How CEO empowering leadership shapes top management team processes: Implications for firm performance

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Abstract

This study examines how CEO empowering leadership shapes top management team (TMT) behavioral integration and potency, thereby enhancing firm performance. Using a sample of 82 TMTs, structural equation modeling supports a mediation model in which CEO empowering leadership is positively related to TMT behavioral integration, and, in turn, it enhances TMT potency and firm performance. The effect of TMT potency on firm performance is stronger when the TMT members perceive high environmental uncertainty. We discuss both theoretical and practical implications of the paper for research on Upper Echelons Theory and TMTs.

Keywords: CEO empowering leadership, Top management teams, Behavioral integration, Potency, Firm performance

1. Introduction

Upper Echelons Theory points to the key role of the top management team (TMT) in shaping work processes and influencing organizational outcomes (Finkelstein & Hambrick, 1996; Hambrick & Mason, 1984). As interpretation systems, TMTs reflect the firm’s structure and processes (Hambrick & Mason), and integrate the diverse perceptions, judgments, and orientations of TMT members into a set of specific strategic behaviors (Hambrick, 2007).

Although research on the TMT and its effects on organizational processes and outcomes has become ever more abundant, we have yet to gain a good understanding of the processes by which the TMT may better manage its complex tasks (Carmeli & Halevi, 2009; Carmeli & Schaubroeck, 2006; Lubatkin, Simsek, Ling, & Veiga, 2006; Pettigrew, 1992; Smith & Tushman, 2005). Much of the research on TMTs focuses on the link between TMT member demographic variables and organizational outcomes without carefully considering the intervening process constructs (Jarzabkowski & Searle, 2004). Thus, the research has overlooked “the actual mechanisms that serve to convert group characteristics into organization outcomes” (Hambrick, 1994, p. 185), and evidence on TMT processes has been “slow to accumulate” (Barrick, Bradley, & Colbert, 2007, p. 544). Unraveling TMT processes is seen as a critical potential refinement to Upper Echelons Theory (Hambrick, 2005).

TMT processes are distinct from group dynamics at other levels in the organization. The meta-construct “behavioral integration,” defined as “the degree to which the group engages in mutual and collaborative interaction” (Hambrick, 1994, p. 188), captures this uniqueness. TMT behavioral integration captures three interrelated features of the TMT process: (a) the quantity and quality of information exchange among team members, (b) the level of collaborative behavior among the team members and, finally, (c) the extent to which they emphasize joint decision making (Hambrick, 1994).
Little attention has been paid to the determinants of TMT behavioral integration (Carmeli & Sheteigman, 2010; Simsek, Veiga, Lubatkin, & Dino, 2005), or even more generally toward understanding how CEO behavior influences TMT dynamics in a way that affects firm performance (Peterson, Smith, Martorana, & Owens, 2003). Such research may be critical to understanding the types of processes depicted within Upper Echelons Theory, because CEOs are likely to have much influence on TMT dynamics (Hambrick & Finkelstein, 1987). Our study aims to contribute to this scant, yet important, stream of research by examining the role of the CEO in facilitating TMT behavioral integration and, ultimately, firm performance. We argue that TMT behavioral integration positively influences firm performance, but only to the extent behavioral integration leads to higher levels of team potency. Expanding on recent research that has noted the CEO behavior indirect influence on firm performance (Peterson et al., 2003), we provide evidence of a more complex role of social psychological variables within this process. This study examines how CEOs can shape dynamics and enhance the potency of their TMTs, thereby increasing the performance of their firms. Further, based on the upper echelons perspective, our research model specifies that environmental uncertainty moderates the effect of team potency on firm performance.

2. Theory and hypotheses

2.1. TMT processes

The top management team (TMT) has a critical impact on organizational processes and outcomes (Finkelstein & Hambrick, 1996; Hambrick & Mason, 1984). Generally, the TMT includes the CEO and senior executives who hold positions at or above the level of vice president (CFO, COO, etc.) and report directly to the CEO. TMT members play the key role in strategically orienting and controlling the firm (Castanias & Helfat, 1991; Hambrick & Mason, 1984).

Until the 1980s, strategic leadership research was focused largely on the organization’s strategic head and his or her behavior, whereas during the last two decades researchers have come to recognize that leading the organization is a shared activity. As Daily and Schwenk noted, “evidence has suggested that certain factors, values, and changes shared among TMT members are better predictors of organizational outcomes than those elements in CEOs considered singularly” (1996, p. 188). Much research has examined the effect of TMT demographic characteristics on organizational outcomes (Certo, Lester, Dalton, & Dalton, 2006). However, inconsistent empirical results have led researchers to conclude that TMT member demographics do not convey sufficient information in describing the TMT’s impact on the firm’s processes.

Upper Echelons Theory suggests that TMTs have unique features compared to other groups in organizations because TMT members deal with the firm responsibilities individually as senior executives, and interdependently as members of the firm’s top decision-making team. Thus, Hambrick (1994) suggested recasting specific social and task processes into the broader behavioral integration construct. By including the interrelated processes of information sharing, joint decision making and collaboration, this meta-construct represents a high degree of what has been called “teamness” (Hambrick, 1998). We first aim to identify leadership and group process factors that give rise to TMT behavioral integration before considering its effects on outcome variables. Thus, in the next section we begin by describing the theoretical linkages between CEO empowering leadership, TMT behavioral integration, and TMT potency. Later, we consider the relationships between TMT behavioral integration, TMT potency, and firm performance, and then the moderating role of environmental uncertainty.

