demography, social integration and turnover. *Administrative Science Quarterly* 34: 21–37.
- O’Reilly, CA, Snyder, RC, Boothe, JN (1993) Executive team demography and organizational change. In: Huber, GP, Glick, WH (eds) *Organizational Change and Redesign: Ideas and Insights for Improving Performance*. New York: Oxford University Press, pp. 147–175.
- Palmer, TB, Wiseman, RM (1999) Decoupling risk taking from income stream uncertainty: A holistic model of risk. *Strategic Management Journal* 20: 1037–1062.
- Pelled, LH (1996) Demographic diversity, conflict, and work group outcomes: An intervening process theory. *Organization Science* 7(6): 615–631.
- Pelled, LH, Eisenhardt, KM, Xin, KR (1999) Exploring the black box: An analysis of work group diversity, conflict and performance. *Administrative Science Quarterly* 44(1): 1–28.
- Quigley, TJ, Hambrick, DC (2012) When the former CEO stays on as board chair: Effects on successor discretion, strategic change, and performance. *Strategic Management Journal* 33(7): 834–859.
- Ref, O, Shapira, ZB (2017) Entering new markets: The effect of performance feedback near aspiration and well below and above it. *Strategic Management Journal* 38(7): 1416–1434.
- Ridge, JW, Aime, F, White, MA (2013) When much more of a difference makes a difference: Social comparison and tournaments in the CEO’s top team. *Strategic Management Journal* 36: 618–636.
- Ridge, JW, Hill, AD, Aime, F (2014) Implications of multiple concurrent pay comparisons for top-team turnover. *Journal of Management* 43: 671–690.
- Sanders, WG, Carpenter, MA (1998) Internationalization and firm governance: The roles of CEO compensation, top team composition, and board structure. *Academy of Management Journal* 41: 158–178.
- Sanders, WG, Hambrick, DC (2007) Swinging for the fences: The effects of CEO stock options on company risk taking and performance. *Academy of Management Journal* 50: 1055–1078.
- Schimmer, M, Brauer, M (2012) Firm performance and aspiration levels as determinants of a firm’s strategic repositioning within strategic group structures. *Strategic Organization* 10: 406–435.

- Semadeni, M, Withers, MC, Trevis Certo, S (2014) The perils of endogeneity and instrumental variables in strategy research: Understanding through simulations. *Strategic Management Journal* 35: 1070–1079.
- Shaw, ME (1976) *Group Dynamics*. New York: McGraw-Hill.
- Shaw, ME (1981) *Group Dynamics*. New York: McGraw-Hill.
- Shipilov, AV, Li, SX, Greve, HR (2011) The prince and the pauper: Search and brokerage in the initiation of status-heterophilous ties. *Organization Science* 22: 1418–1434.
- Siegel, PA, Hambrick, DC (2005) Pay disparities within top management groups: Evidence of harmful effects on performance of high-technology firms. *Organization Science* 16: 259–274.
- Simsek, Z, Veiga, JF, Lubatkin, MH, et al. (2005) Modeling the multilevel determinants of top management team behavioral integration. *Academy of Management Journal* 48: 69–84.
- Smith, KG, Smith, KA, Olian, JD, et al. (1994) Top management team demography and process: The role of social integration and communication. *Administrative Science Quarterly* 39: 412–438.
- Thornburg, TH (1991) Group size and member diversity influence on creative performance. *Journal of Creative Behavior* 25: 324–333.
- Tihanyi, L, Ellstrand, AE, Daily, CM, et al. (2000) Composition of the top management team and firm international diversification. *Journal of Management* 26: 1157–1177.
- Triana, MC, Miller, TL, Trzebiatowski, TM (2013) The double-edged nature of board gender diversity: Diversity, firm performance, and the power of women directors as predictors of strategic change. *Organization Science* 25: 609–632.
- Tsui, AS, Egan, TD, O'Reilly, CA (1992) Being different: Relational demography and organizational attachment. *Administrative Science Quarterly* 37: 549–565.
- Tushman, ML, Rosenkopf, L (1996) Executive succession, strategic reorientation, and performance growth: A longitudinal study in the U.S. Cement industry. *Management Science* 42: 939–953.
- Veiga, JF (1991) The frequency of self-limiting behavior in groups: A measure and an explanation. *Human Relations* 44: 877–896.
- Vissa, B, Greve, HR, Chen, WR (2010) Business group affiliation and firm search behavior in India: Responsiveness and focus of attention. *Organization Science* 21(3): 696–712.
- Wagner, WG, Pfeffer, J, O'Reilly, CA (1984) Organizational demography and turnover in top-management groups. *Administrative Science Quarterly* 29: 74–92.
- Wangrow, DB, Kolev, K, Hughes-Morgan, M (2019) Not all responses are the same: How CEO cognitions impact strategy when performance falls below aspirations. *Journal of General Management* 44: 73–86.
- Wangrow, DB, Schepker, DJ, Barker, VL (2014) Managerial discretion: An empirical review and focus on future research. *Journal of Management* 14: 99–135.
- Whyte, WF (1955) *Money and Motivation: An Analysis of Incentives in Industry*. New York: Harper.
- Wiersema, MF, Bantel, KA (1992) Top management team demography and corporate strategic change. *Academy of Management Journal* 35: 91–121.
- Wiklund, J, Shepherd, D (2003) Aspiring for, and achieving growth: The moderating role of resources and opportunities. *Journal of Management Studies* 40(8): 1919–1941.
- Williams, KY, O'Reilly, CA (1998) Demography and diversity in organizations: A review of 40 years of research. In: Cummings, LL, Staw, BM (eds) *Research in Organizational Behavior*. Greenwich, CT: JAI Press, pp. 77–140.
- Wowak, AJ, Mannor, MJ, Arrfelt, M, et al. (2016) Earthquake or glacier? How CEO charisma manifests in firm strategy over time. *Strategic Management Journal* 37: 586–603.

Zenger, TR, Lawrence, BS (1989) Organizational demography: The differential effects of age and tenure distribution on technical communication. *Academy of Management Journal* 32: 353–376.