2.2. CEO empowering leadership, TMT behavioral integration, and TMT potency

Empowering leadership aims to develop a team’s capability to lead without the presence of a formal leader and to support such team autonomy (Manz & Sims, 1987). It is similar to participatory leadership, which “involves the use of decision procedures intended to allow other people some influence over the leader’s decisions” (Yukl, 1998, p. 83). Participative leadership can take many forms, ranging from mere consultative participation to workplace democracy (Cotton, Vollrath, Froggatt, Lengnick-Hall, & Jennings, 1988; Vroom & Yetton, 1973). Within the TMT context, which is the focus of this study, empowering leadership comes about when the CEO encourages TMT members to exercise control over decision processes and facilitates their doing so. The exercise of control involves not only consultation, but also sharing decision authority with the members and encouraging them to influence one another, usually through decision making in group interactions, but also outside the context of TMT meetings.

Although there is considerable debate and disagreement about whether employee participation enhances firm performance (Cotton et al., 1988; Locke & Schweiger, 1979), there is consistent evidence that employees who participate in making decisions perform better (Field & House, 1990; Lam, Chen, & Schaubroeck, 2002), as do groups and teams that are led by more empowering leaders (Stewart, 2006; Wagner, 1994). Stewart’s (2006) meta-analysis found that, on average, the effect of empowering leadership on team performance was as strong as the effect of transformational leadership on team performance. In addition, meta-analysis results indicate that empowering leadership is positively associated with team processes (e.g., learning) and performance (Burke et al., 2006). Furthermore, participatory leadership has been shown to help groups cope with complex issues and thereby enhance group performance (Koopman & Wiersdima, 1998; Scully, Kirkpatrick, & Locke, 1995; Vroom & Yetton, 1973). Research has also shown that empowered teams exhibit better team process improvement (Spreitzer, Noble, Mishra, & Cooke, 1999) and more knowledge sharing and collective efficacy (Srivastava, Bartol, & Locke, 2006). Members of teams headed by empowering leaders have also been shown to become more proactive and to develop a high level of job satisfaction and organizational commitment (Kirkman & Rosen, 1999).

Consistent with prior research, we reason that CEOs who consistently exhibit empowering leadership facilitate TMT behavioral integration, and in this way they indirectly develop favorable team potency beliefs among members. Team potency is defined as
members’ “generalized beliefs about the capabilities of the team across tasks and contexts” (Gully, Incalcaterra, Joshi, & Beaubien, 2002, p. 820). As such, team potency is not about actual group capabilities; it refers to a group’s shared perception of its ability to successfully overcome challenges and perform tasks. Leaders play a major role in cultivating efficacy among employees and inspiring them to believe in their capabilities to successfully perform the assigned work tasks (Eden, 2001).

Behavioral integration is an intervening variable that helps to explain the relative effectiveness of TMTs in influencing firm performance (Simsek, Lubatkin, Veiga, & Dino, 2002). Consistent with this line of research, we reason that empowering leadership facilitates behavioral integration and it thereby positively influences team potency in three ways. First, empowering leaders communicate confidence that the team can accomplish ambitious collective goals. Such confidence from the leader encourages members to believe more fully in the team’s capabilities (McNatt & Judge, 2004). Second, empowering leaders model collaborative behaviors and encourage followers to be more collectively committed to group objectives. Finally, empowering leaders promote cooperative behavior among team members through verbal suasion and persistent appeals for collaboration. Members of empowered teams develop confidence that they can collaborate successfully without being derailed by destructive intra-team conflict. As a result of these various positive influences on the team’s collaborative behavior, the success of such collaboration enhances team potency beliefs.

Thus, we reason that CEO empowering leadership is likely to facilitate behavioral integration and build and nurture team potency. Through the more intense and productive interactions fostered by the dynamics of behaviorally integrated teams, members acquire and exchange information about each other and about task contingencies. This enables them to develop confidence in their ability to perform a task successfully (Gibson, 1999; Tasa & Whyte, 2005). Consistent with this view, Tasa, Taggar, and Seijts (2007) found that teamwork behaviors of the kinds we have characterized as representing behaviorally integrated teams were significantly related to reports of collective efficacy. Collective efficacy is a construct very similar to team potency, except that team potency represents shared perceptions of the team’s capabilities rather than individuals’ distinct perspectives about the team (Guzzo, Yost, Campbell, & Shea, 1993).

Teams that share information and collaborate extensively and normally engage in joint decision making have more favorable beliefs about their capabilities. They also tend to work harder and persist in the face of challenge and adversity (Larson & LaFasto, 1989). We are not aware of research directly linking TMT behavioral integration and potency. However, high behavioral integration reflects a more effective team process, and there is ample evidence supporting a positive relationship between collective efficacy and team effectiveness. A meta-analysis of 29 studies by Gully et al. (2002) found a reliably positive correlation between team potency and team performance. In a single study, Campion, Medsker, and Higgs (1993) found that group potency was the strongest among 19 predictors of group effectiveness. Thus, based on both theory and empirical evidence about empowering leadership, teamwork, and team potency, we advance the following hypotheses:

**Hypothesis 1.** There is a positive relationship between CEO empowering leadership and TMT behavioral integration.

**Hypothesis 2.** There is a positive relationship between TMT behavioral integration and TMT potency.

**Hypothesis 3.** TMT behavioral integration mediates the positive relationship between CEO empowering leadership and TMT potency.

### 2.3. TMT potency as a mediator

We suggest that the effect of CEO empowering leadership on firm performance is indirect. As shown in Fig. 1, we posit that CEOs facilitate TMT behavioral integration by exhibiting empowering leadership behaviors which leads to enhanced team potency.
Team potency, in turn, has positive implications for firm performance. Specifically, we suggest that CEO empowering leadership shapes a context for teamwork behaviors such as information exchange, joint decision making and collaboration. By exhibiting empowering leadership, CEOs cultivate behavioral integration, thereby nurturing confidence among TMT members and enhancing the TMT's capacity to successfully attain organizational goals.

Although effective TMTs are widely argued to differentiate more effective organizations, research has yet to gain a good understanding about the relationship between TMT behavioral integration and firm performance. Ensley and Hmieleski (2005) provided evidence for a linkage between TMT potency and firm performance. They found that TMT potency was positively related to revenue growth and net cash flow of new ventures. We therefore suggest that when a TMT develops a high level of potency it, like any team, should be more committed to attaining its goals. In addition, team potency motivates information seeking (Durham, Locke, Poon, & McLeod, 2000), thereby enhancing the TMT's capacity to identify and pursue sound choices. On these bases we predict that team potency will mediate the relationship between TMT behavioral integration and firm performance.

**Hypothesis 4.** There is a positive relationship between TMT potency and firm performance.

**Hypothesis 5.** TMT potency mediates the positive relationship between TMT behavioral integration and firm performance.

### 2.4. The moderating role of environmental uncertainty

Environmental uncertainty is an important construct within Upper Echelons Theory because top executives must comprehend the organization's environment and establish strategic priorities in light of the risks of an uncertain environment (Finkelstein & Hambrick, 1996). Environmental uncertainty refers to the extent to which leaders may have difficulty comprehending the environment and understanding the direction in which markets, competition, and other relevant contextual variables will change. More uncertain environments also tend to change more rapidly. Moreover, leaders also have more difficulty prioritizing the features of an uncertain environment because the influence of change on these features is difficult to estimate. Finally, in an uncertain environment pivotal decision makers may tend to be less confident that any particular strategic or operational decision will be successful (Miller & Droge, 1986; Milliken, 1987).

A few previous studies have examined how the CEO's or the TMT's leadership behavior influences firm performance at different levels of environmental uncertainty. Waldman, Ramirez, House, and Puranam (2001) found that rated CEO charisma was more strongly associated with publicly-traded firms' performance when perceived environmental uncertainty was higher. They reasoned that charismatic CEOs inspire more confidence among investors and other stakeholders, and such confidence is particularly needed in uncertain environments. Hmieleski and Ensley (2007) examined the effect of empowering leadership behaviors observed in the TMT, TMT attributes, and the success of new ventures. They found that when TMT member attributes were more heterogeneous, more directive forms of leadership led to better results. Similarly, Ensley, Pearce and Hmieleski (2006) found that transformational leadership was more strongly related to performance of startup firms that faced more dynamic environments, whereas transactional leadership was less strongly related to startup performance in environments characterized by high dynamism.

We extend this research by evaluating not only the role of both CEO and team potency in firm performance, but also the moderating role of environmental uncertainty. We argue that the particular leadership style of the CEO influences the firm's response to environmental uncertainty only indirectly. Specifically, it is quite well established that the effectiveness of openness in team process depends substantially on the information processing demands that are placed on the team (see Gladstein, 1984, for a review). When teams engage a more open process and, in turn, enjoy high team potency, they are better able to process information and decide on priorities and courses of action. Uncertain environments create higher levels of interdependence among subunits in the organization and, in turn, between the leaders of these various units represented on the TMT. Thus, there is a greater need for TMT members to develop confident beliefs about their capabilities to successfully perform highly complex coordination tasks in uncertain environments. This suggests the following hypothesis:

**Hypothesis 6.** Perceived environmental uncertainty moderates the positive relationship between TMT potency and firm performance. This relationship will be stronger with higher environmental uncertainty.

### 3. Method

#### 3.1. Sample and data collection

Using a list of contact information from two executive MBA programs, we sent a request letter to 500 alumni requesting their help in putting us in contact with their firms' CEOs. In our letter, we explained that the questionnaire data were being collected as part of a large research project aiming at understanding the role of leadership, team dynamics, and work outcomes of firms operating in diverse industries. In identifying the persons that belong to the TMT we followed previous research (e.g., Castanias, & Helfat, 1991; Hambrick & Mason, 1984) which advocates using “direct reports,” namely senior executives with whom the CEO shares the strategic decision-making process. Thus, the CEOs in our sample were asked to identify the TMT members they considered to be direct reports and assist in recruiting them to participate in the study. The CEO and the TMT members were asked to complete a structured questionnaire. Each respondent was asked to return the survey directly to the first author using a return
envelope. To encourage participation, we promised that each participating firm would receive the findings of the research. Usable questionnaires were obtained from 82 CEOs and 230 of their TMT members. Following the example of Lubatkin et al. (2006), we excluded four firms for which less than 50% of the TMT members responded to our questionnaire. Overall, we received complete data from 16.4% of the targeted firms.

The firms in the sample operated in diverse industries, including food and beverages, medical equipment and pharmaceuticals, personal computers (semiconductor, software), infrastructure and construction, and finance. We did not find significant differences between the participating and nonparticipating firms in terms of size as measured by the number of employees (p>.10).

The average tenure in the organization of respondents (CEOs and TMT members) was 8.57 years. The average relationship between the CEOs and TMT members was 6.09 years. Forty-six (46) TMT members were female.

3.2. Measures

Prior to administering the questionnaire we asked 25 senior executives to review the items and indicate to us whether the questions were clear and reflected the constructs they were intended to measure. Following this procedure we made minor revisions to improve the clarity of certain items. To reduce potential common source bias, we collected data as follows: TMT members (excluding the CEO) provided data on CEO empowering leadership; the CEO and the other TMT members provided data on TMT behavioral integration and TMT potency; and finally, the CEO provided data on perceived environmental uncertainty and firm performance. Most of the items in the questionnaires were originally developed by other authors in English language. In accordance with convention (Brislin, 1986), we translated the items into Hebrew and then back-translated them into English to ensure that the content was accurately represented in the Hebrew items.

3.2.1. CEO empowering leadership

We adapted three items from a scale developed by Arnold, Arad, Rhoades, and Drasgow (2000) to measure the CEO’s empowering leadership behavior. We asked TMT members (i.e., direct reports) to assess on a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree) the extent to which the firm’s CEO: (a) encourages an empowering decision-making process in the TMT, (b) facilitates knowledge sharing among TMT members, and (c) fosters collaborative behaviors among TMT members. The Cronbach alpha for this scale was .77.

3.2.2. TMT behavioral integration

To assess TMT behavioral integration, we used the nine-item scale developed and validated by Simsek and colleagues (Simsek et al., 2002, 2005). This measure captures the three dimensions of TMT behavioral integration discussed by Hambrick (1994; i.e., information exchange, collaborative behavior, and joint decision making). Each dimension of behavioral integration was measured using three items. The respondents were asked to indicate on a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree) the extent to which they agreed with such items as “The ideas that our TMT members exchange are of high quality” (information exchange), “When a team member is busy, other team members often volunteer to help her/him to manage her/his workload” (collaborative behavior), and “The TMT members usually let each other know when their actions affect another team member’s work” (joint decision making). We first assessed the Cronbach alphas for each dimension: information sharing, collaborative behaviors and joint decision making (.89, .91, and .90, respectively). Next, we combined them and thus created three manifest indicators by averaging each set of three items constituting each dimension. The grand mean of these sub-dimensions was our measure of behavioral integration. The Cronbach alpha for this measure was .93.

3.2.3. TMT potency

Team potency was measured by adapting eight items from the scale of general self-efficacy that was developed and validated by Chen, Gully and Eden (2001). We rephrased the original items so they referred to the team level. Responses were made on a five-point Likert scale (ranging from 1 = not at all, up to 5 = to a large extent). The items were “We will be able to achieve most of the goals that we have set for ourselves,” “When facing difficult tasks, we are certain that we will accomplish them,” and “In general, we think that we can achieve outcomes that are important to us.” The Cronbach alpha for this measure was .93.

3.2.4. Perceived environmental uncertainty

This measure was adapted from Miller and Droge’s (1986) five-item scale. The items are: “Often our firm is required to change its operations because of customers’ changing needs,” “The life cycle of products/services in the industry is short,” “It is difficult to predict competitors’ behavior in this industry,” “It is difficult to predict customers’ preferences and needs,” and “Competitors switch technologies rapidly.” We averaged the items to construct an index of perceived environmental uncertainty. The Cronbach alpha for this scale was .79.

3.2.5. Firm performance

Respondents (CEOs) were asked to assess their firm’s performance in relation to its key competitors using four items. The items were assessed on a Likert scale ranging from 1 = much worse than the competitors, up to 5 = much better than the competitors. The items were: “growth in net sales/revenues,” “operational effectiveness,” “innovation,” and “meeting stakeholders’ expectations.” The Cronbach alpha for this scale was .86.
3.2.6. Control variables

We controlled for the size and age of the organization in all analyses. Organizational size is represented by the number of employees in the organization. Research suggests that size often denotes economies of scale and greater capacities, allowing a firm an advantage over other relatively small-sized organizations. Conversely, larger organizations may have greater difficulty in adapting to a changing environment than smaller organizations. The natural log transform of size was used in the analyses. Age is defined as the number of years since the establishment of the firm. Neither age nor size was correlated significantly with firm performance.

To test for industry conditions in addition to environmental uncertainty, we also created two new potential control variables: (a) high- and low-tech industry, and (b) sector type (service vs. industrial). Neither industry type nor sector type had a statistically significant impact on firm performance ($\beta = .077, p = .566; \beta = -.016, p = .91$). These variables were therefore not incorporated in the substantive analyses.

3.2.7. Aggregation

Following previous research (e.g., James, 1982; Smith et al., 1994), we performed a one-way analysis of variance to test the consistency of team members’ responses. There was greater variability in the ratings between teams than within teams ($p < .01$). We also calculated the intragroup reliability ($R_{wg}$) and intraclass correlations (ICCs) to assess group member reliability. ICC(1) indicates the extent of agreement among ratings from members of the same group. ICC(2) indicates whether groups can be differentiated based on the variables of interest. The values of ICC(1), ICC(2) and $R_{wg}$ for the four measures for which we used multiple respondents were as follows: $.36, .83 and .82$ for CEO empowering leadership; $.37, .93$ and $.91$ for TMT behavioral integration; $.39, .85$ and $.83$ for TMT potency. These values are consistent with conventional standards for aggregating individual questionnaire responses into a team level response (see Bliese, 2000).

3.2.8. Data analyses

The proposed model was tested using structural equation modeling (SEM) with the AMOS 18 software (Arbuckle, 2006). We employed Anderson and Gerbing’s (1988) two-step approach to SEM in which the first step is to assess the measurement model using confirmatory factor analysis, and this is followed by a sequence of nested structural models. We report several goodness-of-fit indices in assessing the fit of the research model.

These indices include the chi-square statistic divided by the degrees of freedom ($\chi^2$/df), the comparative fit index (CFI), the Tucker–Lewis coefficient (TLI), and the root mean square error of approximation (RMSEA). Following Jöreskog and Sörbom (1993) and Kline (1998), the following criteria of goodness-of-fit indices were used to assess the model fit: the $\chi^2$/df ratio is recommended to be less than three; the values of CFI, and TLI are recommended to be greater than .90; RMSEA is recommended to be less than .05, and to be “acceptable” if it is smaller than .08. As suggested by Maruyama (1998) and Tanaka (1993), these indices are all parsimony-adjusted, as they adjust for the number of parameters estimated, and in the case of the CFI and TLI a null reference model is used in calculating goodness-of-fit. All constructs are represented as item parcels of two or three items each, with one exception. The exception is empowering leadership, which had three indicators which were each represented by a single item.

4. Results

The means, standard deviations, reliabilities and correlations among the research variables are presented in Table 1. The bivariate correlations indicate that CEO empowering leadership is positively related to TMT behavioral integration ($r = .30, p < .01$). TMT behavioral integration is positively associated with TMT potency ($r = .39, p < .01$) and firm performance ($r = .28, p < .01$). There is a positive correlation between TMT potency and firm performance ($r = .44, p < .01$). Neither firm age nor size was significantly correlated with any of the mediators or dependent variables. We first computed the composite reliability and variance extracted estimates for each construct in our model (as suggested by Fornell & Larcker, 1981; Werts, Linn, & Jöreskog,

### Table 1

<table>
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<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
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<td>Sector (1 = service)</td>
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<td>-</td>
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<td>Firm age</td>
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<td>.12</td>
<td>.13</td>
<td>.08</td>
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<td>Perceived environmental uncertainty</td>
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<td>.14</td>
<td>-.03</td>
<td>-.06</td>
<td>-.14</td>
<td>(.79)</td>
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<td>CEO empowering leadership (CEO)</td>
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<td>.65</td>
<td>-.09</td>
<td>-.11</td>
<td>-.01</td>
<td>-.26*</td>
<td>.14</td>
<td>(.77)</td>
<td>-</td>
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<td>.04</td>
<td>-.04</td>
<td>-.02</td>
<td>-.17</td>
<td>.03</td>
<td>.30**</td>
<td>(.93)</td>
<td>-</td>
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<td>TMT potency (TP)</td>
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<td>.47</td>
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<td>.20</td>
<td>-.06</td>
<td>.17</td>
<td>-.09</td>
<td>.15</td>
<td>.39**</td>
<td>(.87)</td>
<td>-</td>
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<td>-.04</td>
<td>.08</td>
<td>.28*</td>
<td>.44**</td>
<td>(.86)</td>
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$N = 82.$

Reliabilities are in parentheses on the diagonal.

** $p < .01$.

* $p < .05$. 

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1974). Appendix A presents these statistics along with standardized item loadings and reliabilities (i.e., the square of the standardized loadings). These are all maximum likelihood estimates. As is shown, composite reliabilities were all above .70, and all variance extracted estimates were above .50, the levels suggested by Fornell and Larcker (1981).

4.1. Preliminary analyses

We tested the hypothesized four-factor measurement model (see Fig. 1) to assess whether each of the measurement items would load significantly onto the scales with which they were associated. The results of the overall measurement model fit show acceptable fit with the data. The \( \chi^2/df \) is a value of 1.56 (chi-square value of 120.5 with 77 degrees of freedom), which is below the 2.0 rule of thumb criterion. The other goodness-of-fit statistics indicate an acceptable fit (\( CFI = .93; IFI = .94; TLI = .91; RMSEA = .08 \)). Standardized coefficients from items to factors range from .50 to .93 and are statistically significant (\( p < .01 \)).

Next, we tested three-factor models. First, we specified a three-factor model wherein the items of CEO empowering leadership and TMT behavioral integration loaded onto one latent factor and the items measuring both TMT potency and firm performance each loaded onto different latent factors. The results of this three-factor model did not show a good fit with the data (\( \chi^2/df = 2.23; CFI = .86; IFI = .87; TLI = .81; RMSEA = .13 \)).

We also tested a two-factor model where the observed items of CEO empowering leadership, TMT behavioral integration, and TMT potency loaded together onto one latent factor and the observed items measuring firm performance loaded onto a different latent factor. The results of this two-factor model did not show a good fit with the data (\( \chi^2/df = 5.61; CFI = .47; IFI = .49; TLI = .30; RMSEA = .24 \)).

In sum, the three-factor, two-factor, and one-factor models exhibit a relatively poor fit compared to the hypothesized four-factor model. Therefore we proceeded to test the hypotheses using these four separate composites.

4.2. Model comparisons and hypothesis tests

In what follows, we present results of the hypothesized mediating relationships through a series of nested models (see Table 2). In each model, with the exception of age, size and perceived environmental uncertainty, all analysis constructs are represented by latent variables with multiple indicators. The indicators are the respective items in each case.

The results in Table 2 show that the baseline model fits the data reasonably well. All paths, except for those from the control variables to firm performance, are significant. We also tested four related models (Models 1, 2, 3, and 4). Model 1 is identical to the baseline model, except that a direct path from CEO empowering leadership to firm performance is added. Model 2 is identical to the baseline model, except that direct paths from CEO empowering leadership to firm performance and from TMT behavioral integration to firm performance are added. Model 3 is identical to the baseline model except that three direct paths are added: CEO empowering leadership to firm performance, from TMT behavioral integration to firm performance, and from CEO empowering leadership to TMT potency. Model 4 is identical to the baseline model except that the direct paths from CEO empowering leadership to TMT potency and from TMT behavioral integration to firm performance are added.

<table>
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<th>Model</th>
<th>Path coefficient/fit indices</th>
<th>Model</th>
<th>Path coefficient/fit indices</th>
<th>Model</th>
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CEO-EL = CEO empowering leadership; TMT-BI = TMT behavioral integration; TP = TMT potency; PEU = perceived environmental uncertainty; FP = firm performance. Each model also tested the control variables of firm age, firm size, and perceived environmental uncertainty as exogenous antecedents of firm performance; none of these effects was significant.

** \( p < .01 \).  
* \( p < .05 \).
Although Models 1, 2, 3 and 4 contain more paths than the baseline mediator model, none of the additional paths that differentiate these models from the baseline model is statistically significant. These additional paths also did not improve the fit of any of the models. Thus, the findings strongly support the hypothesized (baseline) model and Hypotheses 1–5. The model and its standardized coefficients are depicted in Fig. 2. As indicated by a Sobel test, the indirect effect of CEO empowering leadership and TMT potency through behavioral integration was significant ($Z = 2.88, p < .01$), as was the indirect effect of TMT behavioral integration on firm performance through team potency ($Z = 2.57, p = .01$). Given that the direct effects of empowering leadership on team potency and behavioral integration on firm performance were not significant, the findings support our hypotheses of mediation, Hypotheses 3 and 5.

In addition to testing the interaction of environmental uncertainty and TMT potency in the SEMs above, we also conducted a hierarchical regression analysis using OLS (see Table 3). The product variable was entered after the two constituent main effects. This interaction was significant ($ΔR^2 = .06, F(1, 77) = 5.99, p < .02$). The interaction was then plotted using the procedures outlined by Aiken and West (1991). As shown in Fig. 3, although both the simple effects demonstrate a positive trend, the simple effect of TMT potency on firm performance is stronger among firms that reported higher environmental uncertainty. This supports Hypothesis 6.

In a supplementary analysis we used the moderated mediation macro (MODMED) developed by Preacher, Rucker, and Hayes (2007). Using bootstrap estimates with 5000 resamplings, the conditional indirect effect of TMT behavioral integration on firm performance (through team potency) was significant for all levels of perceived environmental uncertainty at the value of 2.37 and above, which is the 34th percentile of the distribution of this variable. Thus, the mediating effect of team potency is limited to the middle and higher levels of perceived environmental uncertainty.

We were able to collect objective data on the performance of a subsample of 24 firms. Specifically, we obtained data on return on assets (ROA) and return on sales (ROS) for about 18 months after the survey data were collected. CEO perceptions of growth in net sales (divided by revenues) were positively and significantly related to ROS ($r = .43, p < .05$) and CEO perceptions of operational effectiveness were positively and significantly correlated with ROA ($r = .42, p < .05$). This provides some external basis to have confidence in the performance data reported by the different companies specifically for this study.

5. Discussion

Our findings indicate that CEO empowering leadership influences TMT processes which, in turn, influence firm performance. The TMT processes included behavioral integration, a meta-construct that emerged from the Upper Echelons literature (Hambrick, 1994) and team potency. Summarizing the main findings, behavioral integration mediates the relationship between CEO empowering leadership and TMT potency, and TMT potency carries the influence of CEO empowering leadership and behavioral integration to firm performance. Finally, there is a stronger relationship between TMT potency and firm performance among firms that perceived higher environmental uncertainty. The contribution of these findings to the existing research on leadership and TMT processes are described below.

5.1. Theoretical implications

Our research contributes to a small empirical literature on the role of CEO leadership in facilitating TMT processes and driving firm performance (Peterson et al., 2003). The findings also extend the existing research on the ways CEOs facilitate behavioral

Note. Ovals show variables. For clarity, the indicators (items) of all variables are not shown. Statistics are standardized coefficients.

$^* p < .05$, $^{**} p < .01$

Fig. 2. Results of the hypothesized research model.
integration in their management teams. We found that CEO empowering leadership and TMT behavioral integration appear to be instrumental because they build team potency. Team potency is especially critical for firms facing rapidly changing and uncertain demands because team members face the added challenge of resolving a higher level of unit interdependence.

The study sheds light on the importance of CEOs who exhibit empowering leadership in cultivating high quality interactions among TMT members, manifested by their information sharing, joint decision making, and collaboration. These appear to be critical factors in achieving TMT behavioral integration (Simsek et al., 2005). Other research has found that empowering employees produces better outcomes (Field & House, 1990; Lam et al., 2002; Stewart, 2006; Wagner, 1994), and the improvement of team processes strengthened the empowerment–performance relationship (Spreitzer et al., 1999). Specific factors that have been found to be influenced by team empowerment include knowledge sharing (Srivastava et al., 2006), team efficacy (Srivastava et al.), and groups’ capacities to cope with complex issues (Koopman & Wierdsma, 1998; Scully et al., 1995; Vroom & Yetton, 1973). Our study specified these mechanisms within the context of TMTs, using the rubrics of behavioral integration and team potency. The findings provide further support the importance of leadership that empowers TMT members to participate and exercise control over decision making processes.

Recent empirical studies have shown that TMT behavioral integration is associated with higher quality strategic decisions (Carmeli & Schaubroeck, 2006) and strategic ambidexterity (Lubatkin et al., 2006). We found that TMT behavioral integration is positively associated with TMT potency. When the CEO plays a facilitating role in fostering TMT members’ interaction, The latter become more confident that organizational goals can be achieved successfully. Past research on team potency has mainly focused on small groups at lower organizational levels. Our study supports existing research on work groups that underscores the importance of productive interactions among group members (Gibson, 1999; Tasa et al., 2007; Tasa & Whyte, 2005) and extends it to TMTs. By exchanging valuable information, collaborating and making decisions jointly, TMT members are exposed to various points of view and are better able to make sense of complex information. These processes foster beliefs that the goals can be attained successfully. Drawing from the broader literature on team potency and performance, we infer that these potency

<table>
<thead>
<tr>
<th>Variable</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
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</thead>
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<td>−.06 (.06)</td>
<td>−.08 (.06)</td>
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<tr>
<td>Firm size</td>
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<td>.00 (.00)</td>
<td>.00 (.00)</td>
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<tr>
<td>Perceived environmental uncertainty</td>
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<td>.04 (.11)</td>
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<tr>
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<td>.66 *** (.14)</td>
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<td>TMT potency (TP)</td>
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<tr>
<td>TMT potency (TP) × Perceived environmental uncertainty</td>
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</table>

Coefficients are unstandardized; standard errors are shown in parentheses.

*** p<.001.

** p<.01.

* p<.05.
beliefs generate higher levels of effort and persistence in collaborative endeavors, and this pays off with superior strategic decisions.

Previous studies of firm leadership and environmental uncertainty have extended Upper Echelons Theory by examining specific leadership styles of either the CEO (Waldman et al., 2001) or the TMT members (Ensley et al., 2006; Hmieleski & Ensley, 2007). Their findings suggested that leadership styles that are more encouraging of empowerment and collaboration (i.e., charismatic leadership, empowering leadership, transformational leadership) lead to better organizational performance when the environment is more dynamic or otherwise uncertain. As discussed above, we first found that the effect of top manager leadership style on firm performance is indirect through TMT process; that is, a particular leadership style is only effective for firm performance if it inspires appropriate behaviors among TMT members. By combining this observation with well-established contingency principles of group process, we further hypothesized that environmental uncertainty is a contingency variable primarily because TMT potency is more essential in an uncertain strategic and operational environment. Notably, we find that team potency mediates the effects of team behavioral integration at medium and high, but not at low, levels of perceived environmental uncertainty Thus, it seems that to effectively cope with significant environmental uncertainty, TMT members must share the belief that as a team they possess the potential to complete complex and challenging tasks on a collaborative basis. This motivates members to collaborate more fully, which is critical in a significantly uncertain environment. Thus, the present study not only shows the centrality of TMTs potency to organization performance, it also identifies high environmental uncertainty as a boundary condition of this linkage.

5.2. Managerial implications

It is common in the research and practitioner literatures to separately assess the effects of leader behavior and top management team performance on various managerial measures. Our findings indicate that there is a reliable linkage between empowering leadership and the performance of the TMT. Thus, strategic leaders should learn that an effective TMT is not merely a factor that influences the performance of the organization; rather TMT effectiveness is evidence of their performance as leaders. We can also extrapolate that the effect of team leaders can be differentiated by their approach to using the members of their TMT. If leaders view their TMT members merely as individuals who lead a certain subunit of the organization and not as co-members of their own leadership team, they are less likely to seek to enhance the group processes that build team potency and result in higher firm performance. Top leaders can build team potency by empowering the TMT to maintain a focus on acting autonomously and collaboratively. This is particularly important for firms that have product, market, regulatory, and/or competitive climates that are characterized by rapid and extensive change that is difficult to comprehend.

We are not advocating that top leaders should be Pollyannish about the motives and interests of team members. There are situations, particularly those involving the allocation of scarce resources, which place the motives of individual TMT members at odds with one another. If the top executive fails to recognize these situations and does not serve as a strong facilitator in such discussions, the team is likely to become demoralized. Thus, it is critical that top leaders recognize the benefit of achieving high behavioral integration and team potency while recognizing conflicts of interest. In some cases there may be a need to make unilateral decisions, and it is always critical to display a high level of presence in any team discussion that has a strong political element. The leader’s presence will encourage members to communicate in a manner more conducive to the general interests of the organization which he or she represents. This is a particularly difficult skill for leaders to develop, but we believe that it is one of the most critical for their long-term effectiveness as strategic leaders.

5.3. Limitations and directions for future research

This study raises some important questions about the role of CEO, TMT processes and team potency in enhancing firm performance. For example, cultivating behavioral integration and building team potency require resources and ongoing commitment and investment. We know relatively little about why some CEOs and their TMTs allocate such resources whereas others do not. This study is focused on a specific type of leader behavior—empowering leadership. Future research is needed to integrate other important dimensions of leadership, such as charismatic or transformational leadership, into the explanation of TMT processes. It may be that when the firm performs well CEOs may be more inclined to display empowering leadership. Researchers may investigate, for example, how CEO normative expectations give rise to specific leadership styles which cultivate TMT processes.

Our sampled firms’ TMTs were identified using a list of alumni of two executive MBA programs in Israel. Although we believe that our sample is diverse and the findings may generalize quite well (see Cook & Campbell, 1979), we cannot rule out the potential biases associated with our sampling procedure. Given the survey-based nature of our quantitative study, the findings need to be interpreted cautiously with regard to causality. We cannot be sure, for example, whether TMT potency affected firm performance or the reverse. It would be useful to conduct a longitudinal study that brackets the ways changes in CEO leadership behaviors and TMT processes team potency, and ultimately firm performance. As an initial test for the appropriateness of our proposed model in connecting the four variables examined here, we estimated several other models with different structures of causality. While these tests did not prove that our proposed model exhibits “true” causality relationships, we can be confident that this model is, at least, a more sensible fit than alternative models. Moreover, the interaction of environmental uncertainty and TMT potency that we observed was very consistent with the findings of other studies that have examined the interaction of leadership styles and environmental uncertainty in predicting firm performance (e.g., Waldman et al., 2001). It seems unlikely that an available response set among TMT members would explain the distinct simple effects that were contingent on environmental...
uncertainty. However, future studies could improve on the present one by identifying more precise factors that distinguish the turbulence of the environments confronting each firm. Such variables could commonly influence the independent and dependent variables and thus their omission could bias the observed effects. In addition, although we tested for industry effects, future research could benefit from incorporating more nuanced industry variables that may more fully capture the effect of the environment on firm performance.

We took several steps to avoid common method bias given that we relied on self-reports from CEOs and TMT members, and we also performed post hoc tests in order to evaluate the severity of the problem in the current study. First, our data were collected from multiple respondents and variables were measured at separate times. Second, the results of confirmatory factor analyses showed clear support for the distinction of the constructs in our model. Perceived organizational performance measures correlated quite highly with objective performance data collected about 18 months after the survey data were collected. Nevertheless, these findings can best be viewed as exploratory in nature. For confirmatory purposes it will be helpful to combine larger samples using objective performance data with a longitudinal design to constructively replicate our findings. Future studies should also seek to utilize a more comprehensive measure of empowering leadership.

5.4. Conclusions

This study demonstrates the importance of CEO empowering leadership and TMT behavioral integration in building team potency which, in turn, contributes positively to firm performance. CEO empowering leadership may cultivate behavioral integration in the TMT, which in turn generates the competency perceptions that commit members to the collaborative work needed to make optimal strategic decisions, particularly in more uncertain environments.

Acknowledgments

We would like to thank the editor and three anonymous reviewers of this journal for their helpful comments and suggestions. We also wish to thank Franka Gwirtzman for her assistance with data collection. We appreciate editorial comments of Esther Singer, Gerda Kessler, and Marcy Schafer on earlier drafts of this paper. We also thank the Institute for Technology and Society at the Faculty of Management, Tel Aviv University, for their support in this research.

Appendix A

Measurement properties.

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*Denotes composite reliabilities.

References


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